

Coffee: Systematic Review with SAIMSARA.

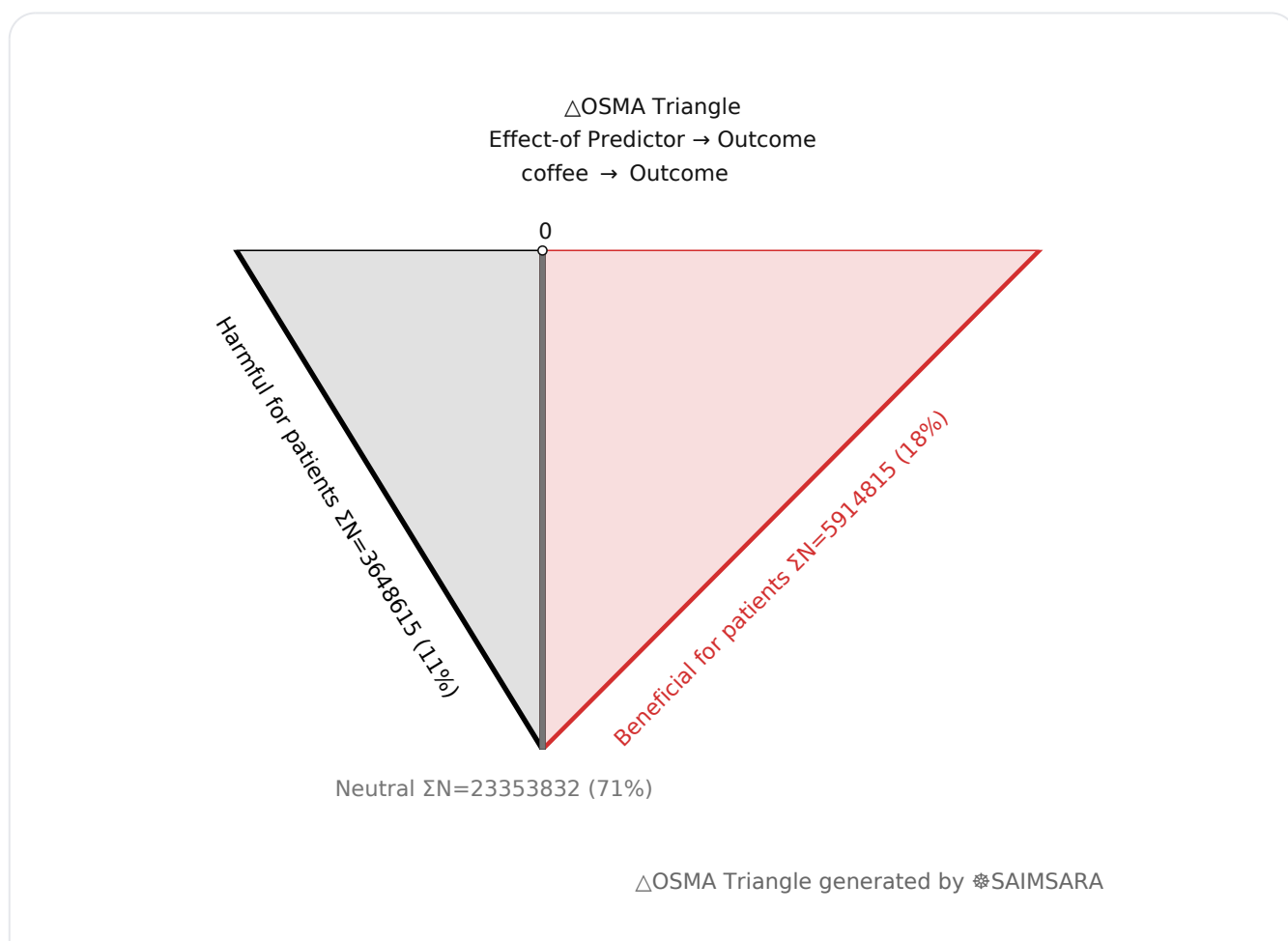
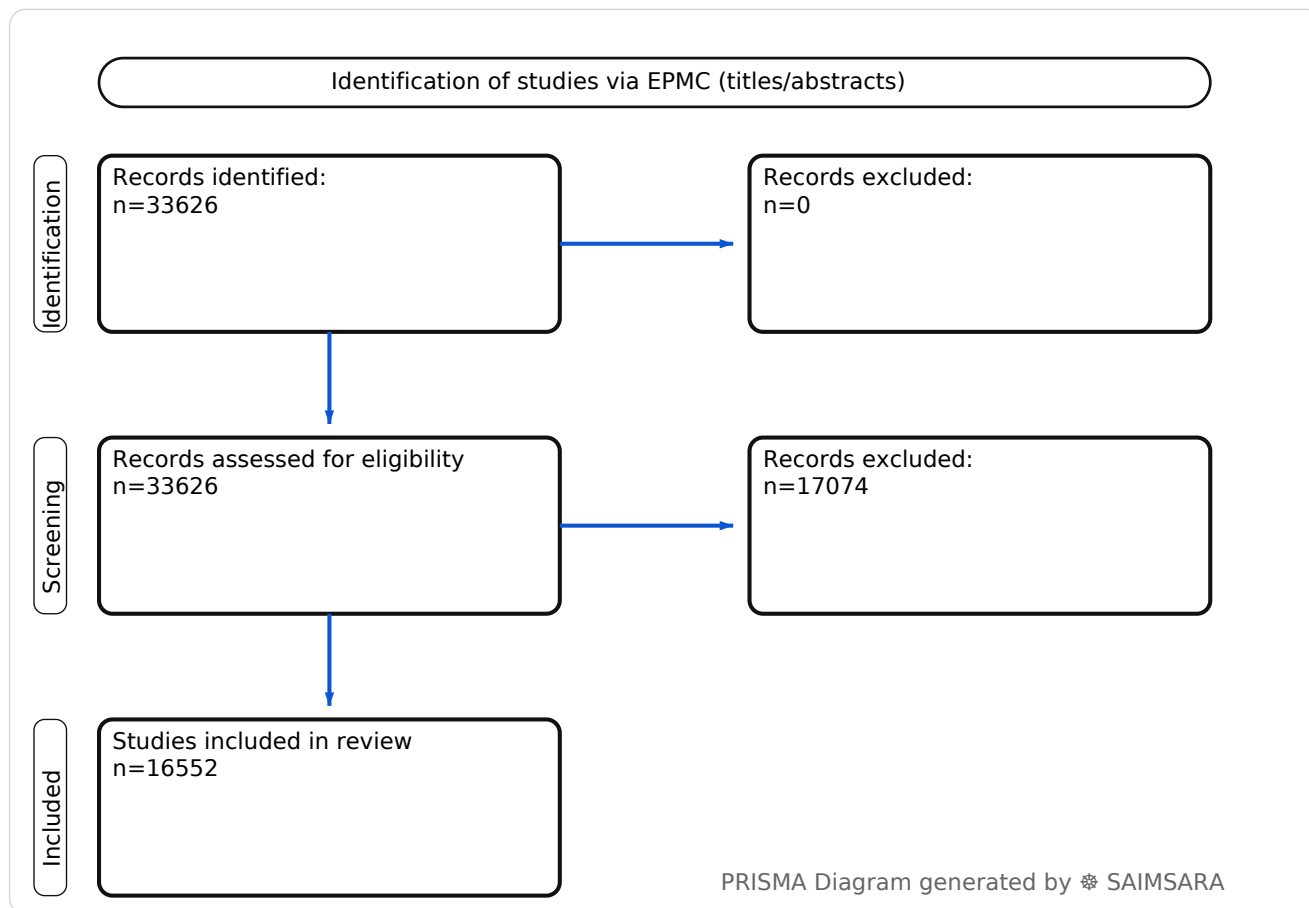
saimsara.com • [Download PDF](#) • [URL](#)

Abstract: To systematically review and synthesize current research on coffee, encompassing its agricultural, industrial, material science, and health-related impacts, and to identify key findings, clinical implications, and future research directions. The review utilises 16552 studies with 32917262 total participants (naïve ΣN). Moderate coffee consumption was associated with a median relative risk (RR)/odds ratio (OR)/hazard ratio (HR) of 0.77 (range: 0.40–0.91) for various chronic diseases and improved health markers. Conversely, higher or frequent coffee intake was associated with a median RR/OR/HR of 2.01 (range: 1.17–7.10) for adverse outcomes such as pregnancy complications, certain cancers, and neurological disorders. These findings apply broadly across human populations, agricultural systems, and material science applications. The most significant limitation affecting certainty is the widespread heterogeneity in study designs and definitions of coffee intake. A concrete next step is to conduct more randomized controlled trials with standardized coffee consumption protocols to clarify dose-dependent health effects.

Keywords: Coffee consumption; Coffee processing; Coffee quality assessment; Coffee agroforestry systems; Coffee by-product utilization; Coffee disease detection; Coffee polyphenols; Coffee bean storage; Glucose homeostasis; Maternal caffeine intake

Review Stats

- Generated: 2026-02-10 10:16:34 CET
- Plan: Pro (expanded craft tokens; source: Europe PMC)
- Source: Europe PMC
- Scope: Titles/Abstracts (tiab)
- Keyword Gate: Fuzzy ($\geq 60\%$ of required terms, minimum 2 terms matched in title/abstract)
- Total Abstracts/Papers: 33626
- Downloaded Abstracts/Papers: 33626
- Included original Abstracts/Papers: 16552
- Total study participants (naïve ΣN): 32917262



Outcome-Sentiment Meta-Analysis (OSMA): (LLM-only)

Frame: Effect-of Predictor → Outcome • *Source:* Europe PMC

Outcome: Outcome Typical timepoints: 3-day, 1-y. Reported metrics: %, CI, p.

Common endpoints: Common endpoints: mortality, complications, functional.

Predictor: coffee — exposure/predictor. Concentrations seen: 95%. Doses/units seen: 19.84 mg, 1.63 kg, 35.74 mg, 19.21 mg, 46.6 mg, 10.255 mg.... Routes seen: subcutaneous, oral, sc, topical.... Typical comparator: other pruning styles, abstinence from coffee and, baseline, control....

- **1) Beneficial for patients** — Outcome with coffee — [2], [4], [8], [9], [12], [14], [21], [25], [180], [183], [185], [186], [189], [191], [193], [194], [195], [198], [200], [227], [237], [238], [244], [246], [249], [250], [354], [358], [360], [362], [364], [370], [371], [372], [373], [375], [377], [382], [383], [385], [387], [389], [391], [392], [393], [394], [395], [396], [397], [398], [399], [400], [477], [479], [482], [484], [492], [497], [506], [523], [525], [526], [534], [540], [542], [546], [548], [549], [550], [632], [636], [638], [640], [648], [650], [752], [755], [756], [757], [758], [762], [765], [766], [767], [768], [770], [783], [789], [796], [799], [800], [855], [859], [874], [879], [880], [883], [890], [892], [893], [895], [897], [898], [900], [952], [964], [965], [966], [971], [972], [974], [975], [1003], [1006], [1007], [1008], [1010], [1012], [1015], [1019], [1021], [1023], [1025], [1082], [1085], [1086], [1100], [1177], [1181], [1186], [1188], [1193], [1195], [1198], [1200], [1227], [1228], [1232], [1233], [1234], [1235], [1236], [1239], [1240], [1241], [1242], [1243], [1245], [1246], [1284], [1287], [1300], [1303], [1304], [1306], [1308], [1311], [1314], [1315], [1316], [1321], [1322], [1324], [1325], [1351], [1355], [1360], [1365], [1370], [1372], [1375], [1427], [1428], [1430], [1435], [1438], [1445], [1502], [1507], [1509], [1511], [1512], [1514], [1518], [1519], [1520], [1521], [1523], [1568], [1584], [1591], [1598], [1599], [1600], [1601], [1625], [1652], [1654], [1656], [1659], [1661], [1663], [1664], [1666], [1673], [1677], [1680], [1681], [1682], [1688], [1689], [1690], [1691], [1693], [1697], [1698], [1700], [1763], [1769], [1776], [1777], [1779], [1782], [1788], [1790], [1792], [1793], [1796], [1797], [1799], [1800], [1803], [1805], [1806], [1809], [1810], [1813], [1817], [1822], [1824], [1825], [1852], [1867], [1874], [1927], [1930], [1932], [1938], [1944], [2054], [2056], [2057], [2059], [2060], [2061], [2065], [2068], [2070], [2075], [2091], [2097], [2100], [2103], [2104], [2105], [2106], [2108], [2109], [2110], [2113], [2114], [2116], [2119], [2120], [2121], [2122], [2124], [2179], [2188], [2194], [2205], [2206], [2207], [2209], [2214], [2217], [2219], [2221], [2222], [2223], [2225], [2288], [2299], [2300], [2302], [2305], [2306], [2308], [2312], [2323], [2324], [2325], [2340], [2344], [2345], [2347], [2350], [2378], [2379], [2383], [2390], [2392], [2393], [2395], [2398], [2401], [2407], [2409], [2416], [2423],

[2425], [2488], [2490], [2526], [2531], [2534], [2537], [2538], [2547], [2548], [2603], [2606], [2608], [2617], [2623], [2625], [2689], [2697], [2699], [2852], [2854], [2862], [2863], [2864], [2870], [2875], [2888], [2895], [2898], [2900], [2903], [2914], [2921], [2923], [2925], [2926], [2930], [2940], [2944], [2948], [3005], [3008], [3009], [3013], [3023], [3024], [3145], [3149], [3178], [3189], [3191], [3199], [3200], [3201], [3203], [3204], [3205], [3206], [3207], [3209], [3210], [3211], [3214], [3215], [3218], [3219], [3223], [3224], [3228], [3233], [3235], [3236], [3237], [3243], [3244], [3250], [3354], [3359], [3368], [3370], [3371], [3372], [3374], [3390], [3397], [3426], [3437], [3438], [3439], [3441], [3442], [3450], [3513], [3516], [3525], [3551], [3560], [3564], [3568], [3575], [3576], [3579], [3594], [3599], [3627], [3631], [3632], [3636], [3638], [3639], [3641], [3645], [3646], [3677], [3684], [3691], [3700], [3730], [3734], [3741], [3743], [3744], [3750], [3826], [3831], [3838], [3839], [3840], [3849], [3850], [3854], [3856], [3858], [3860], [3864], [3872], [3875], [3876], [3877], [3878], [3880], [3883], [3887], [3890], [3897], [3907], [3910], [3911], [3915], [3916], [3918], [3920], [3921], [3922], [3925], [3930], [3944], [3947], [3950], [4178], [4188], [4200], [4286], [4289], [4290], [4291], [4296], [4299], [4300], [4310], [4312], [4315], [4318], [4328], [4329], [4330], [4338], [4345], [4346], [4352], [4358], [4372], [4374], [4375], [4403], [4417], [4420], [4422], [4479], [4485], [4489], [4490], [4491], [4500], [4501], [4511], [4522], [4524], [4551], [4557], [4559], [4561], [4563], [4567], [4688], [4689], [4699], [4701], [4707], [4711], [4779], [4789], [4794], [4798], [4829], [4836], [4843], [4876], [4880], [4882], [4883], [4887], [4889], [4893], [4894], [4900], [4930], [4931], [4941], [4945], [4946], [4947], [4950], [4956], [4959], [4972], [4975], [4976], [4977], [4979], [4980], [4987], [4992], [4997], [5026], [5032], [5038], [5039], [5040], [5046], [5047], [5050], [5111], [5121], [5151], [5161], [5162], [5164], [5167], [5168], [5169], [5171], [5172], [5174], [5175], [5180], [5183], [5186], [5194], [5226], [5229], [5230], [5231], [5235], [5237], [5241], [5242], [5377], [5379], [5380], [5390], [5397], [5400], [5403], [5406], [5408], [5409], [5418], [5460], [5468], [5471], [5475], [5512], [5531], [5534], [5537], [5538], [5539], [5601], [5615], [5635], [5638], [5642], [5647], [5650], [5685], [5687], [5689], [5693], [5694], [5695], [5697], [5699], [5700], [5777], [5780], [5782], [5788], [5791], [5796], [5797], [5798], [5800], [5827], [5835], [5840], [5841], [5842], [5846], [5847], [5850], [5929], [5933], [5942], [5944], [6075], [6101], [6102], [6103], [6112], [6113], [6115], [6118], [6119], [6121], [6122], [6123], [6177], [6180], [6183], [6184], [6189], [6190], [6192], [6194], [6195], [6196], [6197], [6199], [6203], [6206], [6210], [6211], [6215], [6216], [6217], [6218], [6220], [6225], [6326], [6329], [6338], [6346], [6429], [6434], [6436], [6440], [6443], [6450], [6454], [6455], [6456], [6457], [6464], [6465], [6466], [6468], [6470], [6471], [6475], [6527], [6534], [6535], [6543], [6546], [6547], [6550], [6561], [6562], [6563], [6571], [6603], [6612], [6614], [6617], [6618], [6620], [6680], [6682], [6685], [6689], [6690], [6692], [6693], [6698], [6752], [6757], [6760],

[6763], [6769], [6801], [6803], [6816], [6824], [6825], [6827], [6831], [6833], [6834], [6842], [6843], [6845], [6849], [6877], [6880], [6881], [6883], [6890], [6891], [6894], [6895], [6896], [6898], [6905], [6907], [6910], [6912], [6913], [6914], [6915], [6917], [6918], [6922], [6925], [7077], [7078], [7083], [7093], [7096], [7113], [7122], [7123], [7205], [7207], [7214], [7219], [7222], [7224], [7239], [7244], [7249], [7250], [7251], [7253], [7255], [7260], [7261], [7266], [7267], [7270], [7274], [7275], [7279], [7281], [7282], [7283], [7285], [7288], [7293], [7294], [7299], [7300], [7301], [7302], [7306], [7308], [7309], [7321], [7322], [7324], [7453], [7460], [7466], [7467], [7469], [7470], [7473], [7475], [7653], [7654], [7665], [7667], [7672], [7673], [7704], [7705], [7707], [7708], [7709], [7710], [7711], [7712], [7713], [7715], [7716], [7717], [7718], [7720], [7722], [7723], [7778], [7780], [7782], [7786], [7859], [7863], [7867], [7869], [7874], [7875], [7877], [7879], [7881], [7886], [7888], [7890], [7891], [7893], [7894], [7980], [7982], [7990], [7991], [7992], [7994], [7996], [8000], [8004], [8007], [8008], [8013], [8014], [8017], [8022], [8061], [8063], [8075], [8101], [8114], [8122], [8152], [8154], [8155], [8166], [8168], [8169], [8172], [8175], [8229], [8232], [8245], [8250], [8305], [8308], [8309], [8313], [8317], [8320], [8324], [8351], [8358], [8362], [8367], [8381], [8385], [8394], [8395], [8426], [8428], [8431], [8434], [8435], [8436], [8437], [8439], [8441], [8443], [8447], [8449], [8450], [8512], [8515], [8516], [8519], [8521], [8523], [8529], [8535], [8536], [8541], [8542], [8550], [8604], [8608], [8611], [8615], [8623], [8653], [8655], [8656], [8661], [8663], [8666], [8667], [8668], [8670], [8671], [8672], [8675], [8680], [8691], [8692], [8694], [8696], [8698], [8702], [8705], [8709], [8727], [8734], [8735], [8736], [8737], [8741], [8744], [8747], [8758], [8770], [8773], [8775], [8833], [8836], [8839], [8842], [8845], [8847], [8881], [8885], [8893], [8894], [8896], [8900], [8926], [8928], [8935], [8936], [8937], [8939], [8949], [8956], [8968], [8972], [8975], [8979], [8982], [8990], [8993], [8994], [8995], [8998], [9123], [9127], [9130], [9132], [9144], [9148], [9149], [9162], [9163], [9165], [9167], [9169], [9172], [9176], [9182], [9183], [9184], [9191], [9197], [9198], [9200], [9231], [9236], [9237], [9238], [9239], [9240], [9243], [9245], [9246], [9249], [9253], [9261], [9264], [9265], [9269], [9270], [9271], [9332], [9338], [9341], [9348], [9349], [9350], [9379], [9381], [9390], [9392], [9399], [9400], [9427], [9442], [9445], [9450], [9478], [9488], [9490], [9491], [9495], [9497], [9500], [9531], [9542], [9543], [9546], [9547], [9549], [9550], [9561], [9562], [9563], [9567], [9569], [9571], [9572], [9575], [9587], [9591], [9639], [9640], [9702], [9715], [9716], [9722], [9724], [9776], [9782], [9784], [9789], [9796], [9800], [9854], [9867], [9869], [9872], [9880], [9884], [9891], [9899], [9909], [9910], [9911], [9915], [9918], [9923], [9997], [10076], [10080], [10084], [10086], [10089], [10092], [10097], [10099], [10102], [10105], [10108], [10115], [10116], [10119], [10202], [10205], [10209], [10210], [10211], [10217], [10218], [10219], [10221], [10223], [10224], [10225], [10226], [10230], [10231], [10232], [10236], [10244], [10247],

[10249], [10309], [10325], [10400], [10428], [10440], [10450], [10552], [10559], [10563], [10569], [10571], [10579], [10589], [10597], [10600], [10657], [10659], [10673], [10674], [10681], [10684], [10688], [10690], [10693], [10698], [10719], [10730], [10738], [10908], [10978], [10981], [10989], [10992], [10997], [11031], [11032], [11034], [11042], [11051], [11062], [11072], [11073], [11127], [11129], [11140], [11142], [11143], [11151], [11156], [11158], [11160], [11167], [11168], [11174], [11183], [11188], [11194], [11195], [11228], [11231], [11233], [11235], [11238], [11240], [11242], [11245], [11248], [11255], [11257], [11263], [11268], [11269], [11271], [11274], [11329], [11330], [11345], [11462], [11471], [11478], [11479], [11480], [11485], [11487], [11498], [11607], [11612], [11615], [11624], [11626], [11635], [11645], [11651], [11655], [11704], [11715], [11725], [11776], [11786], [11798], [11826], [11833], [11836], [11837], [11851], [11860], [11871], [11872], [11879], [11883], [11890], [11893], [11927], [11931], [11948], [11950], [11977], [11978], [11979], [11986], [11996], [11997], [11998], [12000], [12055], [12059], [12064], [12066], [12102], [12115], [12117], [12118], [12124], [12125], [12136], [12142], [12147], [12198], [12215], [12220], [12221], [12224], [12302], [12306], [12309], [12319], [12326], [12329], [12333], [12341], [12355], [12359], [12375], [12391], [12392], [12400], [12403], [12405], [12415], [12422], [12453], [12460], [12466], [12475], [12507], [12515], [12580], [12588], [12595], [12658], [12676], [12691], [12697], [12734], [12735], [12744], [12801], [12809], [12812], [12822], [12831], [12837], [12840], [12843], [12848], [12851], [12853], [12855], [12873], [12874], [12879], [12882], [12890], [12891], [12892], [12936], [12949], [12950], [12960], [12962], [12963], [12975], [13002], [13007], [13012], [13020], [13092], [13094], [13096], [13103], [13113], [13117], [13129], [13130], [13150], [13228], [13244], [13247], [13248], [13253], [13275], [13284], [13289], [13290], [13292], [13296], [13299], [13302], [13303], [13305], [13309], [13312], [13325], [13334], [13336], [13339], [13341], [13345], [13359], [13374], [13375], [13377], [13383], [13394], [13397], [13402], [13403], [13411], [13414], [13420], [13490], [13493], [13498], [13547], [13557], [13559], [13562], [13563], [13564], [13678], [13682], [13688], [13689], [13700], [13713], [13714], [13715], [13718], [13720], [13722], [13723], [13760], [13762], [13775], [13778], [13784], [13789], [13800], [13810], [13823], [13838], [13853], [13858], [13861], [13875], [13927], [13947], [13950], [13993], [14034], [14041], [14079], [14090], [14092], [14127], [14128], [14136], [14148], [14150], [14157], [14160], [14172], [14175], [14212], [14222], [14226], [14236], [14267], [14415], [14419], [14429], [14431], [14434], [14442], [14449], [14547], [14601], [14602], [14604], [14612], [14617], [14618], [14660], [14665], [14674], [14686], [14688], [14692], [14698], [14728], [14738], [14743], [14750], [14752], [14763], [14768], [14781], [14793], [14799], [14829], [14841],

[14854], [14858], [14859], [14871], [14873], [14874], [14901], [14904], [14915], [14916], [14985], [15000], [15036], [15044], [15104], [15107], [15108], [15121], [15127], [15139], [15149], [15234], [15246], [15279], [15291], [15304], [15309], [15313], [15314], [15321], [15322], [15325], [15329], [15340], [15341], [15342], [15348], [15556], [15658], [15666], [15673], [15674], [15675], [15706], [15773], [15836], [15837], [15838], [15887], [15893], [15972], [15975], [16066], [16211], [16233], [16240], [16245], [16247], [16263], [16275], [16456], [16464], [16467] — $\Sigma N=5914815$

- **2) Harmful for patients** — Outcome with coffee — [24], [178], [231], [234], [235], [240], [242], [351], [355], [380], [388], [508], [510], [515], [519], [531], [631], [753], [773], [774], [775], [860], [875], [876], [889], [961], [1018], [1024], [1079], [1096], [1183], [1199], [1226], [1249], [1295], [1313], [1317], [1362], [1363], [1366], [1367], [1371], [1374], [1442], [1443], [1444], [1446], [1501], [1555], [1563], [1564], [1576], [1624], [1651], [1671], [1675], [1678], [1696], [1770], [1789], [1791], [1808], [1816], [1820], [1853], [1858], [1863], [1870], [1934], [1946], [1949], [2074], [2085], [2102], [2111], [2118], [2123], [2199], [2285], [2290], [2317], [2322], [2328], [2335], [2336], [2381], [2397], [2400], [2403], [2405], [2406], [2412], [2414], [2419], [2610], [2618], [2679], [2691], [2695], [2698], [2700], [2859], [2896], [2907], [2922], [2924], [2937], [2939], [2946], [2950], [3002], [3004], [3015], [3017], [3022], [3025], [3126], [3137], [3144], [3212], [3217], [3221], [3225], [3227], [3239], [3240], [3246], [3351], [3352], [3363], [3366], [3375], [3376], [3387], [3428], [3432], [3507], [3556], [3557], [3565], [3567], [3574], [3577], [3581], [3584], [3587], [3590], [3592], [3649], [3682], [3687], [3737], [3738], [3739], [3742], [3746], [3855], [3870], [3871], [3873], [3882], [3891], [3894], [3896], [3900], [3908], [3912], [3931], [4176], [4185], [4187], [4192], [4193], [4196], [4277], [4278], [4280], [4282], [4287], [4288], [4293], [4308], [4341], [4404], [4407], [4410], [4477], [4480], [4482], [4487], [4514], [4523], [4525], [4554], [4560], [4564], [4575], [4668], [4673], [4675], [4683], [4690], [4695], [4724], [4777], [4778], [4783], [4832], [4839], [4877], [4881], [4935], [4938], [4954], [4969], [4983], [4984], [4991], [5000], [5037], [5125], [5181], [5182], [5190], [5193], [5245], [5246], [5247], [5248], [5392], [5393], [5425], [5453], [5454], [5462], [5510], [5525], [5604], [5606], [5623], [5625], [5628], [5645], [5692], [5776], [5783], [5784], [5795], [5799], [5829], [5832], [5837], [5926], [5931], [5932], [5937], [6055], [6058], [6063], [6105], [6110], [6114], [6117], [6120], [6125], [6182], [6188], [6200], [6202], [6205], [6207], [6221], [6330], [6348], [6350], [6428], [6452], [6453], [6529], [6544], [6568], [6572], [6574], [6575], [6608], [6613], [6622], [6687], [6691], [6700], [6751], [6755], [6765], [6767], [6770], [6772], [6773], [6775], [6811], [6821], [6822], [6828], [6839], [6878], [6885], [6900], [6903], [6906], [6920], [7080], [7099], [7101], [7102], [7117], [7118], [7208], [7210], [7213], [7221], [7225], [7234], [7240], [7242], [7247], [7258], [7262], [7289],

[7291], [7297], [7304], [7319], [7323], [7462], [7464], [7651], [7655], [7669], [7671], [7675], [7721], [7725], [7776], [7777], [7781], [7787], [7852], [7864], [7866], [7883], [7900], [7984], [8001], [8003], [8006], [8012], [8015], [8052], [8055], [8062], [8067], [8074], [8112], [8161], [8165], [8201], [8225], [8233], [8243], [8304], [8325], [8353], [8361], [8364], [8365], [8378], [8386], [8397], [8432], [8433], [8518], [8526], [8537], [8543], [8548], [8607], [8617], [8622], [8625], [8651], [8659], [8669], [8676], [8681], [8684], [8685], [8707], [8713], [8723], [8724], [8725], [8728], [8749], [8755], [8761], [8762], [8767], [8768], [8841], [8850], [8884], [8889], [8927], [8930], [8931], [8945], [8974], [8978], [8985], [8992], [8997], [9000], [9109], [9110], [9112], [9113], [9125], [9126], [9143], [9150], [9175], [9185], [9186], [9190], [9226], [9230], [9235], [9250], [9251], [9262], [9263], [9267], [9268], [9274], [9336], [9382], [9386], [9394], [9395], [9396], [9398], [9426], [9428], [9434], [9436], [9437], [9438], [9480], [9484], [9486], [9533], [9536], [9551], [9564], [9565], [9566], [9573], [9599], [9627], [9631], [9633], [9634], [9646], [9720], [9723], [9725], [9779], [9781], [9792], [9851], [9858], [9876], [9879], [9881], [9885], [9887], [9893], [9894], [9898], [9908], [9916], [9925], [9998], [9999], [10078], [10083], [10088], [10090], [10100], [10117], [10123], [10125], [10203], [10204], [10207], [10208], [10213], [10215], [10227], [10239], [10240], [10248], [10301], [10306], [10322], [10323], [10324], [10376], [10399], [10404], [10416], [10425], [10430], [10446], [10554], [10556], [10558], [10562], [10567], [10574], [10586], [10599], [10652], [10656], [10658], [10661], [10675], [10689], [10699], [10703], [10725], [10732], [10737], [10740], [10746], [10902], [10925], [10976], [10982], [10983], [10984], [10990], [10994], [10999], [11000], [11027], [11033], [11036], [11050], [11054], [11063], [11070], [11075], [11134], [11147], [11148], [11157], [11165], [11170], [11172], [11173], [11175], [11176], [11182], [11186], [11189], [11192], [11197], [11198], [11232], [11236], [11247], [11252], [11260], [11261], [11264], [11270], [11275], [11332], [11338], [11350], [11465], [11470], [11475], [11495], [11500], [11601], [11606], [11608], [11616], [11630], [11648], [11650], [11663], [11669], [11674], [11702], [11706], [11708], [11711], [11714], [11716], [11721], [11781], [11785], [11787], [11788], [11792], [11800], [11838], [11839], [11840], [11841], [11842], [11845], [11853], [11854], [11855], [11856], [11857], [11858], [11861], [11863], [11875], [11877], [11899], [11900], [11926], [11929], [11930], [11932], [11935], [11937], [11938], [11981], [11983], [11994], [12053], [12058], [12070], [12104], [12109], [12110], [12112], [12113], [12116], [12130], [12132], [12141], [12145], [12148], [12150], [12178], [12187], [12193], [12203], [12204], [12225], [12314], [12315], [12317], [12318], [12327], [12334], [12336], [12337], [12343], [12344], [12348], [12351], [12352], [12354], [12361], [12366], [12367], [12370], [12372], [12377], [12378], [12384], [12396], [12404], [12406], [12407], [12408], [12409], [12420], [12423], [12425], [12457],

[12461], [12462], [12463], [12473], [12508], [12514], [12519], [12521], [12525], [12578], [12597], [12600], [12669], [12675], [12682], [12688], [12692], [12698], [12700], [12732], [12737], [12745], [12750], [12802], [12807], [12817], [12820], [12821], [12823], [12825], [12827], [12833], [12834], [12846], [12861], [12869], [12871], [12895], [12900], [12927], [12935], [12946], [12948], [12952], [12958], [12965], [12971], [13009], [13022], [13023], [13025], [13080], [13081], [13087], [13089], [13100], [13101], [13104], [13105], [13110], [13114], [13121], [13122], [13125], [13135], [13147], [13227], [13231], [13235], [13250], [13261], [13266], [13272], [13273], [13278], [13288], [13300], [13301], [13304], [13306], [13308], [13310], [13316], [13320], [13324], [13326], [13327], [13333], [13335], [13337], [13340], [13399], [13401], [13405], [13406], [13413], [13415], [13416], [13422], [13483], [13500], [13529], [13539], [13548], [13550], [13555], [13560], [13570], [13571], [13686], [13690], [13703], [13716], [13717], [13719], [13724], [13725], [13754], [13769], [13770], [13779], [13780], [13781], [13787], [13793], [13796], [13820], [13821], [13822], [13824], [13825], [13828], [13829], [13843], [13846], [13849], [13856], [13860], [13864], [13930], [13932], [13933], [13934], [13935], [13944], [13945], [13949], [13997], [14036], [14039], [14043], [14050], [14081], [14084], [14086], [14088], [14094], [14095], [14096], [14097], [14100], [14133], [14138], [14141], [14144], [14145], [14147], [14161], [14166], [14168], [14174], [14206], [14214], [14225], [14229], [14237], [14243], [14255], [14265], [14275], [14403], [14410], [14411], [14412], [14413], [14417], [14418], [14425], [14441], [14447], [14527], [14534], [14544], [14603], [14610], [14613], [14620], [14625], [14655], [14662], [14667], [14669], [14675], [14685], [14690], [14697], [14734], [14774], [14784], [14786], [14788], [14789], [14791], [14798], [14801], [14803], [14812], [14816], [14825], [14848], [14860], [14869], [14875], [14911], [14925], [14941], [14950], [14976], [14978], [14998], [15101], [15115], [15118], [15120], [15123], [15125], [15227], [15238], [15244], [15247], [15277], [15278], [15280], [15283], [15300], [15301], [15312], [15315], [15320], [15330], [15337], [15339], [15345], [15557], [15558], [15562], [15567], [15568], [15575], [15652], [15655], [15656], [15665], [15668], [15704], [15705], [15711], [15713], [15754], [15770], [15826], [15829], [15835], [15839], [15840], [15842], [15844], [15849], [15881], [15890], [15898], [15951], [15953], [15957], [15961], [15962], [15968], [15973], [16052], [16055], [16056], [16059], [16062], [16063], [16064], [16074], [16075], [16205], [16213], [16223], [16228], [16230], [16232], [16235], [16236], [16238], [16241], [16244], [16259], [16267], [16269], [16270], [16350], [16451], [16465], [16469] — $\Sigma N=3648615$

- **3) No clear effect** — Outcome with coffee — [1], [3], [5], [6], [7], [10], [11], [13], [15], [16], [17], [18], [19], [20], [22], [23], [26], [27], [28], [29], [30], [31], [32], [33],

[34], [35], [36], [37], [38], [39], [40], [41], [42], [43], [44], [45], [46], [47], [48], [49], [50], [51], [52], [53], [54], [55], [56], [57], [58], [59], [60], [61], [62], [63], [64], [65], [66], [67], [68], [69], [70], [71], [72], [73], [74], [75], [76], [77], [78], [79], [80], [81], [82], [83], [84], [85], [86], [87], [88], [89], [90], [91], [92], [93], [94], [95], [96], [97], [98], [99], [100], [101], [102], [103], [104], [105], [106], [107], [108], [109], [110], [111], [112], [113], [114], [115], [116], [117], [118], [119], [120], [121], [122], [123], [124], [125], [126], [127], [128], [129], [130], [131], [132], [133], [134], [135], [136], [137], [138], [139], [140], [141], [142], [143], [144], [145], [146], [147], [148], [149], [150], [151], [152], [153], [154], [155], [156], [157], [158], [159], [160], [161], [162], [163], [164], [165], [166], [167], [168], [169], [170], [171], [172], [173], [174], [175], [176], [177], [179], [181], [182], [184], [187], [188], [190], [192], [196], [197], [199], [201], [202], [203], [204], [205], [206], [207], [208], [209], [210], [211], [212], [213], [214], [215], [216], [217], [218], [219], [220], [221], [222], [223], [224], [225], [226], [228], [229], [230], [232], [233], [236], [239], [241], [243], [245], [247], [248], [251], [252], [253], [254], [255], [256], [257], [258], [259], [260], [261], [262], [263], [264], [265], [266], [267], [268], [269], [270], [271], [272], [273], [274], [275], [276], [277], [278], [279], [280], [281], [282], [283], [284], [285], [286], [287], [288], [289], [290], [291], [292], [293], [294], [295], [296], [297], [298], [299], [300], [301], [302], [303], [304], [305], [306], [307], [308], [309], [310], [311], [312], [313], [314], [315], [316], [317], [318], [319], [320], [321], [322], [323], [324], [325], [326], [327], [328], [329], [330], [331], [332], [333], [334], [335], [336], [337], [338], [339], [340], [341], [342], [343], [344], [345], [346], [347], [348], [349], [350], [352], [353], [356], [357], [359], [361], [363], [365], [366], [367], [368], [369], [374], [376], [378], [379], [381], [384], [386], [390], [401], [402], [403], [404], [405], [406], [407], [408], [409], [410], [411], [412], [413], [414], [415], [416], [417], [418], [419], [420], [421], [422], [423], [424], [425], [426], [427], [428], [429], [430], [431], [432], [433], [434], [435], [436], [437], [438], [439], [440], [441], [442], [443], [444], [445], [446], [447], [448], [449], [450], [451], [452], [453], [454], [455], [456], [457], [458], [459], [460], [461], [462], [463], [464], [465], [466], [467], [468], [469], [470], [471], [472], [473], [474], [475], [476], [478], [480], [481], [483], [485], [486], [487], [488], [489], [490], [491], [493], [494], [495], [496], [498], [499], [500], [501], [502], [503], [504], [505], [507], [509], [511], [512], [513], [514], [516], [517], [518], [520], [521], [522], [524], [527], [528], [529], [530], [532], [533], [535], [536], [537], [538], [539], [541], [543], [544], [545], [547], [551], [552], [553], [554], [555], [556], [557], [558], [559], [560], [561], [562], [563], [564], [565], [566], [567], [568], [569], [570], [571], [572], [573], [574], [575], [576], [577], [578], [579], [580], [581], [582], [583], [584], [585], [586], [587], [588], [589], [590], [591], [592], [593], [594], [595], [596], [597], [598], [599], [600], [601], [602], [603], [604], [605], [606], [607], [608], [609], [610], [611], [612], [613], [614], [615],

[616], [617], [618], [619], [620], [621], [622], [623], [624], [625], [626], [627], [628], [629], [630], [633], [634], [635], [637], [639], [641], [642], [643], [644], [645], [646], [647], [649], [651], [652], [653], [654], [655], [656], [657], [658], [659], [660], [661], [662], [663], [664], [665], [666], [667], [668], [669], [670], [671], [672], [673], [674], [675], [676], [677], [678], [679], [680], [681], [682], [683], [684], [685], [686], [687], [688], [689], [690], [691], [692], [693], [694], [695], [696], [697], [698], [699], [700], [701], [702], [703], [704], [705], [706], [707], [708], [709], [710], [711], [712], [713], [714], [715], [716], [717], [718], [719], [720], [721], [722], [723], [724], [725], [726], [727], [728], [729], [730], [731], [732], [733], [734], [735], [736], [737], [738], [739], [740], [741], [742], [743], [744], [745], [746], [747], [748], [749], [750], [751], [754], [759], [760], [761], [763], [764], [769], [771], [772], [776], [777], [778], [779], [780], [781], [782], [784], [785], [786], [787], [788], [790], [791], [792], [793], [794], [795], [797], [798], [801], [802], [803], [804], [805], [806], [807], [808], [809], [810], [811], [812], [813], [814], [815], [816], [817], [818], [819], [820], [821], [822], [823], [824], [825], [826], [827], [828], [829], [830], [831], [832], [833], [834], [835], [836], [837], [838], [839], [840], [841], [842], [843], [844], [845], [846], [847], [848], [849], [850], [851], [852], [853], [854], [856], [857], [858], [861], [862], [863], [864], [865], [866], [867], [868], [869], [870], [871], [872], [873], [877], [878], [881], [882], [884], [885], [886], [887], [888], [891], [894], [896], [899], [901], [902], [903], [904], [905], [906], [907], [908], [909], [910], [911], [912], [913], [914], [915], [916], [917], [918], [919], [920], [921], [922], [923], [924], [925], [926], [927], [928], [929], [930], [931], [932], [933], [934], [935], [936], [937], [938], [939], [940], [941], [942], [943], [944], [945], [946], [947], [948], [949], [950], [951], [953], [954], [955], [956], [957], [958], [959], [960], [962], [963], [967], [968], [969], [970], [973], [976], [977], [978], [979], [980], [981], [982], [983], [984], [985], [986], [987], [988], [989], [990], [991], [992], [993], [994], [995], [996], [997], [998], [999], [1000], [1001], [1002], [1004], [1005], [1009], [1011], [1013], [1014], [1016], [1017], [1020], [1022], [1026], [1027], [1028], [1029], [1030], [1031], [1032], [1033], [1034], [1035], [1036], [1037], [1038], [1039], [1040], [1041], [1042], [1043], [1044], [1045], [1046], [1047], [1048], [1049], [1050], [1051], [1052], [1053], [1054], [1055], [1056], [1057], [1058], [1059], [1060], [1061], [1062], [1063], [1064], [1065], [1066], [1067], [1068], [1069], [1070], [1071], [1072], [1073], [1074], [1075], [1076], [1077], [1078], [1080], [1081], [1083], [1084], [1087], [1088], [1089], [1090], [1091], [1092], [1093], [1094], [1095], [1097], [1098], [1099], [1101], [1102], [1103], [1104], [1105], [1106], [1107], [1108], [1109], [1110], [1111], [1112], [1113], [1114], [1115], [1116], [1117], [1118], [1119], [1120], [1121], [1122], [1123], [1124], [1125], [1126], [1127], [1128], [1129], [1130], [1131], [1132], [1133], [1134], [1135], [1136], [1137], [1138], [1139], [1140], [1141], [1142], [1143], [1144], [1145], [1146], [1147], [1148], [1149], [1150], [1151], [1152], [1153], [1154], [1155], [1156],

[1157], [1158], [1159], [1160], [1161], [1162], [1163], [1164], [1165], [1166], [1167], [1168], [1169], [1170], [1171], [1172], [1173], [1174], [1175], [1176], [1178], [1179], [1180], [1182], [1184], [1185], [1187], [1189], [1190], [1191], [1192], [1194], [1196], [1197], [1201], [1202], [1203], [1204], [1205], [1206], [1207], [1208], [1209], [1210], [1211], [1212], [1213], [1214], [1215], [1216], [1217], [1218], [1219], [1220], [1221], [1222], [1223], [1224], [1225], [1229], [1230], [1231], [1237], [1238], [1244], [1247], [1248], [1250], [1251], [1252], [1253], [1254], [1255], [1256], [1257], [1258], [1259], [1260], [1261], [1262], [1263], [1264], [1265], [1266], [1267], [1268], [1269], [1270], [1271], [1272], [1273], [1274], [1275], [1276], [1277], [1278], [1279], [1280], [1281], [1282], [1283], [1285], [1286], [1288], [1289], [1290], [1291], [1292], [1293], [1294], [1296], [1297], [1298], [1299], [1301], [1302], [1305], [1307], [1309], [1310], [1312], [1318], [1319], [1320], [1323], [1326], [1327], [1328], [1329], [1330], [1331], [1332], [1333], [1334], [1335], [1336], [1337], [1338], [1339], [1340], [1341], [1342], [1343], [1344], [1345], [1346], [1347], [1348], [1349], [1350], [1352], [1353], [1354], [1356], [1357], [1358], [1359], [1361], [1364], [1368], [1369], [1373], [1376], [1377], [1378], [1379], [1380], [1381], [1382], [1383], [1384], [1385], [1386], [1387], [1388], [1389], [1390], [1391], [1392], [1393], [1394], [1395], [1396], [1397], [1398], [1399], [1400], [1401], [1402], [1403], [1404], [1405], [1406], [1407], [1408], [1409], [1410], [1411], [1412], [1413], [1414], [1415], [1416], [1417], [1418], [1419], [1420], [1421], [1422], [1423], [1424], [1425], [1426], [1429], [1431], [1432], [1433], [1434], [1436], [1437], [1439], [1440], [1441], [1447], [1448], [1449], [1450], [1451], [1452], [1453], [1454], [1455], [1456], [1457], [1458], [1459], [1460], [1461], [1462], [1463], [1464], [1465], [1466], [1467], [1468], [1469], [1470], [1471], [1472], [1473], [1474], [1475], [1476], [1477], [1478], [1479], [1480], [1481], [1482], [1483], [1484], [1485], [1486], [1487], [1488], [1489], [1490], [1491], [1492], [1493], [1494], [1495], [1496], [1497], [1498], [1499], [1500], [1503], [1504], [1505], [1506], [1508], [1510], [1513], [1515], [1516], [1517], [1522], [1524], [1525], [1526], [1527], [1528], [1529], [1530], [1531], [1532], [1533], [1534], [1535], [1536], [1537], [1538], [1539], [1540], [1541], [1542], [1543], [1544], [1545], [1546], [1547], [1548], [1549], [1550], [1551], [1552], [1553], [1554], [1556], [1557], [1558], [1559], [1560], [1561], [1562], [1565], [1566], [1567], [1569], [1570], [1571], [1572], [1573], [1574], [1575], [1577], [1578], [1579], [1580], [1581], [1582], [1583], [1585], [1586], [1587], [1588], [1589], [1590], [1592], [1593], [1594], [1595], [1596], [1597], [1602], [1603], [1604], [1605], [1606], [1607], [1608], [1609], [1610], [1611], [1612], [1613], [1614], [1615], [1616], [1617], [1618], [1619], [1620], [1621], [1622], [1623], [1626], [1627], [1628], [1629], [1630], [1631], [1632], [1633], [1634], [1635], [1636], [1637], [1638], [1639], [1640], [1641], [1642], [1643], [1644], [1645], [1646], [1647], [1648], [1649], [1650], [1653], [1655], [1657], [1658], [1660], [1662], [1665], [1667], [1668], [1669], [1670], [1672], [1674], [1676], [1679], [1683],

[1684], [1685], [1686], [1687], [1692], [1694], [1695], [1699], [1701], [1702], [1703], [1704], [1705], [1706], [1707], [1708], [1709], [1710], [1711], [1712], [1713], [1714], [1715], [1716], [1717], [1718], [1719], [1720], [1721], [1722], [1723], [1724], [1725], [1726], [1727], [1728], [1729], [1730], [1731], [1732], [1733], [1734], [1735], [1736], [1737], [1738], [1739], [1740], [1741], [1742], [1743], [1744], [1745], [1746], [1747], [1748], [1749], [1750], [1751], [1752], [1753], [1754], [1755], [1756], [1757], [1758], [1759], [1760], [1761], [1762], [1764], [1765], [1766], [1767], [1768], [1771], [1772], [1773], [1774], [1775], [1778], [1780], [1781], [1783], [1784], [1785], [1786], [1787], [1794], [1795], [1798], [1801], [1802], [1804], [1807], [1811], [1812], [1814], [1815], [1818], [1819], [1821], [1823], [1826], [1827], [1828], [1829], [1830], [1831], [1832], [1833], [1834], [1835], [1836], [1837], [1838], [1839], [1840], [1841], [1842], [1843], [1844], [1845], [1846], [1847], [1848], [1849], [1850], [1851], [1854], [1855], [1856], [1857], [1859], [1860], [1861], [1862], [1864], [1865], [1866], [1868], [1869], [1871], [1872], [1873], [1875], [1876], [1877], [1878], [1879], [1880], [1881], [1882], [1883], [1884], [1885], [1886], [1887], [1888], [1889], [1890], [1891], [1892], [1893], [1894], [1895], [1896], [1897], [1898], [1899], [1900], [1901], [1902], [1903], [1904], [1905], [1906], [1907], [1908], [1909], [1910], [1911], [1912], [1913], [1914], [1915], [1916], [1917], [1918], [1919], [1920], [1921], [1922], [1923], [1924], [1925], [1926], [1928], [1929], [1931], [1933], [1935], [1936], [1937], [1939], [1940], [1941], [1942], [1943], [1945], [1947], [1948], [1950], [1951], [1952], [1953], [1954], [1955], [1956], [1957], [1958], [1959], [1960], [1961], [1962], [1963], [1964], [1965], [1966], [1967], [1968], [1969], [1970], [1971], [1972], [1973], [1974], [1975], [1976], [1977], [1978], [1979], [1980], [1981], [1982], [1983], [1984], [1985], [1986], [1987], [1988], [1989], [1990], [1991], [1992], [1993], [1994], [1995], [1996], [1997], [1998], [1999], [2000], [2001], [2002], [2003], [2004], [2005], [2006], [2007], [2008], [2009], [2010], [2011], [2012], [2013], [2014], [2015], [2016], [2017], [2018], [2019], [2020], [2021], [2022], [2023], [2024], [2025], [2026], [2027], [2028], [2029], [2030], [2031], [2032], [2033], [2034], [2035], [2036], [2037], [2038], [2039], [2040], [2041], [2042], [2043], [2044], [2045], [2046], [2047], [2048], [2049], [2050], [2051], [2052], [2053], [2055], [2058], [2062], [2063], [2064], [2066], [2067], [2069], [2071], [2072], [2073], [2076], [2077], [2078], [2079], [2080], [2081], [2082], [2083], [2084], [2086], [2087], [2088], [2089], [2090], [2092], [2093], [2094], [2095], [2096], [2098], [2099], [2101], [2107], [2112], [2115], [2117], [2125], [2126], [2127], [2128], [2129], [2130], [2131], [2132], [2133], [2134], [2135], [2136], [2137], [2138], [2139], [2140], [2141], [2142], [2143], [2144], [2145], [2146], [2147], [2148], [2149], [2150], [2151], [2152], [2153], [2154], [2155], [2156], [2157], [2158], [2159], [2160], [2161], [2162], [2163], [2164], [2165], [2166], [2167], [2168], [2169], [2170], [2171], [2172], [2173], [2174], [2175], [2176], [2177], [2178], [2180], [2181], [2182], [2183], [2184], [2185], [2186], [2187], [2189], [2190], [2191],

[2192], [2193], [2195], [2196], [2197], [2198], [2200], [2201], [2202], [2203], [2204], [2208], [2210], [2211], [2212], [2213], [2215], [2216], [2218], [2220], [2224], [2226], [2227], [2228], [2229], [2230], [2231], [2232], [2233], [2234], [2235], [2236], [2237], [2238], [2239], [2240], [2241], [2242], [2243], [2244], [2245], [2246], [2247], [2248], [2249], [2250], [2251], [2252], [2253], [2254], [2255], [2256], [2257], [2258], [2259], [2260], [2261], [2262], [2263], [2264], [2265], [2266], [2267], [2268], [2269], [2270], [2271], [2272], [2273], [2274], [2275], [2276], [2277], [2278], [2279], [2280], [2281], [2282], [2283], [2284], [2286], [2287], [2289], [2291], [2292], [2293], [2294], [2295], [2296], [2297], [2298], [2301], [2303], [2304], [2307], [2309], [2310], [2311], [2313], [2314], [2315], [2316], [2318], [2319], [2320], [2321], [2326], [2327], [2329], [2330], [2331], [2332], [2333], [2334], [2337], [2338], [2339], [2341], [2342], [2343], [2346], [2348], [2349], [2351], [2352], [2353], [2354], [2355], [2356], [2357], [2358], [2359], [2360], [2361], [2362], [2363], [2364], [2365], [2366], [2367], [2368], [2369], [2370], [2371], [2372], [2373], [2374], [2375], [2376], [2377], [2380], [2382], [2384], [2385], [2386], [2387], [2388], [2389], [2391], [2394], [2396], [2399], [2402], [2404], [2408], [2410], [2411], [2413], [2415], [2417], [2418], [2420], [2421], [2422], [2424], [2426], [2427], [2428], [2429], [2430], [2431], [2432], [2433], [2434], [2435], [2436], [2437], [2438], [2439], [2440], [2441], [2442], [2443], [2444], [2445], [2446], [2447], [2448], [2449], [2450], [2451], [2452], [2453], [2454], [2455], [2456], [2457], [2458], [2459], [2460], [2461], [2462], [2463], [2464], [2465], [2466], [2467], [2468], [2469], [2470], [2471], [2472], [2473], [2474], [2475], [2476], [2477], [2478], [2479], [2480], [2481], [2482], [2483], [2484], [2485], [2486], [2487], [2489], [2491], [2492], [2493], [2494], [2495], [2496], [2497], [2498], [2499], [2500], [2501], [2502], [2503], [2504], [2505], [2506], [2507], [2508], [2509], [2510], [2511], [2512], [2513], [2514], [2515], [2516], [2517], [2518], [2519], [2520], [2521], [2522], [2523], [2524], [2525], [2527], [2528], [2529], [2530], [2532], [2533], [2535], [2536], [2539], [2540], [2541], [2542], [2543], [2544], [2545], [2546], [2549], [2550], [2551], [2552], [2553], [2554], [2555], [2556], [2557], [2558], [2559], [2560], [2561], [2562], [2563], [2564], [2565], [2566], [2567], [2568], [2569], [2570], [2571], [2572], [2573], [2574], [2575], [2576], [2577], [2578], [2579], [2580], [2581], [2582], [2583], [2584], [2585], [2586], [2587], [2588], [2589], [2590], [2591], [2592], [2593], [2594], [2595], [2596], [2597], [2598], [2599], [2600], [2601], [2602], [2604], [2605], [2607], [2609], [2611], [2612], [2613], [2614], [2615], [2616], [2619], [2620], [2621], [2622], [2624], [2626], [2627], [2628], [2629], [2630], [2631], [2632], [2633], [2634], [2635], [2636], [2637], [2638], [2639], [2640], [2641], [2642], [2643], [2644], [2645], [2646], [2647], [2648], [2649], [2650], [2651], [2652], [2653], [2654], [2655], [2656], [2657], [2658], [2659], [2660], [2661], [2662], [2663], [2664], [2665], [2666], [2667], [2668], [2669], [2670], [2671], [2672], [2673], [2674], [2675], [2676], [2677], [2678], [2680], [2681], [2682], [2683], [2684], [2685], [2686],

[2687], [2688], [2690], [2692], [2693], [2694], [2696], [2701], [2702], [2703], [2704], [2705], [2706], [2707], [2708], [2709], [2710], [2711], [2712], [2713], [2714], [2715], [2716], [2717], [2718], [2719], [2720], [2721], [2722], [2723], [2724], [2725], [2726], [2727], [2728], [2729], [2730], [2731], [2732], [2733], [2734], [2735], [2736], [2737], [2738], [2739], [2740], [2741], [2742], [2743], [2744], [2745], [2746], [2747], [2748], [2749], [2750], [2751], [2752], [2753], [2754], [2755], [2756], [2757], [2758], [2759], [2760], [2761], [2762], [2763], [2764], [2765], [2766], [2767], [2768], [2769], [2770], [2771], [2772], [2773], [2774], [2775], [2776], [2777], [2778], [2779], [2780], [2781], [2782], [2783], [2784], [2785], [2786], [2787], [2788], [2789], [2790], [2791], [2792], [2793], [2794], [2795], [2796], [2797], [2798], [2799], [2800], [2801], [2802], [2803], [2804], [2805], [2806], [2807], [2808], [2809], [2810], [2811], [2812], [2813], [2814], [2815], [2816], [2817], [2818], [2819], [2820], [2821], [2822], [2823], [2824], [2825], [2826], [2827], [2828], [2829], [2830], [2831], [2832], [2833], [2834], [2835], [2836], [2837], [2838], [2839], [2840], [2841], [2842], [2843], [2844], [2845], [2846], [2847], [2848], [2849], [2850], [2851], [2853], [2855], [2856], [2857], [2858], [2860], [2861], [2865], [2866], [2867], [2868], [2869], [2871], [2872], [2873], [2874], [2876], [2877], [2878], [2879], [2880], [2881], [2882], [2883], [2884], [2885], [2886], [2887], [2889], [2890], [2891], [2892], [2893], [2894], [2897], [2899], [2901], [2902], [2904], [2905], [2906], [2908], [2909], [2910], [2911], [2912], [2913], [2915], [2916], [2917], [2918], [2919], [2920], [2927], [2928], [2929], [2931], [2932], [2933], [2934], [2935], [2936], [2938], [2941], [2942], [2943], [2945], [2947], [2949], [2951], [2952], [2953], [2954], [2955], [2956], [2957], [2958], [2959], [2960], [2961], [2962], [2963], [2964], [2965], [2966], [2967], [2968], [2969], [2970], [2971], [2972], [2973], [2974], [2975], [2976], [2977], [2978], [2979], [2980], [2981], [2982], [2983], [2984], [2985], [2986], [2987], [2988], [2989], [2990], [2991], [2992], [2993], [2994], [2995], [2996], [2997], [2998], [2999], [3000], [3001], [3003], [3006], [3007], [3010], [3011], [3012], [3014], [3016], [3018], [3019], [3020], [3021], [3026], [3027], [3028], [3029], [3030], [3031], [3032], [3033], [3034], [3035], [3036], [3037], [3038], [3039], [3040], [3041], [3042], [3043], [3044], [3045], [3046], [3047], [3048], [3049], [3050], [3051], [3052], [3053], [3054], [3055], [3056], [3057], [3058], [3059], [3060], [3061], [3062], [3063], [3064], [3065], [3066], [3067], [3068], [3069], [3070], [3071], [3072], [3073], [3074], [3075], [3076], [3077], [3078], [3079], [3080], [3081], [3082], [3083], [3084], [3085], [3086], [3087], [3088], [3089], [3090], [3091], [3092], [3093], [3094], [3095], [3096], [3097], [3098], [3099], [3100], [3101], [3102], [3103], [3104], [3105], [3106], [3107], [3108], [3109], [3110], [3111], [3112], [3113], [3114], [3115], [3116], [3117], [3118], [3119], [3120], [3121], [3122], [3123], [3124], [3125], [3127], [3128], [3129], [3130], [3131], [3132], [3133], [3134], [3135], [3136], [3138], [3139], [3140], [3141], [3142], [3143], [3146], [3147], [3148], [3150], [3151], [3152], [3153], [3154], [3155], [3156], [3157], [3158],

[3159], [3160], [3161], [3162], [3163], [3164], [3165], [3166], [3167], [3168], [3169], [3170], [3171], [3172], [3173], [3174], [3175], [3176], [3177], [3179], [3180], [3181], [3182], [3183], [3184], [3185], [3186], [3187], [3188], [3190], [3192], [3193], [3194], [3195], [3196], [3197], [3198], [3202], [3208], [3213], [3216], [3220], [3222], [3226], [3229], [3230], [3231], [3232], [3234], [3238], [3241], [3242], [3245], [3247], [3248], [3249], [3251], [3252], [3253], [3254], [3255], [3256], [3257], [3258], [3259], [3260], [3261], [3262], [3263], [3264], [3265], [3266], [3267], [3268], [3269], [3270], [3271], [3272], [3273], [3274], [3275], [3276], [3277], [3278], [3279], [3280], [3281], [3282], [3283], [3284], [3285], [3286], [3287], [3288], [3289], [3290], [3291], [3292], [3293], [3294], [3295], [3296], [3297], [3298], [3299], [3300], [3301], [3302], [3303], [3304], [3305], [3306], [3307], [3308], [3309], [3310], [3311], [3312], [3313], [3314], [3315], [3316], [3317], [3318], [3319], [3320], [3321], [3322], [3323], [3324], [3325], [3326], [3327], [3328], [3329], [3330], [3331], [3332], [3333], [3334], [3335], [3336], [3337], [3338], [3339], [3340], [3341], [3342], [3343], [3344], [3345], [3346], [3347], [3348], [3349], [3350], [3353], [3355], [3356], [3357], [3358], [3360], [3361], [3362], [3364], [3365], [3367], [3369], [3373], [3377], [3378], [3379], [3380], [3381], [3382], [3383], [3384], [3385], [3386], [3388], [3389], [3391], [3392], [3393], [3394], [3395], [3396], [3398], [3399], [3400], [3401], [3402], [3403], [3404], [3405], [3406], [3407], [3408], [3409], [3410], [3411], [3412], [3413], [3414], [3415], [3416], [3417], [3418], [3419], [3420], [3421], [3422], [3423], [3424], [3425], [3427], [3429], [3430], [3431], [3433], [3434], [3435], [3436], [3440], [3443], [3444], [3445], [3446], [3447], [3448], [3449], [3451], [3452], [3453], [3454], [3455], [3456], [3457], [3458], [3459], [3460], [3461], [3462], [3463], [3464], [3465], [3466], [3467], [3468], [3469], [3470], [3471], [3472], [3473], [3474], [3475], [3476], [3477], [3478], [3479], [3480], [3481], [3482], [3483], [3484], [3485], [3486], [3487], [3488], [3489], [3490], [3491], [3492], [3493], [3494], [3495], [3496], [3497], [3498], [3499], [3500], [3501], [3502], [3503], [3504], [3505], [3506], [3508], [3509], [3510], [3511], [3512], [3514], [3515], [3517], [3518], [3519], [3520], [3521], [3522], [3523], [3524], [3526], [3527], [3528], [3529], [3530], [3531], [3532], [3533], [3534], [3535], [3536], [3537], [3538], [3539], [3540], [3541], [3542], [3543], [3544], [3545], [3546], [3547], [3548], [3549], [3550], [3552], [3553], [3554], [3555], [3558], [3559], [3561], [3562], [3563], [3566], [3569], [3570], [3571], [3572], [3573], [3578], [3580], [3582], [3583], [3585], [3586], [3588], [3589], [3591], [3593], [3595], [3596], [3597], [3598], [3600], [3601], [3602], [3603], [3604], [3605], [3606], [3607], [3608], [3609], [3610], [3611], [3612], [3613], [3614], [3615], [3616], [3617], [3618], [3619], [3620], [3621], [3622], [3623], [3624], [3625], [3626], [3628], [3629], [3630], [3633], [3634], [3635], [3637], [3640], [3642], [3643], [3644], [3647], [3648], [3650], [3651], [3652], [3653], [3654], [3655], [3656], [3657], [3658], [3659], [3660], [3661], [3662], [3663], [3664], [3665], [3666], [3667], [3668], [3669], [3670], [3671],

[3672], [3673], [3674], [3675], [3676], [3678], [3679], [3680], [3681], [3683], [3685], [3686], [3688], [3689], [3690], [3692], [3693], [3694], [3695], [3696], [3697], [3698], [3699], [3701], [3702], [3703], [3704], [3705], [3706], [3707], [3708], [3709], [3710], [3711], [3712], [3713], [3714], [3715], [3716], [3717], [3718], [3719], [3720], [3721], [3722], [3723], [3724], [3725], [3726], [3727], [3728], [3729], [3731], [3732], [3733], [3735], [3736], [3740], [3745], [3747], [3748], [3749], [3751], [3752], [3753], [3754], [3755], [3756], [3757], [3758], [3759], [3760], [3761], [3762], [3763], [3764], [3765], [3766], [3767], [3768], [3769], [3770], [3771], [3772], [3773], [3774], [3775], [3776], [3777], [3778], [3779], [3780], [3781], [3782], [3783], [3784], [3785], [3786], [3787], [3788], [3789], [3790], [3791], [3792], [3793], [3794], [3795], [3796], [3797], [3798], [3799], [3800], [3801], [3802], [3803], [3804], [3805], [3806], [3807], [3808], [3809], [3810], [3811], [3812], [3813], [3814], [3815], [3816], [3817], [3818], [3819], [3820], [3821], [3822], [3823], [3824], [3825], [3827], [3828], [3829], [3830], [3832], [3833], [3834], [3835], [3836], [3837], [3841], [3842], [3843], [3844], [3845], [3846], [3847], [3848], [3851], [3852], [3853], [3857], [3859], [3861], [3862], [3863], [3865], [3866], [3867], [3868], [3869], [3874], [3879], [3881], [3884], [3885], [3886], [3888], [3889], [3892], [3893], [3895], [3898], [3899], [3901], [3902], [3903], [3904], [3905], [3906], [3909], [3913], [3914], [3917], [3919], [3923], [3924], [3926], [3927], [3928], [3929], [3932], [3933], [3934], [3935], [3936], [3937], [3938], [3939], [3940], [3941], [3942], [3943], [3945], [3946], [3948], [3949], [3951], [3952], [3953], [3954], [3955], [3956], [3957], [3958], [3959], [3960], [3961], [3962], [3963], [3964], [3965], [3966], [3967], [3968], [3969], [3970], [3971], [3972], [3973], [3974], [3975], [3976], [3977], [3978], [3979], [3980], [3981], [3982], [3983], [3984], [3985], [3986], [3987], [3988], [3989], [3990], [3991], [3992], [3993], [3994], [3995], [3996], [3997], [3998], [3999], [4000], [4001], [4002], [4003], [4004], [4005], [4006], [4007], [4008], [4009], [4010], [4011], [4012], [4013], [4014], [4015], [4016], [4017], [4018], [4019], [4020], [4021], [4022], [4023], [4024], [4025], [4026], [4027], [4028], [4029], [4030], [4031], [4032], [4033], [4034], [4035], [4036], [4037], [4038], [4039], [4040], [4041], [4042], [4043], [4044], [4045], [4046], [4047], [4048], [4049], [4050], [4051], [4052], [4053], [4054], [4055], [4056], [4057], [4058], [4059], [4060], [4061], [4062], [4063], [4064], [4065], [4066], [4067], [4068], [4069], [4070], [4071], [4072], [4073], [4074], [4075], [4076], [4077], [4078], [4079], [4080], [4081], [4082], [4083], [4084], [4085], [4086], [4087], [4088], [4089], [4090], [4091], [4092], [4093], [4094], [4095], [4096], [4097], [4098], [4099], [4100], [4101], [4102], [4103], [4104], [4105], [4106], [4107], [4108], [4109], [4110], [4111], [4112], [4113], [4114], [4115], [4116], [4117], [4118], [4119], [4120], [4121], [4122], [4123], [4124], [4125], [4126], [4127], [4128], [4129], [4130], [4131], [4132], [4133], [4134], [4135], [4136], [4137], [4138], [4139], [4140], [4141], [4142], [4143], [4144], [4145], [4146], [4147], [4148], [4149], [4150], [4151], [4152], [4153], [4154],

[4155], [4156], [4157], [4158], [4159], [4160], [4161], [4162], [4163], [4164], [4165], [4166], [4167], [4168], [4169], [4170], [4171], [4172], [4173], [4174], [4175], [4177], [4179], [4180], [4181], [4182], [4183], [4184], [4186], [4189], [4190], [4191], [4194], [4195], [4197], [4198], [4199], [4201], [4202], [4203], [4204], [4205], [4206], [4207], [4208], [4209], [4210], [4211], [4212], [4213], [4214], [4215], [4216], [4217], [4218], [4219], [4220], [4221], [4222], [4223], [4224], [4225], [4226], [4227], [4228], [4229], [4230], [4231], [4232], [4233], [4234], [4235], [4236], [4237], [4238], [4239], [4240], [4241], [4242], [4243], [4244], [4245], [4246], [4247], [4248], [4249], [4250], [4251], [4252], [4253], [4254], [4255], [4256], [4257], [4258], [4259], [4260], [4261], [4262], [4263], [4264], [4265], [4266], [4267], [4268], [4269], [4270], [4271], [4272], [4273], [4274], [4275], [4276], [4279], [4281], [4283], [4284], [4285], [4292], [4294], [4295], [4297], [4298], [4301], [4302], [4303], [4304], [4305], [4306], [4307], [4309], [4311], [4313], [4314], [4316], [4317], [4319], [4320], [4321], [4322], [4323], [4324], [4325], [4326], [4327], [4331], [4332], [4333], [4334], [4335], [4336], [4337], [4339], [4340], [4342], [4343], [4344], [4347], [4348], [4349], [4350], [4351], [4353], [4354], [4355], [4356], [4357], [4359], [4360], [4361], [4362], [4363], [4364], [4365], [4366], [4367], [4368], [4369], [4370], [4371], [4373], [4376], [4377], [4378], [4379], [4380], [4381], [4382], [4383], [4384], [4385], [4386], [4387], [4388], [4389], [4390], [4391], [4392], [4393], [4394], [4395], [4396], [4397], [4398], [4399], [4400], [4401], [4402], [4405], [4406], [4408], [4409], [4411], [4412], [4413], [4414], [4415], [4416], [4418], [4419], [4421], [4423], [4424], [4425], [4426], [4427], [4428], [4429], [4430], [4431], [4432], [4433], [4434], [4435], [4436], [4437], [4438], [4439], [4440], [4441], [4442], [4443], [4444], [4445], [4446], [4447], [4448], [4449], [4450], [4451], [4452], [4453], [4454], [4455], [4456], [4457], [4458], [4459], [4460], [4461], [4462], [4463], [4464], [4465], [4466], [4467], [4468], [4469], [4470], [4471], [4472], [4473], [4474], [4475], [4476], [4478], [4481], [4483], [4484], [4486], [4488], [4492], [4493], [4494], [4495], [4496], [4497], [4498], [4499], [4502], [4503], [4504], [4505], [4506], [4507], [4508], [4509], [4510], [4512], [4513], [4515], [4516], [4517], [4518], [4519], [4520], [4521], [4526], [4527], [4528], [4529], [4530], [4531], [4532], [4533], [4534], [4535], [4536], [4537], [4538], [4539], [4540], [4541], [4542], [4543], [4544], [4545], [4546], [4547], [4548], [4549], [4550], [4552], [4553], [4555], [4556], [4558], [4562], [4565], [4566], [4568], [4569], [4570], [4571], [4572], [4573], [4574], [4576], [4577], [4578], [4579], [4580], [4581], [4582], [4583], [4584], [4585], [4586], [4587], [4588], [4589], [4590], [4591], [4592], [4593], [4594], [4595], [4596], [4597], [4598], [4599], [4600], [4601], [4602], [4603], [4604], [4605], [4606], [4607], [4608], [4609], [4610], [4611], [4612], [4613], [4614], [4615], [4616], [4617], [4618], [4619], [4620], [4621], [4622], [4623], [4624], [4625], [4626], [4627], [4628], [4629], [4630], [4631], [4632], [4633], [4634], [4635], [4636], [4637], [4638], [4639], [4640], [4641], [4642], [4643], [4644], [4645], [4646],

[4647], [4648], [4649], [4650], [4651], [4652], [4653], [4654], [4655], [4656], [4657], [4658], [4659], [4660], [4661], [4662], [4663], [4664], [4665], [4666], [4667], [4669], [4670], [4671], [4672], [4674], [4676], [4677], [4678], [4679], [4680], [4681], [4682], [4684], [4685], [4686], [4687], [4691], [4692], [4693], [4694], [4696], [4697], [4698], [4700], [4702], [4703], [4704], [4705], [4706], [4708], [4709], [4710], [4712], [4713], [4714], [4715], [4716], [4717], [4718], [4719], [4720], [4721], [4722], [4723], [4725], [4726], [4727], [4728], [4729], [4730], [4731], [4732], [4733], [4734], [4735], [4736], [4737], [4738], [4739], [4740], [4741], [4742], [4743], [4744], [4745], [4746], [4747], [4748], [4749], [4750], [4751], [4752], [4753], [4754], [4755], [4756], [4757], [4758], [4759], [4760], [4761], [4762], [4763], [4764], [4765], [4766], [4767], [4768], [4769], [4770], [4771], [4772], [4773], [4774], [4775], [4776], [4780], [4781], [4782], [4784], [4785], [4786], [4787], [4788], [4790], [4791], [4792], [4793], [4795], [4796], [4797], [4799], [4800], [4801], [4802], [4803], [4804], [4805], [4806], [4807], [4808], [4809], [4810], [4811], [4812], [4813], [4814], [4815], [4816], [4817], [4818], [4819], [4820], [4821], [4822], [4823], [4824], [4825], [4826], [4827], [4828], [4830], [4831], [4833], [4834], [4835], [4837], [4838], [4840], [4841], [4842], [4844], [4845], [4846], [4847], [4848], [4849], [4850], [4851], [4852], [4853], [4854], [4855], [4856], [4857], [4858], [4859], [4860], [4861], [4862], [4863], [4864], [4865], [4866], [4867], [4868], [4869], [4870], [4871], [4872], [4873], [4874], [4875], [4878], [4879], [4884], [4885], [4886], [4888], [4890], [4891], [4892], [4895], [4896], [4897], [4898], [4899], [4901], [4902], [4903], [4904], [4905], [4906], [4907], [4908], [4909], [4910], [4911], [4912], [4913], [4914], [4915], [4916], [4917], [4918], [4919], [4920], [4921], [4922], [4923], [4924], [4925], [4926], [4927], [4928], [4929], [4932], [4933], [4934], [4936], [4937], [4939], [4940], [4942], [4943], [4944], [4948], [4949], [4951], [4952], [4953], [4955], [4957], [4958], [4960], [4961], [4962], [4963], [4964], [4965], [4966], [4967], [4968], [4970], [4971], [4973], [4974], [4978], [4981], [4982], [4985], [4986], [4988], [4989], [4990], [4993], [4994], [4995], [4996], [4998], [4999], [5001], [5002], [5003], [5004], [5005], [5006], [5007], [5008], [5009], [5010], [5011], [5012], [5013], [5014], [5015], [5016], [5017], [5018], [5019], [5020], [5021], [5022], [5023], [5024], [5025], [5027], [5028], [5029], [5030], [5031], [5033], [5034], [5035], [5036], [5041], [5042], [5043], [5044], [5045], [5048], [5049], [5051], [5052], [5053], [5054], [5055], [5056], [5057], [5058], [5059], [5060], [5061], [5062], [5063], [5064], [5065], [5066], [5067], [5068], [5069], [5070], [5071], [5072], [5073], [5074], [5075], [5076], [5077], [5078], [5079], [5080], [5081], [5082], [5083], [5084], [5085], [5086], [5087], [5088], [5089], [5090], [5091], [5092], [5093], [5094], [5095], [5096], [5097], [5098], [5099], [5100], [5101], [5102], [5103], [5104], [5105], [5106], [5107], [5108], [5109], [5110], [5112], [5113], [5114], [5115], [5116], [5117], [5118], [5119], [5120], [5122], [5123], [5124], [5126], [5127], [5128], [5129], [5130], [5131], [5132], [5133], [5134], [5135], [5136], [5137], [5138],

[5139], [5140], [5141], [5142], [5143], [5144], [5145], [5146], [5147], [5148], [5149], [5150], [5152], [5153], [5154], [5155], [5156], [5157], [5158], [5159], [5160], [5163], [5165], [5166], [5170], [5173], [5176], [5177], [5178], [5179], [5184], [5185], [5187], [5188], [5189], [5191], [5192], [5195], [5196], [5197], [5198], [5199], [5200], [5201], [5202], [5203], [5204], [5205], [5206], [5207], [5208], [5209], [5210], [5211], [5212], [5213], [5214], [5215], [5216], [5217], [5218], [5219], [5220], [5221], [5222], [5223], [5224], [5225], [5227], [5228], [5232], [5233], [5234], [5236], [5238], [5239], [5240], [5243], [5244], [5249], [5250], [5251], [5252], [5253], [5254], [5255], [5256], [5257], [5258], [5259], [5260], [5261], [5262], [5263], [5264], [5265], [5266], [5267], [5268], [5269], [5270], [5271], [5272], [5273], [5274], [5275], [5276], [5277], [5278], [5279], [5280], [5281], [5282], [5283], [5284], [5285], [5286], [5287], [5288], [5289], [5290], [5291], [5292], [5293], [5294], [5295], [5296], [5297], [5298], [5299], [5300], [5301], [5302], [5303], [5304], [5305], [5306], [5307], [5308], [5309], [5310], [5311], [5312], [5313], [5314], [5315], [5316], [5317], [5318], [5319], [5320], [5321], [5322], [5323], [5324], [5325], [5326], [5327], [5328], [5329], [5330], [5331], [5332], [5333], [5334], [5335], [5336], [5337], [5338], [5339], [5340], [5341], [5342], [5343], [5344], [5345], [5346], [5347], [5348], [5349], [5350], [5351], [5352], [5353], [5354], [5355], [5356], [5357], [5358], [5359], [5360], [5361], [5362], [5363], [5364], [5365], [5366], [5367], [5368], [5369], [5370], [5371], [5372], [5373], [5374], [5375], [5376], [5378], [5381], [5382], [5383], [5384], [5385], [5386], [5387], [5388], [5389], [5391], [5394], [5395], [5396], [5398], [5399], [5401], [5402], [5404], [5405], [5407], [5410], [5411], [5412], [5413], [5414], [5415], [5416], [5417], [5419], [5420], [5421], [5422], [5423], [5424], [5426], [5427], [5428], [5429], [5430], [5431], [5432], [5433], [5434], [5435], [5436], [5437], [5438], [5439], [5440], [5441], [5442], [5443], [5444], [5445], [5446], [5447], [5448], [5449], [5450], [5451], [5452], [5455], [5456], [5457], [5458], [5459], [5461], [5463], [5464], [5465], [5466], [5467], [5469], [5470], [5472], [5473], [5474], [5476], [5477], [5478], [5479], [5480], [5481], [5482], [5483], [5484], [5485], [5486], [5487], [5488], [5489], [5490], [5491], [5492], [5493], [5494], [5495], [5496], [5497], [5498], [5499], [5500], [5501], [5502], [5503], [5504], [5505], [5506], [5507], [5508], [5509], [5511], [5513], [5514], [5515], [5516], [5517], [5518], [5519], [5520], [5521], [5522], [5523], [5524], [5526], [5527], [5528], [5529], [5530], [5532], [5533], [5535], [5536], [5540], [5541], [5542], [5543], [5544], [5545], [5546], [5547], [5548], [5549], [5550], [5551], [5552], [5553], [5554], [5555], [5556], [5557], [5558], [5559], [5560], [5561], [5562], [5563], [5564], [5565], [5566], [5567], [5568], [5569], [5570], [5571], [5572], [5573], [5574], [5575], [5576], [5577], [5578], [5579], [5580], [5581], [5582], [5583], [5584], [5585], [5586], [5587], [5588], [5589], [5590], [5591], [5592], [5593], [5594], [5595], [5596], [5597], [5598], [5599], [5600], [5602], [5603], [5605], [5607], [5608], [5609], [5610], [5611], [5612], [5613], [5614], [5616], [5617], [5618], [5619], [5620],

[illegible]

[6095], [6096], [6097], [6098], [6099], [6100], [6104], [6106], [6107], [6108], [6109], [6111], [6116], [6124], [6126], [6127], [6128], [6129], [6130], [6131], [6132], [6133], [6134], [6135], [6136], [6137], [6138], [6139], [6140], [6141], [6142], [6143], [6144], [6145], [6146], [6147], [6148], [6149], [6150], [6151], [6152], [6153], [6154], [6155], [6156], [6157], [6158], [6159], [6160], [6161], [6162], [6163], [6164], [6165], [6166], [6167], [6168], [6169], [6170], [6171], [6172], [6173], [6174], [6175], [6176], [6178], [6179], [6181], [6185], [6186], [6187], [6191], [6193], [6198], [6201], [6204], [6208], [6209], [6212], [6213], [6214], [6219], [6222], [6223], [6224], [6226], [6227], [6228], [6229], [6230], [6231], [6232], [6233], [6234], [6235], [6236], [6237], [6238], [6239], [6240], [6241], [6242], [6243], [6244], [6245], [6246], [6247], [6248], [6249], [6250], [6251], [6252], [6253], [6254], [6255], [6256], [6257], [6258], [6259], [6260], [6261], [6262], [6263], [6264], [6265], [6266], [6267], [6268], [6269], [6270], [6271], [6272], [6273], [6274], [6275], [6276], [6277], [6278], [6279], [6280], [6281], [6282], [6283], [6284], [6285], [6286], [6287], [6288], [6289], [6290], [6291], [6292], [6293], [6294], [6295], [6296], [6297], [6298], [6299], [6300], [6301], [6302], [6303], [6304], [6305], [6306], [6307], [6308], [6309], [6310], [6311], [6312], [6313], [6314], [6315], [6316], [6317], [6318], [6319], [6320], [6321], [6322], [6323], [6324], [6325], [6327], [6328], [6331], [6332], [6333], [6334], [6335], [6336], [6337], [6339], [6340], [6341], [6342], [6343], [6344], [6345], [6347], [6349], [6351], [6352], [6353], [6354], [6355], [6356], [6357], [6358], [6359], [6360], [6361], [6362], [6363], [6364], [6365], [6366], [6367], [6368], [6369], [6370], [6371], [6372], [6373], [6374], [6375], [6376], [6377], [6378], [6379], [6380], [6381], [6382], [6383], [6384], [6385], [6386], [6387], [6388], [6389], [6390], [6391], [6392], [6393], [6394], [6395], [6396], [6397], [6398], [6399], [6400], [6401], [6402], [6403], [6404], [6405], [6406], [6407], [6408], [6409], [6410], [6411], [6412], [6413], [6414], [6415], [6416], [6417], [6418], [6419], [6420], [6421], [6422], [6423], [6424], [6425], [6426], [6427], [6430], [6431], [6432], [6433], [6435], [6437], [6438], [6439], [6441], [6442], [6444], [6445], [6446], [6447], [6448], [6449], [6451], [6458], [6459], [6460], [6461], [6462], [6463], [6467], [6469], [6472], [6473], [6474], [6476], [6477], [6478], [6479], [6480], [6481], [6482], [6483], [6484], [6485], [6486], [6487], [6488], [6489], [6490], [6491], [6492], [6493], [6494], [6495], [6496], [6497], [6498], [6499], [6500], [6501], [6502], [6503], [6504], [6505], [6506], [6507], [6508], [6509], [6510], [6511], [6512], [6513], [6514], [6515], [6516], [6517], [6518], [6519], [6520], [6521], [6522], [6523], [6524], [6525], [6526], [6528], [6530], [6531], [6532], [6533], [6536], [6537], [6538], [6539], [6540], [6541], [6542], [6545], [6548], [6549], [6551], [6552], [6553], [6554], [6555], [6556], [6557], [6558], [6559], [6560], [6564], [6565], [6566], [6567], [6569], [6570], [6573], [6576], [6577], [6578], [6579], [6580], [6581], [6582], [6583], [6584], [6585], [6586], [6587], [6588], [6589], [6590], [6591], [6592], [6593], [6594], [6595], [6596], [6597], [6598], [6599], [6600], [6601], [6602],

[6604], [6605], [6606], [6607], [6609], [6610], [6611], [6615], [6616], [6619], [6621], [6623], [6624], [6625], [6626], [6627], [6628], [6629], [6630], [6631], [6632], [6633], [6634], [6635], [6636], [6637], [6638], [6639], [6640], [6641], [6642], [6643], [6644], [6645], [6646], [6647], [6648], [6649], [6650], [6651], [6652], [6653], [6654], [6655], [6656], [6657], [6658], [6659], [6660], [6661], [6662], [6663], [6664], [6665], [6666], [6667], [6668], [6669], [6670], [6671], [6672], [6673], [6674], [6675], [6676], [6677], [6678], [6679], [6681], [6683], [6684], [6686], [6688], [6694], [6695], [6696], [6697], [6699], [6701], [6702], [6703], [6704], [6705], [6706], [6707], [6708], [6709], [6710], [6711], [6712], [6713], [6714], [6715], [6716], [6717], [6718], [6719], [6720], [6721], [6722], [6723], [6724], [6725], [6726], [6727], [6728], [6729], [6730], [6731], [6732], [6733], [6734], [6735], [6736], [6737], [6738], [6739], [6740], [6741], [6742], [6743], [6744], [6745], [6746], [6747], [6748], [6749], [6750], [6753], [6754], [6756], [6758], [6759], [6761], [6762], [6764], [6766], [6768], [6771], [6774], [6776], [6777], [6778], [6779], [6780], [6781], [6782], [6783], [6784], [6785], [6786], [6787], [6788], [6789], [6790], [6791], [6792], [6793], [6794], [6795], [6796], [6797], [6798], [6799], [6800], [6802], [6804], [6805], [6806], [6807], [6808], [6809], [6810], [6812], [6813], [6814], [6815], [6817], [6818], [6819], [6820], [6823], [6826], [6829], [6830], [6832], [6835], [6836], [6837], [6838], [6840], [6841], [6844], [6846], [6847], [6848], [6850], [6851], [6852], [6853], [6854], [6855], [6856], [6857], [6858], [6859], [6860], [6861], [6862], [6863], [6864], [6865], [6866], [6867], [6868], [6869], [6870], [6871], [6872], [6873], [6874], [6875], [6876], [6879], [6882], [6884], [6886], [6887], [6888], [6889], [6892], [6893], [6897], [6899], [6901], [6902], [6904], [6908], [6909], [6911], [6916], [6919], [6921], [6923], [6924], [6926], [6927], [6928], [6929], [6930], [6931], [6932], [6933], [6934], [6935], [6936], [6937], [6938], [6939], [6940], [6941], [6942], [6943], [6944], [6945], [6946], [6947], [6948], [6949], [6950], [6951], [6952], [6953], [6954], [6955], [6956], [6957], [6958], [6959], [6960], [6961], [6962], [6963], [6964], [6965], [6966], [6967], [6968], [6969], [6970], [6971], [6972], [6973], [6974], [6975], [6976], [6977], [6978], [6979], [6980], [6981], [6982], [6983], [6984], [6985], [6986], [6987], [6988], [6989], [6990], [6991], [6992], [6993], [6994], [6995], [6996], [6997], [6998], [6999], [7000], [7001], [7002], [7003], [7004], [7005], [7006], [7007], [7008], [7009], [7010], [7011], [7012], [7013], [7014], [7015], [7016], [7017], [7018], [7019], [7020], [7021], [7022], [7023], [7024], [7025], [7026], [7027], [7028], [7029], [7030], [7031], [7032], [7033], [7034], [7035], [7036], [7037], [7038], [7039], [7040], [7041], [7042], [7043], [7044], [7045], [7046], [7047], [7048], [7049], [7050], [7051], [7052], [7053], [7054], [7055], [7056], [7057], [7058], [7059], [7060], [7061], [7062], [7063], [7064], [7065], [7066], [7067], [7068], [7069], [7070], [7071], [7072], [7073], [7074], [7075], [7076], [7079], [7081], [7082], [7084], [7085], [7086], [7087], [7088], [7089], [7090], [7091], [7092], [7094], [7095], [7097], [7098], [7100], [7103], [7104], [7105], [7106], [7107],

[illegible]

[7596], [7597], [7598], [7599], [7600], [7601], [7602], [7603], [7604], [7605], [7606], [7607], [7608], [7609], [7610], [7611], [7612], [7613], [7614], [7615], [7616], [7617], [7618], [7619], [7620], [7621], [7622], [7623], [7624], [7625], [7626], [7627], [7628], [7629], [7630], [7631], [7632], [7633], [7634], [7635], [7636], [7637], [7638], [7639], [7640], [7641], [7642], [7643], [7644], [7645], [7646], [7647], [7648], [7649], [7650], [7652], [7656], [7657], [7658], [7659], [7660], [7661], [7662], [7663], [7664], [7666], [7668], [7670], [7674], [7676], [7677], [7678], [7679], [7680], [7681], [7682], [7683], [7684], [7685], [7686], [7687], [7688], [7689], [7690], [7691], [7692], [7693], [7694], [7695], [7696], [7697], [7698], [7699], [7700], [7701], [7702], [7703], [7706], [7714], [7719], [7724], [7726], [7727], [7728], [7729], [7730], [7731], [7732], [7733], [7734], [7735], [7736], [7737], [7738], [7739], [7740], [7741], [7742], [7743], [7744], [7745], [7746], [7747], [7748], [7749], [7750], [7751], [7752], [7753], [7754], [7755], [7756], [7757], [7758], [7759], [7760], [7761], [7762], [7763], [7764], [7765], [7766], [7767], [7768], [7769], [7770], [7771], [7772], [7773], [7774], [7775], [7779], [7783], [7784], [7785], [7788], [7789], [7790], [7791], [7792], [7793], [7794], [7795], [7796], [7797], [7798], [7799], [7800], [7801], [7802], [7803], [7804], [7805], [7806], [7807], [7808], [7809], [7810], [7811], [7812], [7813], [7814], [7815], [7816], [7817], [7818], [7819], [7820], [7821], [7822], [7823], [7824], [7825], [7826], [7827], [7828], [7829], [7830], [7831], [7832], [7833], [7834], [7835], [7836], [7837], [7838], [7839], [7840], [7841], [7842], [7843], [7844], [7845], [7846], [7847], [7848], [7849], [7850], [7851], [7853], [7854], [7855], [7856], [7857], [7858], [7860], [7861], [7862], [7865], [7868], [7870], [7871], [7872], [7873], [7876], [7878], [7880], [7882], [7884], [7885], [7887], [7889], [7892], [7895], [7896], [7897], [7898], [7899], [7901], [7902], [7903], [7904], [7905], [7906], [7907], [7908], [7909], [7910], [7911], [7912], [7913], [7914], [7915], [7916], [7917], [7918], [7919], [7920], [7921], [7922], [7923], [7924], [7925], [7926], [7927], [7928], [7929], [7930], [7931], [7932], [7933], [7934], [7935], [7936], [7937], [7938], [7939], [7940], [7941], [7942], [7943], [7944], [7945], [7946], [7947], [7948], [7949], [7950], [7951], [7952], [7953], [7954], [7955], [7956], [7957], [7958], [7959], [7960], [7961], [7962], [7963], [7964], [7965], [7966], [7967], [7968], [7969], [7970], [7971], [7972], [7973], [7974], [7975], [7976], [7977], [7978], [7979], [7981], [7983], [7985], [7986], [7987], [7988], [7989], [7993], [7995], [7997], [7998], [7999], [8002], [8005], [8009], [8010], [8011], [8016], [8018], [8019], [8020], [8021], [8023], [8024], [8025], [8026], [8027], [8028], [8029], [8030], [8031], [8032], [8033], [8034], [8035], [8036], [8037], [8038], [8039], [8040], [8041], [8042], [8043], [8044], [8045], [8046], [8047], [8048], [8049], [8050], [8051], [8053], [8054], [8056], [8057], [8058], [8059], [8060], [8064], [8065], [8066], [8068], [8069], [8070], [8071], [8072], [8073], [8076], [8077], [8078], [8079], [8080], [8081], [8082], [8083], [8084], [8085], [8086], [8087], [8088], [8089], [8090], [8091], [8092], [8093], [8094], [8095], [8096], [8097], [8098], [8099],

[8100], [8102], [8103], [8104], [8105], [8106], [8107], [8108], [8109], [8110], [8111], [8113], [8115], [8116], [8117], [8118], [8119], [8120], [8121], [8123], [8124], [8125], [8126], [8127], [8128], [8129], [8130], [8131], [8132], [8133], [8134], [8135], [8136], [8137], [8138], [8139], [8140], [8141], [8142], [8143], [8144], [8145], [8146], [8147], [8148], [8149], [8150], [8151], [8153], [8156], [8157], [8158], [8159], [8160], [8162], [8163], [8164], [8167], [8170], [8171], [8173], [8174], [8176], [8177], [8178], [8179], [8180], [8181], [8182], [8183], [8184], [8185], [8186], [8187], [8188], [8189], [8190], [8191], [8192], [8193], [8194], [8195], [8196], [8197], [8198], [8199], [8200], [8202], [8203], [8204], [8205], [8206], [8207], [8208], [8209], [8210], [8211], [8212], [8213], [8214], [8215], [8216], [8217], [8218], [8219], [8220], [8221], [8222], [8223], [8224], [8226], [8227], [8228], [8230], [8231], [8234], [8235], [8236], [8237], [8238], [8239], [8240], [8241], [8242], [8244], [8246], [8247], [8248], [8249], [8251], [8252], [8253], [8254], [8255], [8256], [8257], [8258], [8259], [8260], [8261], [8262], [8263], [8264], [8265], [8266], [8267], [8268], [8269], [8270], [8271], [8272], [8273], [8274], [8275], [8276], [8277], [8278], [8279], [8280], [8281], [8282], [8283], [8284], [8285], [8286], [8287], [8288], [8289], [8290], [8291], [8292], [8293], [8294], [8295], [8296], [8297], [8298], [8299], [8300], [8301], [8302], [8303], [8306], [8307], [8310], [8311], [8312], [8314], [8315], [8316], [8318], [8319], [8321], [8322], [8323], [8326], [8327], [8328], [8329], [8330], [8331], [8332], [8333], [8334], [8335], [8336], [8337], [8338], [8339], [8340], [8341], [8342], [8343], [8344], [8345], [8346], [8347], [8348], [8349], [8350], [8352], [8354], [8355], [8356], [8357], [8359], [8360], [8363], [8366], [8368], [8369], [8370], [8371], [8372], [8373], [8374], [8375], [8376], [8377], [8379], [8380], [8382], [8383], [8384], [8387], [8388], [8389], [8390], [8391], [8392], [8393], [8396], [8398], [8399], [8400], [8401], [8402], [8403], [8404], [8405], [8406], [8407], [8408], [8409], [8410], [8411], [8412], [8413], [8414], [8415], [8416], [8417], [8418], [8419], [8420], [8421], [8422], [8423], [8424], [8425], [8427], [8429], [8430], [8438], [8440], [8442], [8444], [8445], [8446], [8448], [8451], [8452], [8453], [8454], [8455], [8456], [8457], [8458], [8459], [8460], [8461], [8462], [8463], [8464], [8465], [8466], [8467], [8468], [8469], [8470], [8471], [8472], [8473], [8474], [8475], [8476], [8477], [8478], [8479], [8480], [8481], [8482], [8483], [8484], [8485], [8486], [8487], [8488], [8489], [8490], [8491], [8492], [8493], [8494], [8495], [8496], [8497], [8498], [8499], [8500], [8501], [8502], [8503], [8504], [8505], [8506], [8507], [8508], [8509], [8510], [8511], [8513], [8514], [8517], [8520], [8522], [8524], [8525], [8527], [8528], [8530], [8531], [8532], [8533], [8534], [8538], [8539], [8540], [8544], [8545], [8546], [8547], [8549], [8551], [8552], [8553], [8554], [8555], [8556], [8557], [8558], [8559], [8560], [8561], [8562], [8563], [8564], [8565], [8566], [8567], [8568], [8569], [8570], [8571], [8572], [8573], [8574], [8575], [8576], [8577], [8578], [8579], [8580], [8581], [8582], [8583], [8584], [8585], [8586], [8587], [8588], [8589], [8590], [8591], [8592], [8593], [8594], [8595],

[8596], [8597], [8598], [8599], [8600], [8601], [8602], [8603], [8605], [8606], [8609], [8610], [8612], [8613], [8614], [8616], [8618], [8619], [8620], [8621], [8624], [8626], [8627], [8628], [8629], [8630], [8631], [8632], [8633], [8634], [8635], [8636], [8637], [8638], [8639], [8640], [8641], [8642], [8643], [8644], [8645], [8646], [8647], [8648], [8649], [8650], [8652], [8654], [8657], [8658], [8660], [8662], [8664], [8665], [8673], [8674], [8677], [8678], [8679], [8682], [8683], [8686], [8687], [8688], [8689], [8690], [8693], [8695], [8697], [8699], [8700], [8701], [8703], [8704], [8706], [8708], [8710], [8711], [8712], [8714], [8715], [8716], [8717], [8718], [8719], [8720], [8721], [8722], [8726], [8729], [8730], [8731], [8732], [8733], [8738], [8739], [8740], [8742], [8743], [8745], [8746], [8748], [8750], [8751], [8752], [8753], [8754], [8756], [8757], [8759], [8760], [8763], [8764], [8765], [8766], [8769], [8771], [8772], [8774], [8776], [8777], [8778], [8779], [8780], [8781], [8782], [8783], [8784], [8785], [8786], [8787], [8788], [8789], [8790], [8791], [8792], [8793], [8794], [8795], [8796], [8797], [8798], [8799], [8800], [8801], [8802], [8803], [8804], [8805], [8806], [8807], [8808], [8809], [8810], [8811], [8812], [8813], [8814], [8815], [8816], [8817], [8818], [8819], [8820], [8821], [8822], [8823], [8824], [8825], [8826], [8827], [8828], [8829], [8830], [8831], [8832], [8834], [8835], [8837], [8838], [8840], [8843], [8844], [8846], [8848], [8849], [8851], [8852], [8853], [8854], [8855], [8856], [8857], [8858], [8859], [8860], [8861], [8862], [8863], [8864], [8865], [8866], [8867], [8868], [8869], [8870], [8871], [8872], [8873], [8874], [8875], [8876], [8877], [8878], [8879], [8880], [8882], [8883], [8886], [8887], [8888], [8890], [8891], [8892], [8895], [8897], [8898], [8899], [8901], [8902], [8903], [8904], [8905], [8906], [8907], [8908], [8909], [8910], [8911], [8912], [8913], [8914], [8915], [8916], [8917], [8918], [8919], [8920], [8921], [8922], [8923], [8924], [8925], [8929], [8932], [8933], [8934], [8938], [8940], [8941], [8942], [8943], [8944], [8946], [8947], [8948], [8950], [8951], [8952], [8953], [8954], [8955], [8957], [8958], [8959], [8960], [8961], [8962], [8963], [8964], [8965], [8966], [8967], [8969], [8970], [8971], [8973], [8976], [8977], [8980], [8981], [8983], [8984], [8986], [8987], [8988], [8989], [8991], [8996], [8999], [9001], [9002], [9003], [9004], [9005], [9006], [9007], [9008], [9009], [9010], [9011], [9012], [9013], [9014], [9015], [9016], [9017], [9018], [9019], [9020], [9021], [9022], [9023], [9024], [9025], [9026], [9027], [9028], [9029], [9030], [9031], [9032], [9033], [9034], [9035], [9036], [9037], [9038], [9039], [9040], [9041], [9042], [9043], [9044], [9045], [9046], [9047], [9048], [9049], [9050], [9051], [9052], [9053], [9054], [9055], [9056], [9057], [9058], [9059], [9060], [9061], [9062], [9063], [9064], [9065], [9066], [9067], [9068], [9069], [9070], [9071], [9072], [9073], [9074], [9075], [9076], [9077], [9078], [9079], [9080], [9081], [9082], [9083], [9084], [9085], [9086], [9087], [9088], [9089], [9090], [9091], [9092], [9093], [9094], [9095], [9096], [9097], [9098], [9099], [9100], [9101], [9102], [9103], [9104], [9105], [9106], [9107], [9108], [9111], [9114], [9115], [9116], [9117], [9118], [9119], [9120], [9121], [9122],

[9124], [9128], [9129], [9131], [9133], [9134], [9135], [9136], [9137], [9138], [9139], [9140], [9141], [9142], [9145], [9146], [9147], [9151], [9152], [9153], [9154], [9155], [9156], [9157], [9158], [9159], [9160], [9161], [9164], [9166], [9168], [9170], [9171], [9173], [9174], [9177], [9178], [9179], [9180], [9181], [9187], [9188], [9189], [9192], [9193], [9194], [9195], [9196], [9199], [9201], [9202], [9203], [9204], [9205], [9206], [9207], [9208], [9209], [9210], [9211], [9212], [9213], [9214], [9215], [9216], [9217], [9218], [9219], [9220], [9221], [9222], [9223], [9224], [9225], [9227], [9228], [9229], [9232], [9233], [9234], [9241], [9242], [9244], [9247], [9248], [9252], [9254], [9255], [9256], [9257], [9258], [9259], [9260], [9266], [9272], [9273], [9275], [9276], [9277], [9278], [9279], [9280], [9281], [9282], [9283], [9284], [9285], [9286], [9287], [9288], [9289], [9290], [9291], [9292], [9293], [9294], [9295], [9296], [9297], [9298], [9299], [9300], [9301], [9302], [9303], [9304], [9305], [9306], [9307], [9308], [9309], [9310], [9311], [9312], [9313], [9314], [9315], [9316], [9317], [9318], [9319], [9320], [9321], [9322], [9323], [9324], [9325], [9326], [9327], [9328], [9329], [9330], [9331], [9333], [9334], [9335], [9337], [9339], [9340], [9342], [9343], [9344], [9345], [9346], [9347], [9351], [9352], [9353], [9354], [9355], [9356], [9357], [9358], [9359], [9360], [9361], [9362], [9363], [9364], [9365], [9366], [9367], [9368], [9369], [9370], [9371], [9372], [9373], [9374], [9375], [9376], [9377], [9378], [9380], [9383], [9384], [9385], [9387], [9388], [9389], [9391], [9393], [9397], [9401], [9402], [9403], [9404], [9405], [9406], [9407], [9408], [9409], [9410], [9411], [9412], [9413], [9414], [9415], [9416], [9417], [9418], [9419], [9420], [9421], [9422], [9423], [9424], [9425], [9429], [9430], [9431], [9432], [9433], [9435], [9439], [9440], [9441], [9443], [9444], [9446], [9447], [9448], [9449], [9451], [9452], [9453], [9454], [9455], [9456], [9457], [9458], [9459], [9460], [9461], [9462], [9463], [9464], [9465], [9466], [9467], [9468], [9469], [9470], [9471], [9472], [9473], [9474], [9475], [9476], [9477], [9479], [9481], [9482], [9483], [9485], [9487], [9489], [9492], [9493], [9494], [9496], [9498], [9499], [9501], [9502], [9503], [9504], [9505], [9506], [9507], [9508], [9509], [9510], [9511], [9512], [9513], [9514], [9515], [9516], [9517], [9518], [9519], [9520], [9521], [9522], [9523], [9524], [9525], [9526], [9527], [9528], [9529], [9530], [9532], [9534], [9535], [9537], [9538], [9539], [9540], [9541], [9544], [9545], [9548], [9552], [9553], [9554], [9555], [9556], [9557], [9558], [9559], [9560], [9568], [9570], [9574], [9576], [9577], [9578], [9579], [9580], [9581], [9582], [9583], [9584], [9585], [9586], [9588], [9589], [9590], [9592], [9593], [9594], [9595], [9596], [9597], [9598], [9600], [9601], [9602], [9603], [9604], [9605], [9606], [9607], [9608], [9609], [9610], [9611], [9612], [9613], [9614], [9615], [9616], [9617], [9618], [9619], [9620], [9621], [9622], [9623], [9624], [9625], [9626], [9628], [9629], [9630], [9632], [9635], [9636], [9637], [9638], [9641], [9642], [9643], [9644], [9645], [9647], [9648], [9649], [9650], [9651], [9652], [9653], [9654], [9655], [9656], [9657], [9658], [9659], [9660], [9661], [9662], [9663], [9664], [9665], [9666], [9667],

[9668], [9669], [9670], [9671], [9672], [9673], [9674], [9675], [9676], [9677], [9678], [9679], [9680], [9681], [9682], [9683], [9684], [9685], [9686], [9687], [9688], [9689], [9690], [9691], [9692], [9693], [9694], [9695], [9696], [9697], [9698], [9699], [9700], [9701], [9703], [9704], [9705], [9706], [9707], [9708], [9709], [9710], [9711], [9712], [9713], [9714], [9717], [9718], [9719], [9721], [9726], [9727], [9728], [9729], [9730], [9731], [9732], [9733], [9734], [9735], [9736], [9737], [9738], [9739], [9740], [9741], [9742], [9743], [9744], [9745], [9746], [9747], [9748], [9749], [9750], [9751], [9752], [9753], [9754], [9755], [9756], [9757], [9758], [9759], [9760], [9761], [9762], [9763], [9764], [9765], [9766], [9767], [9768], [9769], [9770], [9771], [9772], [9773], [9774], [9775], [9777], [9778], [9780], [9783], [9785], [9786], [9787], [9788], [9790], [9791], [9793], [9794], [9795], [9797], [9798], [9799], [9801], [9802], [9803], [9804], [9805], [9806], [9807], [9808], [9809], [9810], [9811], [9812], [9813], [9814], [9815], [9816], [9817], [9818], [9819], [9820], [9821], [9822], [9823], [9824], [9825], [9826], [9827], [9828], [9829], [9830], [9831], [9832], [9833], [9834], [9835], [9836], [9837], [9838], [9839], [9840], [9841], [9842], [9843], [9844], [9845], [9846], [9847], [9848], [9849], [9850], [9852], [9853], [9855], [9856], [9857], [9859], [9860], [9861], [9862], [9863], [9864], [9865], [9866], [9868], [9870], [9871], [9873], [9874], [9875], [9877], [9878], [9882], [9883], [9886], [9888], [9889], [9890], [9892], [9895], [9896], [9897], [9900], [9901], [9902], [9903], [9904], [9905], [9906], [9907], [9912], [9913], [9914], [9917], [9919], [9920], [9921], [9922], [9924], [9926], [9927], [9928], [9929], [9930], [9931], [9932], [9933], [9934], [9935], [9936], [9937], [9938], [9939], [9940], [9941], [9942], [9943], [9944], [9945], [9946], [9947], [9948], [9949], [9950], [9951], [9952], [9953], [9954], [9955], [9956], [9957], [9958], [9959], [9960], [9961], [9962], [9963], [9964], [9965], [9966], [9967], [9968], [9969], [9970], [9971], [9972], [9973], [9974], [9975], [9976], [9977], [9978], [9979], [9980], [9981], [9982], [9983], [9984], [9985], [9986], [9987], [9988], [9989], [9990], [9991], [9992], [9993], [9994], [9995], [9996], [10000], [10001], [10002], [10003], [10004], [10005], [10006], [10007], [10008], [10009], [10010], [10011], [10012], [10013], [10014], [10015], [10016], [10017], [10018], [10019], [10020], [10021], [10022], [10023], [10024], [10025], [10026], [10027], [10028], [10029], [10030], [10031], [10032], [10033], [10034], [10035], [10036], [10037], [10038], [10039], [10040], [10041], [10042], [10043], [10044], [10045], [10046], [10047], [10048], [10049], [10050], [10051], [10052], [10053], [10054], [10055], [10056], [10057], [10058], [10059], [10060], [10061], [10062], [10063], [10064], [10065], [10066], [10067], [10068], [10069], [10070], [10071], [10072], [10073], [10074], [10075], [10077], [10079], [10081], [10082], [10085], [10087], [10091], [10093], [10094], [10095], [10096], [10098], [10101], [10103], [10104], [10106], [10107], [10109], [10110], [10111], [10112], [10113], [10114], [10118], [10120], [10121], [10122], [10124], [10126], [10127], [10128], [10129], [10130],

[10131], [10132], [10133], [10134], [10135], [10136], [10137], [10138], [10139],
[10140], [10141], [10142], [10143], [10144], [10145], [10146], [10147], [10148],
[10149], [10150], [10151], [10152], [10153], [10154], [10155], [10156], [10157],
[10158], [10159], [10160], [10161], [10162], [10163], [10164], [10165], [10166],
[10167], [10168], [10169], [10170], [10171], [10172], [10173], [10174], [10175],
[10176], [10177], [10178], [10179], [10180], [10181], [10182], [10183], [10184],
[10185], [10186], [10187], [10188], [10189], [10190], [10191], [10192], [10193],
[10194], [10195], [10196], [10197], [10198], [10199], [10200], [10201], [10206],
[10212], [10214], [10216], [10220], [10222], [10228], [10229], [10233], [10234],
[10235], [10237], [10238], [10241], [10242], [10243], [10245], [10246], [10250],
[10251], [10252], [10253], [10254], [10255], [10256], [10257], [10258], [10259],
[10260], [10261], [10262], [10263], [10264], [10265], [10266], [10267], [10268],
[10269], [10270], [10271], [10272], [10273], [10274], [10275], [10276], [10277],
[10278], [10279], [10280], [10281], [10282], [10283], [10284], [10285], [10286],
[10287], [10288], [10289], [10290], [10291], [10292], [10293], [10294], [10295],
[10296], [10297], [10298], [10299], [10300], [10302], [10303], [10304], [10305],
[10307], [10308], [10310], [10311], [10312], [10313], [10314], [10315], [10316],
[10317], [10318], [10319], [10320], [10321], [10326], [10327], [10328], [10329],
[10330], [10331], [10332], [10333], [10334], [10335], [10336], [10337], [10338],
[10339], [10340], [10341], [10342], [10343], [10344], [10345], [10346], [10347],
[10348], [10349], [10350], [10351], [10352], [10353], [10354], [10355], [10356],
[10357], [10358], [10359], [10360], [10361], [10362], [10363], [10364], [10365],
[10366], [10367], [10368], [10369], [10370], [10371], [10372], [10373], [10374],
[10375], [10377], [10378], [10379], [10380], [10381], [10382], [10383], [10384],
[10385], [10386], [10387], [10388], [10389], [10390], [10391], [10392], [10393],
[10394], [10395], [10396], [10397], [10398], [10401], [10402], [10403], [10405],
[10406], [10407], [10408], [10409], [10410], [10411], [10412], [10413], [10414],
[10415], [10417], [10418], [10419], [10420], [10421], [10422], [10423], [10424],
[10426], [10427], [10429], [10431], [10432], [10433], [10434], [10435], [10436],
[10437], [10438], [10439], [10441], [10442], [10443], [10444], [10445], [10447],
[10448], [10449], [10451], [10452], [10453], [10454], [10455], [10456], [10457],
[10458], [10459], [10460], [10461], [10462], [10463], [10464], [10465], [10466],
[10467], [10468], [10469], [10470], [10471], [10472], [10473], [10474], [10475],
[10476], [10477], [10478], [10479], [10480], [10481], [10482], [10483], [10484],
[10485], [10486], [10487], [10488], [10489], [10490], [10491], [10492], [10493],
[10494], [10495], [10496], [10497], [10498], [10499], [10500], [10501], [10502],
[10503], [10504], [10505], [10506], [10507], [10508], [10509], [10510], [10511],
[10512], [10513], [10514], [10515], [10516], [10517], [10518], [10519], [10520],

[10521], [10522], [10523], [10524], [10525], [10526], [10527], [10528], [10529],
[10530], [10531], [10532], [10533], [10534], [10535], [10536], [10537], [10538],
[10539], [10540], [10541], [10542], [10543], [10544], [10545], [10546], [10547],
[10548], [10549], [10550], [10551], [10553], [10555], [10557], [10560], [10561],
[10564], [10565], [10566], [10568], [10570], [10572], [10573], [10575], [10576],
[10577], [10578], [10580], [10581], [10582], [10583], [10584], [10585], [10587],
[10588], [10590], [10591], [10592], [10593], [10594], [10595], [10596], [10598],
[10601], [10602], [10603], [10604], [10605], [10606], [10607], [10608], [10609],
[10610], [10611], [10612], [10613], [10614], [10615], [10616], [10617], [10618],
[10619], [10620], [10621], [10622], [10623], [10624], [10625], [10626], [10627],
[10628], [10629], [10630], [10631], [10632], [10633], [10634], [10635], [10636],
[10637], [10638], [10639], [10640], [10641], [10642], [10643], [10644], [10645],
[10646], [10647], [10648], [10649], [10650], [10651], [10653], [10654], [10655],
[10660], [10662], [10663], [10664], [10665], [10666], [10667], [10668], [10669],
[10670], [10671], [10672], [10676], [10677], [10678], [10679], [10680], [10682],
[10683], [10685], [10686], [10687], [10691], [10692], [10694], [10695], [10696],
[10697], [10700], [10701], [10702], [10704], [10705], [10706], [10707], [10708],
[10709], [10710], [10711], [10712], [10713], [10714], [10715], [10716], [10717],
[10718], [10720], [10721], [10722], [10723], [10724], [10726], [10727], [10728],
[10729], [10731], [10733], [10734], [10735], [10736], [10739], [10741], [10742],
[10743], [10744], [10745], [10747], [10748], [10749], [10750], [10751], [10752],
[10753], [10754], [10755], [10756], [10757], [10758], [10759], [10760], [10761],
[10762], [10763], [10764], [10765], [10766], [10767], [10768], [10769], [10770],
[10771], [10772], [10773], [10774], [10775], [10776], [10777], [10778], [10779],
[10780], [10781], [10782], [10783], [10784], [10785], [10786], [10787], [10788],
[10789], [10790], [10791], [10792], [10793], [10794], [10795], [10796], [10797],
[10798], [10799], [10800], [10801], [10802], [10803], [10804], [10805], [10806],
[10807], [10808], [10809], [10810], [10811], [10812], [10813], [10814], [10815],
[10816], [10817], [10818], [10819], [10820], [10821], [10822], [10823], [10824],
[10825], [10826], [10827], [10828], [10829], [10830], [10831], [10832], [10833],
[10834], [10835], [10836], [10837], [10838], [10839], [10840], [10841], [10842],
[10843], [10844], [10845], [10846], [10847], [10848], [10849], [10850], [10851],
[10852], [10853], [10854], [10855], [10856], [10857], [10858], [10859], [10860],
[10861], [10862], [10863], [10864], [10865], [10866], [10867], [10868], [10869],
[10870], [10871], [10872], [10873], [10874], [10875], [10876], [10877], [10878],
[10879], [10880], [10881], [10882], [10883], [10884], [10885], [10886], [10887],
[10888], [10889], [10890], [10891], [10892], [10893], [10894], [10895], [10896],
[10897], [10898], [10899], [10900], [10901], [10903], [10904], [10905], [10906],

[10907], [10909], [10910], [10911], [10912], [10913], [10914], [10915], [10916],
[10917], [10918], [10919], [10920], [10921], [10922], [10923], [10924], [10926],
[10927], [10928], [10929], [10930], [10931], [10932], [10933], [10934], [10935],
[10936], [10937], [10938], [10939], [10940], [10941], [10942], [10943], [10944],
[10945], [10946], [10947], [10948], [10949], [10950], [10951], [10952], [10953],
[10954], [10955], [10956], [10957], [10958], [10959], [10960], [10961], [10962],
[10963], [10964], [10965], [10966], [10967], [10968], [10969], [10970], [10971],
[10972], [10973], [10974], [10975], [10977], [10979], [10980], [10985], [10986],
[10987], [10988], [10991], [10993], [10995], [10996], [10998], [11001], [11002],
[11003], [11004], [11005], [11006], [11007], [11008], [11009], [11010], [11011],
[11012], [11013], [11014], [11015], [11016], [11017], [11018], [11019], [11020],
[11021], [11022], [11023], [11024], [11025], [11026], [11028], [11029], [11030],
[11035], [11037], [11038], [11039], [11040], [11041], [11043], [11044], [11045],
[11046], [11047], [11048], [11049], [11052], [11053], [11055], [11056], [11057],
[11058], [11059], [11060], [11061], [11064], [11065], [11066], [11067], [11068],
[11069], [11071], [11074], [11076], [11077], [11078], [11079], [11080], [11081],
[11082], [11083], [11084], [11085], [11086], [11087], [11088], [11089], [11090],
[11091], [11092], [11093], [11094], [11095], [11096], [11097], [11098], [11099],
[11100], [11101], [11102], [11103], [11104], [11105], [11106], [11107], [11108],
[11109], [11110], [11111], [11112], [11113], [11114], [11115], [11116], [11117],
[11118], [11119], [11120], [11121], [11122], [11123], [11124], [11125], [11126],
[11128], [11130], [11131], [11132], [11133], [11135], [11136], [11137], [11138],
[11139], [11141], [11144], [11145], [11146], [11149], [11150], [11152], [11153],
[11154], [11155], [11159], [11161], [11162], [11163], [11164], [11166], [11169],
[11171], [11177], [11178], [11179], [11180], [11181], [11184], [11185], [11187],
[11190], [11191], [11193], [11196], [11199], [11200], [11201], [11202], [11203],
[11204], [11205], [11206], [11207], [11208], [11209], [11210], [11211], [11212],
[11213], [11214], [11215], [11216], [11217], [11218], [11219], [11220], [11221],
[11222], [11223], [11224], [11225], [11226], [11227], [11229], [11230], [11234],
[11237], [11239], [11241], [11243], [11244], [11246], [11249], [11250], [11251],
[11253], [11254], [11256], [11258], [11259], [11262], [11265], [11266], [11267],
[11272], [11273], [11276], [11277], [11278], [11279], [11280], [11281], [11282],
[11283], [11284], [11285], [11286], [11287], [11288], [11289], [11290], [11291],
[11292], [11293], [11294], [11295], [11296], [11297], [11298], [11299], [11300],
[11301], [11302], [11303], [11304], [11305], [11306], [11307], [11308], [11309],
[11310], [11311], [11312], [11313], [11314], [11315], [11316], [11317], [11318],
[11319], [11320], [11321], [11322], [11323], [11324], [11325], [11326], [11327],
[11328], [11331], [11333], [11334], [11335], [11336], [11337], [11339], [11340],

[11341], [11342], [11343], [11344], [11346], [11347], [11348], [11349], [11351], [11352], [11353], [11354], [11355], [11356], [11357], [11358], [11359], [11360], [11361], [11362], [11363], [11364], [11365], [11366], [11367], [11368], [11369], [11370], [11371], [11372], [11373], [11374], [11375], [11376], [11377], [11378], [11379], [11380], [11381], [11382], [11383], [11384], [11385], [11386], [11387], [11388], [11389], [11390], [11391], [11392], [11393], [11394], [11395], [11396], [11397], [11398], [11399], [11400], [11401], [11402], [11403], [11404], [11405], [11406], [11407], [11408], [11409], [11410], [11411], [11412], [11413], [11414], [11415], [11416], [11417], [11418], [11419], [11420], [11421], [11422], [11423], [11424], [11425], [11426], [11427], [11428], [11429], [11430], [11431], [11432], [11433], [11434], [11435], [11436], [11437], [11438], [11439], [11440], [11441], [11442], [11443], [11444], [11445], [11446], [11447], [11448], [11449], [11450], [11451], [11452], [11453], [11454], [11455], [11456], [11457], [11458], [11459], [11460], [11461], [11463], [11464], [11466], [11467], [11468], [11469], [11472], [11473], [11474], [11476], [11477], [11481], [11482], [11483], [11484], [11486], [11488], [11489], [11490], [11491], [11492], [11493], [11494], [11496], [11497], [11499], [11501], [11502], [11503], [11504], [11505], [11506], [11507], [11508], [11509], [11510], [11511], [11512], [11513], [11514], [11515], [11516], [11517], [11518], [11519], [11520], [11521], [11522], [11523], [11524], [11525], [11526], [11527], [11528], [11529], [11530], [11531], [11532], [11533], [11534], [11535], [11536], [11537], [11538], [11539], [11540], [11541], [11542], [11543], [11544], [11545], [11546], [11547], [11548], [11549], [11550], [11551], [11552], [11553], [11554], [11555], [11556], [11557], [11558], [11559], [11560], [11561], [11562], [11563], [11564], [11565], [11566], [11567], [11568], [11569], [11570], [11571], [11572], [11573], [11574], [11575], [11576], [11577], [11578], [11579], [11580], [11581], [11582], [11583], [11584], [11585], [11586], [11587], [11588], [11589], [11590], [11591], [11592], [11593], [11594], [11595], [11596], [11597], [11598], [11599], [11600], [11602], [11603], [11604], [11605], [11609], [11610], [11611], [11613], [11614], [11617], [11618], [11619], [11620], [11621], [11622], [11623], [11625], [11627], [11628], [11629], [11631], [11632], [11633], [11634], [11636], [11637], [11638], [11639], [11640], [11641], [11642], [11643], [11644], [11646], [11647], [11649], [11652], [11653], [11654], [11656], [11657], [11658], [11659], [11660], [11661], [11662], [11664], [11665], [11666], [11667], [11668], [11670], [11671], [11672], [11673], [11675], [11676], [11677], [11678], [11679], [11680], [11681], [11682], [11683], [11684], [11685], [11686], [11687], [11688], [11689], [11690], [11691], [11692], [11693], [11694], [11695], [11696], [11697], [11698], [11699], [11700], [11701], [11703], [11705], [11707], [11709], [11710], [11712], [11713], [11717], [11718], [11719], [11720], [11722], [11723], [11724], [11726],

[11727], [11728], [11729], [11730], [11731], [11732], [11733], [11734], [11735], [11736], [11737], [11738], [11739], [11740], [11741], [11742], [11743], [11744], [11745], [11746], [11747], [11748], [11749], [11750], [11751], [11752], [11753], [11754], [11755], [11756], [11757], [11758], [11759], [11760], [11761], [11762], [11763], [11764], [11765], [11766], [11767], [11768], [11769], [11770], [11771], [11772], [11773], [11774], [11775], [11777], [11778], [11779], [11780], [11782], [11783], [11784], [11789], [11790], [11791], [11793], [11794], [11795], [11796], [11797], [11799], [11801], [11802], [11803], [11804], [11805], [11806], [11807], [11808], [11809], [11810], [11811], [11812], [11813], [11814], [11815], [11816], [11817], [11818], [11819], [11820], [11821], [11822], [11823], [11824], [11825], [11827], [11828], [11829], [11830], [11831], [11832], [11834], [11835], [11843], [11844], [11846], [11847], [11848], [11849], [11850], [11852], [11859], [11862], [11864], [11865], [11866], [11867], [11868], [11869], [11870], [11873], [11874], [11876], [11878], [11880], [11881], [11882], [11884], [11885], [11886], [11887], [11888], [11889], [11891], [11892], [11894], [11895], [11896], [11897], [11898], [11901], [11902], [11903], [11904], [11905], [11906], [11907], [11908], [11909], [11910], [11911], [11912], [11913], [11914], [11915], [11916], [11917], [11918], [11919], [11920], [11921], [11922], [11923], [11924], [11925], [11928], [11933], [11934], [11936], [11939], [11940], [11941], [11942], [11943], [11944], [11945], [11946], [11947], [11949], [11951], [11952], [11953], [11954], [11955], [11956], [11957], [11958], [11959], [11960], [11961], [11962], [11963], [11964], [11965], [11966], [11967], [11968], [11969], [11970], [11971], [11972], [11973], [11974], [11975], [11976], [11980], [11982], [11984], [11985], [11987], [11988], [11989], [11990], [11991], [11992], [11993], [11995], [11999], [12001], [12002], [12003], [12004], [12005], [12006], [12007], [12008], [12009], [12010], [12011], [12012], [12013], [12014], [12015], [12016], [12017], [12018], [12019], [12020], [12021], [12022], [12023], [12024], [12025], [12026], [12027], [12028], [12029], [12030], [12031], [12032], [12033], [12034], [12035], [12036], [12037], [12038], [12039], [12040], [12041], [12042], [12043], [12044], [12045], [12046], [12047], [12048], [12049], [12050], [12051], [12052], [12054], [12056], [12057], [12060], [12061], [12062], [12063], [12065], [12067], [12068], [12069], [12071], [12072], [12073], [12074], [12075], [12076], [12077], [12078], [12079], [12080], [12081], [12082], [12083], [12084], [12085], [12086], [12087], [12088], [12089], [12090], [12091], [12092], [12093], [12094], [12095], [12096], [12097], [12098], [12099], [12100], [12101], [12103], [12105], [12106], [12107], [12108], [12111], [12114], [12119], [12120], [12121], [12122], [12123], [12126], [12127], [12128], [12129], [12131], [12133], [12134], [12135], [12137], [12138], [12139], [12140], [12143], [12144], [12146], [12149], [12151], [12152], [12153], [12154], [12155], [12156], [12157],

[12158], [12159], [12160], [12161], [12162], [12163], [12164], [12165], [12166],
[12167], [12168], [12169], [12170], [12171], [12172], [12173], [12174], [12175],
[12176], [12177], [12179], [12180], [12181], [12182], [12183], [12184], [12185],
[12186], [12188], [12189], [12190], [12191], [12192], [12194], [12195], [12196],
[12197], [12199], [12200], [12201], [12202], [12205], [12206], [12207], [12208],
[12209], [12210], [12211], [12212], [12213], [12214], [12216], [12217], [12218],
[12219], [12222], [12223], [12226], [12227], [12228], [12229], [12230], [12231],
[12232], [12233], [12234], [12235], [12236], [12237], [12238], [12239], [12240],
[12241], [12242], [12243], [12244], [12245], [12246], [12247], [12248], [12249],
[12250], [12251], [12252], [12253], [12254], [12255], [12256], [12257], [12258],
[12259], [12260], [12261], [12262], [12263], [12264], [12265], [12266], [12267],
[12268], [12269], [12270], [12271], [12272], [12273], [12274], [12275], [12276],
[12277], [12278], [12279], [12280], [12281], [12282], [12283], [12284], [12285],
[12286], [12287], [12288], [12289], [12290], [12291], [12292], [12293], [12294],
[12295], [12296], [12297], [12298], [12299], [12300], [12301], [12303], [12304],
[12305], [12307], [12308], [12310], [12311], [12312], [12313], [12316], [12320],
[12321], [12322], [12323], [12324], [12325], [12328], [12330], [12331], [12332],
[12335], [12338], [12339], [12340], [12342], [12345], [12346], [12347], [12349],
[12350], [12353], [12356], [12357], [12358], [12360], [12362], [12363], [12364],
[12365], [12368], [12369], [12371], [12373], [12374], [12376], [12379], [12380],
[12381], [12382], [12383], [12385], [12386], [12387], [12388], [12389], [12390],
[12393], [12394], [12395], [12397], [12398], [12399], [12401], [12402], [12410],
[12411], [12412], [12413], [12414], [12416], [12417], [12418], [12419], [12421],
[12424], [12426], [12427], [12428], [12429], [12430], [12431], [12432], [12433],
[12434], [12435], [12436], [12437], [12438], [12439], [12440], [12441], [12442],
[12443], [12444], [12445], [12446], [12447], [12448], [12449], [12450], [12451],
[12452], [12454], [12455], [12456], [12458], [12459], [12464], [12465], [12467],
[12468], [12469], [12470], [12471], [12472], [12474], [12476], [12477], [12478],
[12479], [12480], [12481], [12482], [12483], [12484], [12485], [12486], [12487],
[12488], [12489], [12490], [12491], [12492], [12493], [12494], [12495], [12496],
[12497], [12498], [12499], [12500], [12501], [12502], [12503], [12504], [12505],
[12506], [12509], [12510], [12511], [12512], [12513], [12516], [12517], [12518],
[12520], [12522], [12523], [12524], [12526], [12527], [12528], [12529], [12530],
[12531], [12532], [12533], [12534], [12535], [12536], [12537], [12538], [12539],
[12540], [12541], [12542], [12543], [12544], [12545], [12546], [12547], [12548],
[12549], [12550], [12551], [12552], [12553], [12554], [12555], [12556], [12557],
[12558], [12559], [12560], [12561], [12562], [12563], [12564], [12565], [12566],
[12567], [12568], [12569], [12570], [12571], [12572], [12573], [12574], [12575],

[12576], [12577], [12579], [12581], [12582], [12583], [12584], [12585], [12586], [12587], [12589], [12590], [12591], [12592], [12593], [12594], [12596], [12598], [12599], [12601], [12602], [12603], [12604], [12605], [12606], [12607], [12608], [12609], [12610], [12611], [12612], [12613], [12614], [12615], [12616], [12617], [12618], [12619], [12620], [12621], [12622], [12623], [12624], [12625], [12626], [12627], [12628], [12629], [12630], [12631], [12632], [12633], [12634], [12635], [12636], [12637], [12638], [12639], [12640], [12641], [12642], [12643], [12644], [12645], [12646], [12647], [12648], [12649], [12650], [12651], [12652], [12653], [12654], [12655], [12656], [12657], [12659], [12660], [12661], [12662], [12663], [12664], [12665], [12666], [12667], [12668], [12670], [12671], [12672], [12673], [12674], [12677], [12678], [12679], [12680], [12681], [12683], [12684], [12685], [12686], [12687], [12689], [12690], [12693], [12694], [12695], [12696], [12699], [12701], [12702], [12703], [12704], [12705], [12706], [12707], [12708], [12709], [12710], [12711], [12712], [12713], [12714], [12715], [12716], [12717], [12718], [12719], [12720], [12721], [12722], [12723], [12724], [12725], [12726], [12727], [12728], [12729], [12730], [12731], [12733], [12736], [12738], [12739], [12740], [12741], [12742], [12743], [12746], [12747], [12748], [12749], [12751], [12752], [12753], [12754], [12755], [12756], [12757], [12758], [12759], [12760], [12761], [12762], [12763], [12764], [12765], [12766], [12767], [12768], [12769], [12770], [12771], [12772], [12773], [12774], [12775], [12776], [12777], [12778], [12779], [12780], [12781], [12782], [12783], [12784], [12785], [12786], [12787], [12788], [12789], [12790], [12791], [12792], [12793], [12794], [12795], [12796], [12797], [12798], [12799], [12800], [12803], [12804], [12805], [12806], [12808], [12810], [12811], [12813], [12814], [12815], [12816], [12818], [12819], [12824], [12826], [12828], [12829], [12830], [12832], [12835], [12836], [12838], [12839], [12841], [12842], [12844], [12845], [12847], [12849], [12850], [12852], [12854], [12856], [12857], [12858], [12859], [12860], [12862], [12863], [12864], [12865], [12866], [12867], [12868], [12870], [12872], [12875], [12876], [12877], [12878], [12880], [12881], [12883], [12884], [12885], [12886], [12887], [12888], [12889], [12893], [12894], [12896], [12897], [12898], [12899], [12901], [12902], [12903], [12904], [12905], [12906], [12907], [12908], [12909], [12910], [12911], [12912], [12913], [12914], [12915], [12916], [12917], [12918], [12919], [12920], [12921], [12922], [12923], [12924], [12925], [12926], [12928], [12929], [12930], [12931], [12932], [12933], [12934], [12937], [12938], [12939], [12940], [12941], [12942], [12943], [12944], [12945], [12947], [12951], [12953], [12954], [12955], [12956], [12957], [12959], [12961], [12964], [12966], [12967], [12968], [12969], [12970], [12972], [12973], [12974], [12976], [12977], [12978], [12979], [12980], [12981], [12982], [12983], [12984], [12985], [12986], [12987], [12988], [12989], [12990], [12991],

[12992], [12993], [12994], [12995], [12996], [12997], [12998], [12999], [13000],
[13001], [13003], [13004], [13005], [13006], [13008], [13010], [13011], [13013],
[13014], [13015], [13016], [13017], [13018], [13019], [13021], [13024], [13026],
[13027], [13028], [13029], [13030], [13031], [13032], [13033], [13034], [13035],
[13036], [13037], [13038], [13039], [13040], [13041], [13042], [13043], [13044],
[13045], [13046], [13047], [13048], [13049], [13050], [13051], [13052], [13053],
[13054], [13055], [13056], [13057], [13058], [13059], [13060], [13061], [13062],
[13063], [13064], [13065], [13066], [13067], [13068], [13069], [13070], [13071],
[13072], [13073], [13074], [13075], [13076], [13077], [13078], [13079], [13082],
[13083], [13084], [13085], [13086], [13088], [13090], [13091], [13093], [13095],
[13097], [13098], [13099], [13102], [13106], [13107], [13108], [13109], [13111],
[13112], [13115], [13116], [13118], [13119], [13120], [13123], [13124], [13126],
[13127], [13128], [13131], [13132], [13133], [13134], [13136], [13137], [13138],
[13139], [13140], [13141], [13142], [13143], [13144], [13145], [13146], [13148],
[13149], [13151], [13152], [13153], [13154], [13155], [13156], [13157], [13158],
[13159], [13160], [13161], [13162], [13163], [13164], [13165], [13166], [13167],
[13168], [13169], [13170], [13171], [13172], [13173], [13174], [13175], [13176],
[13177], [13178], [13179], [13180], [13181], [13182], [13183], [13184], [13185],
[13186], [13187], [13188], [13189], [13190], [13191], [13192], [13193], [13194],
[13195], [13196], [13197], [13198], [13199], [13200], [13201], [13202], [13203],
[13204], [13205], [13206], [13207], [13208], [13209], [13210], [13211], [13212],
[13213], [13214], [13215], [13216], [13217], [13218], [13219], [13220], [13221],
[13222], [13223], [13224], [13225], [13226], [13229], [13230], [13232], [13233],
[13234], [13236], [13237], [13238], [13239], [13240], [13241], [13242], [13243],
[13245], [13246], [13249], [13251], [13252], [13254], [13255], [13256], [13257],
[13258], [13259], [13260], [13262], [13263], [13264], [13265], [13267], [13268],
[13269], [13270], [13271], [13274], [13276], [13277], [13279], [13280], [13281],
[13282], [13283], [13285], [13286], [13287], [13291], [13293], [13294], [13295],
[13297], [13298], [13307], [13311], [13313], [13314], [13315], [13317], [13318],
[13319], [13321], [13322], [13323], [13328], [13329], [13330], [13331], [13332],
[13338], [13342], [13343], [13344], [13346], [13347], [13348], [13349], [13350],
[13351], [13352], [13353], [13354], [13355], [13356], [13357], [13358], [13360],
[13361], [13362], [13363], [13364], [13365], [13366], [13367], [13368], [13369],
[13370], [13371], [13372], [13373], [13376], [13378], [13379], [13380], [13381],
[13382], [13384], [13385], [13386], [13387], [13388], [13389], [13390], [13391],
[13392], [13393], [13395], [13396], [13398], [13400], [13404], [13407], [13408],
[13409], [13410], [13412], [13417], [13418], [13419], [13421], [13423], [13424],
[13425], [13426], [13427], [13428], [13429], [13430], [13431], [13432], [13433],

[13434], [13435], [13436], [13437], [13438], [13439], [13440], [13441], [13442], [13443], [13444], [13445], [13446], [13447], [13448], [13449], [13450], [13451], [13452], [13453], [13454], [13455], [13456], [13457], [13458], [13459], [13460], [13461], [13462], [13463], [13464], [13465], [13466], [13467], [13468], [13469], [13470], [13471], [13472], [13473], [13474], [13475], [13476], [13477], [13478], [13479], [13480], [13481], [13482], [13484], [13485], [13486], [13487], [13488], [13489], [13491], [13492], [13494], [13495], [13496], [13497], [13499], [13501], [13502], [13503], [13504], [13505], [13506], [13507], [13508], [13509], [13510], [13511], [13512], [13513], [13514], [13515], [13516], [13517], [13518], [13519], [13520], [13521], [13522], [13523], [13524], [13525], [13526], [13527], [13528], [13530], [13531], [13532], [13533], [13534], [13535], [13536], [13537], [13538], [13540], [13541], [13542], [13543], [13544], [13545], [13546], [13549], [13551], [13552], [13553], [13554], [13556], [13558], [13561], [13565], [13566], [13567], [13568], [13569], [13572], [13573], [13574], [13575], [13576], [13577], [13578], [13579], [13580], [13581], [13582], [13583], [13584], [13585], [13586], [13587], [13588], [13589], [13590], [13591], [13592], [13593], [13594], [13595], [13596], [13597], [13598], [13599], [13600], [13601], [13602], [13603], [13604], [13605], [13606], [13607], [13608], [13609], [13610], [13611], [13612], [13613], [13614], [13615], [13616], [13617], [13618], [13619], [13620], [13621], [13622], [13623], [13624], [13625], [13626], [13627], [13628], [13629], [13630], [13631], [13632], [13633], [13634], [13635], [13636], [13637], [13638], [13639], [13640], [13641], [13642], [13643], [13644], [13645], [13646], [13647], [13648], [13649], [13650], [13651], [13652], [13653], [13654], [13655], [13656], [13657], [13658], [13659], [13660], [13661], [13662], [13663], [13664], [13665], [13666], [13667], [13668], [13669], [13670], [13671], [13672], [13673], [13674], [13675], [13676], [13677], [13679], [13680], [13681], [13683], [13684], [13685], [13687], [13691], [13692], [13693], [13694], [13695], [13696], [13697], [13698], [13699], [13701], [13702], [13704], [13705], [13706], [13707], [13708], [13709], [13710], [13711], [13712], [13721], [13726], [13727], [13728], [13729], [13730], [13731], [13732], [13733], [13734], [13735], [13736], [13737], [13738], [13739], [13740], [13741], [13742], [13743], [13744], [13745], [13746], [13747], [13748], [13749], [13750], [13751], [13752], [13753], [13755], [13756], [13757], [13758], [13759], [13761], [13763], [13764], [13765], [13766], [13767], [13768], [13771], [13772], [13773], [13774], [13776], [13777], [13782], [13783], [13785], [13786], [13788], [13790], [13791], [13792], [13794], [13795], [13797], [13798], [13799], [13801], [13802], [13803], [13804], [13805], [13806], [13807], [13808], [13809], [13811], [13812], [13813], [13814], [13815], [13816], [13817], [13818], [13819], [13826], [13827], [13830], [13831], [13832], [13833], [13834], [13835], [13836], [13837], [13839], [13840],

[13841], [13842], [13844], [13845], [13847], [13848], [13850], [13851], [13852], [13854], [13855], [13857], [13859], [13862], [13863], [13865], [13866], [13867], [13868], [13869], [13870], [13871], [13872], [13873], [13874], [13876], [13877], [13878], [13879], [13880], [13881], [13882], [13883], [13884], [13885], [13886], [13887], [13888], [13889], [13890], [13891], [13892], [13893], [13894], [13895], [13896], [13897], [13898], [13899], [13900], [13901], [13902], [13903], [13904], [13905], [13906], [13907], [13908], [13909], [13910], [13911], [13912], [13913], [13914], [13915], [13916], [13917], [13918], [13919], [13920], [13921], [13922], [13923], [13924], [13925], [13926], [13928], [13929], [13931], [13936], [13937], [13938], [13939], [13940], [13941], [13942], [13943], [13946], [13948], [13951], [13952], [13953], [13954], [13955], [13956], [13957], [13958], [13959], [13960], [13961], [13962], [13963], [13964], [13965], [13966], [13967], [13968], [13969], [13970], [13971], [13972], [13973], [13974], [13975], [13976], [13977], [13978], [13979], [13980], [13981], [13982], [13983], [13984], [13985], [13986], [13987], [13988], [13989], [13990], [13991], [13992], [13994], [13995], [13996], [13998], [13999], [14000], [14001], [14002], [14003], [14004], [14005], [14006], [14007], [14008], [14009], [14010], [14011], [14012], [14013], [14014], [14015], [14016], [14017], [14018], [14019], [14020], [14021], [14022], [14023], [14024], [14025], [14026], [14027], [14028], [14029], [14030], [14031], [14032], [14033], [14035], [14037], [14038], [14040], [14042], [14044], [14045], [14046], [14047], [14048], [14049], [14051], [14052], [14053], [14054], [14055], [14056], [14057], [14058], [14059], [14060], [14061], [14062], [14063], [14064], [14065], [14066], [14067], [14068], [14069], [14070], [14071], [14072], [14073], [14074], [14075], [14076], [14077], [14078], [14080], [14082], [14083], [14085], [14087], [14089], [14091], [14093], [14098], [14099], [14101], [14102], [14103], [14104], [14105], [14106], [14107], [14108], [14109], [14110], [14111], [14112], [14113], [14114], [14115], [14116], [14117], [14118], [14119], [14120], [14121], [14122], [14123], [14124], [14125], [14126], [14129], [14130], [14131], [14132], [14134], [14135], [14137], [14139], [14140], [14142], [14143], [14146], [14149], [14151], [14152], [14153], [14154], [14155], [14156], [14158], [14159], [14162], [14163], [14164], [14165], [14167], [14169], [14170], [14171], [14173], [14176], [14177], [14178], [14179], [14180], [14181], [14182], [14183], [14184], [14185], [14186], [14187], [14188], [14189], [14190], [14191], [14192], [14193], [14194], [14195], [14196], [14197], [14198], [14199], [14200], [14201], [14202], [14203], [14204], [14205], [14207], [14208], [14209], [14210], [14211], [14213], [14215], [14216], [14217], [14218], [14219], [14220], [14221], [14223], [14224], [14227], [14228], [14230], [14231], [14232], [14233], [14234], [14235], [14238], [14239], [14240], [14241], [14242], [14244], [14245], [14246], [14247], [14248], [14249], [14250], [14251], [14252],

[14253], [14254], [14256], [14257], [14258], [14259], [14260], [14261], [14262],
[14263], [14264], [14266], [14268], [14269], [14270], [14271], [14272], [14273],
[14274], [14276], [14277], [14278], [14279], [14280], [14281], [14282], [14283],
[14284], [14285], [14286], [14287], [14288], [14289], [14290], [14291], [14292],
[14293], [14294], [14295], [14296], [14297], [14298], [14299], [14300], [14301],
[14302], [14303], [14304], [14305], [14306], [14307], [14308], [14309], [14310],
[14311], [14312], [14313], [14314], [14315], [14316], [14317], [14318], [14319],
[14320], [14321], [14322], [14323], [14324], [14325], [14326], [14327], [14328],
[14329], [14330], [14331], [14332], [14333], [14334], [14335], [14336], [14337],
[14338], [14339], [14340], [14341], [14342], [14343], [14344], [14345], [14346],
[14347], [14348], [14349], [14350], [14351], [14352], [14353], [14354], [14355],
[14356], [14357], [14358], [14359], [14360], [14361], [14362], [14363], [14364],
[14365], [14366], [14367], [14368], [14369], [14370], [14371], [14372], [14373],
[14374], [14375], [14376], [14377], [14378], [14379], [14380], [14381], [14382],
[14383], [14384], [14385], [14386], [14387], [14388], [14389], [14390], [14391],
[14392], [14393], [14394], [14395], [14396], [14397], [14398], [14399], [14400],
[14401], [14402], [14404], [14405], [14406], [14407], [14408], [14409], [14414],
[14416], [14420], [14421], [14422], [14423], [14424], [14426], [14427], [14428],
[14430], [14432], [14433], [14435], [14436], [14437], [14438], [14439], [14440],
[14443], [14444], [14445], [14446], [14448], [14450], [14451], [14452], [14453],
[14454], [14455], [14456], [14457], [14458], [14459], [14460], [14461], [14462],
[14463], [14464], [14465], [14466], [14467], [14468], [14469], [14470], [14471],
[14472], [14473], [14474], [14475], [14476], [14477], [14478], [14479], [14480],
[14481], [14482], [14483], [14484], [14485], [14486], [14487], [14488], [14489],
[14490], [14491], [14492], [14493], [14494], [14495], [14496], [14497], [14498],
[14499], [14500], [14501], [14502], [14503], [14504], [14505], [14506], [14507],
[14508], [14509], [14510], [14511], [14512], [14513], [14514], [14515], [14516],
[14517], [14518], [14519], [14520], [14521], [14522], [14523], [14524], [14525],
[14526], [14528], [14529], [14530], [14531], [14532], [14533], [14535], [14536],
[14537], [14538], [14539], [14540], [14541], [14542], [14543], [14545], [14546],
[14548], [14549], [14550], [14551], [14552], [14553], [14554], [14555], [14556],
[14557], [14558], [14559], [14560], [14561], [14562], [14563], [14564], [14565],
[14566], [14567], [14568], [14569], [14570], [14571], [14572], [14573], [14574],
[14575], [14576], [14577], [14578], [14579], [14580], [14581], [14582], [14583],
[14584], [14585], [14586], [14587], [14588], [14589], [14590], [14591], [14592],
[14593], [14594], [14595], [14596], [14597], [14598], [14599], [14600], [14605],
[14606], [14607], [14608], [14609], [14611], [14614], [14615], [14616], [14619],
[14621], [14622], [14623], [14624], [14626], [14627], [14628], [14629], [14630],

[14631], [14632], [14633], [14634], [14635], [14636], [14637], [14638], [14639],
[14640], [14641], [14642], [14643], [14644], [14645], [14646], [14647], [14648],
[14649], [14650], [14651], [14652], [14653], [14654], [14656], [14657], [14658],
[14659], [14661], [14663], [14664], [14666], [14668], [14670], [14671], [14672],
[14673], [14676], [14677], [14678], [14679], [14680], [14681], [14682], [14683],
[14684], [14687], [14689], [14691], [14693], [14694], [14695], [14696], [14699],
[14700], [14701], [14702], [14703], [14704], [14705], [14706], [14707], [14708],
[14709], [14710], [14711], [14712], [14713], [14714], [14715], [14716], [14717],
[14718], [14719], [14720], [14721], [14722], [14723], [14724], [14725], [14726],
[14727], [14729], [14730], [14731], [14732], [14733], [14735], [14736], [14737],
[14739], [14740], [14741], [14742], [14744], [14745], [14746], [14747], [14748],
[14749], [14751], [14753], [14754], [14755], [14756], [14757], [14758], [14759],
[14760], [14761], [14762], [14764], [14765], [14766], [14767], [14769], [14770],
[14771], [14772], [14773], [14775], [14776], [14777], [14778], [14779], [14780],
[14782], [14783], [14785], [14787], [14790], [14792], [14794], [14795], [14796],
[14797], [14800], [14802], [14804], [14805], [14806], [14807], [14808], [14809],
[14810], [14811], [14813], [14814], [14815], [14817], [14818], [14819], [14820],
[14821], [14822], [14823], [14824], [14826], [14827], [14828], [14830], [14831],
[14832], [14833], [14834], [14835], [14836], [14837], [14838], [14839], [14840],
[14842], [14843], [14844], [14845], [14846], [14847], [14849], [14850], [14851],
[14852], [14853], [14855], [14856], [14857], [14861], [14862], [14863], [14864],
[14865], [14866], [14867], [14868], [14870], [14872], [14876], [14877], [14878],
[14879], [14880], [14881], [14882], [14883], [14884], [14885], [14886], [14887],
[14888], [14889], [14890], [14891], [14892], [14893], [14894], [14895], [14896],
[14897], [14898], [14899], [14900], [14902], [14903], [14905], [14906], [14907],
[14908], [14909], [14910], [14912], [14913], [14914], [14917], [14918], [14919],
[14920], [14921], [14922], [14923], [14924], [14926], [14927], [14928], [14929],
[14930], [14931], [14932], [14933], [14934], [14935], [14936], [14937], [14938],
[14939], [14940], [14942], [14943], [14944], [14945], [14946], [14947], [14948],
[14949], [14951], [14952], [14953], [14954], [14955], [14956], [14957], [14958],
[14959], [14960], [14961], [14962], [14963], [14964], [14965], [14966], [14967],
[14968], [14969], [14970], [14971], [14972], [14973], [14974], [14975], [14977],
[14979], [14980], [14981], [14982], [14983], [14984], [14986], [14987], [14988],
[14989], [14990], [14991], [14992], [14993], [14994], [14995], [14996], [14997],
[14999], [15001], [15002], [15003], [15004], [15005], [15006], [15007], [15008],
[15009], [15010], [15011], [15012], [15013], [15014], [15015], [15016], [15017],
[15018], [15019], [15020], [15021], [15022], [15023], [15024], [15025], [15026],
[15027], [15028], [15029], [15030], [15031], [15032], [15033], [15034], [15035],

[15037], [15038], [15039], [15040], [15041], [15042], [15043], [15045], [15046], [15047], [15048], [15049], [15050], [15051], [15052], [15053], [15054], [15055], [15056], [15057], [15058], [15059], [15060], [15061], [15062], [15063], [15064], [15065], [15066], [15067], [15068], [15069], [15070], [15071], [15072], [15073], [15074], [15075], [15076], [15077], [15078], [15079], [15080], [15081], [15082], [15083], [15084], [15085], [15086], [15087], [15088], [15089], [15090], [15091], [15092], [15093], [15094], [15095], [15096], [15097], [15098], [15099], [15100], [15102], [15103], [15105], [15106], [15109], [15110], [15111], [15112], [15113], [15114], [15116], [15117], [15119], [15122], [15124], [15126], [15128], [15129], [15130], [15131], [15132], [15133], [15134], [15135], [15136], [15137], [15138], [15140], [15141], [15142], [15143], [15144], [15145], [15146], [15147], [15148], [15150], [15151], [15152], [15153], [15154], [15155], [15156], [15157], [15158], [15159], [15160], [15161], [15162], [15163], [15164], [15165], [15166], [15167], [15168], [15169], [15170], [15171], [15172], [15173], [15174], [15175], [15176], [15177], [15178], [15179], [15180], [15181], [15182], [15183], [15184], [15185], [15186], [15187], [15188], [15189], [15190], [15191], [15192], [15193], [15194], [15195], [15196], [15197], [15198], [15199], [15200], [15201], [15202], [15203], [15204], [15205], [15206], [15207], [15208], [15209], [15210], [15211], [15212], [15213], [15214], [15215], [15216], [15217], [15218], [15219], [15220], [15221], [15222], [15223], [15224], [15225], [15226], [15228], [15229], [15230], [15231], [15232], [15233], [15235], [15236], [15237], [15239], [15240], [15241], [15242], [15243], [15245], [15248], [15249], [15250], [15251], [15252], [15253], [15254], [15255], [15256], [15257], [15258], [15259], [15260], [15261], [15262], [15263], [15264], [15265], [15266], [15267], [15268], [15269], [15270], [15271], [15272], [15273], [15274], [15275], [15276], [15281], [15282], [15284], [15285], [15286], [15287], [15288], [15289], [15290], [15292], [15293], [15294], [15295], [15296], [15297], [15298], [15299], [15302], [15303], [15305], [15306], [15307], [15308], [15310], [15311], [15316], [15317], [15318], [15319], [15323], [15324], [15326], [15327], [15328], [15331], [15332], [15333], [15334], [15335], [15336], [15338], [15343], [15344], [15346], [15347], [15349], [15350], [15351], [15352], [15353], [15354], [15355], [15356], [15357], [15358], [15359], [15360], [15361], [15362], [15363], [15364], [15365], [15366], [15367], [15368], [15369], [15370], [15371], [15372], [15373], [15374], [15375], [15376], [15377], [15378], [15379], [15380], [15381], [15382], [15383], [15384], [15385], [15386], [15387], [15388], [15389], [15390], [15391], [15392], [15393], [15394], [15395], [15396], [15397], [15398], [15399], [15400], [15401], [15402], [15403], [15404], [15405], [15406], [15407], [15408], [15409], [15410], [15411], [15412], [15413], [15414], [15415], [15416], [15417], [15418], [15419], [15420], [15421], [15422], [15423], [15424], [15425],

[15426], [15427], [15428], [15429], [15430], [15431], [15432], [15433], [15434], [15435], [15436], [15437], [15438], [15439], [15440], [15441], [15442], [15443], [15444], [15445], [15446], [15447], [15448], [15449], [15450], [15451], [15452], [15453], [15454], [15455], [15456], [15457], [15458], [15459], [15460], [15461], [15462], [15463], [15464], [15465], [15466], [15467], [15468], [15469], [15470], [15471], [15472], [15473], [15474], [15475], [15476], [15477], [15478], [15479], [15480], [15481], [15482], [15483], [15484], [15485], [15486], [15487], [15488], [15489], [15490], [15491], [15492], [15493], [15494], [15495], [15496], [15497], [15498], [15499], [15500], [15501], [15502], [15503], [15504], [15505], [15506], [15507], [15508], [15509], [15510], [15511], [15512], [15513], [15514], [15515], [15516], [15517], [15518], [15519], [15520], [15521], [15522], [15523], [15524], [15525], [15526], [15527], [15528], [15529], [15530], [15531], [15532], [15533], [15534], [15535], [15536], [15537], [15538], [15539], [15540], [15541], [15542], [15543], [15544], [15545], [15546], [15547], [15548], [15549], [15550], [15551], [15552], [15553], [15554], [15555], [15559], [15560], [15561], [15563], [15564], [15565], [15566], [15569], [15570], [15571], [15572], [15573], [15574], [15576], [15577], [15578], [15579], [15580], [15581], [15582], [15583], [15584], [15585], [15586], [15587], [15588], [15589], [15590], [15591], [15592], [15593], [15594], [15595], [15596], [15597], [15598], [15599], [15600], [15601], [15602], [15603], [15604], [15605], [15606], [15607], [15608], [15609], [15610], [15611], [15612], [15613], [15614], [15615], [15616], [15617], [15618], [15619], [15620], [15621], [15622], [15623], [15624], [15625], [15626], [15627], [15628], [15629], [15630], [15631], [15632], [15633], [15634], [15635], [15636], [15637], [15638], [15639], [15640], [15641], [15642], [15643], [15644], [15645], [15646], [15647], [15648], [15649], [15650], [15651], [15653], [15654], [15657], [15659], [15660], [15661], [15662], [15663], [15664], [15667], [15669], [15670], [15671], [15672], [15676], [15677], [15678], [15679], [15680], [15681], [15682], [15683], [15684], [15685], [15686], [15687], [15688], [15689], [15690], [15691], [15692], [15693], [15694], [15695], [15696], [15697], [15698], [15699], [15700], [15701], [15702], [15703], [15707], [15708], [15709], [15710], [15712], [15714], [15715], [15716], [15717], [15718], [15719], [15720], [15721], [15722], [15723], [15724], [15725], [15726], [15727], [15728], [15729], [15730], [15731], [15732], [15733], [15734], [15735], [15736], [15737], [15738], [15739], [15740], [15741], [15742], [15743], [15744], [15745], [15746], [15747], [15748], [15749], [15750], [15751], [15752], [15753], [15755], [15756], [15757], [15758], [15759], [15760], [15761], [15762], [15763], [15764], [15765], [15766], [15767], [15768], [15769], [15771], [15772], [15774], [15775], [15776], [15777], [15778], [15779], [15780], [15781], [15782], [15783], [15784], [15785], [15786], [15787], [15788], [15789], [15790], [15791], [15792],

[15793], [15794], [15795], [15796], [15797], [15798], [15799], [15800], [15801], [15802], [15803], [15804], [15805], [15806], [15807], [15808], [15809], [15810], [15811], [15812], [15813], [15814], [15815], [15816], [15817], [15818], [15819], [15820], [15821], [15822], [15823], [15824], [15825], [15827], [15828], [15830], [15831], [15832], [15833], [15834], [15841], [15843], [15845], [15846], [15847], [15848], [15850], [15851], [15852], [15853], [15854], [15855], [15856], [15857], [15858], [15859], [15860], [15861], [15862], [15863], [15864], [15865], [15866], [15867], [15868], [15869], [15870], [15871], [15872], [15873], [15874], [15875], [15876], [15877], [15878], [15879], [15880], [15882], [15883], [15884], [15885], [15886], [15888], [15889], [15891], [15892], [15894], [15895], [15896], [15897], [15899], [15900], [15901], [15902], [15903], [15904], [15905], [15906], [15907], [15908], [15909], [15910], [15911], [15912], [15913], [15914], [15915], [15916], [15917], [15918], [15919], [15920], [15921], [15922], [15923], [15924], [15925], [15926], [15927], [15928], [15929], [15930], [15931], [15932], [15933], [15934], [15935], [15936], [15937], [15938], [15939], [15940], [15941], [15942], [15943], [15944], [15945], [15946], [15947], [15948], [15949], [15950], [15952], [15954], [15955], [15956], [15958], [15959], [15960], [15963], [15964], [15965], [15966], [15967], [15969], [15970], [15971], [15974], [15976], [15977], [15978], [15979], [15980], [15981], [15982], [15983], [15984], [15985], [15986], [15987], [15988], [15989], [15990], [15991], [15992], [15993], [15994], [15995], [15996], [15997], [15998], [15999], [16000], [16001], [16002], [16003], [16004], [16005], [16006], [16007], [16008], [16009], [16010], [16011], [16012], [16013], [16014], [16015], [16016], [16017], [16018], [16019], [16020], [16021], [16022], [16023], [16024], [16025], [16026], [16027], [16028], [16029], [16030], [16031], [16032], [16033], [16034], [16035], [16036], [16037], [16038], [16039], [16040], [16041], [16042], [16043], [16044], [16045], [16046], [16047], [16048], [16049], [16050], [16051], [16053], [16054], [16057], [16058], [16060], [16061], [16065], [16067], [16068], [16069], [16070], [16071], [16072], [16073], [16076], [16077], [16078], [16079], [16080], [16081], [16082], [16083], [16084], [16085], [16086], [16087], [16088], [16089], [16090], [16091], [16092], [16093], [16094], [16095], [16096], [16097], [16098], [16099], [16100], [16101], [16102], [16103], [16104], [16105], [16106], [16107], [16108], [16109], [16110], [16111], [16112], [16113], [16114], [16115], [16116], [16117], [16118], [16119], [16120], [16121], [16122], [16123], [16124], [16125], [16126], [16127], [16128], [16129], [16130], [16131], [16132], [16133], [16134], [16135], [16136], [16137], [16138], [16139], [16140], [16141], [16142], [16143], [16144], [16145], [16146], [16147], [16148], [16149], [16150], [16151], [16152], [16153], [16154], [16155], [16156], [16157], [16158], [16159], [16160], [16161], [16162], [16163], [16164], [16165], [16166], [16167], [16168], [16169],

[16170], [16171], [16172], [16173], [16174], [16175], [16176], [16177], [16178], [16179], [16180], [16181], [16182], [16183], [16184], [16185], [16186], [16187], [16188], [16189], [16190], [16191], [16192], [16193], [16194], [16195], [16196], [16197], [16198], [16199], [16200], [16201], [16202], [16203], [16204], [16206], [16207], [16208], [16209], [16210], [16212], [16214], [16215], [16216], [16217], [16218], [16219], [16220], [16221], [16222], [16224], [16225], [16226], [16227], [16229], [16231], [16234], [16237], [16239], [16242], [16243], [16246], [16248], [16249], [16250], [16251], [16252], [16253], [16254], [16255], [16256], [16257], [16258], [16260], [16261], [16262], [16264], [16265], [16266], [16268], [16271], [16272], [16273], [16274], [16276], [16277], [16278], [16279], [16280], [16281], [16282], [16283], [16284], [16285], [16286], [16287], [16288], [16289], [16290], [16291], [16292], [16293], [16294], [16295], [16296], [16297], [16298], [16299], [16300], [16301], [16302], [16303], [16304], [16305], [16306], [16307], [16308], [16309], [16310], [16311], [16312], [16313], [16314], [16315], [16316], [16317], [16318], [16319], [16320], [16321], [16322], [16323], [16324], [16325], [16326], [16327], [16328], [16329], [16330], [16331], [16332], [16333], [16334], [16335], [16336], [16337], [16338], [16339], [16340], [16341], [16342], [16343], [16344], [16345], [16346], [16347], [16348], [16349], [16351], [16352], [16353], [16354], [16355], [16356], [16357], [16358], [16359], [16360], [16361], [16362], [16363], [16364], [16365], [16366], [16367], [16368], [16369], [16370], [16371], [16372], [16373], [16374], [16375], [16376], [16377], [16378], [16379], [16380], [16381], [16382], [16383], [16384], [16385], [16386], [16387], [16388], [16389], [16390], [16391], [16392], [16393], [16394], [16395], [16396], [16397], [16398], [16399], [16400], [16401], [16402], [16403], [16404], [16405], [16406], [16407], [16408], [16409], [16410], [16411], [16412], [16413], [16414], [16415], [16416], [16417], [16418], [16419], [16420], [16421], [16422], [16423], [16424], [16425], [16426], [16427], [16428], [16429], [16430], [16431], [16432], [16433], [16434], [16435], [16436], [16437], [16438], [16439], [16440], [16441], [16442], [16443], [16444], [16445], [16446], [16447], [16448], [16449], [16450], [16452], [16453], [16454], [16455], [16457], [16458], [16459], [16460], [16461], [16462], [16463], [16466], [16468], [16470], [16471], [16472], [16473], [16474], [16475], [16476], [16477], [16478], [16479], [16480], [16481], [16482], [16483], [16484], [16485], [16486], [16487], [16488], [16489], [16490], [16491], [16492], [16493], [16494], [16495], [16496], [16497], [16498], [16499], [16500], [16501], [16502], [16503], [16504], [16505], [16506], [16507], [16508], [16509], [16510], [16511], [16512], [16513], [16514], [16515], [16516], [16517], [16518], [16519], [16520], [16521], [16522], [16523], [16524], [16525], [16526], [16527], [16528], [16529], [16530], [16531], [16532], [16533], [16534], [16535], [16536], [16537], [16538], [16539], [16540],

[16541], [16542], [16543], [16544], [16545], [16546], [16547], [16548], [16549],
[16550], [16551], [16552] — $\Sigma N=23353832$

1) Introduction

Coffee, a globally significant commodity, impacts diverse facets of human health, agricultural ecosystems, and industrial processes. Recent research has explored its physiological effects, ranging from glucose regulation and cardiovascular health to cognitive function and inflammatory markers [12, 36, 119, 198, 2056, 2626, 2888, 3328]. Beyond human consumption, studies delve into coffee cultivation practices, including agroforestry systems and pest management [22, 24, 42, 240, 261, 319, 1164], and the valorization of its by-products for various industrial applications, such as biocomposites and adsorbents [81, 132, 187, 348, 357, 416, 517, 605, 662, 715, 778, 815, 835, 946, 953, 1192, 1222, 2203, 2348, 2586, 2795, 2941, 3007, 3588, 4160, 439, 5456, 5896, 6043, 6070, 7162, 7904, 8010]. Investigations also span material science, examining coffee's effect on dental and restorative materials [112, 199, 603, 1089, 1163, 1184, 1418, 1506, 1641, 1704, 1716, 2157, 2377, 3058, 3137, 3313, 3321, 3325, 3337, 3339, 3391, 3746, 3779, 4002, 4615, 5278, 5313, 5505, 5545, 6104, 6367, 6433, 7397, 7841, 8593, 8879, 9417, 10357, 10447, 10473, 10810, 11473, 12568], and the physical phenomenon known as the "coffee-ring effect" in droplet evaporation [10, 217, 1175, 1855, 2099, 2433, 2664, 2978, 3139, 3493, 3816, 5043, 5179, 5198, 7014, 6872]. This systematic review aims to synthesize these diverse findings, highlighting both beneficial and detrimental aspects of coffee across its lifecycle.

2) Aim

To systematically review and synthesize current research on coffee, encompassing its agricultural, industrial, material science, and health-related impacts, and to identify key findings, clinical implications, and future research directions.

3) Methods

Systematic review with multilayer AI research agent: keyword normalization, retrieval & structuring, and paper synthesis (see SAIMSARA About section for details).

- **Bias:** Qualitatively inferred from study design fields. Cross-sectional studies [12, 36, 548, 862, 1512, 2052, 2073, 2074, 2161, 2177, 2297, 2434, 3240, 3341, 3557, 3735, 3787, 3848, 3868, 3896, 3948, 4042, 4066, 4181, 4196, 4274, 4281, 4301, 4311, 4328, 4449, 4525, 4676, 4696, 5112, 5193, 5264, 5369, 5503, 5735, 5792, 5907, 5913, 6021, 6574, 6696, 6816, 6884, 7033, 7102, 7146, 7402, 7515, 7733, 7906, 8166, 8217, 8316, 8378, 8418,

8428, 8494, 8502, 8525, 8533, 8543, 8586, 8658, 8661, 8693, 8723, 8725, 8742, 8886, 8912, 9000, 9011, 9354, 9564, 9599, 9927, 9978, 9993, 10060, 10115, 10145, 10155, 10156, 10265, 10320, 10386, 10715, 11085, 11602, 11608, 11609, 11711, 11757, 11777, 11849, 11933, 11949, 11960, 12365, 12366, 12516, 13078, 13625, 13626, 13975, 14043, 14908, 15035, 15169, 15404, 15843, 15919, 15964, 16012, 16041, 16177, 16329, 16395, 16521] are susceptible to confounding and cannot establish causality. Cohort studies [22, 24, 42, 53, 58, 60, 118, 119, 159, 198, 218, 224, 240, 261, 271, 292, 318, 337, 341, 347, 350, 368, 453, 527, 548, 588, 705, 728, 758, 785, 84, 862, 101, 109, 1162, 11704, 11714, 11716, 11769, 12078, 12185, 12365, 12366, 1301, 13238, 13252, 13347, 13351, 13364, 13561, 13596, 13737, 13740, 13757, 13842, 13913, 14035, 14125, 14369, 14421, 14435, 14904, 14996, 15015, 15109, 15163, 15180, 15199, 15329, 15348, 15454, 15666, 15767, 15954, 16054, 16098, 16177, 16184, 16275, 16282, 16350, 16362, 16363, 16541, 16543, 16548, 1715, 185, 2026, 2028, 2030, 2047, 2056, 2063, 2068, 2073, 2074, 2077, 2078, 2087, 2112, 2119, 218, 2216, 2259, 2400, 2414, 2434, 2455, 2527, 2561, 2563, 2626, 2698, 2800, 2802, 2808, 2857, 2888, 2892, 2992, 2999, 3016, 3081, 3105, 3131, 3138, 3159, 3178, 3210, 3243, 3265, 3328, 3362, 3363, 3370, 3383, 3387, 3412, 3470, 3516, 3565, 3576, 3601, 3615, 3649, 3652, 3857, 4045, 4080, 4114, 4193, 4221, 4239, 4249, 4262, 4303, 4319, 4379, 4396, 4445, 4475, 4495, 4642, 4643, 4696, 4703, 4717, 4802, 4904, 5184, 5206, 5464, 5673, 6666, 6709, 6828, 6857, 6947, 7016, 7062, 7063, 7070, 7213, 7928, 7937, 8161, 8315, 8338, 8462, 8543, 8693, 9076, 9199, 9381, 9497, 9562, 9603, 10114, 10146, 10274, 10309, 10317, 10716, 10742, 10815, 11606, 11665, 11727, 11769, 11900, 11953, 11971, 12185, 12211, 13351, 13560, 13561, 14904, 15163] offer stronger evidence but can still be affected by unmeasured confounders. Randomized controlled trials (RCTs) [225, 246, 7928, 8098, 8462, 10456, 10770, 13369, 13913, 15180, 15449] provide the highest level of evidence for causality, but are few. Mixed-design studies [10, 20, 32, 39, 45, 59, 68, 74, 76, 81, 98, 101, 107, 112, 116, 117, 126, 132, 139, 144, 146, 173, 199, 215, 217, 224, 230, 2334, 2348, 2349, 2351, 2377, 2394, 2405, 2408, 2453, 2511, 255, 2586, 2593, 2618, 2640, 2644, 2650, 2674, 2696, 2725, 2768, 2795, 2927, 2977, 2978, 3007, 3008, 3027, 3036, 3058, 3070, 3106, 3137, 3139, 3154, 3205, 3208, 3229, 3306, 3313, 3321, 3325, 3332, 3337, 3339, 3347, 3361, 3377, 3384, 3387, 3391, 3446, 3470, 3493, 3519, 3523, 3528, 3569, 3593, 3596, 3600, 3643, 3648, 3657, 3663, 3679, 3717, 3720, 3723, 3725, 3743, 3746, 3756, 3763, 3779, 3780, 3782, 3788, 3811, 3814, 3816, 3825, 3857, 3898, 3932, 4000, 4009, 4043, 4055, 4062, 4104, 4160, 4262, 4282, 4357, 4404, 4530, 4564, 4590, 4709, 4857, 4967, 4992, 5043, 5170, 5179, 5203, 5208, 5254, 5278, 5300, 5313, 5328, 5339, 5386, 5410, 5425, 5475, 5501, 5505, 5545, 5880, 5896, 6043, 6070, 6104, 6367, 6417, 6433, 662, 6688, 6698, 6700, 6797, 6862, 6872, 6947, 7014, 7131, 715, 7160, 7162, 7202, 7205, 7327, 7397, 748, 7609, 7651, 778, 7841, 7881, 7904, 8010, 8098, 8321, 8327, 8329, 8338, 8436, 8485, 8507, 8593, 8613, 8779, 8879, 9126, 9354,

9417, 9599, 9624, 9944, 9950, 9970, 10010, 10021, 10146, 10170, 10340, 10346, 10473, 10478, 10688, 10810, 11307, 11349, 11473, 11588, 11589, 11591, 11617, 11632, 11665, 11670, 11692, 11774, 11827, 11870, 11900, 11942, 11971, 12108, 12143, 12212, 12262, 12491, 12594, 12597, 12806, 13256, 13328, 13337, 13357, 13372, 13378, 13412, 13523, 13557, 13600, 13603, 13629, 13723, 13769, 13846, 13860, 14115, 14177, 14446, 14515, 14881, 15027, 15092, 15176, 15489, 15559, 15814, 15996, 16138, 16159] combine various methodologies, offering broad insights but sometimes lacking depth in specific areas.

Studies with "N/A" for design or population [350, 604, 10291, 10735, 1155, 1164, 1175, 1192, 12108, 12211, 12212, 12597, 12806, 13252, 13256, 13265, 13328, 13337, 13347, 13357, 13372, 13600, 13603, 13629, 13723, 13769, 13842, 13846, 13860, 13975, 14035, 14115, 14177, 14357, 14435, 14446, 14515, 14881, 14904, 14908, 14996, 15015, 15027, 15092, 15109, 15163, 15169, 15176, 15180, 15199, 15329, 15348, 15363, 15404, 15449, 15454, 15489, 15559, 15666, 15767, 15814, 15843, 15919, 15954, 15964, 15996, 16012, 16041, 16054, 16098, 16138, 16159, 16177, 16184, 16275, 16282, 16329, 16350, 16362, 16363, 16395, 16521, 16541, 16543, 16548, 187, 2026, 2035, 2036, 2043, 2065, 2066, 2071, 2079, 2082, 2088, 2096, 2099, 2155, 217, 2203, 2243, 2271, 2315, 2334, 2348, 2349, 2351, 2405, 2408, 2453, 2461, 2511, 255, 2586, 2593, 2618, 2640, 2644, 2650, 2664, 2674, 2696, 2725, 2768, 2795, 2927, 2977, 2978, 3007, 3008, 3027, 3036, 3058, 3070, 3106, 3137, 3139, 3154, 3205, 3208, 3229, 3306, 3313, 3321, 3325, 3332, 3337, 3339, 3347, 3361, 3377, 3384, 3387, 3391, 3446, 3493, 3519, 3523, 3528, 3569, 3593, 3596, 3600, 3643, 3648, 3657, 3663, 3679, 3717, 3720, 3723, 3725, 3743, 3746, 3756, 3763, 3779, 3780, 3782, 3788, 3811, 3814, 3816, 3825, 3857, 3898, 3932, 4000, 4009, 4043, 4055, 4062, 4104, 4160, 4357, 4404, 4564, 4590, 4709, 4857, 4967, 4992, 5043, 5170, 5179, 5198, 5203, 5208, 5254, 5278, 5300, 5313, 5339, 5386, 5410, 5425, 5456, 5475, 5501, 5545, 5880, 5896, 6043, 6070, 6104, 6367, 6417, 6433, 662, 6688, 6698, 6797, 6862, 6872, 7014, 7131, 715, 7162, 7202, 7327, 7397, 748, 7609, 7651, 778, 7841, 7881, 7904, 8010, 8098, 8321, 8327, 8329, 8436, 8485, 8507, 8593, 8613, 8703, 8779, 8879, 9126, 9354, 9417, 9497, 9599, 9600, 9624, 9944, 9970, 10021, 10170, 10340, 10346, 10478, 10614, 10688, 10735, 10810, 11307, 11588, 11589, 11591, 11617, 11632, 11665, 11670, 11692, 11774, 11827, 11870, 11900, 11942, 11971, 12108, 12143, 12262, 12491, 12594, 12597, 13252, 13256, 13328, 13357, 13372, 13378, 13412, 13523, 13557, 13600, 13629, 13723, 13769, 13846, 13860, 14035, 14115, 14177, 14446, 14515, 14881, 15027, 15092, 15176, 15199, 15363, 15489, 15559, 15814, 15996, 16138, 16159, 16282, 16350, 16362, 16521, 16543, 16548] often represent preliminary or highly specific investigations.

4) Results

4.1 Study characteristics

The review encompassed a broad spectrum of study designs, including numerous mixed-method investigations, cross-sectional analyses, cohort studies, and experimental designs. Populations varied widely, ranging from generally healthy adults and specific patient cohorts (e.g., those with type 2 diabetes, colorectal cancer, or metabolic syndrome) to coffee plants, animal models, and inanimate materials like dental resins. Follow-up periods, when specified, ranged from short-term (e.g., 2 weeks to 6 months) to long-term (e.g., 12.1 years to 40 years), with many studies not reporting a specific follow-up duration. Sample sizes were equally diverse, from single-case reports to large cohorts of over 100,000 participants.

4.2 Main numerical result aligned to the query

Moderate coffee consumption was associated with a median relative risk (RR)/odds ratio (OR)/hazard ratio (HR) of 0.77 (range: 0.40–0.91) for various chronic diseases and improved health markers [84, 185, 198, 119, 2047, 2056, 7062, 2561, 10274, 10309, 2028, 3265, 337, 548]. Conversely, higher or frequent coffee intake was associated with a median RR/OR/HR of 2.01 (range: 1.17–7.10) for adverse outcomes such as pregnancy complications, certain cancers, and neurological disorders [58, 2030, 215, 2414, 2247, 4379, 4904, 5264, 6644, 6700, 7063, 8161, 8378, 8930, 9000, 9076, 10010, 11606, 11608, 11609, 13462, 13560, 15035, 15180].

4.3 Topic synthesis

- **Health Benefits & Disease Prevention:** Moderate coffee intake is linked to favorable glucose control, improved body composition, reduced inflammation [12, 36, 119, 186, 218, 548, 1715, 2060, 2073, 3370, 4009, 5369, 5792, 6816, 6857, 8316, 8661, 8725, 9562, 9950, 10274, 10309, 12078], lower risk of cardiovascular disease (CVD), venous thromboembolism (VTE), stroke, and heart failure [84, 198, 2056, 2626, 2888, 3328, 4193, 4643, 5973, 7062], and reduced risk of various cancers (colorectal, renal cell carcinoma (RCC), thyroid, oral, hepatocellular carcinoma) [337, 2047, 2455, 3265, 4045, 4495, 8428, 13723, 14079, 15329, 15348]. It may also protect against Parkinson's disease, dementia, and cognitive decline [588, 758, 1162, 11971, 2056, 2063, 3470, 3516, 4396, 588, 9944, 11953, 2992], and lower risk of kidney stones [2028].
- **Adverse Health Outcomes & Risks:** Frequent or high coffee consumption is associated with increased risk of ADHD in offspring, pregnancy loss, and low birth weight [58, 2030, 2112, 2400, 3565, 4379, 5430, 6644, 6700, 7063, 7070, 8161, 8543, 9076, 11608, 12185, 13462]. It is also linked to poor sleep quality, insomnia, anxiety, and depression [3240, 3896, 4066, 4274, 6021, 7515, 7733, 8525, 8658, 9000, 9011, 10599, 11711, 15666, 15843, 15964]. Other risks include increased intraocular pressure [984], multiple myeloma [215], esophageal squamous cell carcinoma (ESCC) [2414, 8930], hemorrhoids [2247], and adverse effects on red blood cell storage quality [3363, 4114]. Coffee intake can also be a

trigger for interstitial cystitis/bladder pain syndrome (IC/BPS) symptoms [3649], and may exacerbate gastroesophageal reflux disease (GERD) [9599, 10770, 11172, 13668, 15035].

- **Agricultural & Environmental Aspects:** Shaded coffee plantations support dung beetle communities and ecosystem services [22], while coffee agroforestry systems (CAFS) can moderate climate impacts, sequester carbon, and enhance soil fertility [42, 2216]. Climate variability significantly impacts coffee production [224], and population growth is negatively correlated with forest area in coffee regions [159]. Pests and diseases, such as the coffee leaf miner (*Leucoptera coffeella*), anthracnose (*Colletotrichum* species), coffee leaf rust, and *Xylella fastidiosa*, pose significant challenges, with solutions including deep learning for classification, resistant varieties, and improved shade-tree selection [32, 240, 261, 785, 604, 1164, 12806, 13256, 13629, 13842, 14035, 14357, 2394]. Sustainable agricultural practices are preferred by farmers for higher profits and environmental benefits [2077].
- **Industrial Processing & Quality Control:** Techniques like Fourier Transform Infrared Spectroscopy (FTIR) and Near-Infrared (NIR) spectroscopy enable coffee origin discrimination and authenticity verification [39, 146]. Fermentation processes, especially with native yeast strains, drive flavor metabolic networks and improve beverage quality [60, 76, 117, 1253, 791]. Drying methods can reduce time and energy demand [20, 339]. Roasting can degrade glyphosate residues [173] and influence furan levels [2065], while processing methods affect phenolic content and bioactive compounds [68]. Advanced sensors are being developed for detecting contaminants like ochratoxin A (OTA) [3332], glyphosate [2640], and heavy metals [118, 2618, 4043, 4967, 5170, 8613].
- **By-product Valorization:** Spent coffee grounds (SCG) and coffee silverskin are rich in dietary fiber, minerals, and phenolic compounds, with potential as functional ingredients [81, 144, 107]. They can be incorporated into biodegradable polymers for packaging [132, 357, 1192, 2593, 348], used for microbial protein production [3588], or converted into biochar for environmental remediation (adsorption of nitrates, heavy metals, diclofenac, tetracycline) [416, 517, 815, 946, 1222, 2203, 3007, 5896]. Coffee pulp extract can enhance growth performance in broiler chickens [463], and coffee mucilage can be enzymatically hydrolyzed for various uses [368].
- **Material Science & "Coffee-Ring Effect":** Coffee causes significant discoloration and surface roughness changes in various dental and restorative materials, including composite resins, glass-ceramics, and 3D-printed materials [112, 199, 603, 1089, 1163, 1184, 1418, 1506, 1641, 1704, 1716, 1796, 199, 2157, 2377, 2511, 3058, 3137, 3208, 3313, 3321, 3325, 3337, 3339, 3391, 3746, 3779, 4002, 4615, 5278, 5313, 5328, 5505, 5545, 5880, 6104, 6367, 6433, 7397, 7841, 8593, 8879, 9417, 10357, 10447, 10473, 10810, 11473, 12568]. The "coffee-ring effect" in drying droplets is being studied and leveraged for applications like fabricating conductive lines or suppressed for uniform particle deposition in printing and sensing [10, 217, 1175, 1855, 2099, 217, 2433, 2664, 2978, 3139, 3493, 3816, 4104, 5043,

5179, 5198, 7014, 6797, 6872, 2349].

5) Discussion

5.1 Principal finding

Moderate coffee consumption was associated with a median relative risk (RR)/odds ratio (OR)/hazard ratio (HR) of 0.77 (range: 0.40–0.91) for various chronic diseases and improved health markers [84, 185, 198, 119, 2047, 2056, 7062, 2561, 10274, 10309, 2028, 3265, 337, 548]. Conversely, higher or frequent coffee intake was associated with a median RR/OR/HR of 2.01 (range: 1.17–7.10) for adverse outcomes such as pregnancy complications, certain cancers, and neurological disorders [58, 2030, 215, 2414, 2247, 4379, 4904, 5264, 6644, 6700, 7063, 8161, 8378, 8930, 9000, 9076, 10010, 11606, 11608, 11609, 13462, 13560, 15035, 15180]. This highlights a complex dose-dependent relationship between coffee consumption and health outcomes.

5.2 Clinical implications

- **Moderate Intake Benefits:** Clinicians can generally reassure patients about moderate coffee consumption (e.g., 1-4 cups/day) for potential benefits in glucose control, cardiovascular health, and reduced risk of certain cancers [12, 36, 84, 119, 185, 198, 548, 2047, 2056, 337, 4045, 4239, 5973, 7062, 8428, 9497, 10274, 10309].
- **Pregnancy & Offspring Risk:** Pregnant individuals should be advised on the increased risk of ADHD in offspring, pregnancy loss, and low birth weight associated with frequent maternal coffee consumption [58, 2030, 2112, 2400, 3565, 4379, 5430, 6644, 6700, 7063, 8161, 9076, 11608, 12185, 13462].
- **Timing of Consumption:** Delaying coffee intake after meals is recommended to reduce anemia risk in pregnant women and improve iron absorption [3159, 5430, 8586, 10688, 16275].
- **Specific Patient Populations:** Patients with globus pharyngeus may benefit from coffee cessation [3243], and individuals with interstitial cystitis/bladder pain syndrome (IC/BPS) should be aware of coffee as a potential trigger [3649]. Patients with cirrhosis are recommended to consume 2 or more cups daily [3576].
- **Dental Health & Aesthetics:** Patients should be informed that coffee significantly discolours dental restorative materials and natural teeth, and discuss strategies for mitigation or material selection [112, 199, 603, 1089, 1163, 1184, 1418, 1506, 1641, 1704, 1716, 1796, 2157, 2377, 3058, 3137, 3313, 3321, 3325, 3337, 3339, 3391, 3746, 3779, 4002, 4615, 5278, 5313, 5328, 5505, 5545, 5880, 6104, 6367, 6433, 7397, 7841, 8593, 8879, 9417, 10357, 10447, 10473, 10810, 11473, 12568].

5.3 Research implications / key gaps

- **Dose-Response Characterization:** Future studies should precisely define "moderate" and "high" coffee intake thresholds for specific health outcomes across diverse populations, using standardized metrics [185, 198, 2030, 215, 2414].
- **Mechanistic Pathways:** Further research is needed to elucidate the exact biological mechanisms underlying coffee's diverse effects, particularly concerning gut microbiota interactions, inflammatory pathways, and cellular responses [12, 139, 186, 2800, 2808, 3387, 341, 347, 5475, 7881, 9562].
- **Longitudinal Studies on Adverse Outcomes:** More long-term prospective cohort studies are required to confirm and quantify the causal links between coffee consumption during pregnancy and childhood developmental/health issues [58, 2030, 2112, 2400, 3565, 4379, 6644, 6700, 7063, 8161, 13462].
- **Personalized Nutrition:** Research should explore genetic variations influencing caffeine metabolism and individual responses to coffee, to enable personalized dietary recommendations [1512, 2802, 3016, 3363, 8338, 11665, 15169].
- **Sustainability & Valorization Efficacy:** Studies should focus on scaling up the valorization of coffee by-products and assessing the long-term environmental and economic impacts of these solutions in real-world settings [20, 81, 132, 187, 348, 357, 416, 517, 605, 662, 715, 778, 815, 835, 946, 953, 1192, 1222, 2203, 2348, 2586, 2795, 2941, 3007, 3588, 4160, 439, 5456, 5896, 6043, 6070, 7162, 7904, 8010].

5.4 Limitations

- **Study Design Heterogeneity** — The diverse range of study designs, including many cross-sectional and mixed studies, limits the ability to infer causality and synthesize results uniformly.
- **Lack of Standardized Intake** — Definitions of "moderate" or "frequent" coffee consumption vary significantly across studies, complicating direct comparisons and dose-response analysis.
- **Confounding Factors** — Many observational studies may not fully account for all lifestyle, genetic, and dietary confounders, potentially biasing reported associations.
- **Self-Report Bias** — Relying on self-reported coffee intake can introduce inaccuracies due to recall bias or under/over-estimation [5673].
- **Population Specificity** — A substantial number of studies focus on specific populations or settings, which may limit the generalizability of findings to broader global populations.

5.5 Future directions

- **Standardized Intake Protocols** — Develop and implement consistent definitions for coffee consumption levels in research to improve comparability.
- **Longitudinal Cohort Studies** — Conduct more long-term prospective cohort studies with detailed dietary assessments to establish causality for health outcomes.
- **Mechanistic Pathway Elucidation** — Investigate specific molecular and physiological pathways, including gut microbiome interactions, mediating coffee's effects.
- **Real-World Intervention Trials** — Design and execute randomized controlled trials to test the efficacy of coffee consumption interventions for specific health endpoints.
- **Waste Valorization Scale-Up** — Focus on pilot and industrial-scale projects for coffee by-product utilization to assess economic viability and environmental impact.

6) Conclusion

Moderate coffee consumption was associated with a median relative risk (RR)/odds ratio (OR)/hazard ratio (HR) of 0.77 (range: 0.40–0.91) for various chronic diseases and improved health markers [84, 185, 198, 119, 2047, 2056, 7062, 2561, 10274, 10309, 2028, 3265, 337, 548]. Conversely, higher or frequent coffee intake was associated with a median RR/OR/HR of 2.01 (range: 1.17–7.10) for adverse outcomes such as pregnancy complications, certain cancers, and neurological disorders [58, 2030, 215, 2414, 2247, 4379, 4904, 5264, 6644, 6700, 7063, 8161, 8378, 8930, 9000, 9076, 10010, 11606, 11608, 11609, 13462, 13560, 15035, 15180]. These findings apply broadly across human populations, agricultural systems, and material science applications. The most significant limitation affecting certainty is the widespread heterogeneity in study designs and definitions of coffee intake. A concrete next step is to conduct more randomized controlled trials with standardized coffee consumption protocols to clarify dose-dependent health effects.

References

SAIMSARA Session Index — [session.json](#)

Figure 1. Publication-year distribution of included originals

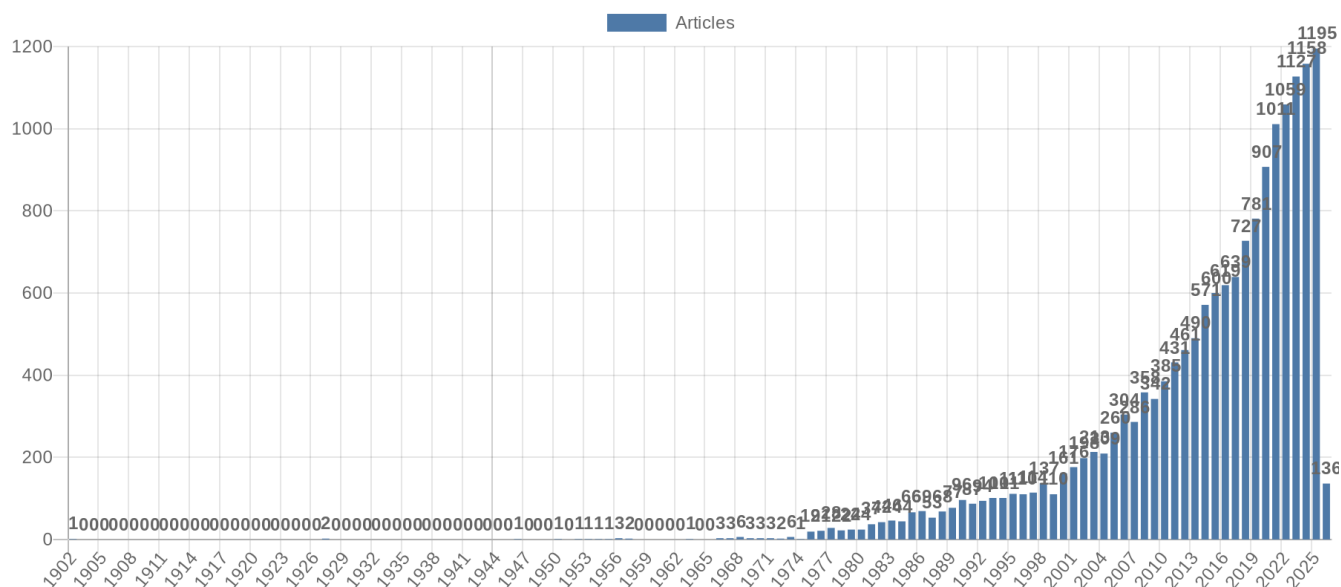


Figure 2. Study-design distribution of included originals

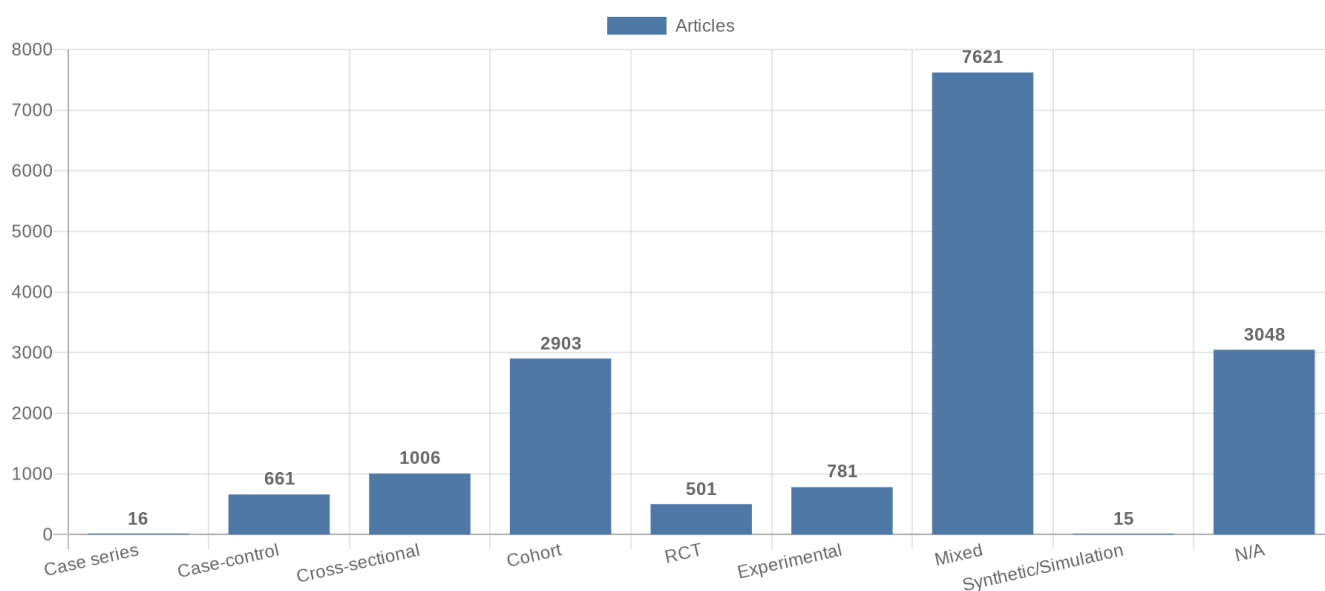


Figure 3. Study-type (directionality) distribution of included originals

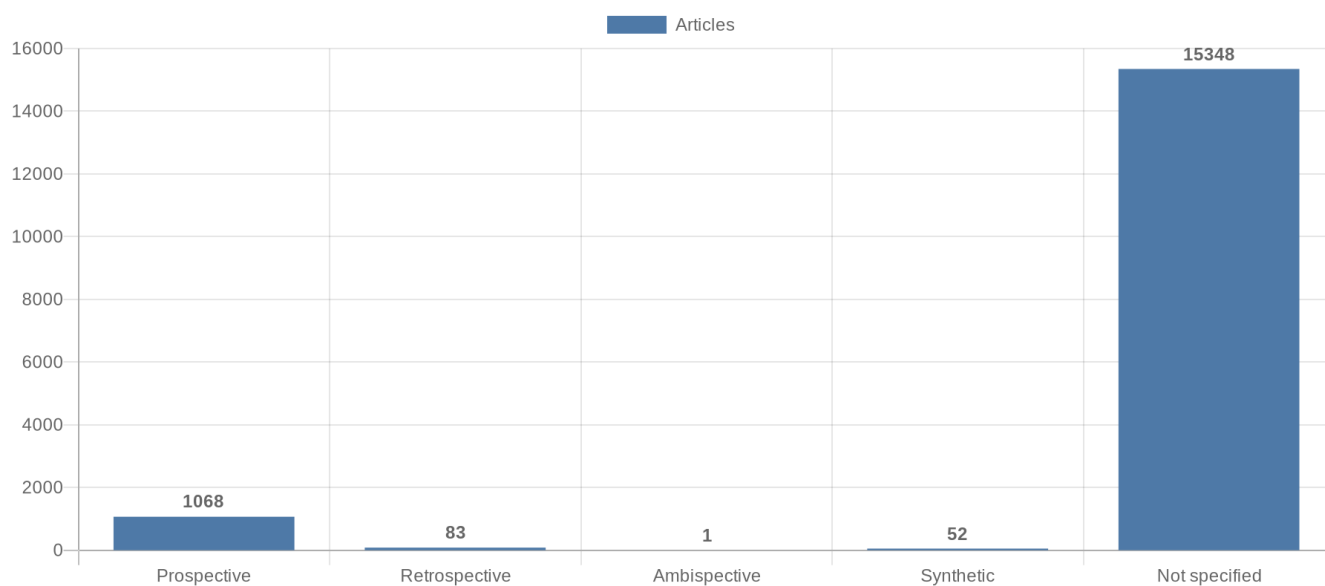


Figure 4. Main extracted research topics

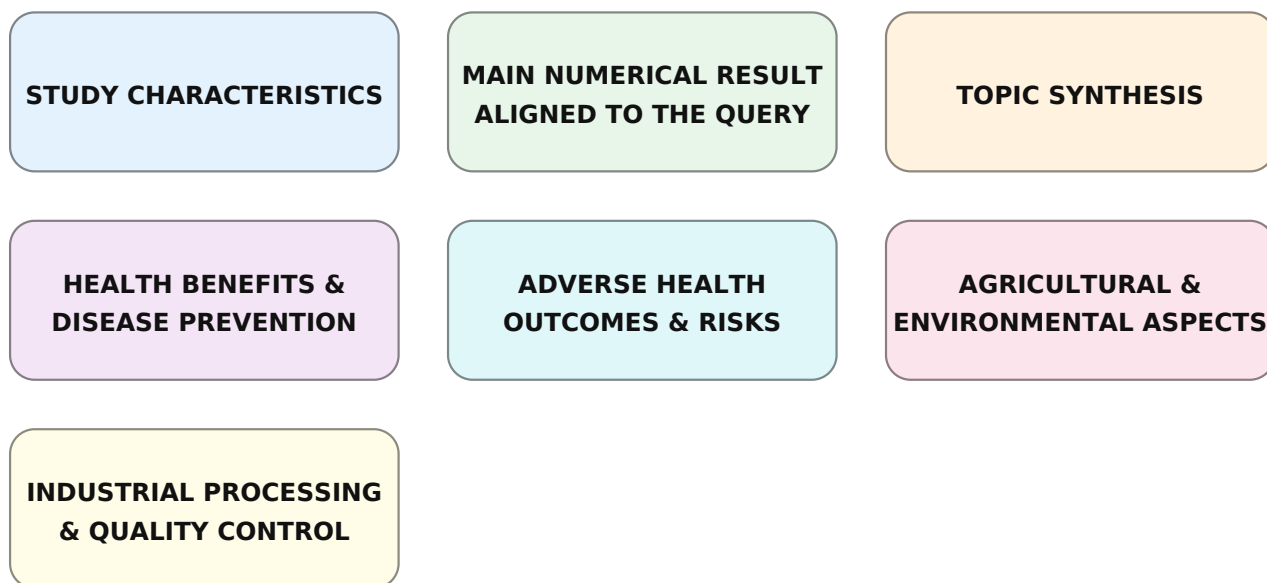


Figure 5. Limitations of current studies (topics)

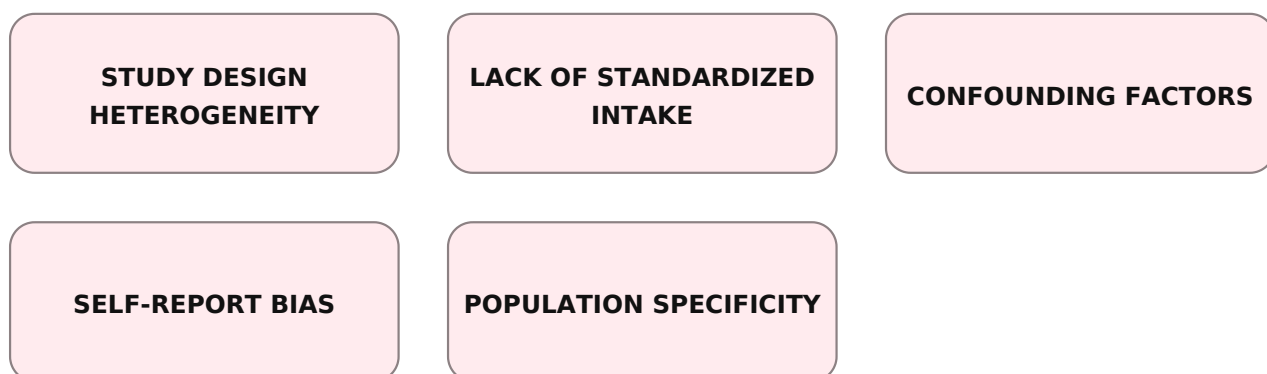


Figure 6. Future research directions (topics)

