

## Quiz 11: MST and Dijkstra Algorithm - Pre... 0:29:07 remaining

### Question 1 (1 point)

Dijkstra's algorithm can be applied to solve the single source shortest path problem in an directed acyclic graphs (DAG) with positive weight edges.

- ☒ True
- ☐ False

### Question 2 (1 point)

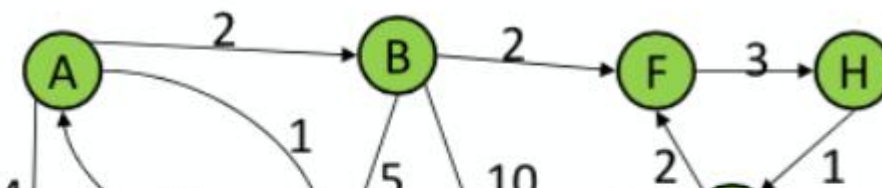
What is the value of

$$\pi(C)$$

after executing the Dijkstra's algorithm **from vertex A**? Recall that

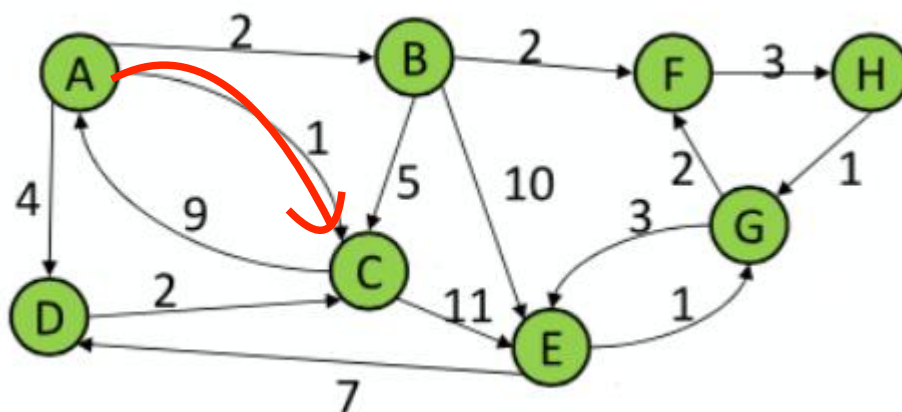
$$\pi(v)$$

is the parent vertex in the shortest path from vertex A to vertex v.



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## Question 3 (1 point)

What is the value of

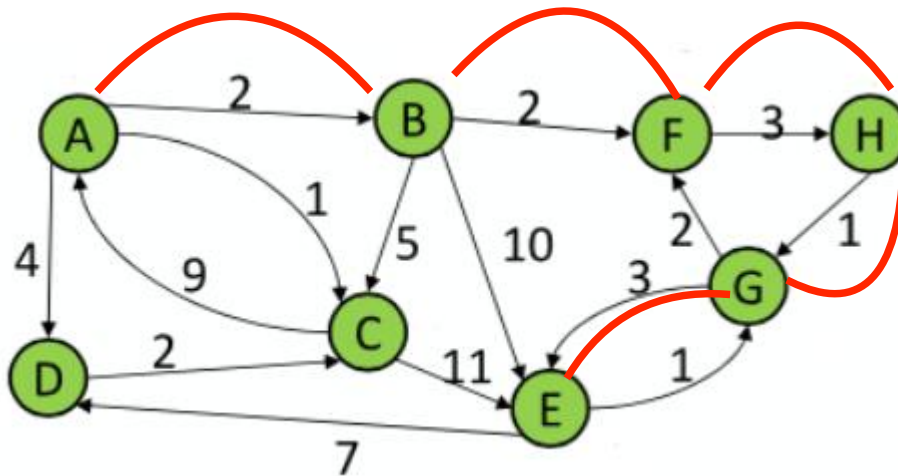
$$\pi(E)$$

after executing the Dijkstra's algorithm from vertex A? Recall that

$$\pi(v)$$

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## Question 4 (1 point)

Given are an undirected weighted graph  $(V, E)$  with  $V = \{a, b, c, d, e, f, g, h\}$  and edges with weight  $w(a, b) = 5$ ,  $w(a, c) = 4$ ,  $w(b, d) = 8$ ,  $w(b, e) = 1$ ,  $w(c, e) = 2$ ,  $w(c, f) = 11$ ,  $w(e, f) = 10$ ,  $w(d, g) = 3$ ,  $w(e, g) = 6$ ,  $w(g, h) = 9$ ,  $w(f, h) = 7$ .

Let's implement Kruskal's algorithm to find the minimum spanning tree (MST).

Please choose the total weight of the minimum spanning tree (MST).

☐ 30

☐ 31

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### Question 4 (1 point)

Given are an undirected weighted graph  $(V, E)$  with  $V=\{a, b, c, d, e, f, g, h\}$  and edges with weight  $w(a, b)=5$ ,  $w(a, c)=4$ ,  $w(b, d)=8$ ,  $w(b, e)=1$ ,  $w(c, e)=2$ ,  $w(c, f)=11$ ,  $w(e, f)=10$ ,  $w(d, g)=3$ ,  $w(e, g)=6$ ,  $w(g, h)=9$ ,  $w(f, h)=7$ .

Let's implement Kruskal's algorithm to find the minimum spanning tree (MST).

Please choose the total weight of the minimum spanning tree (MST).

☐ 30☐ 31☒ 32☐ 33

### Question 5 (1 point)

Given are an undirected weighted graph  $(V, E)$  with  $V=\{a, b, c, d, e, f, g, h\}$  and edges with weight  $w(a, b)=5$ ,  $w(a, c)=4$ ,  $w(b, d)=8$ ,  $w(b, e)=1$ ,  $w(c, e)=2$ ,  $w(c, f)=11$ ,  $w(e, f)=10$ ,  $w(d, g)=3$ ,  $w(e, g)=6$ ,  $w(g, h)=9$ ,  $w(f, h)=7$ .

Let's implement Kruskal's algorithm to find the minimum spanning tree (MST).

Please choose the total weight of the minimum spanning forest consisting of 3 trees obtained by Kruskal's algorithm.

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trees obtained by Kruskal's algorithm.

☐ 15☒ 16☐ 17☐ 18

### Question 6 (1 point)

Given are an undirected weighted graph  $(V, E)$  with  $V = \{a, b, c, d, e, f, g, h\}$  and edges with weight  $w(a, b) = 5$ ,  $w(a, c) = 4$ ,  $w(b, d) = 8$ ,  $w(b, e) = 1$ ,  $w(c, e) = 2$ ,  $w(c, f) = 11$ ,  $w(e, f) = 10$ ,  $w(d, g) = 3$ ,  $w(e, g) = 6$ ,  $w(g, h) = 9$ ,  $w(f, h) = 7$ .

let's implement Prim's algorithm to find the minimum spanning tree (MST) starting with vertex a.

Please choose the final vertex that will be included in the minimum spanning tree.

☐ d☐ e☒ f☐ g