# Bus Ticket Booking System - Database Schema (With Unique Constraints and Transactions)

## Users

|  |  |  |
| --- | --- | --- |
| Column | Data Type | Description |
| UserID | INT (PK) | Unique identifier for each user |
| Username | VARCHAR(50) | Username for login |
| PasswordHash | VARCHAR(255) | Hashed password |
| Email | VARCHAR(100 UNIQUE) | User's unique email address |
| Phone | VARCHAR(15 UNIQUE) | User's unique phone number |
| UserType | VARCHAR(20) | Defines if user is 'Admin' or 'Passenger' |
| CreatedDate | DATETIME | Account creation date |
| WalletBalance | DECIMAL(10,2) | Current balance in the user's wallet |
| DiscountPercentage | DECIMAL(5,2) | Percentage discount applied on bookings |

## Transactions

|  |  |  |
| --- | --- | --- |
| Column | Data Type | Description |
| TransactionID | INT (PK) | Unique identifier for each transaction |
| UserID | INT (FK) | Refers to Users.UserID |
| TransactionDate | DATETIME | Date and time of the transaction |
| Amount | DECIMAL(10,2) | Amount involved in the transaction |
| TransactionType | VARCHAR(50) | Type of transaction (e.g., 'Deposit', 'Booking', 'Discount') |
| Description | VARCHAR(255) | Details about the transaction |

## Buses

|  |  |  |
| --- | --- | --- |
| Column | Data Type | Description |
| BusID | INT (PK) | Unique identifier for each bus |
| BusNumber | VARCHAR(20) | Bus registration number |
| Capacity | INT | Total seating capacity |
| BusType | VARCHAR(50) | Type of bus (e.g., AC, Sleeper) |
| OperatorName | VARCHAR(100) | Bus operator's name |

## Routes

|  |  |  |
| --- | --- | --- |
| Column | Data Type | Description |
| RouteID | INT (PK) | Unique identifier for each route |
| StartLocation | VARCHAR(100) | Starting point of the route |
| EndLocation | VARCHAR(100) | Endpoint of the route |
| Distance | DECIMAL(8,2) | Distance between start and end (km) |
| EstimatedTime | VARCHAR(50) | Estimated travel time |

## Schedules

|  |  |  |
| --- | --- | --- |
| Column | Data Type | Description |
| ScheduleID | INT (PK) | Unique identifier for each schedule |
| BusID | INT (FK) | Refers to Buses.BusID |
| RouteID | INT (FK) | Refers to Routes.RouteID |
| DepartureTime | DATETIME | Scheduled departure time |
| ArrivalTime | DATETIME | Scheduled arrival time |
| Fare | DECIMAL(10,2) | Ticket fare for the route |

## Bookings

|  |  |  |
| --- | --- | --- |
| Column | Data Type | Description |
| BookingID | INT (PK) | Unique identifier for each booking |
| UserID | INT (FK) | Refers to Users.UserID |
| ScheduleID | INT (FK) | Refers to Schedules.ScheduleID |
| BookingDate | DATETIME | Date of booking |
| TotalAmount | DECIMAL(10,2) | Total amount for the booking |
| BookingStatus | VARCHAR(50) | Status (e.g., Confirmed, Cancelled) |

## Seats

|  |  |  |
| --- | --- | --- |
| Column | Data Type | Description |
| SeatID | INT (PK) | Unique identifier for each seat |
| ScheduleID | INT (FK) | Refers to Schedules.ScheduleID |
| SeatNumber | INT | Seat number on the bus |
| IsAvailable | BIT | Indicates if the seat is available |

## Payments

|  |  |  |
| --- | --- | --- |
| Column | Data Type | Description |
| PaymentID | INT (PK) | Unique identifier for each payment |
| BookingID | INT (FK) | Refers to Bookings.BookingID |
| PaymentDate | DATETIME | Date of the payment |
| Amount | DECIMAL(10,2) | Amount paid |
| PaymentMethod | VARCHAR(50) | Method (e.g., Credit Card, PayPal) |
| PaymentStatus | VARCHAR(50) | Status (e.g., Paid, Pending, Failed) |

## Cancellations

|  |  |  |
| --- | --- | --- |
| Column | Data Type | Description |
| CancellationID | INT (PK) | Unique identifier for each cancellation |
| BookingID | INT (FK) | Refers to Bookings.BookingID |
| CancellationDate | DATETIME | Date of cancellation |
| RefundAmount | DECIMAL(10,2) | Amount refunded |
| Reason | VARCHAR(255) | Reason for cancellation |

## Feedback

|  |  |  |
| --- | --- | --- |
| Column | Data Type | Description |
| FeedbackID | INT (PK) | Unique identifier for feedback |
| BookingID | INT (FK) | Refers to Bookings.BookingID |
| Rating | INT | Rating out of 5 |
| Comments | TEXT | User comments |
| FeedbackDate | DATETIME | Date of feedback |