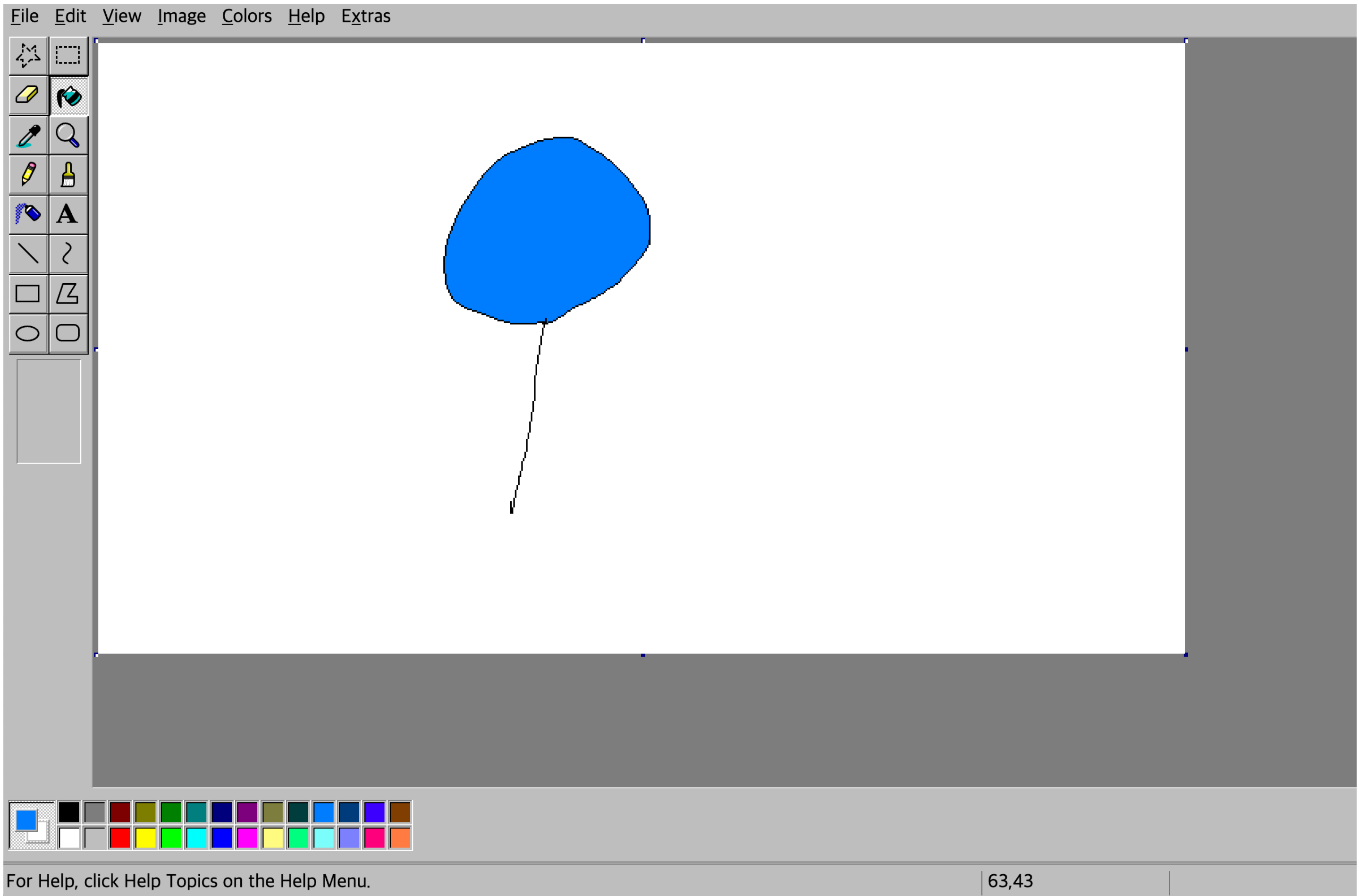

BFS, DFS

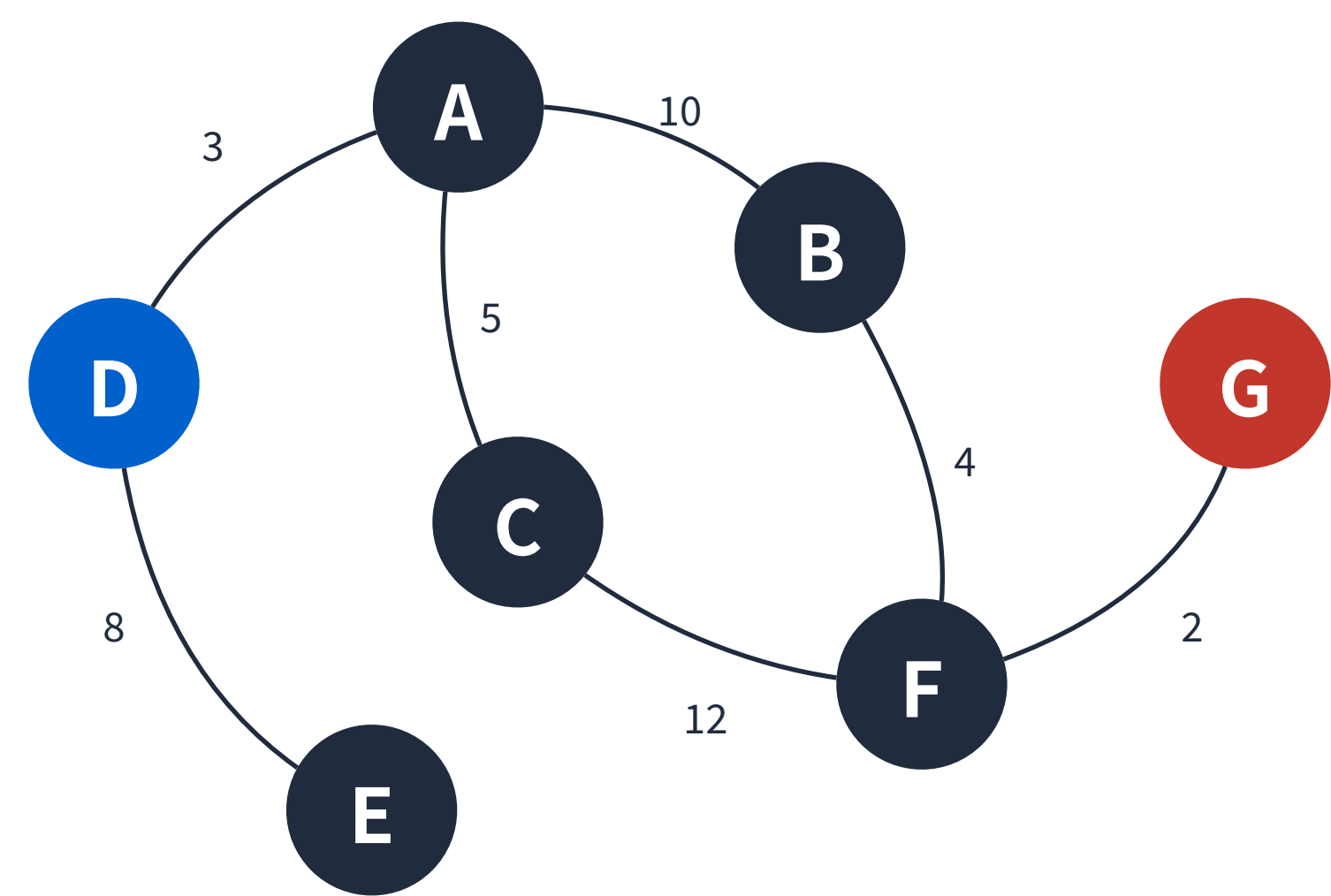
(Breadth-First Search, Depth-First Search)

코딩테스트 광탈방지 A to Z : JavaScript - 이선희 @kciter

JS



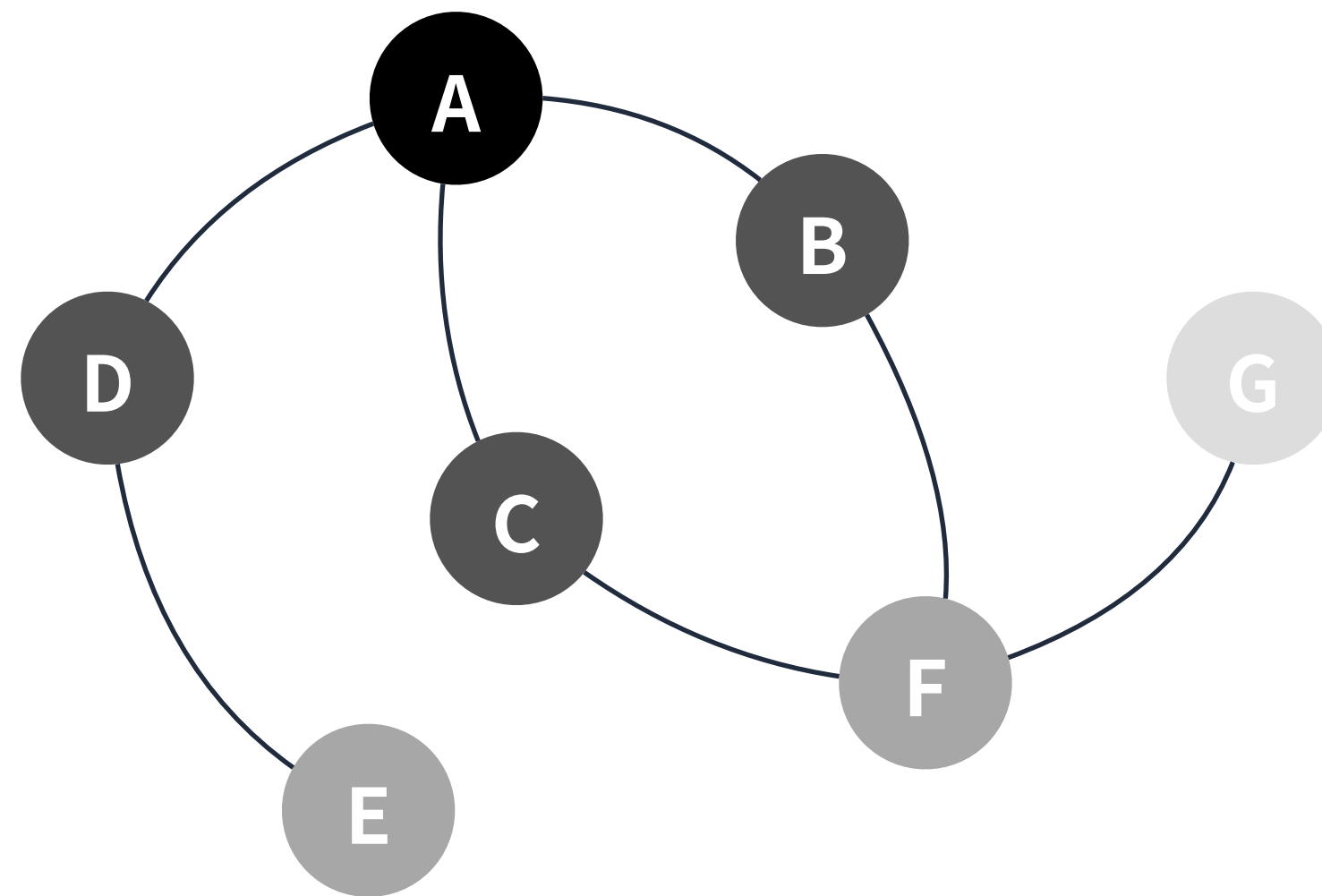
그림판의 페인트 툴



D에서 G로 가는 최단 거리는?

너비 우선 탐색

그래프 탐색 알고리즘으로 같은 깊이에 해당하는 정점부터 탐색하는 알고리즘

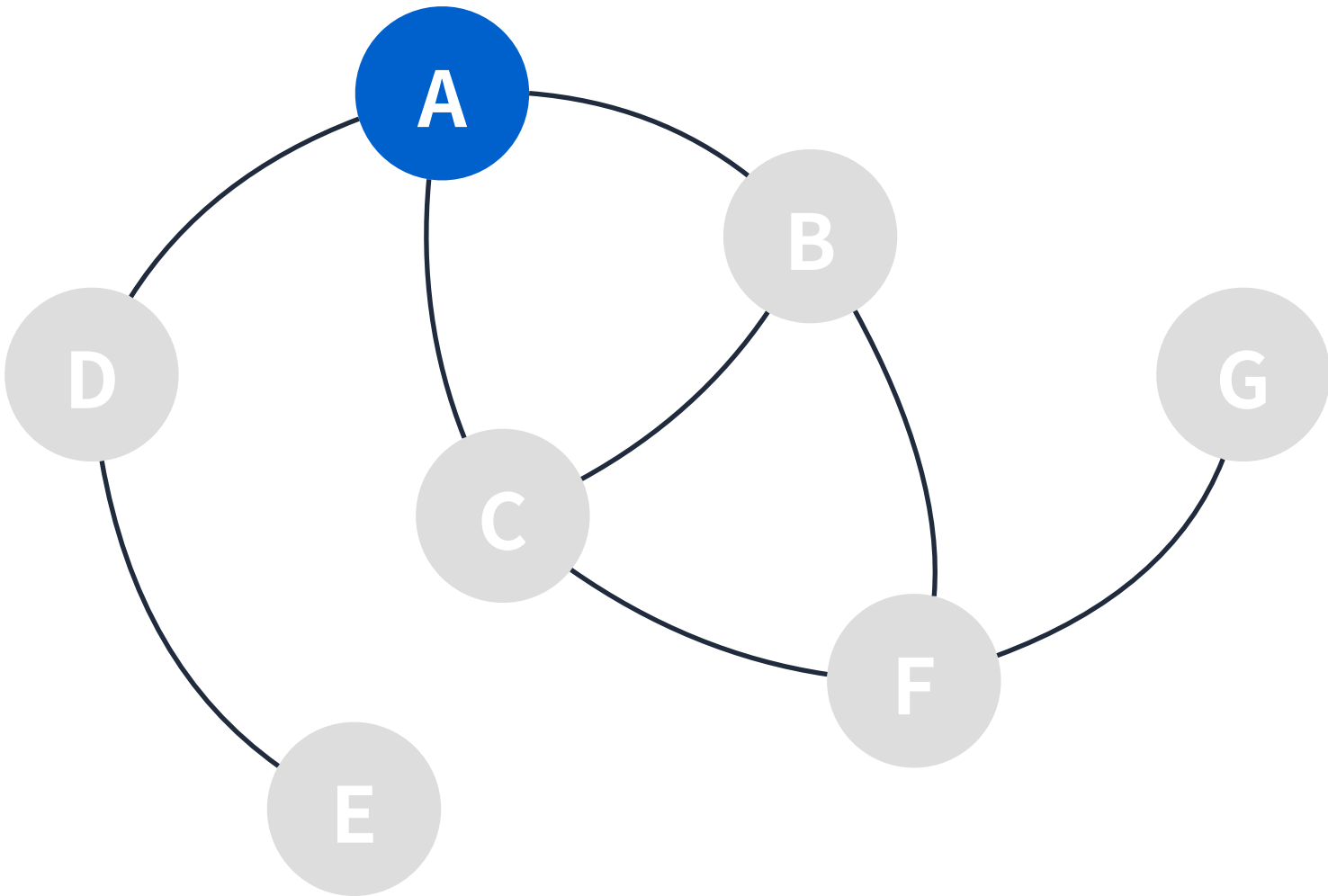


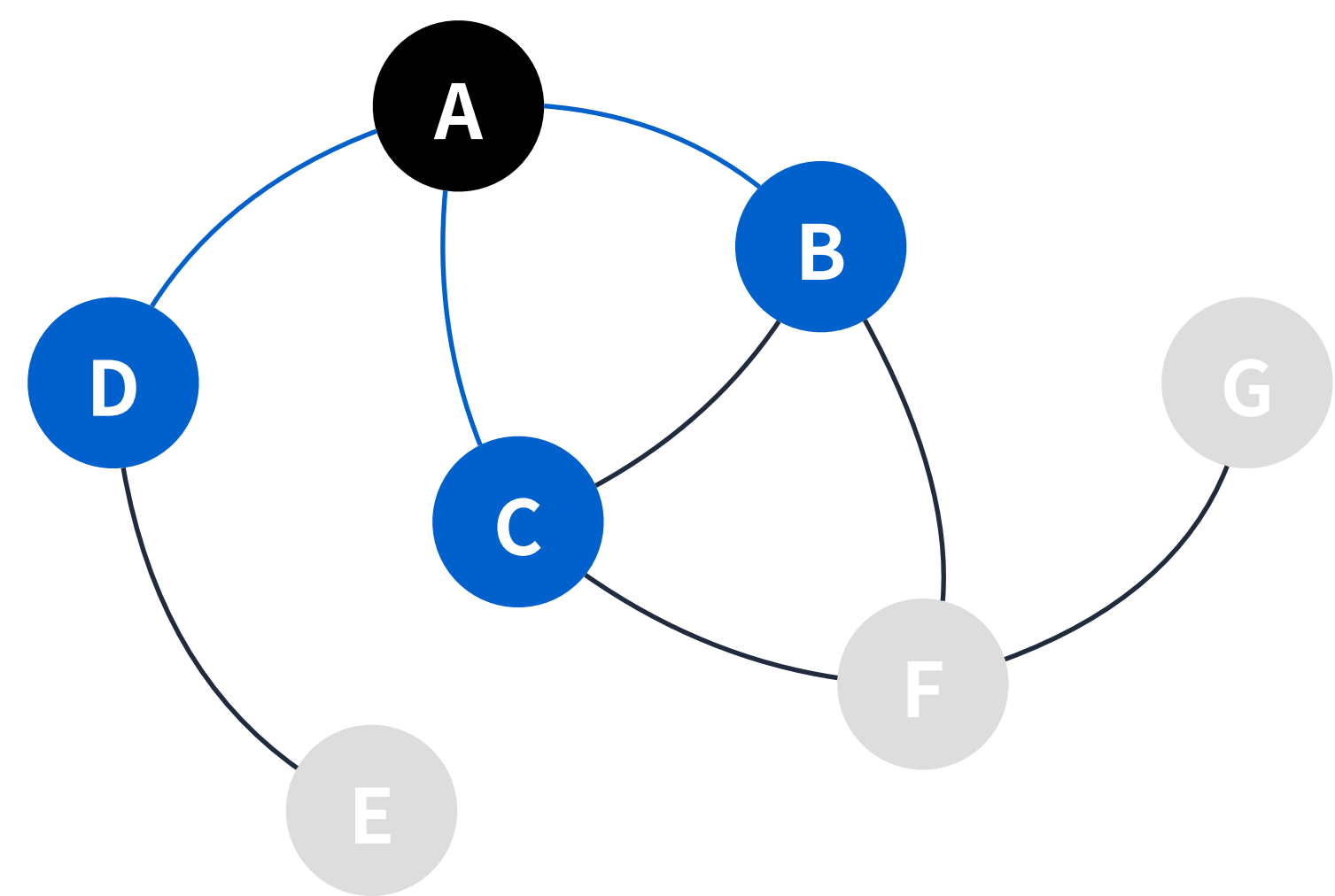
BFS의 특징

- Queue를 이용하여 구현할 수 있다.
- 시작 지점에서 가까운 정점부터 탐색한다.
- V 가 정점의 수, E 가 간선의 수일 때 BFS의 시간복잡도는 $O(V + E)$ 다.

Step 1 | Queue

A





Step 1 | Queue

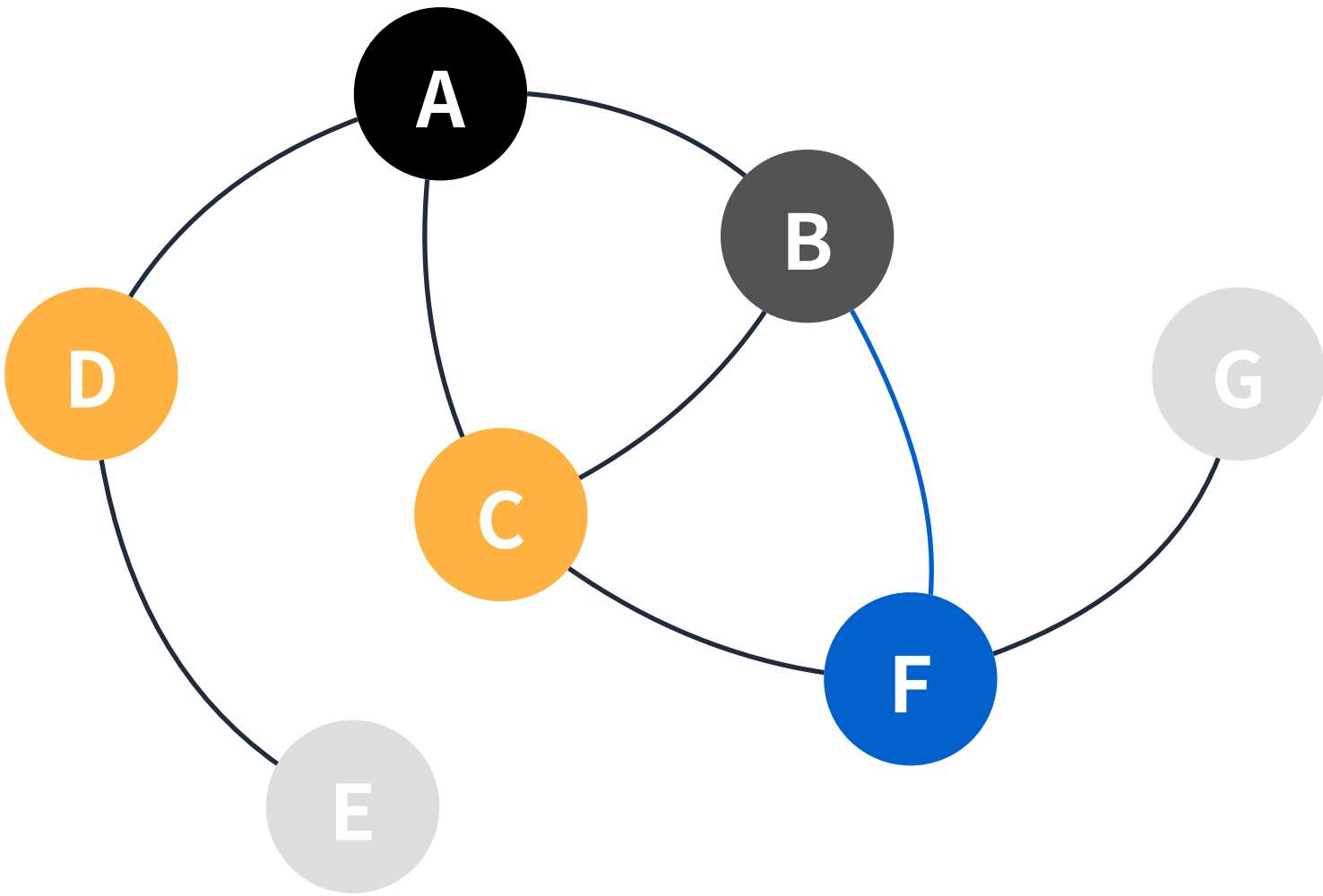
A

Step 2 | Queue

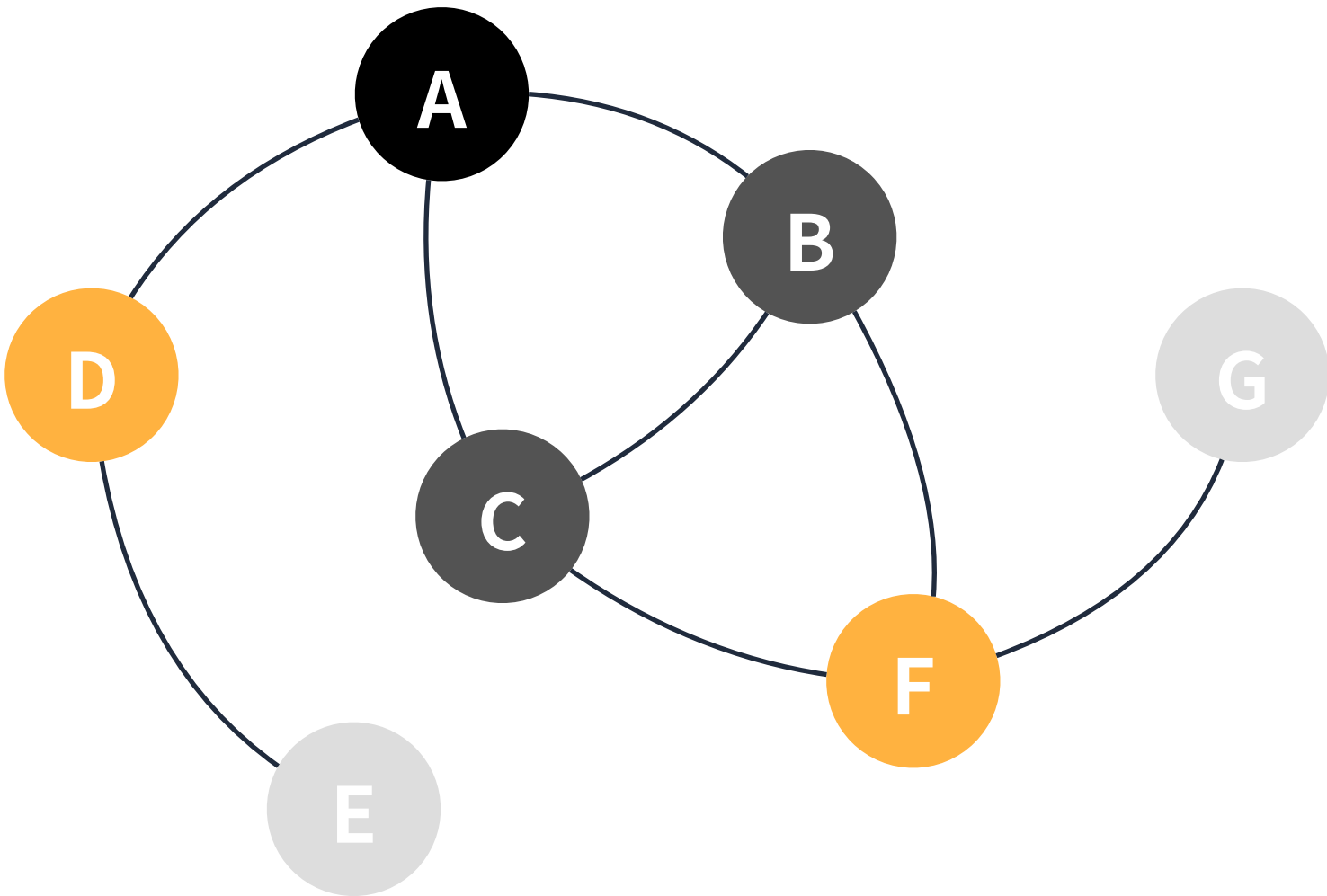
B

C

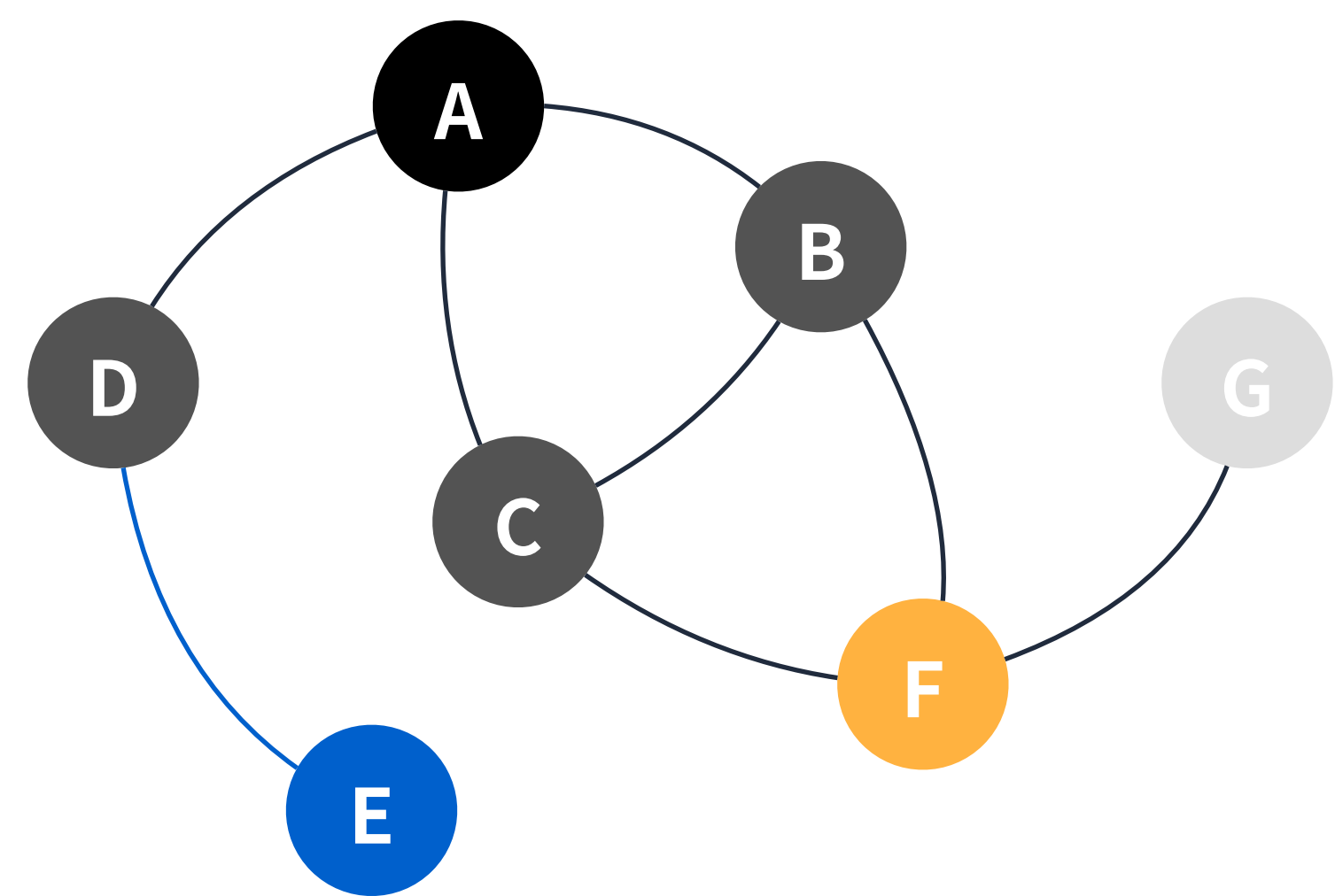
D



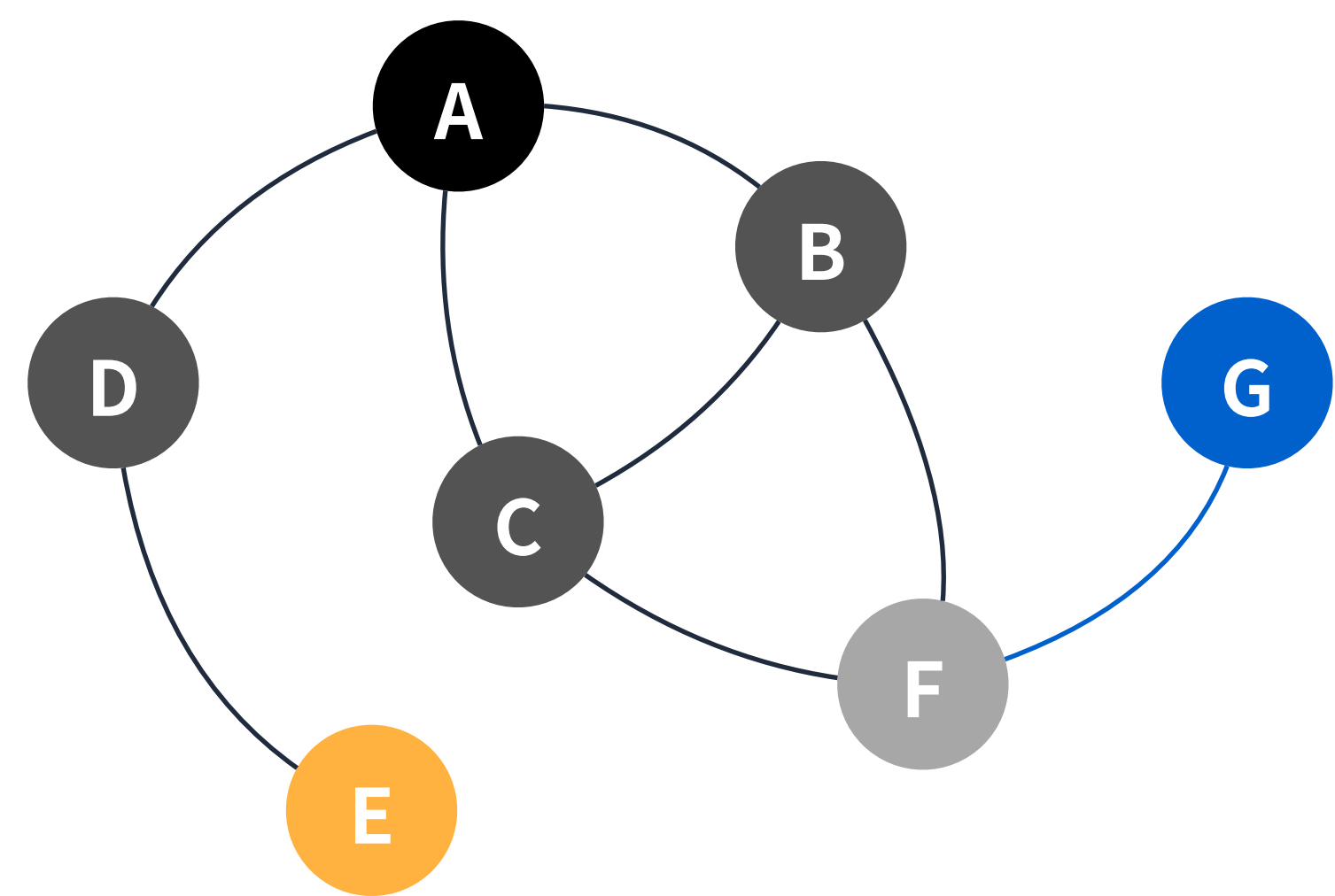
Step 1 Queue	A		
Step 2 Queue	B	C	D
Step 3 Queue	C	D	F



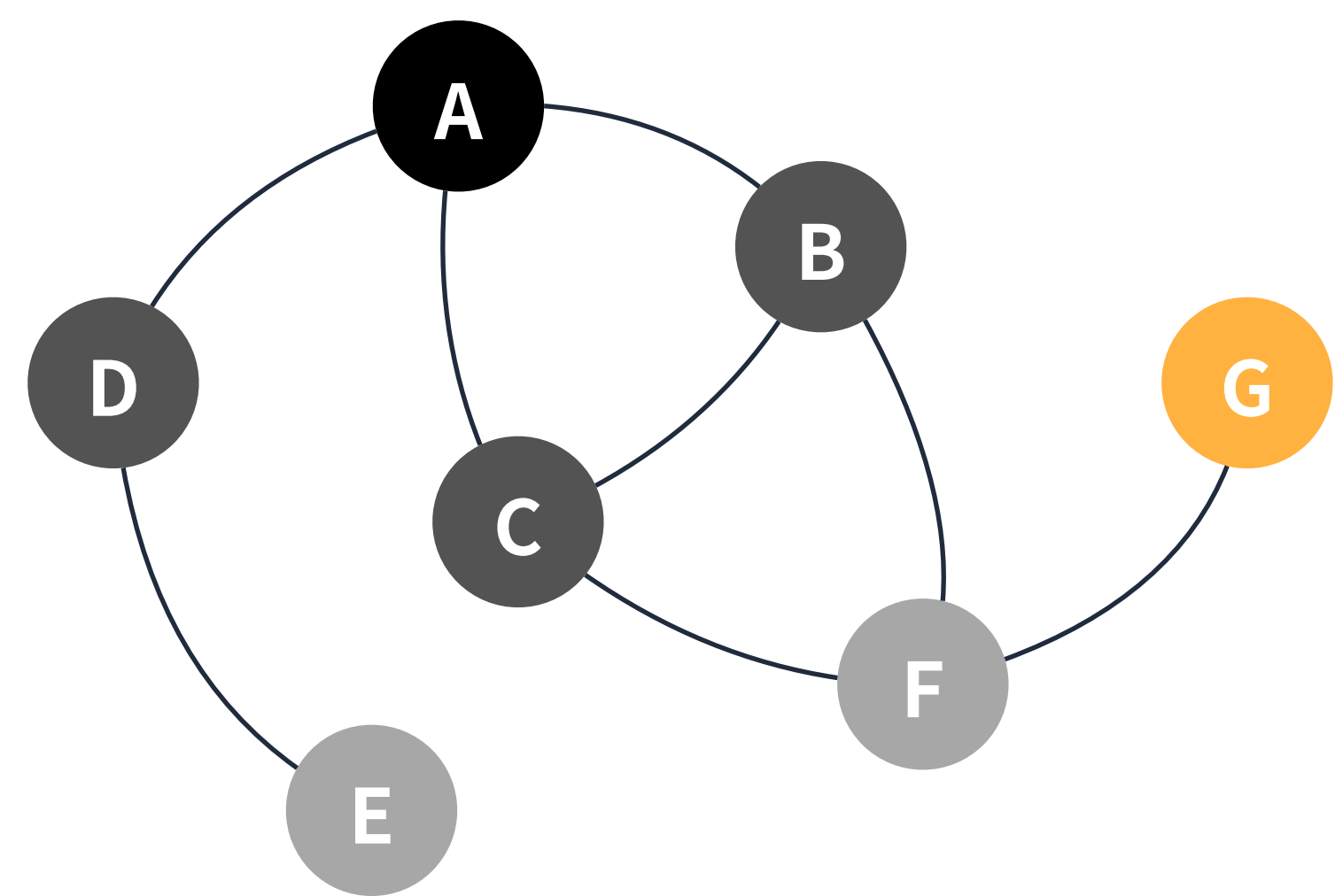
Step 1 Queue	A		
Step 2 Queue	B	C	D
Step 3 Queue	C	D	F
Step 4 Queue	D	F	



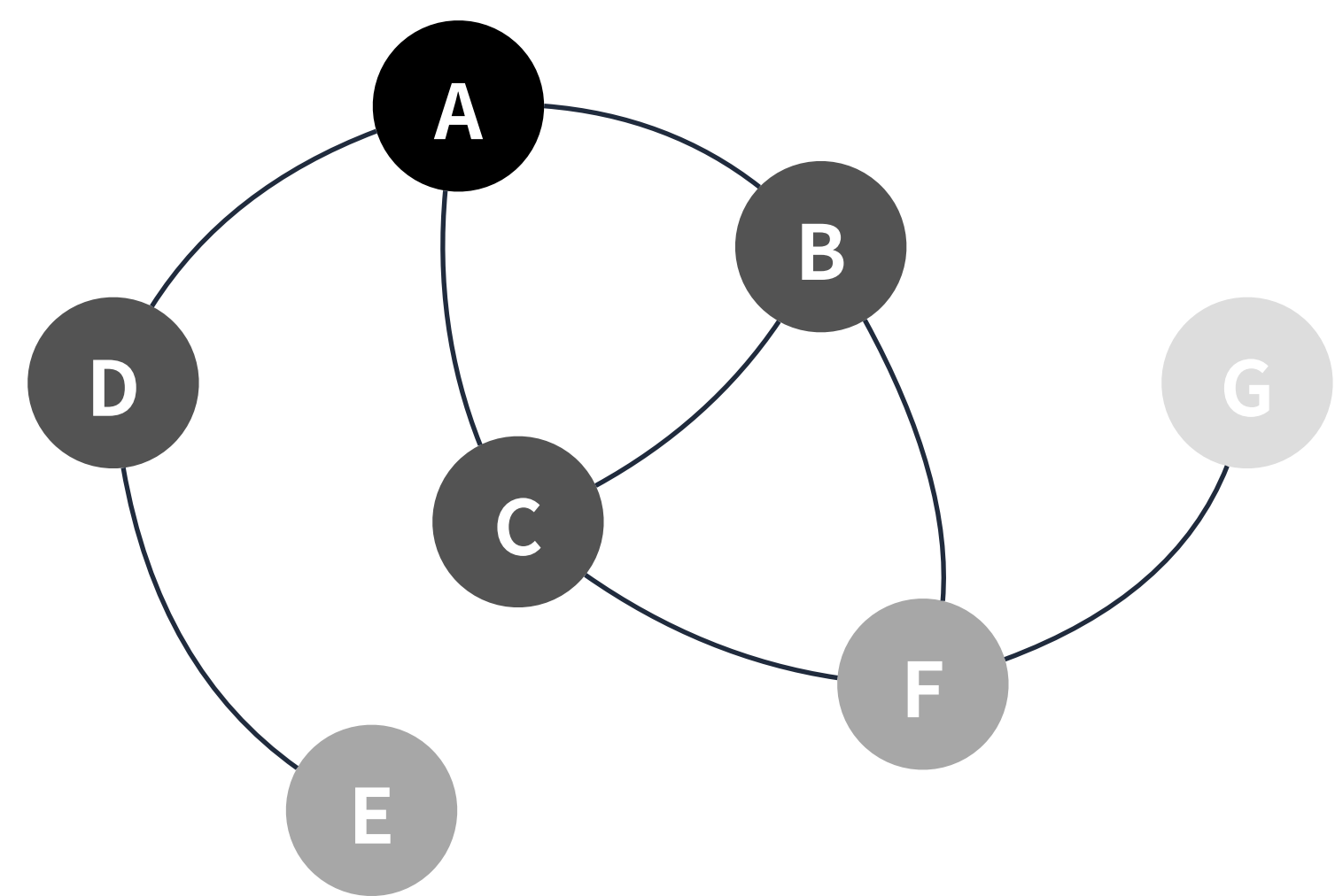
Step 1 Queue	A		
Step 2 Queue	B	C	D
Step 3 Queue	C	D	F
Step 4 Queue	D	F	
Step 5 Queue	F	E	



Step 1 Queue	A		
Step 2 Queue	B	C	D
Step 3 Queue	C	D	F
Step 4 Queue	D	F	
Step 5 Queue	F	E	
Step 6 Queue	E	G	



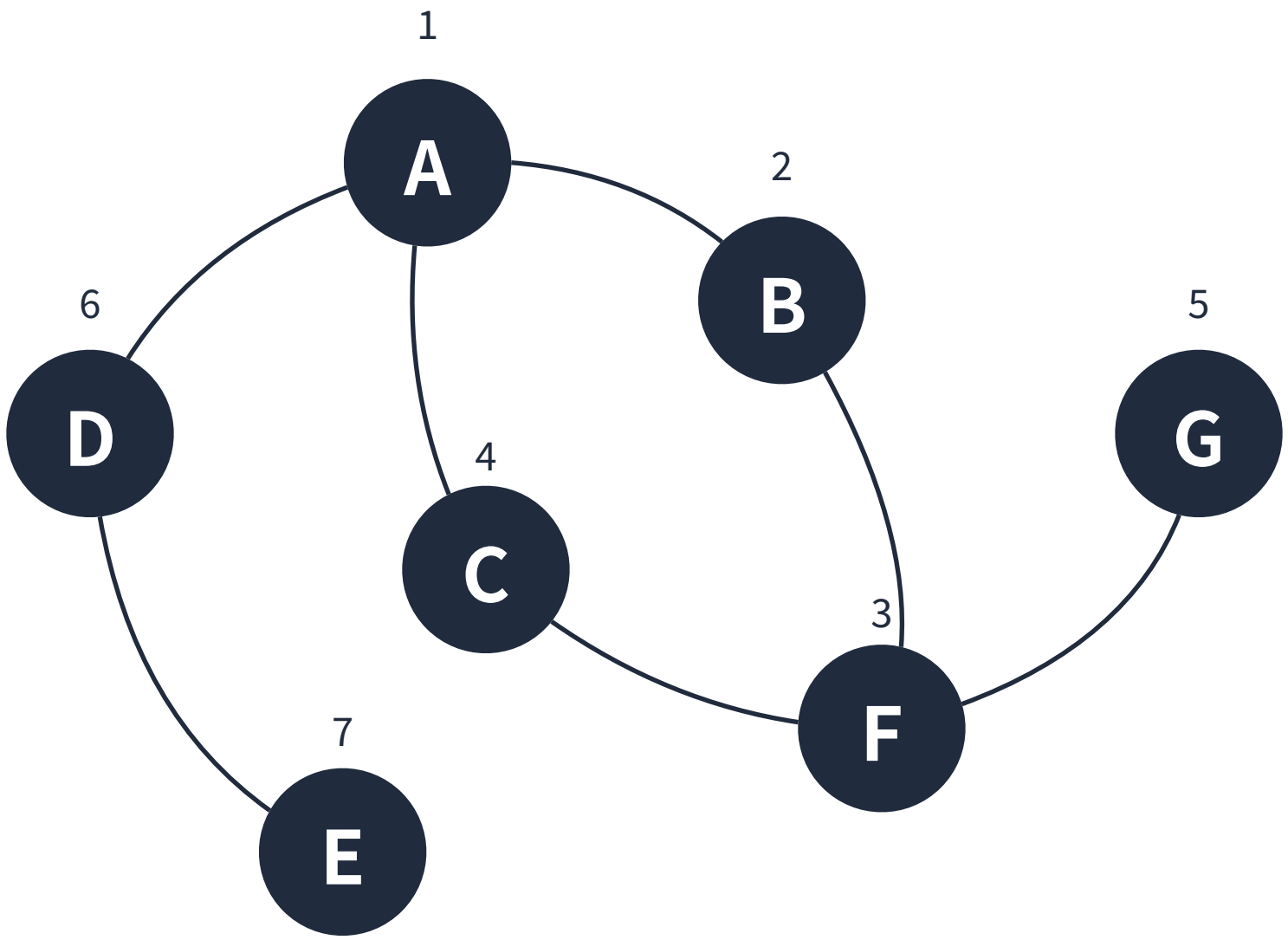
Step 1 Queue	A		
Step 2 Queue	B	C	D
Step 3 Queue	C	D	F
Step 4 Queue	D	F	
Step 5 Queue	F	E	
Step 6 Queue	E	G	
Step 7 Queue	G		



Step 1 Queue	A		
Step 2 Queue	B	C	D
Step 3 Queue	C	D	F
Step 4 Queue	D	F	
Step 5 Queue	F	E	
Step 6 Queue	E	G	
Step 7 Queue	G		
Step 8 Queue			

깊이 우선 탐색

그래프 탐색 알고리즘으로 최대한 깊은 정점부터 탐색하는 알고리즘

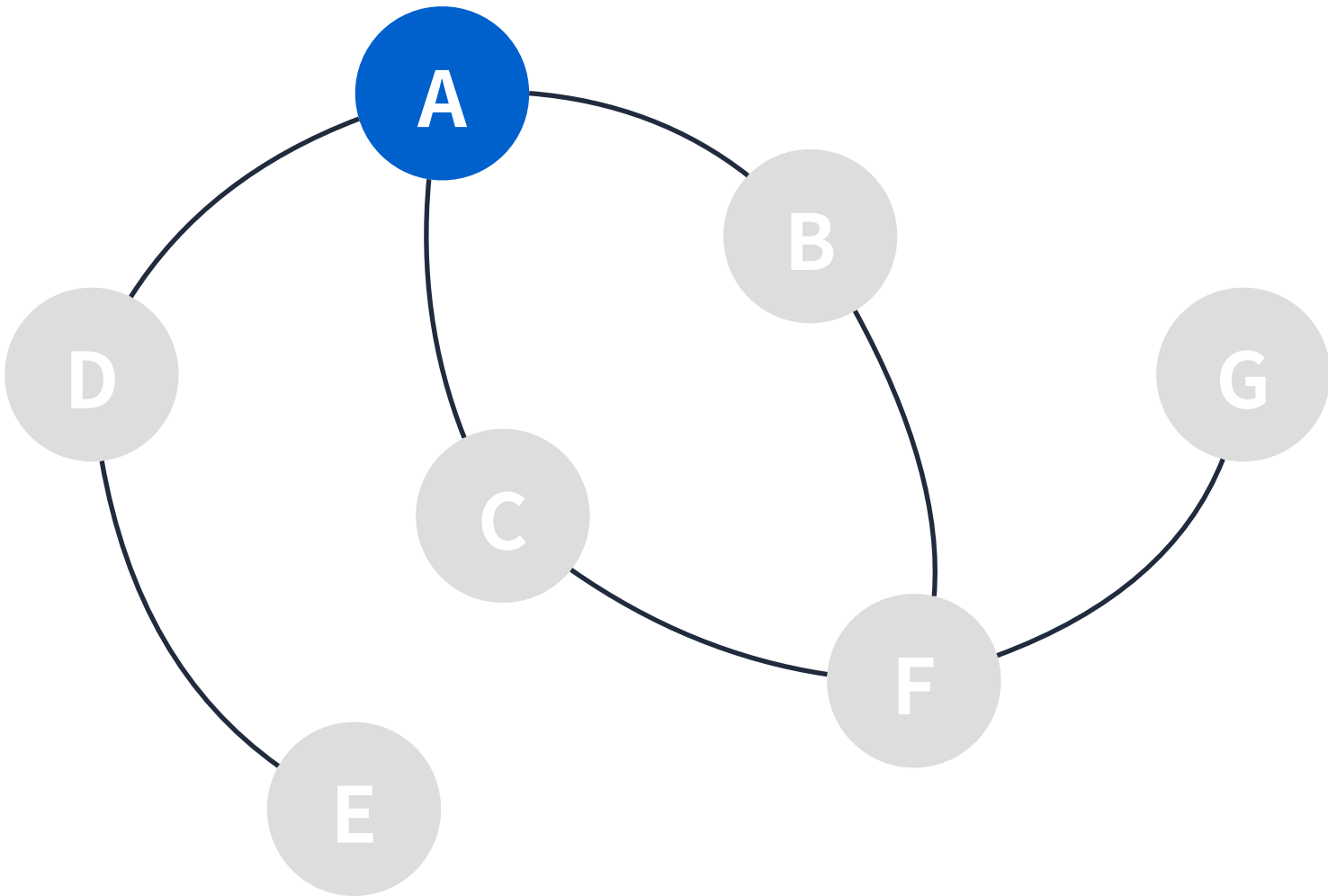


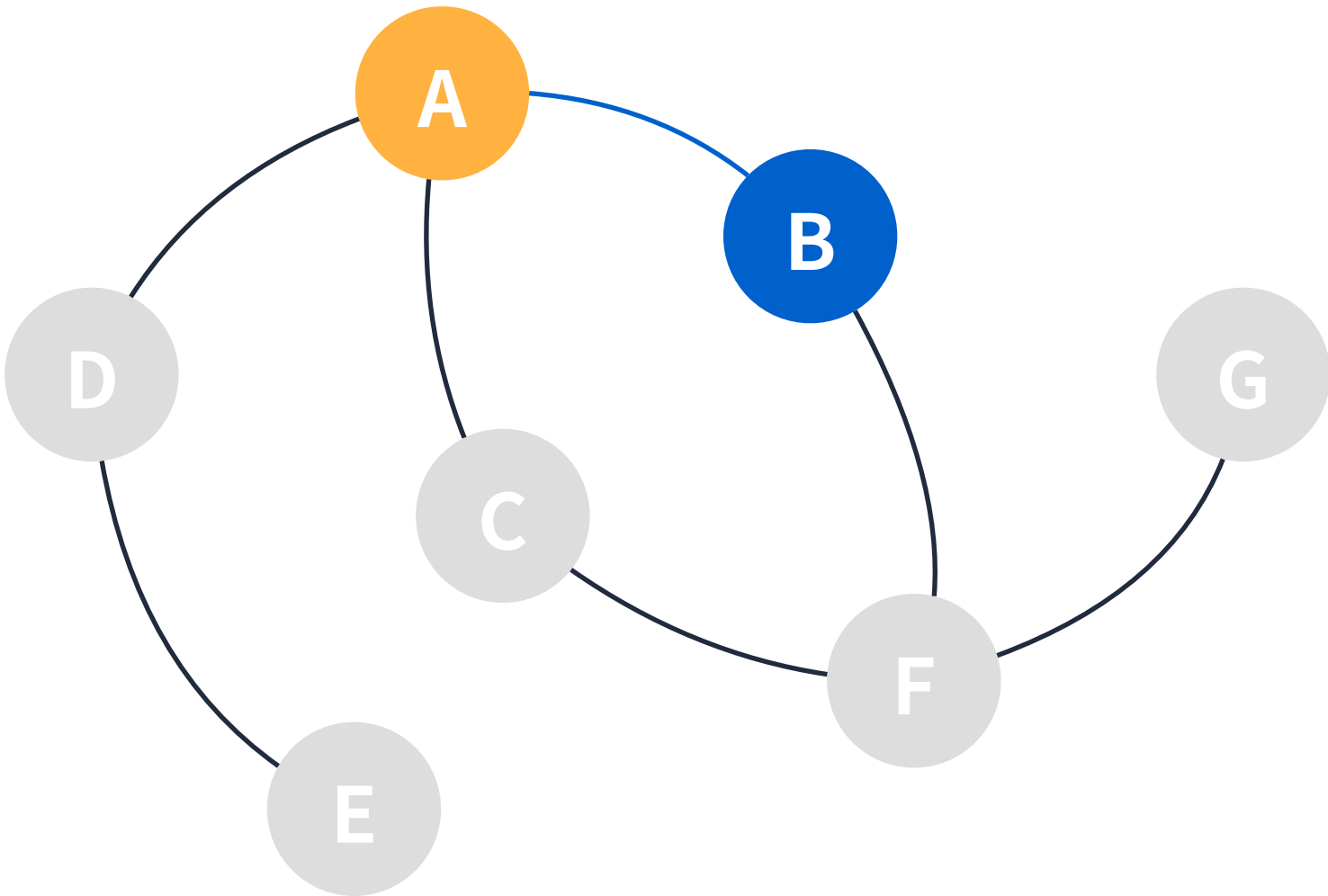
DFS의 특징

- Stack을 이용하여 구현할 수 있다.
- 시작 정점에서 깊은 것 부터 찾는다.
- V 가 정점의 수, E 가 간선의 수일 때 BFS의 시간복잡도는 $O(V + E)$ 다.

Step 1 | Stack

A





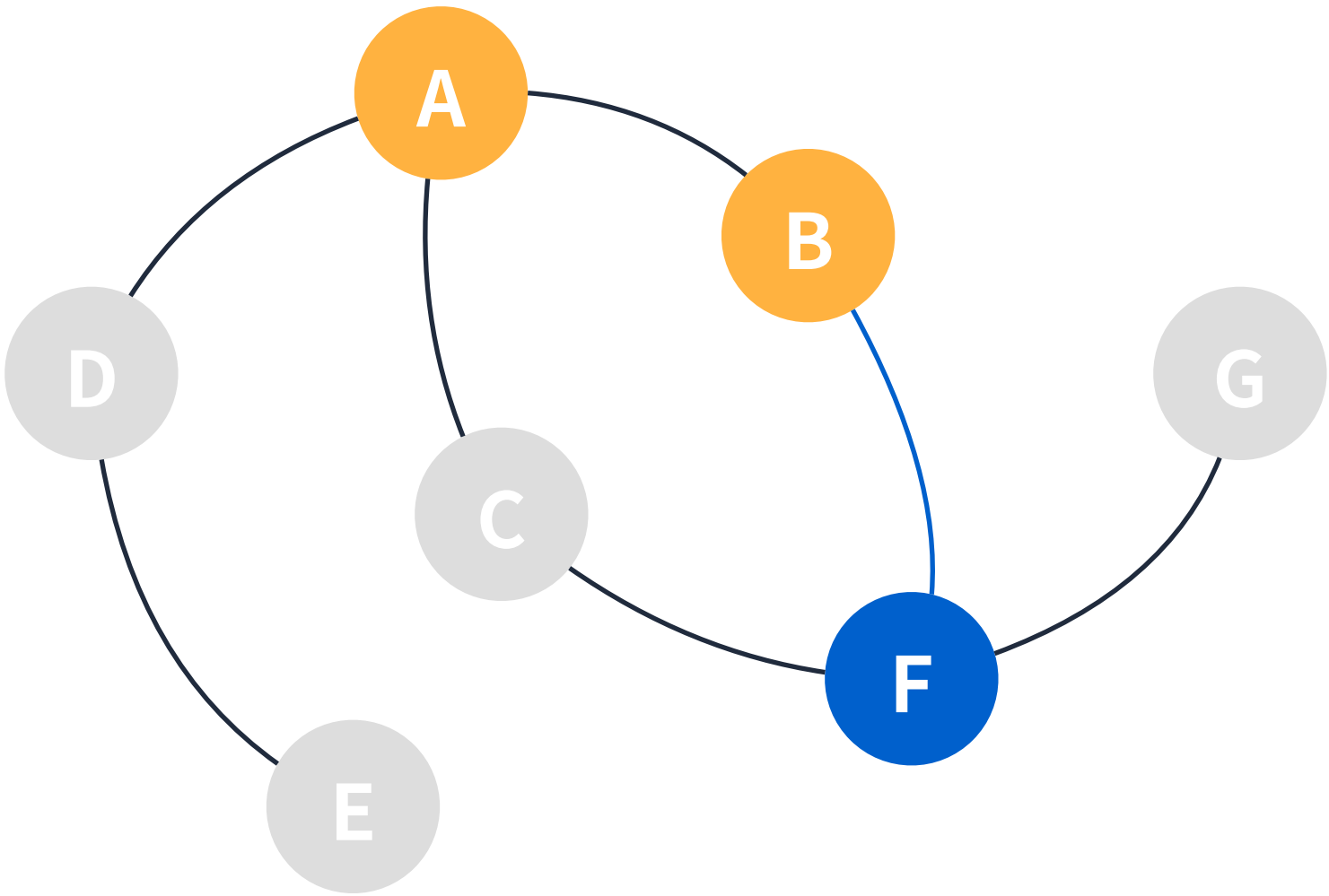
Step 1 | Stack

A

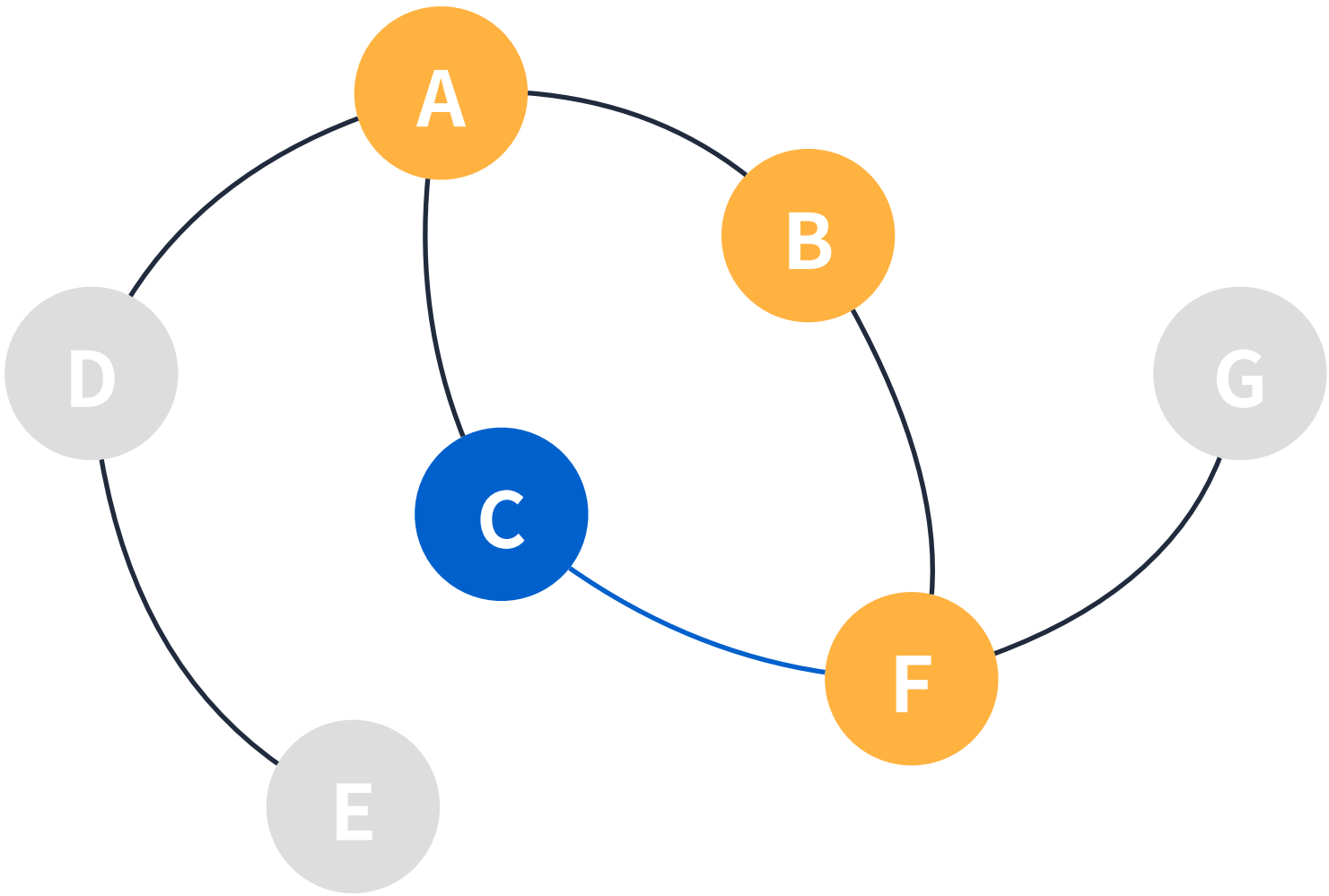
Step 2 | Stack

A

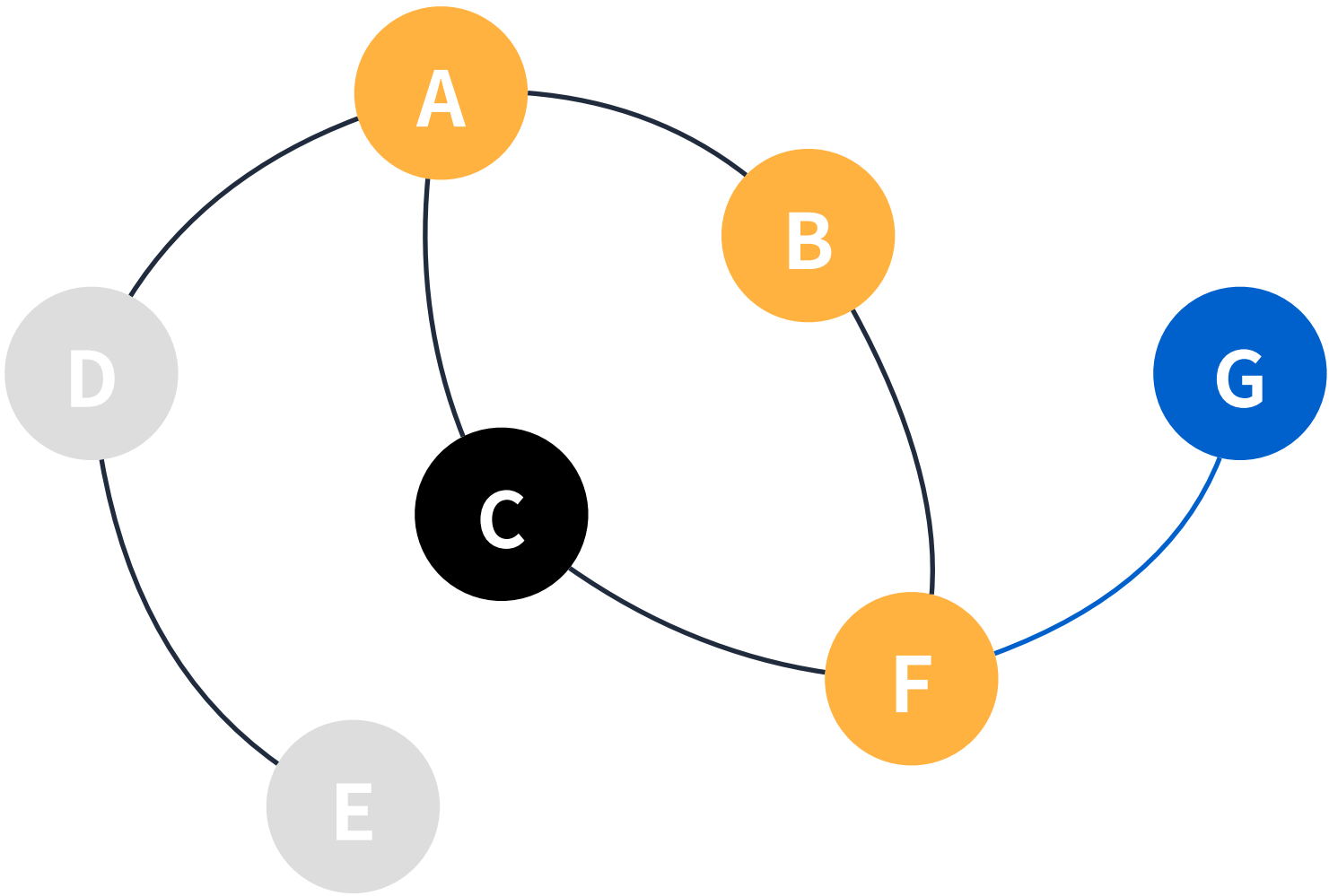
B



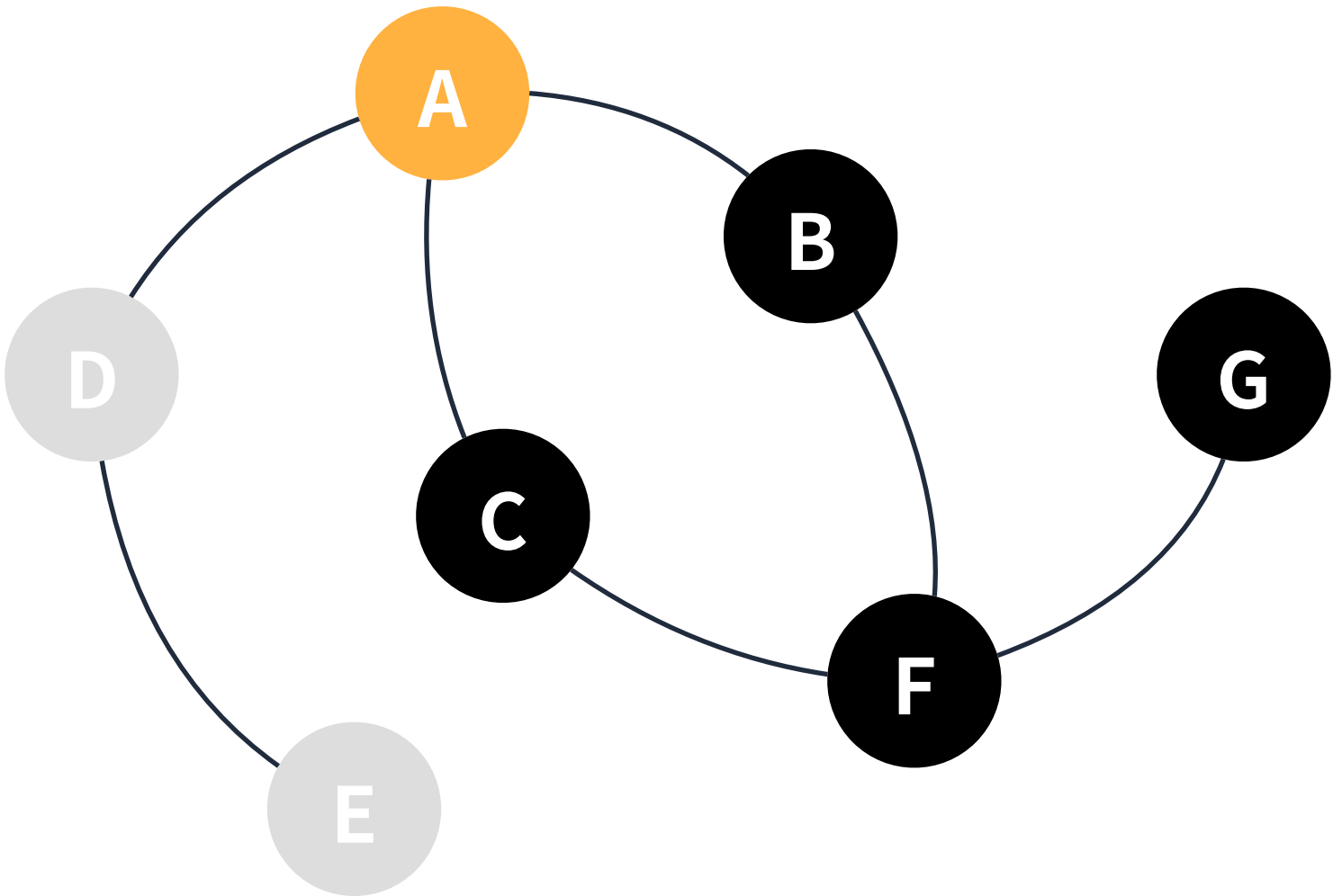
Step 1 Stack	A		
Step 2 Stack	A	B	
Step 3 Stack	A	B	F



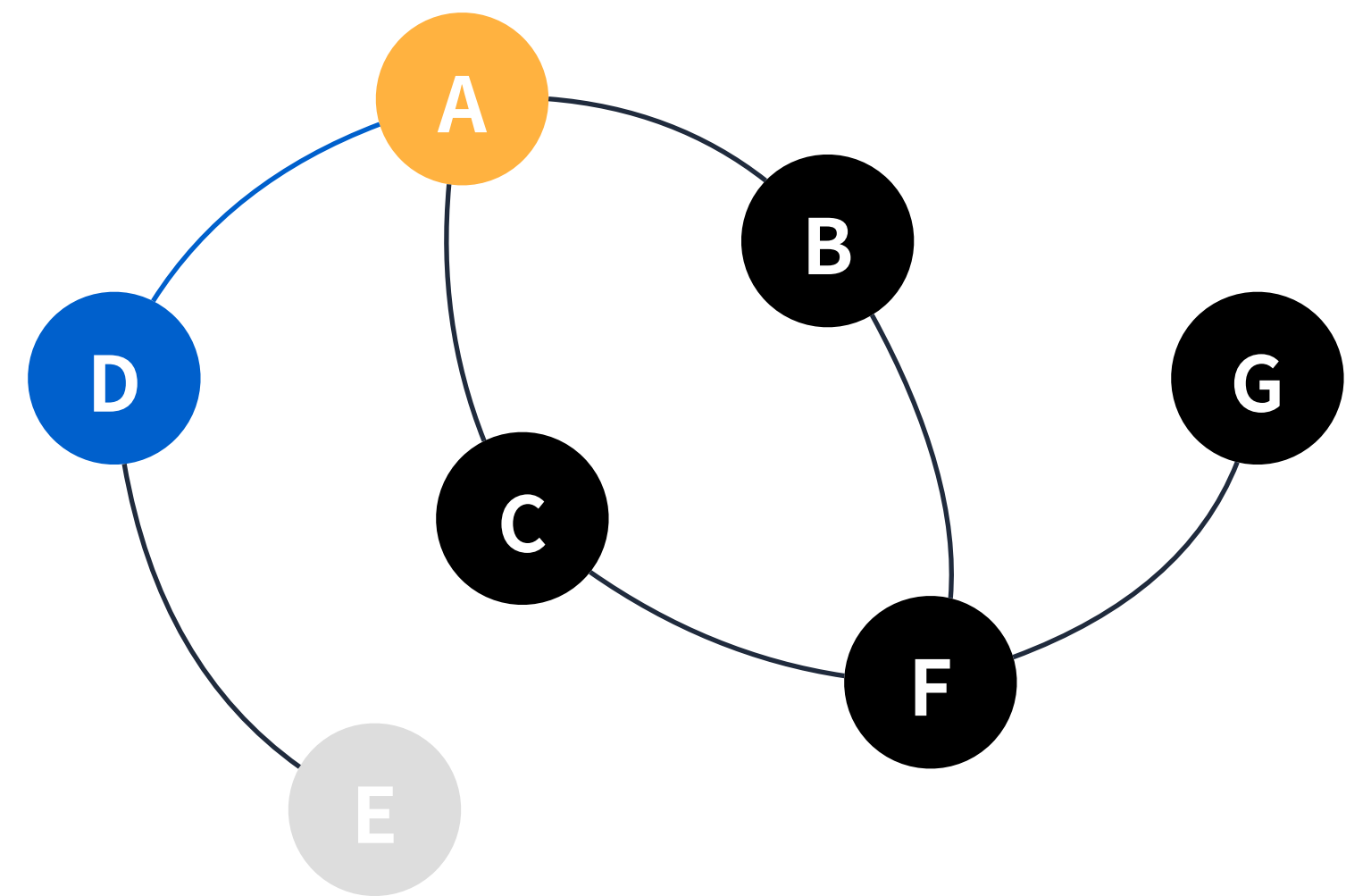
Step 1 Stack	A			
Step 2 Stack	A	B		
Step 3 Stack	A	B	F	
Step 4 Stack	A	B	F	C



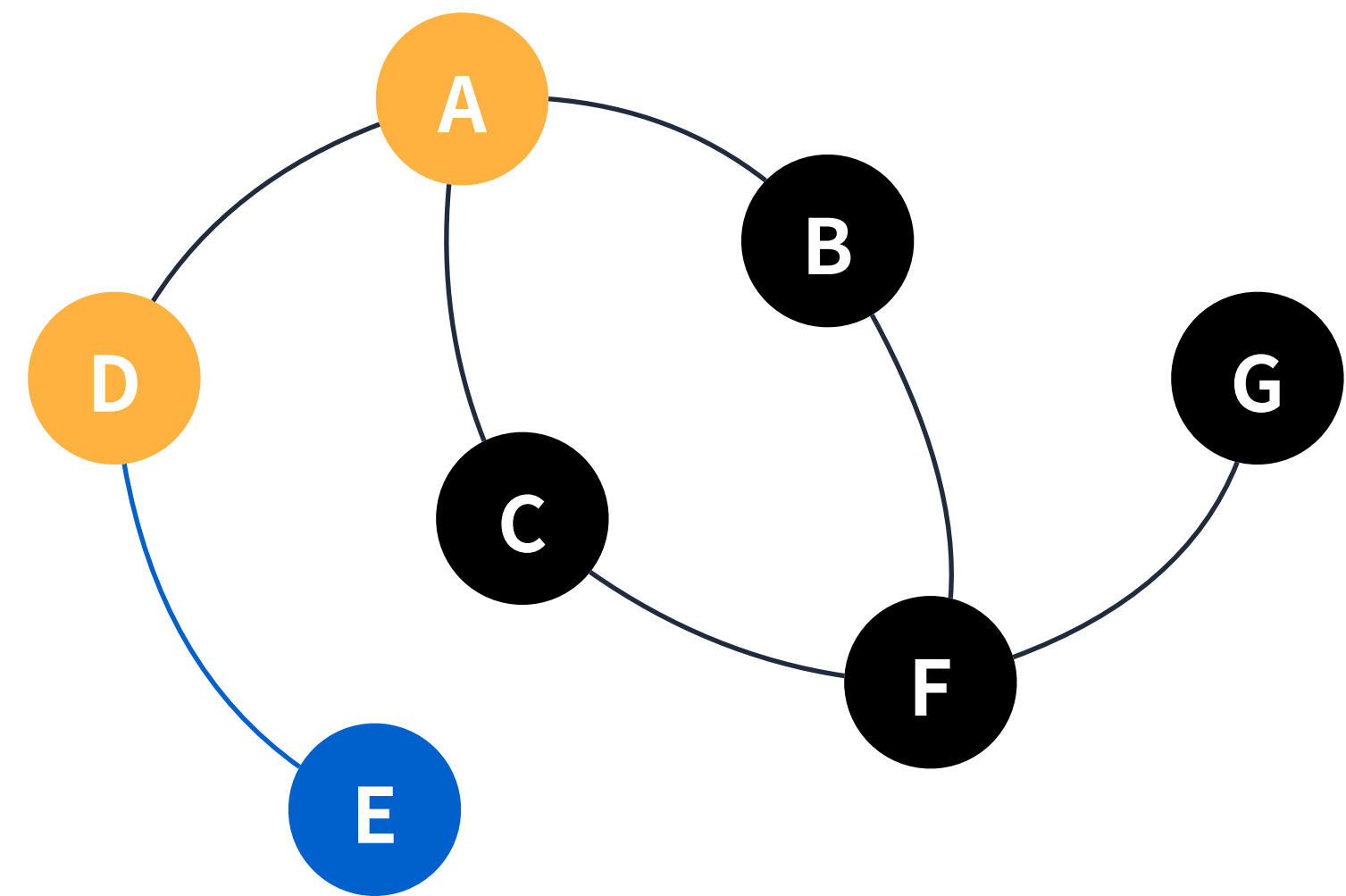
Step 1 Stack	A			
Step 2 Stack	A	B		
Step 3 Stack	A	B	F	
Step 4 Stack	A	B	F	C
Step 5 Stack	A	B	F	G



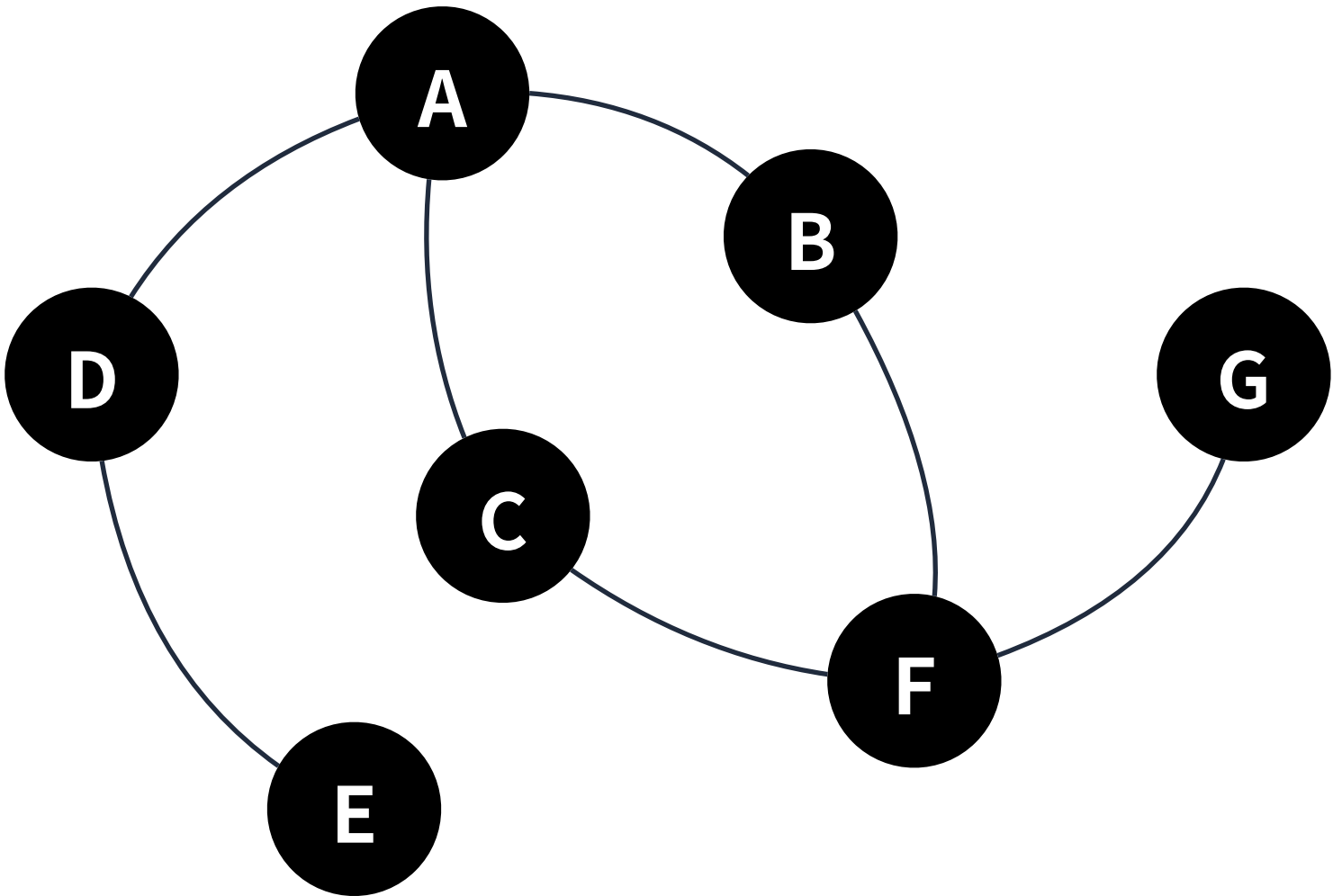
Step 1 Stack	A			
Step 2 Stack	A	B		
Step 3 Stack	A	B	F	
Step 4 Stack	A	B	F	C
Step 5 Stack	A	B	F	G
Step 6 Stack	A			



Step 1 Stack	A			
Step 2 Stack	A	B		
Step 3 Stack	A	B	F	
Step 4 Stack	A	B	F	C
Step 5 Stack	A	B	F	G
Step 6 Stack	A			
Step 7 Stack	A	D		



Step 1 Stack	A			
Step 2 Stack	A	B		
Step 3 Stack	A	B	F	
Step 4 Stack	A	B	F	C
Step 5 Stack	A	B	F	G
Step 6 Stack	A			
Step 7 Stack	A	D		
Step 8 Stack	A	D	E	



Step 1 Stack	A			
Step 2 Stack	A	B		
Step 3 Stack	A	B	F	
Step 4 Stack	A	B	F	C
Step 5 Stack	A	B	F	G
Step 6 Stack	A			
Step 7 Stack	A	D		
Step 8 Stack	A	D	E	
Step 9 Stack				

BFS, DFS 문제 풀이

BFS, DFS

(Breadth-First Search, Depth-First Search)

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JS