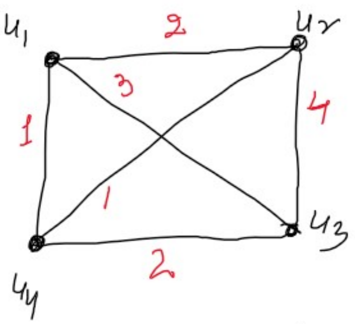
The no. of spanning tree of K_n is n^{n-2}.

K_4 $\quad 4^{4-2} = 4^2 = 16$

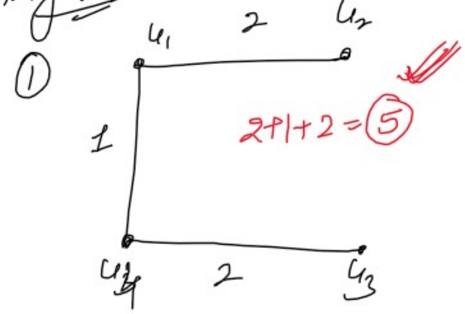
K_5 $\quad 5^{5-2} = 5^3 = 125$

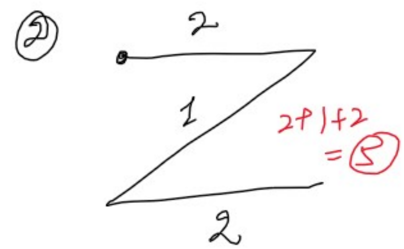
K_3 $\quad 3^{3-2} = 3^1 = 3$

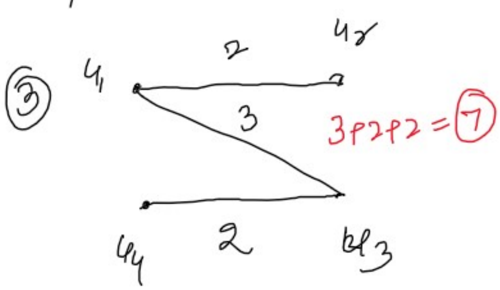
Minimum Spanning Tree :→ A minimum spanning tree in a connected weighted graph is a spanning tree that has the smallest possible sum of weights of its edges.

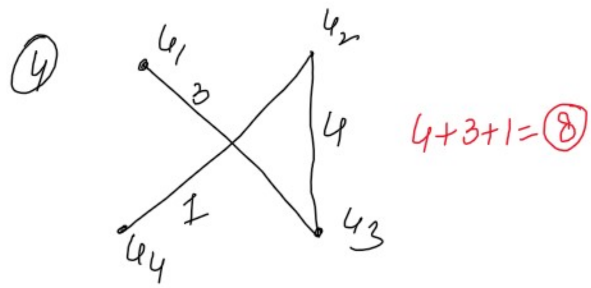


spanning tree

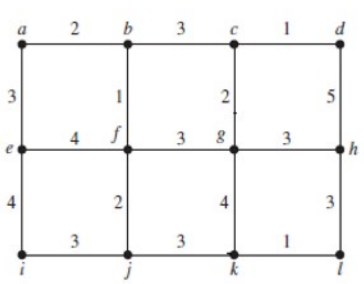






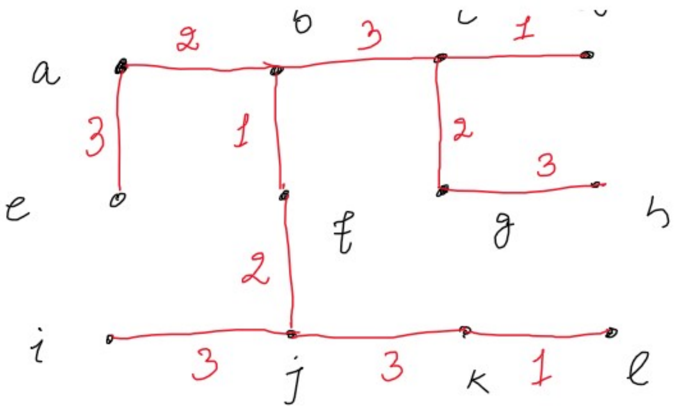


Kruskal Algorithm



weight	Edges	
1	<c-d>	
1	<b-f>	
1	<k-l>	
2	<a-b>	
2	<c-g>	
2	<f-j>	
3	<b-c>	
3	<a-e>	
3	<f-g>	X Not added

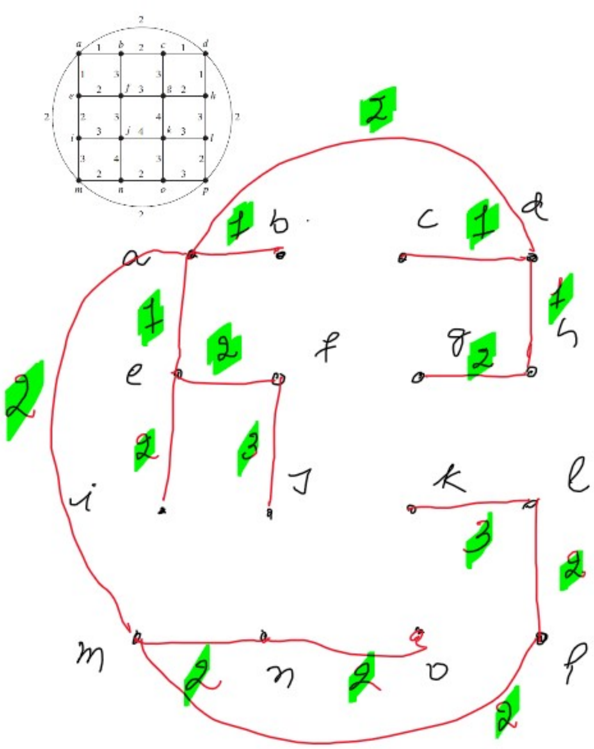
weigh	Edge
5	<d-h>



3	<a-e>
3	<f-g> X Not added
3	<g-h>
3	<i-j>
3	<j-k>
3	<h-l>
4	<e-f>
4	<e-i>
4	<g-k>

Weight of Minimum Spanning Tree = 3+2+3+1+1+2+3+2+3+3+1

= 24



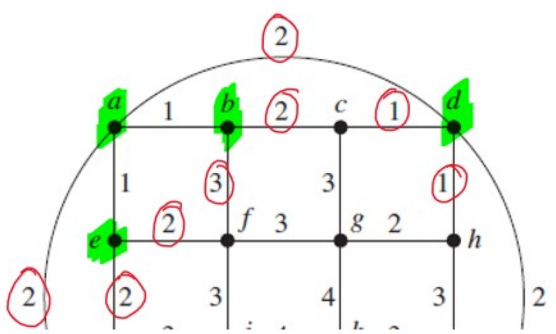
Weight	Edges
1	a-b
1	c-d
1	<d-h>
1	<a-e>
2	a-d>
~~2~~	~~<b-c>~~ X
2	<e-f>
2	<g-h>
2	<e-i>
2	<a-m>
2	<m-n>
2	<n-o>
2	<l-p>
2	<m-p>
~~2~~	~~<p-d>~~ X

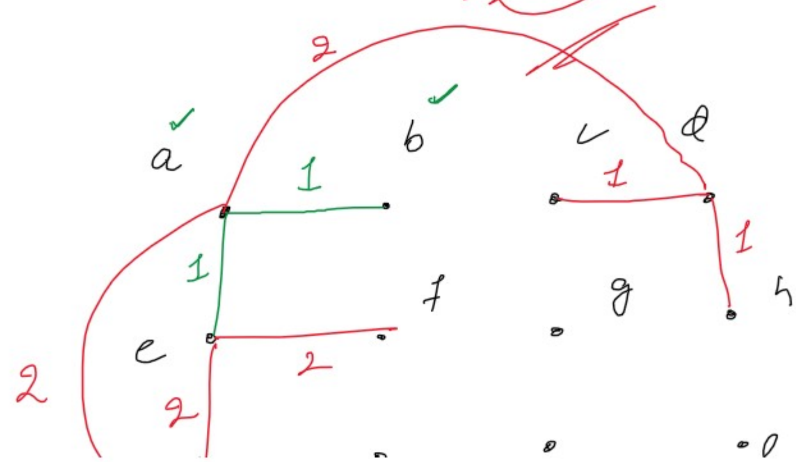
Weight	Edges
~~3~~	~~<f-g>~~ X
~~3~~	~~<c-g>~~ X
3	<f-j>
~~3~~	~~<i-j>~~ X
~~3~~	~~<h-l>~~ X
3	<k-l>
3	<i-m>
3	<k-o>
3	<o-p>
3	<b-f>
4	<g-k>
4	<j-k>
4	<j-n>

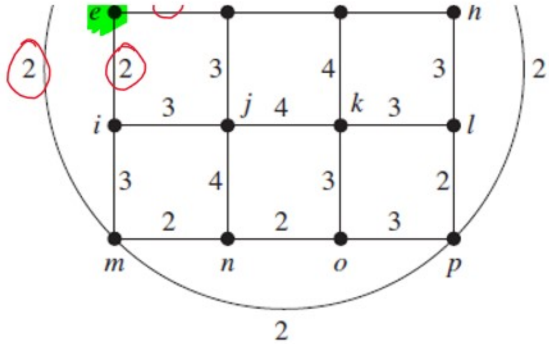
Weight of Minimum Spanning Tree

28

Prims Algorithm






e
h
i
j
k
l
m
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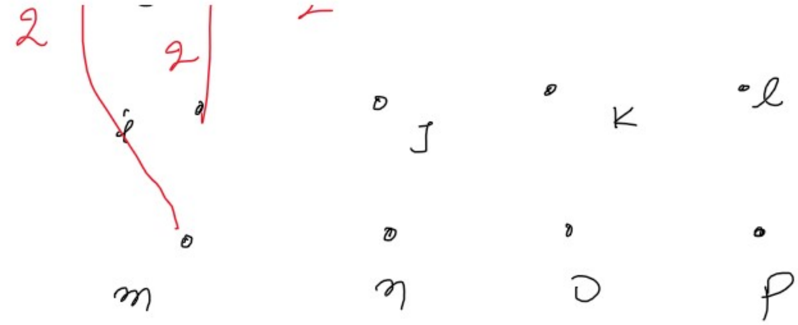
o
p


m
n
p