DSA Lab

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Open Ended 2

LAB Journal

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Open Ended 2

Lab Task GitHub Link:

Link

OUTPUT:

- **Menu**

```
Menu:
1. Add Edge to Graph
2. Find Shortest Path (Dijkstra)
3. Insert Node into BST
4. Delete Node from BST
5. Display BST Traversals
6. Sort Array
7. Exit
Enter your choice:
```

- **Add edge to Graph**

  Start: 1, End: 2, Weight: 12

```
Menu:
1. Add Edge to Graph
2. Find Shortest Path (Dijkstra)
3. Insert Node into BST
4. Delete Node from BST
5. Display BST Traversals
6. Sort Array
7. Exit
Enter your choice: 1
Enter edge (u v weight): Enter Start: 1
Enter End: 2
Enter Edge Weight:12
```

Start: 1, End: 2, Weight: 8

```
Menu:
1. Add Edge to Graph
2. Find Shortest Path (Dijkstra)
3. Insert Node into BST
4. Delete Node from BST
5. Display BST Traversals
6. Sort Array
7. Exit
Enter your choice: 1
Enter edge (u v weight): Enter Start: 1
Enter End: 2
Enter Edge Weight:8
```

- **Shortest Path**

```
Menu:
1. Add Edge to Graph
2. Find Shortest Path (Dijkstra)
3. Insert Node into BST
4. Delete Node from BST
5. Display BST Traversals
6. Sort Array
7. Exit
Enter your choice: 2
Enter start and end vertices: 1

2
Shortest path cost from 1 to 2: 8
```

- **Insert Node to BST**

```
Menu:
1. Add Edge to Graph
2. Find Shortest Path (Dijkstra)
3. Insert Node into BST
4. Delete Node from BST
5. Display BST Traversals
6. Sort Array
7. Exit
Enter your choice: 3
Enter value to insert: 5

Menu:
1. Add Edge to Graph
2. Find Shortest Path (Dijkstra)
3. Insert Node into BST
4. Delete Node from BST
5. Display BST Traversals
6. Sort Array
7. Exit
Enter your choice: 3
Enter value to insert: 6
```

- **Display BST**

```
Menu:
1. Add Edge to Graph
2. Find Shortest Path (Dijkstra)
3. Insert Node into BST
4. Delete Node from BST
5. Display BST Traversals
6. Sort Array
7. Exit
Enter your choice: 5
Inorder Traversal: 5 6
Preorder Traversal: 5 6
Postorder Traversal: 6 5
```

- **Sort Array**

```
Menu:
1. Add Edge to Graph
2. Find Shortest Path (Dijkstra)
3. Insert Node into BST
4. Delete Node from BST
5. Display BST Traversals
6. Sort Array
7. Exit
Enter your choice: 6
Enter number of elements: 5
Enter elements: 1
2
3
7
4
Merge Sort Result: 1 2 3 4 7
Comparisons: 7, Swaps: 1
Quick Sort Result: 1 2 3 4 7
Comparisons: 7, Swaps: 9
```