

# Lecture 12

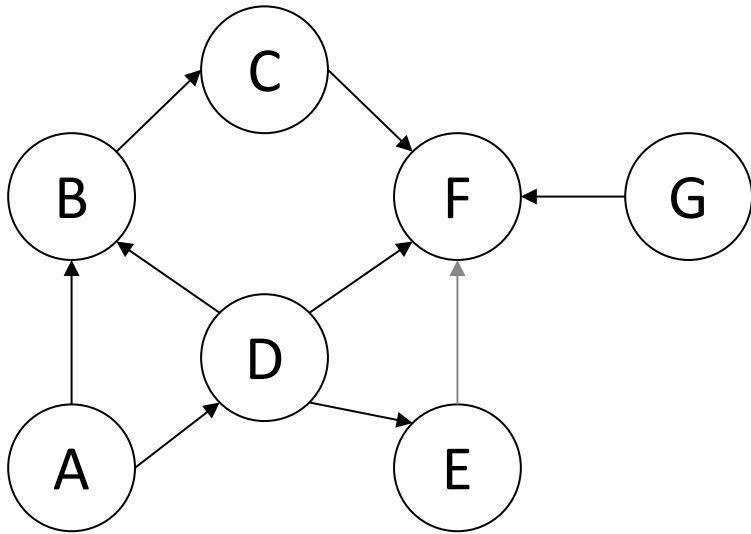
## Graphs

## Exercises

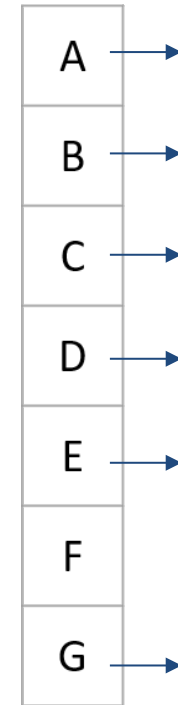
Department of Computer Science  
Hofstra University

# Q. Adjacency matrix and adjacency list

- Write out the adjacency matrix and adjacency list for the directed graph.

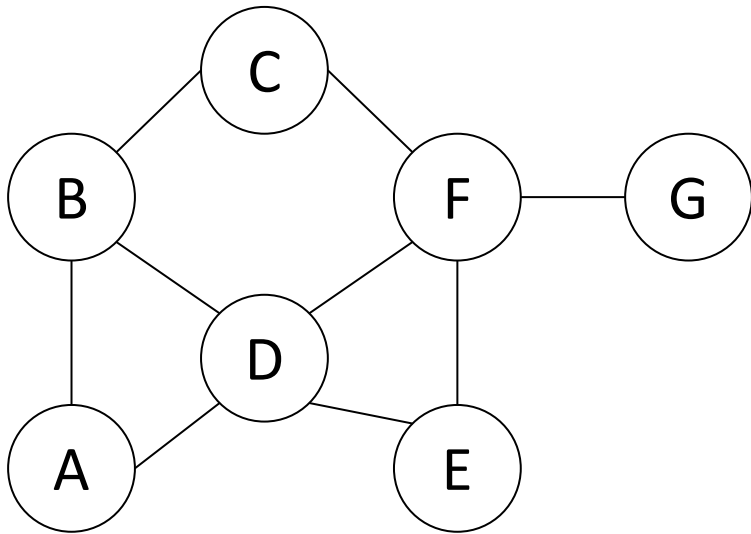


	A	B	C	D	E	F	G
A							
B							
C							
D							
E							
F							
G							

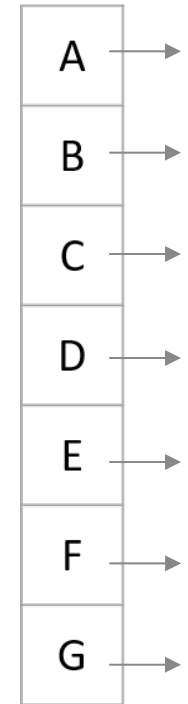


# Q. Adjacency matrix and adjacency list

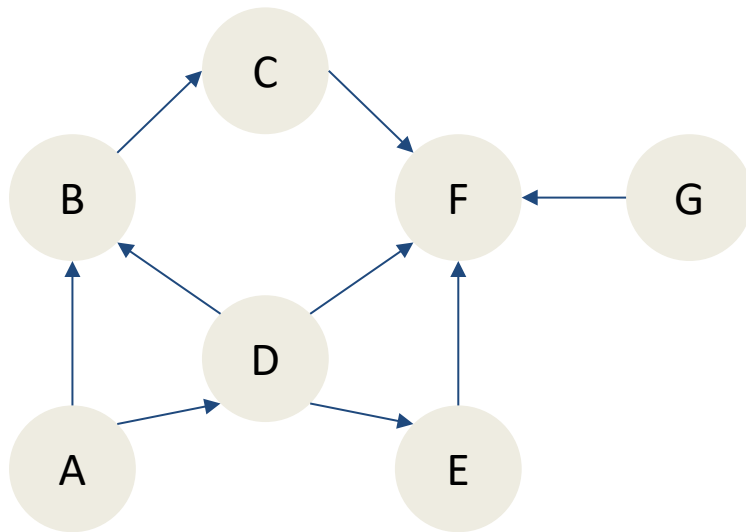
- Write out the adjacency matrix and adjacency list for the directed graph.



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



## Q: Graph Traversals (Pre-Order & Post-Order)



Stack:

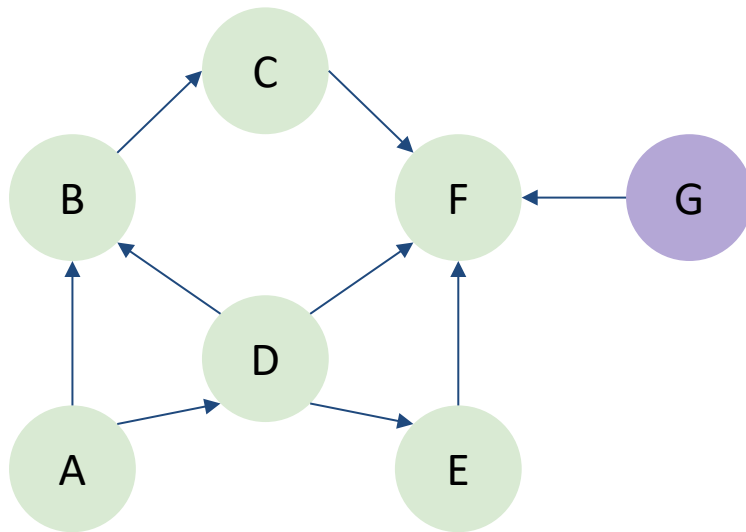
Give the DFS pre-order and post-order traversals of this directed graph, **starting from node A**. When there are multiple possible orders of visiting the next node, select the next node in **alphabetical order**.

DFS Pre-Order:

DFS Post-Order:

You do NOT need to write out the stack or queue contents in the exam

# Q: Graph Traversals (Pre-Order & Post-Order) ANS

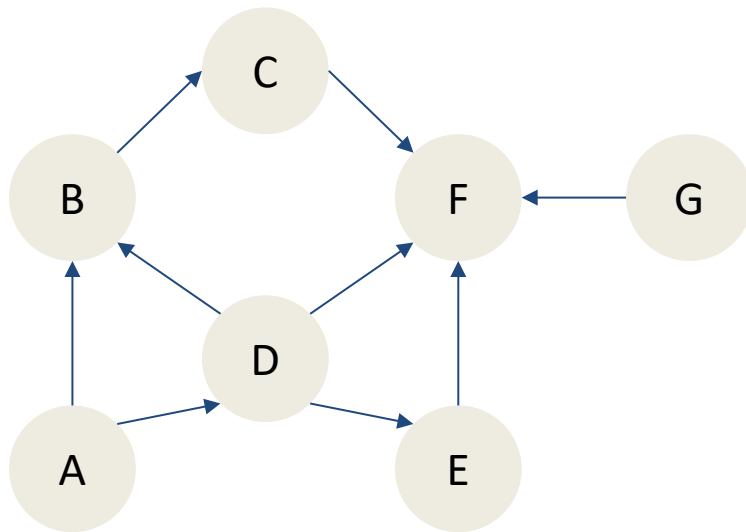


DFS Pre-Order:  
A, B, C, F, D, E, G

DFS Post-Order:  
F, C, B, E, D, A, G

Topological Sort (reverse of DFS  
Post-Order):  
G, A, D, E, B, C, F

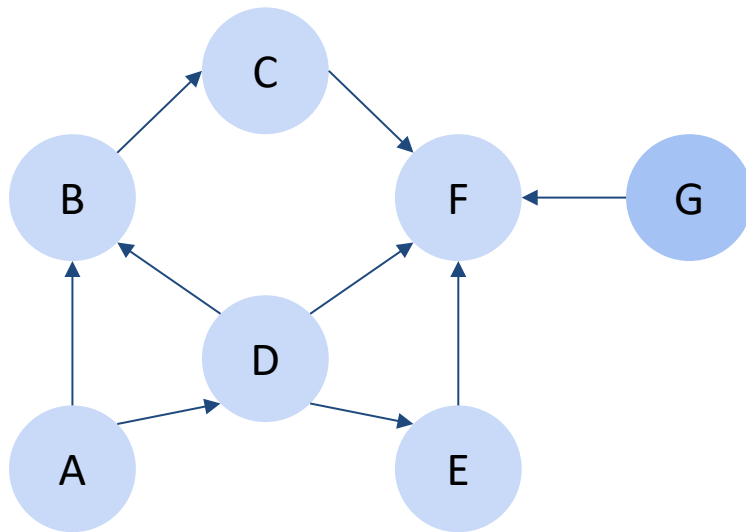
## Q: Graph Traversals (BFS)



Give the BFS traversal of this directed graph, **starting from node A**. When there are multiple possible orders of visiting the next node, select the next node in **alphabetical order**.

BFS:

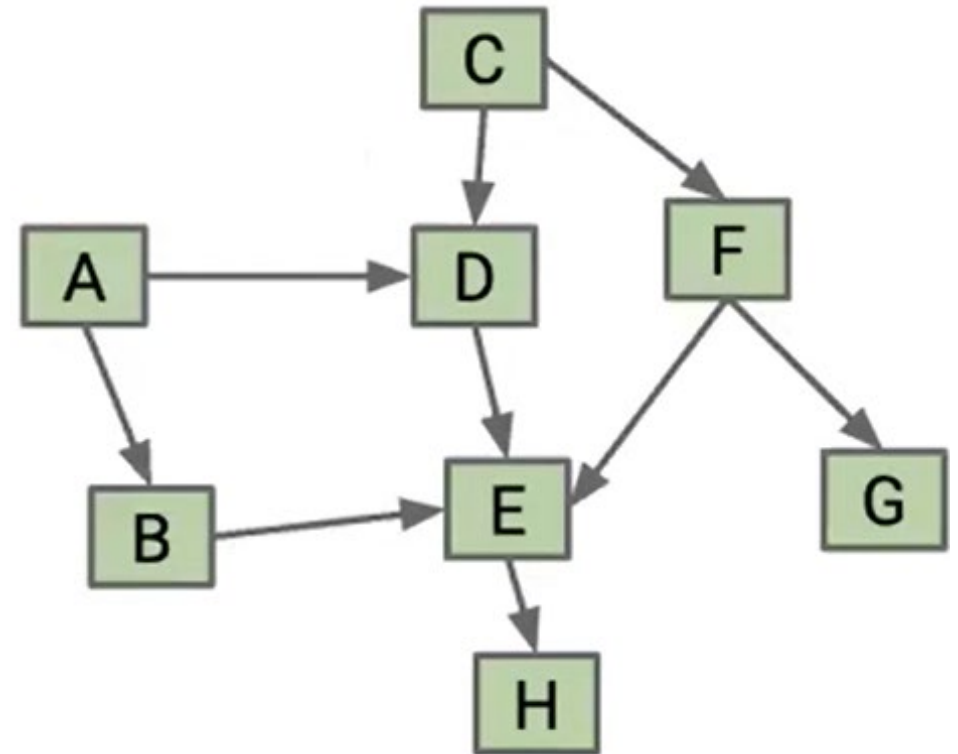
## Q: Graph Traversals (BFS) ANS



BFS:  
A B D C E F G

# Q. Graph Traversal (Directed Graph)

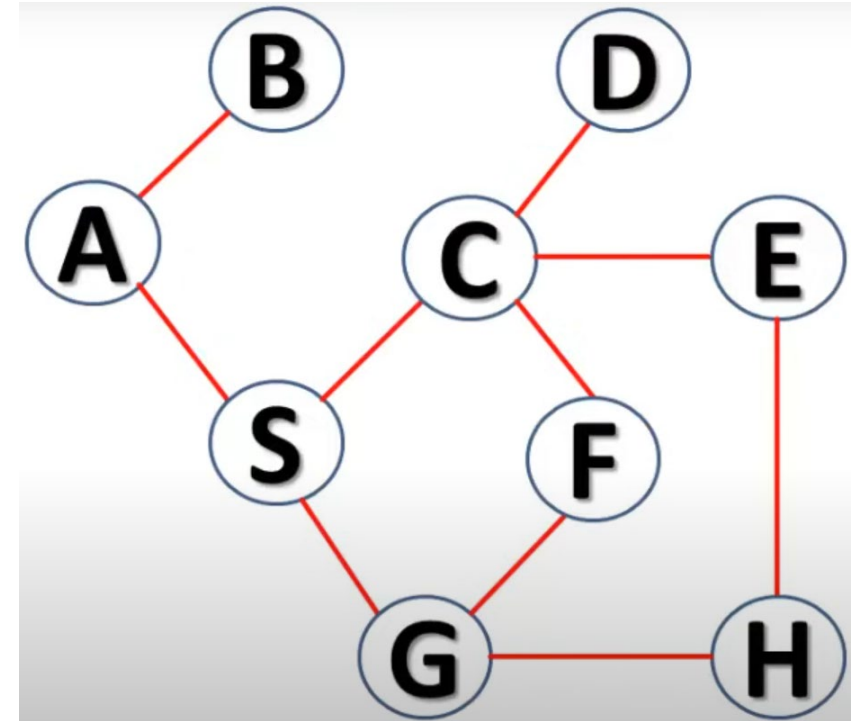
Give the BFS, DFS pre-order and post-order traversals, topological sort of this directed graph, **starting from either A or C**. When there are multiple possible orders of visiting the next node, select the next node in **alphabetical order**.





# Q. Graph Traversal (Undirected Graph)

Give the BFS, DFS pre-order and post-order traversals of this undirected graph, **starting from either A**. When there are multiple possible orders of visiting the next node, select the next node in **alphabetical order**.



# Q. Graph Traversal (Undirected Graph)

Give the BFS, DFS pre-order and post-order traversals of this undirected graph, **starting from either A**. When there are multiple possible orders of visiting the next node, select the next node in **alphabetical order**.

