

- 1.1. Given an undirected connected graph. Orient its edges so that you get a strongly connected graph, or say that it is impossible.
- 1.2. Given an undirected connected graph. After precalculatin in $O(E + V \log V)$ time, answer queries in $O(\log V)$: for given vertices u and v , how many edges belong to all paths from u to v .
- 1.3. Given an undirected connected graph, each edge has a number. After precalculatin in $O(E + V \log V)$ time, answer queries in $O(\log V)$: for given vertices u and v , what is the maximum number that can be found on an edge-simple path from u to v .
- 1.4. Given a connected graph. Add the minimum number of edges to it to make it Euler. a) for an undirected graph, b) for a directed graph.
- 1.5. Given a directed graph. Construct the minimum number of edge-simple paths so that each edge belongs to exactly one path.
- 1.6. Given a set of words. Is it possible to make a chain where each next word starts with the last letter of the previous word, using each word from the set exactly once?
- 1.7. Given an undirected graph, each vertex contains the letter A, B or C. You can put a token in the vertex of the graph and move it along the edges, from vertex A you can only go to B, from B only to C, from C only to A. Determine what is the maximum number of moves you can make.
- 1.8. Given an undirected graph. Find all such edges that, when removed, make the graph bipartite. Time $O(m \log n)$.