



INFINITE COMPUTER SOLUTIONS



Mini Project on

TRAIN TICKET BOOKING SYSTEM

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1. Project Overview:

The Train Booking System is a software application designed to facilitate train ticket booking and management for users and administrators. The system provides functionalities for users to book train tickets, cancel bookings, and view available trains, as well as for administrators to manage train data, including adding, modifying, and deleting trains.

The system uses a SQL Server database to store train information and user bookings.

Technologies Used:

- Programming Language: C#
- Framework: .NET Framework
- Database: SQL Server
- ORM: Entity Framework

2. Project Components:

Database Design:

The project utilizes a relational database system to store and manage data. The database schema consists of three main tables:

- **Trains:** Stores information about trains, including train number, name, class, berths, fare, status, etc.
- **Booking_Data:** Stores booking information such as booking ID, username, train number, class, booking date, etc.
- **Cancellation_Data:** Stores data related to ticket cancellations, including cancellation ID, booking ID, username, train number, cancellation date, etc.

Stored Procedures:

Several stored procedures are implemented in the database to perform specific tasks efficiently. These procedures include adding, modifying, and deleting trains, booking and canceling tickets, and retrieving data.

C# Code:

The application is developed using C# programming language. It consists of several classes and methods to interact with the database and provide user functionalities. The key components of the C# code include:

- **TrainFunctions:** A class containing methods to interact with the database, such as adding, modifying, and deleting trains, booking and canceling tickets, and retrieving train details.
- **Program:** The main class responsible for user interaction and menu navigation. It provides options for users to access various functionalities of the system, such as viewing trains, booking tickets, and canceling bookings.

3. Features and Functionalities:

User Features:

- View all available trains with details such as train number, name, class, berths, fare, and status.
- Book train tickets by providing necessary details such as username, train number, class, and number of tickets.
- Cancel booked tickets by providing the username, train number, and number of tickets to cancel.

Admin Features:

- Add new trains to the system by entering relevant details such as train number, name, class, berths, fare, source, destination, date of travel, and status.
- Modify existing train details including train name, class, berths, fare, source, destination, date of travel, and status.
- Delete trains from the system by specifying the train number.

Additional Features:

- Authentication: Users are required to log in as admin with an authorization ID to access admin functionalities.
- Data Validation: Input data is validated to ensure accuracy and prevent errors.
- Error Handling: The system handles errors gracefully and provides appropriate error messages to users.

Console Tables in C#:

Console tables in C# are a useful tool for displaying tabular data in the console application. They provide a structured and visually appealing way to present data, making it easier for users to read and understand. Console tables organize data into rows and columns, allowing for clear delineation and alignment of information.

Steps to Install ConsoleTables Package:

- Open Visual Studio and navigate to your project.
- Right-click on your project in the Solution Explorer and select "Manage NuGet Packages"

- In the NuGet Package Manager, search for "ConsoleTables" in the Browse tab.
- Select the ConsoleTables package from the search results.
- Click on the "Install" button to install the package into your project.
- Once the installation is complete, you can start using the ConsoleTables library in your C# code to create and display console tables.

4. Development Environment:

- Database Management System: Microsoft SQL Server
- Programming Language: C#
- Integrated Development Environment (IDE): Visual Studio

5. Additional Information:

Modify Train:

- Allows the admin to modify either the entire data of a train or leave fields blank to alter only specific columns for that train.

Delete Train:

- Sets the train to a "Not Active" state upon entering the train number, effectively removing it from active service.

C# Implementation:

- All SQL procedures with parameters are encapsulated in a separate class file named TrainFunctions for improved code readability and accessibility.

Admin Password:

- The admin password is hardcoded as "2317" for authentication purposes. Upon incorrect entry, the system returns to the main screen.

Console Tables Integration:

- Console tables are utilized to display train data without requiring manual adjustment for table alignment, enhancing readability.

Menu Looping:

- Upon selecting either the admin or user option from the main screen, the code loops back to those respective menu options after completing each functionality.

Additional Feature:

- Users have the option to cancel a specific number of tickets if desired, offering flexibility in managing bookings.

Ticket Information Display:

- Upon booking a ticket, details are printed on the screen for the user's reference, including the train number, total fare, and journey details.

Fare and Refund Information:

- The total fare and refunded amount are displayed to the user after canceling tickets, ensuring transparency in transactions.

6. Output Snapshots

	Train_no	Train_name	Class	Total_Berths	Available_Berths	Source_loc	Destination	Date_of_Travel	Fare	Train_Status
1	12606	VandeBharath	1stAC	90	90	Mysore	Chennai	2024-05-28	1850	Not Active
2	12658	Chennai Mail	1stAC	70	77	Bangalore	Chennai	2024-05-11	900	Active
3	12658	Chennai Mail	2ndAC	150	155	Bangalore	Chennai	2024-05-11	750	Active
4	12658	Chennai Mail	SL	300	305	Bangalore	Chennai	2024-05-11	450	Active
5	12677	Emakulam Exp	1stAC	70	68	Bangalore	Emakulam Jn	2024-05-20	1000	Active
6	12677	Emakulam Exp	2ndAC	80	80	Bangalore	Emakulam Jn	2024-05-20	800	Active
7	12677	Emakulam Exp	SL	200	200	Bangalore	Emakulam Jn	2024-05-20	350	Active
8	12723	Rajdhani Exp	1stAC	60	60	Howrah Jn	New Delhi	2024-05-18	2000	Active
9	12723	Rajdhani Exp	2ndAC	160	156	Howrah Jn	New Delhi	2024-05-18	1400	Active
10	12723	Rajdhani Exp	SL	280	280	Howrah Jn	New Delhi	2024-05-18	800	Active

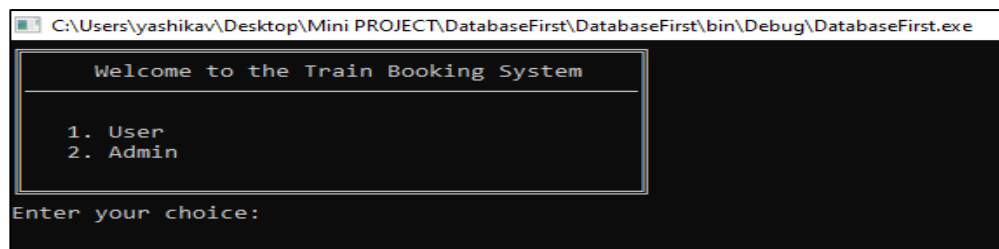
Trains table in SQL

	Book_ID	UserName	Train_no	Class	Booking_Date	No_of_Tickets	Total_Fare
1	100	Yashika	12677	1stAC	2024-04-12	2	2000
2	101	Reena	12658	SL	2024-04-12	5	2250
3	102	Seema	12658	1stAC	2024-04-12	3	2700
4	103	Caroline	12723	2ndAC	2024-04-12	4	5600
5	105	Elena	12658	2ndAC	2024-04-12	3	2250

Booking_Data table in SQL

	Canc_ID	Book_ID	UserName	Train_no	Canc_Date	No_tickets_Canc	Refund_Amount
1	200	101	Reena	12658	2024-04-12	3	900
2	201	101	Reena	12658	2024-04-12	3	900
3	202	101	Reena	12658	2024-04-12	3	900
4	203	105	Elena	12658	2024-04-12	1	1500

Cancellation_Data table in SQL



Main Screen


```
C:\Users\yashikav\Desktop\Mini PROJECT\DatabaseFirst\DatabaseFirst\bin\Debug\DatabaseFirst.exe

Welcome to the Train Booking System

1. User
2. Admin

Enter your choice:
2

Enter Authorization ID for admin:
2317

Admin Menu

a. Add train
b. Modify train
c. Delete train
d. Exit

Enter your choice:
```

Admin login and Menu

```
C:\Users\yashikav\Desktop\Mini PROJECT\DatabaseFirst\DatabaseFirst\bin\Debug\DatabaseFirst.exe

Welcome to the Train Booking System

1. User
2. Admin

Enter your choice:
2

Enter Authorization ID for admin:
2212

Sorry, Incorrect password.

Welcome to the Train Booking System

1. User
2. Admin

Enter your choice:
```

Admin password

```
C:\Users\yashikav\Desktop\Mini PROJECT\DatabaseFirst\DatabaseFirst\bin\Debug\DatabaseFirst.exe
2317
Admin Menu
a. Add train
b. Modify train
c. Delete train
d. Exit
Enter your choice:
a
Enter Train No:
12606
Enter Train Name:
VandeBharath
Enter Class:
1stAC
Enter Total Berths:
90
Enter Available Berths:
90
Enter Source:
Mysore
Enter Destination:
Chennai
Enter Date of Travel (YYYY-MM-DD):
2024-05-28
Enter Fare:
1850
Enter Train Status (Active/Not Active):
Active
Train added successfully!
```

Admin Add Train

```
C:\Users\yashikav\Desktop\Mini PROJECT\DatabaseFirst\DatabaseFirst\bin\Debug\DatabaseFirst.exe

Admin Menu
a. Add train
b. Modify train
c. Delete train
d. Exit

Enter your choice:
c

Enter Train No to delete:
12606

Train deleted successfully!
```

Admin Delete Train

```
C:\Users\yashikav\Desktop\Mini PROJECT\DatabaseFirst\DatabaseFirst\bin\Debug\DatabaseFirst.exe

Train deleted successfully!

Admin Menu
a. Add train
b. Modify train
c. Delete train
d. Exit

Enter your choice:
b

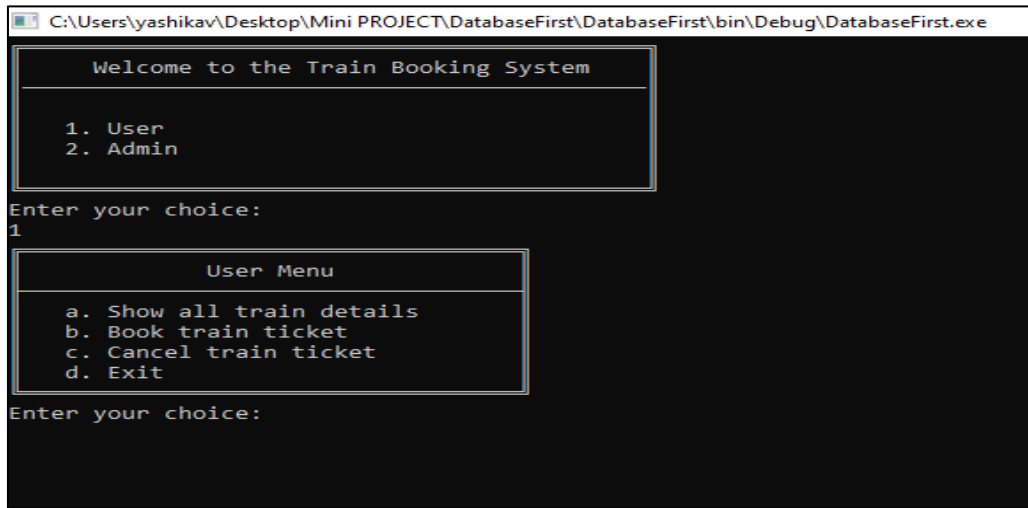
Enter Train Numner to modify:
12677

For the Following Data Please (Enter value or leave blank) to keep current value

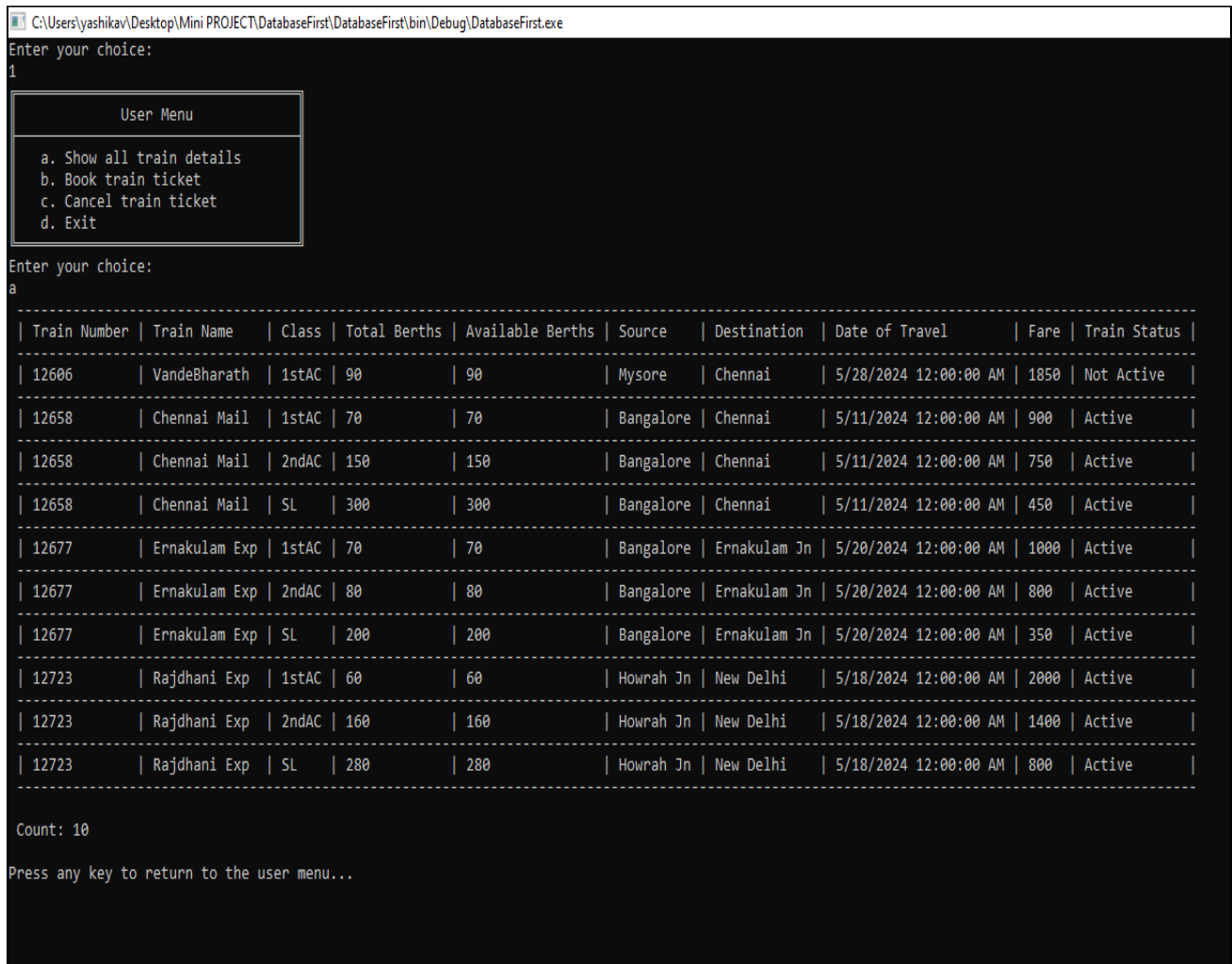
Enter New Train Name:
Enter New Class:
Enter New Total Berths:
Enter New Available Berths:
Enter New Source:
Enter New Destination:
Enter New Date of Travel:
Enter New Fare:
Enter New Train Status:
Active

Train Data modified successfully!
```

Admin Modify Train



User Menu



User- Show All Trains data

```
C:\Users\yashikav\Desktop\Mini PROJECT\DatabaseFirst\DatabaseFirst\bin\Debug\DatabaseFirst.exe

Enter your choice:
1
  User Menu
  a. Show all train details
  b. Book train ticket
  c. Cancel train ticket
  d. Exit

Enter your choice:
b

Enter your name:
Elena

Enter Train Number:
12658

Enter Class:
2ndAC

Enter Number of Tickets:
3

Do you want to proceed to payment? (Y/N)
Y

Hi Elena
TRAIN NUMBER: 12658
TOTAL FARE: 2250
Your ticket from Bangalore to Chennai has been booked.
Have a Safe Journey!...
```

User Booking ticket

```
C:\Users\yashikav\Desktop\Mini PROJECT\DatabaseFirst\DatabaseFirst\bin\Debug\DatabaseFirst.exe

Enter your choice:
1
  User Menu
  a. Show all train details
  b. Book train ticket
  c. Cancel train ticket
  d. Exit

Enter your choice:
b

Enter your name:
Yashika

Enter Train Number:
12606

Enter Class:
S1

Enter Number of Tickets:
2

Do you want to proceed to payment? (Y/N)
Y
Sorry, not enough tickets available or Train in NOT ACTIVE Status
Please check the display and Book Tickets for ACTIVE trains only.
```

User Booking Ticket Failed

```
C:\Users\yashikav\Desktop\Mini PROJECT\DatabaseFirst\DatabaseFirst\bin\Debug\DatabaseFirst.exe

User Menu
a. Show all train details
b. Book train ticket
c. Cancel train ticket
d. Exit

Enter your choice:
c
Enter your name:
Elena

Enter Train Number of the booked ticket:
12658

Enter Number of Tickets to cancel:
1

Hi Elena
Train Number: 12658
Your ticket(s) from Bangalore to Chennai have been cancelled.
Refunded Amount: 1500
```

User Cancel Ticket

```
C:\Users\yashikav\Desktop\Mini PROJECT\DatabaseFirst\DatabaseFirst\bin\Debug\DatabaseFirst.exe

Sorry, not enough tickets available or Train not in Active Status
Please check the display and Book again.

User Menu
a. Show all train details
b. Book train ticket
c. Cancel train ticket
d. Exit

Enter your choice:
c
Enter your name:
Rithu

Enter Train Number of the booked ticket:
1234

Enter Number of Tickets to cancel:
2

Ticket not found or cancellation failed.
```

User Cancel ticket Failed

7. Future Enhancements:

- Implementing user authentication and authorization for enhanced security.
- Integrating payment gateways for online ticket booking.
- Adding features such as seat selection and train schedule information.
- Enhancing the user interface for better user experience.

8. Conclusion:

The Train Booking System is a comprehensive software solution designed to streamline the process of booking and managing train tickets. It offers a user-friendly interface for both users and administrators, along with robust functionalities and features. With further enhancements and refinements, the system can become a valuable tool for railway operators and passengers alike.