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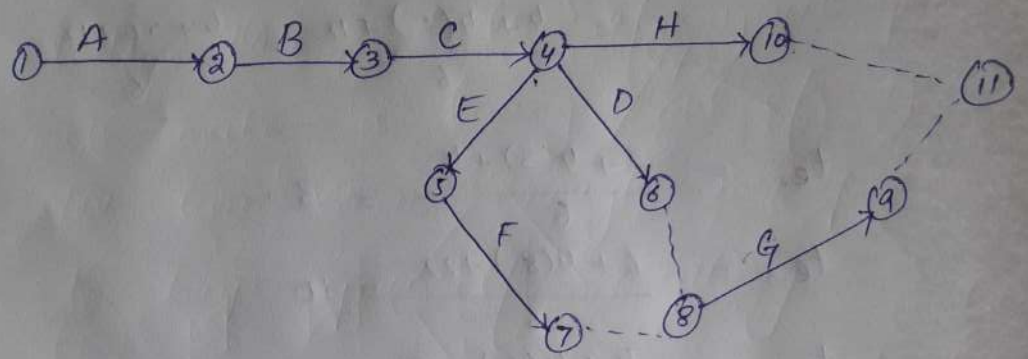
BS (SE = 4)

Section A.

Ghassan Sir.

Q2:- (a) Construct the project network.



Activity	Predecessor	O	M	P	Mean expected Duration	Variance
A	–	4	5	12	6	1.77
B	A	2	3	4	3	0.11
C	B	6	8	22	10	7.09
D	C	4	6	8	6	0.44
E	C	3	4	5	4	0.11
F	E	2	4	6	4	0.44
G	D-F	2	3	4	3	0.11
H	C	5	7	15	8	0.76

By formula

Mean $te = \frac{to + 4tm + tp}{6}$

$= \frac{4 + 4(5) + 12}{6} = \frac{4 + 20 + 12}{6} = 6.$

$te_2 = \frac{2 + 4(3) + 4}{6} = 3.$

$te_3 = \frac{6 + 4(8) + 22}{6} = 10$

$te_4 = \frac{4 + 4(6) + 8}{6} = 6$

$te_5 = \frac{3 + 4(4) + 5}{6} = 4.$

$te_6 = \frac{2 + 4(4) + 6}{6} = 4$

$te_7 = \frac{2 + 4(3) + 4}{6} = 3$

$te_8 = \frac{5 + 4(2) + 15}{6} = 8.$

Variance σ^2

$\sigma_1^2 = \left(\frac{12 - 4}{6}\right)^2 = \left(\frac{8}{6}\right)^2 = 1.77.$

$$\sigma_2^2 = \left(\frac{4-2}{6}\right)^2 = \left(\frac{2}{6}\right)^2 = 0.11$$

$$\sigma_3^2 = \left(\frac{22-6}{6}\right)^2 = 7.09$$

$$\sigma_4^2 = \left(\frac{8-4}{6}\right)^2 = 0.44$$

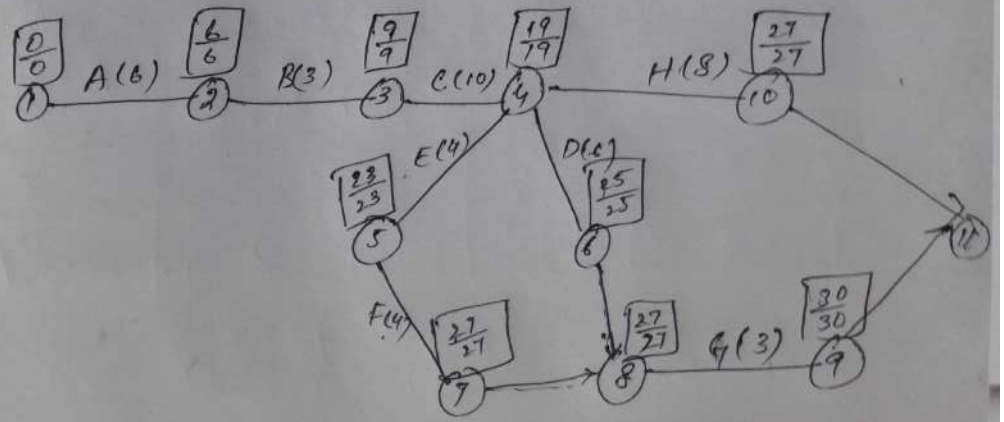
$$\sigma_5^2 = \left(\frac{5-3}{6}\right)^2 = 0.11$$

$$\sigma_6^2 = \left(\frac{6-2}{6}\right)^2 = 0.44$$

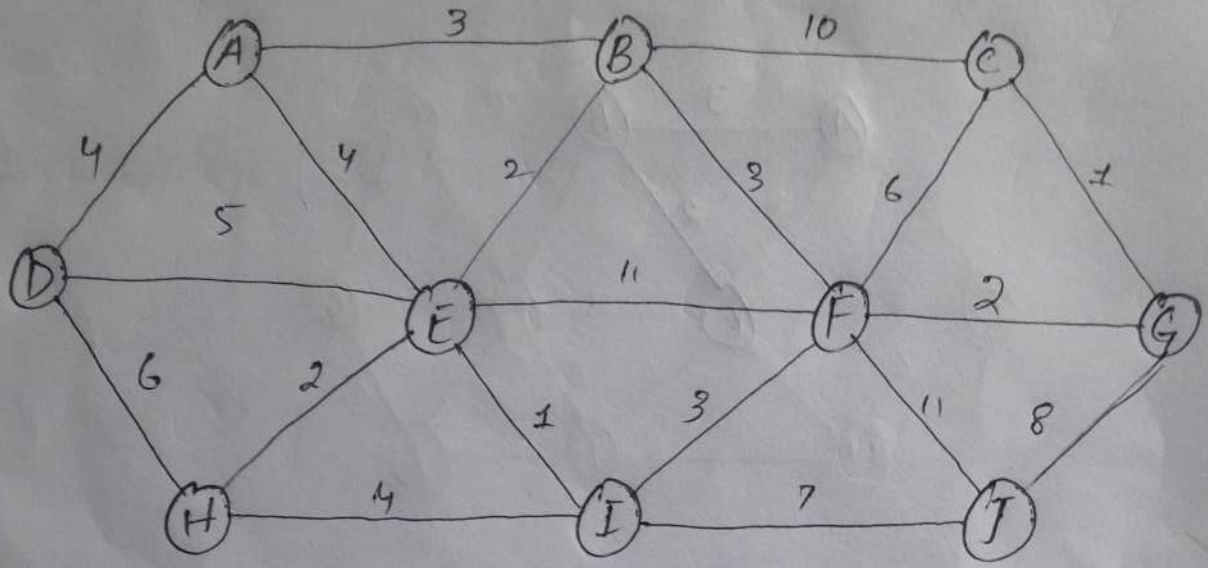
$$\sigma_7^2 = \left(\frac{4-2}{6}\right)^2 = 0.11.$$

$$\sigma_8^2 = \left(\frac{15-5}{6}\right)^2 = 2.76.$$

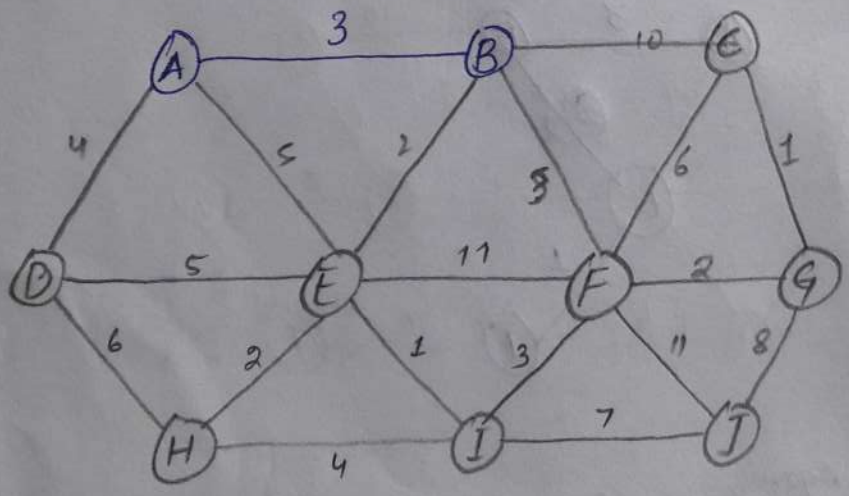
Critical Path / Projection completion time.



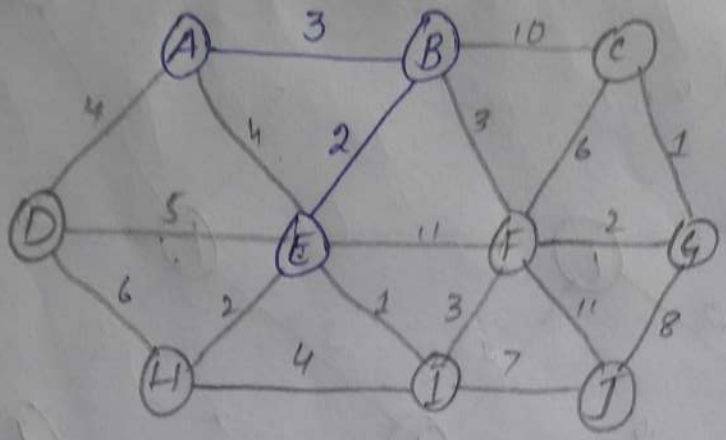
Q3:-



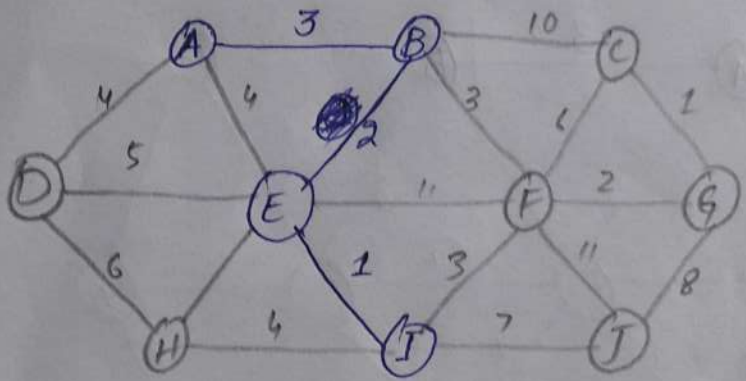
Ans:- First we select A vertex as root node and will for lowes cost edge. which A - 3 - B



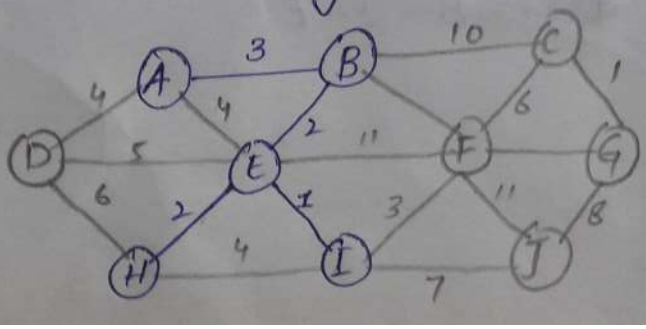
Now A - 3 - B as a node the lowest is B - 2 - E.



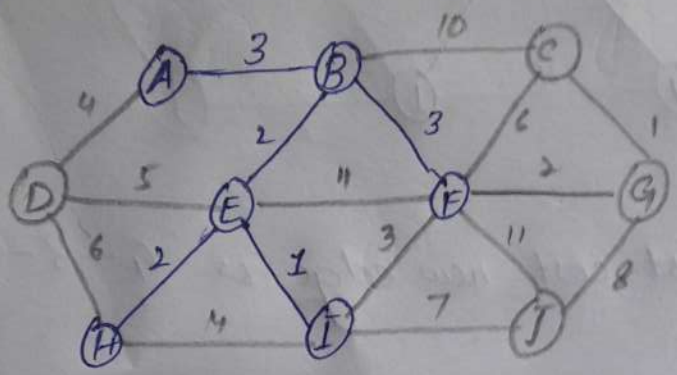
Now A-3-B-2-E Tree is formed & Again as a node we will look for new edge. least cost new edge is E-1-I.



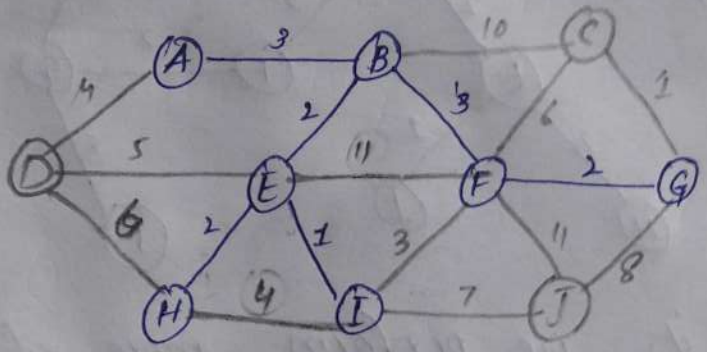
Now Again A-3-B-2-E-1-I as node. Least cost new edge is E-2-H.



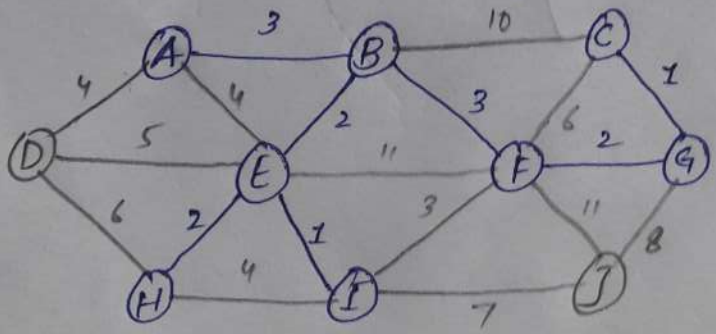
Now Again A-3-B-2-E-1-I and E-2-H as a node. least cost new edge is B-3-F and I-3-F we can take any one let's take B-3-F



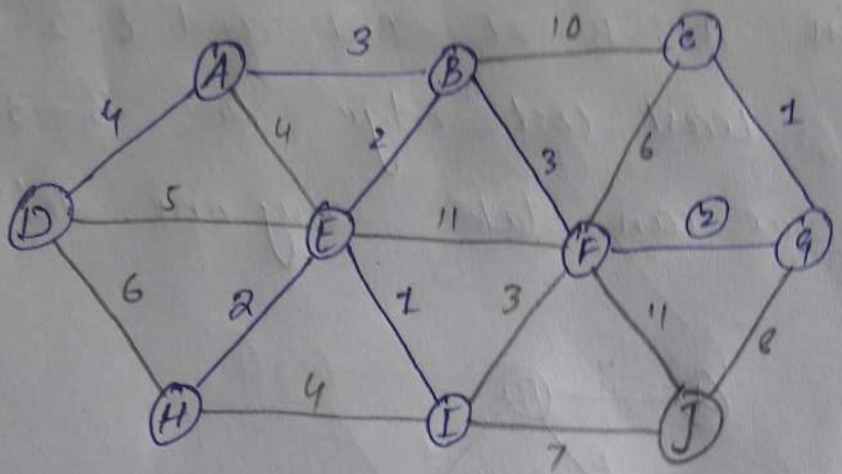
Now least cost new edge is F-2-G.



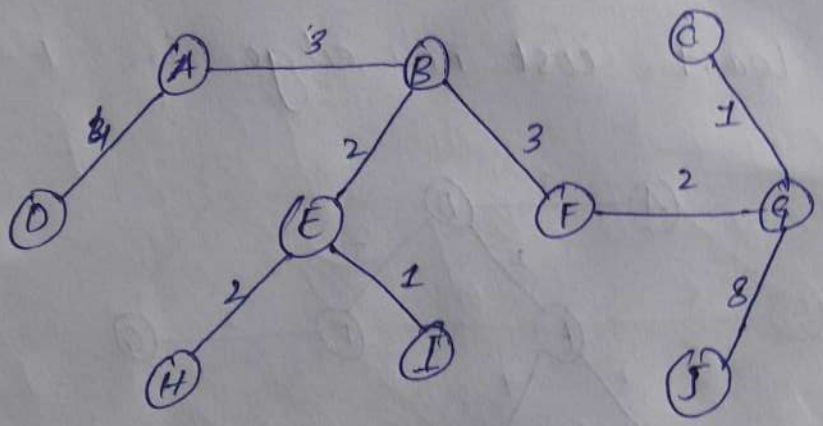
Now least cost new edge is G-1-C.



Now take least cost new edge A-4-D.

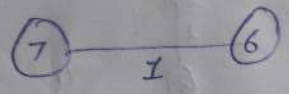


Now least cost new edge is G-8-J.

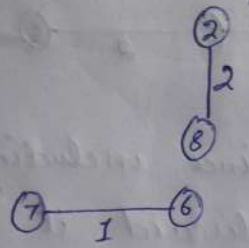


Now if we perform more edges cycled will be formed so that's it.

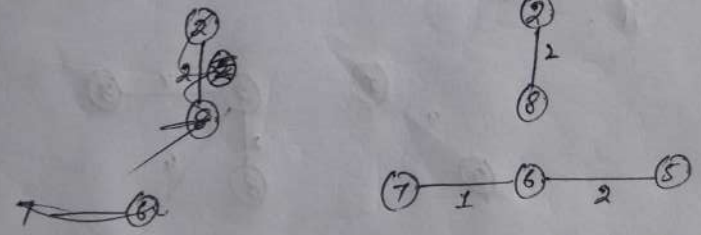
Q4 → Ans:- 1. Pick edge 7-6 : No cycle is formed, include it.



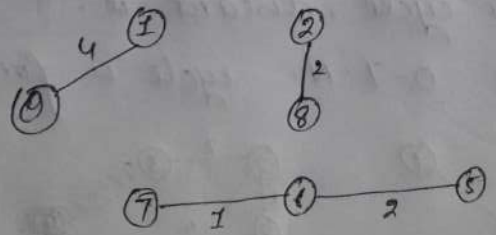
2. Pick edge 8-2 : No cycle is formed, include it.



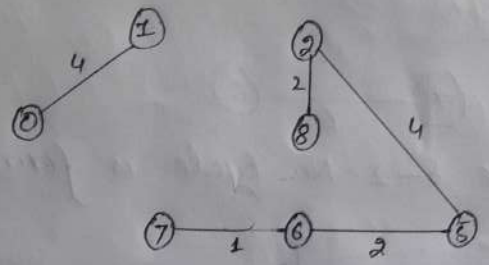
(3) Pick edge 6-5 : No cycle is formed, include it.



(4) Pick edge 0-1 : No cycle is formed, include it.

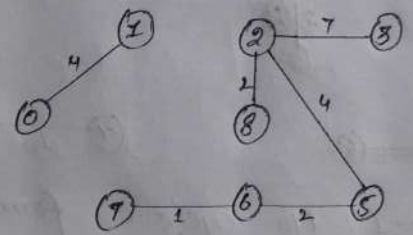


(5) Pick edge 2-5: No cycle is formed, include it.



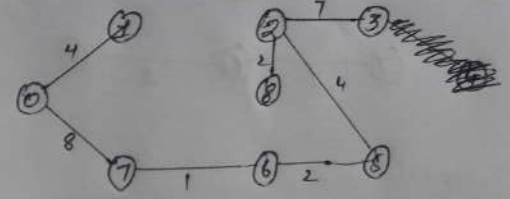
(6) Pick edge 8-6: Since including this edge results in cycle, discard it.

(7) Pick edge 2-3: No cycle is formed, include it.



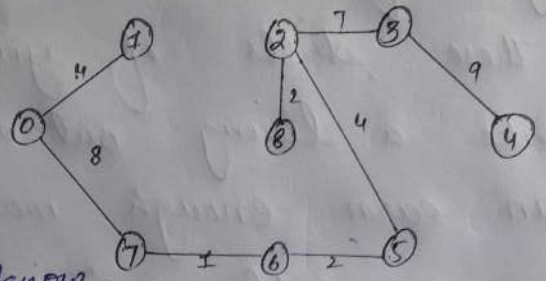
(8) Pick edge 7-8: Since including this edge results in cycle, discard it.

(9) Pick edge 0-7: No cycle is formed, include it.



(10) Pick edge 1-2: Since including this edge results in cycle, discard it.

(11) Pick edge 3-4: No cycle is formed, include it.



As we know.

So the minimum spanning tree formed will be having $(v-1) = (9-1) = 8$ edges so algorithm stop here.

Q5 → Ans:- → You will learn to solve the real world problems

→ You will learn how to use your skills to improve and make software engineering further improve.

→ You will become a strategic person.

→ You will don't need other people

people to solve the problems for you will be able to solve them by yourself.

→ With these skills of yours you will make a living out of yours

→ You can earn enough money to buy yourself anything.

→ Nowadays it is very important and nowadays demands of software engineers are very high.

→ You will get creative and powerfull.

→ You will understand Technology more than anyone.