"I acknowledge my responsibility and commitment to the exam rules of the university and I affirm that I will not give nor receive any unauthorized help on this exam and that all work will be my own."

CSE 2025

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A: B, 6; C, 16; D, 8

B: A, 6; D, 7

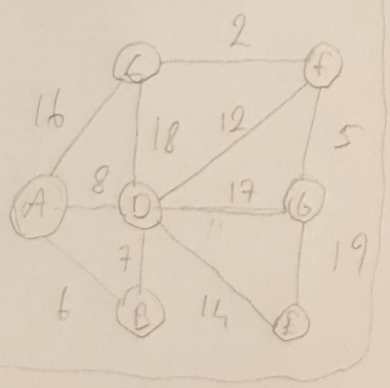
C: A, 16; D, 18; F, 2

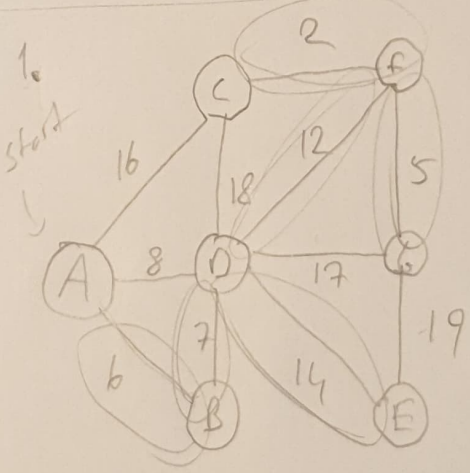
D: A, 8; B, 7; C, 18; E, 14; F, 12; G, 17

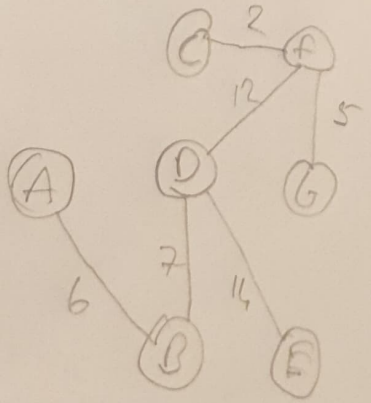
E: D, 14; G, 19

F: C, 2; D, 12; G, 5

G: D, 17; E, 19; F, 5



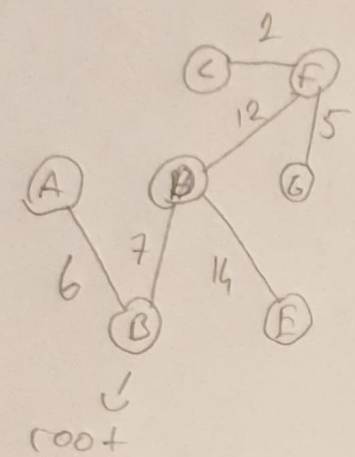




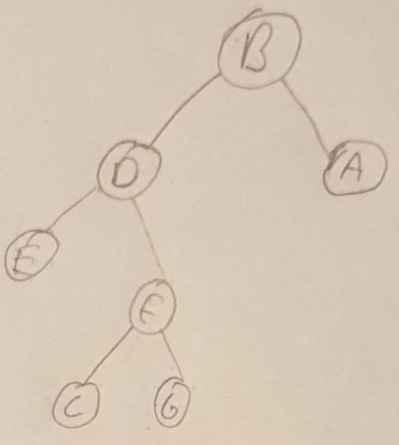
Arcs	AB	BD	DF	FC	FG	DE
Length	6	7	12	2	5	14

Total length = 46

2. MST A<B<C<C<D<E<F<G



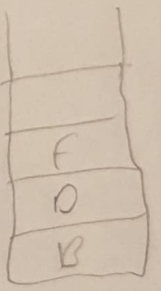
Binary tree



Bfs (Queue) → BFS

B, D, A, E, F, C, G

DFS (Stacks) → preorder NLR



B, D, E, F, C, G, A → DFS

Graphs

$G = (V, E)$ digraphs -> directed graphs In-degree -> incoming out-degree -> leaving

Topological sort -> acyclic ?

Breadth-first Search (BfS)

Graph'i tree'ye çevirme. Tree'yi yazıyorum. Soldan sağa. Herhangi bir sırada yazabilir. Tree'yi oluşturuşumuza göre BfS'in yazımının sırası değişir.

Exploration: tüm verteleri gezmek ve uygun bağlandı. (Queue)

Depth-first Search

Bir node'u duşup değerine geliyosun olduğun stackte depoluyorsun. Sırayla yazıyorsun. Stepleri bölümde yaz

Dijkstras Alg -> Works on both

Bir vertexten değerine en kısa yol (toplam) En kısa yolları seçip ilerle

Not: Dijkstra finds shortest path, Prim's finds MST.

Topological Sort

Look for nodes which has no incoming edge and degree 0.

Sonra edgelerini sil! Aynı şekilde devam et, Queue -> bir sonraki node

Time -> her time

Prims Algo. -> Only works undirected

Pick a node

Kırcle olmicak

Kruskal Algo

En küçük edgeleri yazıp her yere git