**Data Structures and Algorithms**

**Project Evaluation Sheet**

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Implementation Analysis

| **Algorithm/Data Structure** | **Used? (Yes/No)** | **How and where?** | **Space Efficiency** | **Time Efficiency** |
| --- | --- | --- | --- | --- |
| Arrays | YES | To store the shop details,product details | O( 1 ) | O(no\_of\_shops) |
| Structures | YES | To store customer details,Hospital details | O( 1 ) | O(no\_of\_hospitals) |
| List | NO |  |  |  |
| Stack | NO |  |  |  |
| Queue | YES | To find shortest path using Dijkstra’s Algorithm and BFS traversal | O(no\_of\_shops +  Edges ) | O(no\_of\_nodes) |
| Binary Tree | NO |  |  |  |
| Binary Search Tree | NO |  |  |  |
| AVL Tree | NO |  |  |  |
| 2-3 Tree | NO |  |  |  |
| Red-Black Tree | NO |  |  |  |
| Trie | NO |  |  |  |
| Heap | YES | In Dijkstra’s algorithm. | O(no\_of\_shops +  Edges ) | O(no\_of\_nodes) |
| Lookup Table | NO |  |  |  |
| Sparse Table | NO |  |  |  |
| Fenwick Tree | NO |  |  |  |
| Segment Tree | NO |  |  |  |
| Skip List | NO |  |  |  |
| Union-Find | NO |  |  |  |
| Hashing | NO |  |  |  |
| DFS | NO |  |  |  |
| BFS | YES | To traverse through each shop(Node). | O (no\_of\_shops) | O(no\_of\_shops) |
| Bubble Sort | NO |  |  |  |
| Selection Sort | YES | To sort the shop names according to their  respective code. | O( 1 ) | O( n^2) |
| Insertion Sort | NO |  |  |  |
| Quick Sort | NO |  |  |  |
| Merge Sort | NO |  |  |  |
| Brute Force String Search | YES | To match the names of customer’s products and shop’s product name | O ( 1) | O(no\_cust\_prod \*  no\_of\_shops\_prod) |
| Rabin Karp | NO |  |  |  |
| Boyer-Moore | NO |  |  |  |
| Knuth-Morris-Pratt | NO |  |  |  |
| Heap Sort | NO |  |  |  |
| Kruskal | NO |  |  |  |
| Prim | NO |  |  |  |
| Dijkstra | YES | To find the shortest path to reach the shop from house(source point) | O(no\_of\_shops +  Edges ) | O(no\_of\_shops). |
| Floyd | N0 |  |  |  |
| Warshall | NO |  |  |  |
| Bellman-Ford | NO |  |  |  |
| Any Other | NO |  |  |  |

Other Analysis: Linking a saved text file into the main file.

Number of Lines of Code Written: 1,758

Number of Functions: 10

Design Techniques and Principles used: Dijkstra’s algorithm , String search techniques,Sorting techniques