

EDITORIAL

Robots in a DAG

[Problem Link](#)

Prerequisite - Graph Theory , DFS , Network Flow

We can create a new graph where each node (i, j) represents that we are on node i at time j . Now when we are creating edges , we should create edges from a nodes (u, t) to $(v, t + 1)$ if (u, v) edge exists in our original graph. So, our initial problem is transformed into finding the edge disjoint paths in our new graph which is a standard problem. Now we can binary search on minimized maximum length by creating a graph in which the nodes are stated as above and t is the length we want to check. To check for a particular length, we'll need to check if the total disjoint paths in our new graph $\geq k$ and change the limits of binary search accordingly.