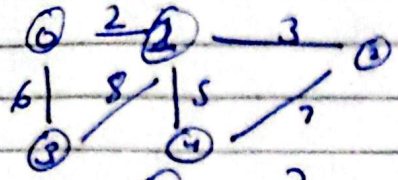
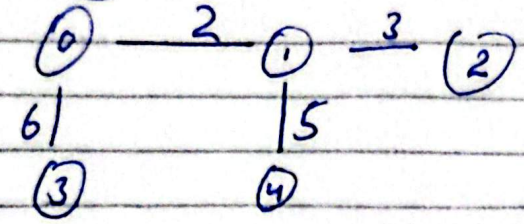
PRIMS ALGORITHM



Graph



nodes = 5
edges = 4
sum = 16

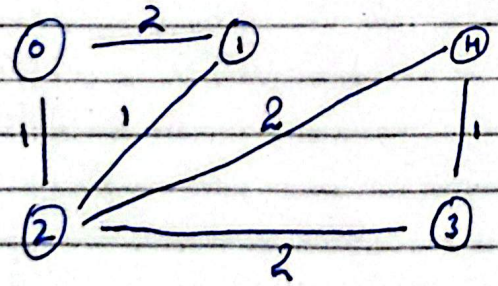
MST.

4 edges which are involved in MST.

$0 \to 1$
$0 \to 3$
$1 \to 4$
$1 \to 2$

n-1

IMPLEMENTATION:



Sum = 0

PQ

(0, 0, -1)

(wt, node, parent)
min-heap

MST = [ ]

visited = [T, F, F, F, F]
0 1 2 3 4

Now stand at 0 and look on neighbors

-> then PQ becomes

(1, 2, 0)
(2, 1, 0)
(0, 0, -1) x

-> But dont mark them as visited

2nd iteration

pq.pop= 1, 2, 0

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

MST = [(0, 2)]
sum = 1
visited = [T, F, T, F, F]
0 1 2 3 4

By standing at (2) (0) is visited (1) is unvisited also (4) is unvisited also 3 is unvisited.

3rd iteration (1, 1, 2)

MST = [(0,2) (1,2)] Sum = 2
visited = [T, T, T, F, F]
0 1 2 3 4

Standing at (1) all are visited

4th (2, 1, 0)

the node 1 is dready visited.

(2, 2, 3)
(1, 4, 3)
(2, 3, 2)
(2, 4, 2)

5th: (2, 3, 2)
sum = 4
MST = [(0,2), (1,2), (2,3)]
visited = [T, T, T, T, F]

NOW 1, 4, 3

sum = 5

MST = [(0,2), (1,2), (2,3), (3,4)]

visited = [T, T, T, T, T]

0 1 2 3 4