A CAPSTONE PROJECT REPORT

CSA4319-Internet Programming for Secured Web Application

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In Partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING IN COMPUTER SCIENCE

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DECLARATION

We, **B.Manjunath Reddy,K.Kasseswar Reddy,S.Akan, M.Bhanu Varadhan Reddy** has students of **Bachelor of Engineering in Information Technology**, Department of Computer Science and Engineering, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai, hereby declare that the work presented in this Capstone Project Work entitled **Automated Network Security Testing Tools** is the outcome of our own bonafide work and is correct to the best of our knowledge and this work has been undertaken taking care of Engineering Ethics.

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Date:

Place:chennai

CERTIFICATE

This is to certify that the project entitled **"Bus Ticket Booking"** submitted by **B.Manjunath Reddy,K.Kasseswar Reddy,S.Akan, M.Bhanu Varadhan Reddy** has been carried out under my supervision. Theproject has been submitted as per the requirements in the current semester of

B. E Computer Science.

Teacher-in-charge

Rajagopal K

S.NO	TOPICS
1	**Abstract**
2	**Introduction**
3	**Project Description**
4	**Problem Description**
5	**Tool Description**
6	**Operations**
7	**Approach / Module Description / Functionalities**
8	**Implementation**
9	**Output**
10	**Conclusion & References**

Abstract:

Bus ticket booking systems have revolutionized public transportation by streamlining the process of reserving seats for passengers. These systems allow users to book tickets online or via mobile applications, eliminating the need for physical visits to bus terminals. Through a user-friendly interface, passengers can view available routes, select desired seats, make payments, and receive e-tickets. The technology leverages real-time updates to ensure availability accuracy and supports multiple payment gateways for convenience. Additionally, it improves efficiency for bus operators, reducing manual work, optimizing seat management, and enhancing the overall customer experience.

Keywords: : OBTRS, Electronic Ticketing, ITC, Reservation, Transportation.

Introduction:

The bus ticket booking system has revolutionized the way passengers reserve seats for travel, significantly improving convenience and accessibility. Traditionally, passengers had to visit bus stations, wait in long queues, and rely on paper tickets, which was time-consuming and often inefficient. With the rise of digital platforms, these systems now enable users to book tickets from anywhere, anytime, through websites or mobile applications. This digital shift not only saves time but also offers users real-time information on seat availability, bus schedules, routes, and fares.

In addition to streamlining the booking process, bus ticketing platforms often feature customer-friendly options like seat selection, fare comparison, and the ability to modify or cancel bookings with ease. Payment processes are also simplified through the integration of multiple payment methods, including online wallets, credit/debit cards, and net banking, ensuring a seamless and secure transaction.

For bus operators, these systems offer tools to manage reservations, optimize seat utilization, and monitor real-time data. Furthermore, with the growing emphasis on sustainability, digital tickets have reduced the reliance on paper, contributing to eco-friendly practices. As public transportation continues to grow, these systems not only enhance the customer experience but also streamline operations for bus companies, making the travel industry more efficient and scalable.

For users, the system offers a variety of features like registration, login, adding money to an eWallet, and buying eTickets. Users can apply for new bus passes, renew existing ones, and access both student and route passes. They can also retrieve QR codes for their passes and calculate the expected arrival time of buses.

Project Description:

- In many public transportation systems, the manual management of bus ticket bookings can be inefficient, time-consuming, and prone to human error. Different types of passengers, such as daily commuters, occasional travelers, and long-distance passengers, require customized booking options. However, existing manual systems often lack the flexibility to cater to these varied needs. For daily commuters, it is important to handle frequent bookings with ease, while for long-distance passengers, features like seat selection, travel duration, and real-time bus information must be managed efficiently.

- One of the key challenges in manual ticket booking is the availability of real-time data. Without an automated system, passengers may not have accurate information about bus schedules, seat availability, or delays. This lack of real-time data can result in overbooking, missed buses, and poor customer experiences. Moreover, the payment process can be cumbersome, with limited payment methods and difficulties in tracking transactions, refunds, and cancellations.

- From an administrative perspective, bus operators face challenges in managing seat inventories, optimizing routes, and ensuring timely departures. The process of generating tickets, tracking available seats, and managing cancellations manually can lead to inefficiencies, errors, and delays in service. Additionally, managing promotional campaigns, discount offers, and loyalty programs without automation further complicates the process.

- Conductors also struggle with verifying tickets, checking passenger details, and updating bus locations manually. This often results in delays in boarding, ticket verification, and tracking buses, causing inconvenience for both conductors and passengers. Moreover, without real-time tracking, passengers are often left uncertain about the exact arrival time of their buses.

- The absence of an automated solution for booking tickets, managing passenger data, and tracking buses in real-time affects the overall reliability and efficiency of public transportation. The risk of human error also increases, leading to potential discrepancies in ticket verification, seat allocation, and schedule management. Therefore, a streamlined, automated bus ticket booking system is essential to address these challenges and provide an efficient, user-friendly solution for all stakeholders involved.

Problem Description:

The bus ticket booking system aims to address the inefficiencies of traditional ticketing methods by implementing a digital solution using HTML, CSS, and JavaScript, executed through Visual Studio. The system is designed to cater to various user types, such as daily commuters, occasional travelers, and long-distance passengers, by providing a seamless booking experience.

Each booking includes essential details like the passenger's name, contact information, date of travel, seat selection, and fare amount. Passengers can choose routes, view available seats, and make secure payments through multiple methods.

The development process starts with designing an intuitive user interface using HTML and CSS within Visual Studio. This involves creating visually appealing and easy-to-navigate web pages for functions like route selection, seat booking, payment, and user account management. CSS is used to enhance the visual appeal and ensure a cohesive, user-friendly experience across all devices.

JavaScript adds interactivity and functionality to the web pages, such as validating user input, processing payments, and managing the dynamic features of the booking system.

The system includes distinct functionalities for different stakeholders. Administrators can log in to manage bus schedules, routes, and available seats.

They also approve booking requests, generate QR codes for e-tickets, and update bus details such as stops and timings. Users, on the other hand, can register, log in, view bus schedules, select routes, book tickets, and access their e-tickets via QR codes. They can also track their booked buses in real-time and receive notifications regarding any delays or changes.
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Tool Description:

The Bus Ticket Booking is a comprehensive digital solution designed to streamline the management of bus passes for various user types. Utilizing HTML, CSS, and JavaScript, and executed through Visual Studio, the system offers a user-friendly interface and efficient functionality to address the complexities of bus pass management. The tool provides a flexible, automated approach to handling bus passes, ensuring ease of use for admins, users, and conductors.

User Interface

The user interface is designed with clarity and functionality in mind. It features distinct sections for different user roles: admins, users, and conductors. The design ensures that each user type can easily access and utilize the functionalities relevant to their role.

Admin Interface:
Provides access to login, Boarding and Destination, handle Driver logins, approvebus Tickets, generate QR codes, and create and update bus and route details.

User Interface:
Includes registration, login, eWallet management, bus eTicket purchase, new and , and QR code retrieval.

Conductor Interface:
Allows login, QR code scanning, bus pass ID verification, ticket verification, and bus location updates.

Features:

1. **Customizable Ticket Booking:** The system allows users to select bus routes, dates, times, and preferred seats. Passengers can view available seats, select their desired seating options, and customize their bookings based on their travel preferences.

2. **Real-Time Seat Availability**: The system provides real-time updates on seat availability, ensuring that users only book available seats. This helps avoid overbooking and offers transparency to passengers when selecting seats.

3. **Multiple Payment Options**: Users can choose from various payment methods, including credit/debit cards, online wallets, net banking, and UPI. This flexibility ensures a secure and convenient payment process for all passengers.

4. **Admin Management Tools**: Administrators can manage bus schedules, routes, and available seats. They can also oversee ticket bookings, cancellations, and refunds. The system allows admins to generate QR codes for e-tickets and update bus information, including route details and timings.

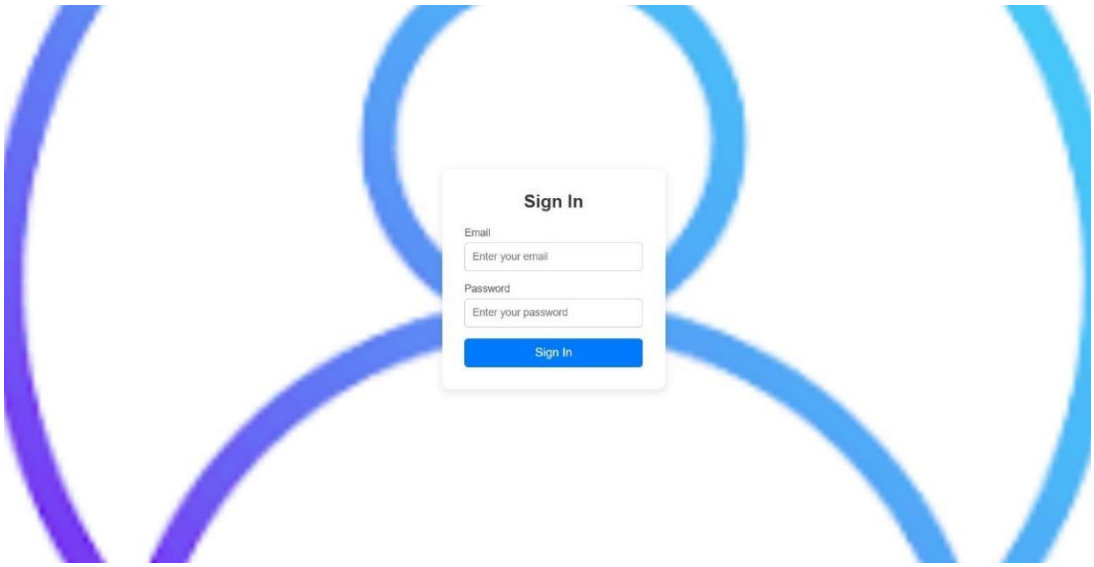
5. **User Functionalities**: Passengers can register, log in, and book bus tickets through the system. They can view bus schedules, select routes, make payments, and access their e-tickets through QR codes. Users can also cancel or modify bookings and receive instant refunds based on cancellation policies.

6. **Conductor Operations**: Conductors can log in to the system to scan passengers' QR codes, verify tickets, and update bus locations in real-time. This helps in maintaining accurate tracking of bus locations and ensuring efficient ticket verification during travel.

Operations:

Admin:

1. Login: Access the admin dashboard with credentials to manage system functions

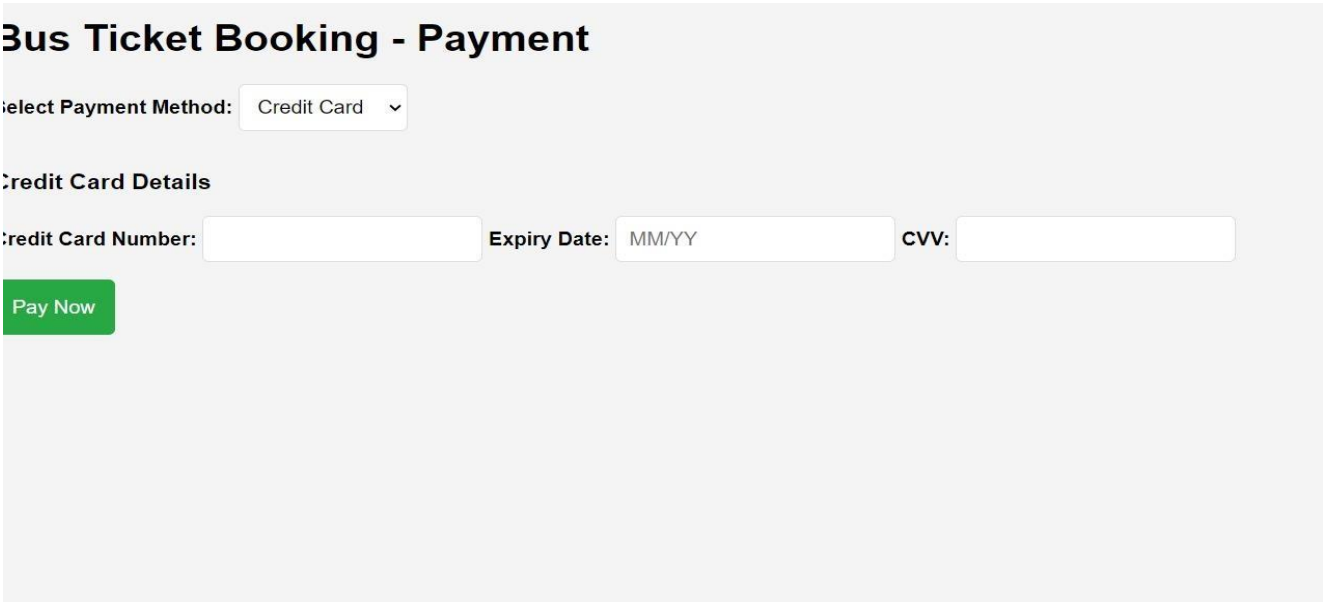


Login Interface:- Passengers can register, log in, and book bus tickets through the system. They can view bus schedules, select routes, make payments, and access their e-tickets through QR codes. Users can also cancel or modify bookings and receive instant refunds based on cancellation policies.

Bus Details: Handle login credentials and access permissions for conductors.

1. **Bus Number and Identification**: Each bus is assigned a unique bus number and ID for easy identification by passengers and conductors, making it easier to select the right bus during the booking process.
2. **Bus Type and Comfort Level**: Information on the type of bus (e.g., regular, semi-sleeper, sleeper, AC, non-AC) is provided, allowing users to choose based on their comfort preferences and budget.
3. **Route Information**: The system displays detailed route information, including starting and ending points, major stops along the route, and estimated travel time for each trip.
4. **Bus Timings and Schedules**: Accurate departure and arrival timings are provided for each bus, along with details on whether the bus runs on specific days or operates daily.
5. **Seat Layout and Availability**: The seating layout of each bus is shown, highlighting available, booked, and reserved seats. Users can select their preferred seats during the booking process.

1. Bus Payment Details: Purchase electronic tickets for bus travel.



Multiple Payment Methods: The system supports a wide range of payment options, including credit cards, debit cards, net banking, mobile wallets (e.g., Google Pay, Apple Pay, Paytm),

Secure Payment Gateway: Payments are processed through secure, encrypted payment gateways, ensuring the safety of financial transactions and protecting users from potential fraud or data breaches.

Payment Confirmation: Upon successful payment, users receive a confirmation message (via email, SMS)
Fare Breakdown: The system provides a detailed breakdown of the fare, including the base fare, applicable taxes, service charges, and any discounts applied. This transparency helps users understand the total cost.

Conductor:

1. Login: Access the conductor dashboard with credentials to manage bus operations.
2. Scan QR: Scan QR codes on bus passes to verify their validity.
3. Verify Bus: Check the authenticity and details of bus passes.

4. Verify Bus Ticket: Confirm the validity of electronic bus tickets.
5. Update Bus Location: Enter real-time updates on the bus's current location to assist with tracking.

Page Descriptions

1. Login Page:

Admin Login: The admin login page allows administrators to enter their credentials (username and password) to access the administrative dashboard. This page typically includes fields for entering login details and a submit button. It may also have links for password recovery or support.

User Login: The user login page provides fields for users to enter their email ID and password to access their personal dashboard. This page may include options for account registration and password recovery.

Driver Login: The conductor login page is similar to the admin and user login pages but is specifically designed for conductors. It includes fields for entering login credentials and may have additional security features.

2. User Page:

Registration: This page allows new users to create an account by filling in personal details such as name, address, email, and password. It typically includes form fields, a submit button, and validation messages.

Dashboard: After logging in, users access their dashboard, which includes options to manage their eWallet, purchase tickets, apply for or renew bus passes, and access their QR codes. The dashboard provides an overview of their account status and recent activities.

E-Wallet: This page allows users to add funds to their eWallet, view their balance, and manage transactions. It includes fields for entering the amount to be added and payment methods.

QR Code Retrieval: Users can access and view their QR codes for bus passes, which can be used for verification purposes.

QR Code Scanning: This page includes a scanner interface for conductors to scan QR codes on bus passes. It processes the scanned information and provides verification results.

Location Update: This page allows conductors to enter and update the current location of the bus. It includes fields for entering location details and may integrate with mapping or tracking system

Approach:

The Bus Ticket Booking Management System is designed using a modular approach to provide a comprehensive and efficient solution for bus pass management. Each operation is defined as an individual function and then integrated into a unified software system. This modularity ensures that functionalities are managed independently, making the software easier to maintain, test, and scale. Below is a detailed breakdown of the approach and functionalities for each user role within the system:

Integration & Execution:

To unify these functions into a comprehensive software application, the following steps are followed:

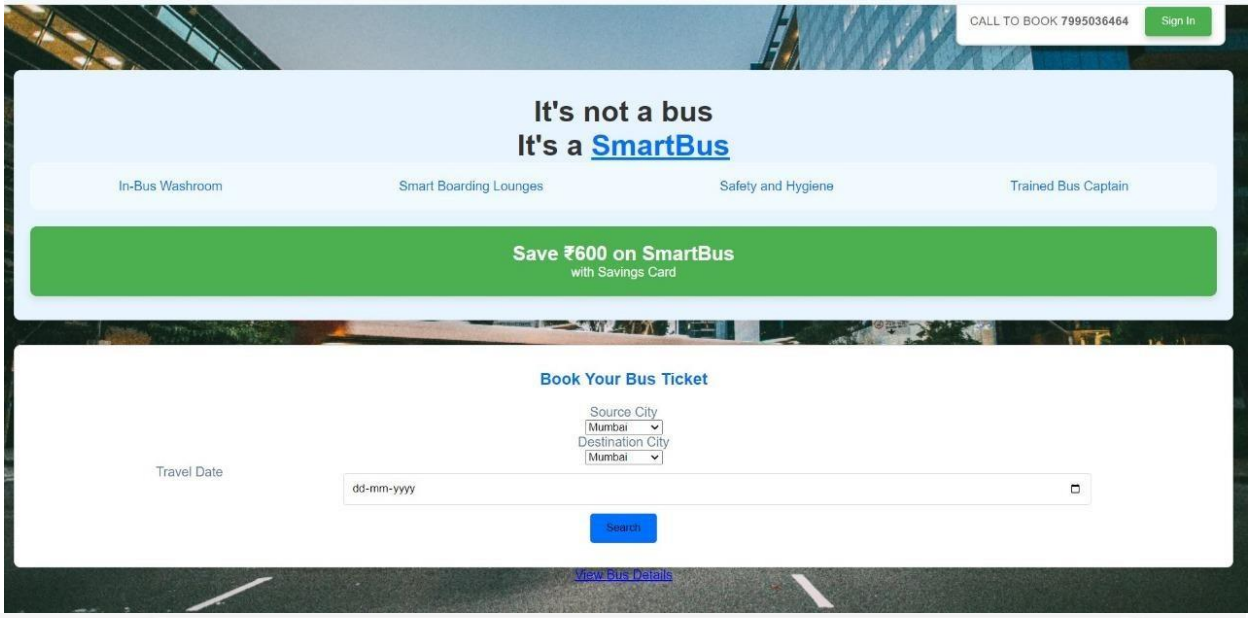
1. Modular Integration: Each function is integrated into its respective module, ensuring that all functionalities work seamlessly together.
2. Unified Interface: A consistent user interface is developed to ensure a smooth experience for admins, users, and conductors, with navigation linking to appropriate functionalities.

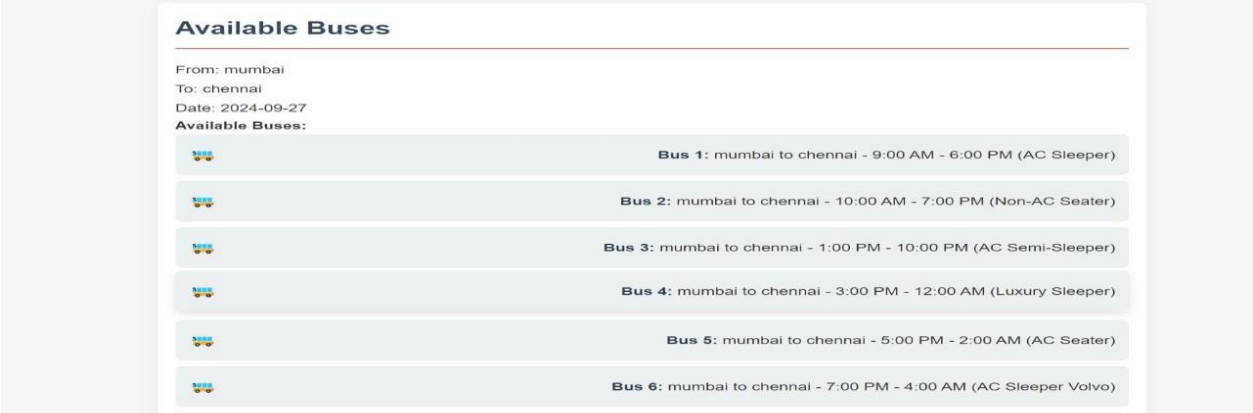
3. Data Management: Centralized data management ensures that user, pass, and route information is handled consistently across the system.
4. Testing and Validation: Each function and module is tested both independently and as part of the integrated system to ensure reliability and accuracy.
5. Deployment: The final software is deployed, offering a fully functional enhances efficiency and user experience in public transportation

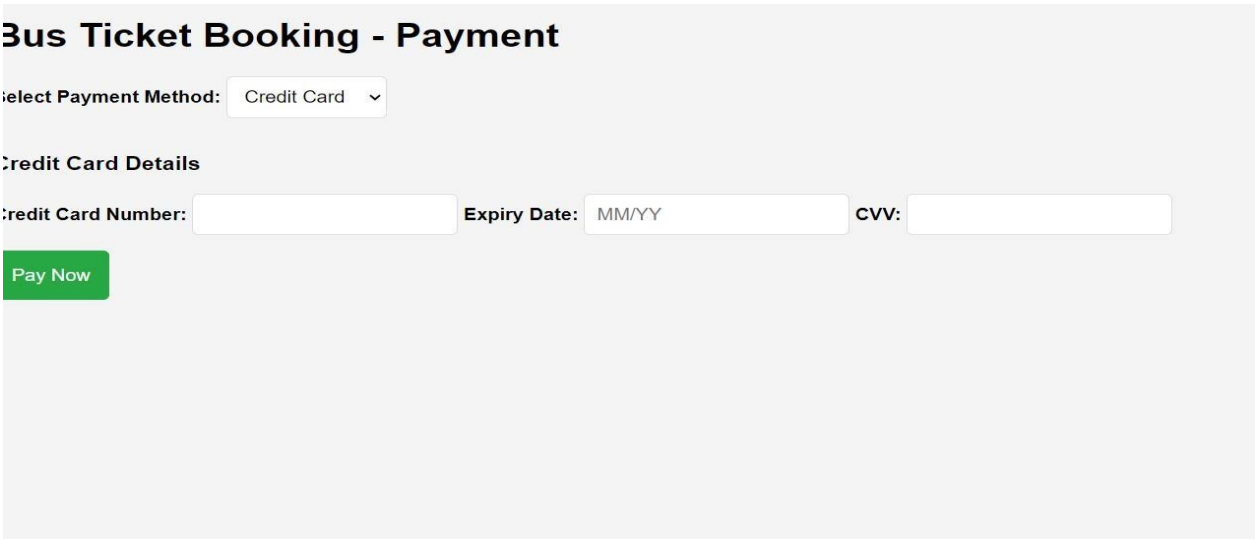
Code Implemetation:

The code implementation for the Bus Ticket Booking Management System has been developed and is available on GitHub. This repository includes all the necessary files and code to build and run the system, encompassing the modular approach outlined in the project. The code is organized into distinct modules for admin, user, and conductor functionalities, each with its specific operations and user interface components. For those interested in reviewing or contributing to the project, the GitHub repository provides detailed documentation and examples of how to set up and execute the system. You can access the repository through the following link: [GitHub Repository](**https://github.com/Karthikyadav999/CSA-4305-IP.git**). This repositoryserves as a comprehensive resource for understanding the code structure, functionalities, and implementation of the Bus Pass Management System

Output:


CALL TO BOOK 7995036464
Sign In
It's not a bus
It's a SmartBus
In-Bus Washroom
Smart Boarding Lounges
Safety and Hygiene
Trained Bus Captain
Save ₹600 on SmartBus
with Savings Card
Book Your Bus Ticket
Source City
Mumbai
Destination City
Mumbai
Travel Date
dd-mm-yyyy
Search
View Bus Details


Available Buses
From: mumbai
To: chennai
Date: 2024-09-27
Available Buses:
Bus 1: mumbai to chennai - 9:00 AM - 6:00 PM (AC Sleeper)
Bus 2: mumbai to chennai - 10:00 AM - 7:00 PM (Non-AC Seater)
Bus 3: mumbai to chennai - 1:00 PM - 10:00 PM (AC Semi-Sleeper)
Bus 4: mumbai to chennai - 3:00 PM - 12:00 AM (Luxury Sleeper)
Bus 5: mumbai to chennai - 5:00 PM - 2:00 AM (AC Seater)
Bus 6: mumbai to chennai - 7:00 PM - 4:00 AM (AC Sleeper Volvo)


Bus Ticket Booking - Payment
Select Payment Method:
Credit Card
Credit Card Details
Credit Card Number:
Expiry Date:
MM/YY
CVV:
Pay Now

Conclusion:

The Bus Ticket Booking System offers an efficient, automated solution for managing the complexities of bus ticket reservations, catering to a wide range of users including daily commuters, occasional travelers, and long-distance passengers.

By digitizing the booking process, the system reduces the need for manual intervention, minimizes human errors, and significantly enhances the overall user experience.

With features like real-time seat availability, multiple payment options, e-ticket generation with QR codes, and real-time bus tracking, the system provides a seamless and reliable booking experience for users. Administrators benefit from simplified bus schedule management, route optimization, and easy ticket approval processes, while conductors are equipped with tools for quick ticket verification and real-time location updates.

The modular design ensures that the system is scalable and easy to maintain, allowing for future enhancements and integrations. Overall, the Bus Ticket Booking System modernizes public transportation services, making bus travel more accessible, efficient, and convenient for all stakeholders involved. It lays a strong foundation for continued improvement and adaptation to the evolving needs of commuters and operators alike.

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