

Implement Breadth First Search Algorithm using a Queue

```
from queue import Queue
```

```
graph = {0: [1, 3], 1: [0, 2, 3], 2: [4, 1, 5], 3:  
[4, 0, 1], 4: [2, 3, 5], 5: [4, 2], 6: []}  
print("The adjacency List representing  
the graph is:")  
print(graph)
```

```
def bfs(graph, source):  
    Q = Queue()  
    visited_vertices = set()  
    Q.put(source)  
    visited_vertices.update({0})  
    while not Q.empty():  
        vertex = Q.get()  
        print(vertex, end="-->")  
        for u in graph[vertex]:  
            if u not in visited_vertices:  
                Q.put(u)  
                visited_vertices.update({u})  
  
print("BFS traversal of graph with source  
0 is:")  
bfs(graph, 0)
```

The screenshot shows a Google Colaboratory notebook titled "Untitled2.ipynb". The notebook contains a single code cell with the following text:

```

The adjacency List representing the graph is:
{0: [1, 3], 1: [0, 2, 3], 2: [4, 1, 5], 3: [4, 0, 1], 4: [2, 3, 5], 5: [4, 2], 6: []}
BFS traversal of graph with source 0 is:
0-->1-->3-->2-->4-->5-->

```

The code cell has a status bar at the bottom indicating it is "completed at 1:39 PM". The notebook interface includes a left sidebar with various icons for file management and a top bar with navigation and sharing options.

Implement Depth First Search Algorithm

```
code:graph1 = {  
    'A' : ['B','S'],  
    'B' : ['A'],  
    'C' : ['D','E','F','S'],  
    'D' : ['C'],  
    'E' : ['C','H'],  
    'F' : ['C','G'],  
    'G' : ['F','S'],  
    'H' : ['E','G'],  
    'S' : ['A','C','G']  
}
```

```
def dfs(graph, node, visited):  
    if node not in visited:  
        visited.append(node)  
        for k in graph[node]:  
            dfs(graph,k, visited)  
    return visited
```

```
visited = dfs(graph1,'D', [])  
print(visited)
```

The screenshot displays the Google Colaboratory web interface. At the top, there's a navigation bar with a 'Sign in' button and the title 'Untitled2.ipynb - Colaboratory'. Below this is a browser address bar showing the URL 'https://colab.research.google.com/drive/1TVm2HZ-MC_Rs5Y7iroAOaLvbDAJrXo...'. The main workspace features a top menu bar with options like 'File', 'Edit', 'View', 'Insert', 'Runtime', 'Tools', and 'Help'. A toolbar on the left contains icons for file operations and a search bar. The central area shows a Jupyter Notebook with a single code cell containing the list: `['D', 'C', 'E', 'H', 'G', 'F', 'S', 'A', 'B']`. The bottom status bar indicates that the execution completed successfully in 0 seconds at 2:31 PM. The right sidebar shows various application icons, and the bottom of the screen displays a Windows taskbar with the date and time '14:32 01-02-2024'.