

Problem 1 : Given an undirected graph, return a vector of all nodes by traversing the graph using depth-first search (DFS).

```
def dfs(graph, start_node, visited, traversal_order):
```

```
    visited[start_node] = True
```

```
    traversal_order.append(start_node)
```

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

```
        if not visited[neighbor]:
```

```
            dfs(graph, neighbor, visited, traversal_order)
```

```
def dfs_traversal(graph):
```

```
    num_nodes = len(graph)
```

```
    visited = [False] * num_nodes
```

```
    traversal_order = []
```

```
    for node in range(num_nodes):
```

```
        if not visited[node]:
```

```
            dfs(graph, node, visited, traversal_order)
```

```
    return traversal_order
```

```
example_graph = {
```

```
    0: [1, 2],
```

```
    1: [0, 2, 3],
```

```
    2: [0, 1, 3],
```

```
    3: [1, 2, 4],
```

```
    4: [3, 5],
```

```
    5: [4],
```

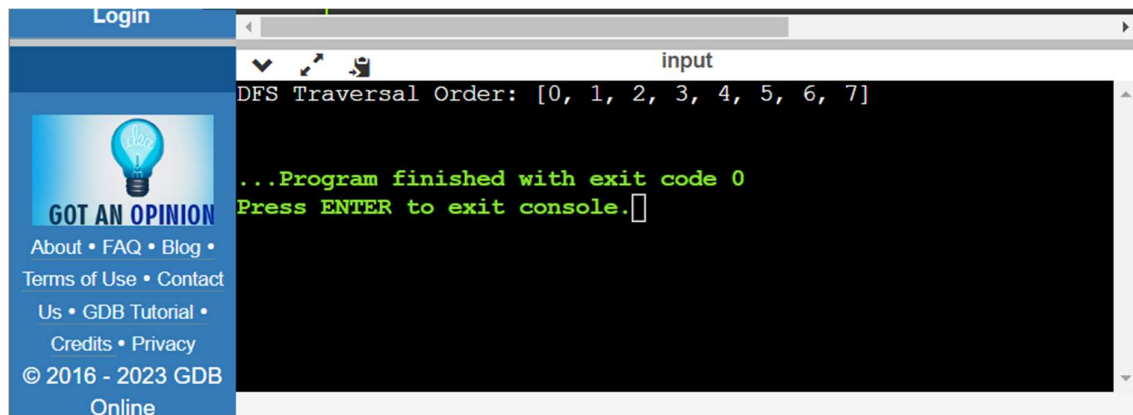
```
    6: [7],
```

```
    7: [6]
```

```
}
```

```
traversal_result = dfs_traversal(example_graph)
```

```
print("DFS Traversal Order:", traversal_result)
```



The screenshot shows a web browser window. On the left is a blue sidebar with a 'Login' button at the top. Below it is a lightbulb icon and the text 'GOT AN OPINION'. Further down are links: 'About • FAQ • Blog • Terms of Use • Contact Us • GDB Tutorial • Credits • Privacy' and a copyright notice '© 2016 - 2023 GDB Online'. The main content area on the right is a terminal window titled 'input'. It displays the output of a program: 'DFS Traversal Order: [0, 1, 2, 3, 4, 5, 6, 7]' in red text, followed by '...Program finished with exit code 0' and 'Press ENTER to exit console.' in green text. A cursor is visible at the end of the last line.