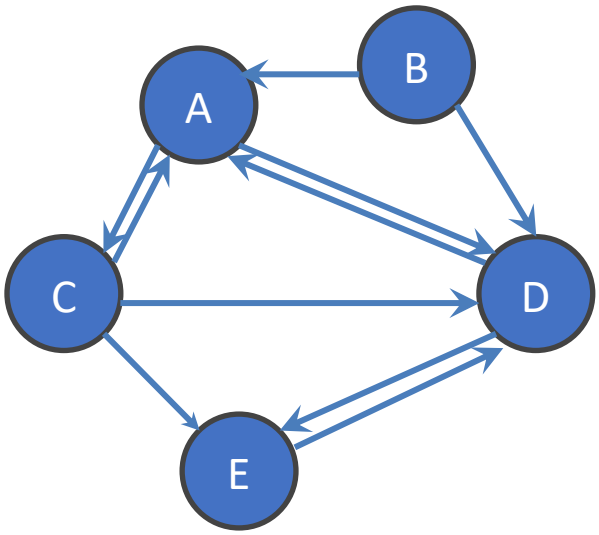
CSE 331 21wi Section 6 Worksheet **Sample Solution**

1. Recall the pseudocode for BFS, and consider the following graph below.

```
push start node onto a queue
mark start node as visited
while queue is not empty:
  pop node N off queue
  if N is goal:
    return true
  else:
    for each node O that is child of N:
      if O is not marked visited:
        mark node O as visited
        push O onto queue
return false
```



Find the shortest path starting from **B** going to **E** using BFS. Record each update (push, pop) to the queue or any returns (true, false) in the table below.

Action	Queue Contents	Visited Nodes
push B	[B]	B
pop B	[]	B
push A	[A]	B, A
push D	[D, A]	B, A, D
pop A	[D]	B, A, D
push C	[C, D]	B, A, D, C
pop D	[C]	B, A, D, C
push E	[E, C]	B, A, D, C, E
pop C	[E]	B, A, D, C, E
pop E	[]	B, A, D, C, E
return true	[]	B, A, D, C, E