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Assignment No. 1

DFS

class Node:

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

```
    self.name = name
```

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

```
    self.visited = False
```

```
def depth_first_search(start_node):
```

```
    stack = [start_node]
```

```
    # iterate till stack becomes empty
```

```
    while stack:
```

```
        actual_node = stack.pop()
```

```
        actual_node.visited = True
```

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

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

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

```
                stack.append(n)
```

```
if __name__ == '__main__':
```

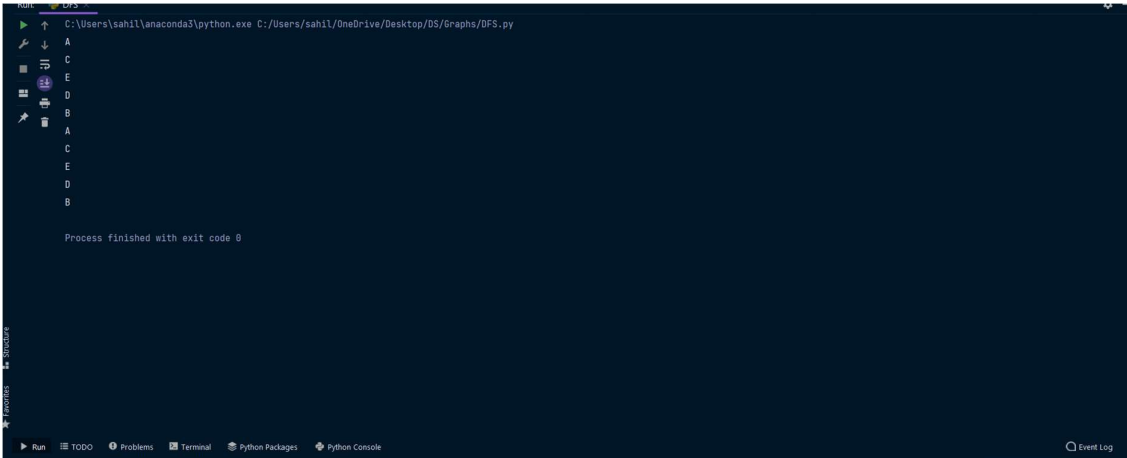
```
    node1 = Node("A")
```

```
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)

depth_first_search(node1)
```

Output:



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