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Div A Batch C

This experiment on Graph approximation algorithms has been solved in CPP by using approximate solution for the vertex cover problem. In this problem, Vertex cover of a graph is a set of vertices such that each edge in it is incident to at least one of the incident vertices.

The optimal solution finder algorithm is an NP hard algorithm. It works in exponential time which is not practical. We use approximation algo to find a solution that is not best, but which is tries to minimise set of vertices. Appron algos work in polynomial time.

Algorithm

1) Initiate result as { }
2) Consider set of all edges in graph as E
3) while E is not empty
   → pick an edge (u, v) from E and add u, v vertex to result
   → Remove all edges from E incident on u, v
4) Return result

The time complexity of this algorithm is O(V+E) (since we have to iterate in the outer loop V times, and in the worst case, every other edge is connected to adjacency list of the vertex