

# DIJKSTRA( $G, w, s$ )

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1  INITIALIZE-SINGLE-SOURCE( $G, s$ )
2   $S = \emptyset$ 
3   $Q = \emptyset$ 
4  for each vertex  $u \in G.V$ 
5      INSERT( $Q, u$ )
6  while  $Q \neq \emptyset$ 
7       $u = \text{EXTRACT-MIN}(Q)$ 
8       $S = S \cup \{u\}$ 
9      for each vertex  $v$  in  $G.Adj[u]$ 
10         RELAX( $u, v, w$ )
11         if the call of RELAX decreased  $v.d$ 
12             DECREASE-KEY( $Q, v, v.d$ )
```