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EXP 4: Implementation of BFS and DFS

CODE:

```
graph = {  
    'A' : ['B','C'],  
    'B' : ['D', 'E'],  
    'C' : ['F'],  
    'D' : [],  
    'E' : ['F'],  
    'F' : []  
}
```

```
visited_bfs = []
```

```
queue = []
```

```
def bfs(visited_bfs, graph, node):
```

```
    visited_bfs.append(node)
```

```
    queue.append(node)
```

```
while queue:
```

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

```
    print (s, end = " ")
```

```
for neighbour in graph[s]:
```

```
    if neighbour not in visited_bfs:
```

```
visited_bfs.append(neighbour)
queue.append(neighbour)

visited = set()

def dfs(visited, graph, node):
    if node not in visited:
        print (node, end=" ")
        visited.add(node)
        for neighbour in graph[node]:
            dfs(visited, graph, neighbour)

print("BFS:" , end = " ")
bfs(visited_bfs, graph, 'A')
print('\n')
print("DFS:" , end = " ")
dfs(visited, graph, 'A')
```

OUTPUT:

Dr.R.Radhika (Co-faculty-8204) X

us-east-2.console.aws.amazon.com/cloud9/ide/447956276ccu42999abc176068694ec?P

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bfs_dfs_combined.py x

```
1 graph = {
2     'A': ['B', 'C'],
3     'B': ['D', 'E'],
4     'C': ['F'],
5     'D': [],
6     'E': ['F'],
7     'F': []
8 }
9
10 visited_bfs = []
11 queue = []
12
13 def bfs(visited_bfs, graph, node):
14     visited_bfs.append(node)
15     queue.append(node)
16
17     while queue:
18         s = queue.pop(0)
19         print(s, end = " ")
20
21         for neighbour in graph[s]:
22             if neighbour not in visited_bfs:
23                 visited_bfs.append(neighbour)
24                 queue.append(neighbour)
25
26     visited = set()
27
28 def dfs(visited, graph, node):
29     if node not in visited:
30         print(node, end=" ")
31         visited.add(node)
32         for neighbour in graph[node]:
33             dfs(visited, graph, neighbour)
34
35 print("BFS: ", end = " ")
36 bfs(visited_bfs, graph, 'A')
37 print("\n")
38 print("DFS: ", end = " ")
39 dfs(visited, graph, 'A')
40
```

python3 -ip-172-31-3-21 x

bradlika:~/environment \$ cd 180/

bradlika:~/environment/180 \$ python3 bfs_dfs_combined.py

BFS: A B C D E F

DFS: A B D E F C bradlika:~/environment/180 \$

20.1 Python Spaces 4

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