মেট্রোপলিটন ইউনিভার্সিটি

Metropolitan University

Project Report

Title: Hotel Management System.

Course Name: Data Structure Lab.

Course Code: CSE-134.

Submitted to: Rishad Amin Pulok (Lecturer)

Department of CSE, Metropolitan University.

Submitted by:

Name: Samiul Hoque Chowdhuy,Pritom Barma,Muhammad Kawser Azim

Roll: 232-115-368, 232-115-367,232-115-228

Section: I

Course Name: Data Structure Lab.

Course Code: CSE-134.

Date of Submission:12/11/24.

Bus Management System

1.Introduction to Project:

The Bus Management System is a command-line-based program designed to manage bus ticket reservations for two primary routes: Sylhet to Dhaka and Sylhet to Chittagong. The system enables users to view available buses, book seats, check bus statuses, and cancel bookings through a streamlined interface. Written in C, this project simulates a reservation system's core functionality, enabling users to experience a simplified form of bus ticket management. This system is targeted at providing a foundational structure for managing bus reservations, with provisions for expansion and enhancement as required in real-world applications.

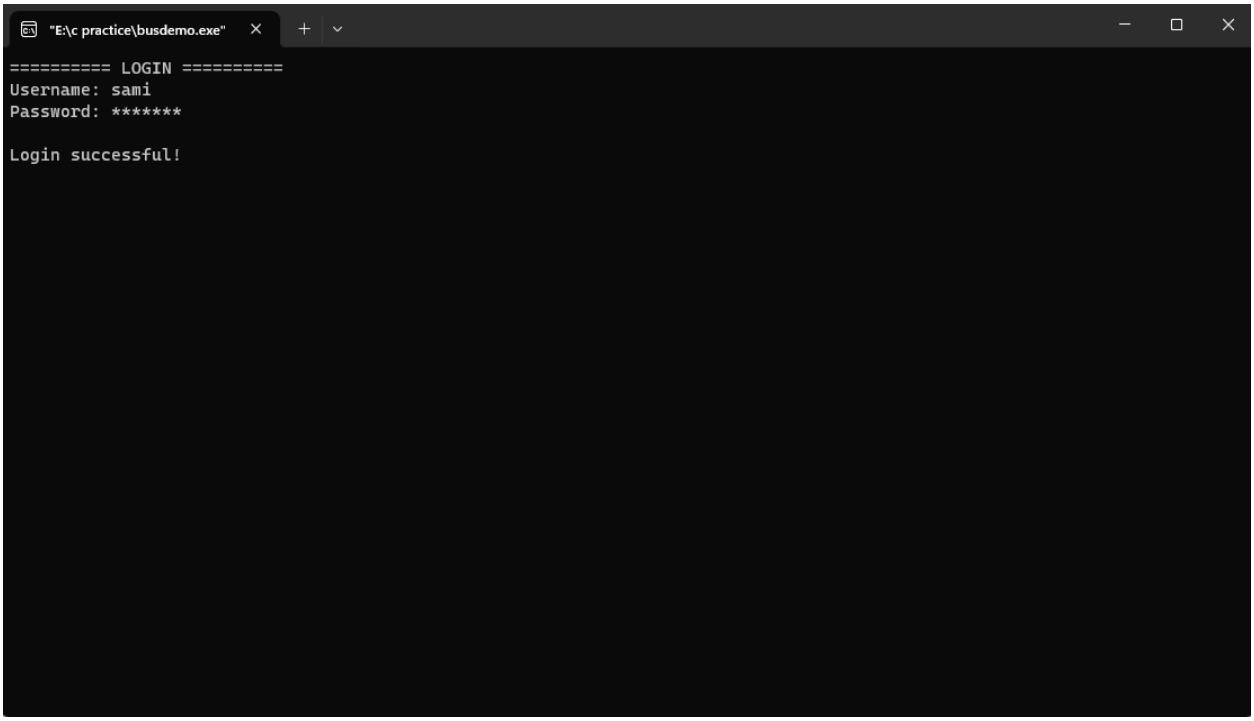
2.Background Study:

While searching for interesting projects to work on, I stumbled upon the idea of creating a Bus Management System. Since I often travel by bus to visit relatives and explore new places, the concept immediately resonated with me. During my research, I found a source code on GitHub for a basic bus reservation system, but it had several bugs and lacked essential features. I decided to take on the challenge of fixing these issues and adding some extra functionalities to improve the system's overall usability and appearance. This project allowed me to combine my personal experiences with travel and my interest in programming, resulting in a system that is both practical and user-friendly.
Here is the source code which inspired me to do this project:

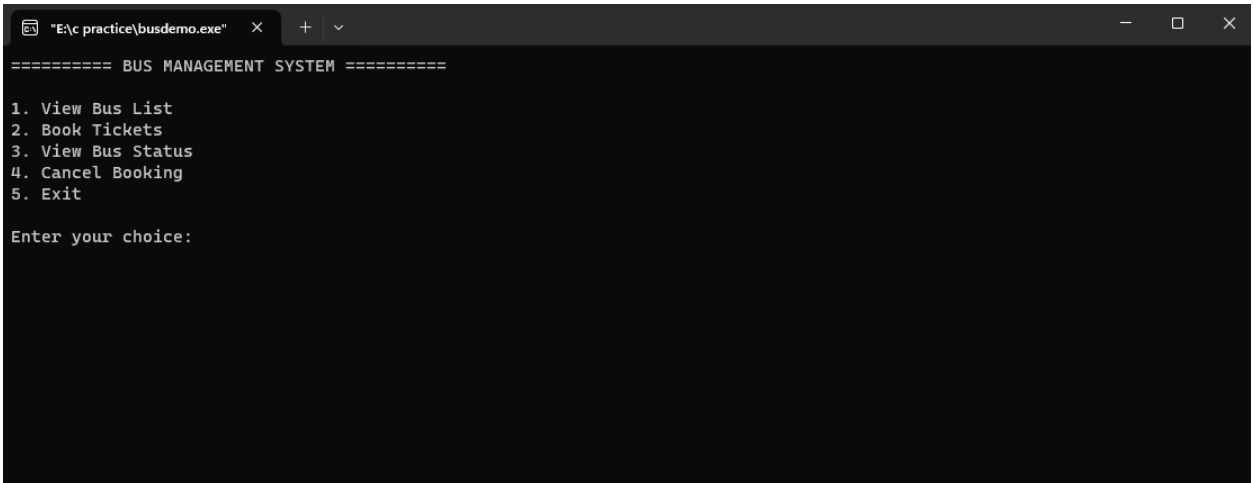
https://github.com/Venkateeshh/Bus-Reservation-in-C/blob/main/Bus%20Reservation%20Final%20C_Language/Bus_Reservation_System.c

3.Features:

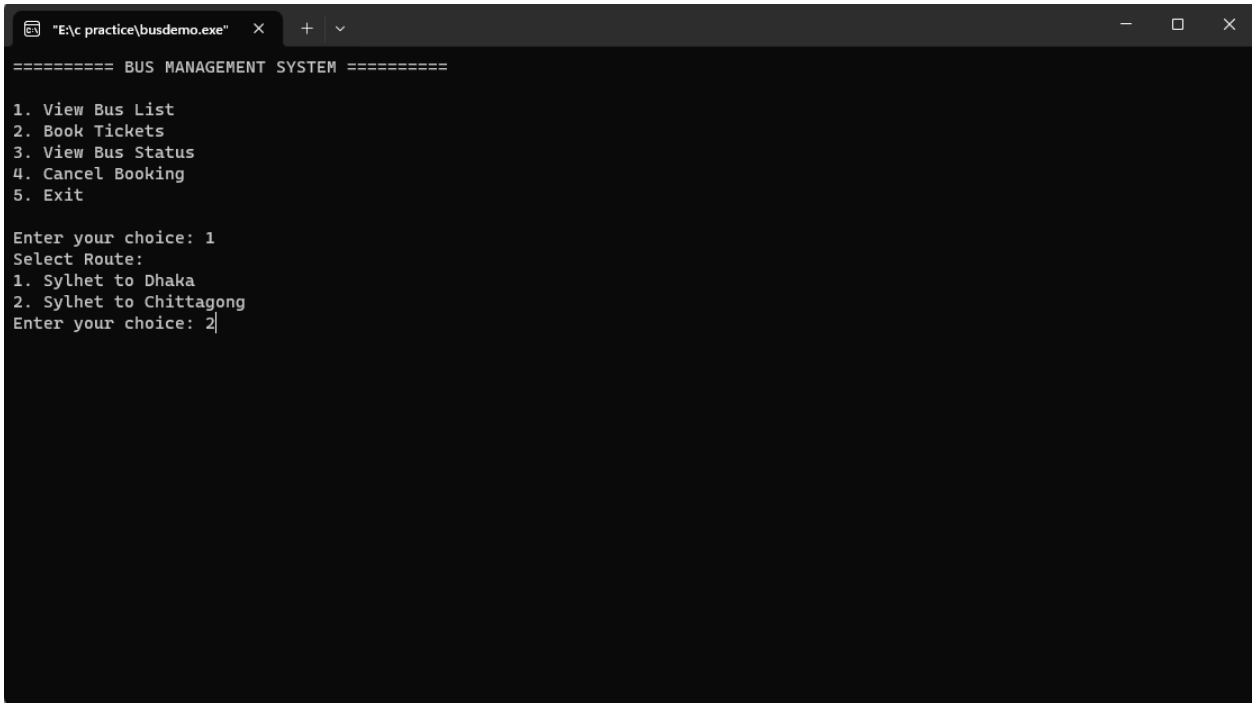
WELCOME INTERFACE:

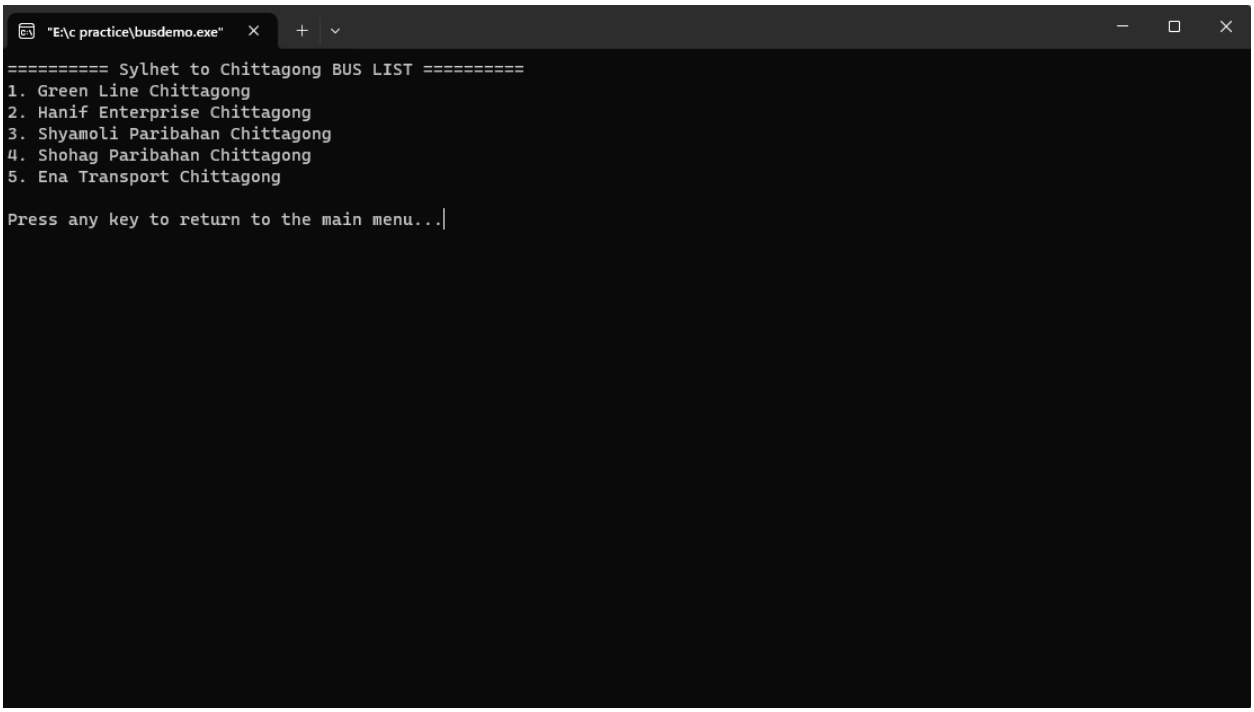


MAIN MENU:

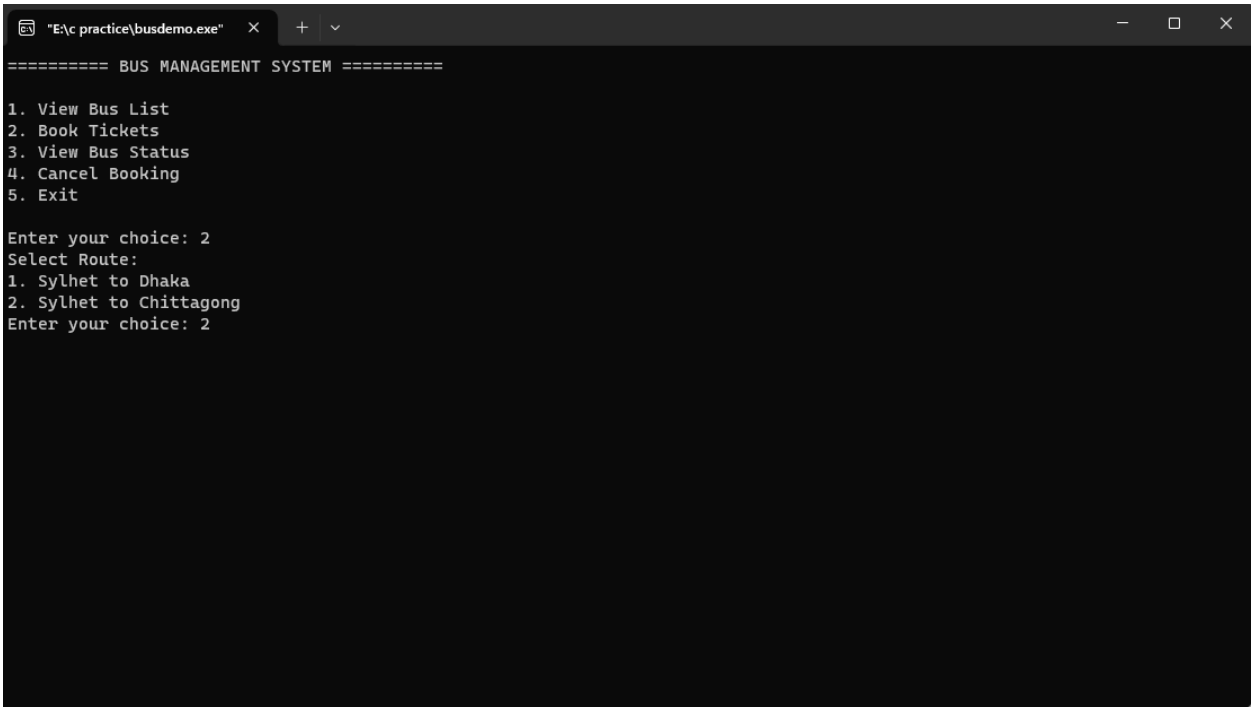


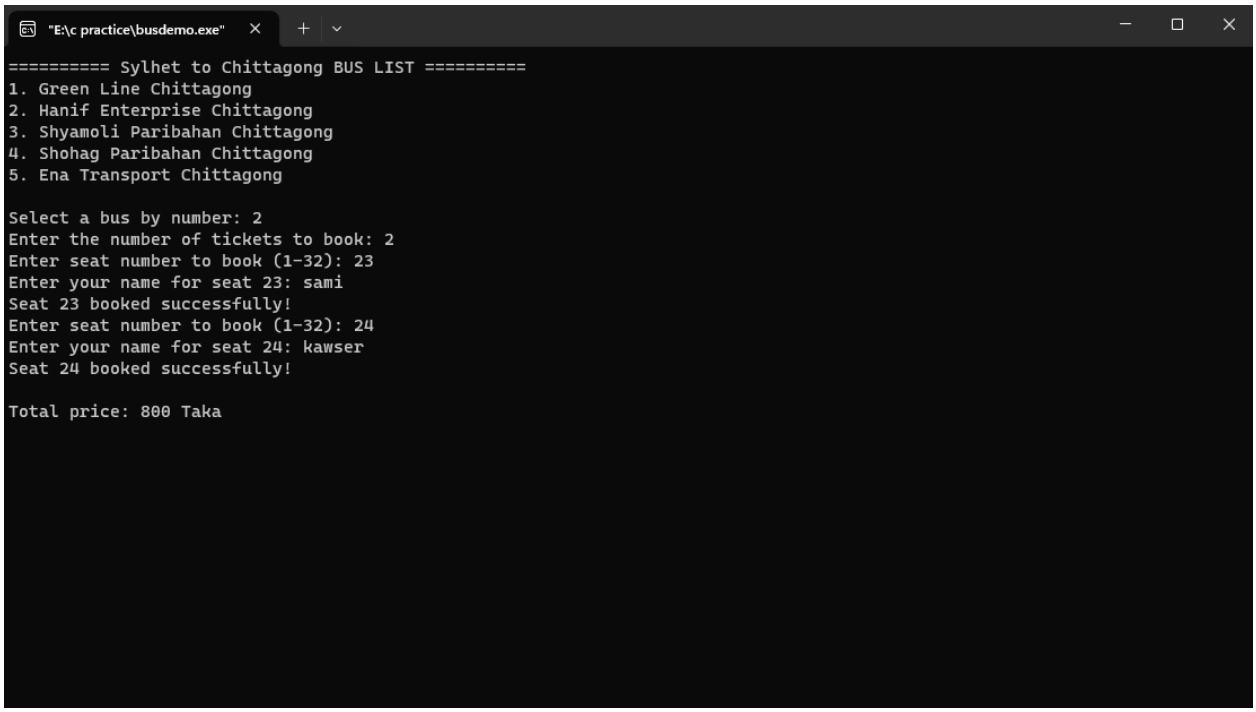
VIEW BUS LIST:



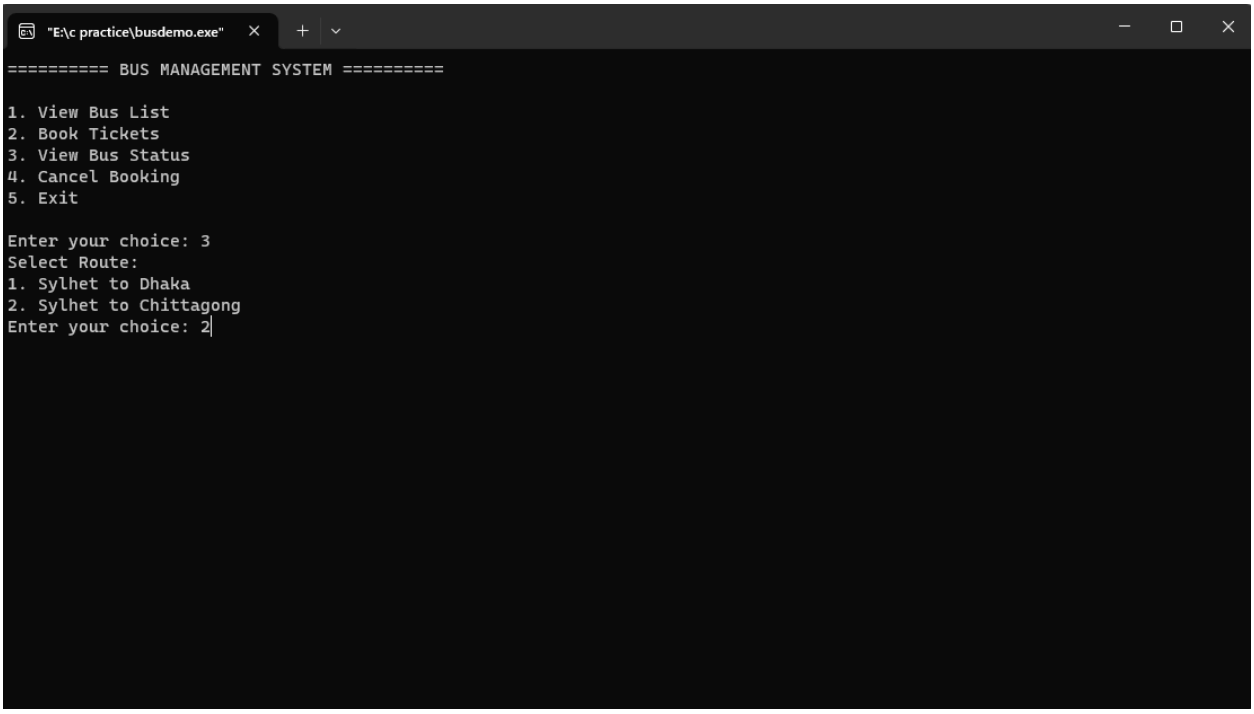


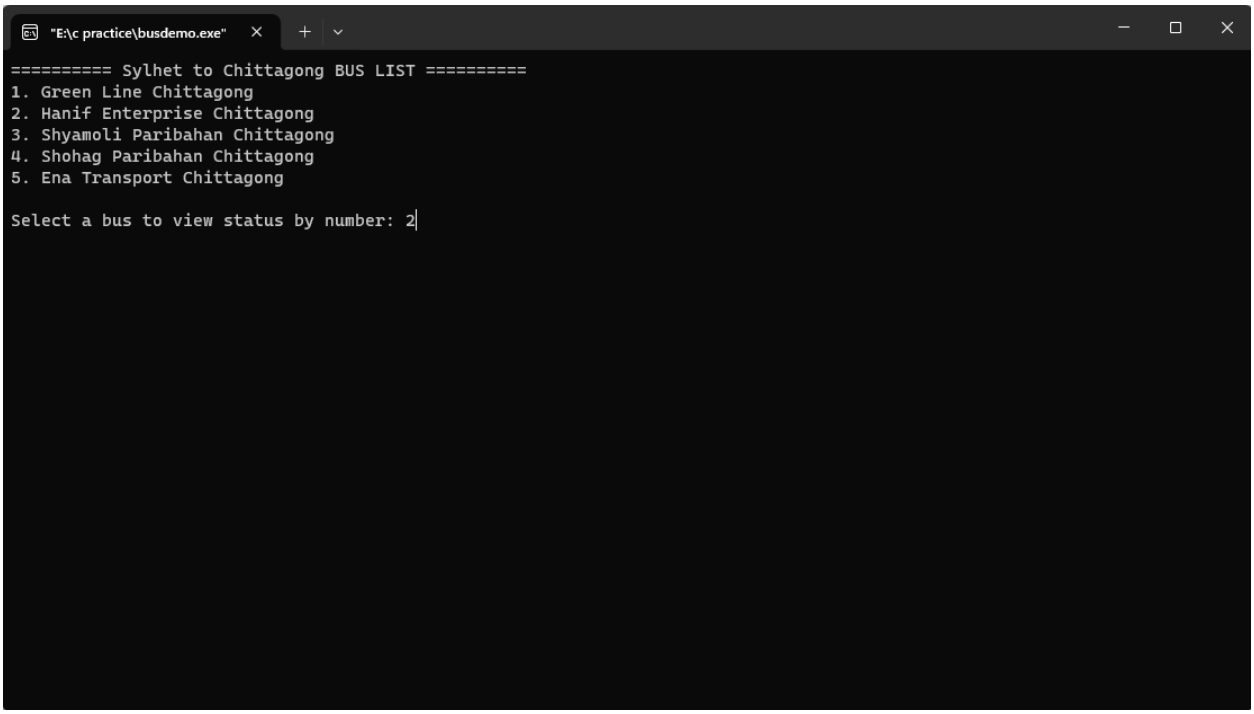
TICKET BOOKING FEATURE:

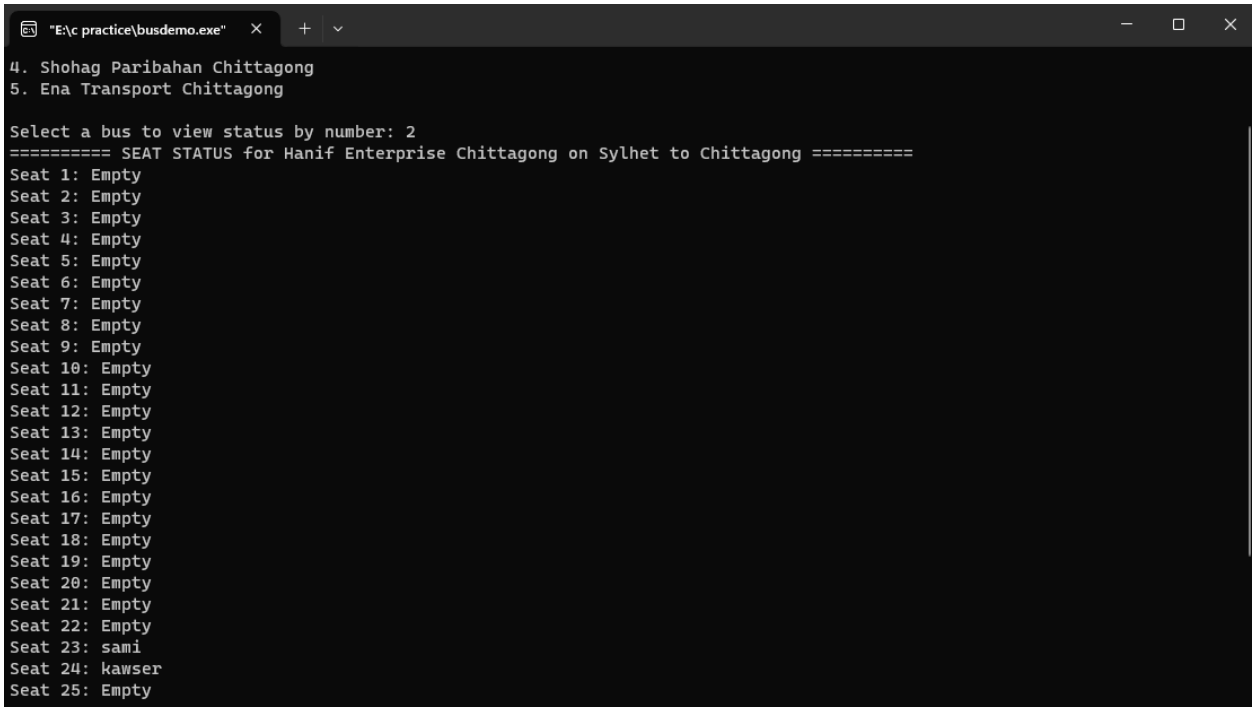




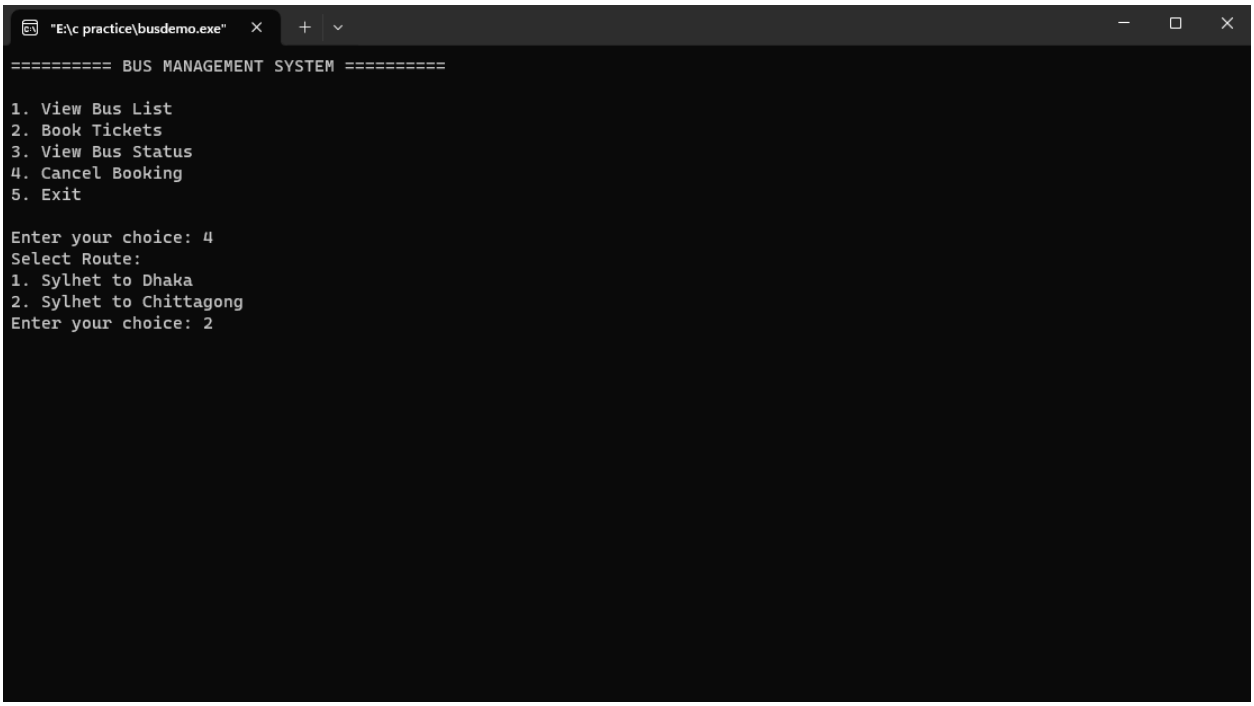
VIEW BUS STATUS:

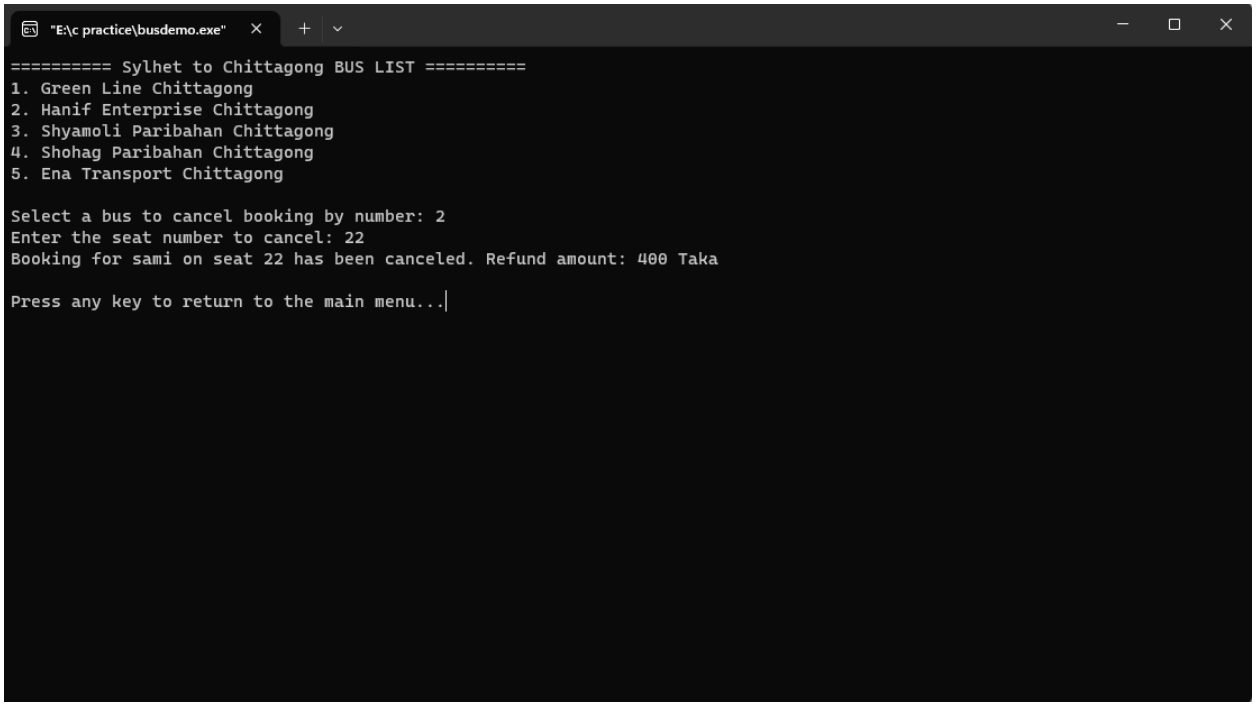




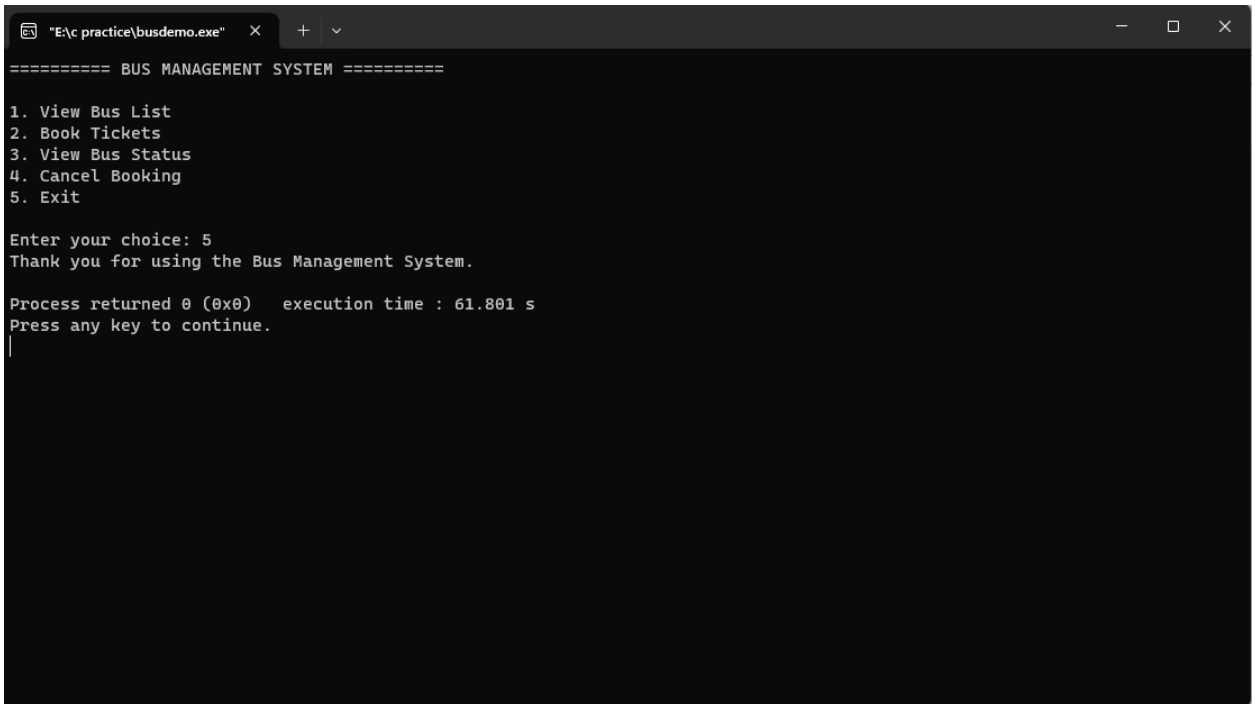


CANCEL BOOKING FEATURE:




"E:\c practice\busdemo.exe"
========== Sylhet to Chittagong BUS LIST ==========
1. Green Line Chittagong
2. Hanif Enterprise Chittagong
3. Shyamoli Paribahan Chittagong
4. Shohag Paribahan Chittagong
5. Ena Transport Chittagong
Select a bus to cancel booking by number: 2
Enter the seat number to cancel: 22
Booking for sami on seat 22 has been canceled. Refund amount: 400 Taka
Press any key to return to the main menu...

EXIT MANU:


"E:\c practice\busdemo.exe"
========== BUS MANAGEMENT SYSTEM ==========
1. View Bus List
2. Book Tickets
3. View Bus Status
4. Cancel Booking
5. Exit
Enter your choice: 5
Thank you for using the Bus Management System.
Process returned 0 (0x0)   execution time : 61.801 s
Press any key to continue.

4.Limitations:

While the Bus Management System provides a range of essential features, there are several limitations due to its design and scope:

Limited Route Options: The system currently supports only two routes (Sylhet to Dhaka and Sylhet to Chittagong) with a fixed number of buses for each route, limiting its applicability to other routes and destinations.

Static Bus Names: The bus names are hard-coded into the system, making it challenging to add or modify bus options without altering the source code.

No Real-Time Data: Since the system is a command-line-based application, it lacks real-time data integration, making it suitable only for offline use in a controlled environment.

Basic User Interface: The text-based, command-line interface may be challenging for users unfamiliar with the console environment, limiting accessibility and user experience.

Limited Data Persistence: The system does not have database integration or file-based persistence, meaning all reservation data is reset when the program restarts.

5.Future Scope:

With enhancements and additions, the Bus Management System could be expanded into a robust, real-world application. Some key areas for potential improvement include:

Database Integration: Incorporating a database would enable data persistence and facilitate real-time updates, ensuring that booking information remains intact across sessions.

Expanded Route and Bus Options: Adding flexibility for more routes, buses, and dynamic bus information updates would improve the system's versatility and broaden its use.

Enhanced User Interface: Transitioning from a command-line interface to a graphical or web-based interface would increase user accessibility and improve interaction, making it more suitable for end-users.

Automated Seat Assignment: Automating the seat assignment process, where the system suggests available seats, could enhance booking convenience.

Fare Management System: Expanding the fare system to include discounts, promotions, and different fare classes would enhance functionality and appeal to a broader customer base.

Mobile and Web Application Development: Developing a mobile or web-based version of the system would allow users to book tickets remotely, bringing the system closer to a real-world, comprehensive solution.

6.Conclusion:

The Bus Management System is a foundational project that offers a practical approach to understanding bus reservation systems through C programming. By addressing the current limitations and pursuing future developments, this system has the potential to evolve into a robust and fully-functional bus reservation management platform.