Dijkstra's Shortest Path Algorithm

Find shortest path from $s$ to $t$.

$s$

$\infty$

$\infty$

$\infty$

$\infty$

$\infty$

$0$

distance label

$S = \{ \}$

$PQ = \{ s, 2, 3, 4, 5, 6, 7, t \}$

$S = \{ s \}$

$PQ = \{ 2, 3, 4, 5, 6, 7, t \}$

$S = \{ s, 2 \}$

$PQ = \{ 3, 4, 5, 6, 7, t \}$
Dijkstra's Shortest Path Algorithm

S = \{ s, 2 \}

PQ = \{ 3, 4, 5, 6, 7, t \}

\[ \infty \]

Dijkstra's Shortest Path Algorithm

S = \{ s, 2 \}

PQ = \{ 3, 4, 5, 6, 7, t \}

\[ \infty \]

Dijkstra's Shortest Path Algorithm

S = \{ s, 2, 6 \}

PQ = \{ 3, 4, 5, 7, t \}

\[ \infty \]

delmin

Dijkstra's Shortest Path Algorithm

S = \{ s, 2, 6, 7 \}

PQ = \{ 3, 4, 5, t \}

\[ \infty \]

delmin

Dijkstra's Shortest Path Algorithm

S = \{ s, 2, 6 \}

PQ = \{ 3, 4, 5, 7, t \}

\[ \infty \]

Dijkstra's Shortest Path Algorithm

S = \{ s, 2, 6, 7 \}

PQ = \{ 3, 4, 5, t \}

\[ \infty \]

delmin
Dijkstra’s Shortest Path Algorithm

\[ S = \{s, 2, 3, 5, 6, 7\} \]
\[ PQ = \{4, 5, t\} \]
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\[ S = \{s, 2, 3, 4, 5, 6, 7\} \]
\[ PQ = \{t\} \]
Dijkstra's Shortest Path Algorithm

\[ S = \{ s, 2, 3, 4, 5, 6, 7, t \} \]
\[ PQ = \{ \} \]