

Project Overview

Project Name: Online Marketplace

Objective: Develop a web application where users can buy and sell items. The system should allow users to register, list items for sale, search for items, place bids, and complete purchases.

Use Cases and Features

1. User Management

- **User Registration**
 - Users can create an account by providing a username, email, and password.
 - Passwords should be securely hashed and stored.
- **User Login**
 - Users can log in with their email and password.
 - Session management for authenticated users.
- **User Profile Management**
 - Users can update their profile information, such as username, email, and password.
 - Users can view their purchase and sales history.

2. Item Management

- **Add Item for Sale**
 - Registered users can list items for sale by providing a title, description, category, starting price, and images.
 - Users can set a start and end date for the auction.
- **View Item Details**
 - Users can view detailed information about an item, including the current highest bid and bid history.
- **Edit/Remove Item**
 - Sellers can edit the details of their listed items or remove them if no bids have been placed.

3. Bidding System

- **Place Bid**
 - Registered users can place bids on items up for auction.
 - The system should update the current highest bid and notify the previous highest bidder if they are outbid.
- **Auto-Bid**
 - Users can set a maximum bid amount, and the system will automatically place bids on their behalf up to that amount.

4. Search and Browse

- **Search Items**
 - Users can search for items by keywords, categories, and price range.
- **Browse Categories**
 - Users can browse items by categories.
- **Sort and Filter**
 - Users can sort search results by price, date listed, and other criteria.
 - Users can apply filters to narrow down search results.

5. Order Management

- **Purchase Item**
 - Users can purchase items they have won in an auction.
 - The system should handle payment processing and order confirmation.
- **Order History**
 - Users can view their past orders and order details.

6. Notifications

- **Email Notifications**
 - Users receive email notifications for account activities, such as registration, password reset, and outbid notifications.
- **In-App Notifications**
 - Users receive notifications within the application for important events, such as being outbid or winning an auction.

7. Reporting and Analytics

- **Sales Reports**
 - Sellers can view reports on their sales, including total sales, most popular items, and revenue over time.
- **User Activity Reports**
 - Admins can view reports on user activities, including new registrations, active users, and transactions.

Tasks for Students

1. **Database Design**
 - Students should design the database schema to support the features listed above.
 - The design should include tables for Users, Items, Bids, Orders, Categories, and any other necessary entities.
 - Relationships between tables should be defined (e.g., foreign keys).
2. **Backend Development**
 - Implement user registration, login, and profile management.
 - Implement item listing, viewing, editing, and removing.
 - Implement the bidding system and auto-bid functionality.
 - Implement order processing and order history.
3. **Frontend Development**
 - Develop a user-friendly interface for all features.

- Implement search, browse, sort, and filter functionality.
- Implement notification system for important events.

4. Testing and Deployment

- Test all functionalities thoroughly.
- Deploy the application to a web server.