

CSE-2422 Computer Algorithms Lab

List of Open-ended Problems

Students are expected to solve open-ended competitive programming problems where their proficiency in applying algorithms and algorithm design techniques in real life scenario is tested. Following is a list of the links to the problems available in different competitive programming websites. Difficulty levels are indicated for some problems. Students are expected to solve these and other similar problems of different difficulty levels. Students are also encouraged to participate real time competitive programming contests.

Shortlisted Problems

| # | Problem Title | Problem Link | Tag | Difficulty |
|-----|---------------------------------------|---|---------|------------|
| 1. | Optimal Array Multiplication Sequence | https://onlinejudge.org/external/3/348.pdf | DP | Easy |
| 2. | Longest Common Subsequence | https://onlinejudge.org/external/104/10405.pdf | DP | Easy |
| 3. | The Twin Towers | https://onlinejudge.org/external/100/10066.pdf | DP | Easy |
| 4. | B16 - Frog 1 | https://atcoder.jp/contests/tessoku-book/tasks/dp_a?lang=en | DP | Easy |
| 5. | Movie Festival II | https://cses.fi/problemset/task/1632 | Greedy | Easy |
| 6. | Projects | https://cses.fi/problemset/task/1140 | Greedy | Easy |
| 7. | Bus Game | https://codeforces.com/contest/79/problem/A | Greedy | Easy |
| 8. | Coins | https://codeforces.com/contest/58/problem/B | Greedy | Easy |
| 9. | Oil Deposits | https://onlinejudge.org/external/5/572.pdf | BFS/DFS | Easy |
| 10. | Come and Go | https://onlinejudge.org/external/118/11838.pdf | BFS/DFS | Easy |
| 11. | Rank the Languages | https://onlinejudge.org/external/103/10336.pdf | BFS/DFS | Easy |
| 12. | The Seasonal War | https://onlinejudge.org/external/3/352.pdf | BFS/DFS | Easy |
| 13. | Freckles | https://onlinejudge.org/external/100/10034.pdf | MST | Easy |
| 14. | Minimum spanning tree | https://marisaoj.com/problem/134 | MST | Easy |

| # | Problem Title | Problem Link | Tag | Difficulty |
|-----|-----------------------------|---|------|------------|
| 15. | MST - Minimum Spanning Tree | https://www.spoj.com/SPOJ/problems/MST/ | MST | Easy |
| 16. | Country Roads | https://lightoj.com/problem/country-roads | SSSP | Easy |
| 17. | Flight Discount | https://cses.fi/problemset/task/1195 | SSSP | Easy |
| 18. | Wormholes | https://onlinejudge.org/external/5/558.pdf | SSSP | Easy |
| 19. | ROHAAN - Defend The Rohan | https://www.spoj.com/problems/ROHAAN/en/ | APSP | Easy |
| 20. | Shortest Routes II | https://cses.fi/problemset/task/1672 | APSP | Easy |
| 21. | Creating Strings | https://cses.fi/problemset/task/1622 | BT | Easy |
| 22. | Prime Ring Problem | https://onlinejudge.org/external/5/524.pdf | BT | Easy |
| 23. | N-Queens | https://leetcode.com/problems/n-queens/description/ | BT | Easy |