A

Mini Project Report

on

BidStream: Seamless and Instant Auction Bidding

Submitted in partial fulfillment of the requirements for the

degree

Second Year Engineering – Computer Science Engineering (Data Science)

by

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CERTIFICATE

This to certify that the Mini Project report on **BidStream: Seamless and Instant Auction Bidding** has been submitted by Mr.Aditya Vishe (23107061), and Mr.Vedant Gole (23107063) who are bonafide students of A. P. Shah Institute of Technology, Thane as a partial fulfillment of the requirement for the degree in **Computer Science Engineering (Data Science)**, during the academic year **2024-2025** in the satisfactory manner as per the curriculum laid down by University of Mumbai.

Ms. Harsha Zope
 Guide

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1.   **1.**

Place: A. P. Shah Institute of Technology, Thane
Date:

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This project would not have come to fruition without the invaluable help of our guide **Ms. Harsha Zope**. Expressing gratitude towards our HoD, **Ms. Anagha Aher**, and the Department of Computer Science Engineering (Data Science) for providing us with the opportunity as well as the support required to pursue this project. We would also like to thank our project coordinator **Ms. Aavani N** who gave us her valuable suggestions and ideas when we were in need of them. We would also like to thank our peers for their helpful suggestions.

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Chapter 1

Introduction

Auctions have long been a fundamental method for buying and selling goods, providing a competitive marketplace where bidders can place offers to secure desired items. However, traditional auction methods often face challenges such as inefficiencies, lack of transparency, and security concerns.

BidStream is an offline auction bidding system designed to overcome these challenges by ensuring a seamless, efficient, and transparent bidding experience. Developed using Tkinter for the frontend and MySQL as the backend database, BidStream provides real-time bid updates, automated bid validation, and user authentication to create a secure and structured auction environment. The system aims to streamline the auction process, eliminating delays and reducing the potential for fraudulent activities.

1.1. Purpose:

The purpose of this document is to provide a comprehensive overview of the BidStream auction bidding system, detailing its development, implementation, and functionality. It aims to highlight the need for an offline, secure, and efficient bidding platform while addressing the limitations of traditional auction methods.

- **Academicians and Researchers:** To explore advancements in digital auction systems.
- **Developers and Engineers:** To understand the technical implementation of the system.
- **Business and Auctioneers:** To evaluate the potential application of BidStream in real-world auction scenarios.
- **Students and Learners:** To gain insights into the use of Tkinter and MySQL in project development.

1.2. Problem Statement:

Traditional auction systems rely heavily on manual operations, which result in errors, delays, and security concerns such as bid manipulation and fraudulent activities. Moreover, many existing systems require continuous internet connectivity, making them unreliable in remote areas. Additionally, the lack of automation and real-time monitoring in traditional auction systems often leads to inefficiencies in bid tracking and management, causing frustration among participants and auction organizers.

BidStream addresses these challenges by introducing an offline auction bidding system that ensures automated bid validation, secure authentication, and real-time updates. Developed using Tkinter for the frontend and MySQL for the backend, it enhances transaction integrity, eliminates bidding delays, and ensures a transparent auction experience. The system allows for efficient handling of bids, eliminating the need for manual intervention while providing a structured and reliable platform for managing auctions.

Additionally, BidStream offers a structured mechanism to prevent bid sniping, ensuring fair competition by setting appropriate time extensions for last-minute bids. This feature ensures that all participants get a fair chance to place their best offers without undue advantage to any single bidder. The system's intuitive dashboard also allows auction administrators to oversee bidding activity in real-time, providing an added layer of monitoring and security.

By incorporating role-based access control, BidStream also ensures that only authorized personnel can oversee and manage auction events, reducing risks of unauthorized access and manipulation. With bid history tracking and an intuitive interface, users can confidently participate in auctions without concerns about fairness or security. This system is designed to provide an efficient, user-friendly, and robust solution to modern auction management challenges.

1.3. Objectives:

- **Develop a robust offline auction bidding system:** The project aims to develop a robust offline auction bidding system by implementing an intuitive and user-friendly interface using Tkinter and utilizing MySQL for structured data storage and management, ensuring efficient and secure auction transactions.
- **Enhance efficiency and transparency in bidding:** The system will deliver real-time bid updates within the application, ensuring users stay informed about the latest bidding activity, while also maintaining bid history tracking to enhance transparency and accountability in the auction process.
- **Optimize auction management for administrators:** Enhancing security and efficiency in auction management, the system implements a role-based access control system to regulate auction activities securely while designing a user-friendly dashboard that enables administrators to monitor auctions in real time and effectively oversee bidding activities.

1.4. Scope:

BidStream is designed to facilitate seamless and efficient offline auction bidding, ensuring a fair and transparent process for all participants. The system caters to a variety of auction scenarios, including corporate in-house auctions, institutional bidding, and private sales of valuable assets. By eliminating the reliance on internet connectivity, it enhances accessibility, particularly in regions with limited network infrastructure.

BidStream uses Tkinter for the frontend and MySQL for data management, allowing real-time auction oversight. With automated bid validation, user authentication, and role-based access control, it enhances security, minimizes fraud, and improves efficiency across various industries.

Chapter 2

Proposed System

The proposed BidStream system is designed to provide a seamless platform for offline auction bidding. It allows users to place bids, track auction status, and manage their transactions efficiently. Administrators have the ability to oversee auctions, validate bids, and ensure a transparent bidding process. The system automated bid validation while improving accessibility by operating without internet dependency.

System Architecture:

- Frontend: Developed using Tkinter, providing a user-friendly interface for users and administrators to interact with the system.
- Backend: Implemented in MySQL, handling user authentication, bid processing, and data management.

Key Pages:

- Login Page: System allowing users and administrators to log in with credentials.
- Registration Page: Enables new users to create accounts by providing username and password.
- User Dashboard: Displays available auctions, allowing users to place bids efficiently.
- Auction Monitoring Page: Provides updates on auction progress, bid amounts, and auction.
- Admin Management Page: Allows administrators to create, manage, and oversee auctions while ensuring fair bidding practices.

User Interface Design:

- Simple and Intuitive Layout: The UI is designed for seamless navigation, featuring clear buttons and structured forms.
- Accessibility: Ensures ease of use for all users, including those with disabilities, by maintaining a straightforward interface.

2.1. Features and Functionality:

The BidStream system will feature key functionalities to streamline auction processes and enhance user interaction. Users can register, log in, browse available auctions, and place bids. Automated bid validation ensures fair bidding practices, preventing fraudulent activities. Administrators have access to a dashboard where they can manage auctions and oversee auction activities. Role-based access control enhances security, ensuring smooth communication and efficient auction management.

User Registration:

- Users can easily register, providing necessary details to create a account.

Offline Functionality:

- Operates without internet dependency, ensuring seamless usage in low-connectivity areas.

Bid Tracking:

- Allows users to monitor bid status and stay updated on auction progress.

Admin Dashboard:

- Enables administrators to oversee auctions, manage transactions.

Role-Based Access Control:

- Assigns different permissions for users and administrators, ensuring access management.

Bid History Tracking:

- Provides with a log of previous bids for transparency and accountability.

Chapter 3

Project Outcomes

The BidStream system has been developed with the aim of simplifying and enhancing the auction process through a graphical user interface application. It allows both users and administrators to participate in or manage bidding activities in an organized and user-friendly environment. By using Python and Tkinter, the system offers a smooth interface and key functionalities like access control, status tracking, and customizable auction management. The overall result is a platform that makes the auction experience more transparent, efficient, and scalable across different types of industries

- Enhanced Trust and Transparency: Participants engage in a well-regulated auction environment, fostering confidence in the bidding process.
- Auction Status Tracking: The system allowing participants and administrators to view auction progress and outcome
- Auction Management System: Administrators can efficiently organize and oversee auctions, ensuring smooth operations and adherence to predefined rules.
- Role-Based Access Control: The system grants different levels of access to users and administrators, enhancing security and operational efficiency.
- Bid Activity Records and Analysis Support: Bid data is stored securely, enabling future audits, performance reviews, and reporting.
- User-Friendly Interface: The system provides an intuitive and easy-to-navigate platform, ensuring smooth participation for all users.
- Scalability for Various Industries: The system can be adapted for different sectors, including real estate, antiques, e-commerce platforms, and institutional asset sales.

Chapter 4

Software Requirements

To ensure the smooth development and execution of the BidStream system, the following software requirements have been identified:

Frontend Development:

- Python (Tkinter for GUI development) – Provides an interactive and user-friendly interface.
- Pillow Library – Enhances UI elements by enabling image processing.

Backend Development:

- MySQL – Manages user authentication, bid storage, and auction data efficiently.
- MySQL Connector – Establishes seamless communication between Python and MySQL databases.

Development Environment:

- Visual Studio Code – The primary IDE for writing and debugging code.
- MySQL Workbench – A tool for designing and managing the database.

Other Dependencies:

- OS Compatibility: Windows/Linux/macOS
- Required Python Packages: mysql-connector-python, tkinter, hashlib (for password hashing)

These tools collectively ensure a stable, secure, and efficient auction system with real-time updates and authentication mechanisms.

Chapter 5

Project design

Project design refers to the process of conceptualizing and planning the structure, components, and functionalities of a project to achieve specific objectives. It involves translating the requirements and goals identified during the initial phases (such as requirement analysis) into a detailed blueprint or roadmap for implementation. It is a visual representation that models the interactions between users, administrators, and the system, describing its functionality and behavior from both the user and admin perspectives.

The design of BidStream is focused on creating a streamlined, intuitive, and responsive auction platform that enables efficient bidding, transparent transactions, and smooth role-based operations.

Workflow Diagram (Described Textually): This workflow illustrates the user journey in an auction bidding platform. Users begin by registering on the platform. Upon logging in, different paths emerge based on the user's role:

For Users:

- Users can browse listed auction items.

- Users can also place bids on available items and track their bid history.

- Uploaded images are previewed using an integrated image viewer.

For Admins:

- Admins can access a dashboard to manage the entire platform.

- They can moderate item listings, view analytics

- Admins are responsible for including backups, performance monitoring, and content moderation.

Key Design Principles:

- Clarity and Simplicity**:** The interface uses clearly labeled buttons, consistent layouts, and helpful tooltips.

- Security and Validation**:** Role-based access control mechanisms and all inputs are validated for security and integrity before processing.

- User-Centric Design**:** Multi-step forms guide the user through complex tasks like listing items and message feedback such as success/failure messages, image previews, and countdown timers improve engagement.

- Separation of Concerns: The project follows a modular architecture where UI, business logic, and data handling are separated into distinct components, improving maintainability and scalability.

Through this structured and intuitive design, BidStream ensures that users and admins can carry out their respective tasks efficiently, enhancing the overall auction experience with clarity, security, and responsiveness.

Chapter 6

Project Scheduling

WBS NUMBER	TASK TITLE	TASK OWNER	START DATE	DUE DATE	DURATION (Weeks)	PERCENTAGE OF TASK COMPLETE
1	**Project Conception and Initiation**					
1.1	Group formation and Topic finalization. Identifying the scope and objectives of the Mini Project	Aditya Vishe, Vedant Gole	1-8-25	1-16-25	1	100%
1.2	Identifying the functionalities of the Mini Project	Aditya Vishe	1-16-25	1-28-25	2	100%
1.3	Discussing the project topic with the help of paper prototype.	Vedant Gole	1-28-25	2-5-25	1	100%
1.4	Designing the Graphical User Interface(GUI)	Aditya Vishe	2-5-25	2-11-25	1	100%
1.5	Presentation I	Aditya Vishe, Vedant Gole	2-11-25	2-17-25	1	100%
2	**Project Design and Implementation**					
2.1	Database Design	Aditya Vishe, Vedant Gole	2-17-25	3-3-25	2	100%
2.2	Database Connectivity of all modules	Aditya Vishe	3-3-25	3-13-25	2	100%
2.3	Integration of all modules and Report Writing	Vedant Gole	3-13-25	3-31-25	3	100%
2.4	Presentation II	Aditya Vishe, Vedant Gole	3-31-25	4-1-25	1	100%

Chapter 7

Results

The mini project titled "BidStream: Seamless and Instant Auction Bidding" has been successfully implemented with all planned features and functionality. The system is designed to serve two types of users—general users (bidders) and administrators—each having clearly defined roles within the platform.

Users can register, log in, list items for auction, upload item images, browse available items, and place bids. The system provides real-time auction updates through countdown timers and clearly displays auction status (e.g., Active, Closed). Bidders can also track their bidding history and interact with the platform through an intuitive interface built using Tkinter.

Administrators have their own dedicated access, where they can view and moderate all auction listings, manage platform users, and generate reports on bidding activity. This dual-role functionality was tested and validated to ensure the system works reliably and securely across user flows.

The image viewer feature allows users to view uploaded item images in a gallery-style layout. Image uploads are encoded in base64 and stored in the database, ensuring fast retrieval and a clean UI presentation.

In conclusion, the BidStream system has achieved its intended goals and serves as a robust desktop solution for offline auction bidding. With its modular design, responsive UI, and real-time features, the application provides a transparent, efficient, and user-friendly bidding experience. The system has also been tested for multiple users and listings to ensure consistent performance and usability.
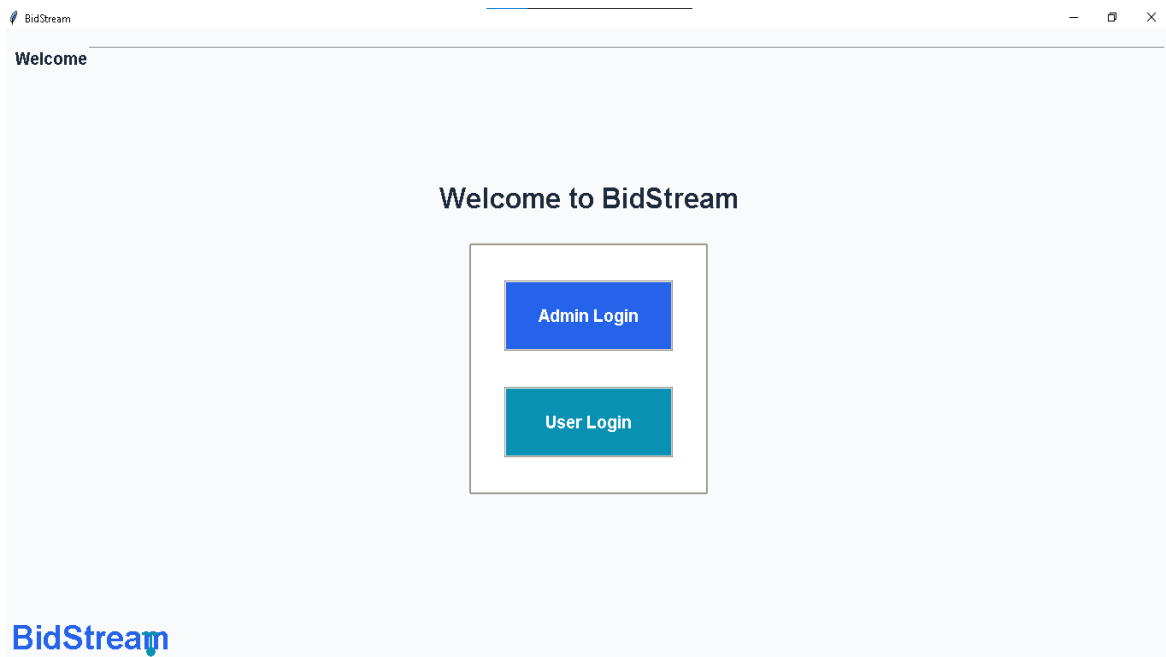
Fig 7.1: Welcome Page

Simple welcome screen with Admin and User Login options.

Fig 7.2: User Registration Page

Form for new users to register with Username, Email, and Password fields.
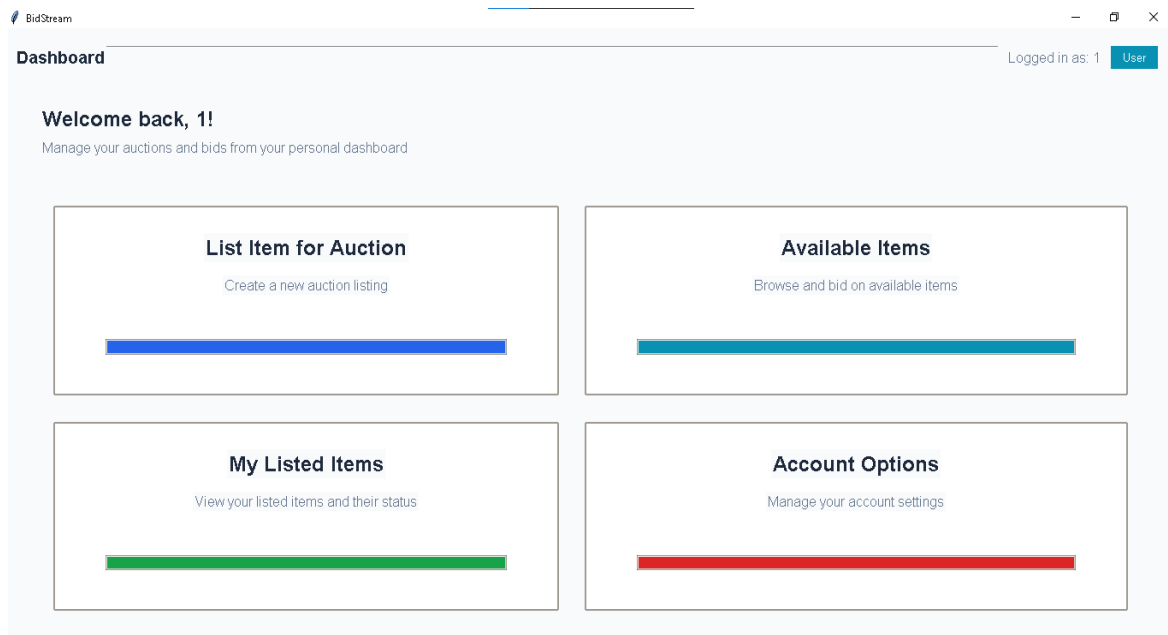
Fig 7.3: User Dashboard

Main user dashboard with options to list items, view items, and logout account.

Fig 7.4: List Item Page

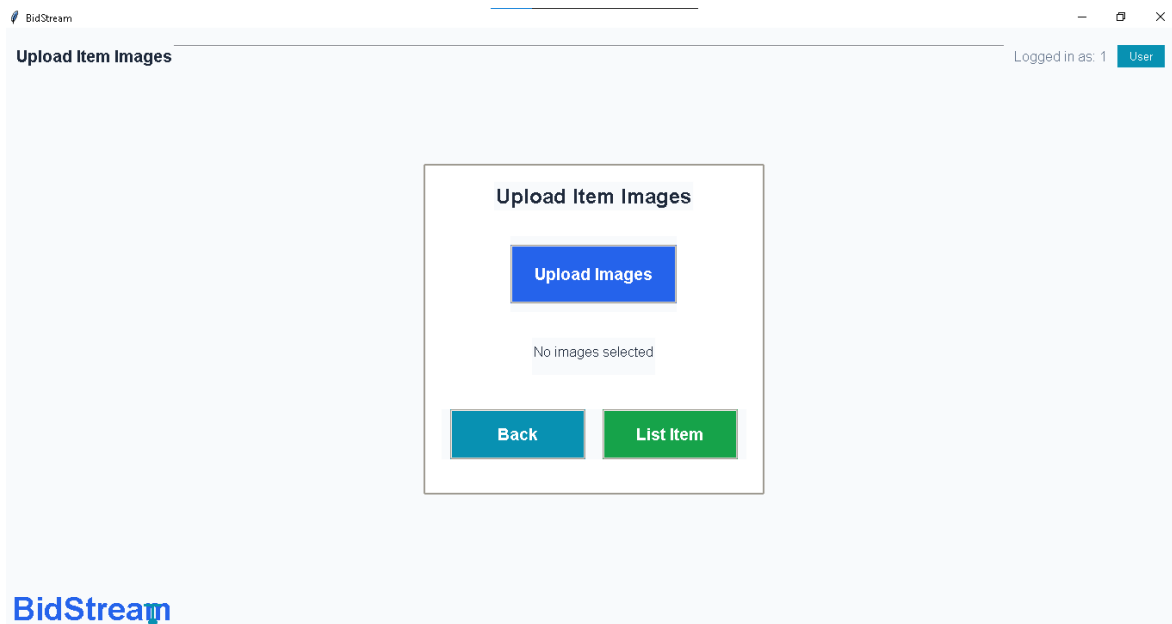Form to add auction items with name, starting price, and description fields.

Fig 7.5: Upload item Images for Listing Item

This page allows users to upload images of an item they want to auction. It includes options to go back or proceed to list the item after selecting images.
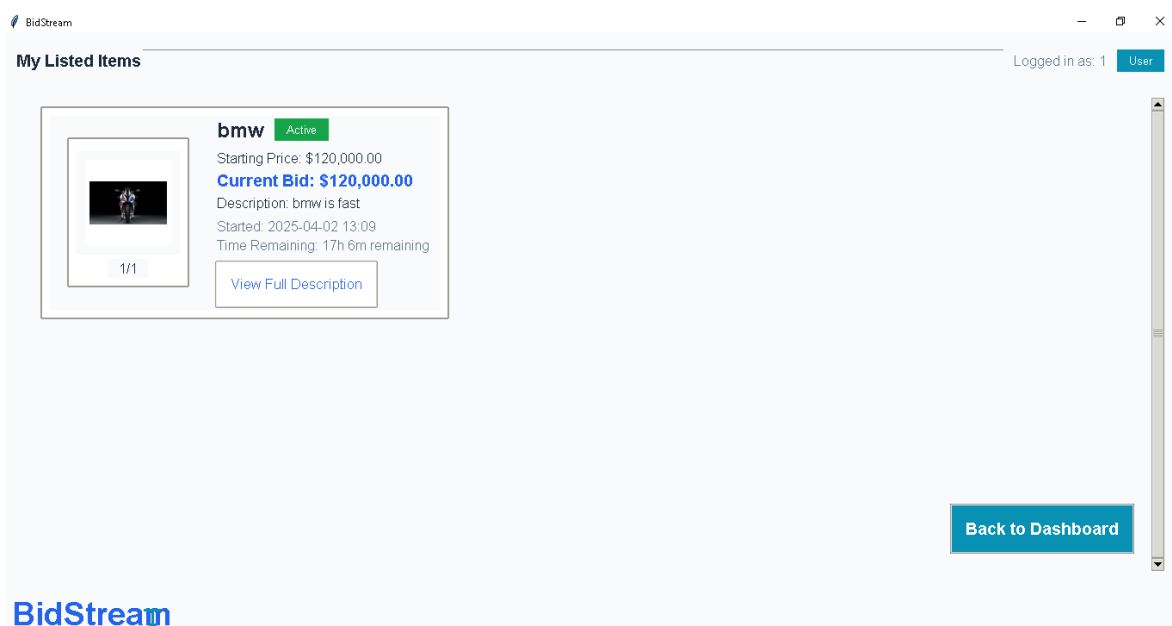

Fig 7.6: My Listed Item Page

Displays items the user has listed for auction. Each item shows the image, title, current bid, starting price, and time remaining in the auction.
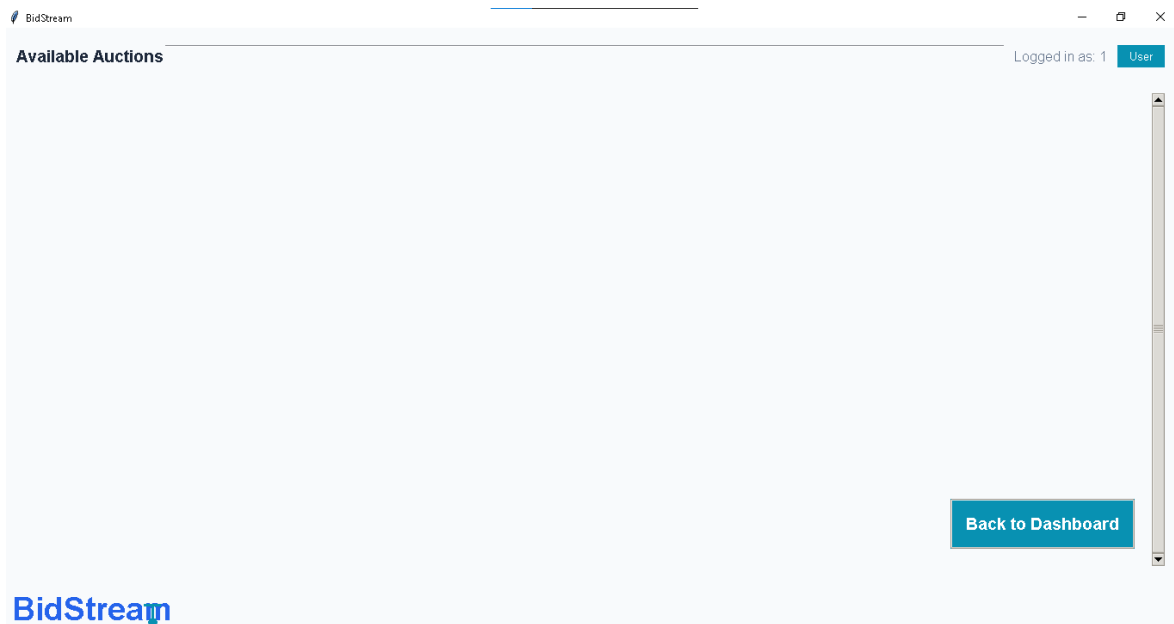
14

Fig 7.7 Available Auctions Page

Shows a list of items currently available for bidding. In this view, no auctions are active. A button allows users to return to the dashboard.
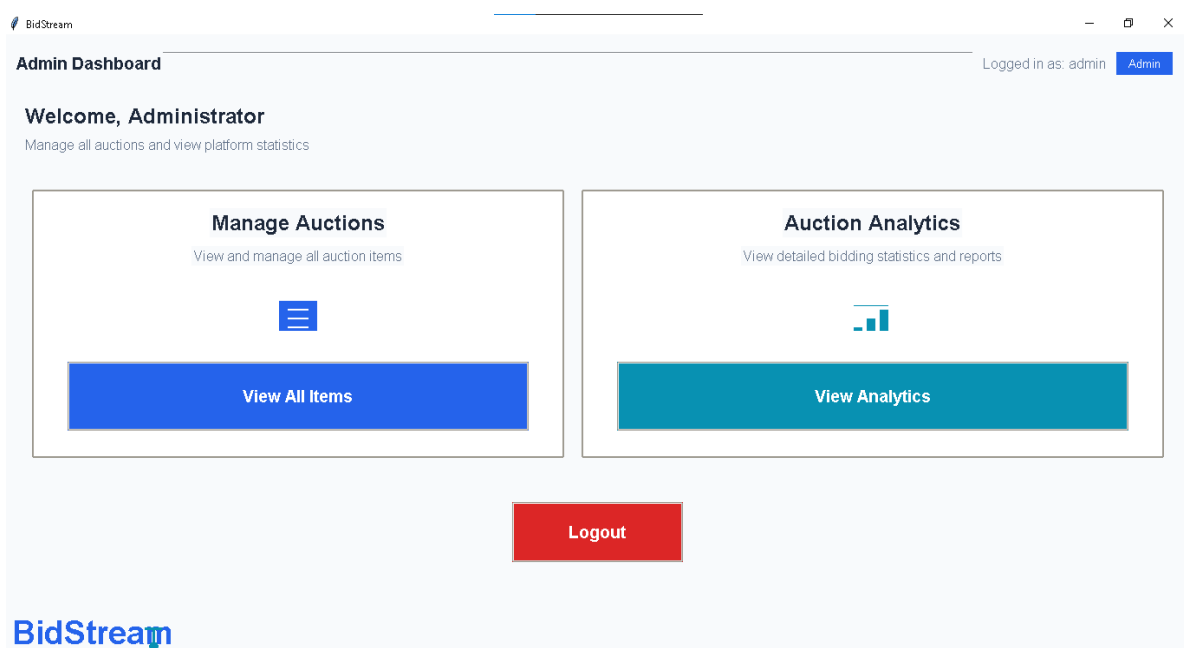

Fig.7.8: Admin Dashboard

The main admin interface of BidStream, offering quick access to manage auction items and view bidding analytics, with logout functionality.
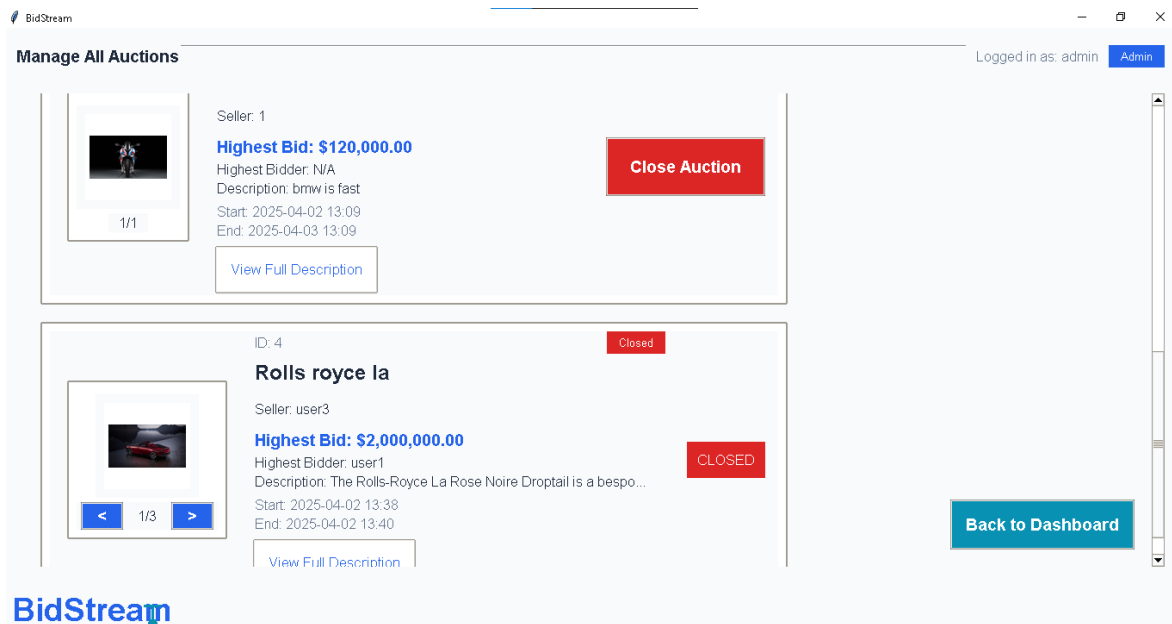
Fig 7.9: Manage Auctions Page

Displays a list of all auction items, showing seller details, highest bids, and options to close active auctions or view full descriptions.

Fig 7.10: Auction Analytics

Presents a sortable table with key stats for each auction item, including prices, bidders, status, and time details.

Chapter 8

Conclusion

BidStream has successfully addressed the challenges associated with traditional auction methods by providing a secure, efficient, and user-friendly platform. The integration of Tkinter for frontend design and MySQL for backend operations has ensured a robust and scalable auction management system.

By implementing real-time bid validation, secure authentication, and a structured auction framework, the system enhances transparency and trust among participants. The role-based access mechanism further strengthens auction integrity, preventing unauthorized actions. Moreover, the offline functionality allows accessibility even in low-connectivity areas, making it a versatile solution for various auction scenarios.

In future iterations, additional enhancements such as AI-based bid prediction and blockchain integration can be explored to further improve security and automation in auction bidding.

The development and deployment of BidStream serve as a significant step toward modernizing auction systems, ensuring fairness, efficiency, and accessibility for all stakeholders.

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