

Tasks

If there are N places and M roads, we can use dijkstra algo. In the dijkstra algo, we first build a heap so that we'll put the value in $\text{heap}(N)$. The complexity for this is $O(N)$. Then we put the distance in the list object. which is also $O(N)$ as there are N places. Then we check the weight less to places. Then we also need to perform a while loop. So, it'll have a worst case of $O(N \log N)$. Similarly we'll get $O(M \log N)$.

$$O(N) + O(N) + O(N \log N) + O(M \log N) \\ = O(M \log N)$$

If I can use any known algorithm, I'll use bfs. as it has the time complexity of $O(N+M)$. The bfs will take the graph as input.