

## 1 Graph Representation

Represent the graph with adjacency list and adjacency matrix representation.

A	B, E	A	B	C	D	E	F
B	C	A	F	T	F	F	T
C	D, F	B	F	F	T	F	F
D	B, F	C	F	F	F	T	F
E	F	D	F	T	F	F	T
F	A	E	F	F	F	F	T
		F	T	F	F	F	F

## 2 Depth First Search

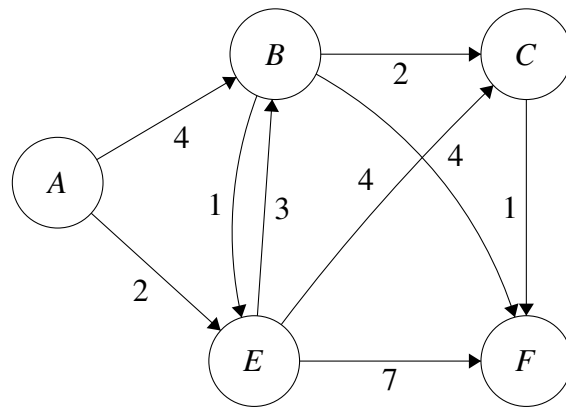
Run DFS on the same graph, starting from node A. List the order in which each node is traversed. Whenever there is a choice of which node to visit next, visit nodes in alphabetical order. **A, B, C, D, F, E**

## 3 Breadth First Search

Run BFS on the same graph this time. **A, B, E, C, F, D**

## 4 Dijkstra's Algorithm

Given the following graph, write down the value  $\text{dist}(v)$  for all vertices  $V$  during each iteration of the Dijkstra algorithm, starting at point A.



A	0	0	0	0	0
B	$\infty$	$\infty$	4	4	4
C	$\infty$	$\infty$	$\infty$	6	6
E	$\infty$	2	2	2	2
F	$\infty$	$\infty$	$\infty$	$\infty$	7

## 5 Topological Sorting

Given the following graph, give a valid topological ordering of the graph. Is it unique?

