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Assignment No. 1

BFS

class Node:

```
def __init__(self, name):
```

```
    self.name = name
```

```
    self.adjacency_list = []
```

```
    self.visited = False
```

```
def breadth_first_search(start_node):
```

```
    queue = [start_node]
```

```
    # keep iterating until the queue becomes empty
```

```
    while queue:
```

```
        # remove and return the first item we have inserted
```

```
        actual_node = queue.pop(0)
```

```
        actual_node.visited = True
```

```
        print(actual_node.name)
```

```
        # consider the neighbors of actual node
```

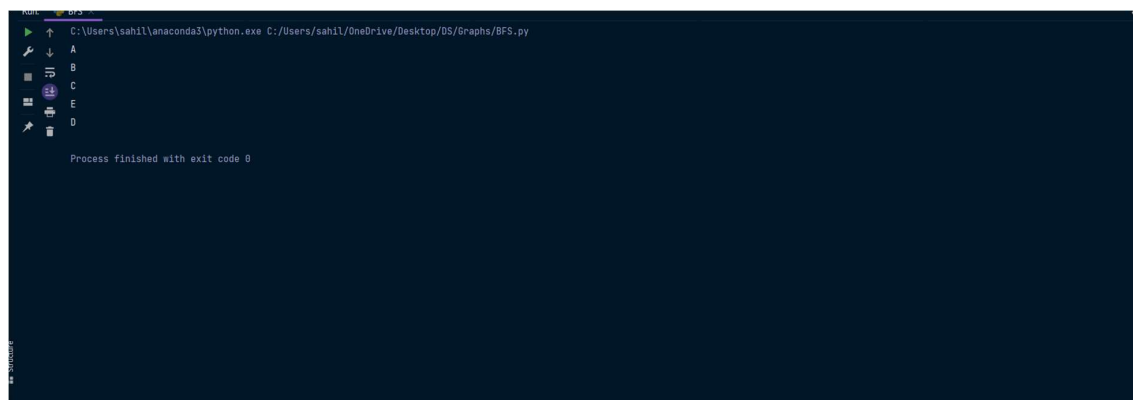
```
        for n in actual_node.adjacency_list:
```

```
            if not n.visited:
```

```
                queue.append(n)
```

```
if __name__ == '__main__':  
    node1 = Node("A")  
    node2 = Node("B")  
    node3 = Node("C")  
    node4 = Node("D")  
    node5 = Node("E")  
  
    node1.adjacency_list.append(node2)  
    node1.adjacency_list.append(node3)  
    node3.adjacency_list.append(node5)  
    node5.adjacency_list.append(node4)  
  
    breadth_first_search(node1)
```

output



```
Python 3.7.6 Shell  
C:\Users\sahil\anaconda3\python.exe C:/Users/sahil/OneDrive/Desktop/DS/Graphs/BFS.py  
A  
B  
C  
E  
D  
Process finished with exit code 0
```

