function Dijkstra(Graph, source):

2 dist[source] := 0 // Distance from source to source

3 for each vertex v in Graph: // Initializations

4 if v ≠ source

5 dist[v] := infinity // Unknown distance function from source to v

6 previous[v] := undefined // Previous node in optimal path from source

7 end if

8 add v to Q // All nodes initially in Q (unvisited nodes)

9 end for

10

11 while Q is not empty: // The main loop

12 u := vertex in Q with min dist[u] // Source node in first case

13 remove u from Q

14

15 for each neighbor v of u: // where v has not yet been removed from Q.

16 alt := dist[u] + length(u, v)

17 if alt < dist[v]: // A shorter path to v has been found

18 dist[v] := alt

19 previous[v] := u

20 end if

21 end for

22 end while

23 return dist[], previous[]

24 end function