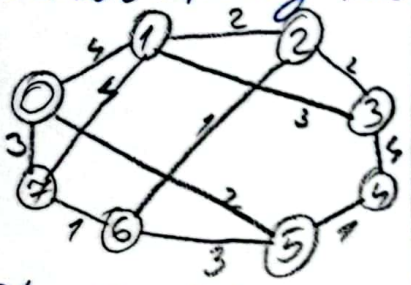
Minimum Spanning Tree



Edges Sorted

(2, 6): 1
(4, 5): 1
(6, 7): 1
(0, 5): 2
(1, 2): 2
(2, 3): 2
(0, 7): 3
(1, 3): 3
(5, 6): 3
(0, 1): 4
(1, 7): 4
(3, 4): 4

Initialization

Sets: (1), (2), (3), (4), (5), (6), (7), (0)

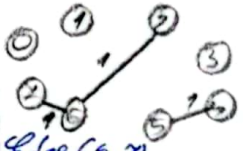
Iteration 1

Edge (2,6)
Sets: (1), (2,6), (3), (4), (5), (7), (0)

Iteration 2

Edge (4,5)
Sets: (0), (1), (2,6) (3), (4,5), (7)

Iteration 3

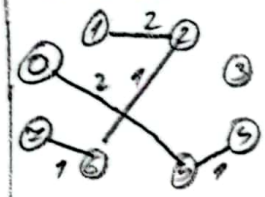


Edge (6,7)
Sets: (0), (1), (2,6,7) (3), (4,5)

Iteration 4

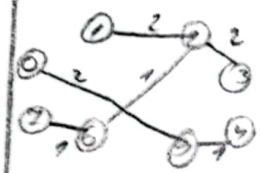
Edge (0,5)
Sets: (0,4,5), (1), (2,6,7), (3)

Iteration 5



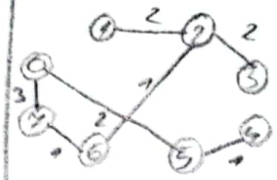
Edge (1,2)
Sets: (0,4,5), (1,2,6,7) (3)

Iteration 6



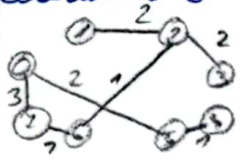
Edge (2,3)
Sets: (0,4,5), (1,2,3,6,7)

Iteration 7



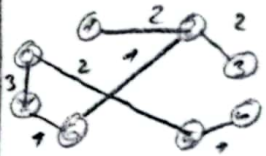
Edge (0,7)
Sets: (0,1,2,3,4,5,6,7)

Iteration 8



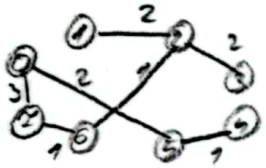
Edge (1,3)
1 and 3 are part of the same set (cycle)

Iteration 9



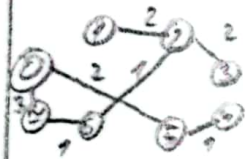
Edge (5,6)
5 and 6 are part of the same set

Iteration 10



Edge (0,1)
0 and 1 are part of the same set

Iteration 11



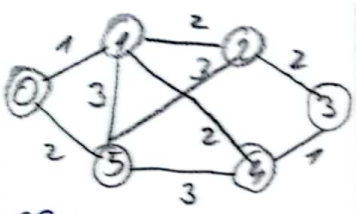
Edge (1,7)
1 and 7 are part of the same set

Iteration 12

Edge (3,4)
3 and 4 are part of the same set

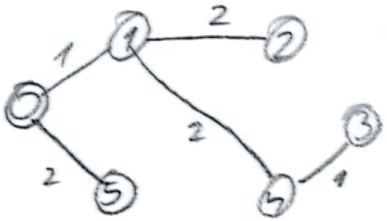
For 8 vertices, there are 7 edges, one component that is a tree. The other edges will not be selected because they will form cycles

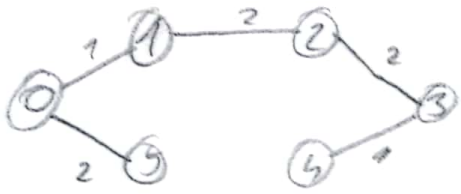
Cost = 12

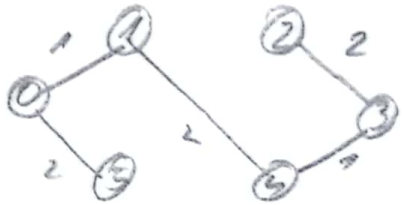


Edges Sorted

(0, 1): 1
(3, 4): 1
(0, 5): 2
(1, 2): 2
(1, 4): 2
(2, 3): 2
(1, 5): 3
(2, 5): 3
(4, 5): 3







For 6 vertices, there are 5 edges. The cost of the minimum spanning tree is 8.

```
The minimal spanning tree is:
(2, 6) with cost 1
(4, 5) with cost 1
(6, 7) with cost 1
(0, 5) with cost 2
(1, 2) with cost 2
(2, 3) with cost 2
(0, 7) with cost 3
The cost of the minimal spanning tree is 12
```

```
The minimal spanning tree is:
(0, 1) with cost 1
(3, 4) with cost 1
(0, 5) with cost 2
(1, 2) with cost 2
(1, 4) with cost 2
The cost of the minimal spanning tree is 8
```