**E-Auction Management System**

A project submitted to

**UKA TARSADIA UNIVERSITY**

in partial fulfilment of the requirements

for the degree of

*Bachelors of Science in Information Technology*

for 5th Semester

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**Group Number**: 08

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**December 2024**

**CERTIFICATE**

This is to certify that the project report entitled **“E-Auction Management System”** has been carried out by Ms. Riya Dhorajiya (202206100110058)**,** Mr. Krish Virani (202206100110142), Mr. Hemil Ghori (202206100110147) and Ms. Isha Jivani (202206100110212)**,** under my guidance in partial fulfillment of the requirement for the **Bachelors of Science in Information Technology** during the academic year 2024-25.

**Date: 28-11-2024**

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**Project Guide Programme Coordinator**

**External Examiner(s)**

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**BABU MADHAV INSTITUTE OF**

**INFORMATION TECHNOLOGY**

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**Chapter 1: Introduction**

* 1. **Problem Definition**

The E-Auction Management System is an online platform designed to facilitate auctions between sellers and bidders. The system operates within the scope of e-commerce, specifically catering to antique items. Sellers can list items, bidders can participate in auctions, and admins can verify item, ensuring smooth transactions and auction management. The product aims to automate the entire auction process, from listing items to managing payments and refunds. It will connecting buyers and sellers across India. Users access the system through their web browsers.

* 1. **Project Purpose**

The purpose of the E-Auction Management System is to provide a platform for all sellers of antique items to auction online. The system will facilitate the auctioning process, allow users to bid on various antiques while ensuring a smooth, secure, and user-friendly experience.

* 1. **Project Scope**

Our scope of the System shall be within all over the india to connect sellers to bidder for antique item auction.

**Chapter 2: Overall Description**

**2.1** **Product Perspective/Environment Description**

**2.1.1 Hardware Interface/ Hardware Specification**

* Processor:
* Core i5
* RAM:
* 6 GB

**2.1.2 Software Interface/ Software Specification**

* **Web Server**: Apache NetBeans IDE 22.
* **Database**: MySQL.
* **Languages**: PHP for backend; HTML, CSS, JavaScript for frontend.
* **Frameworks**: Razor pay (for payment gateway).

**Chapter 3: System Specific Requirement**

**3.1 Functional Requirements**

* **User Management:**

|  |  |  |
| --- | --- | --- |
| **Requirement No.** | **Description** | **Comment** |
| FR1 | The system allow sellers and bidders to register with First name, Last name, date of birth, unique email id, password, mobile number. System shall be able to send OTP for Email verification. | User  Registration |
| FR2 | Admin, Bidders and seller log in using their email id and password. | User Login |
| FR3 | Admin, Bidders and the seller view and update their profile information. | Profile  Management |
| FR4 | Users change their password and reset it through email verification if forgotten. | Password  Management |

* **Item Management:**

|  |  |  |
| --- | --- | --- |
| **Requirement No.** | **Description** | **Comment** |
| FR1 | * The seller shall be able to add auction items with some specific proof of authenticity. * Sellers view the status of their submitted items (pending, approved, rejected). * Sellers shall be able to edit or remove items that have not yet been approved. | Manage Items |
| FR2 | Admin view and approve or reject submitted items by sending notification to sellers. | Approval of Item |

* **Auction Management:**

|  |  |  |
| --- | --- | --- |
| **Requirement No.** | **Description** | **Comment** |
| FR1 | Seller can manage the auction timing for each item. | Auction Scheduling |
| FR2 | The system will display a list of upcoming auctions to all users. | Upcoming Auctions |
| FR3 | Only interested bidders and sellers shall be able to view and participate in live auctions. | Live Auctions |

* **Bidding:**

|  |  |  |
| --- | --- | --- |
| **Requirement No.** | **Description** | **Comment** |
| FR1 | Interested bidders shall be able to place bids on auction items. | Bid Placement |
| FR2 | The system send notifications to bidders about their bid status (outbid, winning bid) and auction updates. | Bid Notifications |

* **Earnest Money Deposit (EMD):**

|  |  |  |
| --- | --- | --- |
| **Requirement No.** | **Description** | **Comment** |
| FR1 | Bidders have to register and pay the EMD before the EMD date to participate in an auction. | Auction Registration |
| FR2 | Seller shall be able to manage the EMD amount and its due date for each item. | Auction Scheduling |
| FR3 | The EMD amount will be refunded to all non-winning bidders after the auction Finished. | EMD Refund |

* **Payment Processing:**

|  |  |  |
| --- | --- | --- |
| **Requirement No.** | **Description** | **Comment** |
| FR1 | Bidders make EMD payments through a secure payment gateway. | EMD Payment |
| FR2 | Winning bidders make the full payment for the auctioned items via the payment gateway. | Full Payment |
| FR3 | The system shall be able to generate payment reports. | Payment Report |

* **Auction Outcomes:**

|  |  |  |
| --- | --- | --- |
| **Requirement No.** | **Description** | **Comment** |
| FR1 | The system will automatically determine the auction winner based on the highest bid amount. | Winner Determination |
| FR2 | The auction will start only if the first bid meets or exceeds the reserve price. | Reserve Price |
| FR3 | The final price of the item will be the highest bid amount at the end of the auction. | Final Price |

* **Search and Filtering:**

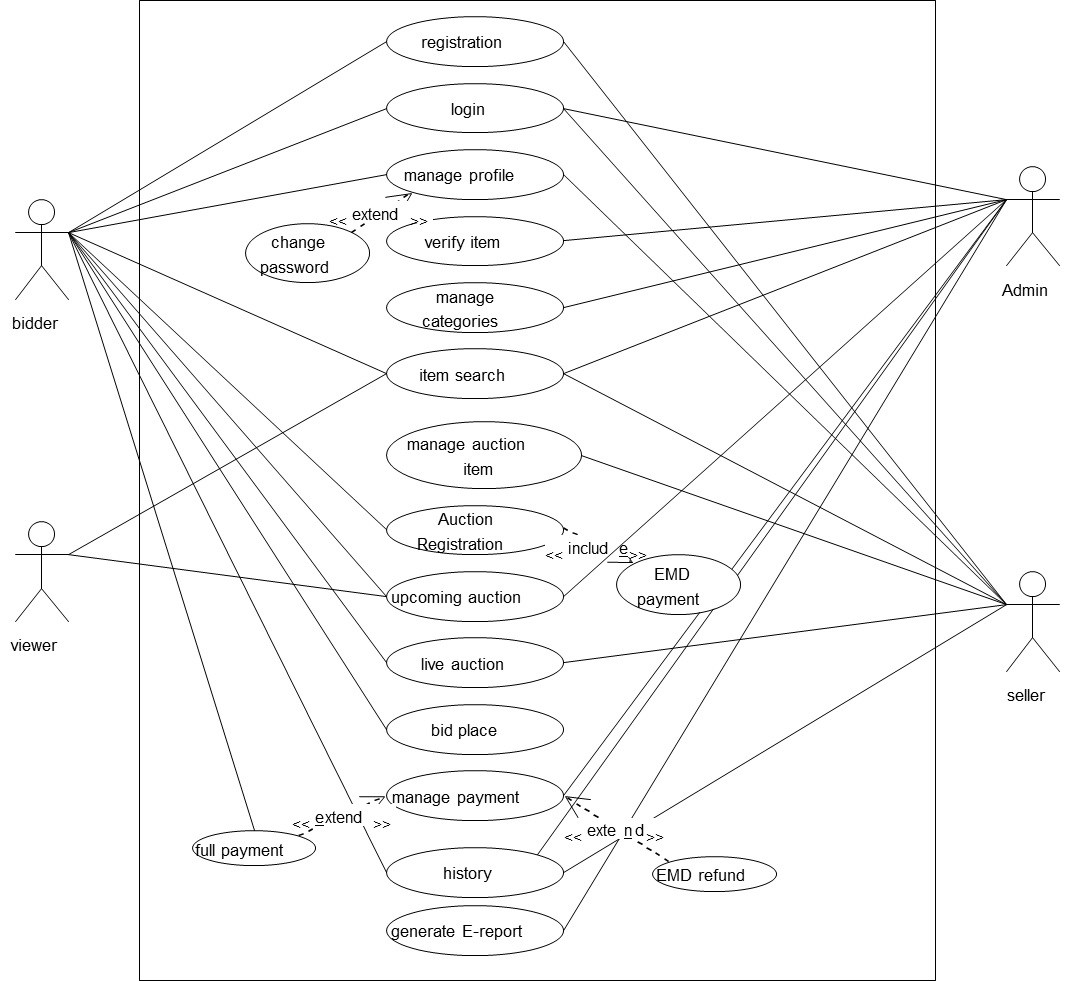
|  |  |  |
| --- | --- | --- |
| **Requirement No.** | **Description** | **Comment** |
| FR1 | Users shall be able to search for auction items using keywords. | Item Search |
| FR2 | Users shall be able to filter auction items based on item name, category, and reserve price. | Filtering Options |

**3.2 Non- Functional Requirements**

|  |  |  |
| --- | --- | --- |
| **Requirement No.** | **Description** | **Comment** |
| NFR1 | The application will be user-friendly and easy to operate, the functions will be easily understandable. | Usability |
| NFR2 | The system will be designed in a maintainable manner. It will be easy to add new requirements in the any individual modules. | Maintainability |
| NFR3 | E-auction management shall be able to compatible with modern web browsers (chrome, fire fox, safari). | Compatible |

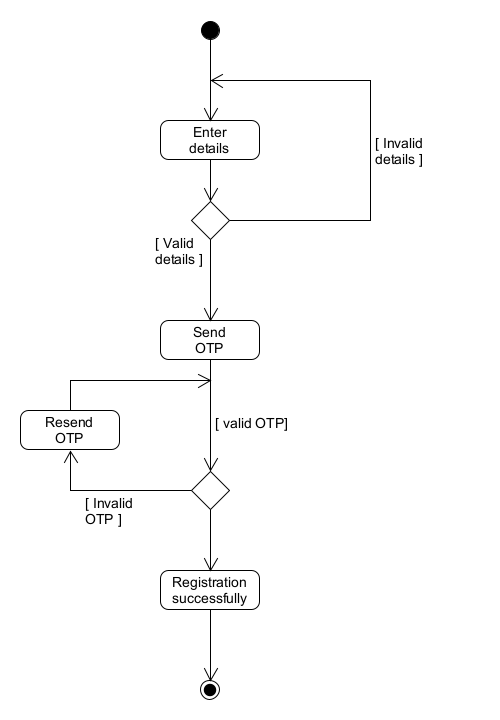
**Chapter 4: System Analysis**

**4.1 Use Case Diagrams**

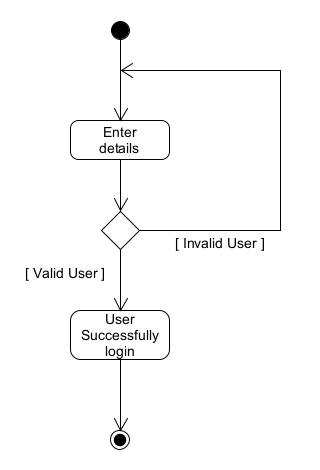


**4.2 Activity Diagrams**

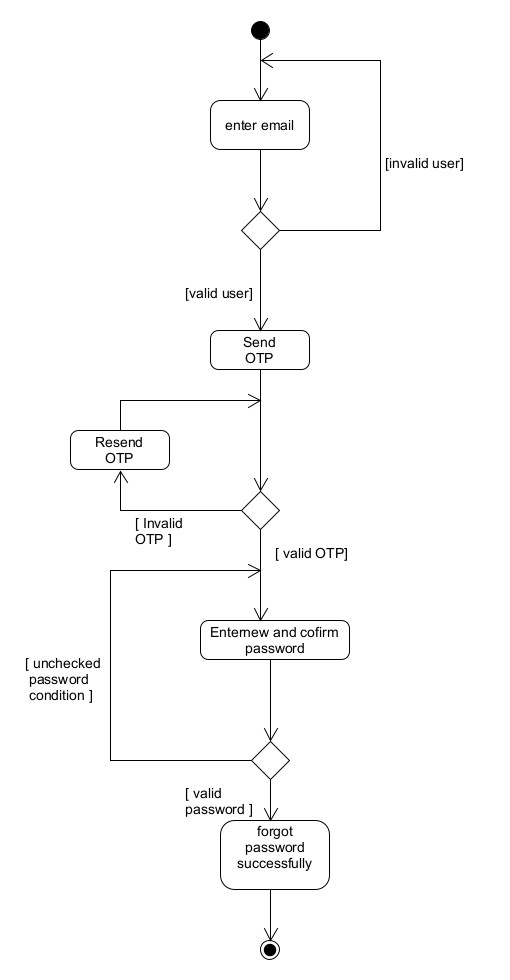
* **Registration:**



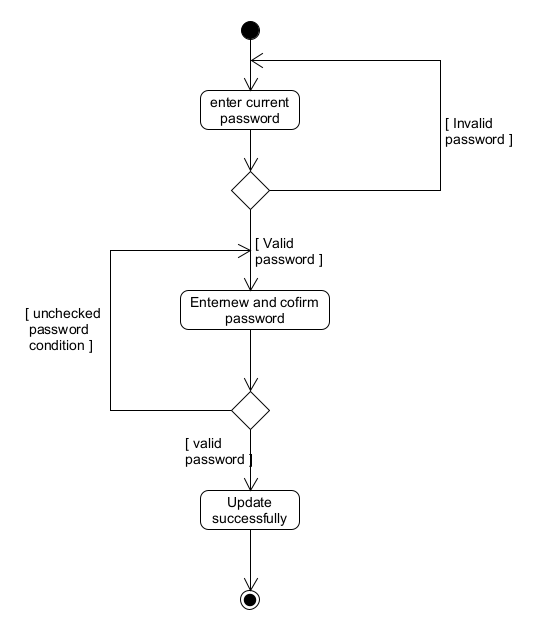
* **Login:**



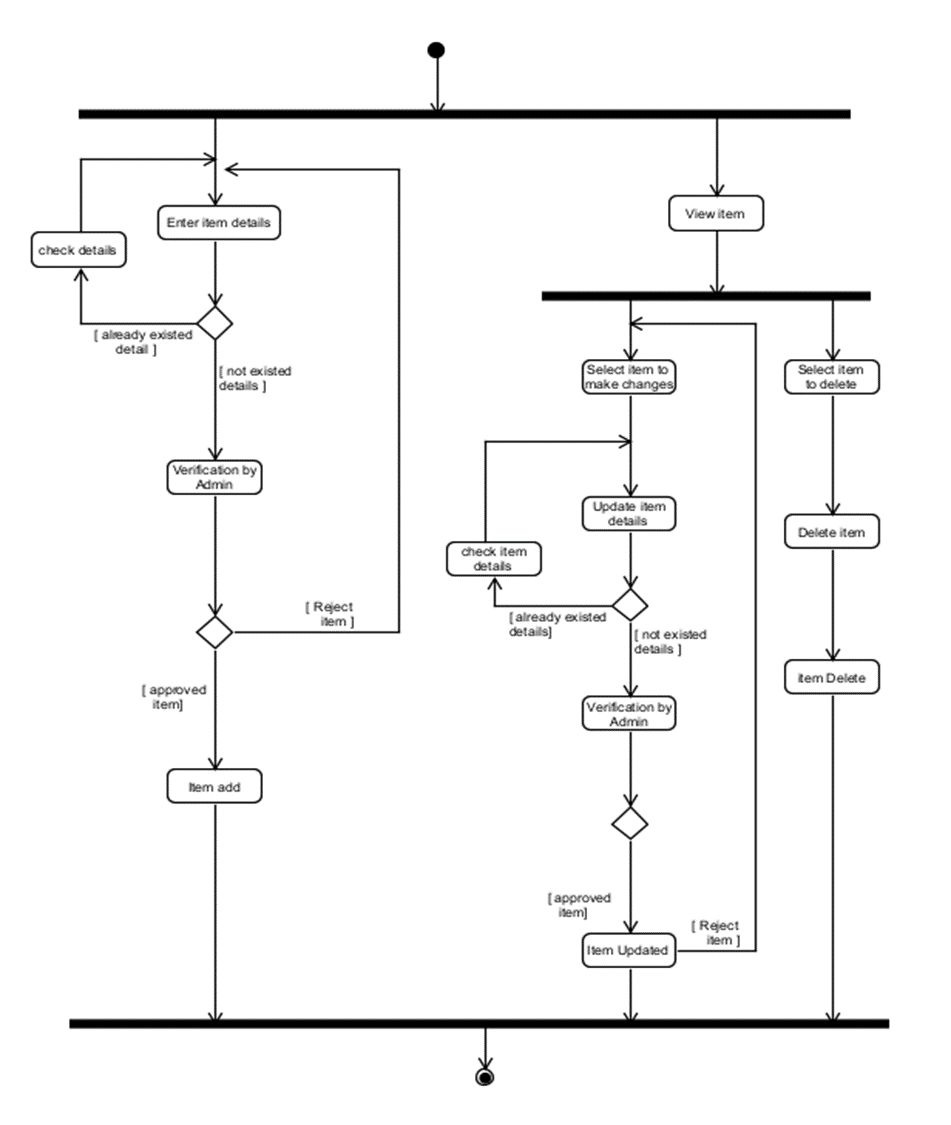
* **Forgot password:**



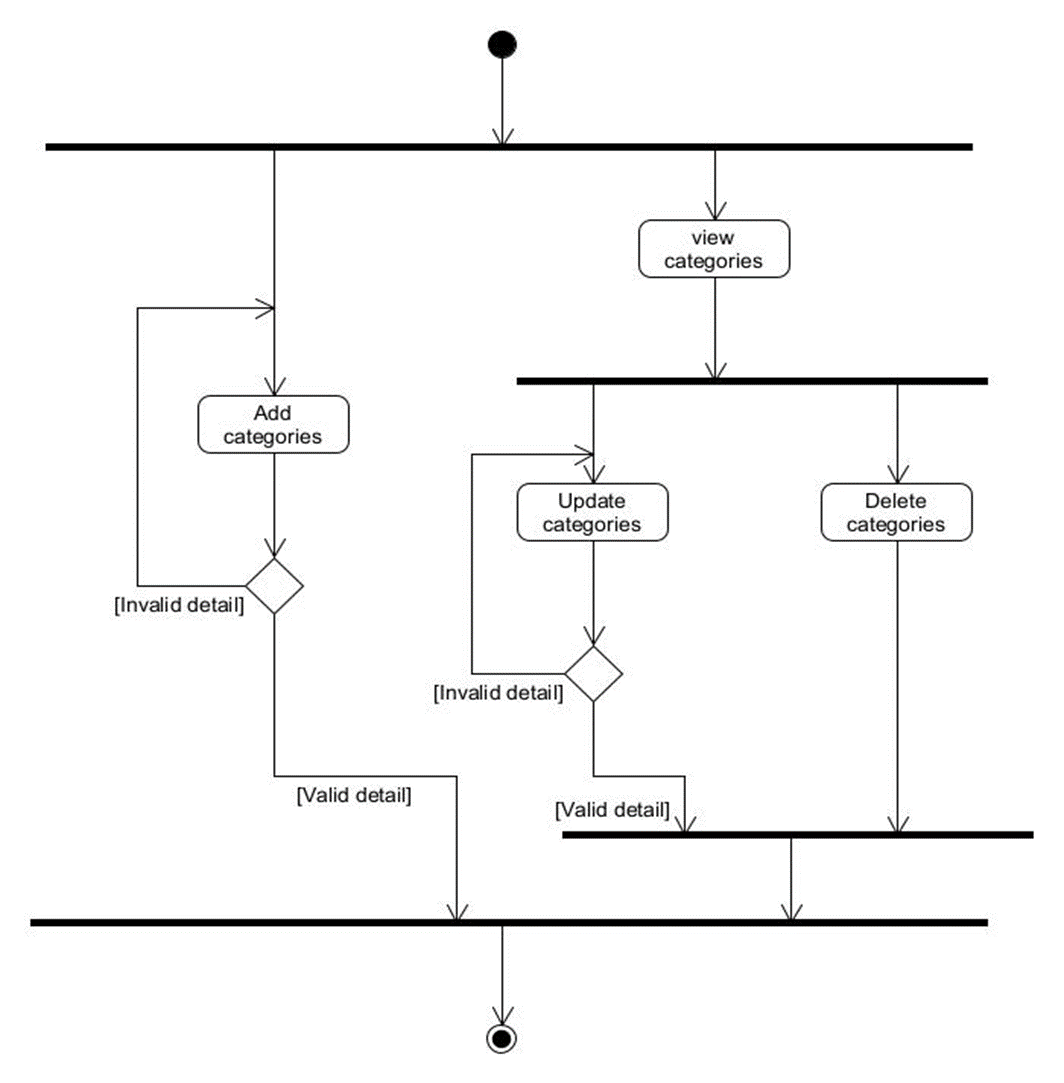
* **Change password:**



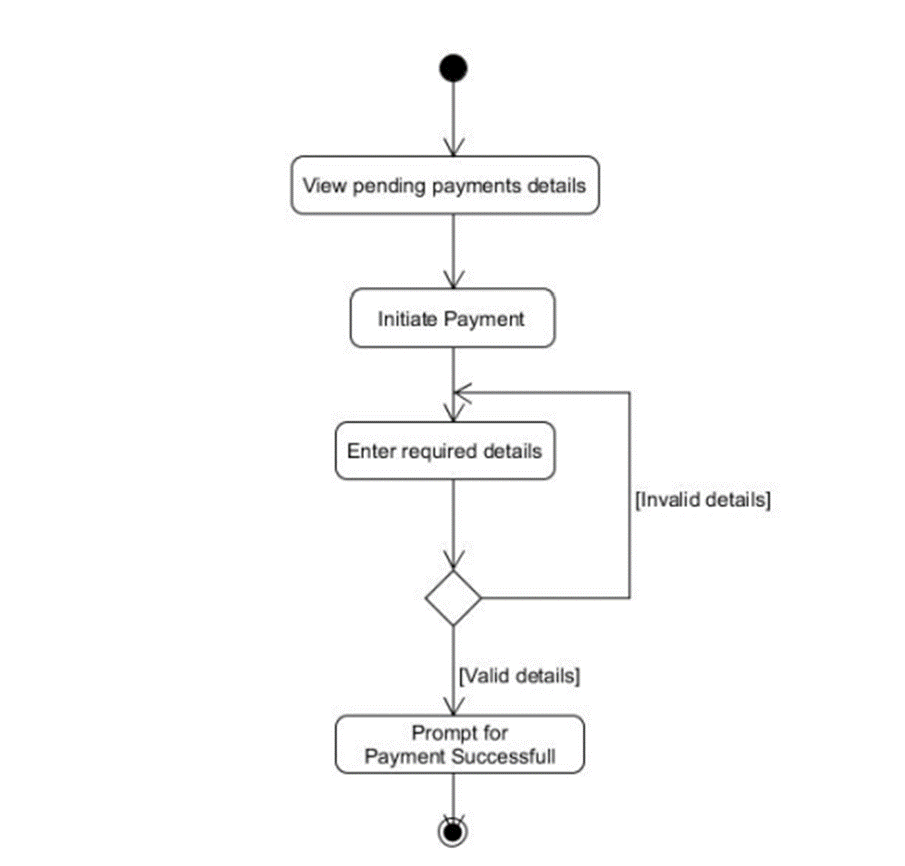
* **Manage Item:**



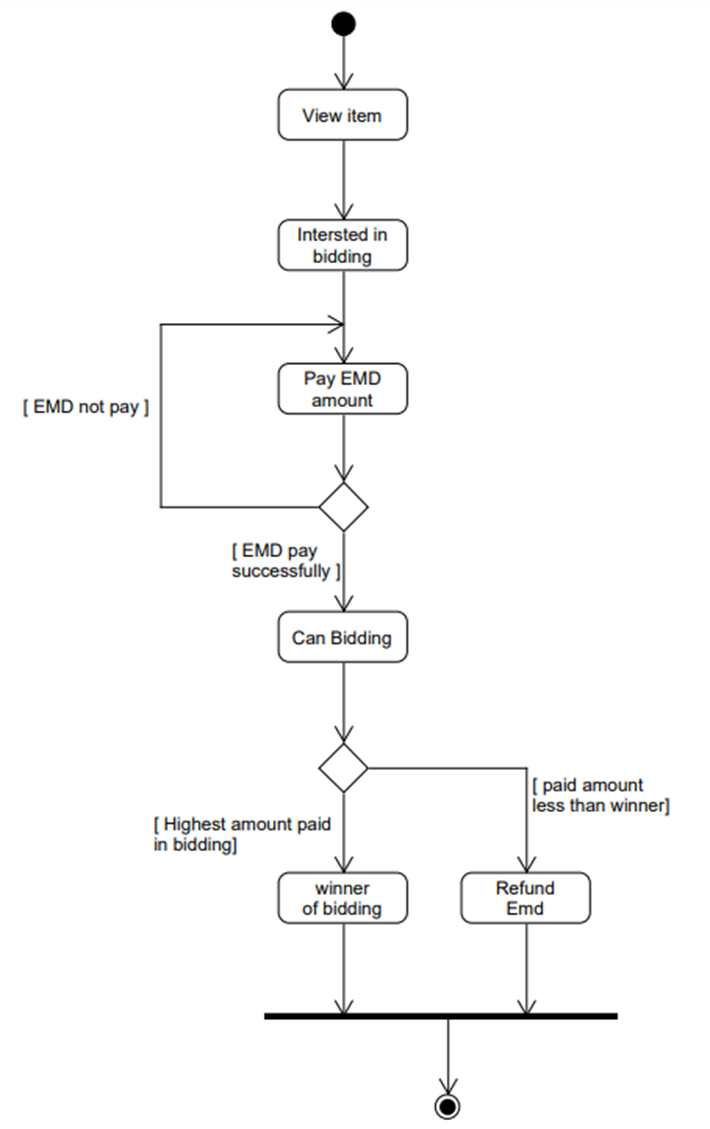
* **Manage categories:**



* **Payment:**



* **Bidding:**



**Chapter 5: System Design**

**5.1 System Design**

* tblBidder(Id [PK], firstname, lastname, contact, email, date\_of\_birth, address, password, user\_img, created\_date)
* tblSeller(Id [PK], firstname, lastname, contact, email, date\_of\_birth, address, password, adhar\_number, adhar\_img, created\_date, user\_img)
* tblAdmin(Id [PK], email, password)
* tblCategory(Id [PK], name, status)
* tblItem(Id [PK], name, seller\_id [FK], category\_id [FK], description, starting\_price, verification\_certificate, verify\_status, status)
* tblImg(Id [PK], item\_id [FK], img)
* tblAuctionItem(Id [PK], item\_id [FK], start\_datetime, end\_datetime, reserve\_price, emd\_date, emd\_amount, minimum\_bidders, increment\_value, winner\_id, auction\_status)
* tblBid(Id [PK], auction\_item\_id [FK], bidder\_id [FK], bid\_value, bid\_datetime)
* tblTransaction(Id [PK], auction\_item\_id [FK], amount, datetime, type)
* tblBidderPayment(Id [PK], auction\_item\_id [FK], bidder\_id [FK], emd\_refund, full\_payment)
* tblSellerPayment(Id [PK], seller\_id [FK], auction\_item\_id [FK], amount, status)
* tblFavoriteItem(Id [PK], item\_id [FK], bidder\_id [FK])

**5.1.1 Data Dictionary**

* **tblBidder:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sr. No** | **Field Name** | **Datatype** | **Size** | **Constraint** | **Description** |
| 1. | Id | INT | - | PRIMARY KEY, AUTO\_INCREMENT | Unique identifier for each bidder |
| 2. | Firstname | VARCHAR | 50 | NOT NULL | First name of the bidder |
| 3. | Lastname | VARCHAR | 50 | NOT NULL | Last name of the bidder |
| 4. | Contact | BIG INT | - | NOT NULL, UNIQUE | Contact number of the bidder |
| 5. | Email | VARCHAR | 100 | NOT NULL, UNIQUE | Email address of the bidder |
| 6. | date\_of\_birth | DATE | - | NOT NULL | Date of birth of the bidder |
| 7. | address | VARCHAR | 255 | NOT NULL | Residential address of the bidder |
| 8. | password | VARCHAR | 255 | NOT NULL | Password for the bidder's account (hashed) |
| 9. | user\_img | BLOB | - | NULL | Profile image of the bidder (optional) |
| 10. | created\_date | DATE | - | NOT NULL | Store Bidder Register Date |

* **tblSeller:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sr. No** | **Field Name** | **Datatype** | **Size** | **Constraint** | **Description** |
| 1. | Id | INT | - | PRIMARY KEY, AUTO\_INCREMENT | Unique identifier for each seller |
| 2. | Firstname | VARCHAR | 50 | NOT NULL | First name of the seller |
| 3. | Lastname | VARCHAR | 50 | NOT NULL | Last name of the seller |
| 4. | Contact | BIG INT | - | NOT NULL, UNIQUE | Contact number of the seller |
| 5. | Email | VARCHAR | 100 | NOT NULL, UNIQUE | Email address of the seller |
| 6. | date\_of\_birth | DATE | - | NOT NULL | Date of birth of the seller |
| 7. | address | VARCHAR | 255 | NOT NULL | Residential address of the seller |
| 8. | password | VARCHAR | 255 | NOT NULL | Password for the seller 's account (hashed) |
| 9. | adhar\_number | VARCHAR | 20 | NOT NULL, UNIQUE | Aadhar number of the seller |
| 10. | adhar\_img | BLOB | - | NOT NULL | Aadhar image of the seller. |
| 11. | created\_date | DATE | - | NOT NULL | Store Bidder Register Date |
| 12. | user\_img | BLOB | - | NULL | Profile image of the seller (optional) |

* **tblAdmin:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sr. No** | **Field Name** | **Datatype** | **Size** | **Constraint** | **Description** |
| 1. | id | INT | - | PRIMARY KEY, AUTO\_INCREMENT | Unique identifier for admin |
| 2. | email | VARCHAR | 100 | NOT NULL, | Email address of the admin |
| 3. | password | VARCHAR | 255 | NOT NULL | Password for admin account (hashed) |

* **tblCategory:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sr. No** | **Field Name** | **Datatype** | **Size** | **Constraint** | **Description** |
| 1. | Id | INT | - | PRIMARY KEY, AUTO\_INCREMENT | Unique identifier for category |
| 2. | name | VARCHAR | 50 | NOT NULL, UNIQUE | Name of the category |
| 3. | status | enum('Active','Inactive') | 255 | enum('Active', 'Inactive') | Status of the item |

* **tblItem:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sr. No** | **Field Name** | **Datatype** | **Size** | **Constraint** | **Description** |
| 1. | Id | INT | - | PRIMARY KEY, AUTO\_INCREMENT | Unique identifier for each item |
| 2. | Name | VARCHAR | 100 | NOT NULL | Name of the item |
| 3. | seller\_id | INT | 50 | FOREIGN KEY REFERENCES tblSeller(id) | Identifier of the seller |
| 4. | category\_id | INT | - | FOREIGN KEY REFERENCES tblCategory(id) | Identifier of the category |
| 5. | Description | TEXT | 100 | NOT NULL | Detailed description of the item |
| 6. | starting\_price | DECIMAL | 10,2 | NOT NULL | Starting price of the item |
| 7. | verification\_certificate | BLOB | - | NOT NULL | Verification certificate of the item |
| 8. | verify\_status | ENUM | - | NOT NULL | Verification status of the item (values: pending, verified, sold, rejected) |
| 9. | status | ENUM | - | NOT NULL | Status of the item(values: active, inactive) |

* **tblImg:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sr. No** | **Field Name** | **Datatype** | **Size** | **Constraint** | **Description** |
| 1. | id | INT | - | PRIMARY KEY, AUTO\_INCREMENT | Unique identifier for each image |
| 2. | item\_id | INT | - | FOREIGN KEY REFERENCES tblItem(id) | Identifier of the item |
| 3. | img | BLOB | - |  | Image data |

* **tblAuctionItem:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sr. No** | **Field Name** | **Datatype** | **Size** | **Constraint** | **Description** |
| 1. | Id | INT | - | PRIMARY KEY, AUTO\_INCREMENT | Unique identifier for each auction item |
| 2. | item\_id | INT | - | FOREIGN KEY REFERENCES tblItem(id) | Identifier of the item being auctioned |
| 3. | start\_datetime | DATETIME | - | NOT NULL | Date and time when the auction starts |
| 4. | end\_datetime | DATETIME | - | NOT NULL | Date and time when the auction ends |
| 5. | reserve\_price | DECIMAL | 10,2 | NOT NULL | Minimum price the seller is to accept |
| 6. | emd\_date | DATETIME | - | NOT NULL | Deadline date and time for Earnest Money Deposit |
| 7. | emd\_amount | DECIMAL | 10,2 | NOT NULL | Amount to be deposited as Earnest Money |
| 8. | minimum\_bidders | INT | - | NOT NULL | Minimum number of bidders required |
| 9. | increment\_value | DECIMAL | 10,2 | NOT NULL | Minimum increment value for bids |
| 10. | Winner\_id | INT | - | NOT NULL | Stores Winner Bidder Id |

* **tblbid:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sr. No** | **Field Name** | **Datatype** | **Size** | **Constraint** | **Description** |
| 1. | Id | INT | - | PRIMARY KEY, AUTO\_INCREMENT | Unique identifier for each bid |
| 2. | auction\_item\_id | INT | - | FOREIGN KEY REFERENCES tblAuctionItem(id) | Identifier of the auction item |
| 3. | bidder\_id | INT | - | FOREIGN KEY REFERENCES tblBidder(id) | Identifier of the bidder |
| 4. | bid\_value | DECIMAL | 10,2 | NOT NULL | Value of the bid |
| 5. | bid\_datetime | DATETIME | - | NOT NULL | Date and time when the bid was placed |

* **tblTransaction:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sr. No** | **Field Name** | **Datatype** | **Size** | **Constraint** | **Description** |
| 1. | Id | INT | - | PRIMARY KEY, AUTO\_INCREMENT | Unique identifier for each transaction |
| 2. | auction\_item\_id | INT | - | FOREIGN KEY REFERENCES tblAuctionItem(id) | Identifier of the auction item |
| 3. | amount | DECIMAL | 10,2 | NOT NULL | Amount of the transaction |
| 4. | datetime | DATETIME | - | NOT NULL | Date and time of the transaction |
| 5. | type | ENUM | - | NOT NULL | Type of transaction(values: 'EMD', EMDRefund, CustomerFullPayment, SellerPayment) |

* **tblBidderPayment:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sr. No** | **Field Name** | **Datatype** | **Size** | **Constraint** | **Description** |
| 1. | Id | INT | - | PRIMARY KEY, AUTO\_INCREMENT | Unique identifier for each payment |
| 2. | auction\_item\_id | INT | - | FOREIGN KEY REFERENCES tblAuctionItem(id) | Identifier of the auction item |
| 3. | bidder\_id | INT | - | FOREIGN KEY REFERENCES tblBidder(id) | Identifier of the bidder |
| 4. | emd\_refund | ENUM | - | NOT NULL | EMD refund status(values: pending, done, notApplicable) |
| 5. | full\_payment | ENUM | - | NOT NULL | Full payment status(values: pending,done,notApplicable) |

* **tblSellerPayment:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sr. No** | **Field Name** | **Datatype** | **Size** | **Constraint** | **Description** |
| 1. | Id | INT | - | PRIMARY KEY, AUTO\_INCREMENT | Unique identifier for each payment |
| 2. | seller\_id | INT | - | FOREIGN KEY REFERENCES tblSeller(id) | Identifier of the seller |
| 3. | Auction\_item\_id | INT | - | FOREIGN KEY REFERENCES tblAuctionItem(id) | Identifier of the auction item |
| 4. | amount | DECIMAL | 10,2 | NOT NULL | Amount of the payment |
| 5. | status | ENUM | - | NOT NULL | Payment status (values: pending, done) |

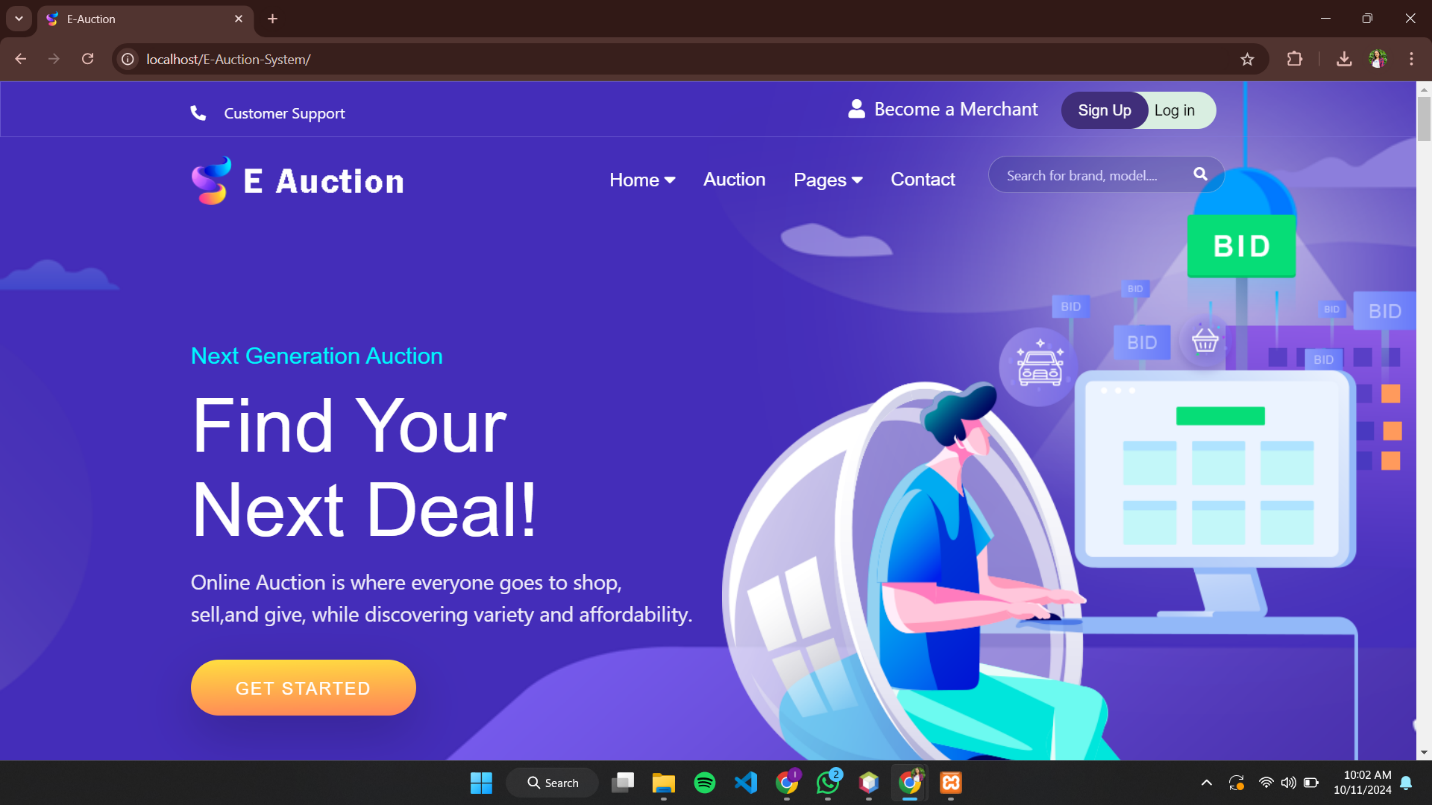
* **tblFavoriteItem:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sr. No** | **Field Name** | **Datatype** | **Size** | **Constraint** | **Description** |
| 1. | id | INT | - | PRIMARY KEY, AUTO\_INCREMENT | Unique identifier for each favorite item |
| 2. | item\_id | INT | - | FOREIGN KEY REFERENCES tblItem(id) | Identifier of the item |
| 3. | bidder\_id | INT | - | FOREIGN KEY REFERENCES tblBidder(id) | Identifier of the bidder |

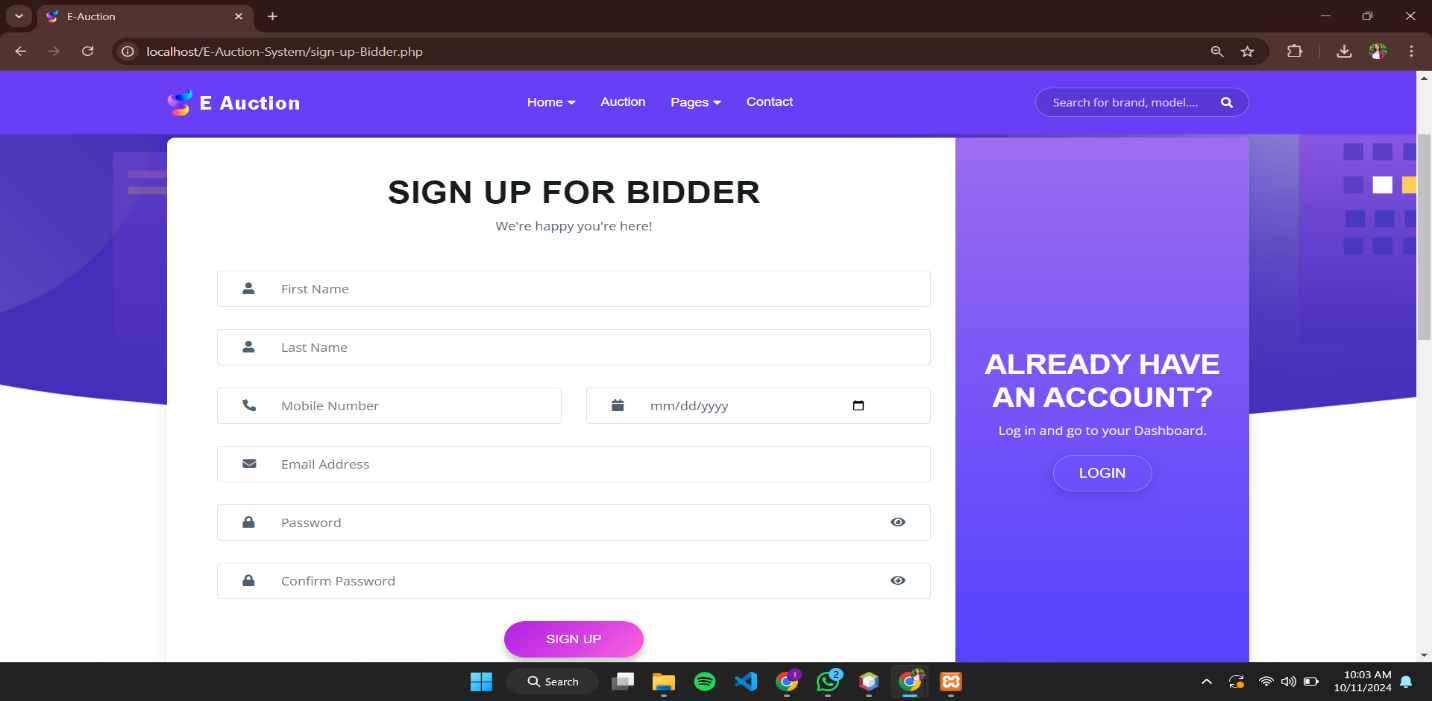
**Chapter 6: System Implementation**

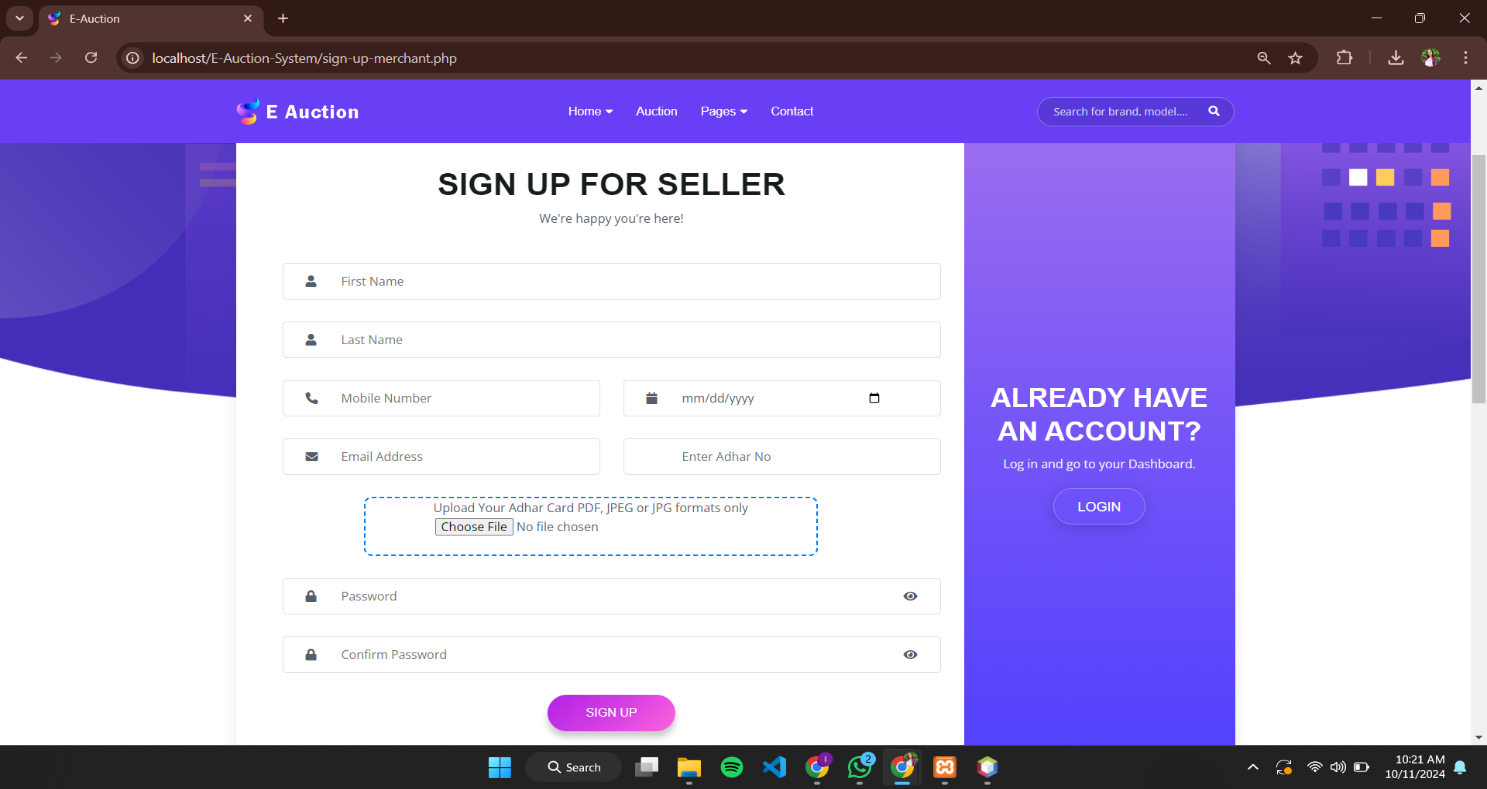
**6.1 Screenshots**

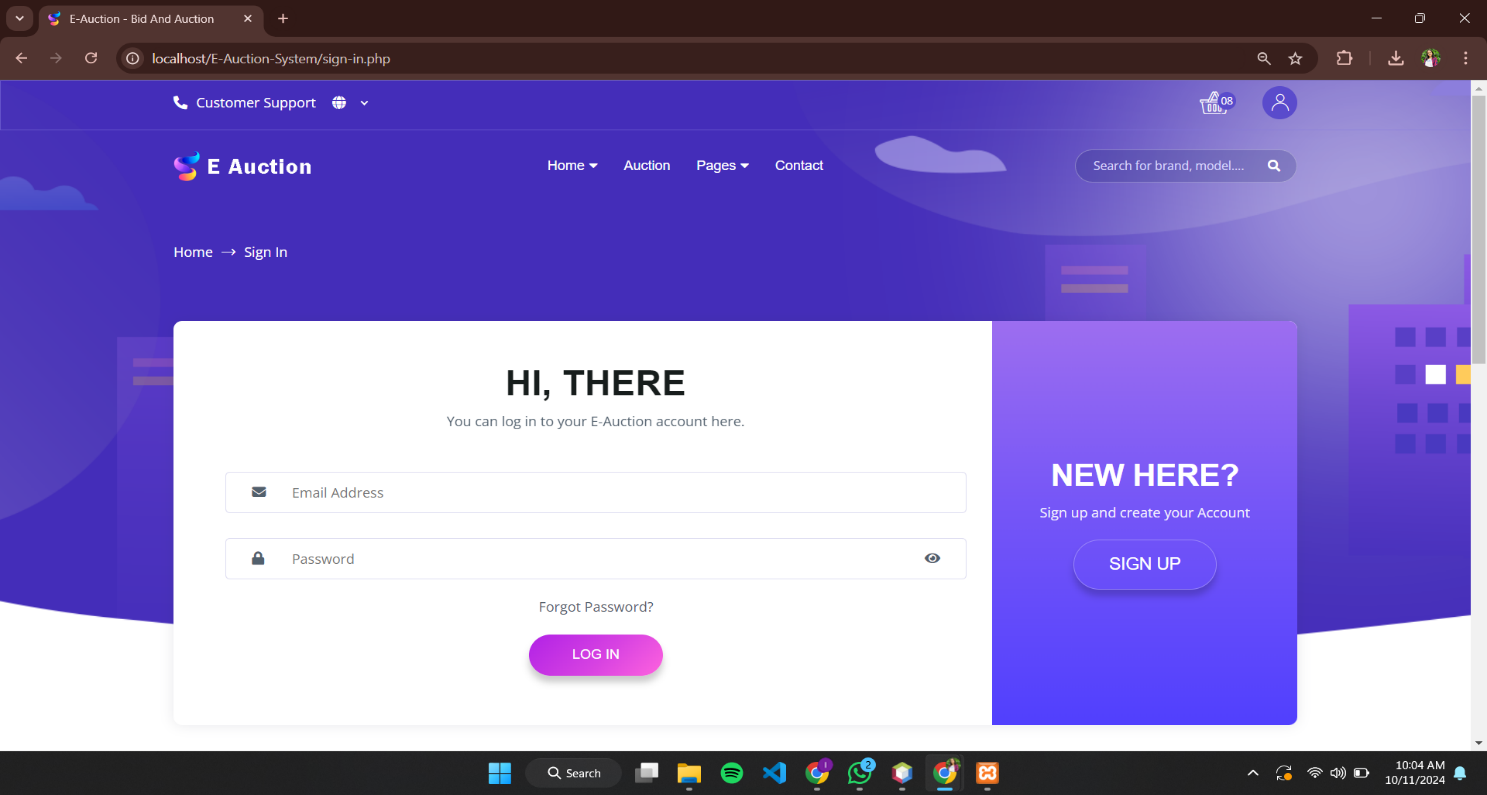
* **Home Page**



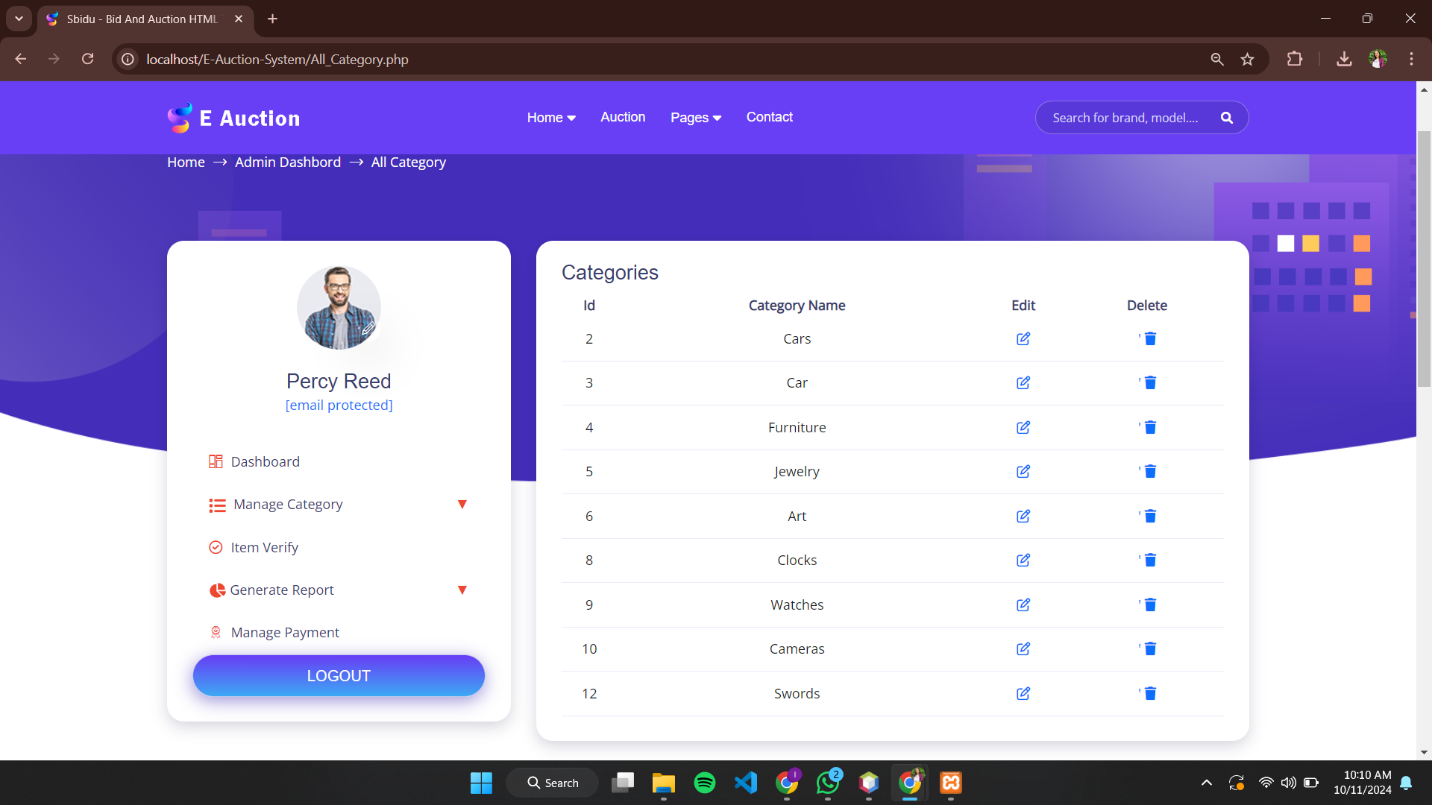
* **Bidder Registration Page**



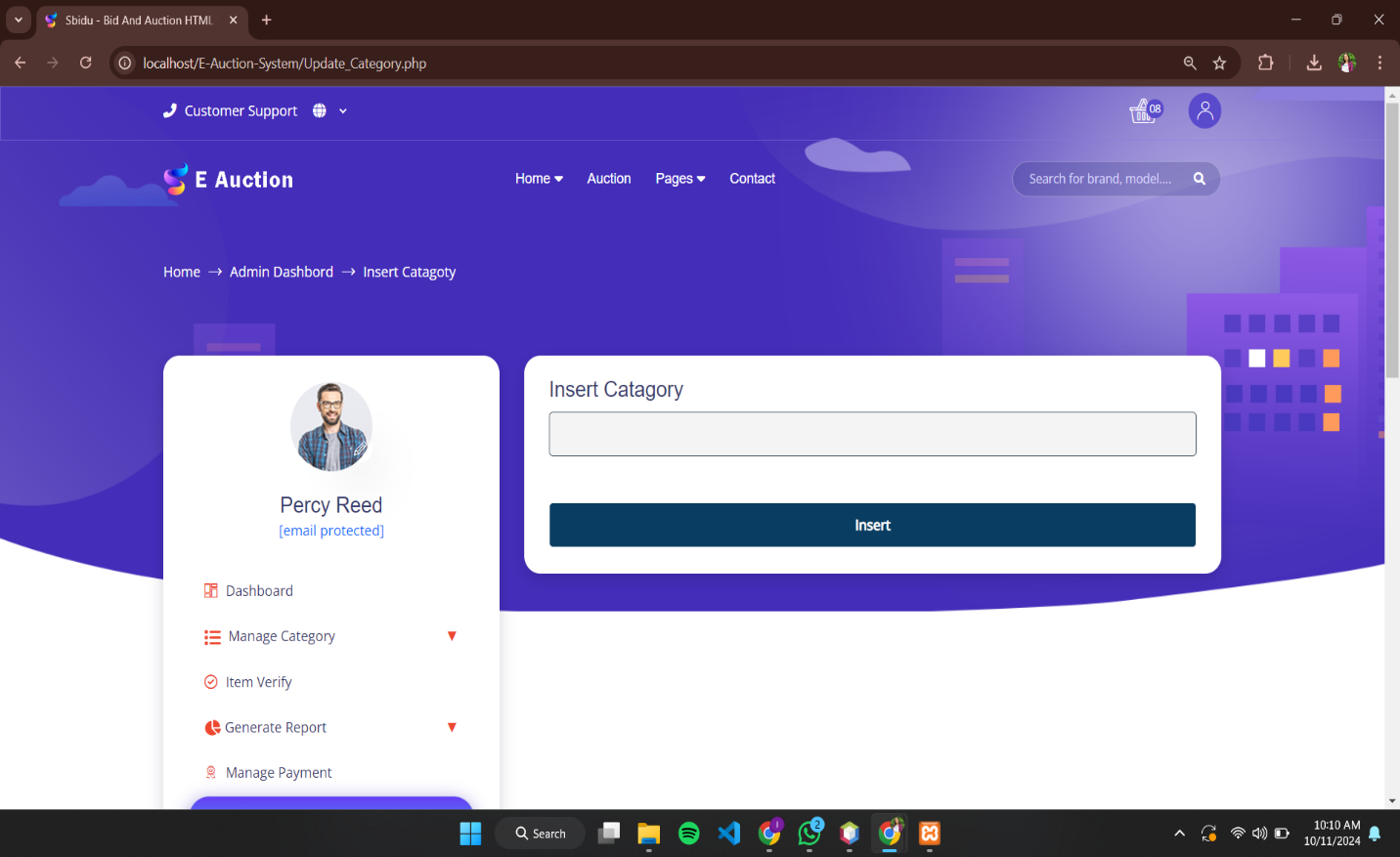
* **Seller Registration Page**
* **Login Page**



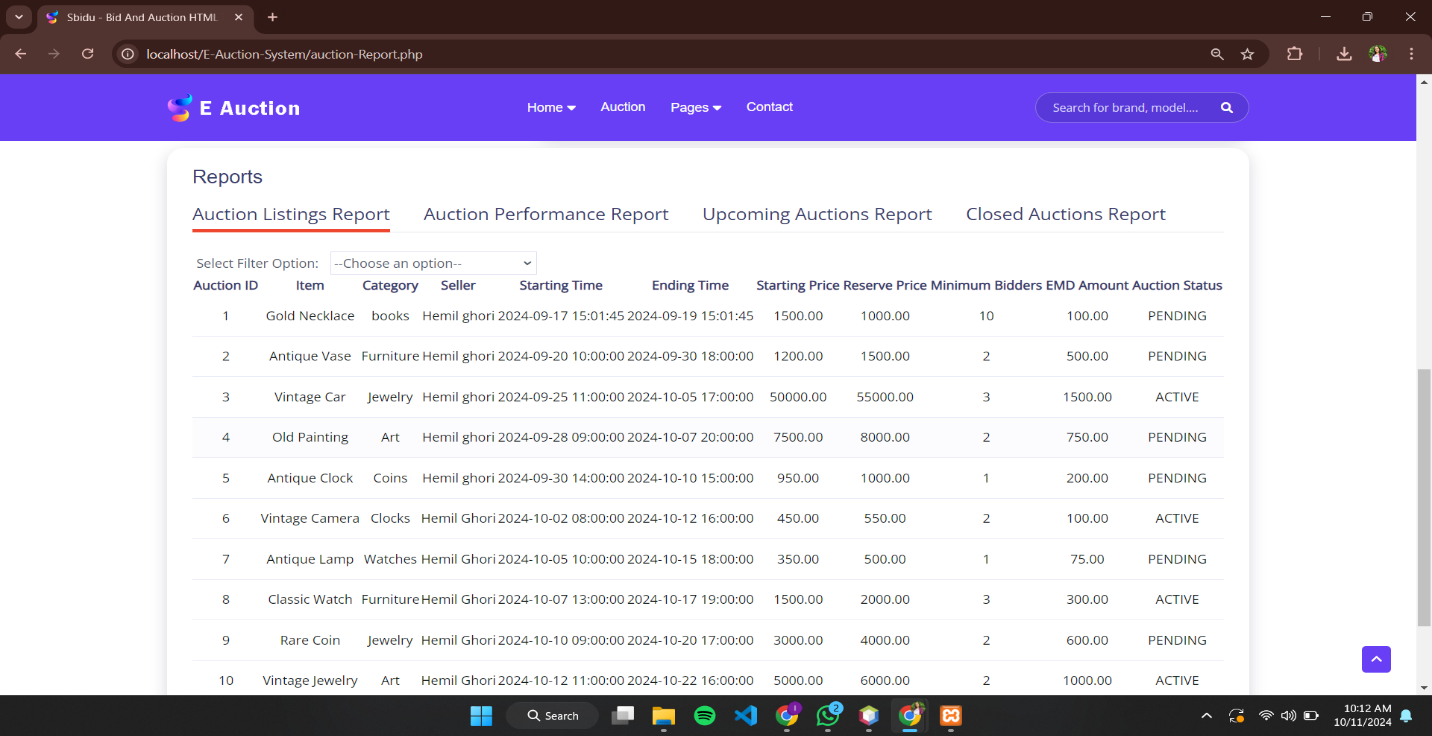
* **Admin Dashboard->Manage Category->All Category Page**



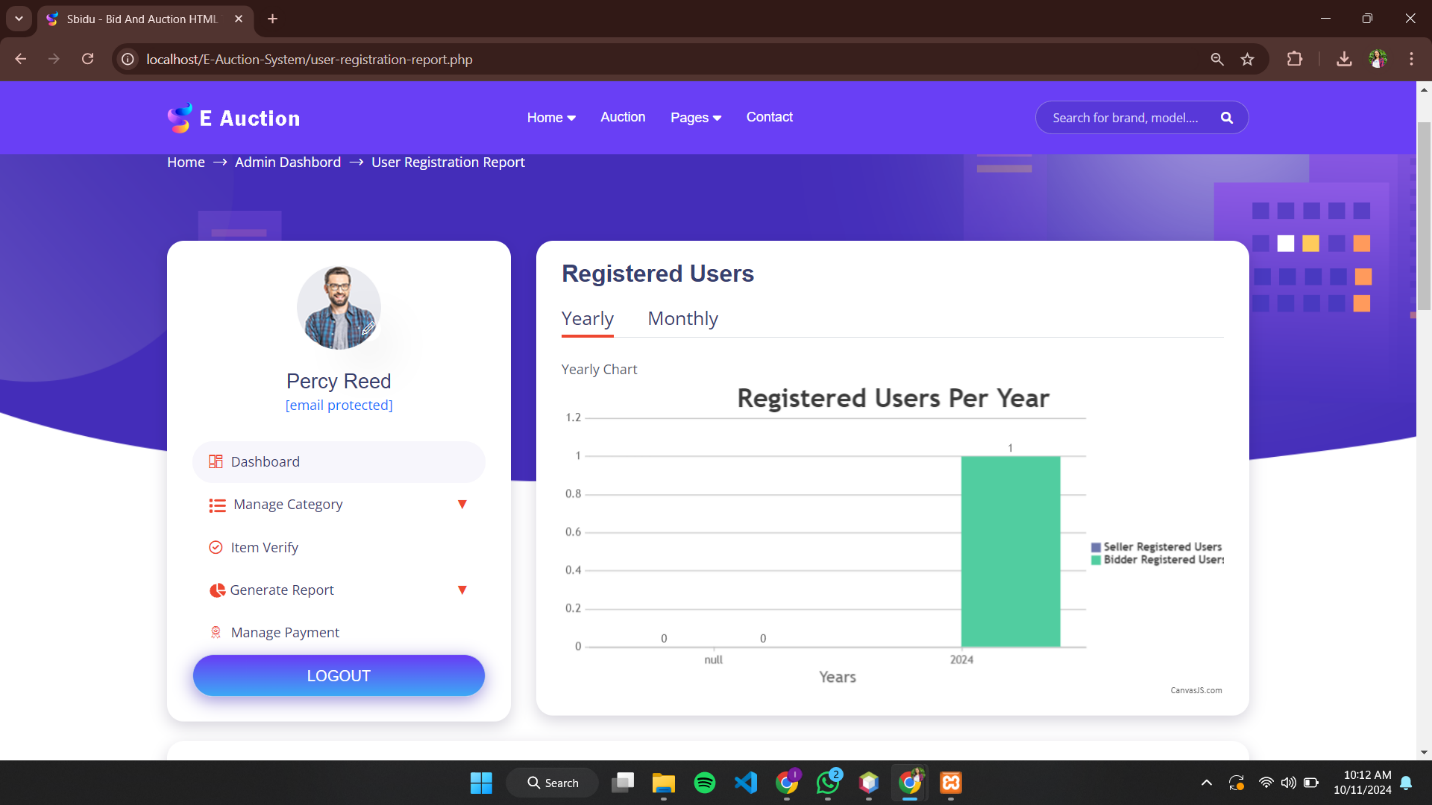
* **Admin Dashboard -> Manage Category->Insert Category Page**

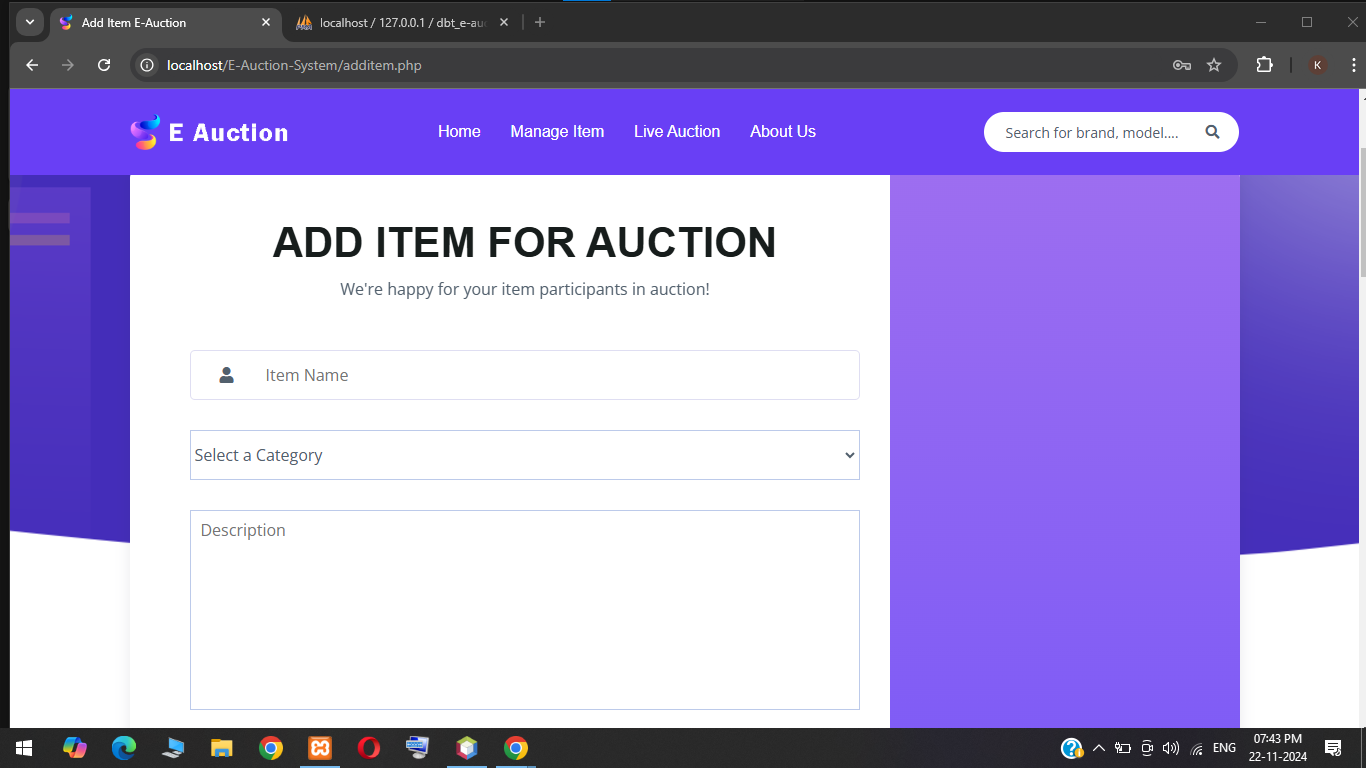


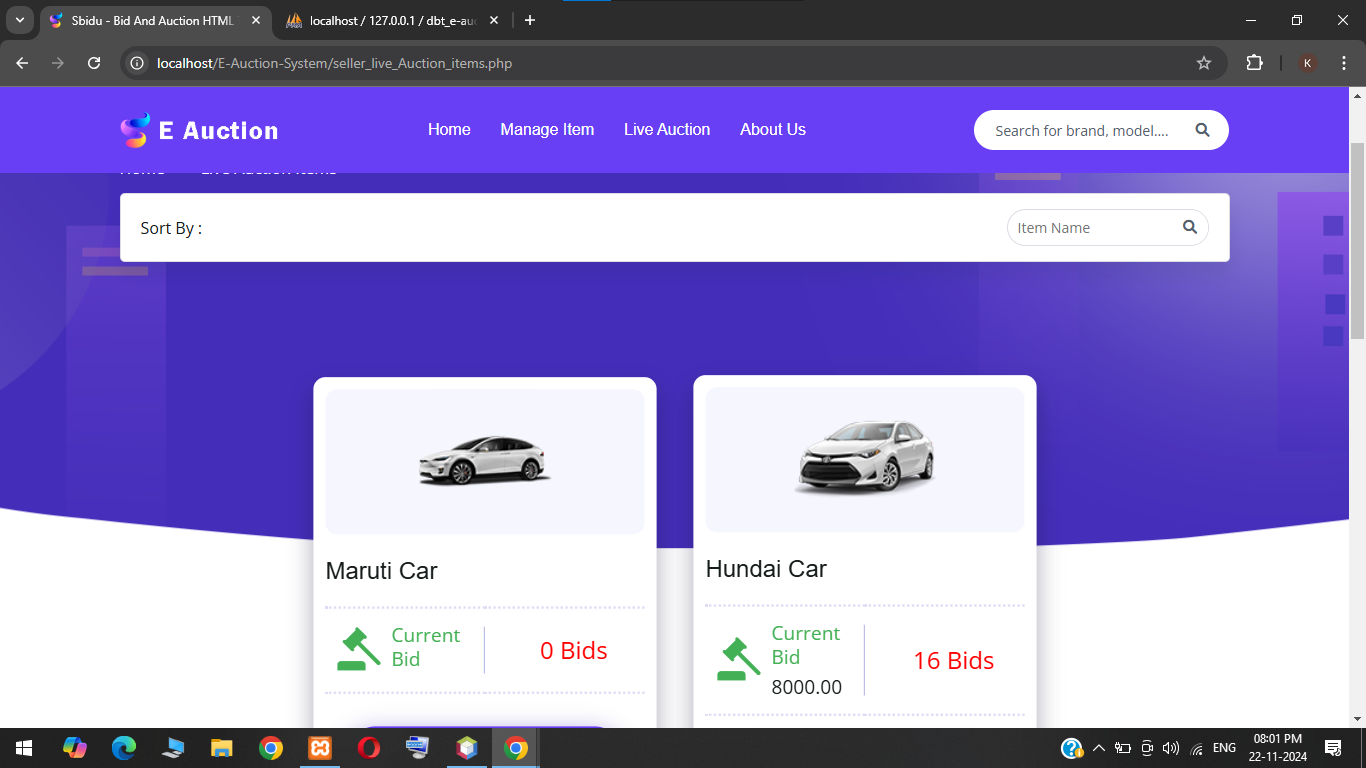
* **Admin Dashboard -> Auction Report Page**



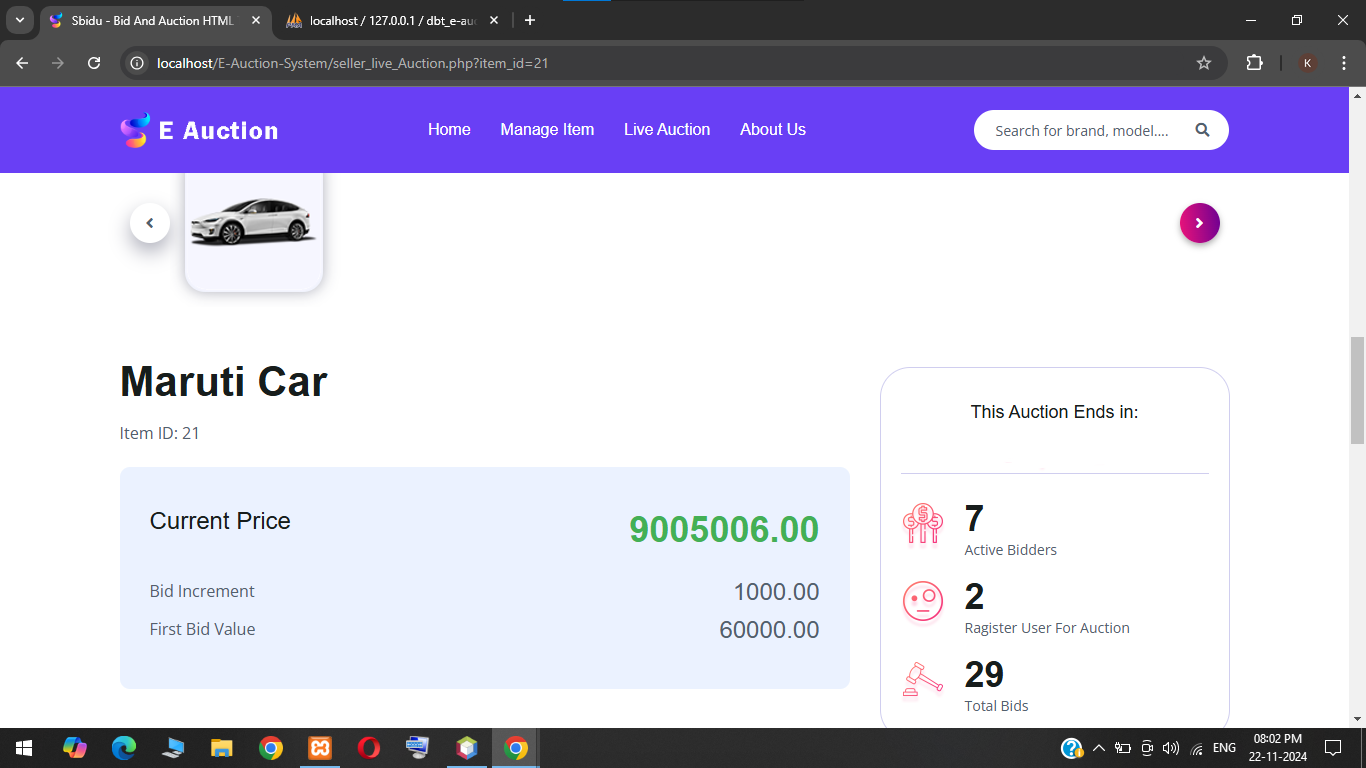
* **Admin Dashboard-> User Registration Page**



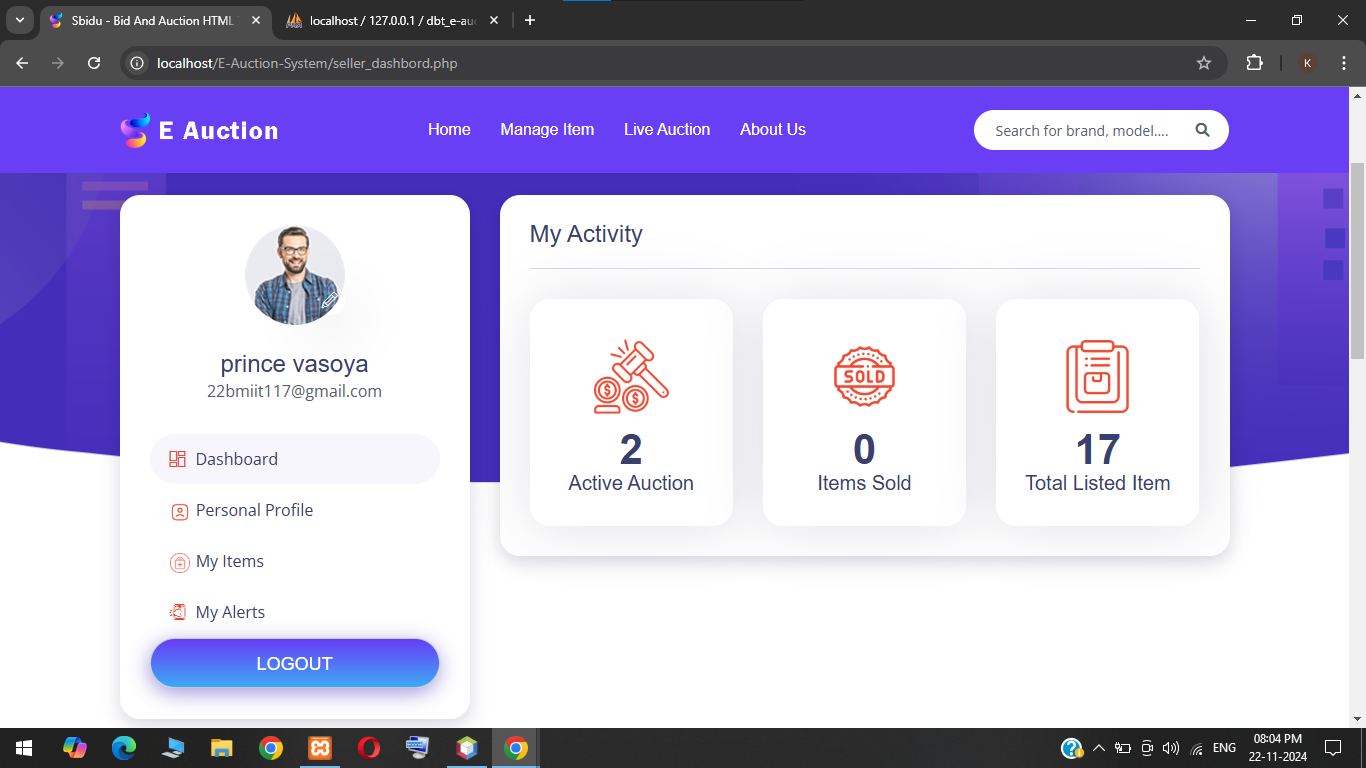
* **Seller -> Mange Item Page**
* **Seller ->Live Auction Items Page**



* **Seller ->Live Auction Page**



* **Seller ->Dashboard Page**



**Chapter 7: Testing**

**7.1 Test cases**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Test Case ID** | **Test Case** | **Inputs** | **Expected Output** | **Actual Output** | **Status** |
| **TC1** | Verify Login Functionality | Username: testuser Password: Test@1234 | User is redirected to the dashboard | User is redirected to the dashboard | Pass |
| **TC2** | Verify Registration Functionality | Name, email, password, phone, DOB, etc. | User account is created, and email OTP is sent | User account is created, and email OTP is sent | Pass |
| **TC3** | Forgot Password Functionality | Registered email address | Email OTP is sent and redirected to the forgot password page | Email OTP is sent and redirected to the forgot password page | Pass |
| **TC4** | Add Auction Item | Item details | Item is listed with a "pending" status | Item is listed with a "pending" status | Pass |
| **TC5** | Add Auction Item Without Proof | Item details without proof of authenticity | Item is not accepted, error message displayed | Item is not accepted, error message displayed | Pass |
| **TC6** | Place Bid | Bid value for a live auction | Bid is placed | Bid is placed | Pass |
| **TC7** | Payment Processing | Payment details for EMD | Payment is successful, and confirmation is shown | Payment is successful, and confirmation is shown | Pass |
| **TC8** | Verify Auction Winner | Auction ends with the highest bid | Winner is determined and notified | Winner is determined and notified | Pass |
| **TC9** | Registration with Duplicate Email | Name, email (already registered), password | "Email already exists" error is displayed | Winner is determined and notified | Pass |
| **TC10** | Access Admin Panel as Non-Admin | Login as a bidder or seller | "Access denied" error is displayed | As Expected | Pass |
| **TC11** | Attempt to Bid Without EMD Payment | Bidding on an auction without paying EMD | "You must pay the EMD to participate in the auction" | As Expected | Pass |
| **TC12** | Reserve Price Not Met | First bid below the reserve price | Auction does not start | As Expected | Pass |

**Chapter 8: Future Enhancement**

* Future enhancements could include adding mobile app support, Item Delivery and integration with social media for auction promotion.

**Chapter 9: Conclusion**

* The E-Auction Management System is a web-based platform facilitating antique item auctions between sellers and bidders across India. It automates the auction process, including item listing, bidding, payments, and refunds, with admin oversight for smooth transactions.

**Chapter 10: Bibliography**

* Razor pay API Document
* Previous Project Dcoumets
* GitHub
* Theam Forest for Template Integration