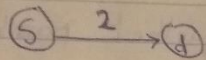


2. Dijkstra - Show, step by step, how Dijkstra's algorithm works on the graph below, with a source s and a destination t. What is the shortest path from s to t?

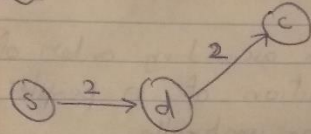
2) Dijkstra Algorithm

Step 1:



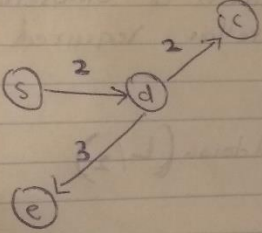
1) Node d can be reached from s at a cost of 2 and e can be reached at cost of 6.
→ Node d is added.

Step 2:



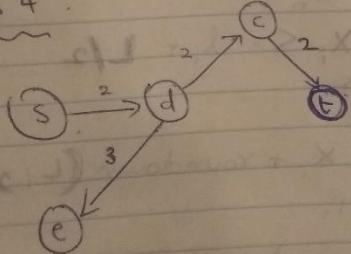
2) Path from s to
c: $s \rightarrow d \rightarrow c$ [cost - 4]
e: $s \rightarrow d \rightarrow e$ [cost - 5]
 b: $s \rightarrow d \rightarrow b$ [cost - 7]
 t: $s \rightarrow d \rightarrow b$ [cost - 7]

Step 3:



3) Path from s to
e: $s \rightarrow d \rightarrow e$ [cost - 5]
~~t~~: $s \rightarrow d \rightarrow c \rightarrow t$ [cost 6]
 b: $s \rightarrow d \rightarrow b$ [cost 7]

Step 4:



4) Path from s to
~~t~~: $s \rightarrow d \rightarrow c \rightarrow t$ [cost 6]
b: $s \rightarrow d \rightarrow b$ [cost 7]
 a: $s \rightarrow d \rightarrow e \rightarrow a$ [cost 9]

Shortest Path from $s \rightarrow t$: $s \rightarrow d \rightarrow c \rightarrow t$
 cost: 6