Title: Delhi Metro Shortest Route Management System in C: An Innovative Approach

Introduction:

The Delhi Metro Shortest Route Management System is a robust project developed in the C programming language, leveraging the power of linked lists and file handling. The system aims to streamline customer interactions, providing features for updating, deleting, and adding new customer records, along with maintaining and updating their metro card balances. Additionally, the project envisions incorporating graph-based route visualization for an enhanced user experience.

Code Structure and Features:

Linked List Implementation:

The project utilizes linked lists to efficiently manage customer records. Each node in the linked list represents a customer, containing essential information such as customer name, metro card details, and current balance.

File Handling Integration:

File handling in C is employed to store and retrieve customer data. This ensures persistent storage, enabling the system to retain customer records even after program termination.

Customer Operations:

Customers can easily be added, updated, or deleted using simple and intuitive functions, manipulating the linked list accordingly.

Additional Features:

Graph-Based Route Visualization:

An upcoming enhancement involves incorporating a graph data structure to visualize and find the shortest routes between metro stations. This will provide users with an intuitive map and aid in planning their journeys efficiently.

Advantages and Disadvantages:

Advantages:

1. Efficient Data Management: The use of linked lists enables efficient customer data manipulation.

2. Persistence:File handling ensures data persistence, allowing customer records to be retained across program executions.

3. Scalability: The project is scalable, with the potential to incorporate advanced features such as graph-based route visualization.

Disadvantages:

1. Limited Graphical Interface:The project primarily relies on a text-based interface, potentially limiting its appeal to users who prefer graphical interfaces.

2. Learning Curve:Users unfamiliar with command-line interfaces may find the system less user-friendly initially.

In conclusion, the Delhi Metro Shortest Route Management System represents an innovative blend of C programming, linked lists, file handling, and the potential for graph-based route visualization. While it offers efficient data management, there is room for improvement in terms of user interface and additional graphical features. The project holds promise for future enhancements and serves as a solid foundation for further development.