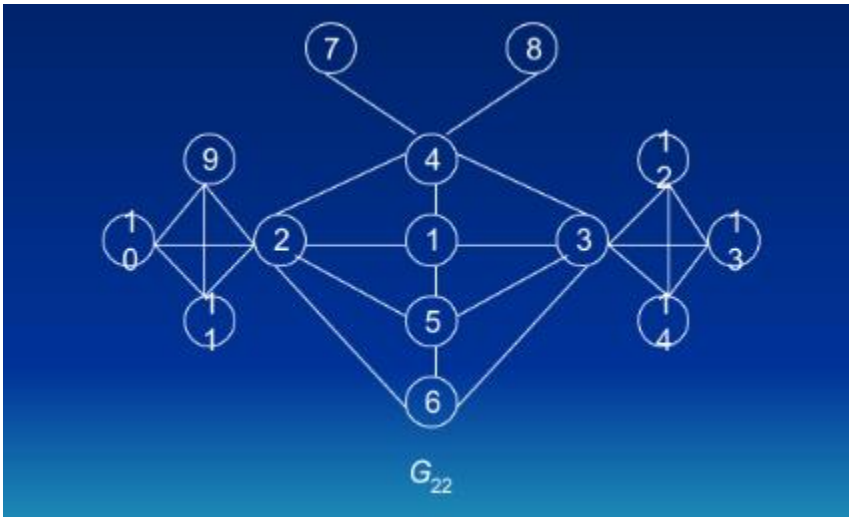
Formal definitions, Adjacency matrix and list representations, and perform BFS with 8 and G as the source vertices.



$$G_{22} = (V_{22}, E_{22})$$

$$V_{22} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14\}$$

$$E_{22} =$$

{(1,2),(1,3),(1,4),(1,5),(2,4),(2,5),(2,6),(2,9),(2,10),(2,11),(3,4),(3,5),(3,6),(3,12),(3,13),(3,14),(4,7),(4,8), (5, 6), (9, 10), (9, 11), (10, 11), (12, 13), (12, 14), (13, 14)}

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	0	1	1	1	1	0	0	0	0	0	0	0	0	0
2	1	0	0	1	1	1	0	0	1	1	1	0	0	0
3	1	0	0	1	1	1	0	0	0	0	0	1	1	1
4	1	1	1	0	0	0	1	1	0	0	0	0	0	0
5	1	1	1	0	0	1	0	0	0	0	0	0	0	0
6	0	1	1	0	1	0	0	0	0	0	0	0	0	0
7	0	0	0	1	0	0	0	0	0	0	0	0	0	0
8	0	0	0	1	0	0	0	0	0	0	0	0	0	0
9	0	1	0	0	0	0	0	0	0	1	1	0	0	0
10	0	1	0	0	0	0	0	0	1	0	1	0	0	0
11	0	1	0	0	0	0	0	0	1	1	0	0	0	0
12	0	0	1	0	0	0	0	0	0	0	0	0	1	1
13	0	0	1	0	0	0	0	0	0	0	0	1	0	1
14	0	0	1	0	0	0	0	0	0	0	0	1	1	0

1 > 2 > 3 > 4 > 5

2 > 1 > 4 > 5 > 6 > 9 > 10 > 11

3 > 1 > 4 > 5 > 6 > 12 > 13 > 14

4 > 1 > 2 > 3 > 7 > 8

5 > 1 > 2 > 3 > 6

6 > 2 > 3 > 5

7 > 4

8 > 4

9 > 2 > 10 > 11

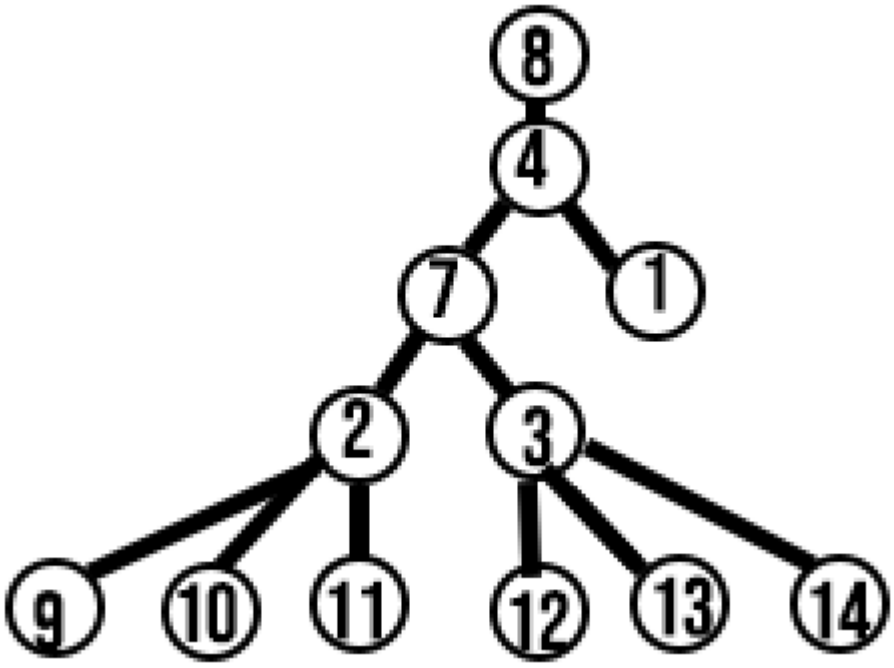
10 > 2 > 9 > 11

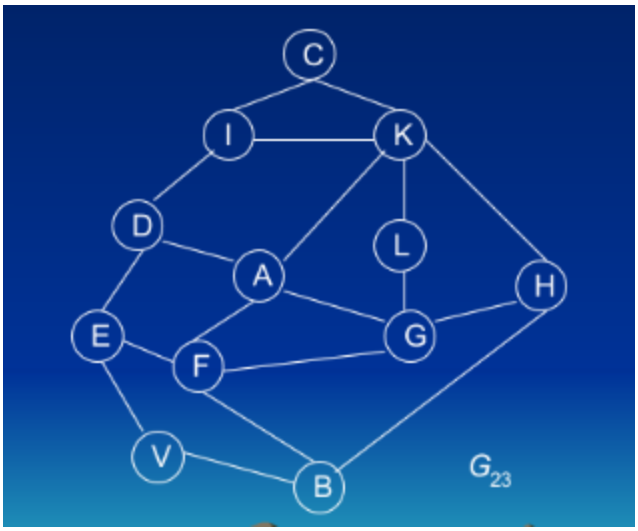
11 > 2 > 9 > 10

12 > 3 > 13 > 14

13 > 3 > 12 > 14

14 > 3 > 12 > 13





$$G_{23} = (V_{23}, E_{23})$$

$$V_{23} = \{A, B, C, D, E, F, G, H, I, K, L, V\}$$

E_{23} ={(A, D), (A, F), (A, G), (A, K), (B, F), (B, H), (B, V), (C, I), (C, K), (D, E), (D, I), (E, F), (E, V), (F, G), (G, H), (G, L), (H, K), (I, K), (K, L)}

	A	B	C	D	E	F	G	H	I	K	L	V
A	0	0	0	1	0	1	1	0	0	1	0	0
B	0	0	0	0	0	1	0	1	0	0	0	1
C	0	0	0	0	0	0	0	0	1	1	0	0
D	1	0	0	0	1	0	0	0	1	0	0	0
E	0	0	0	1	0	1	0	0	0	0	0	1
F	1	1	0	0	1	0	1	0	0	0	0	0
G	1	0	0	0	0	1	0	1	0	0	1	0
H	0	1	0	0	0	0	1	0	0	1	0	0
I	0	0	1	1	0	0	0	0	0	1	0	0
K	1	0	1	0	0	0	0	1	1	0	1	0
L	0	0	0	0	0	0	1	0	0	1	0	0
V	0	1	0	0	1	0	0	0	0	0	0	0

A > D > F > G > K

B > F > H > V

C > I > K

D > A > E > I

E > D > F > V

F > A > B > E > G

G > A > F > H > L

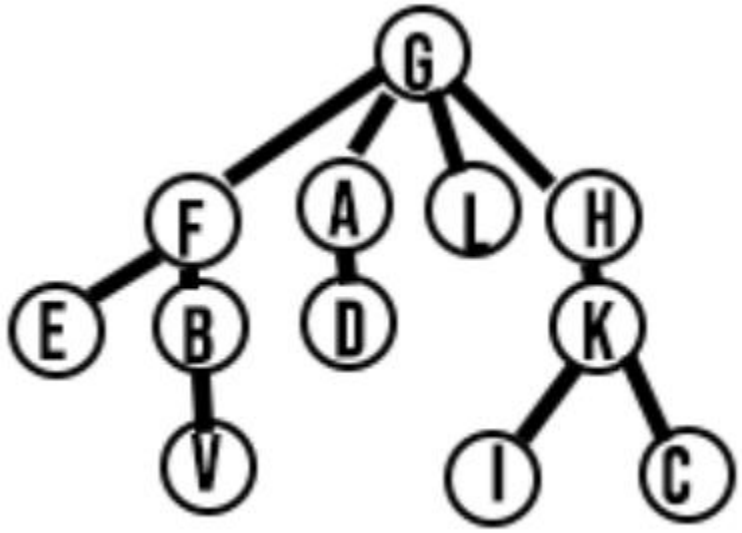
H > B > G > K

I > C > D > K

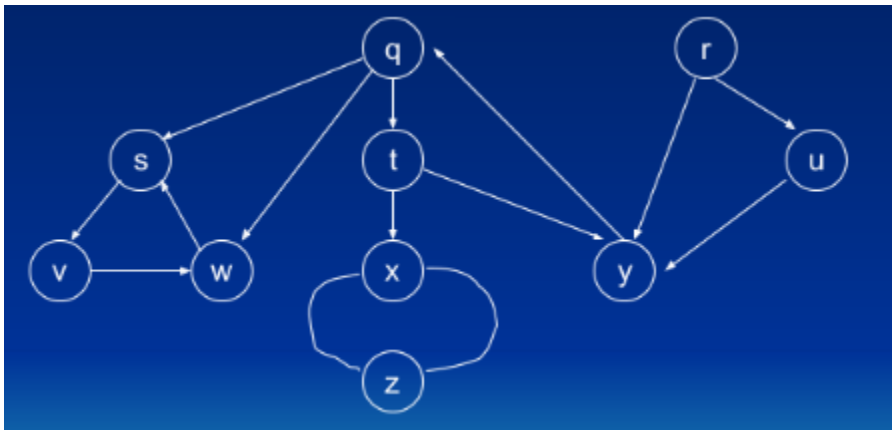
K > C > H > I > L

L > G > K

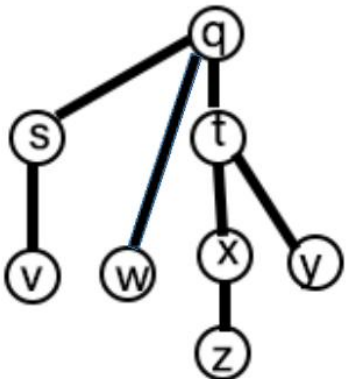
V > B > E



Perform BFS(G25, q) and DFS(G25). Explore the vertices in alphabetical order. Show the breadth-first tree, depth-first forest, breadth-first traversal, and depth-first traversal.

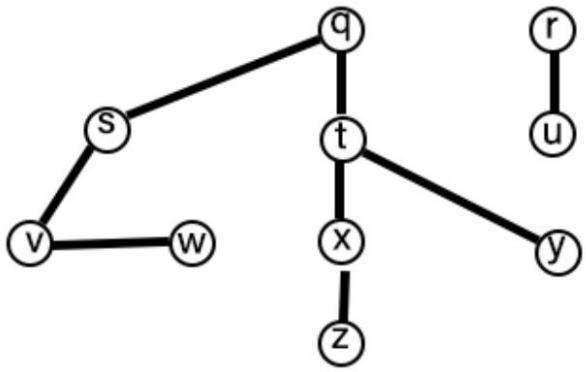


BFS

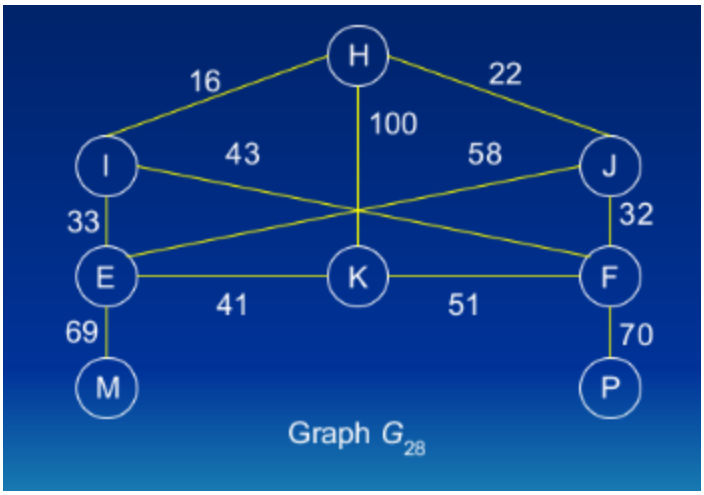


q, s, t, v, w, x, y, z

DFS

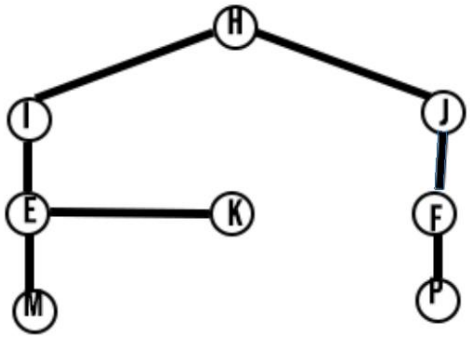


q, s, v, w, t, x, z, y, r, u

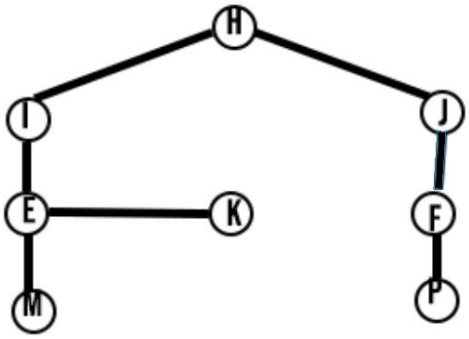


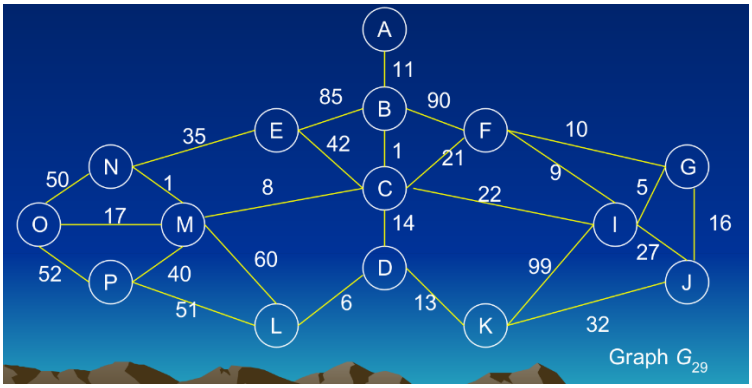
Kruskal

w(H, I) = 16
w(H, J) = 22
w(J, F) = 32
w(E, I) = 33
w(E, K) = 41
w(I, F) = 43
w(F, K) = 51
w(E, J) = 58
w(E, M) = 69
W(F, P) = 70
w(H, K) = 100



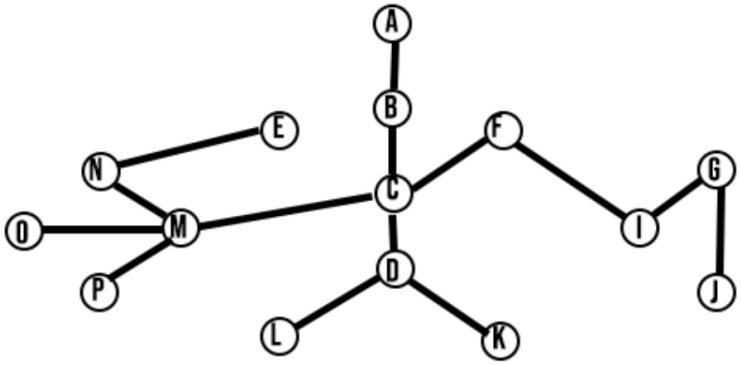
Prim's



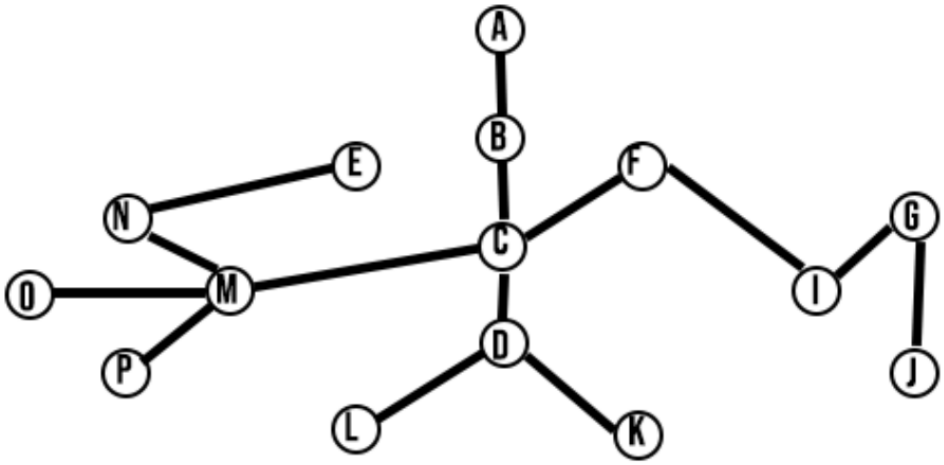


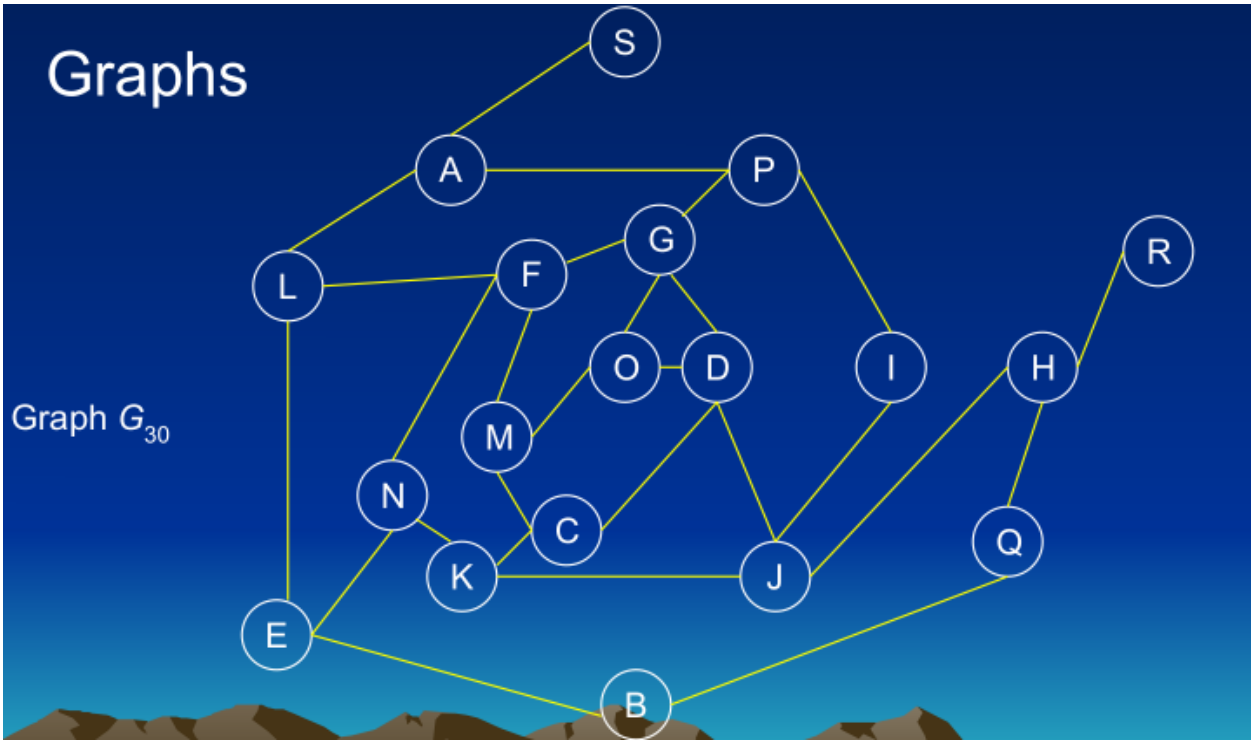
Kruskal

w(B, C) = 1
w(N, M) = 1
w(G, I) = 5
w(D, L) = 6
w(C, M) = 8
w(F, I) = 9
w(F, G) = 10
w(A, B) = 11
w(D, K) = 13
w(C, D) = 14
w(G, J) = 16
w(M, O) = 17
w(C, F) = 21
w(C, I) = 22
w(I, J) = 27
w(K, J) = 32
w(E, N) = 35
w(M, P) = 40
w(E, C) = 42
w(N, 0) = 50
w(L, P) = 51
w(O, P) = 52
w(L, M) = 60
w(B, E) = 85
w(B, F) = 90
w(K, I) = 99



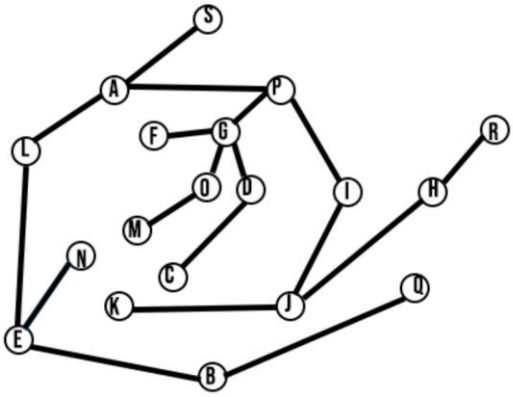
Prim’s





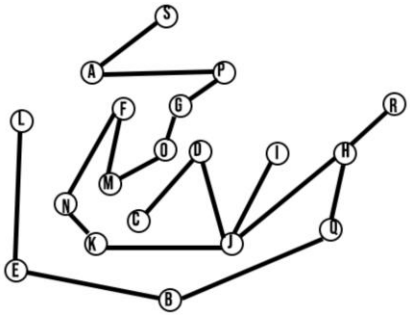
$G_{30}S$:

BFS



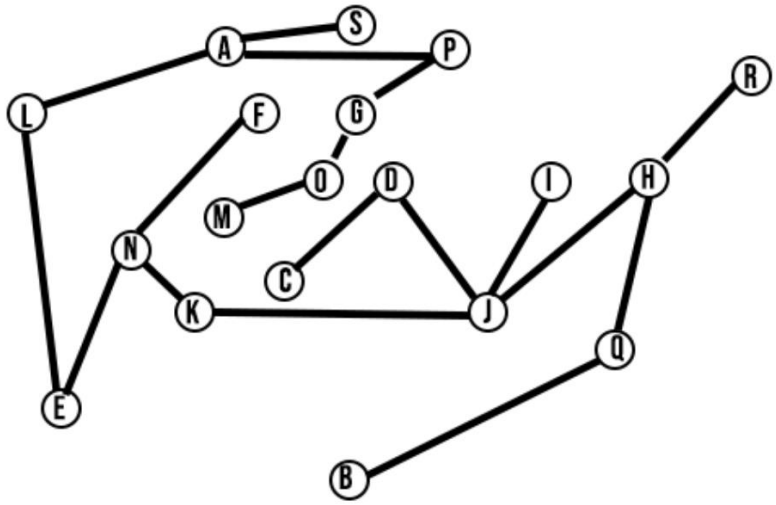
S, A, L, E, B, Q, N, P, G, O, M, D, C, F, I, J, H, R, K

DFS



S, A, F, G, O, M, F, N, K, J, I, H, R, Q, B, E, L

$G_{30}M$:



	d	f	f2
A	5	8	
B	30		
C	18	19	
D	17	20	
E	10		
F	12	13	
G	3		
H	25	28	
I	22	23	
J	16	21	24
K	15		
L	9		
M	1		
N	11	14	
O	2		
P	4		
Q	29		
R	26	27	
S	6	7	

M, O, G, P, A, S, L, E, N, F, K, J, I, D, C, H, R, Q, B