Problem Statment.

Given a Graph and a source vertex in the graph , we need to find the shortest path

from source vertex to all vertices in the graph.

Implementaion .

Dijkstra algo is also known as shortest path algorithm which implements using Prime's Algo.

Follow the steps below to solve the problem:

1. Create a set sptSet (shortest path tree set) that keeps track of vertices included in the shortest-path tree, i.e., whose minimum distance from the source is calculated and finalized.

Initially, this set is empty.

2. Assign a distance value to all vertices in the input graph.

Initialize all distance values as INFINITE. Assign the distance value as 0 for the source vertex so that it is picked first.

3. While sptSet doesn’t include all vertices

3.1 Pick a vertex u which is not there in sptSet and has a minimum distance value.

3.2 Include u to sptSet.

3.3 Then update distance value of all adjacent vertices of u.

3.3.1 To update the distance values, iterate through all adjacent vertices.

3.3.2 For every adjacent vertex v, if the sum of the distance value of u (from source) and weight of edge u-v, is less than the distance value of v, then update the distance value of v