

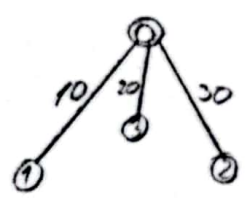
Edges Sorted:

- (0, 1): 10
- (0, 3): 20
- (1, 3): 25
- (0, 2): 30
- (2, 3): 30
- (1, 2): 35

Part 1: Finding the MST

Initialisation	Iteration 1	Iteration 2	Iteration 3
<p>Sets: {0}, {1}, {2}, {3}</p>	<p>Edge (0, 1) Sets: {0, 1}, {2}, {3}</p>	<p>Edge (0, 3) Sets: {0, 1, 3}, {2}</p>	<p>Edge (1, 3) 1 and 3 are part of the same set (cycle)</p>
Iteration 4	Iteration 5	Iteration 6	
<p>Edge (0, 2) Sets: {0, 1, 2, 3}</p>	<p>Edge (2, 3) 2 and 3 are part of the same set</p>	<p>Edge (1, 2) 1 and 2 are part of the same set</p>	

The final MST Part 2: DFS traversal from vertex 0

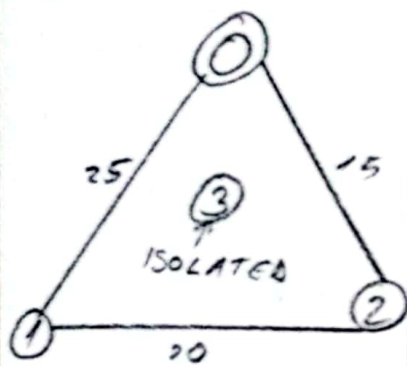


	Iteration 1	Iteration 2	Iteration 3	Iteration 4
vertex	0	1	3	2
visited	[0]	[0, 1]	[0, 1, 3]	[0, 1, 3, 2]
path	[0]	[0, 1]	[0, 1, 3]	[0, 1, 3, 2]

⇒ Path = [0, 1, 3, 2]. We append the first vertex to close the cycle ⇒

⇒ Hamiltonian cycle: [0, 1, 3, 2, 0]

Cost: $\text{cost}(0, 1) + \text{cost}(1, 3) + \text{cost}(3, 2) + \text{cost}(2, 0) = 10 + 25 + 30 + 30 = 95$



Edges Sorted:

$(0, 2): 15$

$(1, 2): 20$

$(0, 1): 25$

Initialization

0

3

1

2

Sets: $(0), (1), (2), (3)$

Iteration 1

0

3

1

2

Edge $(0, 2)$

Sets: $(0, 2), (1), (3)$

Iteration 2

0

3

1

2

Edge $(1, 2)$

Sets: $(0, 1, 2), (3)$

Iteration 3

0

3

1

2

Edge $(0, 1)$

0 and 1 are part of the same set

The number of edges of the minimum spanning trees = 2 which is different from the number of vertices - 1 = 3 \Rightarrow We cannot create a MST
 \Rightarrow No Hamiltonian cycle found