

Bellman-Ford Algorithm

INITIALIZE-SINGLE-SOURCE(G, s)

1. **for** each vertex $v \in V[G]$
2. **do** $d[v] \leftarrow \infty$
3. $\pi[v] \leftarrow NIL$
4. $d[s] \leftarrow 0$

RELAX(u, v, w)

1. **if** $d[v] > d[u] + w(u, v)$
2. **then** $d[v] \leftarrow d[u] + w(u, v)$
3. $\pi[v] \leftarrow u$

Bellman-Ford algorithm

BELLMAN-FORD(G, w, s)

1. INITIALIZE-SINGLE-SOURCE(G, s)
2. **for** $i \leftarrow 1$ **to** $|V[G]| - 1$
3. **do for** each edge $(u, v) \in E(G)$
4. **do** RELAX(u, v, w)
5. **for** each edge $(u, v) \in E(G)$
6. **do if** $d[v] > d[u] + w(u, v)$
7. **then return** FALSE
8. **return** TRUE