



Darshan University

A Project Report on

“Online Auction System”

Under the subject

Software Engineering (2101CS503)

B. Tech, Semester – VI

Computer Science & Engineering Department

Submitted By

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Academic Year

(2023-2024)

Internal Guide

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DECLARATION

We hereby declare that the SRS, submitted along with the **Software Engineering (2101CS503)** for entitled “**Online Auction System**” submitted in partial fulfilment for the Semester-5 of **Bachelor Technology (B. Tech)** in **Computer Science and Engineering (CSE)** Department to Darshan University, Rajkot, is a record of the work carried out at **Darshan University, Rajkot** under the supervision of **Rajkumar B. Gondaliya** and that no part of any of report has been directly copied from any students’ reports, without providing due reference.

Parmar Himanshu

Student’s Signature

Date: _____



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CERTIFICATE

This is to certify that the SRS on “**Online Auction System**” has been satisfactorily prepared by **Parmar Himanshu (22010101132)** under my guidance in the fulfillment of the course **Software Engineering (2101CS503)** work during the academic year 2023-2024.

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ACKNOWLEDGEMENT

I wish to express my sincere gratitude to my project guide Prof. **Rajkumar B. Gondaliya** and all the faculty members for helping me through my project by giving me the necessary suggestions and advices along with their valuable co-ordination in completing this work.

I also thank my parents, friends and all the members of the family for their precious support and encouragement which they had provided in completion of my work. In addition to that, I would also like to mention the Darshan University personals who gave me the permission to use and experience the valuable resources required for the project from the University premises.

Thus, in conclusion to the above said, I once again thank the faculties and members of **Darshan University** for their valuable support in completion of the project.

Thanking You

Parmar Himanshu

ABSTRACT

The Online Auction System is a comprehensive, digital platform designed to facilitate the buying and selling of items through competitive bidding. This system transforms traditional auction processes into an efficient, user-friendly online experience. It incorporates features such as user registration and login, item listing, bidding, and real-time auction updates. Sellers can easily list items for auction, providing detailed descriptions, images, and starting prices. Buyers can browse available items, place bids, and receive notifications about their bid status.

The system includes an admin panel that allows administrators to manage users, monitor auctions, and generate various reports, such as user activity reports, auction statistics, and financial summaries. Key functionalities include the ability to search for items, view bid history, and utilize 'Buy Now' options for immediate purchases.

The primary objective of this system is to streamline the auction process, making it more efficient and accessible, while minimizing human intervention and errors. By leveraging modern web technologies, this system ensures a seamless and engaging experience for all users involved in online auctions.

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1 Introduction

1.1 Product perspective

Welcome to the "Online Auction System." This innovative platform revolutionizes the auction process by enabling seamless online bidding and product sales. Vendors can easily list their products for auction, and customers can place competitive bids to purchase them. The main objective of the e-Auction process is to obtain the best value and the highest price for products. Achieving optimal outcomes requires focusing on overall value rather than just price alone. The "Online Auction System" caters to two main user categories: customers and vendors. Vendors can sell their products on the website, and customers can participate in the auctions by placing bids. The product will be sold to the customer who places the highest bid. Users can place multiple bids on various products, ensuring a dynamic and competitive bidding environment.

1.2 Product features

1.2.1 There are three different users who will be using this product:

- Administrator who will manage the overall platform.
- Vendor who will be listing products for auction.
- Customer who will be placing bids on products.

1.2.2 The features that are required for the Administrator are:

- Control and manage vendor and customer accounts.
- Oversee the listing and movement of products and ensure proper documentation.
- Monitor ongoing auctions to ensure fair play and compliance with platform rules.
- Search for specific products or users based on various criteria such as name, category, or user details.
- Generate reports on auction activities, sales, and user engagement.
- Address and resolve any disputes between vendors and customers.
- Perform regular maintenance tasks to keep the platform running smoothly.
- Send notifications and updates to users about their activities and auction statuses.

1.2.3 The features that are required for the Vendor are:

- Add and manage products for auction with detailed descriptions and images.
- Set auction parameters such as start time, end time, and minimum bid increments.
- View and manage bids placed on their products.
- Access reports on sales and bidding history for their products.
- Communicate with customers through the platform regarding their products and auctions.
- Manage their account details, payment information, and transaction history.

1.2.4 The features that are required for the Customer are:

- View and browse different categories of products available for auction.
- Place bids on products they are interested in purchasing.
- Create and manage their account details and personal information.
- Track their bids and receive notifications about the status of their bids.
- View their purchase history and transaction details.
- Search for specific products based on keywords, categories, or vendors.
- Provide feedback and reviews on products they have purchased.

1.3 Functional Requirement

➤ Users of this System:

1. **Administrator:** Manages and oversees the platform or system, handling tasks like user management, content moderation, and system maintenance.
2. **Vendor (Seller):** A person or business that offers goods or services for sale on a platform or marketplace.
3. **Customer (Buyer):** An individual or entity purchasing goods or services from a vendor or business.
4. **Guest:** A visitor with limited access, often browsing without full user privileges or registration.

1.3.1 Administrator

- User Management: The system shall allow the Administrator to create, update, and delete user accounts.
- Role Assignment: The system shall allow the Administrator to assign roles (buyer, seller, admin) to users.
- Auction Monitoring: The system shall provide the Administrator with the ability to monitor active, upcoming, and completed auctions.
- Dispute Resolution: The system shall enable the Administrator to intervene and resolve disputes between buyers and sellers.
- Content Moderation: The system shall allow the Administrator to review and approve or reject auction listings before they go live.
- Policy Enforcement: The system shall enable the Administrator to enforce site policies and rules by banning or suspending users who violate terms of service.
- Reporting and Analytics: The system shall provide the Administrator with detailed reports and analytics on system usage, auction activities, and financial transactions.
- System Configuration: The system shall allow the Administrator to configure system settings such as auction duration, bid increments, and notification preferences.
- Security Management: The system shall enable the Administrator to manage security settings, including setting password policies and enabling/disabling two-factor authentication.
- Payment Management: The system shall allow the Administrator to oversee and manage payment gateways, transaction fees, and financial reconciliations.
- Data Backup and Recovery: The system shall allow the Administrator to perform data backups and manage data recovery processes.
- Communication Management: The system shall enable the Administrator to send messages or notifications to all users or specific user groups.

1.3.2 Vendor

- Item Listing Creation: The system shall allow sellers to create new auction listings by providing item details, descriptions, images, starting price, and auction duration.
- Item Listing Management: The system shall allow sellers to edit or delete their auction listings before any bids are placed.
- Reserve Price Setting: The system shall allow sellers to set a reserve price for their auction listings to ensure the item is not sold below a certain amount.
- Bid Management: The system shall notify sellers when new bids are placed on their auction listings.
- Communication with Buyers: The system shall allow sellers to communicate with potential buyers via a messaging system.
- Payment Processing: The system shall facilitate the processing of payments from buyers to sellers once an auction is completed.
- Feedback Management: The system shall allow sellers to leave feedback for buyers based on their transaction experience.
- Upload Images: The seller must be able to upload multiple images for each auction listing to provide visual representation of the item.

- View Active Auctions: The seller must be able to view a list of their active auctions along with current bids and auction status.
- Cancel Auction Listings: The seller must have the ability to cancel an active auction listing, provided no bids have been placed.
- View Sales History: The seller must be able to view a history of their completed sales, including item details, sale price, and buyer information.

1.3.3 Buyer

- User Registration and Login: Buyers must be able to create an account by providing necessary details and then log in using their credentials.
- Profile Management: Buyers should be able to view and edit their personal information and account settings.
- Item Search and Browsing: Buyers must be able to search for items using various filters such as category, price range, auction end time, and keywords.
- Item Viewing: Buyers should be able to view detailed information about an item, including descriptions, images, seller information, and current highest bid.
- Automatic Bidding: Buyers should have the option to set a maximum bid amount, allowing the system to automatically place incremental bids on their behalf up to that limit.
- Auction Monitoring: Buyers should be able to add items to a watchlist to monitor auctions they are interested in.
- Transaction History: Buyers should be able to view a history of their transactions, including won auctions, payments made, and items received.
- Communication: Communicate with sellers through messaging or inquiry features to ask questions about items.
- Account Security: Ensure account security through password management and optional two-factor authentication.
- Viewing Auction History: Access and view past auction activities, including items bid on and won.

1.3.4 Guest

- View Auction Listings: The guest user shall be able to view all available auction listings.
- Search Auctions: The guest user shall be able to search for auctions using keywords.
- Sort Auctions: The guest user shall be able to sort auction listings by various parameters such as price, popularity, and end date.
- View Item Details: The guest user shall be able to view detailed information about a listed item, including descriptions, images, and current bid status.
- View Seller Information: The guest user shall be able to view limited information about the seller, such as their rating and number of auctions conducted.
- View Auction Rules: The guest user shall be able to view the rules and guidelines for participating in auctions.
- Viewing Auction Calendar: Ability to see upcoming auctions or events without needing to log in.
- Language and Currency Selection: Options to select preferred language and currency for viewing auction listings.

1.4 Non-Functional Requirement

1.4.1 Performance:

- Response Time: The system should respond to user interactions (like placing bids or updating listings) within a certain timeframe (e.g., under 1 second).
- Scalability: It should handle increasing numbers of users and transactions without significant degradation in performance.

1.4.2 Usability:

- The user interface should be intuitive and user-friendly, catering to both experienced and novice users.

1.4.3 Security:

- Data Encryption: All sensitive information (like user credentials, payment details) should be encrypted to prevent unauthorized access.
- Protection Against Attacks: Measures should be implemented to defend against common cyber threats such as DDoS attacks, SQL injection, and cross-site scripting (XSS).

1.4.4 Monitoring and Reporting:

- Performance Monitoring: Monitor system performance metrics such as CPU usage, memory usage, and response times.
- Reporting: Generate reports on auction activities, sales trends, and user behavior for business insights.

2 Design and Implementation Constraints

2.1 Use case diagram

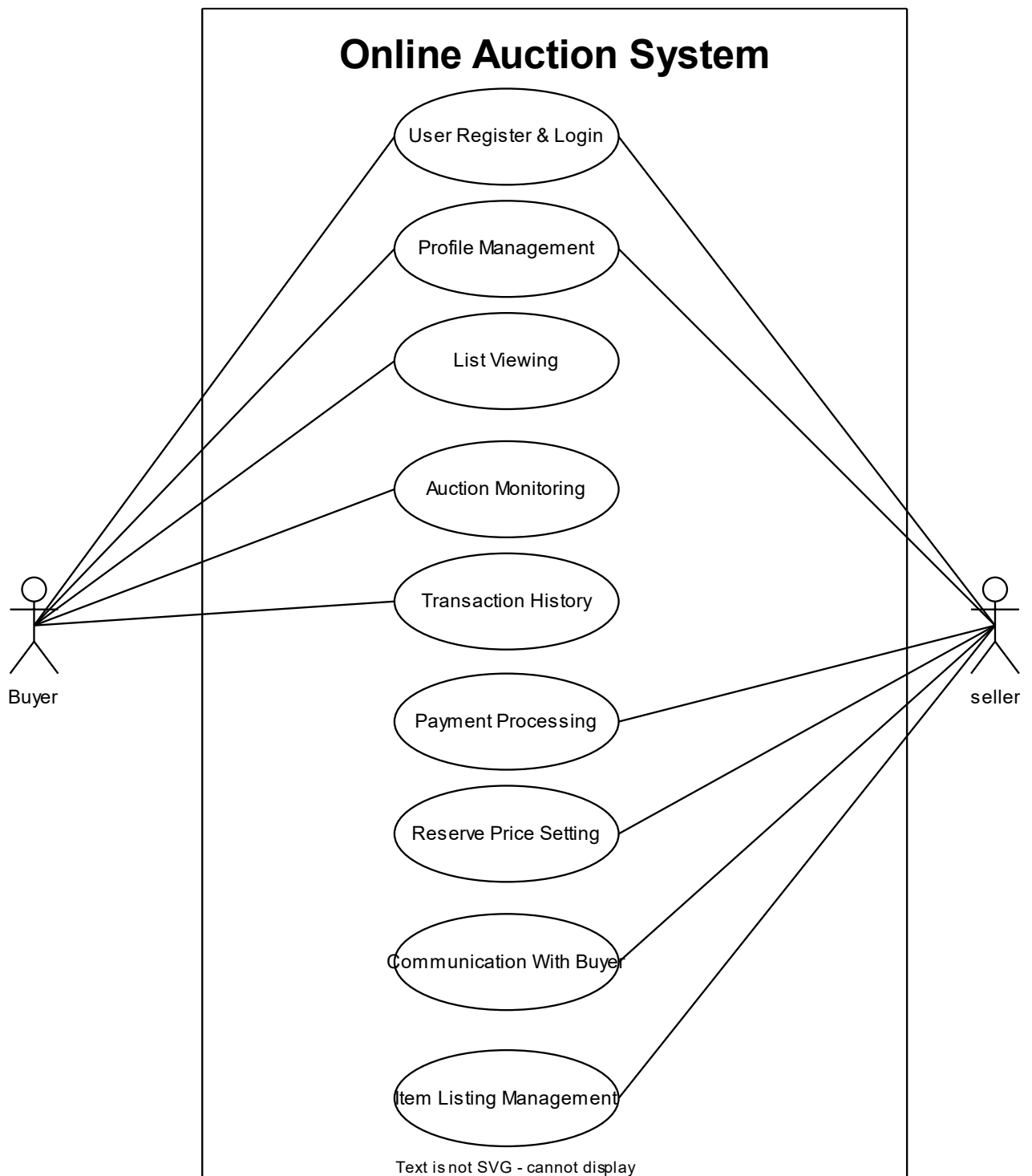


Figure 2.1-1 Use case diagram for Online Auction System

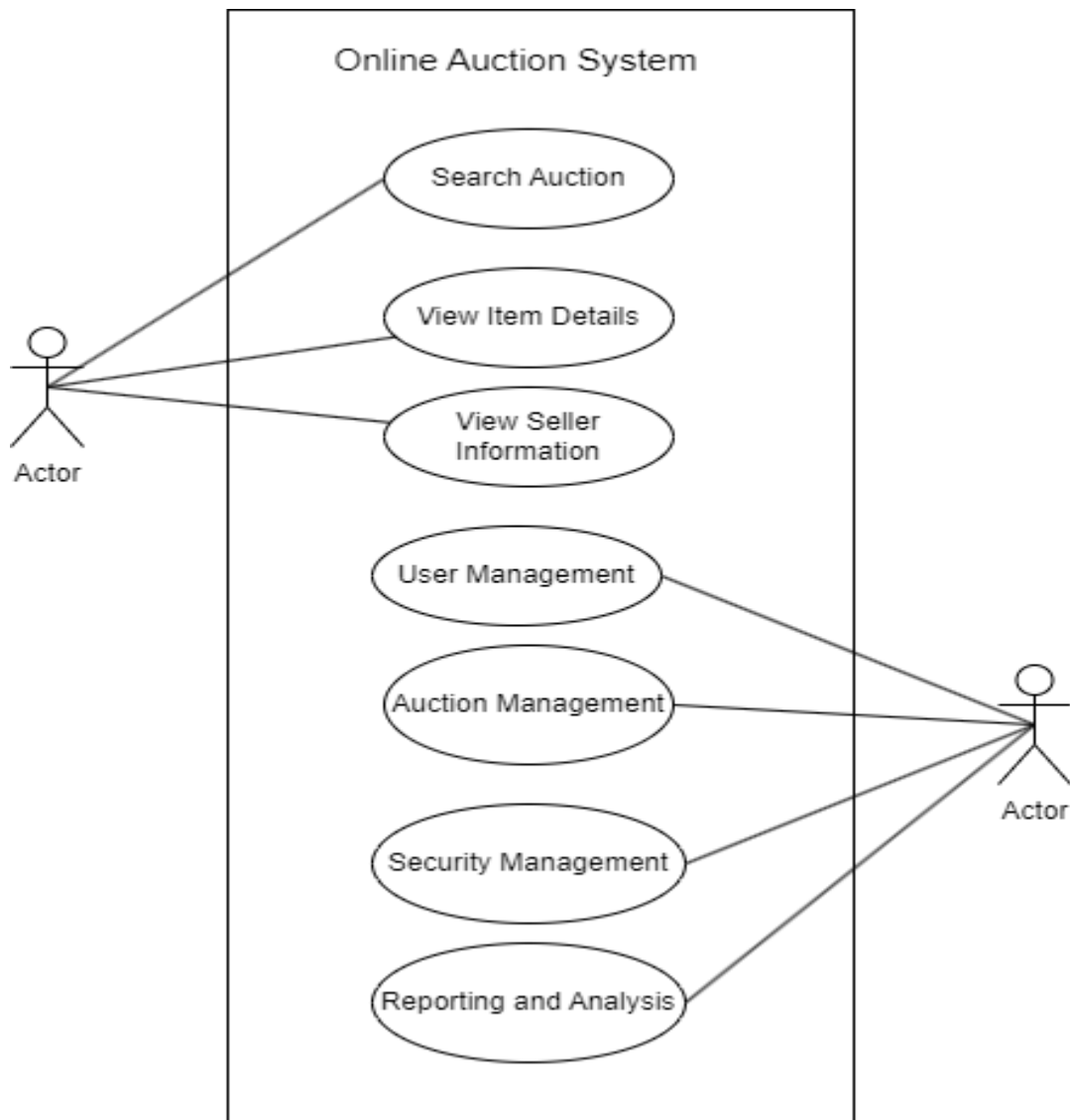


Figure 2.1-2 Use case diagram for Online Auction System

2.2 Activity diagram and Swimlane diagram

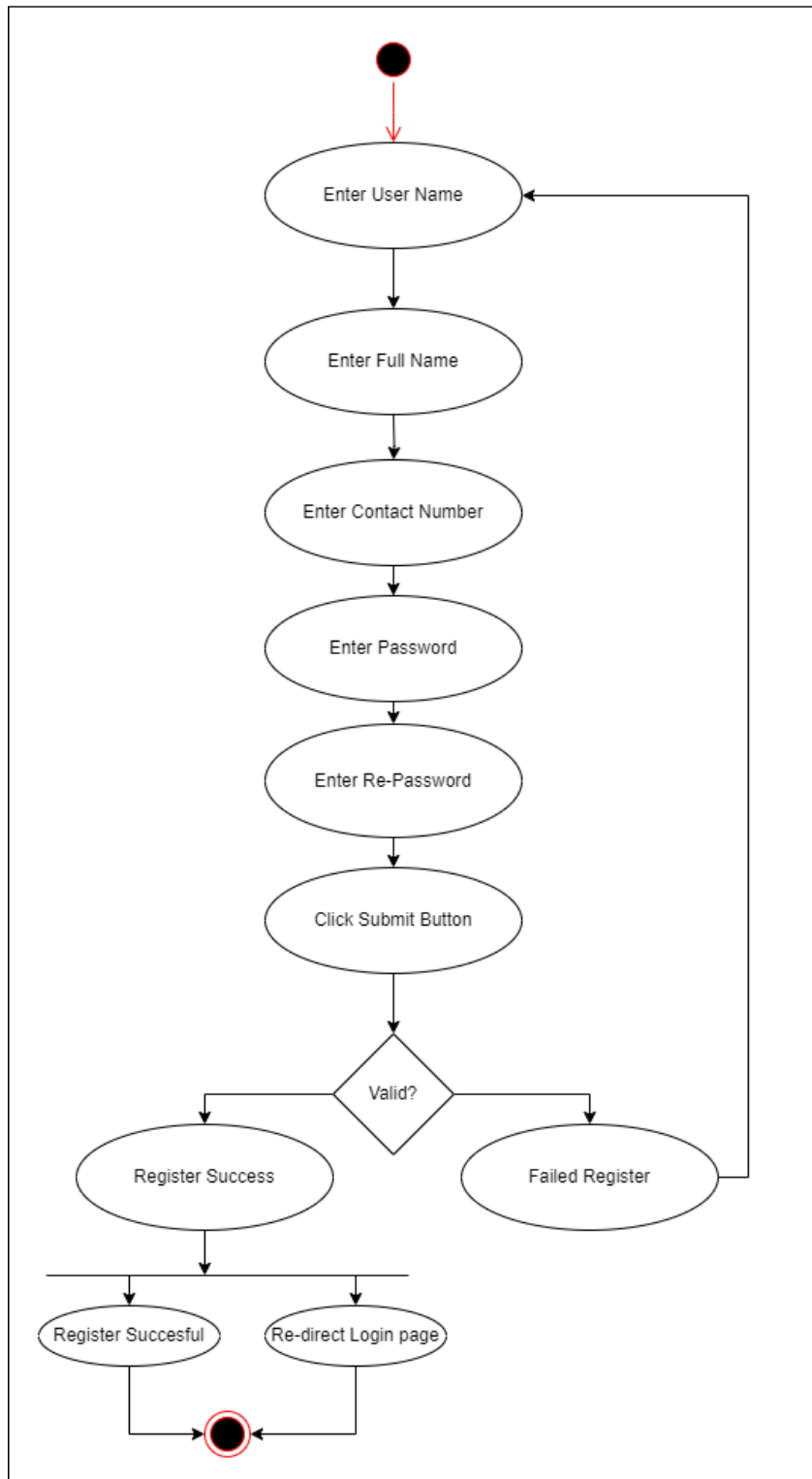


Figure 2.2-1 Activity diagram for Register

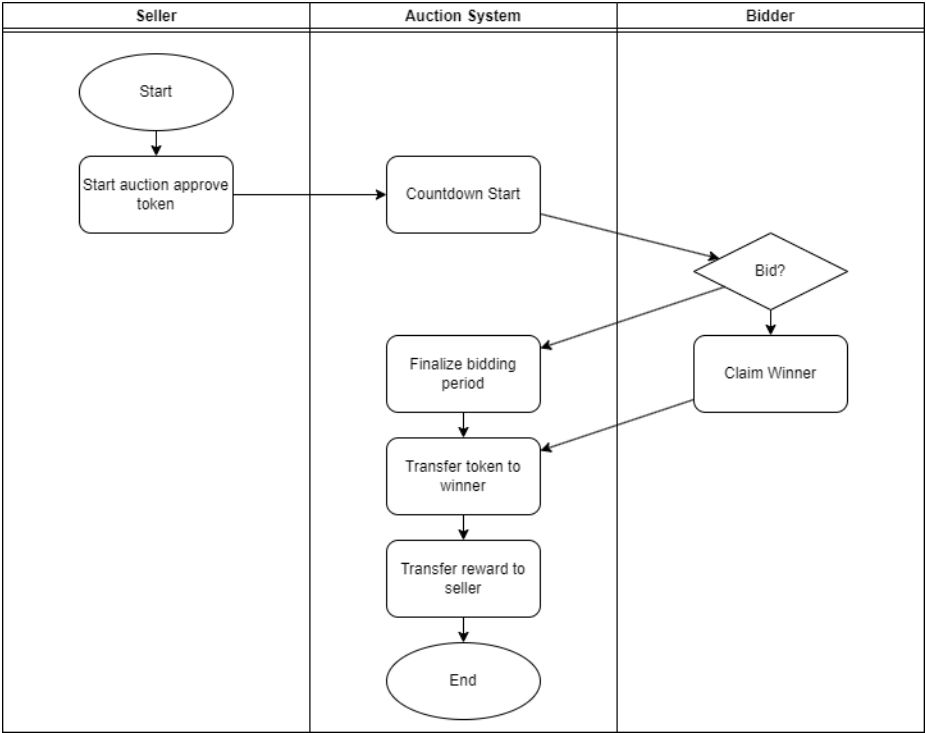


Figure 2.2-2 Swimlane diagram for Auction Start

2.3 Sequence diagram

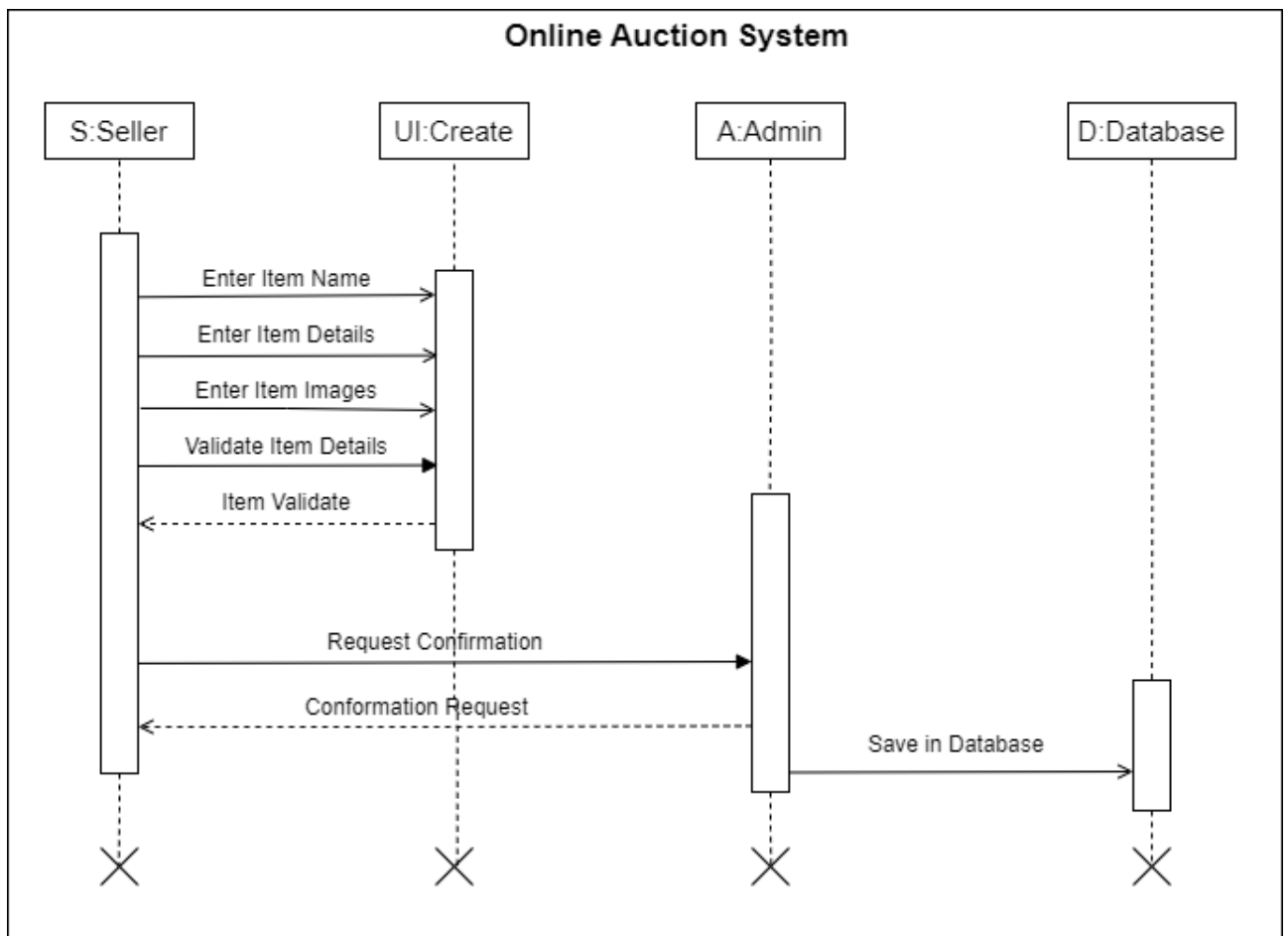


Figure 2.3-1 Sequence diagram for Create Item

2.4 State diagram

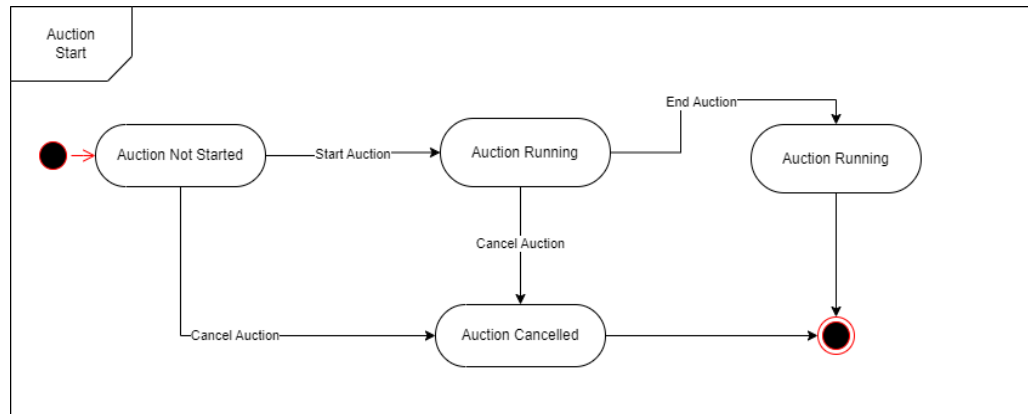


Figure 2.4-1 State diagram for Auction Start

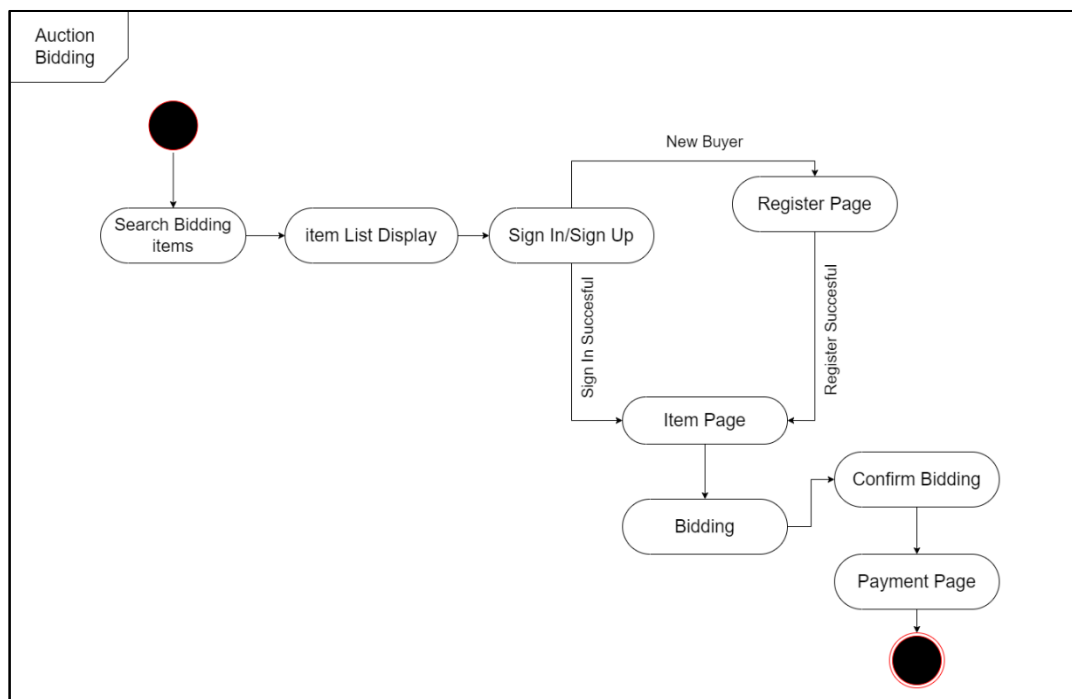


Figure 2.4-2 State diagram for Auction Bidding

2.5 Class diagram

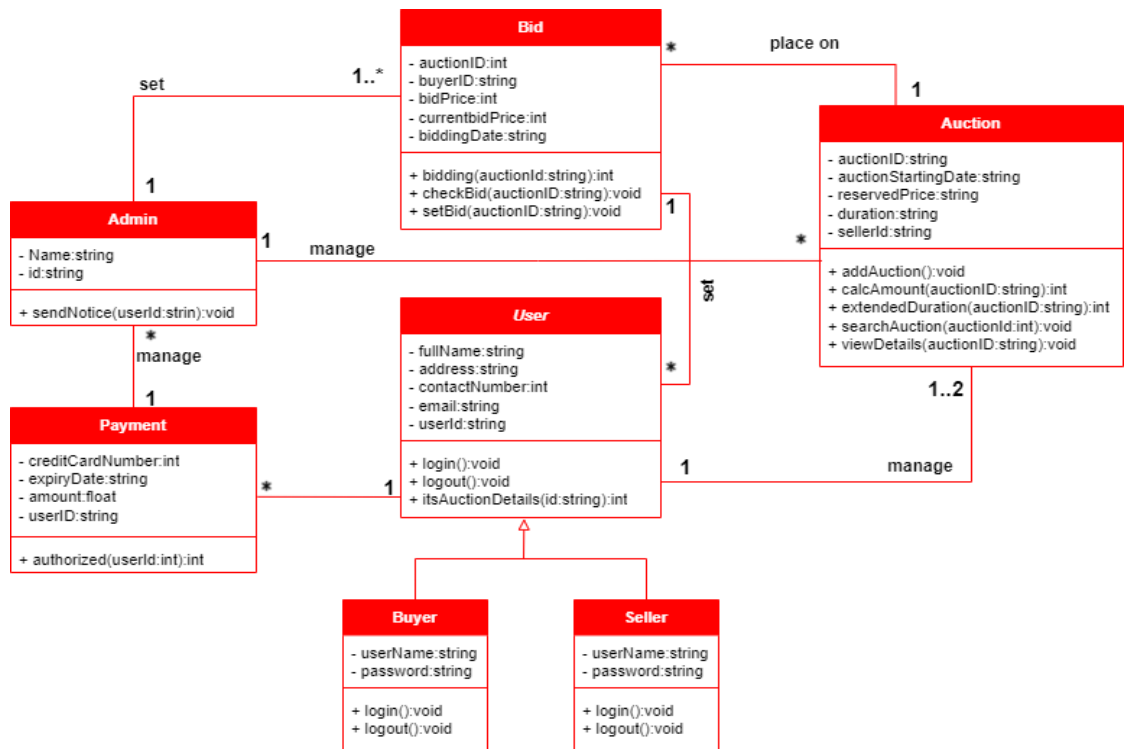


Figure 2.5-1 Class diagram for Online Auction System

2.6 Data flow diagram

2.6.1 Context diagram (level-0)

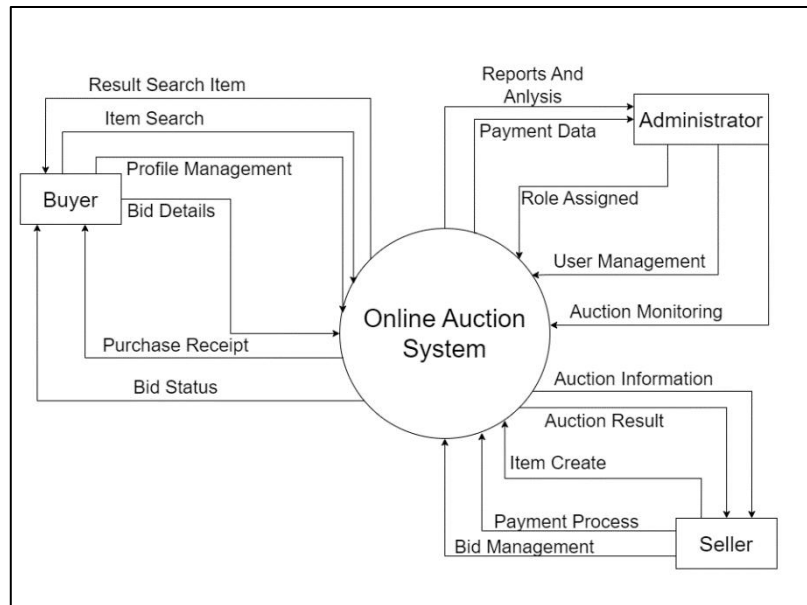


Figure 2.6-1 Context diagram for Online Auction System

2.6.2 DFD Level-1

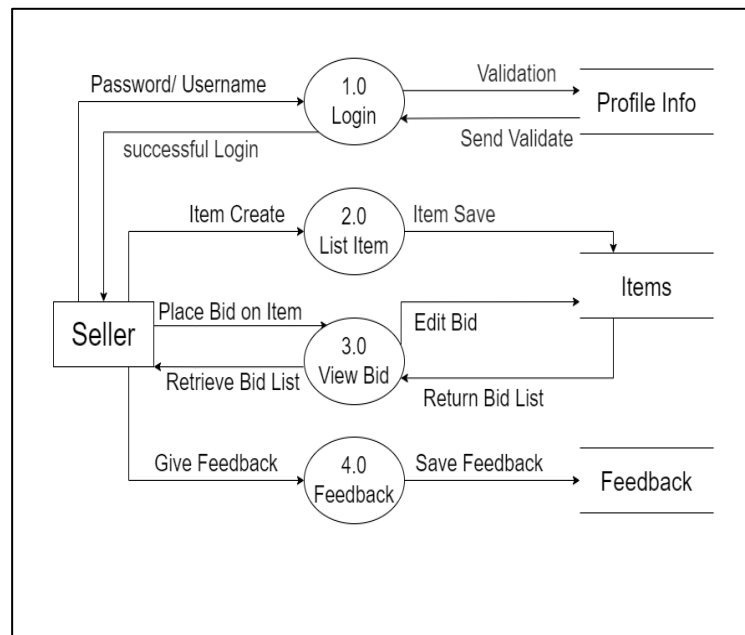


Figure 2.6-2 DFD level-1 for Online Auction System

3 External interface requirement (Screens)

3.1 Screen-1: Home screen

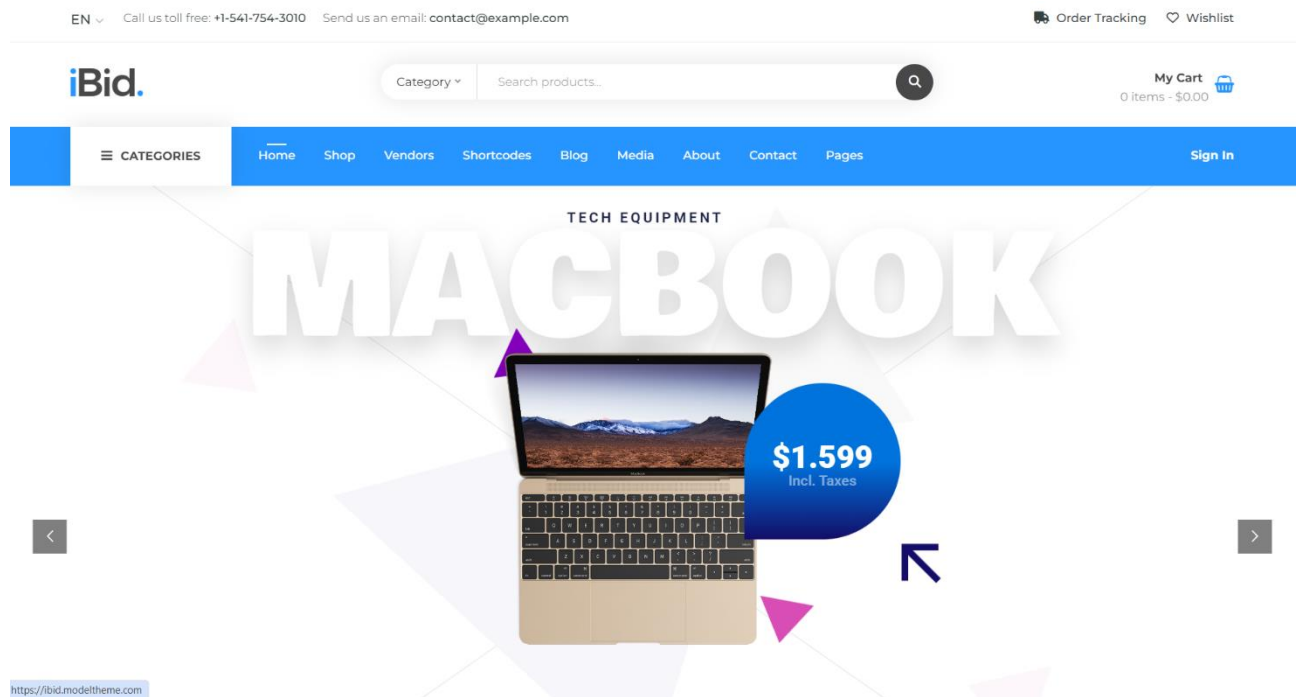


Figure 3.1-1 Screen-1: Home Screen

Purpose: The Home Screen aims to provide a seamless and engaging user experience, guiding users through the auction process with ease and efficiency.

Table 3.1-1 Screen element of Home Screen

Sr.	Screen Element	Input Type	O/M	1/N	Description
1	Title	Text	M	1	Shows the site title "iBid."
2	Category	Text	M	1	Shows a dropdown menu to select categories of products.
3	Search Item	Text	M	1	Allows users to search for items by entering item names.
4	My Cart	Text	M	1	Displays items that the user wants to purchase.
5	Nav-bar	Link	M	1	Displays links to various pages like Home, Shop, Vendors, Shortcodes, Blog, Media, About, Contact, and Pages.
6	Slider of Latest Auction Item	Image	M	N	Shows a slider of the latest added auction items, currently displaying a MacBook with the price of \$1,599 including taxes.

3.2 Screen-2: Auction Item List

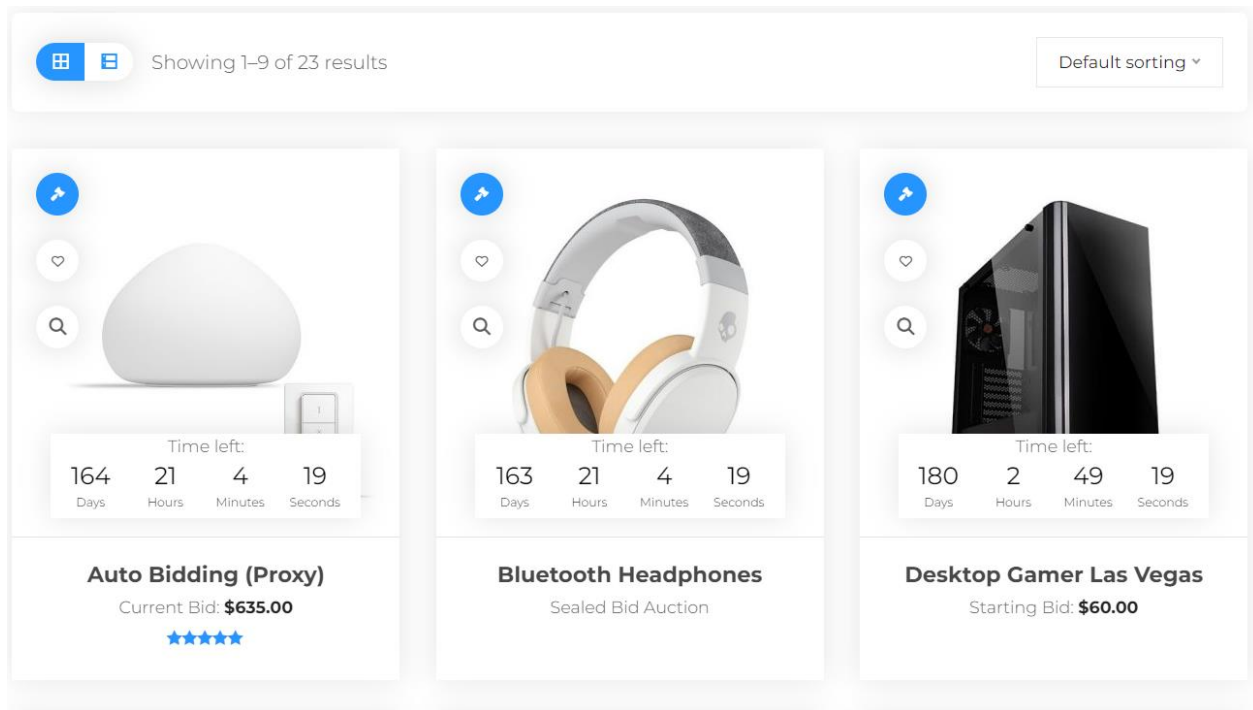


Figure 3.2-1 Screen-2: Auction Item List

Purpose: To display auction items in a user-friendly way, allowing users to browse, sort, and view item details easily. The page provides essential information such as item images, auction time, current bid prices, and quick view options to aid in efficient browsing and decision-making.

Table 3.2-1 Screen element of Item List

Sr.	Screen Element	Input Type	O/M	1/N	Description
1	Grid -> List (List -> Grid)	Buttons	M	1	Toggle between grid and list views for displaying items.
2	Default sorting	Button	M	1	Sort the list based on various criteria such as alphabet, bid amount, and new/old items.
3	Item image	Image	M	N	Displays an image of the auction item.
4	Auction time left	Datetime	M	1	Shows the remaining time for the auction in a countdown format.
5	Item current/starting bid	Text	O	1	Displays the current bid price or the starting bid price in dollars.
6	Quick view	Button	M	1	Provides a quick view of the item details.

3.3 Screen-3: Item details

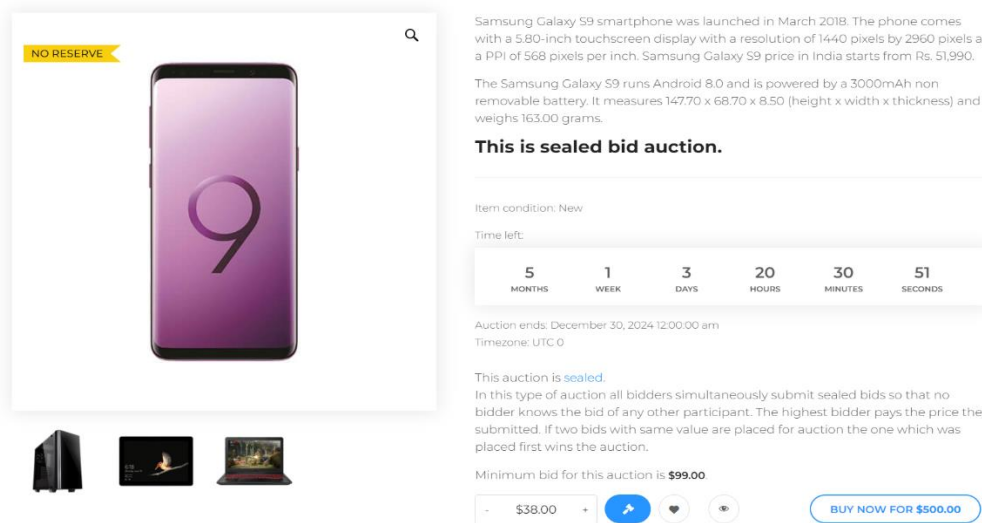


Figure 3.3-1 Screen-3: Item Details

Purpose: To display detailed information about a specific auction item, allowing users to view item specifications, auction details, and place bids. This page provides comprehensive information such as item images, descriptions, auction type, time left, minimum bid, and bidding options to facilitate informed decision-making for potential bidders.

Table 3.3-1 Screen element of Item Details

Sr.	Screen Element	Input Type	O/M	1/N	Description
1	Item Image	Image	M	1	Displays the main image of the auction item.
2	Item Description	Text	M	1	Provides detailed information about the auction item, including specifications and condition.
3	Auction Type	Text	M	1	Indicates the type of auction (e.g., sealed bid auction).
4	Time Left	Datetime	M	1	Shows the remaining time for the auction in a countdown format.
5	Auction End Date	Datetime	M	1	Displays the date and time when the auction will end.
6	Bid Amount	Textbox	M	1	Allows users to enter their bid amount.
7	Share	Button	O	1	Option to share the auction item.
8	Buy Now	Button	O	1	Allows users to buy the item immediately at a specified price.

3.4 Screen-4: Store List

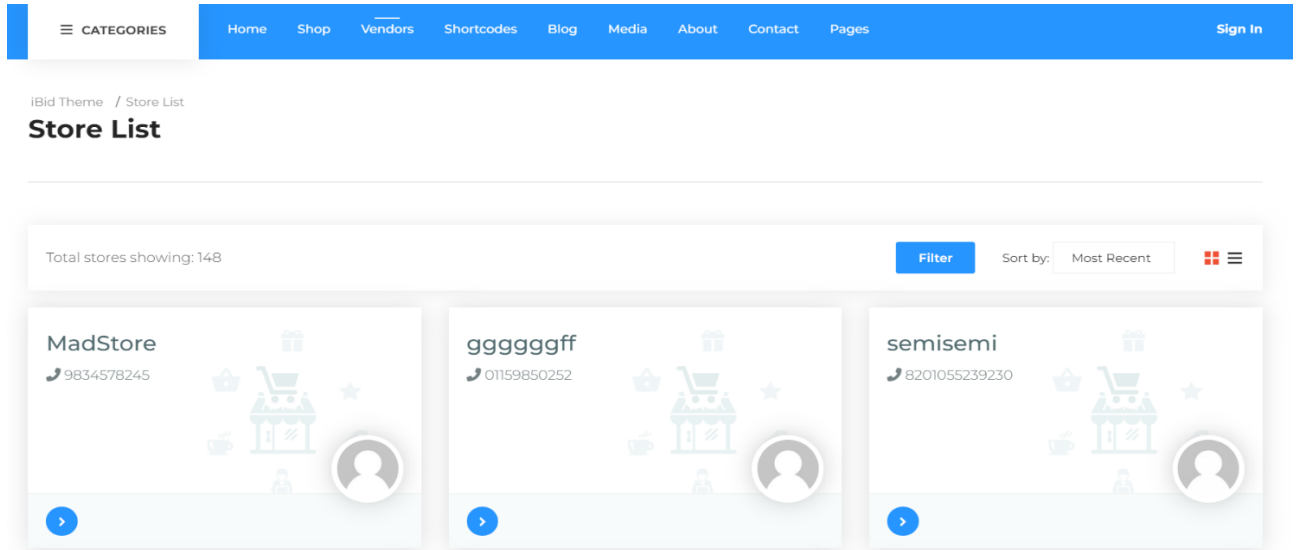


Figure 3.4-1 Screen-4:Store List

Purpose: The purpose of this screen is to display a list of stores available in the system. It allows users to view store details, filter the list, and sort the stores based on different criteria.

Table 3.4-1 Screen element of Store List

Sr.	Screen Element	Input Type	O/M	1/N	Description
1	Store Name	Text	M	1	Displays the name of the store.
2	Store Contact	Text	M	1	Shows the contact number of the store.
3	Store Image	Image	O	1	Displays an image representing the store.
4	Filter Button	Button	M	1	Allows users to filter the list of stores based on specific criteria.q
5	Sort Dropdown	Dropdown	M	1	Provides options to sort the store list (e.g., Most Recent).
6	Navigation Arrows	Button	O	1	Allows users to navigate through the store cards.

3.5 Screen-5: Categories Grid

iBid Theme / Shop / Products by Categories Grid

Products by Categories Grid

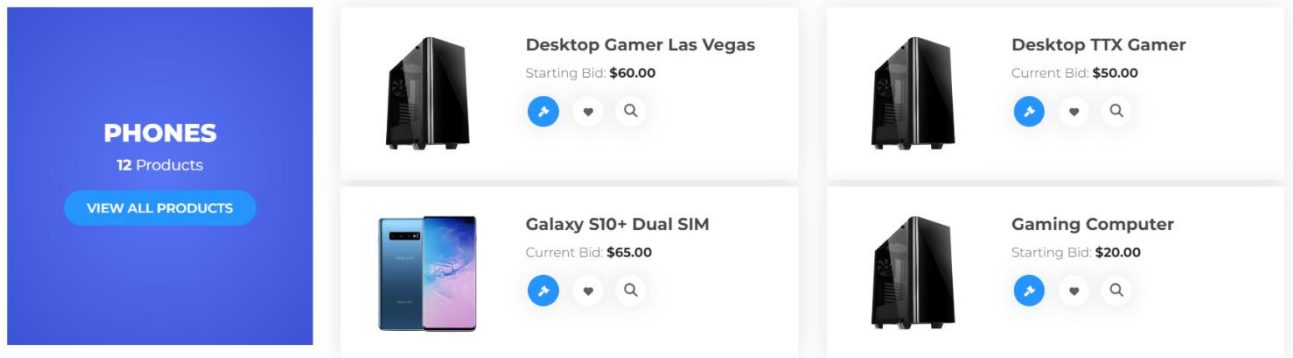


Figure 3.4-1 Screen-5:Categories grid

Purpose: This screen is Purpose to show Categories Wise Item.

Table 3.4-1 Screen element of Categories grid

Sr.	Screen Element	Input Type	O/M	1/N	Description
1	Categories Name	Text	M	1	Displays the name of the category (e.g., PHONES).
2	Category Product Count	Text	M	1	Shows the number of products in the category.
3	View All Products Button	Button	M	1	Displays the main image of the product.
4	Product Title	Text	M	N	Shows the title of the product.
5	View Details Button	Button	O	N	Allows users to view detailed information about the product.

4 Database design

4.1 List of Tables

- Users
- Item
- Bids
- Categories
- Payments

Table 4.1-1 Table: Users

Column	Data Type	Null	Keys & Constrains	Default Value & Description
UserID	int	NN	PK (Auto Increment)	
UserName	varchar(100)	NN		
Password	varchar(50)	NN		
Email	Varchar(50)	NN		
ContactNumber	Int	NN		
Address	Varchar(100)	AN		

Table 4.1-2 Table: Item

Column	Data Type	Null	Keys & Constrains	Default Value & Description
ItemID	int	NN	PK (Auto Increment)	
ItemName	varchar(100)	NN		
Title	varchar(50)	AN		
Description	varchar(100)	NN		
StartingPrice	int	NN		
StartDate	DateTime	NN		
EndDate	DateTime	AN		
CategoryID	int	AN	FK	Referencing of Category Table

Table 4.1-3 Table: Bids

Column	Data Type	Null	Keys & Constrains	Default Value & Description
BidID	int	NN	PK (Auto Increment)	
ItemID	int	NN	FK	Referencing of Item Table
UserID	int	NN	FK	Referencing of Users Table
BidAmount	int	NN		
BidStart	DateTime	AN		

Table 4.1-4 Table: Categories

Column	Data Type	Null	Keys & Constrains	Default Value & Description
CategoryID	int	NN	PK (Auto Increment)	
CategoryName	varchar(100)	NN		
Description	varchar(100)	AN		

Table 4.1-5 Table: Payments

Column	Data Type	Null	Keys & Constrains	Default Value & Description
PaymentID	int	NN	PK (Auto Increment)	
UserID	int	NN	FK	Referencing of Users Table
ItemID	int	NN	FK	Referencing of Item Table
PaymentAmount	int	NN		
PaymentDate	DateTime	NN		
PaymentMethod	varchar(50)	AN		

5 Stories and Scenario

5.1 Story-1: Create New Auction Listing

Story # S1	: As a Seller, I want to create a new auction listing So that I can sell my items to the highest bidder.
Priority	: High
Estimate	: XL
Reason	: Creating auction listings is fundamental to the operation of the auction system, enabling sellers to offer their items to potential buyers.

5.1.1 Scenario# S1.1

Scenario# S1.1	: Creating an Auction Listing with Valid Information
Prerequisite	: The seller is logged into the auction system.
Acceptance Criteria	Given: The seller is navigated to the auction creation page. Valid item details, including title, description, starting bid, reserve price, and auction duration, are provided. When: The seller selects the "Create New Auction" option, And the seller enters valid item details, The seller clicks the "Save" button to list the item for auction. Then: The system successfully creates the auction listing, and the seller receives a confirmation message with the auction ID.

5.1.2 Scenario# S1.2

Scenario# S1.2	: Creating an Auction Listing with Invalid Information
Prerequisite	: The seller is logged into the auction system.
Acceptance Criteria	Given: The seller is on the auction creation page. When: The seller selects the "Create New Auction" option, And the seller enters incomplete or incorrect item details, The seller clicks the "Save" button to list the item for auction. Then: The system displays error messages for the incorrect or missing information, and the auction listing is not created.

5.1.3 Scenario# S1.3

Scenario# S1.3	: Attempting to Create a Duplicate Auction Listing
Prerequisite	: The seller is logged into the auction system, and the seller is on the auction creation page.
Acceptance Criteria	Given: The item information, including title, description, and starting bid, is available, and the item with the same details is already listed for auction. When: The seller clicks the "Create Auction" button and attempts to create a listing with the same item details. Then: The system prevents the creation of a duplicate listing and prompts the seller to update or manage the existing auction.

5.2 Story-2: Search for Auctions

Story # S2	: As a Buyer or Seller, I want to search for auctions by item title, category, or keyword So that I can quickly find or manage auctions of interest.
Priority	: High
Estimate	: M
Reason	: Implementing search functionality is essential for enhancing the user experience, enabling buyers and sellers to efficiently discover or manage auction listings.

5.3 Story-3: Place a Bid

Story # S3	: As a Buyer, I want to place a bid on an auction item So that I can compete to purchase the item.
Priority	: High
Estimate	: M
Reason	: Bidding functionality is core to the auction system, allowing buyers to participate in auctions and compete for items.

5.4 Story-4: Manage Auction End Date

Story # S3	: As a Seller, I want to manage the end date of my auction So that I can extend or shorten the auction period based on demand.
Priority	: Medium
Estimate	: M
Reason	: Managing the auction end date is crucial for sellers who wish to optimize the timing of their auctions based on market conditions.

5.5 Story-5: Generate a Report on Auction Activity

Story # S3	: As an Administrator, I want to generate reports on auction activity So that I can analyze trends and make informed decisions about the platform.
Priority	: Medium
Estimate	: L
Reason	: Reporting functionality is important for tracking the performance of the auction platform and making data-driven improvements.

6 Test cases

Project Name:	Auctino System	Test Designed by:	Himanshu Parmar
Module Name:	Placed Item	Test Designed date:	23-08-2024
Release Version:	1.0	Test Executed by:	R. B. Gondaliya
		Test Execution date:	15-01-2023

Pre-condition: Web application should be accessible				
Test Case ID	Test Title	Test Type	Description	Test Case ID
TC_001	Access "Place Item in Auction" Page	Functional	Verify that the user can access the "Place Item in Auction" page after logging in	TC_001
TC_002	Place Item in Auction with Valid Details	Functional	Verify that the user can successfully place an item in the auction with all valid details	TC_002
TC_003	Place Item in Auction with Missing Mandatory Fields	Functional	Verify that the system prevents placing an item in the auction when mandatory fields are missing	TC_003
TC_004	Verify Auction Listing After Item Placement	Functional	Verify that the Item Details Should be placed successfully in the auction.	TC_004

Test Case Title	Access "Place Item in Auction" Page
Test Type	Functional
Test Priority	High
Pre-condition	User should be logged into the web application

Test Step	Test Case Description	Expected Result	Actual Result	Status	Comment	Data	BUG ID
1	Navigate to "Place Item in Auction" page via the dashboard	"Place Item in Auction" page should be accessible	"Place Item in Auction" page accessed successfully	Pass			
2	Verify that all input fields (e.g., item title, description, starting bid) are visible	All input fields should be visible and editable	All input fields are visible and editable	Pass			
3	Verify the presence of the "Upload Image" option on the page.	The "Upload Image" option should be visible and functional, allowing users to upload an	The "Upload Image" option was visible and functional.	pass			

		image of the item.					
4	Verify the presence of the "Submit" button on the page.	The "Submit" button should be visible and clickable.	The "Submit" button was visible and clickable.	Pass			

Test Case Title	Place Item in Auction with Valid Details
Test Type	Functional
Test Priority	High
Pre-condition	User should be logged into the web application

Test Step	Test Case Description	Expected Result	Actual Result	Status	Comment	Data	Bug ID
1	Enter valid item title in the title field	The title field should accept the input	Title input accepted	Pass		Title: "Vintage Watch"	
2	Enter valid item description in the description field	The description field should accept the input	Description input accepted	Pass		Description: "A classic vintage watch in good condition"	
3	Enter valid starting bid amount	The starting bid field should accept the input	Starting bid input accepted	Pass		Starting bid: \$50	
4	Enter valid auction end date and time	The date and time fields should accept input, and the end date should be	Date and time input accepted	Pass		End date: 2024-11-01 18:00	

		in the future					
5	Upload item image	The image upload field should accept the image file	Image uploaded successfully	Pass		Image: "watch.png"	
6	Click on the "Submit" button	The item should be placed in the auction, and a success message should appear	Item placed in auction successfully, and success message displayed	Pass			

Test Case Title	Place Item in Auction with Missing Mandatory Fields
Test Type	Functional
Test Priority	Medium
Pre-condition	Web application should be accessible

Test Step	Test Case Description	Expected Result	Actual Result	Status	Comment	Data	Bug ID
1	Leave the item title field empty	The system should prevent submission and display an error message	Error message displayed, and submission prevented	Pass			
2	Leave the description field empty	The system should prevent submission and display an error message	Error message displayed, and submission prevented	Pass			

3	Leave the starting bid field empty	The system should prevent submission and display an error message	Error message displayed, and submission prevented	Pass			
4	Click on the "Submit" button with missing mandatory fields	The item should not be placed in the auction, and appropriate error messages should be shown	Submission prevented, and error messages displayed	Pass			

Test Case Title	Verify Auction Listing After Item Placement
Test Type	Functional
Test Priority	High
Pre-condition	An item should be placed successfully in the auction.

Test Step	Test Case Description	Expected Result	Actual Result	Status	Comment	Data	Bug ID
1	Navigate to the auction listing page.	The placed item should be visible in the auction list.	Item visible in the auction list	Pass		Item title: "Vintage Watch"	
2	Verify the details of the placed item in the auction list, including the item title.	The item title should match the title provided during item	The item title matches the input provided during placement.	Pass		Title: "Vintage Watch"	

		placement.					
3	Verify the item description in the auction list.	The item description should match the description provided during item placement.	The item description matches the input provided during placement.	Pass		Description: "A classic vintage watch in good condition"	
4	Verify the starting bid amount in the auction list.	The starting bid amount should match the value provided during item placement.	The starting bid amount matches the input provided during placement.	Pass		Starting Bid: \$50	
5	Check for any error messages or discrepancies in the auction listing page.	There should be no error messages, and all details should be accurate as per the item placement.	No errors found, and all details are accurate.	Pass			

7 References

- http://www.w3schools.com/html/html_intro.asp
- <https://www.w3schools.com/php/default.asp>
- <https://www.javatpoint.com/uml>