DIJKSTRA'S ALGORITHM for computing the shortest_path

function Dijkstra(Graph, source):
    for each vertex v in Graph:
        dist[v] := infinity ;
        previous[v] := undefined ;
    end for ;
    dist[source] := 0 ;
    Q := the set of all nodes in Graph ;
    // All nodes in the graph are unoptimized - thus are in Q
    while Q is not empty:
        u := vertex in Q with smallest dist[] ;
        if dist[u] = infinity:
            break ;
        fi ;
        remove u from Q ;
        for each neighbor v of u:
            alt := dist[u] + dist_between(u, v) ;
            if alt < dist[v]:
                dist[v] := alt ;
                previous[v] := u ;
            fi ;
        end for ;
    end while ;
    return dist[] ;
end Dijkstra.