

CSE221 Lab Assignment 06

Task-01

In this task, firstly I converted the input graph into a nested list where for each index which is a vertex u , I write the connected vertex v and the weight w in the tuple. Then to find out the shortest path from the source node to the others, I run a "Dijkstra Algorithm" and by using this, I get the desired output. In the Dijkstra algorithm, I must use priority queue which is here used as heapq.

Task-02

In this task, firstly I converted the input graph into a nested list where for each index which is a vertex u , I write the connected vertex v and the weight w in the tuple. As I must find out the minimum time and the node where Alice and Bob meet each other, I used the Dijkstra algorithm here two times. One for Alice and the other for Bob. Then I got two distances list, from where I compare them and took the maximum value only in another list. From that other list, I only took the minimum one and its node. After this, I get the desired output.

Task-03

In this task, firstly I converted the input graph into a nested list where for each index which is a vertex u , I write the connected vertex v and the weight w in the tuple. Here I must find the safest path to reach the destination from the source node. For this reason, I used the Dijkstra algorithm but did some modification. I just took the new weight which was maximum weight from the parent weight and the child weight and then again compared the distances from the source to that node with the new weight and took the smaller one and updated that in the distances list. Furthermore, I added a condition, if the current node u equal to destination node n , then return the current weight of node u . After finishing the loop if I did not get the desired answer then return impossible.