

Problem – 2 : Given an undirected graph, return a vector of all nodes by traversing the graph using breadth-first search (BFS).

```
from collections import deque
```

```
def bfs(graph, start_node):
```

```
    visited = set()
```

```
    queue = deque([start_node])
```

```
    visited.add(start_node)
```

```
    result = []
```

```
    while queue:
```

```
        current_node = queue.popleft()
```

```
        result.append(current_node)
```

```
        for neighbor in graph[current_node]:
```

```
            if neighbor not in visited:
```

```
                visited.add(neighbor)
```

```
                queue.append(neighbor)
```

```
    return result
```

```
graph = {
```

```
    'A': ['B', 'C'],
```

```
    'B': ['A', 'D', 'E'],
```

```
    'C': ['A', 'F', 'G'],
```

```
    'D': ['B'],
```

```
    'E': ['B'],
```

```
    'F': ['C'],
```

```
    'G': ['C']
```

```
}
```

```
start_node = 'A'
```

```
bfs_result = bfs(graph, start_node)
```

```
print("BFS traversal starting from node {}: {}".format(start_node, bfs_result))
```

The screenshot shows a web browser window with a blue sidebar on the left and a black console area on the right. The sidebar contains a 'Login' button at the top, followed by a lightbulb icon and the text 'GOT AN OPINION'. Below this are links for 'About', 'FAQ', 'Blog', 'Terms of Use', 'Contact', 'Us', 'GDB Tutorial', 'Credits', and 'Privacy'. At the bottom of the sidebar is the copyright notice '© 2016 - 2023 GDB'. The console area shows the output of a program: 'BFS traversal starting from node A: ['A', 'B', 'C', 'D', 'E', 'F', 'G']', followed by '...Program finished with exit code 0' and 'Press ENTER to exit console.' with a cursor. The browser's address bar at the bottom shows 'https://www.onlinegdb.com/login'.

```
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```

Login

input

BFS traversal starting from node A: ['A', 'B', 'C', 'D', 'E', 'F', 'G']

...Program finished with exit code 0

Press ENTER to exit console.

<https://www.onlinegdb.com/login>