

Automated Auction Management System - AuctionXpress

Final Project Report
Diploma In Software Engineering

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Declaration

We, the creators of AuctionXpress, do hereby state that this website has been created solely from our own concepts, ingenuity, and technical skills. All its features, functionality, and design aspects have been painstakingly developed to bring a smooth and secure online auctioning experience.

We hereby certify that all elements, such as the user interface, database schema, and bidding systems, have been conceived and realized by our team without infringing on third-party intellectual property without permission. AuctionXpress is a product of our commitment to innovation, with a guarantee of fair competition and transparency to all users. In addition, we recognize our obligation to uphold the platform's integrity by constantly reinforcing security protocols, resolving possible concerns, and offering customers a safe medium for online auctions. Any future updates, amendments, or upgrades will be in accordance with our founding principles of fairness, efficiency, and customer satisfaction.

By using AuctionXpress, buyers consent to uphold the website's terms and conditions, promoting ethical involvement in all auction activities. We also hold the right to act as necessary to uphold integrity and professionalism on our site.

This project was completed under the guidance and supervision of Miss Sandaruwani Pathirage, whose guidance and support have been invaluable in making AuctionXpress a success.



Dedication

In the name of our families, friends, and mentors, we dedicate this project to them. Their support, guidance, and encouragement at each step of this journey will always be cherished. Their belief in us has been the source of our motivation throughout and encouraged us to attain our goals and persevere.

We are extremely grateful to our lecturer Ms. Sandaruwani Pathirage for her very precious guidance and support; we acknowledge the blessings given by the National Institute of Business Management (NIBM) in providing us with the necessary knowledge and resources to successfully complete this project.

Lastly, this work is dedicated to all the budding software engineers who aspire to develop solutions and contribute to the world of technology in which change is the only constant.

Developers:

Automated Auction Management System.



Acknowledgment

A software project is never solely an individual effort; it requires the help, support, and encouragement of many. Automated Auction Management System was no exception. We take this opportunity to extend our heartfelt gratitude to all those who contributed to the successful completion of this undertaking. All the precious support, insight, and encouragement that these people extended have helped shape the very core of this project.

In our deepest sense, we express our gratitude to our project supervisor, Ms. Sandaruwani Pathirage, whose unmatched expertise, patience, and guidance have been a great asset all the way through. This mentorship has polished our ideas, enabling us to align our work in industry standards.

To the honourable team members, one's common dedication, teamwork, and creativity were the driving forces behind this project. The team synergy has resulted in creative problem solving and timely delivery results.

NIBM deserves a mention for providing the required resources and facilities that helped aid in this project's development. We owe special thanks to our families and friends for their unwavering support and encouragement. Your encouragement that we would make it has pushed us through many barriers, giving us the urge and motivation to reach the horizons.

It is the story of collaboration among everyone mentioned here; therefore, we are forever grateful for any input they would consider contributing. Truly, you have chased away many nightmares and brightened this path for us.

With sincere appreciation,

The developers of the Automated Auction Management System.



Abstracts

Yet another innovative auction solution developed by Auction Xpress: a dynamic, online web application for developing efficient solutions to the old, tedious bidding procedures. In pursuit of turning a traditional auction into a completely automated, efficient system, Auction Xpress came up with an Online Auction Management System, not tying the hands of a traditional auction experience.

Auction Xpress acts as a bridge between sellers and buyers in a flawless intuitive, secure, and widely accessible auction platform. When technology empowers any one person and organizes the distortions of the many to allow fair, transparent, and less strenuous methods of winning bidding contests, the opportunity indeed opens for an individual and for possible future businesses combined.

With Auction Xpress, the future of auctions is just a click away!

Key features:

- Seamless Online Bidding
- Seller-Friendly Platform
- Automated Auction Process
- Real-Time Updates & Notifications
- Secure Transactions & Payments
- Diverse Auction Categories
- User Authentication & Verification
- Bid History & Analytics



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Chapter 1: Introduction

1.1 Introduction of AuctionXpress

AuctionXpress is an online web platform that specializes in the development of innovative online auction solutions. Implemented with the vision of transforming traditional auctions to automated. We aimed at taking the auction to the fingertips of aspiring bidders and sellers thereby building an "Online auction management system" that can wipe out the inherent problems of the traditional method of auction.

1.2 Structure of AuctionXpress

Our platform is structured to ensure a seamless, secure & transparent auctioning experience for users (buyer / seller) with strict oversight by our administrators.

User (Buyer/Seller)

Users can be engaging in buying and selling activities throughout the platform, The platform allows users to,

- Sign Up and Manage their account with our secure login access
- Receive update through email
- Post auctions live with admin verification.
- Participate on live auction by bidding
- Make secured payments
- Monitor auction progress with real-time status

Administrator

- Managing user accounts, verifying or denying account request
- Approving or denying auction listing
- Monitoring live auctions, ensuring fair bidding
- Handling disputes and banning fraudulent users
- Maintaining auction records

This structured approach ensures a trusted and efficient auctioning marketplace where users and administrators work together to protect the integrity, security and connectivity.



1.3 Problem Faced by Traditional Auctions

The current auction system involves people attending auction sessions set at a definite time and for participants must physically present at the location. While this method has been used for decades, it presents several challenges and limitations.

1. Accessibility Issues

Many potential bidders are unable to be in auctions due to long travel distance to attend a certain auction. This results a missed opportunity for buyers and a reduced number of participants, same time lowering competition and affecting the final auction price.

2. Limited Participation

The traditional auction is likely to restrict participation to selected individuals, while other individuals who are presumably interested in making bids remain excluded.

3. Security & Fraud Risks

Conventional auctions lack security measures against scams and fraudulent activities without verification and authorization of the bidders. The players can engage in unethical practices, leading to uneven transaction and financial loss.

4. Geographical Constraints

Since physical auctions are held in a specific location, they cover only a certain amount of area, which reducing the variety of available product and the number of competitive bidders. This leads to a lower demand and undervalued auctioned items

5. Financial & Time Costs

Involvement in a conventional auction requires significant time and money to travel & stay. For the majority of buyers, the former exceeds the benefit, discouraging them from taking part and limiting market expansion.



1.4 Objectives of AuctionXpress

Our AuctionXpress aims to modernize and streamline the auctioning process to a step forward to overcome the limitation of traditional auctioning method. The primary objectives of this system are.

1. Enhance Accessibility & Participation

Allowing users to join auctioning from anywhere without the need for physical presence. Expanding the auctions to reach to a global audience, increasing the participation and competition.

2. Improve Efficiency & Convenience

Automated auction posting, bidding and payment options reduce manual workload. Providing real-time bidding updates to ensure smooth auction operations.

3. Strengthen Security & Fraud Prevention

Implement user authentication and verification to prevent fraudulent activities. Use secure payment gateways and ensure safe transactions.

4. Ensure fair & Transparent Auctions

Display real-time auction date such as highest bidder, biding summery and time remaining. Maintain a record of previous auctions for transparency and dispute resolution.

5. Provide Seller & Buyer Support

Allowing users to track their auction status and receive important updates through email notification. Enabling bidders to view detailed product information before bidding.

6. Empower Admin with Control & Monitoring

User account verification process is done by the admin allowing the admin to approve or reject user. Which eliminates fraudulent users entering in auctions. Admin can block users too in case of any suspicious activities happen.



Chapter 2: Methodology

2.1 Introduction

The Automated Auction Management System (AAMS) enables a structured process for an online auction system that is secure, efficient, and user-friendly. In its methodology, systematic planning, design, and development followed by implementation and testing are employed to ensure that the system is user-friendly, meets user requirements, and remains transparent, accessible, and secure.

2.2 System Development Approach

The development of Automated Auction Management System follows the agile Methodology which ensuring flexibility, continuous improvement and iterative development. Angil enables:

- Feedback for each release
- Frequent testing & bug fixing to enhance reliability

2.3 Main Stage of Methodology

Stage 1: Requirement gathering

This process involves gathering & analysing system requirements from certain stakeholders including buyers, sellers & administrators.

Tasks involved are:

- Identifying roles and functionalities of user.
- Understand issues faced in traditional auctioning method.
- Implementing security measures to prevent fraud activities & unauthorized access.



Stage 2: System Design

Creating the suitable architecture, workflow & user-interface for the system.

Process including:

System Architecture

- Client server architecture for handling multiple users simultaneously.
- Database management to store data of user, auctions & payment records.
- Real-Time update notifications.

User Interface

- Relevant dashboard for user & admin.
- Real-Time updates in auction results & bidding updates.

Security Measures

• Trusted payment gateway implemented for safe transactions.

Stage 3: Development

This part of the project is about transforming design to a working system.

- Coding & implementing the system functionalities using appropriate technologies
- User registration & Authentication: Secure login and user verification
- Posting Auction & Approval Facility: Users post auction, administer able to verify the auction before going live for bidding.
- Real-Time bidding Facility:
- Notification & Alerts: Email notifications for each update relevant to changes and auctions
- Payment Integration: Secure payment method for checkout on winning auction
- Admin: User behaviour monitoring, Manage auction / user requests & system monitoring.



Stage 4: System Testing

The system has gone through extensive testing prior to the launch phase to finally verify its robustness and security.

There are several Testing Types that are done:

- Unit Testing: This is to test the functionality of individual components (like, bidding function, auction posting).
- Integration Testing: This tests the flow between different modules (user login, auction process and payment gateway).
- Security Testing: This is to find loopholes, like fraud detection and unauthorized access.
- User Acceptance Testing: This is performed with real users to check whether the system can be used normally.

Stage 5: Deployment

Upon successful testing, the system is now running in public access.

The core activities will include:

- Hosting services on cloud servers for performance enhancement and scalability
- Making provisions for security protocols which cover SSL Encryption and Firewall configurations
- Train the Administrators to handle user verifications and approve auctions
- Run a pilot phase before scale-up with full deployment.

Stage 6: Maintenance

When the system goes after deployment, performance improvements and feature enhancements are monitored.

The following aspects are considered:

- Bug fixes and upgradation as per user feedback.
- Performance tuning during the peak auction periods to cater to high traffic.
- Security updates against evolving cyber threats.



2.4 Tools & Technologies Used for AuctionXpress

Development of Automated Auctioning Management System involves a combination of.

Frontend – HTML5, CSS, JavaScript

Backend – PHP

Database – MySQL

Icons – Font Awesome

Payment Gateway – Stripe

Email Service – EmailJS



CHAPTER 3: Analysis

3.1 Introduction

The analysis phase for the Automated Auction Management System will commence in this section. This chapter outlines the overall approach, which intends to gain a well-rounded understanding of the present problem and suggest an appropriate solution. Following this are several UML diagrams. These include Use Case Diagrams showing the functionality of the suggested system; Class Diagrams containing the structure of the system; and Sequence Diagrams that describe the interaction flow of each specific use case in the proposed system. Furthermore, the ER diagram presented in this chapter describes the relationship between various entities in the proposed system. This chapter forms a basis for a thorough elaboration on the project requirements and various design considerations.

3.2 UML Diagrams

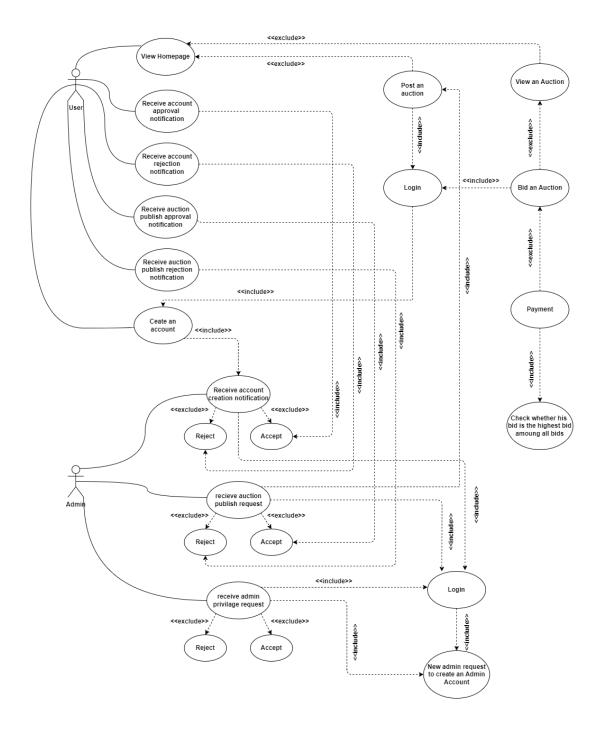
UML diagrams are graphical tools instrumental in representing requirements, interactions, and connections of a system. The following UML diagrams are used in the analysis phase of the Automated Auction Management System:

- The use case diagram for the proposed system: This diagram will model the functions of the project and show user interactions with the proposed Automated Auction Management System, detailing the added features and their use case scenarios.
- The Class Diagram for the proposed system: The Class Diagram provides a structural view of the intended system, outlining classes, attributes, methods, and relationships. It helps in understanding the architecture and organization of the system.
- The Sequence Diagram for the proposed system: Sequence
 Diagrams show the sequencing of interactions between the user
 and the system for specific use cases, message flow, and actions
 that represent dynamic behavior for the system.



These UML diagrams aid immensely in the analysis and design of the Automated Auction Management System. They provide a clear vision of functionality and relationships, thus providing enough input for further phases of development.

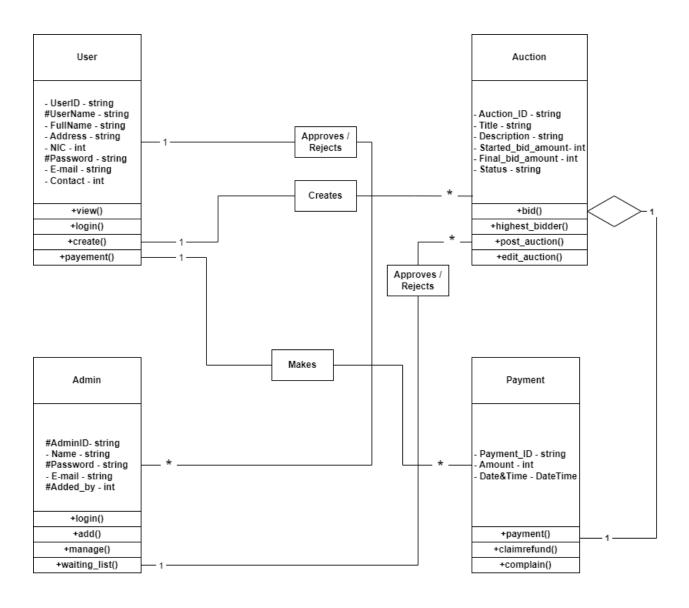
Use Case Diagram





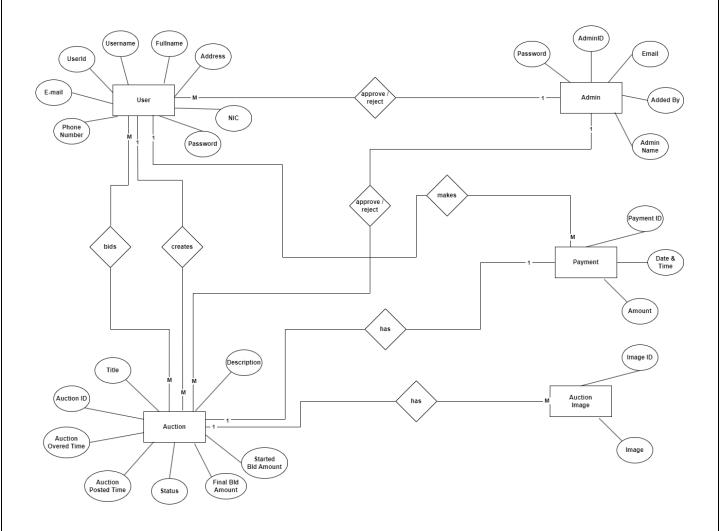
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Class Diagram



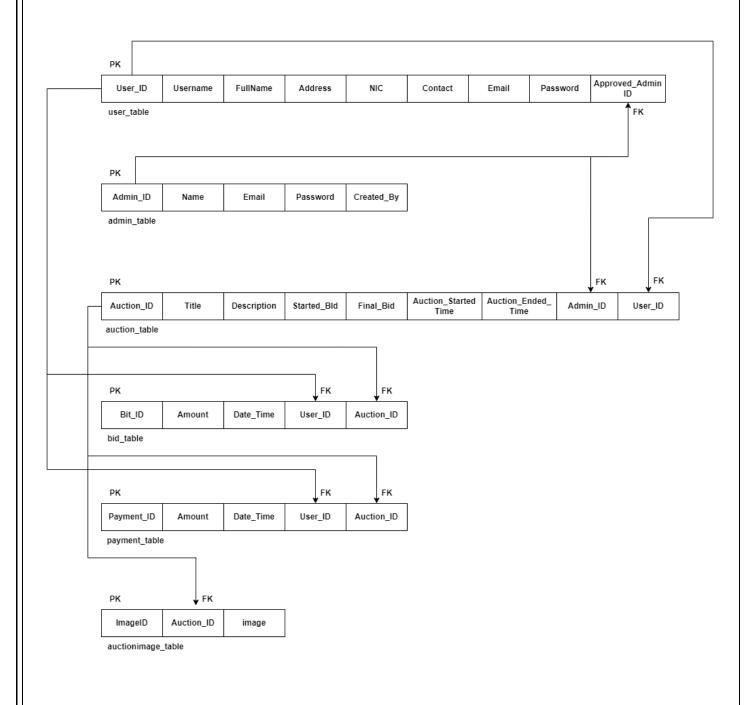


EER Diagram





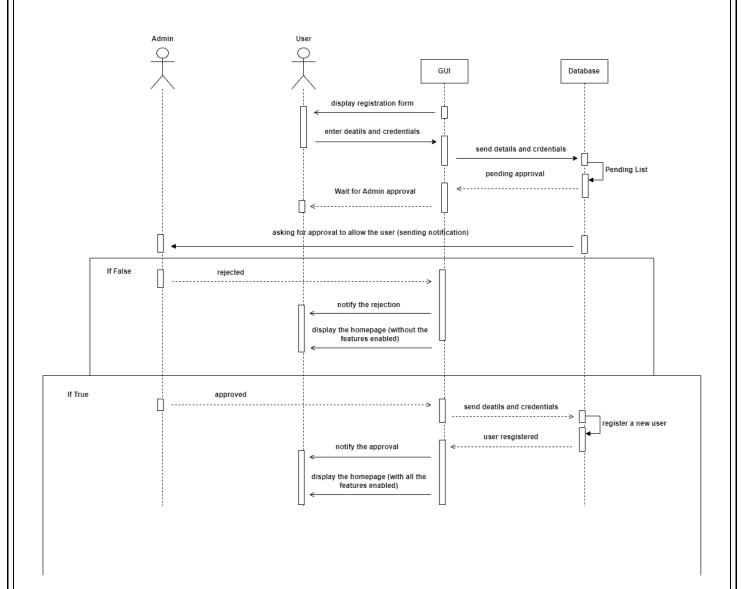
EER Mapping





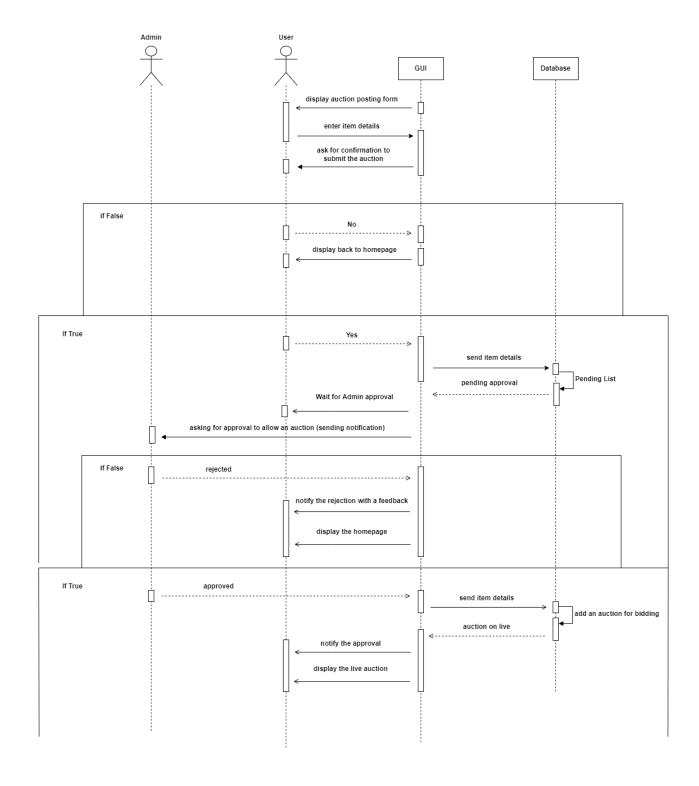
Sequence Diagram

a. User Creating an Account





b. Auction Posting & Admins Approval/Rejection





CHAPTER 4: Solution Design

4.1 Introduction

This chapter describes the fundamental design principles and primary considerations affecting the design of the Automated Auction Management System. Our aim during this design stage is to transmute the requirements thereby collected into a practical and efficient solution. This implies the provision of user-friendly interfaces, a well-designed data structure, and clear, accurate reports since these three are vital to the operation and ease of use of the system.

With well-laid design plans, we hope to meet the project goal and solve identified problems. Prioritizing user-friendliness, efficient data management, and generating informative reports will help assure a comprehensive and viable design of the system.

Whence, this chapter will develop, explaining in detail interface, database, and report designs, providing a clear picture of the structure and visual aspects of the system.

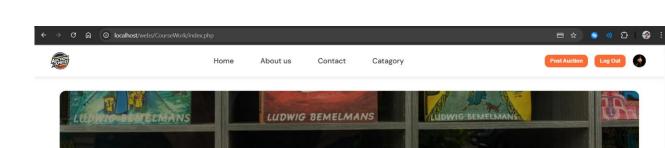
4.2 Interface Design

The interface design is critical to the Automated Auction Management System, which aims to deliver an aesthetic environment with easy usability. This section will give a brief outline of interface design, its importance, and basic characteristics that help create user interfaces that are easy-and-pleasant to use.



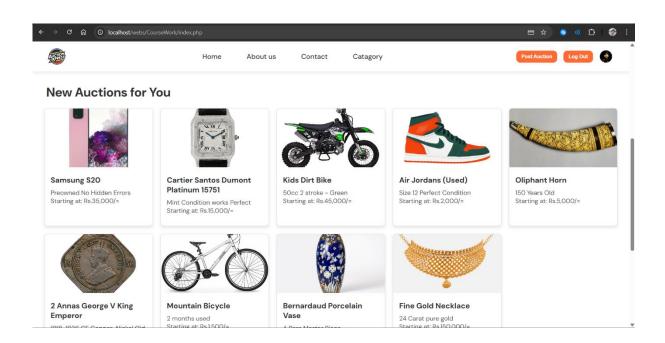
Interface 1: Index Page

Description: AuctionXpress Landing page user will be having a clear look on recent auctions



Sign Up & Geta 15% Off Join Auction Xpress Now

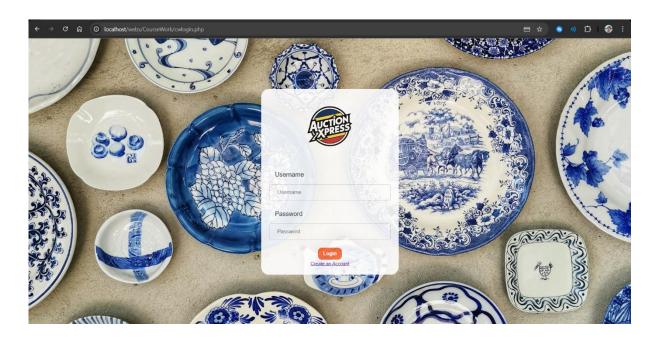
New Auctions for You





Interface 2: Login Page

Description: The crucial purpose is to confirm the genuineness of users by checking their credentials, primarily consisting of a username and a password.



Interface 3: Sign-Up Page

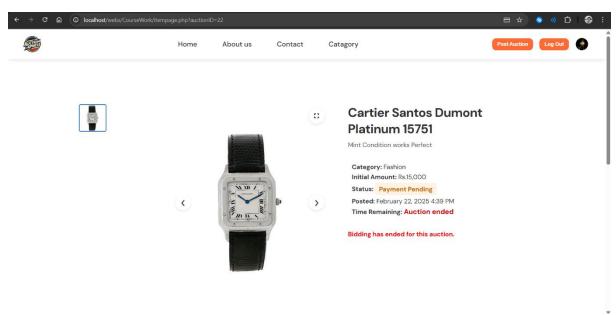
Description: Registration as a new user





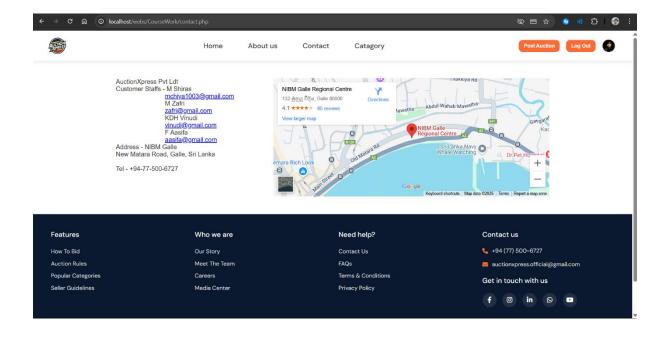
Interface 4: Auction Item Page

Description: Providing a brief description of the auctioned item before placing a bid for the buyer.



Interface 5: Contact Us Page

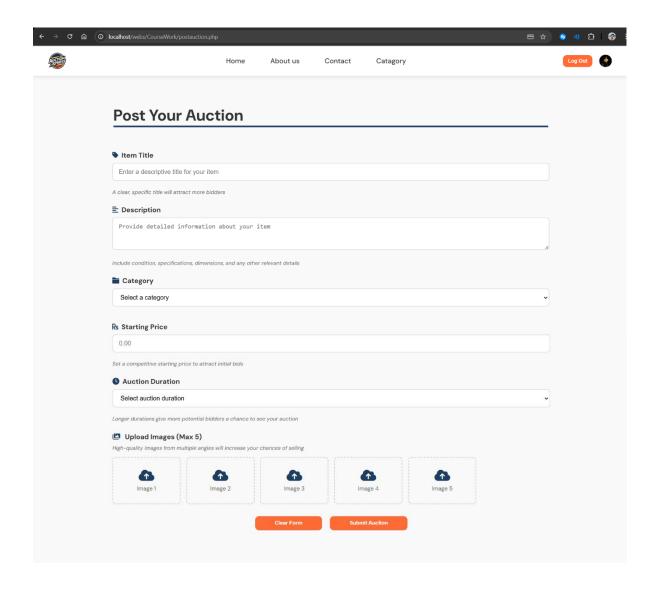
Description: Providing basic information about our company for customers inquiries





Interface 6: Post Auction

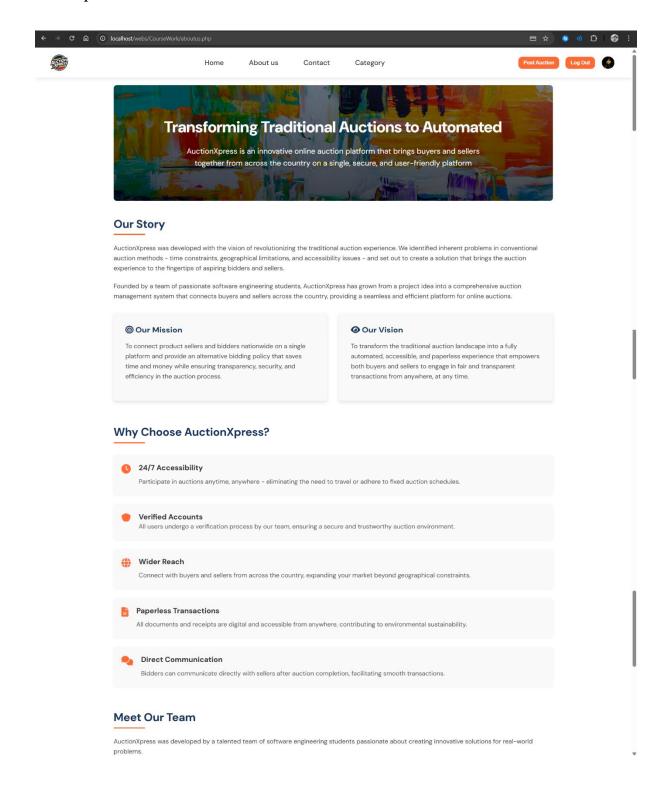
Description: Allowing users to post their own valuable items online for bidding.





Interface 7: About Us

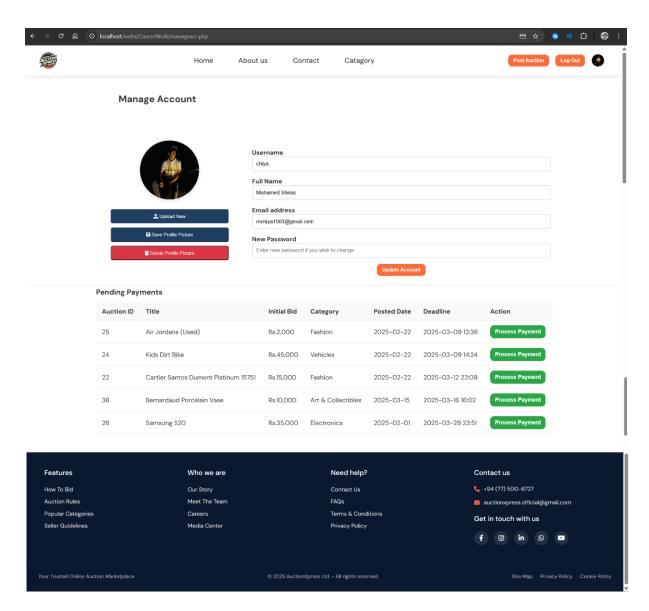
Description:





Interface 8: User Manage Account

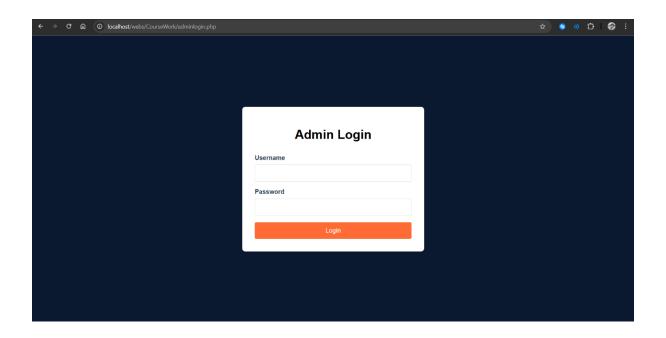
Description: Modify, View personal information and allowing user to make direct payments through manage account section





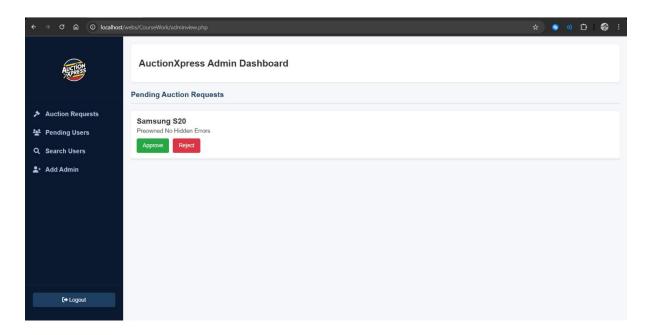
Interface 9: Admin Login

Description:

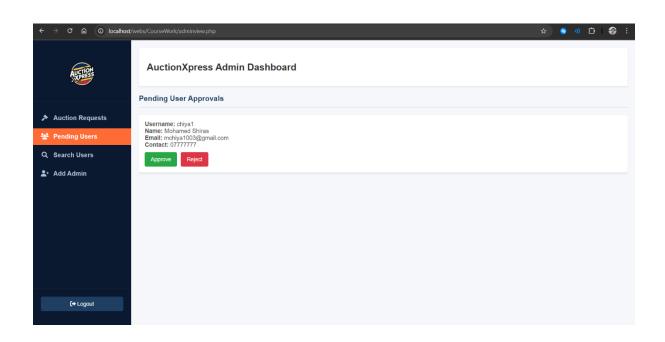


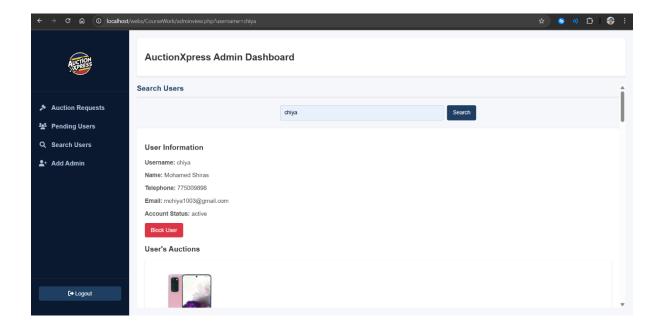
Interface 10: Admin Dashboard

Description: Receive requests for new user registration & post auctions on out platform. Allowing admin to search up users & adding new admin

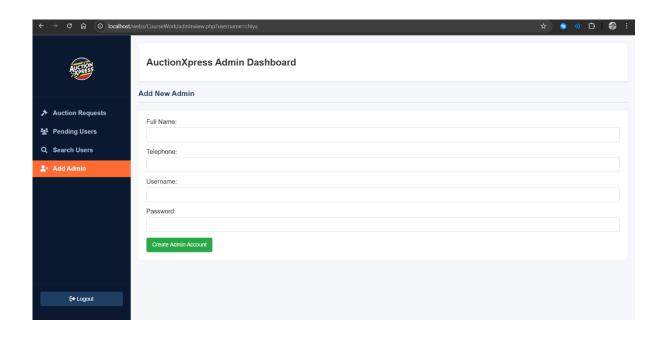






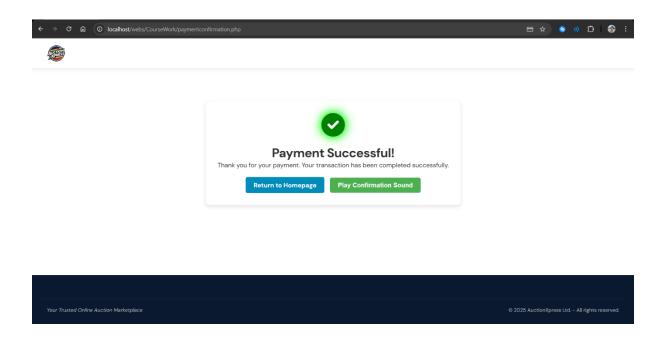






Interface 11: Confirmation Page

Description: Providing a visual confirmation after payment is made successfully





4.3 Database Design

SQL Data Tables

Table Name – users

userID	userFullName	userAddress	userContact	userEmail	userUsername	userPassword	profilePicture	accountApproval	approvedAdminID
	14 Vinudi	Galle	775009898	mchiya1003@gmail.com	vinudi	vinudi	NULL	active	1
	15 Aasifa	Galle	775009898	aasifa@gamil.com	aasifa	aasifa	NULL	active	1
	16 Zafri	Galle	775009898	zafri@gmail.com	zafri	zafri	[BLOB - 108.2 KiB]	active	1
:	Mohamed Shiras	102/38,Alabada Rd,Kurunduwatta, Gintota	775009898	mchiya1003@gmail.com	chiya	chiya	[BLOB - 578.3 KiB]	active	1
	Mohamed Shiras	102/38,Alabada Rd,Kurunduwatta, Gintota	07777777	mchiya1003@gmail.com	chiya1	chiya1	NULL	active	1
	24 KAmal	312/102	775009898	mchiya1003@gmail.com	kamal1	kamal1	NULL	active	2
	25 Thilini	Galle	775006727	mktwdharmasena@gmail.com	Thilini	1234	NULL	active	1

Table Name – auctions

AuctionID	Title	Description	StartedBidAmount	FinalizedBidAmount	AuctionStatus	AuctionPostedTime	AuctionOveredTime	Category	auctionDeadline	userID auctionApproval	admin_id
2	Samsung S20	Preowned No Hidden Errors	35000.00	NULL	Payment Pending	2025-02-01 17:17:52	NULL	Electronics	2025-03-29 23:51:00	22 Approved	1
2:	Cartier Santos Dumont Platinum 15751	Mint Condition works Perfect	15000.00	NULL	Payment Pending	2025-02-22 16:39:49	NULL	Fashion	2025-03-12 23:09:49	22 Approved	1
2-	Kids Dirt Bike	50cc 2 stroke - Green	45000.00	NULL	Payment Pending	2025-02-22 16:50:11	NULL	Vehicles	2025-03-09 14:24:00	22 Approved	1
2	Air Jordans (Used)	Size 12 Perfect Condition	2000.00	NULL	Payment Pending	2025-02-22 16:56:28	NULL	Fashion	2025-03-09 13:36:00	22 Approved	1
2	Oliphant Horn	150 Years Old	5000.00	NULL	Payment Pending	2025-02-22 16:27:47	NULL	Art & Collectibles	2025-03-12 10:57:47	22 Approved	1
2	2 Annas George V King Emperor	1918-1936 CE Copper- Nickel Old Coin	2500.00	NULL	Payment Pending	2025-02-22 16:34:32	NULL	Art & Collectibles	2025-03-12 11:04:32	22 Approved	1
3	Mountain Bicycle	2 months used	1500.00	NULL	Payment Pending	2025-03-11 15:04:22	NULL	Vehicles	2025-03-17 09:34:22	25 Approved	1
3	Bernardaud Porcelain Vase	A Rare Master Piece	10000.00	NULL	Payment Pending	2025-03-15 23:44:54	NULL	Art & Collectibles	2025-03-16 16:02:00	22 Approved	1
3	Fine Gold Necklace	24 Carat pure gold	150000.00	NULL	Payment Pending	2025-03-15 23:46:56	NULL	Fashion	2025-03-21 18:16:56	22 Approved	1
sole · 🧀	ali Ric	ony 🙇 Dole	nto 📟 Evnort								



Table Name – Auction Images

ImageID	AuctionID	Image
21	31	[BLOB - 434.4 KiB]
20	30	[BLOB - 127.9 KiB]
19	29	[BLOB - 147.7 KiB]
18	28	[BLOB - 434.4 KiB]
16	26	[BLOB - 16.4 KiB]
17	27	[BLOB - 316.4 KiB]
15	25	[BLOB - 23.1 KiB]
13	22	[BLOB - 100.7 KiB]

Table Name – BidTable

bidID	bidDateAndTime	bidAmount	AuctionID	userID
1	2025-02-23 16:13:14	50000.00	24	22
24	2025-03-11 13:03:48	15070.00	22	22
3	2025-02-23 17:08:21	40000.00	26	22
4	2025-02-24 10:40:50	60000.00	24	22
5	2025-02-24 12:21:19	35200.00	26	22
6	2025-03-07 14:31:42	70000.00	24	22
32	2025-03-16 15:41:17	15000.00	38	22
31	2025-03-11 15:22:20	4000.00	37	25
30	2025-03-11 15:05:52	3000.00	37	16
29	2025-03-11 15:05:33	2500.00	37	22



Table Name – Payment History

paymentID bidID dateandtime paymentstatus

Table Name – Admin

admin_id	admin_name	username	password	telephone	date_added
1	shiras	admin	admin	0775006727	2025-02-10 13:14:05
2	zafri	zafri	zafri	75464654564	2025-02-12 14:48:05
3	Vinudi	vinudi	admin	0778795466	2025-02-21 11:05:30



CHAPTER 5: Conclusion

Summarization of the entire thesis/investigation, which lay the groundwork for continued enhancement of auction procedures, is rarely an easy task. With the adoption of key functions such as bidding, user management, and payment processing, automated auction systems provide faster, greater transparency, inclusivity between buyers and sellers, and all those benefits listed in the previous chapters. The system follows each contributed component rigorously in development-from the architectural design to the testing-securing its viability, scalability, and that it can accommodate any auction well.

Intuitive User Interface and Features provide the simplest way for users to auction, while administrators are given strong tools to manage and monitor auction activities. Integrating payment gateway systems and strong security measures guarantees a safe and authenticated environment for stakeholders.

In conclusion, the Automated Auction Management System goes ahead with the modernization of auctioning processes while seizing emerging opportunities for the growth of digital engagement. The successful implementation of the system shows the capacity of technology to transform otherwise traditional means toward improving auction experiences that are efficient, accessible, and secure.

AuctionXpress GitHub Link:

https://github.com/mohamedshiras/AuctionXpress



LOG SHEET The format of the log sheet is given below. Use separate log sheet for each meeting and keep all with the students in the group. Viva is eligibility is decides by comments given by the supervisor. Meeting Students Indices **Supervisor Comments** Signature of the Date (participated) supervisor Chiras, Vinudi, Aasifa, Safri Shiras, Vinudi, Aasifa, Shiras, Vinudi, Aasifa, Safri Shiras, Vinudi, Aasifa, Safri Shiras, Vinudi, Aasifa, Safri Shiras, Vinudi, Aasifa, Safri Fralroel 08/08/2024 rdea changes ug gestod for SRS 12/08/2024 13/08/2024 15/08/2024 18/14/2020 use rase changes to Recommended 14/13/29 shiras, vinudi, Aasifa, 2025 OI (UZ Shiras, vinudi, Aasifa, 2025 OI (UZ Shiras, vinudi, Aasifa, 2025 OZ Safri 2025/03/20 Shiras, vinudi, Aasifa, 2025/03/20 Shiras, vinudi, Aasifa, 2025/03/20 Shiras, vinudi, Aasifa, 2025/03/20 Safri Comments to change Completed 60% done. Co complete ell recommendos