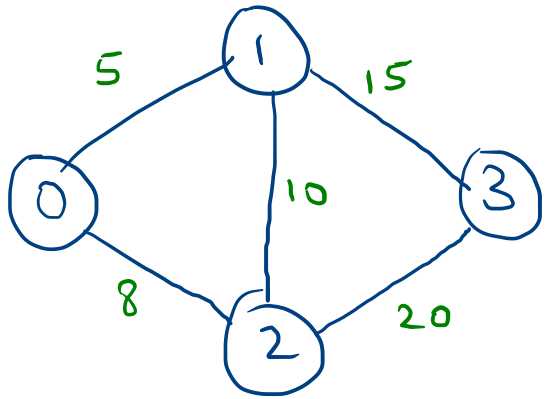
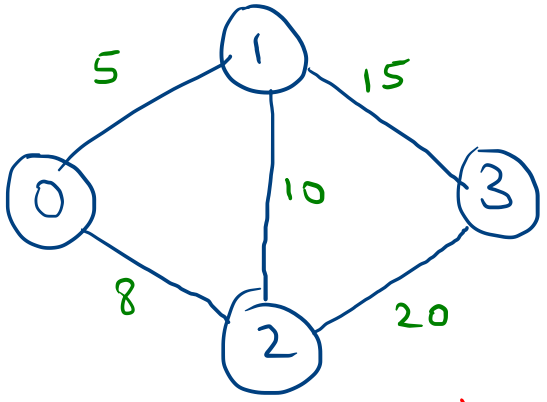
Minimum Spanning Tree (MST)





Spanning Tree → Connected + undirected (**)

↓

no cycle

Total vertex = V

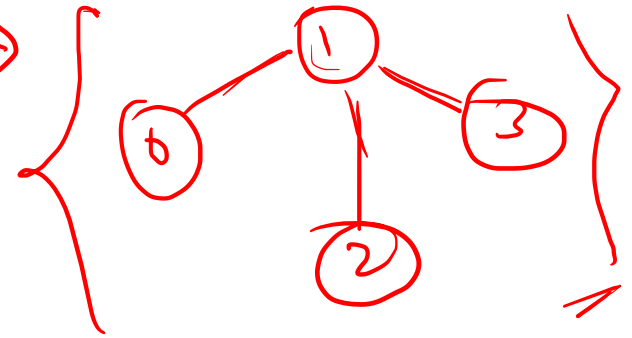
Total Edge = V-1

(d)

→ X

V = 4

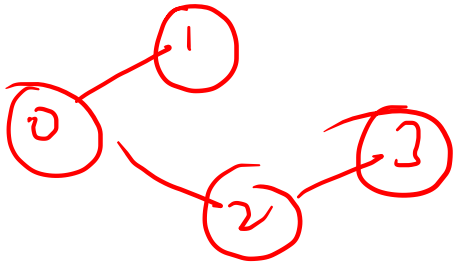
E = 5



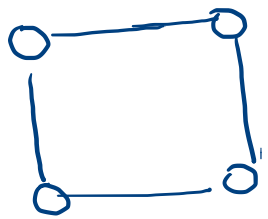
=> All vertex are connected

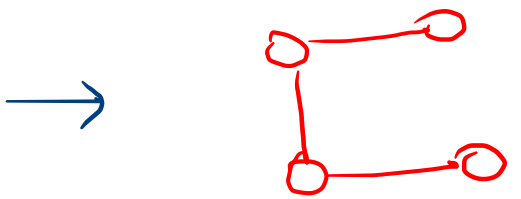
Can be weighted

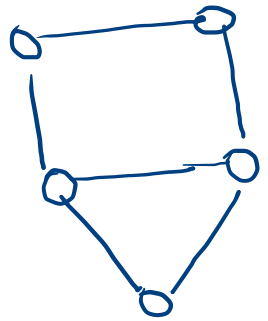
Can be non weighted

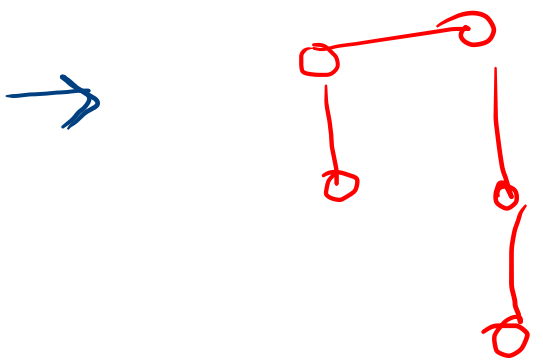


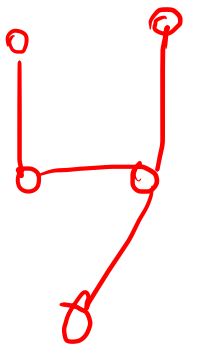
Spanning Tree









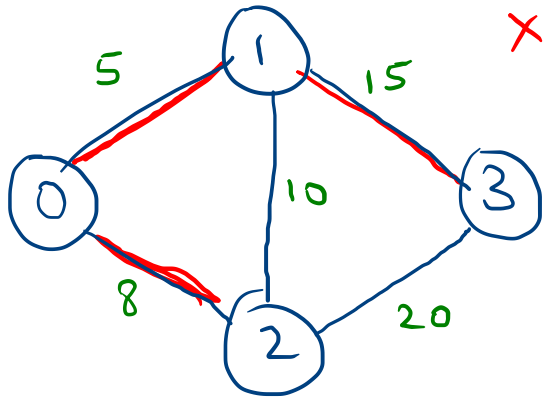


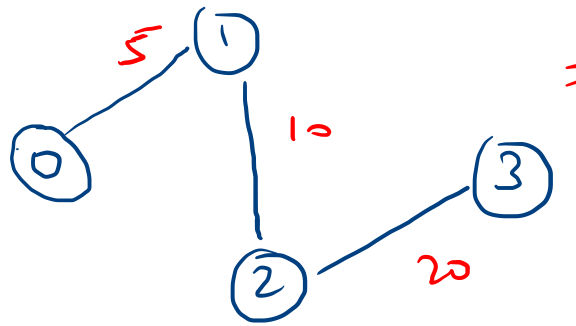
$S = U$

$4 = E$

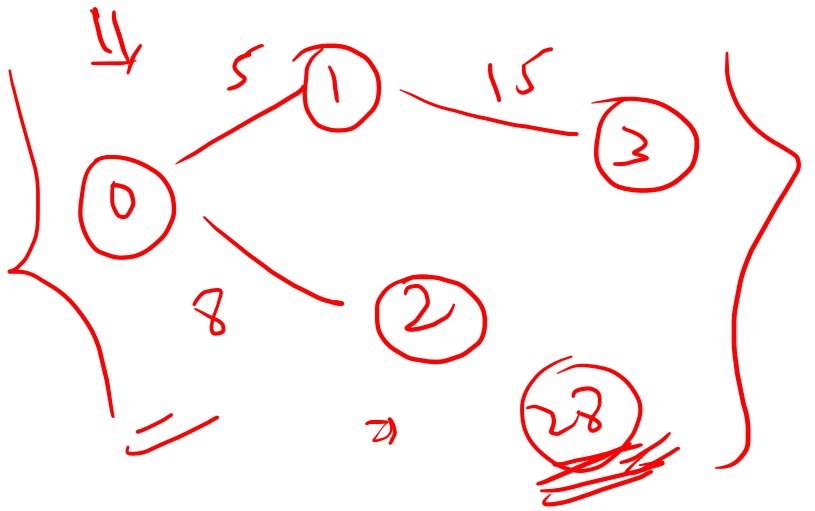
Minimum Spanning Tree (MST)

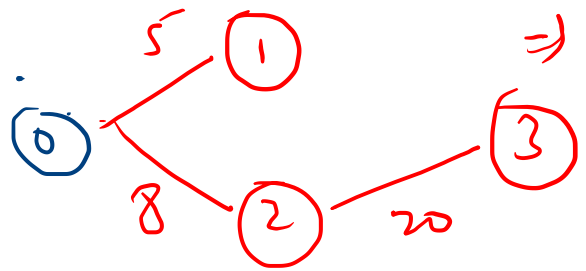
Now, Find the min. edge which connect all the Vertex in a Graph.





⇒ 35

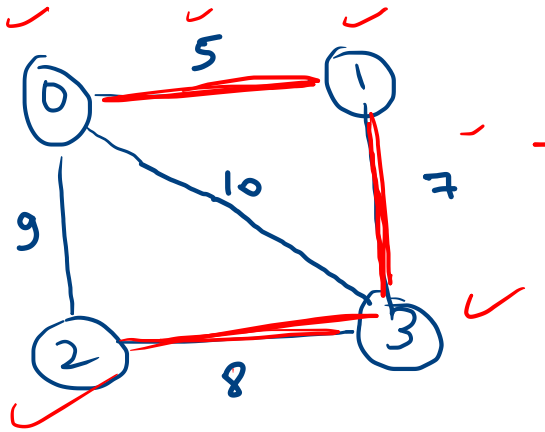


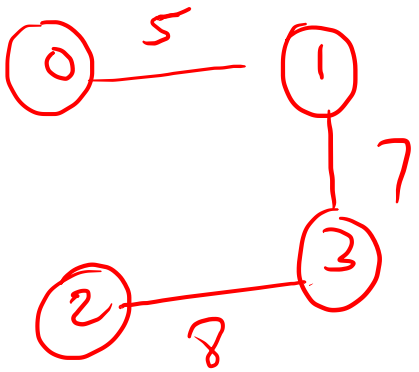


⇒ 33

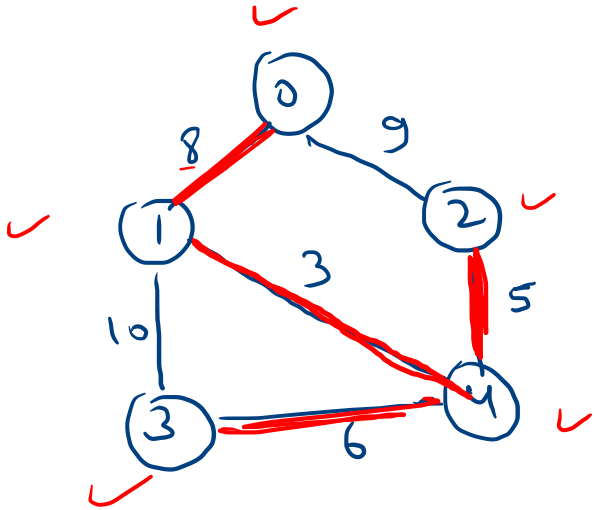
Minimum Spanning Tree

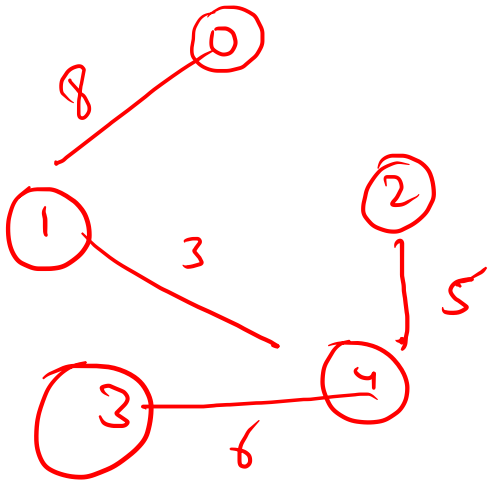
↳ Given weighted connected undirected Graph





⇒ 20

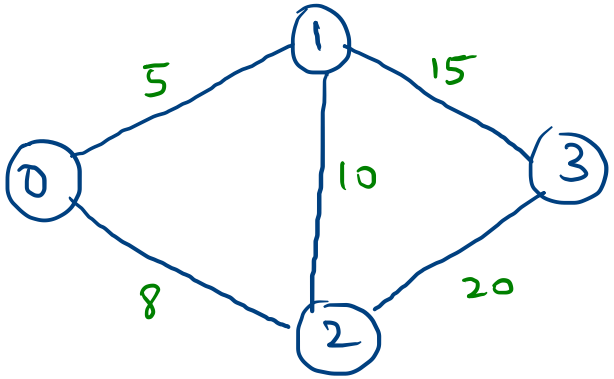




⇒ 22

Prim's Algorithms

(~~Kind of Greedy Algo~~)

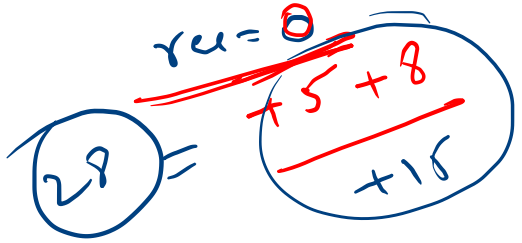


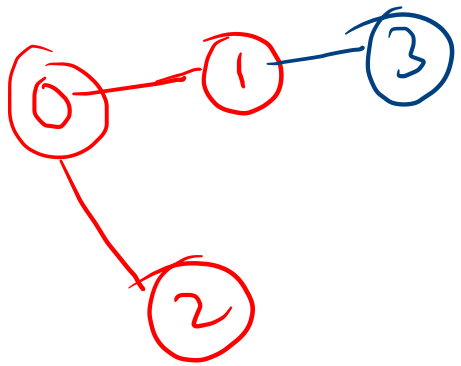
- maintain Two set
- mset = { }

rd = 0

set = {0, 1, 2, 3,}

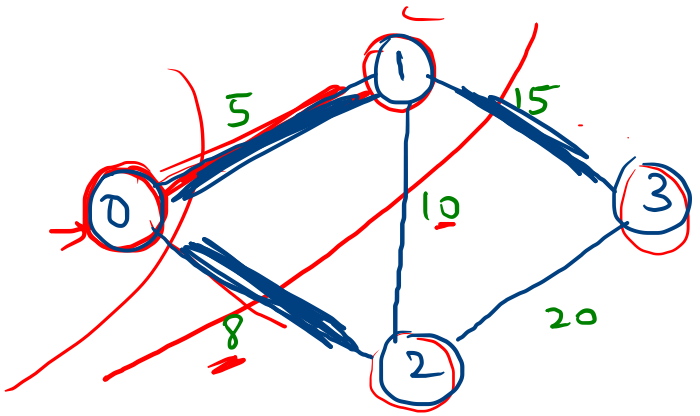
- Find the min. edge which connect the Current MST to remaining vertex

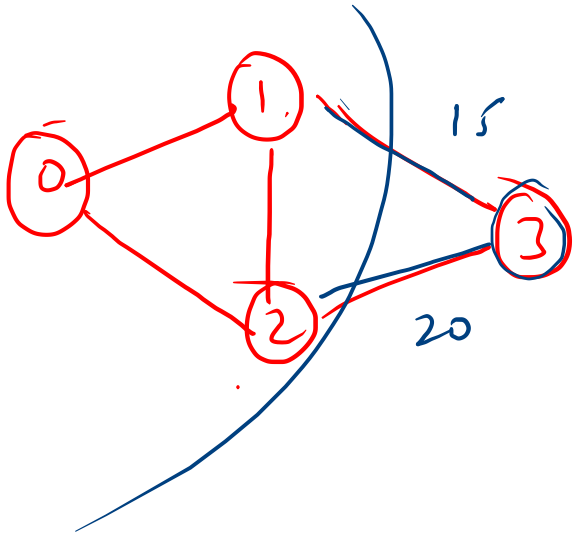

ver = 0
+5 +8
+15
29


0
1
3
2


MST
mst
set { }
{0}
{0,1}
{0,1,2}
{1,2,3}
{2,3}
{3}

{0,1,2,3}


0
1
2
3
5
15
10
8
20


0
1
2
3
15
20

∞ +2 +3 +5 +6

16

MST

{0}

{0,1}

{0,1,2}

{0,1,2,4}

{0,1,2,4,3}

set

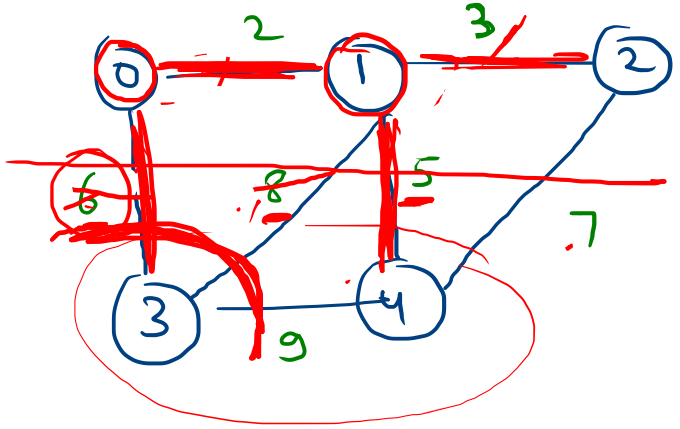
{1,2,3,4}

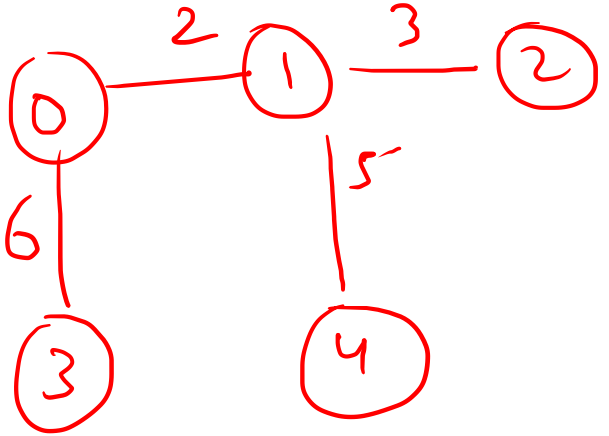
{2,3,4}

{3,4}

{3}

{}





Home work

Prim's MST