

RESULTS

| Test | Input sizes | | Exact method | | Heuristics | | | | |
|----------|-------------|--------|--------------|-------------|------------|-------|-------|---------|-------------|
| | n_packs | n_bins | f | t(s) | f_min | f_max | f_avg | std_dev | t_avg(s) |
| 0007.txt | 7 | 3 | 250 | 0.131818596 | 300 | 300 | 300 | 0 | 0.000114000 |
| 0010.txt | 10 | 3 | 58 | 0.019581373 | 58 | 58 | 58 | 0 | 0.000108500 |
| 0011.txt | 11 | 3 | 218 | 0.036996665 | 218 | 218 | 218 | 0 | 0.000121500 |
| 0012.txt | 12 | 4 | 215 | 0.041839527 | 236 | 236 | 236 | 0 | 0.000109000 |
| 0013.txt | 13 | 4 | 168 | 0.093308560 | 168 | 168 | 168 | 0 | 0.000135500 |
| 0014.txt | 14 | 4 | 116 | 0.059277216 | 116 | 116 | 116 | 0 | 0.000107500 |
| 0015.txt | 15 | 5 | 110 | 0.654513199 | 110 | 110 | 110 | 0 | 0.000122500 |
| 0016.txt | 16 | 5 | 128 | 4.180232029 | 128 | 128 | 128 | 0 | 0.000113500 |
| 0017.txt | 17 | 5 | 132 | 14.49089818 | 165 | 165 | 165 | 0 | 0.000167000 |
| 0018.txt | 18 | 6 | 161 | 29.88529715 | 161 | 161 | 161 | 0 | 0.000132500 |
| 0019.txt | 19 | 6 | 145 | 1.156264288 | 219 | 219 | 219 | 0 | 0.000132500 |
| 0020.txt | 20 | 6 | 112 | 0.455838579 | 112 | 112 | 112 | 0 | 0.000119000 |
| 0021.txt | 21 | 7 | 184 | 300.0087365 | 186 | 186 | 186 | 0 | 0.000139000 |
| 0022.txt | 22 | 7 | 182 | 5.659069597 | 186 | 186 | 186 | 0 | 0.000159500 |
| 0023.txt | 23 | 7 | 151 | 3.483586844 | 151 | 151 | 151 | 0 | 0.000191500 |
| 0024.txt | 24 | 8 | 128 | 100.8529232 | 136 | 136 | 136 | 0 | 0.000160000 |
| 0025.txt | 25 | 8 | 205 | 300.0095765 | 227 | 227 | 227 | 0 | 0.000175500 |
| 0026.txt | 26 | 8 | 169 | 300.0107271 | 169 | 169 | 169 | 0 | 0.000172000 |
| 0027.txt | 27 | 9 | 202 | 300.0130594 | 206 | 206 | 206 | 0 | 0.000174500 |
| 0028.txt | 28 | 9 | 169 | 300.0091605 | 197 | 197 | 197 | 0 | 0.000174000 |
| 0029.txt | 29 | 9 | 263 | 300.0172665 | 275 | 275 | 275 | 0 | 0.000179000 |
| 0030.txt | 30 | 10 | 279 | 300.0151243 | 294 | 294 | 294 | 0 | 0.000196500 |
| 0031.txt | 31 | 10 | 289 | 300.0158158 | 371 | 371 | 371 | 0 | 0.000218000 |
| 0032.txt | 32 | 10 | 231 | 300.0136064 | 231 | 231 | 231 | 0 | 0.000202500 |
| 0033.txt | 33 | 11 | 294 | 300.0138715 | 295 | 295 | 295 | 0 | 0.000193000 |
| 0034.txt | 34 | 11 | 292 | 300.0273317 | 292 | 292 | 292 | 0 | 0.000218500 |
| 0035.txt | 35 | 11 | 335 | 300.0201201 | 371 | 371 | 371 | 0 | 0.000202500 |
| 0036.txt | 36 | 12 | 261 | 300.0169782 | 269 | 269 | 269 | 0 | 0.000199000 |
| 0037.txt | 37 | 12 | 264 | 300.0167706 | 329 | 329 | 329 | 0 | 0.000227000 |
| 0038.txt | 38 | 12 | 263 | 300.0156145 | 295 | 295 | 295 | 0 | 0.000215500 |
| 0039.txt | 39 | 13 | 268 | 300.0178550 | 280 | 280 | 280 | 0 | 0.000229000 |
| 0040.txt | 40 | 13 | 262 | 300.0172051 | 265 | 265 | 265 | 0 | 0.000247000 |
| 0041.txt | 41 | 13 | 300 | 300.0230778 | 313 | 313 | 313 | 0 | 0.000260500 |
| 0042.txt | 42 | 14 | 290 | 300.0187789 | 328 | 328 | 328 | 0 | 0.000236500 |
| 0043.txt | 43 | 14 | 327 | 300.0191029 | 336 | 336 | 336 | 0 | 0.000261000 |
| 0044.txt | 44 | 14 | 413 | 300.0215802 | 440 | 440 | 440 | 0 | 0.000234500 |
| 0045.txt | 45 | 15 | 273 | 300.0194602 | 281 | 281 | 281 | 0 | 0.000329000 |
| 0046.txt | 46 | 15 | 305 | 300.0206662 | 321 | 321 | 321 | 0 | 0.000278500 |
| 0047.txt | 47 | 15 | 437 | 300.0238271 | 459 | 459 | 459 | 0 | 0.000289500 |
| 0048.txt | 48 | 16 | 300 | 300.0179626 | 356 | 356 | 356 | 0 | 0.000302500 |
| 0049.txt | 49 | 16 | 349 | 300.0183736 | 365 | 365 | 365 | 0 | 0.000291500 |
| 0050.txt | 50 | 16 | 485 | 300.0182021 | 552 | 552 | 552 | 0 | 0.000299000 |
| 0051.txt | 51 | 17 | 382 | 300.0210375 | 392 | 392 | 392 | 0 | 0.000310500 |
| 0052.txt | 52 | 17 | 314 | 300.0199974 | 325 | 325 | 325 | 0 | 0.000282500 |
| 0053.txt | 53 | 17 | 434 | 300.0202779 | 495 | 495 | 495 | 0 | 0.000329500 |

| Test | Input sizes | | Exact method | | Heuristics | | | | |
|-----------|-------------|--------|--------------|-------------|------------|-------|-------|---------|-------------|
| | n_packs | n_bins | f | t(s) | f_min | f_max | f_avg | std_dev | t_avg(s) |
| 0054.txt | 54 | 18 | 455 | 300.0226505 | 476 | 476 | 476 | 0 | 0.000330500 |
| 0090.txt | 90 | 30 | 639 | 300.0682186 | 645 | 645 | 645 | 0 | 0.000558000 |
| 0120.txt | 120 | 40 | 903 | 300.1254618 | 889 | 889 | 889 | 0 | 0.000906500 |
| 0150.txt | 150 | 50 | 992 | 300.2018039 | 928 | 928 | 928 | 0 | 0.001234500 |
| 0180.txt | 180 | 60 | 1424 | 300.2746363 | 1328 | 1328 | 1328 | 0 | 0.001776000 |
| 0210.txt | 210 | 70 | 1588 | 300.4242353 | 1424 | 1424 | 1424 | 0 | 0.002190000 |
| 0240.txt | 240 | 80 | 2595 | 300.5349846 | 1648 | 1648 | 1648 | 0 | 0.002716500 |
| 0270.txt | 270 | 90 | 3553 | 302.1536645 | 1841 | 1841 | 1841 | 0 | 0.003282500 |
| 0300.txt | 300 | 100 | 2605 | 300.9626808 | 1965 | 1965 | 1965 | 0 | 0.003995500 |
| 0330.txt | 330 | 110 | 5007 | 301.8207440 | 2268 | 2268 | 2268 | 0 | 0.004420000 |
| 0350.txt | 350 | 116 | 3490 | 301.3750119 | 2604 | 2604 | 2604 | 0 | 0.005191000 |
| 0550.txt | 550 | 183 | N/A | N/A | 3769 | 3769 | 3769 | 0 | 0.011863000 |
| 0600.txt | 600 | 200 | N/A | N/A | 3888 | 3888 | 3888 | 0 | 0.014032500 |
| 0650.txt | 650 | 216 | N/A | N/A | 4411 | 4411 | 4411 | 0 | 0.016109500 |
| 0700.txt | 700 | 233 | N/A | N/A | 4847 | 4847 | 4847 | 0 | 0.019538000 |
| 0750.txt | 750 | 250 | N/A | N/A | 4810 | 4810 | 4810 | 0 | 0.020743000 |
| 0800.txt | 800 | 266 | N/A | N/A | 5394 | 5394 | 5394 | 0 | 0.024186000 |
| 0850.txt | 850 | 283 | N/A | N/A | 5874 | 5874 | 5874 | 0 | 0.027500500 |
| 0900.txt | 900 | 300 | N/A | N/A | 6618 | 6618 | 6618 | 0 | 0.030383999 |
| 0950.txt | 950 | 316 | N/A | N/A | 6147 | 6147 | 6147 | 0 | 0.032921501 |
| 1000.txt | 1000 | 333 | N/A | N/A | 6704 | 6704 | 6704 | 0 | 0.036392000 |
| 10000.txt | 10000 | 3333 | N/A | N/A | 68273 | 68273 | 68273 | 0 | 3.113627434 |
| 2000.txt | 2000 | 666 | N/A | N/A | 13562 | 13562 | 13562 | 0 | 0.131733999 |
| 3000.txt | 3000 | 1000 | N/A | N/A | 19788 | 19788 | 19788 | 0 | 0.291052997 |
| 4000.txt | 4000 | 1333 | N/A | N/A | 27218 | 27218 | 27218 | 0 | 0.512901992 |
| 5000.txt | 5000 | 1666 | N/A | N/A | 34297 | 34297 | 34297 | 0 | 0.787822008 |
| 6000.txt | 6000 | 2000 | N/A | N/A | 39186 | 39186 | 39186 | 0 | 1.124900043 |
| 7000.txt | 7000 | 2333 | N/A | N/A | 47710 | 47710 | 47710 | 0 | 1.551933467 |
| 8000.txt | 8000 | 2666 | N/A | N/A | 54066 | 54066 | 54066 | 0 | 2.007271469 |
| 9000.txt | 9000 | 3000 | N/A | N/A | 62510 | 62510 | 62510 | 0 | 2.552224994 |