**🔍 Project Title: Online Auction Platform**

**🎯 Project Overview:**

This is a full-stack web application designed to facilitate **product** and **mortgage-based** auctions. It supports **role-based access**, where **Admin** and **Users** have distinct dashboards and capabilities. Users can auction their products and participate in ongoing auctions. Admins manage both product and mortgage auctions, monitor system health, and detect fraudulent activities.

**👤 User Roles & Access**

**✅ User Role (Normal User):**

* Can list their **own products** for auction.
* Can participate in **Product Auctions** and **Mortgage Auctions**.
* Can **track their activity** such as biddings, earnings, and products sold.
* Can use **Price Prediction** to evaluate product value before listing.
* Can view and update their profile.

**🛡️ Admin Role:**

* Can **create and manage** both **Mortgage Auctions** and **Product Auctions**.
* Has **exclusive access** to manage **Mortgage Products**.
* Can monitor suspicious activity via **Fraud Detection** tools.
* Has rights to **Remove Users** involved in fraudulent activity.
* Also has access to all user functionalities like price prediction, viewing products, etc.

**📂 Dashboard Structure**

**🎨 User Dashboard Sidebar:**

1. **Home**
2. **Enter Auction**
   * Mortgage Auctions
   * Product Auctions
3. **Sell Products**
   * Price Predictions
   * Enter Product Details
   * View Your Products
4. **View Profile**
   * Update Profile
   * All Profile Details
   * Your Biddings
   * Your Sold Products
   * Your Earnings

**🎨 Admin Dashboard Sidebar:**

1. **Home**
2. **Mortgage Products (Admin Only)**
   * View Products
   * Add Products
3. **Enter Auction**
   * Mortgage Auctions
   * Product Auctions
4. **Sell Products**
   * Price Predictions
   * Enter Product Details
   * View Your Products
5. **View Profile**
   * Update Profile
   * All Profile Details
   * Your Biddings
   * Your Sold Products
   * Your Earnings
6. **Fraud Detection (Admin Only)**
   * Show users who are attempting fraud
7. **Remove User (Admin Only)**

**🔁 Flow of Website Functionality**

**🔐 Authentication Flow:**

* Both Admin and User register/login via a common **Authentication Page**.
* Role is set during registration or via backend seeding (for Admin).

**🏠 Home Page:**

* Displays current stats and active auctions for both roles.
* Tailored content based on role.

**⚙️ Auction Process:**

**📌 For Users:**

1. User goes to "Enter Auction"
2. Selects **Product Auction** or **Mortgage Auction**.
3. Bids in ongoing auctions.
4. Bid history is stored and shown under profile.

**📌 For Admins:**

1. Admin can access both auction types.
2. Admin has control over **creating new mortgage auctions**, unavailable to users.

**🛒 Sell Products Flow (User & Admin):**

1. Navigate to “Sell Products”
2. Use **Price Prediction** to estimate value.
3. Fill **Enter Product Details**.
4. Submitted products show in “View Your Products”.

**👤 Profile Section:**

Accessible to both roles:

* Update user info
* View all personal data
* Check biddings
* Track sold products
* Monitor total earnings

**🧠 Advanced/Future Features**

**1. Price Prediction (ML-based):**

* Suggests starting price for products based on previous auction data.

**2. Fraud Detection (Admin only):**

* Detects unusual bidding patterns or duplicate accounts.
* Flags users with suspicious activities.

**3. Remove User (Admin only):**

* Admin can remove or ban flagged users based on fraud alerts.

**🧩 Tech Stack (Expected):**

* **Frontend**: HTML, Tailwind CSS, JavaScript
* **Backend**: Python + Flask
* **Database**: MySQL
* **AI Modules**: For Price Prediction and Fraud Detection (optional ML model integration)
* **DevOps Tools**: Docker, Jenkins (for CI/CD), GitHub

**🌐 Deployment Consideration:**

* Admin and User roles can be implemented via **role-based JWT authentication**.
* Use conditional rendering on the frontend to display role-specific sidebars and content.
* Auto-logout on token expiry and secure access to APIs.

**✅ Summary:**

This project is a scalable, role-driven auction system. It introduces mortgage-based auctioning (admin-exclusive), empowers users to auction their items, and incorporates futuristic tools like ML-driven price prediction and fraud detection. It balances simplicity for users with robust control for admins, and is designed with real-world applicability and clean UX in mind.