

Task-3

If there are N places and M roads, the time complexities of the above solutions will be $O(N+M \times \log N)$ and $O(N+M \times \log M)$.

Time complexity of Dijkstra Algorithm is $O(N+M)$ but if we use priority queue it becomes $O(N+M \times \log N)$ like we did in the above solutions.

Now, if the number of titans is in each road is exactly 1, then it will become $O(N+M)$. The Dijkstra Algo become BFS like BFS. So, we have to use BFS as we know its time complexity is $O(N+M)$.