

EXPERIMENT-16

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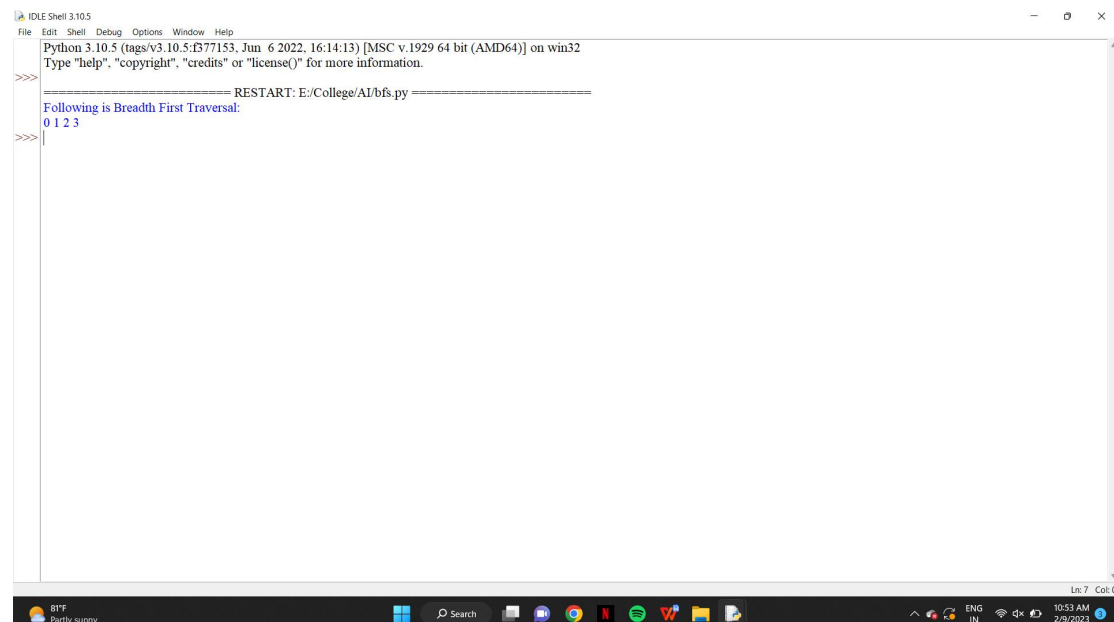
Course: CSA1789 Artificial Intelligence

Q) Write the python program to implement BFS.

Program:

```
import collections
def bfs(graph, root):
    visited, queue = set(), collections.deque([root])
    visited.add(root)
    while queue:
        vertex = queue.popleft()
        print(str(vertex) + " ", end="")
        for neighbour in graph[vertex]:
            if neighbour not in visited:
                visited.add(neighbour)
                queue.append(neighbour)
if __name__ == '__main__':
    graph = {0: [1, 2], 1: [2], 2: [3], 3: [1, 2]}
    print("Following is Breadth First Traversal: ")
    bfs(graph, 0)
```

OUTPUT:



The screenshot shows an IDE Shell window titled 'IDLE Shell 3.10.5'. The window contains the following text:

```
Python 3.10.5 (tags/v3.10.5:1377153, Jun 6 2022, 16:14:13) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.

>>>
===== RESTART: E:/College/AI/bfs.py =====
Following is Breadth First Traversal:
0 1 2 3
>>>
```

The window also shows a Windows taskbar at the bottom with various icons and the system clock displaying 10:53 AM on 2/9/2023.