Open Ended Lab 2

Time: 60 minutes

Total Marks: 10

Campus Path Finder using Search Algorithms

A university campus has 7 buildings connected via paths. The connections and distances (in meters) are given in a dictionary:

```
graph = {
   'A': [('B', 6), ('C', 2)],
   'B': [('D', 5), ('E', 3)],
   'C': [('F', 4)],
   'D': [('G', 2)],
   'E': [('G', 6)],
   'F': [('G', 1)],
   'G': []
}
```

Q) The goal is to find the shortest path from Building 'A' to 'G'.

Tasks:

1. Implement Depth First Search to find any path from A to G.
2. Implement A* Search, assuming the following heuristic values:

```
h = {'A': 7, 'B': 6, 'C': 4, 'D': 3, 'E': 5, 'F': 2, 'G': 0}
```

3. Show the path and total distance covered for both algorithms.