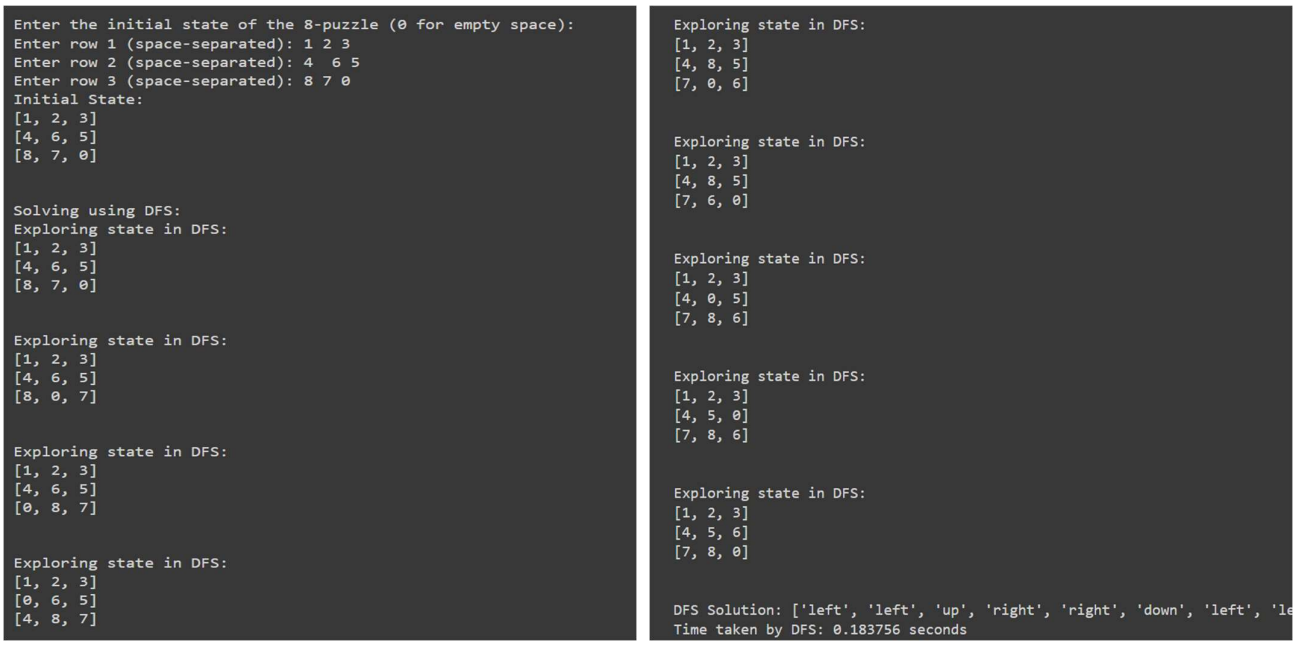
LABORATORY PROGRAM – 2

OUTPUT

1. Solve 8 puzzle problems.



```
Enter the initial state of the 8-puzzle (0 for empty space):
Enter row 1 (space-separated): 1 2 3
Enter row 2 (space-separated): 4  6 5
Enter row 3 (space-separated): 8 7 0
Initial State:
[1, 2, 3]
[4, 6, 5]
[8, 7, 0]


Solving using DFS:
Exploring state in DFS:
[1, 2, 3]
[4, 6, 5]
[8, 7, 0]


Exploring state in DFS:
[1, 2, 3]
[4, 6, 5]
[8, 0, 7]


Exploring state in DFS:
[1, 2, 3]
[4, 6, 5]
[0, 8, 7]


Exploring state in DFS:
[1, 2, 3]
[0, 6, 5]
[4, 8, 7]


Exploring state in DFS:
[1, 2, 3]
[4, 8, 5]
[7, 0, 6]


Exploring state in DFS:
[1, 2, 3]
[4, 8, 5]
[7, 6, 0]


Exploring state in DFS:
[1, 2, 3]
[4, 0, 5]
[7, 8, 6]


Exploring state in DFS:
[1, 2, 3]
[4, 5, 0]
[7, 8, 6]


Exploring state in DFS:
[1, 2, 3]
[4, 5, 6]
[7, 8, 0]


DFS Solution: ['left', 'left', 'up', 'right', 'right', 'down', 'left', 'le
Time taken by DFS: 0.183756 seconds
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2. Implement Iterative deepening search algorithm.

```
Enter the initial state: A
Enter the goal state: G
Enter the adjacency list for the graph (neighbors of each node).
Type 'done' when finished.
Enter node (or 'done' to finish): A
Enter neighbors of A separated by spaces: B C
Enter node (or 'done' to finish): B
Enter neighbors of B separated by spaces: D E
Enter node (or 'done' to finish): D
Enter neighbors of D separated by spaces: H I
Enter node (or 'done' to finish): C
Enter neighbors of C separated by spaces: F G
Enter node (or 'done' to finish): F
Enter neighbors of F separated by spaces: K
Enter node (or 'done' to finish): done
Exploring depth: 0
Exploring depth: 1
Exploring depth: 2
Solution Path: ['A', 'C', 'G']
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