

7. Write the python program to implement BFS.
Program:

```
from collections import defaultdict

class Graph:

    def __init__(self):

        self.graph = defaultdict(list)

    def addEdge(self,u,v):
        self.graph[u].append(v)

    def BFS(self, s):

        visited = [False] * (len(self.graph))

        queue = []

        queue.append(s)
        visited[s] = True

        while queue:

            s = queue.pop(0)
            print (s, end = " ")

            for i in self.graph[s]:
                if visited[i] == False:
                    queue.append(i)
                    visited[i] = True

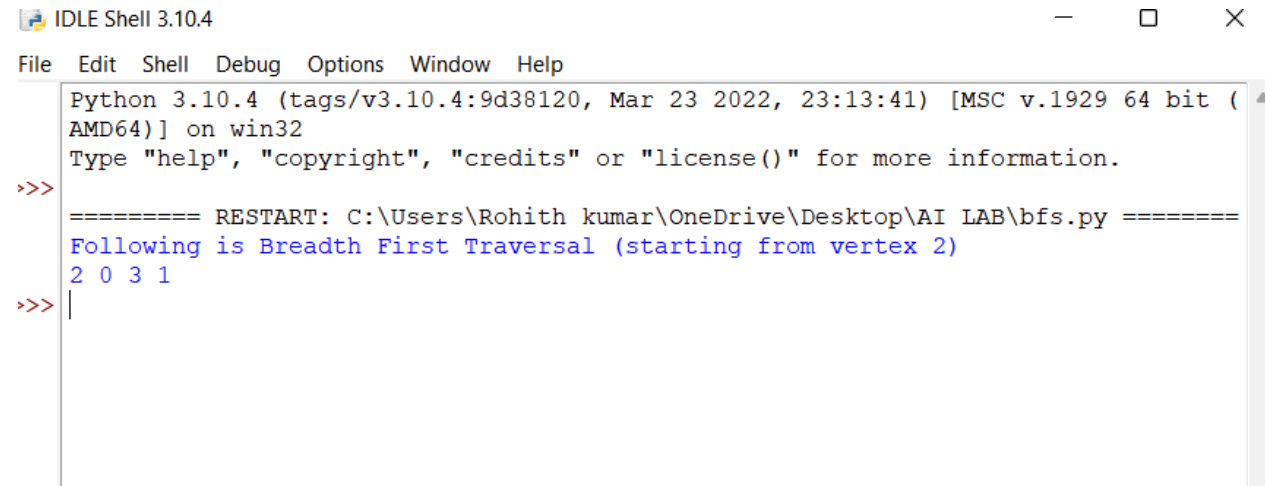
g = Graph()
g.addEdge(0, 1)
g.addEdge(0, 2)
g.addEdge(1, 2)
g.addEdge(2, 0)
g.addEdge(2, 3)
g.addEdge(3, 3)

print ("Following is Breadth First Traversal"
      " (starting from vertex 2)")
```

g.BFS(2)

This code is contributed by Neelam Yadav

OUTPUT:



```
IDLE Shell 3.10.4
File Edit Shell Debug Options Window Help
Python 3.10.4 (tags/v3.10.4:9d38120, Mar 23 2022, 23:13:41) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> ===== RESTART: C:\Users\Rohith kumar\OneDrive\Desktop\AI LAB\bfs.py =====
Following is Breadth First Traversal (starting from vertex 2)
2 0 3 1
>>> |
```