SYNOPSIS
RAILWAY RESERVATION SYSTEM

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PROBLEM STATEMENT :

Create a robust railway reservation system that will provide us with options to display the train schedule, book tickets, display available seats and cancel tickets.

OBJECTIVE:

This project aims to resolve these challenges in the current system:

1) Customers often face long waiting times at ticket counter and encounter difficulties during the booking process.
2) The existing ticketing system lacks automation, causing delays and errors in ticket generation and passenger information management.
3) Many people, especially in remote areas, cannot easily access ticketing centers, leading to inconvenience and restricted travel options.

ADT:

PROGRAMMING LANGUAGE	C
DATA STRUCTURE	SINGLE LINKED LIST

1) Linked List can be defined as collection of objects called nodes that are randomly stored in the memory.
2) A node contains two fields i.e. data stored at that particular address and the pointer which contains the address of the next node in the memory.
3) The last node of the list contains pointer to the null.

OPERATIONS:

1) View Train Schedule
2) Display Available Seats
3) Book Ticket
4) Cancel Ticket

1. Insertion of nodes (at front) - To initialise (reserve) seats in the train.
2. Traversal of nodes - to facilitate booking and cancellation of a reservation.
3. Display data - to display available seats and current schedule of a train.
4. Free linked list - to free up memory after exit

SAMPLE SCREENSHOT OF OUTPUT:

```
Railway Reservation System
Book train from:
1.Bangalore - Delhi
2.Bangalore - Chennai
3.Bangalore - Kolkata
4.Bangalore - Mumbai
5.exit
1
Train Schedule

Departure Station: Bangalore
Arrival Station: Delhi
Departure Time: 08:00 AM
Arrival Time: 04:00 PM


1. Display Available Seats
2. Book Ticket
3. Cancel Reservation
4. Exit
Enter your choice:
```

```
1. Display Available Seats
2. Book Ticket
3. Cancel Reservation
4. Exit
Enter your choice: 1
Available Seats: +---------------------------+-------------
|   1   2   3   4   5   6         7   8 |
|   9  10  11  12  13  14        15  16 |
|  17  18  19  20  21  22        23  24 |
|  25  26  27  28  29  30        31  32 |
|  33  34  35  36  37  38        39  40 |
|  41  42  43  44  45  46        47  48 |
|  49  50                              |
+---------------------------+---------------------------+
```

```
1. Display Available Seats
2. Book Ticket
3. Cancel Reservation
4. Exit
Enter your choice: 2
Enter seat number to book: 44
Ticket booked successfully for seat number 44.

1. Display Available Seats
2. Book Ticket
3. Cancel Reservation
4. Exit
Enter your choice: 1
Available Seats: +----------------------------+--------
|   1   2   3   4   5   6         7   8 |
|   9  10  11  12  13  14        15  16 |
|  17  18  19  20  21  22        23  24 |
|  25  26  27  28  29  30        31  32 |
|  33  34  35  36  37  38        39  40 |
|  41  42  43   X  45  46        47  48 |
|  49  50                              |
+----------------------------+-----------------------
```

```
1. Display Available Seats
2. Book Ticket
3. Cancel Reservation
4. Exit
Enter your choice: 3
Enter seat number to cancel reservation: 44
Reservation canceled successfully for seat number 44.

1. Display Available Seats
2. Book Ticket
3. Cancel Reservation
4. Exit
Enter your choice: 1
Available Seats: +----------------------------+--------
|   1   2   3   4   5   6         7   8 |
|   9  10  11  12  13  14        15  16 |
|  17  18  19  20  21  22        23  24 |
|  25  26  27  28  29  30        31  32 |
|  33  34  35  36  37  38        39  40 |
|  41  42  43  44  45  46        47  48 |
|  49  50                              |
+----------------------------+-----------------------
```

CONCLUSION:

With our railway reservation system , we aim to revolutionize the way people book and mange train tickets

CONTRIBUTION:

1) **NIKITHA THAMMAIAH**

   Implemented:

   - BookTicket()
   - cancelReservation()
   - freeReservations()

2) **NIKITA ANUP**

   Implemented:

   - createSchedule()
   - createReservation()
   - displayAvailableSeats()

3) **MRUNAL ANANDACHE**

   Implemented:

   - Schedule and Reservation Structures
   - main()
   - displaySchedule