**Data Structures and Algorithms**

**Project Evaluation Sheet**

**Name**:Om. R. Muddapur **SRN**:01FE22BCS262 **Roll**:153

Implementation Analysis

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Algorithm/Data Structure** | **Used? (Yes/No)** | **How and where?** | **Space Efficiency** | **Time Efficiency** |
| Arrays | Y |  | O (n) | O(n) |
| Structures | Y |  | O (n) |  |
| List | Y | **Communication between Stations** | O (n) | O (n) |
| Stack |  |  |  |  |
| Queue | Y | **Train route efficiency** | O (n) | O (n) |
| Binary Tree | Y | **Information Organization** | O (n) | O (n) |
| Binary Search Tree | Y | **Information Organization** | O (n) | O (logn) |
| AVL Tree |  |  |  |  |
| 2-3 Tree |  |  |  |  |
| Red-Black Tree |  |  |  |  |
| Trie |  |  |  |  |
| Heap | Y | **Display of city maps** | O(n) | O(logn) |
| Lookup Table | Y | **Ticket collection fare** | O(n^2) | O (n^2) |
| Sparse Table | Y | **Parking space efficiency** | O(n^2) | O (n^2) |
| Fenwick Tree | Y | **Ticket collection fare** | O(n) | O (n logn) |
| Segment Tree |  |  |  |  |
| Skip List |  |  |  |  |
| Union-Find | Y | **Proper Lighting Facilities** | O(n) | O (n^2) |
| Hashing |  |  |  |  |
| DFS | Y | **Train route efficiency** | O(n) | O (n^2) |
| BFS | Y | **Train route efficiency** | O(n) | O (n^2) |
| Bubble Sort | Y | **Efficient Speakers Announcement** | O(1) | O (n^2) |
| Selection Sort |  |  |  |  |
| Insertion Sort |  |  |  |  |
| Quick Sort | Y | **Communication between Stations** | O(logn) | O (nlogn) |
| Merge Sort | Y | **Entertainment Facilities** | O(n) | O (nlogn) |
| Brute Force String Search | Y | **Efficient Speakers Announcement** | O(1) | O(n^2) |
| Rabin Karp | Y | **Communication between Stations** | O(1) | O (m + n) |
| Boyer-Moore | Y | **Entertainment Facilities** | O(m + n) | O(n/m) |
| Knuth-Morris-Pratt |  |  |  |  |
| Heap Sort | Y | **Display of city maps** | O(1) | O(nlogn) |
| Kruskal | Y | **Proper Lighting Facilities** | O(E + n) | O (E log n) |
| Prim | Y | **Proper Lighting Facilities** | O(n) | O (n^2) |
| Dijkstra | Y | **Display of city maps** | O(n + E) | O(|n|^2) |
| Floyd |  |  |  |  |
| Warshall | Y | **Train route efficiency** | O(n^2) | O (n^3) |
| Bellman-Ford |  |  |  |  |
| Any Other |  |  |  |  |

**Other Analysis:**

Number of Lines of Code Written: 2112

Number of Functions: 10

Design Techniques and Principles used: 6

Number of files created: 3

Size of Largest File: 210 KB