**Project Name: EstatePro**

**1. User Management**

**This module handles user roles, authentication, and access control.**

**User Roles:**

* **Admin: Manages system settings, users, properties, and transactions.**
* **Agents: Lists properties, manages bookings, and handles inquiries.**
* **Buyers: Searches for properties, schedules appointments, and makes purchases.**
* **Sellers: Lists properties for sale or rent.**
* **Tenants: Rents properties and manages lease agreements.**

**Features:**

* **User Registration & Login (with email verification & password hashing)**
* **Role-based Access Control (RBAC)**
* **Profile Management**
* **Authentication (JWT or OAuth-based login)**
* **Password Reset & Security Features**

**2. Property Management**

**This module allows users to manage property listings, categories, and statuses.**

**Features:**

* **Add, Edit, and Delete Property Listings**
* **Property Categories (Apartment, House, Villa, Commercial, Land, etc.)**
* **Property Status Management (Available, Sold, Rented)**
* **Property Image Upload & Gallery**
* **Property Details (Location, Price, Area, Amenities, etc.)**
* **Property Owner/Agent Assignments**

**3. Booking & Transactions**

**Handles property bookings, payment processing, and financial transactions.**

**Features:**

* **Property Booking Requests**
* **Booking Approval & Rejection**
* **Payment Processing (Credit Card, UPI, Bank Transfer, etc.)**
* **Transaction History & Receipts**
* **Booking Cancellation & Refunds**
* **Booking Status Management (Pending, Confirmed, Canceled)**

**4. Leasing & Renting**

**Manages rental agreements, rent collection, and tenant records.**

**Features:**

* **Lease Agreement Management**
* **Tenant Registration & Management**
* **Monthly Rent Collection & Payment Tracking**
* **Rental Agreement Terms & Conditions**
* **Rent Due Notifications**
* **Lease Expiry Alerts**

**5. Appointment & Inquiry Management**

**Handles property visit scheduling and user inquiries.**

**Features:**

* **Appointment Booking System (for buyers & tenants)**
* **Agent/Owner Confirmation System**
* **Appointment Calendar Integration**
* **Inquiry Submission for Properties**
* **Inquiry Management & Response Tracking**
* **Automated Email/SMS Notifications for Confirmations**

**6. Review & Rating System**

**Allows users to provide feedback on properties and agents.**

**Features:**

* **Property Reviews & Ratings (1-5 stars)**
* **Agent Reviews & Ratings**
* **Comment & Feedback System**
* **Review Approval & Moderation (Admin Control)**
* **User Review History**

**7. Reports & Analytics**

**Provides insights into sales, bookings, and market trends.**

**Features:**

* **Sales Reports (Daily, Weekly, Monthly, Yearly)**
* **Booking & Transaction Analytics**
* **Agent Performance Reports**
* **Revenue & Income Reports**
* **Market Trend Analysis (Price Fluctuations, Demand Forecasting)**
* **Export Reports in PDF/CSV Format**

**Table Structure of EstatePro Application:**

**1. User Management**

**Overview:**

Manages different user roles such as Admin, Agents, Buyers, Sellers, and Tenants with authentication and authorization.

**User Roles:**

* **Admin:** Manages all users, properties, transactions, and reports.
* **Agent:** Lists and manages properties.
* **Buyer:** Views and books properties.
* **Seller:** Lists properties for sale or rent.
* **Tenant:** Rents properties and makes payments.

**Database Structure:**

**Users Table**

CREATE TABLE Users (

UserId INT PRIMARY KEY AUTO\_INCREMENT,

FirstName VARCHAR(50) NOT NULL,

LastName VARCHAR(50) NOT NULL,

Email VARCHAR(100) UNIQUE NOT NULL,

PasswordHash VARCHAR(255) NOT NULL,

PhoneNumber VARCHAR(15),

Role ENUM('Admin', 'Agent', 'Buyer', 'Seller', 'Tenant') NOT NULL,

ProfilePicture VARCHAR(255),

CreatedAt TIMESTAMP DEFAULT CURRENT\_TIMESTAMP

);

**2. Property Management**

**Overview:**

Manages property listings, types, categories, and status.

**Database Structure:**

**Properties Table**

CREATE TABLE Properties (

PropertyId INT PRIMARY KEY AUTO\_INCREMENT,

Title VARCHAR(255) NOT NULL,

Description TEXT,

Price DECIMAL(15,2) NOT NULL,

Address VARCHAR(255) NOT NULL,

City VARCHAR(100),

State VARCHAR(100),

ZipCode VARCHAR(10),

PropertyType ENUM('Apartment', 'House', 'Land', 'Office', 'Villa') NOT NULL,

Status ENUM('Available', 'Sold', 'Rented') NOT NULL,

OwnerId INT NOT NULL,

CreatedAt TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

FOREIGN KEY (OwnerId) REFERENCES Users(UserId) ON DELETE CASCADE

);

**3. Booking & Transactions**

**Overview:**

Handles property bookings, payments, and transactions.

**Database Structure:**

**Bookings Table**

CREATE TABLE Bookings (

BookingId INT PRIMARY KEY AUTO\_INCREMENT,

PropertyId INT NOT NULL,

UserId INT NOT NULL,

BookingDate TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

Status ENUM('Pending', 'Confirmed', 'Cancelled') DEFAULT 'Pending',

FOREIGN KEY (PropertyId) REFERENCES Properties(PropertyId) ON DELETE CASCADE,

FOREIGN KEY (UserId) REFERENCES Users(UserId) ON DELETE CASCADE

);

**Transactions Table**

CREATE TABLE Transactions (

TransactionId INT PRIMARY KEY AUTO\_INCREMENT,

BookingId INT NOT NULL,

Amount DECIMAL(15,2) NOT NULL,

PaymentMethod ENUM('Credit Card', 'Bank Transfer', 'Cash', 'UPI') NOT NULL,

PaymentStatus ENUM('Pending', 'Completed', 'Failed') DEFAULT 'Pending',

TransactionDate TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

FOREIGN KEY (BookingId) REFERENCES Bookings(BookingId) ON DELETE CASCADE

);

**4. Leasing & Renting**

**Overview:**

Manages lease agreements, rent collection, and tenants.

**Database Structure:**

**Lease Agreements Table**

CREATE TABLE LeaseAgreements (

LeaseId INT PRIMARY KEY AUTO\_INCREMENT,

PropertyId INT NOT NULL,

TenantId INT NOT NULL,

LeaseStartDate DATE NOT NULL,

LeaseEndDate DATE NOT NULL,

RentAmount DECIMAL(15,2) NOT NULL,

SecurityDeposit DECIMAL(15,2) NOT NULL,

FOREIGN KEY (PropertyId) REFERENCES Properties(PropertyId) ON DELETE CASCADE,

FOREIGN KEY (TenantId) REFERENCES Users(UserId) ON DELETE CASCADE

);

**5. Appointment & Inquiry Management**

**Overview:**

Handles property visit requests and user inquiries.

**Database Structure:**

**Appointments Table**

CREATE TABLE Appointments (

AppointmentId INT PRIMARY KEY AUTO\_INCREMENT,

UserId INT NOT NULL,

PropertyId INT NOT NULL,

AppointmentDate DATETIME NOT NULL,

Status ENUM('Pending', 'Confirmed', 'Cancelled') DEFAULT 'Pending',

FOREIGN KEY (UserId) REFERENCES Users(UserId) ON DELETE CASCADE,

FOREIGN KEY (PropertyId) REFERENCES Properties(PropertyId) ON DELETE CASCADE

);

**6. Review & Rating System**

**Overview:**

Allows users to provide reviews and ratings for properties and agents.

**Database Structure:**

**Reviews Table**

CREATE TABLE Reviews (

ReviewId INT PRIMARY KEY AUTO\_INCREMENT,

UserId INT NOT NULL,

PropertyId INT NOT NULL,

Rating INT CHECK (Rating BETWEEN 1 AND 5),

ReviewText TEXT,

ReviewDate TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

FOREIGN KEY (UserId) REFERENCES Users(UserId) ON DELETE CASCADE,

FOREIGN KEY (PropertyId) REFERENCES Properties(PropertyId) ON DELETE CASCADE

);

**7. Reports & Analytics**

**Overview:**

Provides sales reports and market trends analysis.

**Database Structure:**

**Reports Table**

CREATE TABLE Reports (

ReportId INT PRIMARY KEY AUTO\_INCREMENT,

ReportType ENUM('Sales', 'Market Trend', 'Revenue') NOT NULL,

ReportData JSON NOT NULL,

CreatedAt TIMESTAMP DEFAULT CURRENT\_TIMESTAMP

);