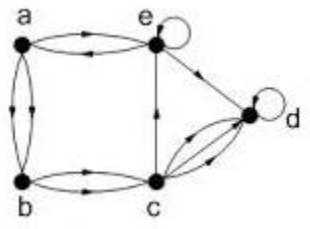
Homework Graph, DFS, and BFS

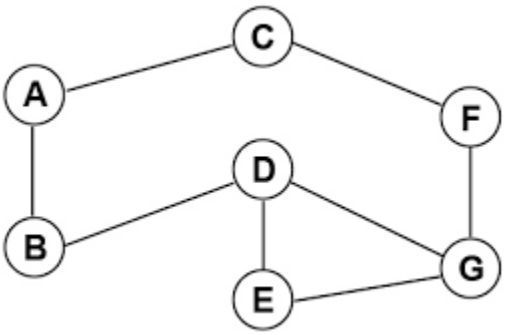
1. Translate the directed graph to an adjacent matrix.



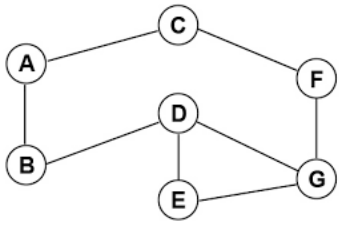
2. Translate the directed graph to a graph.

$$\begin{bmatrix} 0 & 3 & 2 & 3 \\ 1 & 1 & 3 & 2 \\ 2 & 3 & 1 & 2 \\ 2 & 2 & 1 & 0 \end{bmatrix}$$

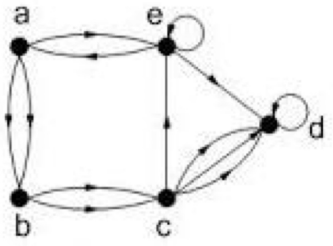
3. Use the Depth-First search on the graph, starting with D. Show every step and drawing.



4. Use the Breadth-First search on the graph, starting with D. Show every step and drawing.



1. Translate the directed graph to an adjacent matrix.

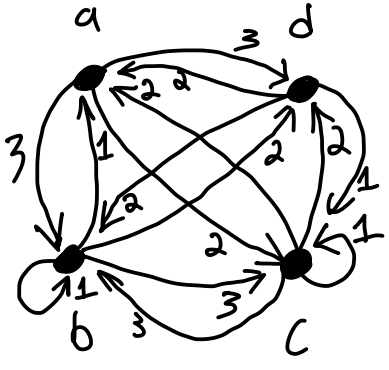


Vertex	Adjacent vertex
a	b, e
b	c
c	d, e
d	d
e	a, d, e

	a	b	c	d	e
a		2			1.0
b			2		
c				3	1.0
d				1.0	
e	1.0			1.0	1.0

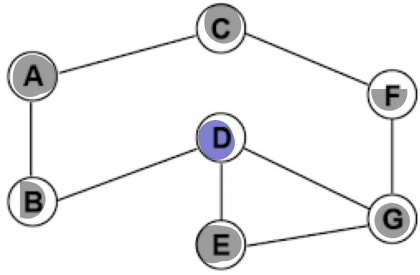
2. Translate the directed graph to a graph.

$$\begin{array}{c} \\ a \\ b \\ c \\ d \end{array}\begin{array}{c} \begin{array}{cccc} a & b & c & d \end{array} \\ \begin{bmatrix} 0 & 3 & 2 & 3 \\ 1 & 1 & 3 & 2 \\ 2 & 3 & 1 & 2 \\ 2 & 2 & 1 & 0 \end{bmatrix} \end{array}$$



3. Use the Depth-First search on the graph, starting with D. Show every step and drawing.

3.1



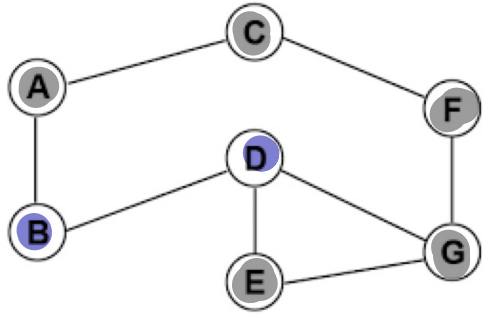
Unvisited

Visited

being Visited

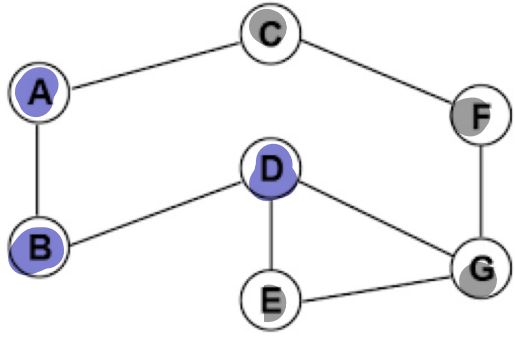
Discovery:
D

3.2



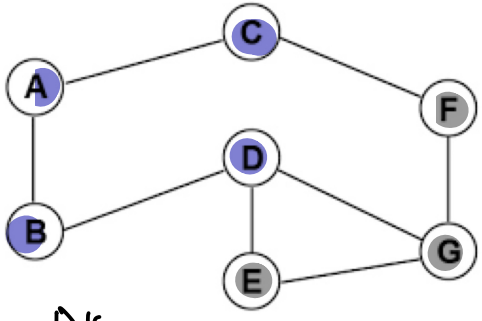
Discovery:
D, B

3.3



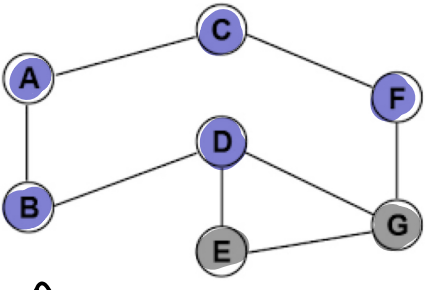
Discovery:
D, B, A

3.4



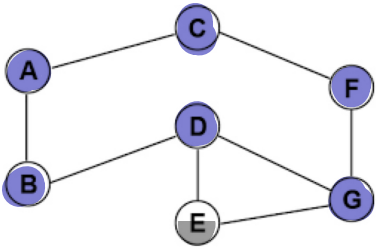
Discovery:
D, B, A, C

3.5



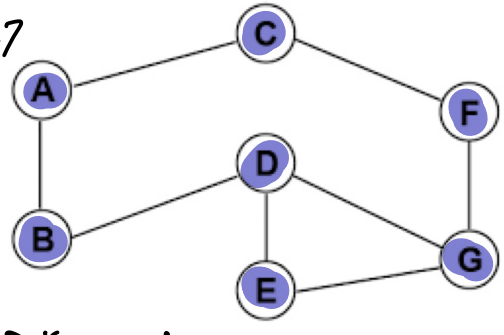
Discovery:
D, B, A, C, F

3.6



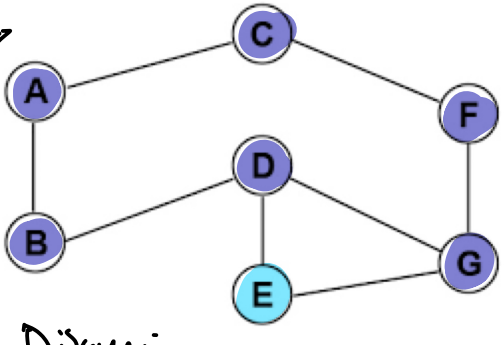
Discovery:
D, B, A, C, F, G

3.7



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

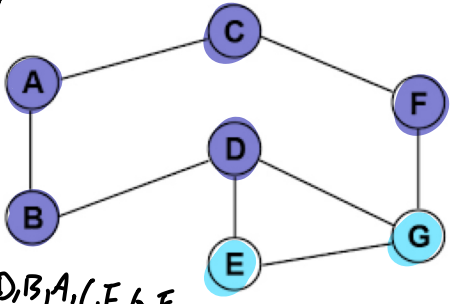
3.8



Discovery:
D, B, A, G, F, G, E

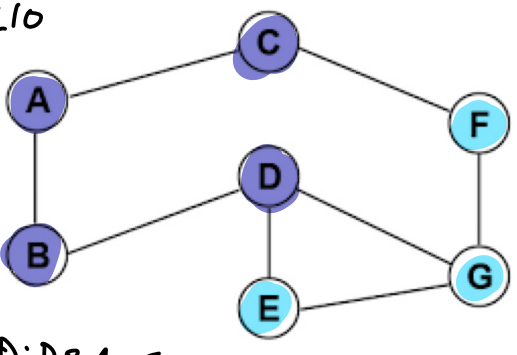
Finish
E

3.9



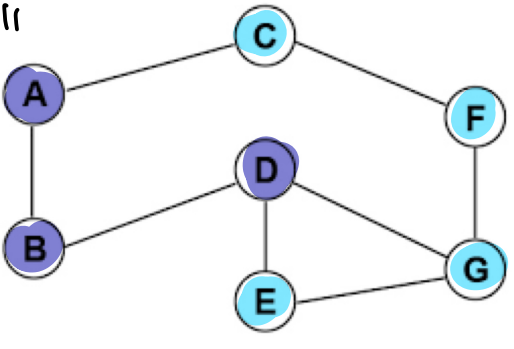
D: D, B, A, C, F, G, E
F: E, G

3.10



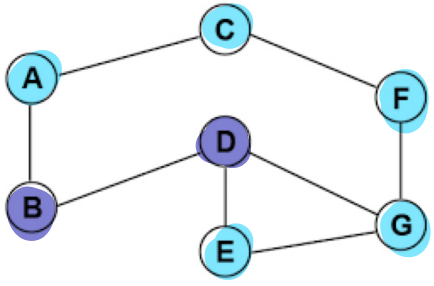
D: D, B, A, C, F, G, E
F: E, G, F

3.11



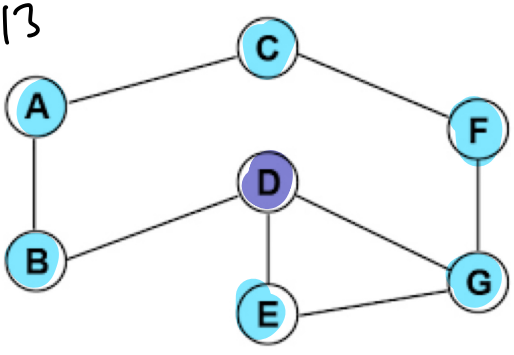
D: D, B, A, C, F, G, E
F: E, G, F, C

3.12



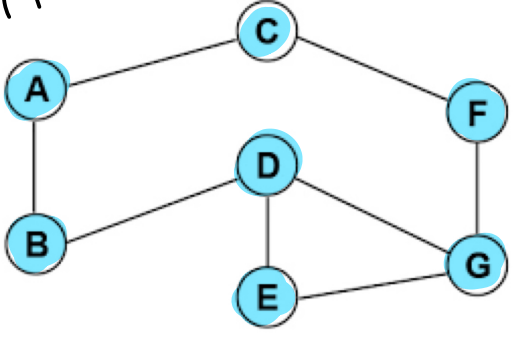
D: D, B, A, C, F, G, E
F: E, G, F, C, A

3.13

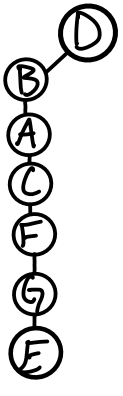


D: D, B, A, C, F, G, E
F: E, G, F, C, A, B

3.14



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



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