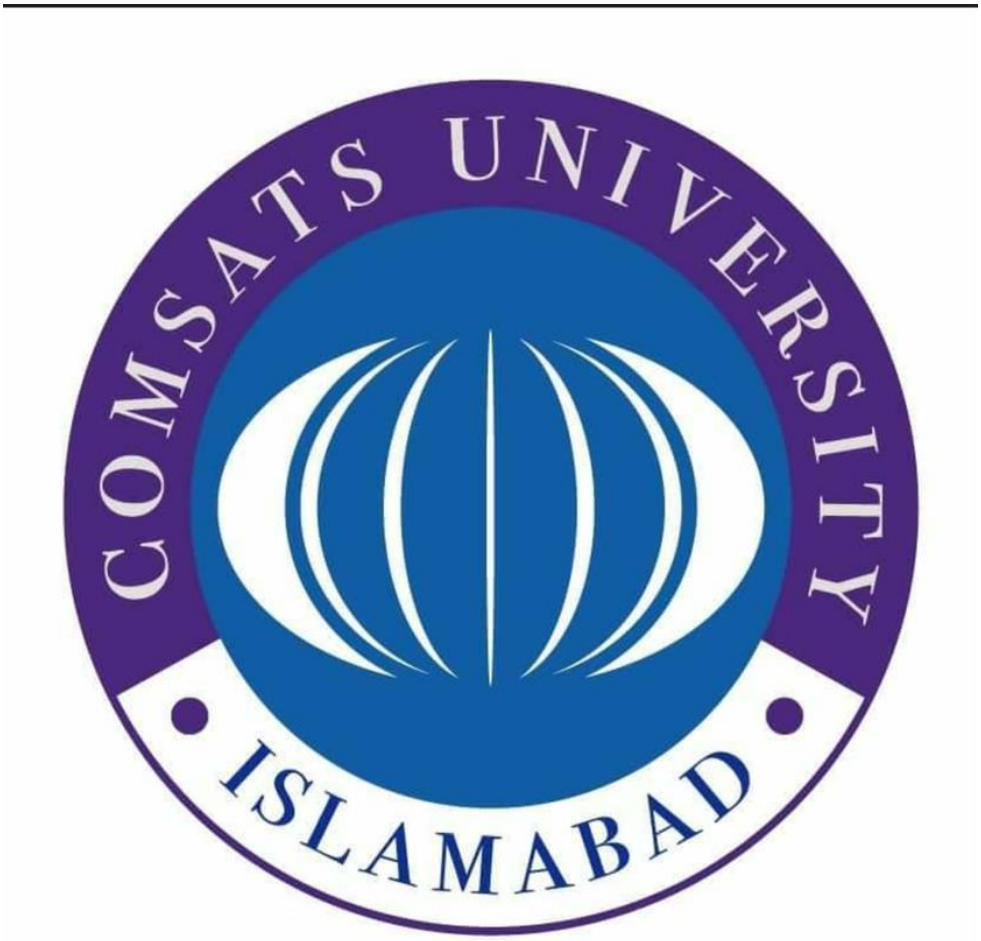

Artificial Intelligence

Assignment 01

Name : Hussain Ali

Reg No. : FA21-BCS-066

Section : BCS-7A

Instructor : Mam Seema Islam

Lab Task 02

BFS Code Screen Shots:

Code:

```
def puzzle_maze(maze, start, goal):
    queue = []
    # Using a list instead of deque
    visited = set()
    parent = {}

    queue.append(start)
    visited.add(start)

    while queue:
        current = queue.pop(0)
        # Pop from the front (simulates a queue)

        if current == goal:
            # Path found, backtrack to get the path
            path = []
            while current != start:
                path.append(current)
```

```
            current = parent[current]
        path.append(start)
        path.reverse()
        return path

    # Check adjacent nodes
    for action in [(0, 1), (0, -1), (1, 0), (-1, 0)]:
        next_node = (current[0] + action[0], current[1] + action[1])
        if next_node in maze and next_node not in visited:
            queue.append(next_node)
            visited.add(next_node)
            parent[next_node] = current
return None

maze = {(0, 0), (0, 1), (0, 2), (1, 2), (2, 2), (2, 3), (3, 3)}
start = (0, 0)
goal = (3, 3)
```

```
path = puzzle_maze(maze, start, goal)
if path:
    print("Path found:", path)
else:
    print("No path found")
```

Output: