| **Data Structures and Algorithms** |
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| PHARMACY  MANAGEMENT |
| **Course Project Report** |

| **School of Computer Science and Engineering**  **2023-24** |
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**1. Course and Team Details**

**1.1 Course details**

| **Course Name** | Data Structures and Algorithms |
| --- | --- |
| **Course Code** | 23ECAC205 |
| **Semester** | III |
| **Division** | E |
| **Year** | 2023-24 |
| **Instructor** | Vijaylakshmi |

**1.2 Team Details**

| **Si. No.** | **Roll No.** | **Name** |
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| 1. | 549 | Prateek Chittoor |
| 2. | 550 | Rahul |
| 3. | 554 | Swadeep |
| 4. | 557 | Ganesh |

**1.3 Report Owner**

| **Roll No.** | **Name** |
| --- | --- |
| 549 | Prateek Chittoor |

**2. Introduction**

Pharmacy management with a focus on finding the shortest path to medical shops involves utilizing efficient algorithms to optimize the delivery or retrieval of pharmaceutical products. This system aims to streamline the process of accessing medicines by determining the most time and resource-effective route between locations. It is based on a travelogue written by Mr. Prakash Hegade and Mr. Aryan H S of KLE Technological University, Hubli.

It focuses on utilizing geographical data to map the locations of medical shops and their surrounding areas.Providing a user-friendly interface for users, such as pharmacists or delivery personnel, to input their location, the destination medical shop, and any other relevant parameters.

**3. Problem Statement**

**3.1 Domain**

The problem statement described falls under the domain of Logistics and Supply Chain Management, specifically within the context of pharmaceutical distribution or pharmacy management. This domain involves the planning, implementation, and optimization of the processes related to the efficient flow and storage of goods, including the transportation of products from one location to another.

**3.2 Module Description**

I am working on finding the optimized or the shortest route possible to cover all the combination of shops possible.Given the customer’s products, perform string search operation through all the shops and remove the duplicate elements found in these shops.

Also includes the text content present in the saved file through FILE related operations.

**4. Functionality Selection**

| **Si. No.** | **Functionality Name** | **Known** | **Unknown** | **Principles applicable** | **Algorithms** | **Data Structures** |
| --- | --- | --- | --- | --- | --- | --- |
|  | Name the functionality within the module | What information do you already know about the module? What kind of data you already have? How much of process information is known? | What are the pain points? What information needs to be explored and understood? What are challenges? | What are the supporting principles and design techniques? | List all the algorithms you will use | What are the supporting data structures? |
| 1 | Finding all possible combination of shops | Customer’s required products | time complexity and space complexity | Iterative approach . | Dijkstra’a algorithm | Arrays,Queues,Structures |
| 2 | Remove duplicates | array of duplicate elements | time complexity | iterative approach | —----- | arrays |
| 3 | Finding shortest path | source and destination points | Space complexity and time complexity | Iterative approach to fill the Queue | Dijkstra’a algorithm | Queues, arrays |
| 4 | Displaying all adjacency matrix | Connected graph | time complexity | FILE operations | —-------------- | arrays |

**5. Functionality Analysis**

For each product in the customer's list (c1.cprod), the code checks which shops (s[j]) have the product in stock.

It then creates a mapping (m) of the product to the indices of the shops where it is available.

This function calculates distances between the starting point (house or source) and each shop in the combination by using Dijkstra’a algorithm which takes O(n\*m) Time complexity,where n is number of shops and m is number of shop products.

This function also includes removal of duplicate elements from the found

shop array.

Finally it gives out the optimized path as well as the distance to cover these shops.

**6. Conclusion**

The conclusion from the described project on pharmacy management, specifically focused on finding the shortest path to medical shops.The project aims to enhance the efficiency of pharmaceutical distribution by optimizing the routes taken to reach medical shops.The user interface provides a convenient and accessible platform for pharmacists or delivery personnel to interact with the system, making the overall process more user-friendly and efficient.

By streamlining pharmaceutical distribution, the project contributes to improved healthcare services.It also focuses on finding the optimized way to reach out nearby by Hospitals.

**7. References**

**Apps used as Reference are**

**i . Pharmeasy App**

**ii.Amazon Pharmacy**

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