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Application Based Live Auction System

In partial fulfilment of the requirements for the degree of

Bachelor of Science in Computer Science

Supervisor: Nighat Usman

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Certificate

We accept the work contained in the report titled

“Application Based Live Auction System”

written by

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as a confirmation to the required standard for the partial fulfillment of the degree of

Bachelor of Science in Computer Science.

Approved by:

Supervisor: Nighat Usman

______________________________ (Signature)

June 14, 2022

DECLARATION

We hereby declare that this project report is based on our original work except for citations and quotations which have been duly acknowledged. We also declare that it has not been previously and concurrently submitted for any other degree or award at Bahria University or other institutions.

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Date : June 14, 2022

We would like to thank everyone who had contributed to the successful completion of this project. We would like to express our gratitude to our supervisor, NIGHAT USMAN for her invaluable advice, guidance, and her enormous patience throughout the development of the project.

In addition, we would also like to express our gratitude to our loving parents and friends who helped us along the way.

MUHAMMAD AFNAN
INSRAM UL HASSAN

ABSTRACT

The immense problem auction houses face is that the customers and the sellers in the auction houses have little to no security and privacy in terms of their identity. The traditional auction systems are not convenient. To overcome the aforementioned problem, we propose a hidden web application considering live auction system, which will help buyers and sellers in maintaining their security and anonymity. The proposed application is of high significance as buyers can easily bid for their desired items while maintaining their privacy. Buyers can directly chat with the seller who is carrying the auction and can pay them online using bitcoin core. We have used the Agile methodology to overcome the uncertainties. The application is based on Flutter framework which will communicate with an onion-based hidden web. In the proposed application, there will be a list of upcoming auctions and with the expiry time. As the deal gets done, the buyer will proceed with the transaction which will be sent to our wallet's address and after the delivery of the item is confirmed, we will send money to the seller. Once an auction has been started, the user can place his bid and after a time interval he will be notified if his bid was the highest bid. Afterwards, the sending and receiving transaction between both parties is performed. The flutter uses Dart which will be used for application design including the implementation of the features. For keeping the records in the database, we are using firebase. The proposed application will assist many users for searching and buying any product without leaking their privacy.

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CHAPTER 1

INTRODUCTION

1.1 Background

Auction is a process used to sell products that are of unique value and whose demand exists among a selected few people. In an auction, customers purchase specific products based on bidding, starting from the inquired price of the product by the individual who owns that item. Whereas the problem with auction houses is that they have a huge privacy and security risk, and the bidding are not anonymous. Therefore, the idea is to develop a system that will help people to maintain their anonymity and privacy using a convenient application installed on their phone.

1.2 Problem Statement

The search of items with a unique value has always been a problem for most of the people because it is a strenuous task to know if there is any item of interest to someone whose auction is going on publicly. It is quite possible that someone might be interested in rare journals, ancient letters, data leaks, work of art or usual goods at reduced prices etc. but unable to find it online.

1.3 Aims and Objectives

The objectives of the thesis are mentioned below:

- Development of the auction-based application
- Adding features using bitcoin core to complete the transaction
- Privacy preservation
- Chat module between two parties

1.4 Scope of Project

The application-based online system is an idea that will help reduce the need for auction houses and puts the formal bidding in a convenient privacy-focused system. It will use the hidden web [1], [4] as a communication channel. The need for such a system arises as we see how important privacy is in this digital age. If someone wants to sell something of high and unique value then a lot of privacy and security risks arises and complications increases so to solve this problem, we can transfer the whole process in an anonymous system which will be convenient and would not reveal anyone's real information while maintaining the authenticity of the individuals on the platform. The chat-based communication will allow users of the applications to chat with each other in a convenient fashion. The flutter [3] -based application will be linked to hidden web [1], [4] so that IP of the users on the application won't be revealed. Furthermore, the registration of the users will require just an email and a random number will be generated instead of username and other details including the password will be emailed to the user. A bitcoin core [2] wallet which will be the company's own wallet whose public key will be shared with the buyer who will send money onto the wallet's address and after the transaction is received and verified, the use of the public key of seller's wallet will come into play to send him the money. There will be a few mechanisms through which we will detect frauds. The transactions will be in the form of bitcoin core [2] and a small fee will be charged upon entering the first time which will further mitigate the risk of potential fraud although these are optional features and might not be present in the first few releases of the application.

LITERATURE REVIEW

CHAPTER 2

2.1 Background

The purpose of this review is to help us understand about what is going on in the recent times regarding the progression of auction-based projects. In this chapter various articles have been discussed regarding their shortcomings and the areas they excel in. Moreover, it has also been discussed that what makes our project stands out from the crowd.

The authors claims that there is a limited useful literature available for the auction system design and implementation.

2.2 Review

In [5], the system that has been proposed has been implemented using ASP.NET on the web. Such system has some advantages as it versatile which means anyone with a web browser can use it on any system. Whereas the downside to such approach is that it is less convenient for the people rather than using a simple application on their phone. Moreover, there are no concept of anonymity and hiding the buyer’s and seller’s identity.

In [6], the system that has been proposed is related to bidding of fish in an Indonesian marketplace where the fishermen struggle a lot to achieve optimal prices. The system is a well-polished android application but a huge drawback is that it is extremely limited in its functionality and it is only focused on a certain geographical area. Whereas the system we proposed is extremely versatile and can be used by anyone all across the globe.

In [7], the system that has been proposed has been implemented using Java. It is a full fledge android application for auctioning of products but the major drawback is that it uses Java which is not a cross platform language and it runs on JVM hence it is not possible to publish the same application on iOS whereas, in our case as we are using flutter and it is a cross platform framework which allows to build the application for iOS and Windows from a single codebase. Moreover, there is no mentioning of protecting user’s privacy which in our case is a major concern.

In [8], the system has been built using modern technologies and is robust enough in terms of its integrity to compete with any sort of auction-based project. But one major drawback is the inability of the developers to take this application in a way that would provide anonymity to its users which is understandable as this application has only been built to test some of technologies and their performance towards the application. Moreover, the application is only for web.

In the Table 1 is the comparison of all four papers with respect to the main idea of a perfect auction system. The numbering down below shows the reference to that paper. Moreover, the convenient column shows how easy it to use for the users and how easy it is for developers to maintain the application.

Table 2.1: Comparison of related studies

Web-based	**Language**	**Product**	**Privacy element**	**Convenient**	**References**
Yes	ASP.NET	All products	No	No	[5]
No	Java	Fish	No	Yes	[6]
No	Java	All products	No	Yes	[7]
No	ReactJS	All products	Yes	No	[8]

2.3 Conclusion

As various papers have been reviewed and hence it can be inferred that this project is unique in its nature and there is currently no such projects that fulfills all the criteria for a privacy focused online auction application.

CHAPTER 3

SOFTWARE REQUIREMENT SPECIFICATION (SRS)

3.1 User Classes and Characteristics

There will be three classes provided as follows

1. Admin

   In this class the administrator login into the system and admin can view, modify anything in the application, update user information, delete a certain user, view transactions both incoming and outgoing and add any new requirements into the system.

2. Buyer

   In this class the buyer can both register and login into the system. Moreover, buyers can access the available data regarding auctions, participate in an auction, and be able to chat with the seller if he/she wins the auction. Buyer can also logout of the system.

3. Seller

   In this class the seller can just like the buyer both register and login into the system. Moreover, sellers can also view the auctions, he/she can post a new auction if he/she wishes to proceed with that, he/she will be able to chat with the buyer if the auction that the seller is running is a done deal and he/she can also logout of the system.

3.2 Design and implementation constraints

Online Auction System is an application. The front-end of this application will be carefully developed using dart which uses flutter as a framework. The application should be responsive enough and it should give response within a timeframe i.e., 1000ms. Internet connectivity is of out-most importance while using this application.

3.3 Assumption and Dependencies

Online Auction System currently have only one dependency of the user end which is a reliable internet connectivity for faster firebase database access.

3.4 User Interface

Every user should have Android smartphone with minimum android version of 6.0 so that they can use the application with any hiccups. Furthermore, to run the application smoothly a minimum 2GB RAM is required with CPU based upon ARM architecture. Supported hardware devices must meet or exceed Google’s Android Compatibility Definition.

3.5 Functional Requirements

1. Login
    - System will be able to validate the input.
    - System will be able to authenticate the correct input key.
    - System will be able to invalidate the wrong input key and throw an error message.
2. Registration
    - System will be able to register the users into the database.
    - System will send the login key in the mailbox of the user.
3. Browsing
    - System will be able to show the results.
    - System will allow users to bid on a desired product.
4. Homepage

- System will show new upcoming auctions.
- System will allow users to bid.

5. Sell Product
   - System will allow users to post an ad.
6. Buy Product
   - System will allow the users to place a bid.
7. Security
   - System will keep users anonymous.
   - System will generate random public keys for users which keeps their identity private.
8. Chat Interface
   - System will allow Buyer and Seller to be able to communicate with one another
9. Payment Interface
   - System will allow payment through a cryptocurrency.

3.6 Non-Functional Requirements

1. Safety Requirements

   To provide best user experience, we will bring updates according to user need in our application to prevent any bugs and try to fix those bugs and defects.

2. Security Requirements

   To provide best user experience, we will bring updates according to user need in our application to prevent any bugs and try to fix those bugs and defects.

3. Performance Requirements

Since this software is going to be an application which will build allow users to conveniently bid, it doesn't require high-end graphic processing unit. Required CPU is x86, x64 architecture with SSE2 instruction set support and required operating system is Windows 7 (SP1+) and Windows 10 to develop this application. Online OLTP database is required for storing and faster access of the data.

4. Software Quality Attributes

Software quality attributes of this project are:

Availability: All features of the application should be available for the users 24/7.

Flexibility: The application should be flexible for the any type of user.

Usability: The application must be user friendly for the user. The users can easily understand how to use the application.

Testability: The application should be able to test at each level and the bugs/defect at each level of development should be removed.

Reusability: The application is divided into different modules of coding. These modules should have modularity in them.

Maintainability: The application should be convenient to maintain and removing bugs/defects should be low cost.

3.7 Software Interface

Software interfaces are mentioned in the table down below

Table 3.7-1: Software Interface

Software Used	**Description**
Android Version	Android Version 6.0+.
Tool	Visual Studio Code
Back End	Dart and Nodejs

This app will run on mobiles that are running android version 6.0+ and minimum 2GB RAM is required. The tool that will be used is visual studio code with emulator of android studio. The test device that is used is Pixel 3a with API level 30. Heroku is used for deployment of NODE JS API which will connect with wallet and send transaction information to the database.

- **Signup**

It contains the description of our use case signup.

Table 3.7-2: Signup Use Case

	Name	Sign Up
1.	**Case ID**	U1
2.	**Objective**	In this use case, both the buyer and seller will be able to create an account
3.	**Priority**	Critical
4.	**Source**	Buyer and Seller are the main sources
5.	**Actors**	Buyer/Seller
6.1	**Flow of Events**	1. Open the Application 2. Input the required credentials 3. Click on Create account button to create an account 4. The password will be emailed which can be used to login along with the username.
6.2	**Basic Flow**	After Signup User can go to U2.
6.3	**Alternate Flow(s)**	No
7.	**Preconditions**	Buyer/Seller must have an internet connection
8.	**Notes**	No

- Sign In

It contains the description of our Login use case.

Table 3.7-3: Sign in Use Case

	Name	**Sign In**
1.	**Case ID**	U2
2.	**Objective**	Buyer/Seller will be able to login through their randomly generated username and password
3.	**Priority**	Critical
4.	**Actors**	Buyer/Seller
5.1	**Flow of Events**	1. Open the application 2. Enter Username and Password 3. Click on Sign in button to access the homepage
5.2	**Basic Flow**	After successful sign in User will go to U5
5.3	**Alternate Flow(s)**	No alternative flow, User must sign in to proceed further.
6	**Preconditions**	Must have a registered account
7	**Postconditions**	Buyer/Seller can use their respective panels.
8	**Notes**	If the User will sign in with the right credentials no error will occur.

- **Sign Out**

It contains the description of our Sign Out use case.

Table 3.7-4: Sign Out Use Case

	Name	Sign Out
1.	**Use-Case ID**	U3
2.	**Objective**	Buyer/Seller would be able to sign-out
3.	**Priority**	High
5.	**Actors**	Buyer/Seller
6.1	**Flow of Events**	It can proceed after U2.
6.2	**Basic Flow**	Sign out from the panel.
6.3	**Alternate Flow(s)**	No
7.	**Preconditions**	User must be signed into application.
8.	**Notes/Issues**	No

- **Completed Product**

It contains the description of our Completed Product use case.

Table 3.7-5: Completed Product Use Case

	Name	Completed Product
1.	**Use-Case ID**	U4
2.	**Objective**	Shows a list of completed product to Admin and the Seller
3.	**Priority**	High
4.	**Actors**	Seller/Admin
5.1	**Flow of Events**	Appear after the completion cycle of the product
5.2	**Basic Flow**	The products must be valid and organic
5.3	**Alternate Flow(s)**	No
6.	**Preconditions**	There should exist completed products
7.	**Notes/Issues**	No

- **Homepage**

It contains the description of our Homepage use case.

Table 3.7-6: Homepage Use Case

	Name	Homepage
1.	**Use-Case ID**	U5
2.	**Objective**	Buyer/Seller/Admin can view the ongoing products for auction. In-case of admin he/she can view Buyer, Seller, Completed and Active product of his/her homepage.
3.	**Priority**	High
4.	**Actors**	User/Admin
5.1	**Flow of Events**	Sign-in to the application The homepage will be the first to appear
5.2	**Basic Flow**	Items on the homepage takes all the actors to the respective item page with its entire detail.
5.3	**Alternate Flow(s)**	None
6.	**Preconditions**	U2
7.	**Notes/Issues**	None

- **Active Products**

It contains the description of our Active Products use case.

Table 3.7-7: Active Products Use Case

	Name	Active Products
1.	**Use-Case ID**	U6
2.	**Objective**	List of products which are up for auction by the Seller.
3.	**Priority**	High
4.	**Actors**	Buyer/Seller/Admin
5.1	**Flow of Events**	It can be accessed normally through the homepage of Buyer/Seller. In-case of Admin he/she must click on an active products button to access it.
5.2	**Basic Flow**	Login is required for all three of the actors only then it becomes accessible to them.
5.3	**Alternate Flow(s)**	None
6.	**Preconditions**	U2
7.	**Notes/Issues**	In-case of no active products currently, the page will appear blank or show “No Active Products”.

- **Product Detail**

It contains the description of our Product Detail use case.

Table 3.7-8: Product Detail Use Case

	Name	Product Detail
1.	**Use-Case ID**	U7
2.	**Objective**	Entire Detail of a particular product including the product image alongside with its description and top bidders for that product.
3.	**Priority**	High.
4.	**Actors**	Buyer/Seller/Admin
5.1	**Flow of Events**	1. Buyer can simply access the product detail page by tapping on any of the products on the homepage(U5), can view the list of top bidders and he/she can place the bid too. 2. Admin and Seller can access product detail by tapping on the product on the homepage (U5) and can view the list of top bidders
5.2	**Basic Flow**	Accessible through homepage(U5).
5.3	**Alternate Flow(s)**	No.
6.	**Preconditions**	U2, U5, U6
7.	**Notes/Issues**	No.

- **New Product**

It contains the description of our New Product use case.

Table 3.7-9 New Product

	Name	New Product
1.	**Use-Case ID**	U8
2.	**Objective**	Seller will be able to add new product alongside with their Title, Description, Price, and Image.
3.	**Priority**	High.
4.	**Actors**	Seller
5.1	**Flow of Events**	1. Sign in 2. Tap New Product from the panel
5.2	**Basic Flow**	Accessible only for seller.
5.3	**Alternate Flow(s)**	No.
6.	**Preconditions**	U2
7.	**Notes/Issues**	No.

- **Join For Bid**

It contains the description of our Join for Bid use case.

Table 3.7-10 Join for Bid

	Name	Join for Bid
1.	**Use-Case ID**	U9
2.	**Objective**	Buyer can join for the bidding for a particular product
3.	**Priority**	High.
4.	**Actors**	Buyer
5.1	**Flow of Events**	1. Buyer Sign in 2. Tap on a product present on homepage 3. Tap on Join for Bid 4. Tap on Click for Bid 5. Input the Bid price
5.2	**Basic Flow**	Buyer must be logged into the system to perform this operation and there should exist active products.
5.3	**Alternate Flow(s)**	No.
6.	**Preconditions**	U2, U5, U6
7.	**Notes/Issues**	Only numerical values can be used in the input field.

3.7.1 FEASIBILITY STUDY

3.7.2 Introduction

The proposed project is an online platform where a user will be able to post items online for auction. The items will accompany item name, selling price, and a picture presentation for the bidder to see. The bidder, if interested in the item, will auction for the product and will be able to inspect the item physically to approve the product then complete the business with the seller.

It is important since the auctioneer does not necessarily need to make a physical consultation with the seller for him/ her to get the required services. The auctioneer will have a provision to chat with the seller and consult with him about the details of the product. This chat will be confidential only between the buyer and the seller, ensuring the buyer’s confidentiality. The customers will be assured of getting the right products, since they will take their time to analyses and compare a range of listed items and choose appropriately according to their need or desire. This will save time that buyers take in search of items and therefore they will save themselves from worsening of conditions which may lead to wastage of time conditions. This will also save money that is spend around travelling and bidding for the undesired items. Bidders will at the end of the day have a reason to smile with this online system.

3.7.3 What the system will do

This system will run on the internet since of the dynamic nature of the internet, and anybody can access it from smartphones. This is a sure promise that the system will serve many people in the country, and in the future, it will reach out to the whole world.

The system is a forum where the bidders meet their respective product sellers in their locality on the internet to solve the problem of item auctioning.

CHAPTER 4

DESIGN AND METHODOLOGY

4.1 Activity Diagram

Activity diagram provides a graphical representation of various activities that are carried out in an application, and it is shown in Figure 4.1: -

New User Registration

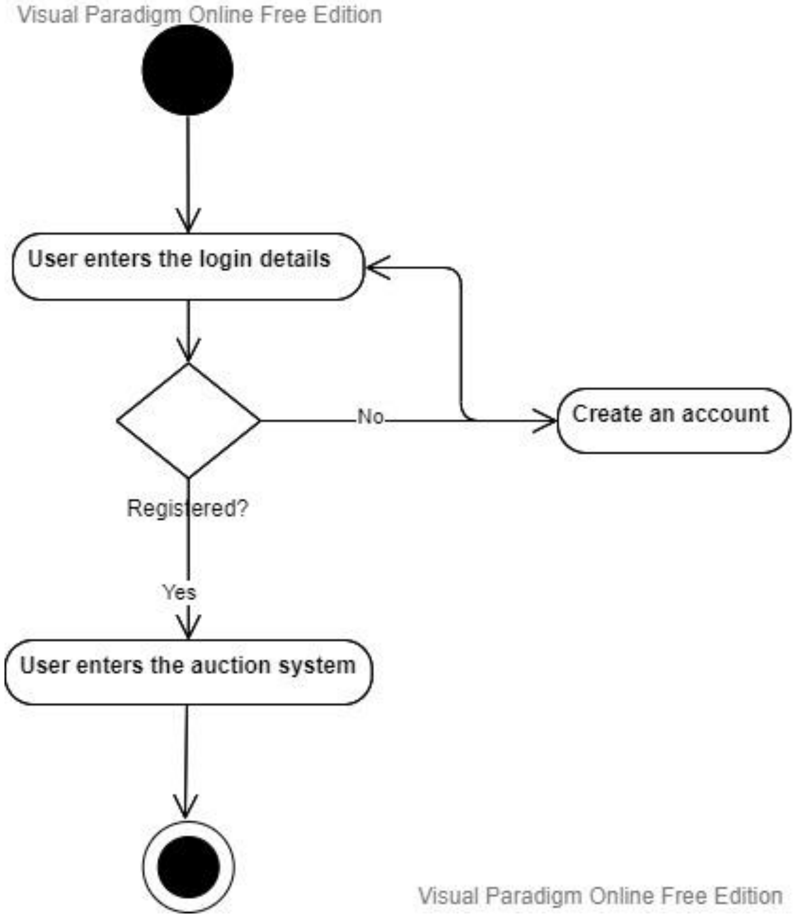

Visual Paradigm Online Free Edition
User enters the login details
No
Create an account
Registered?
Yes
User enters the auction system
Visual Paradigm Online Free Edition

Figure 4.1: *New* User Registration

Bidding Process

It elaborates on the process of bidding from starting point till the buyer gets the item and it is described by the Figure 4.2: -

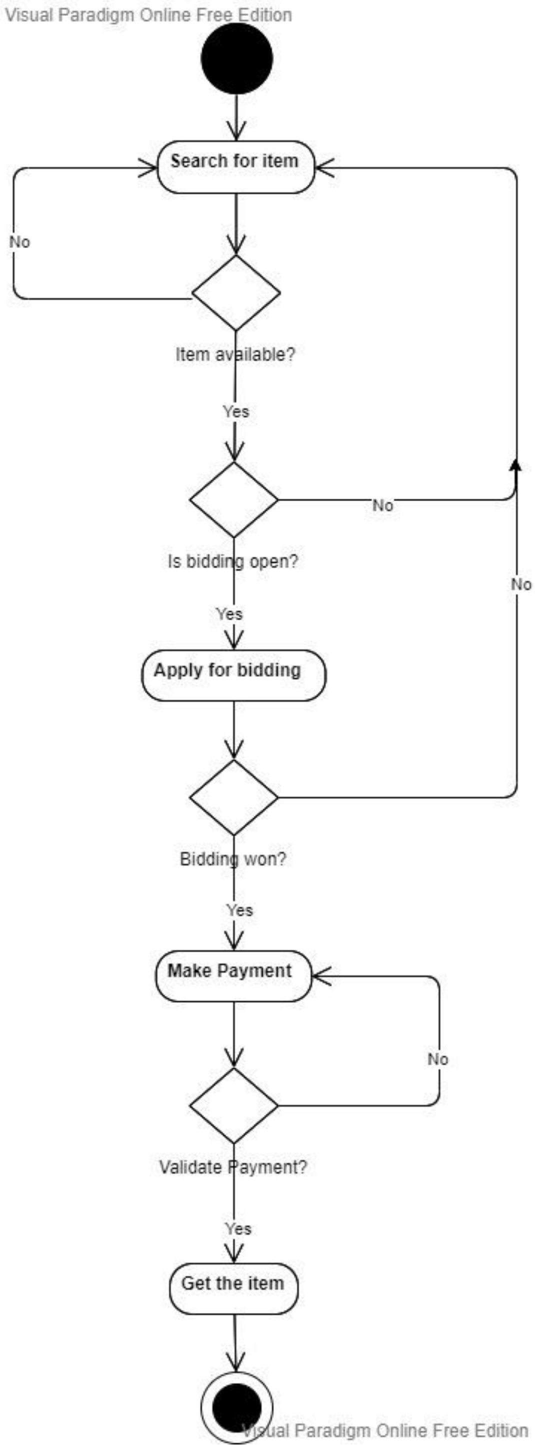


Figure *4.2*: Bidding Process

4.2 Use-Case Diagram

It elaborates the role of actors inside a system. There are total of three actors and their roles are described as below in the Figure 4.3: -

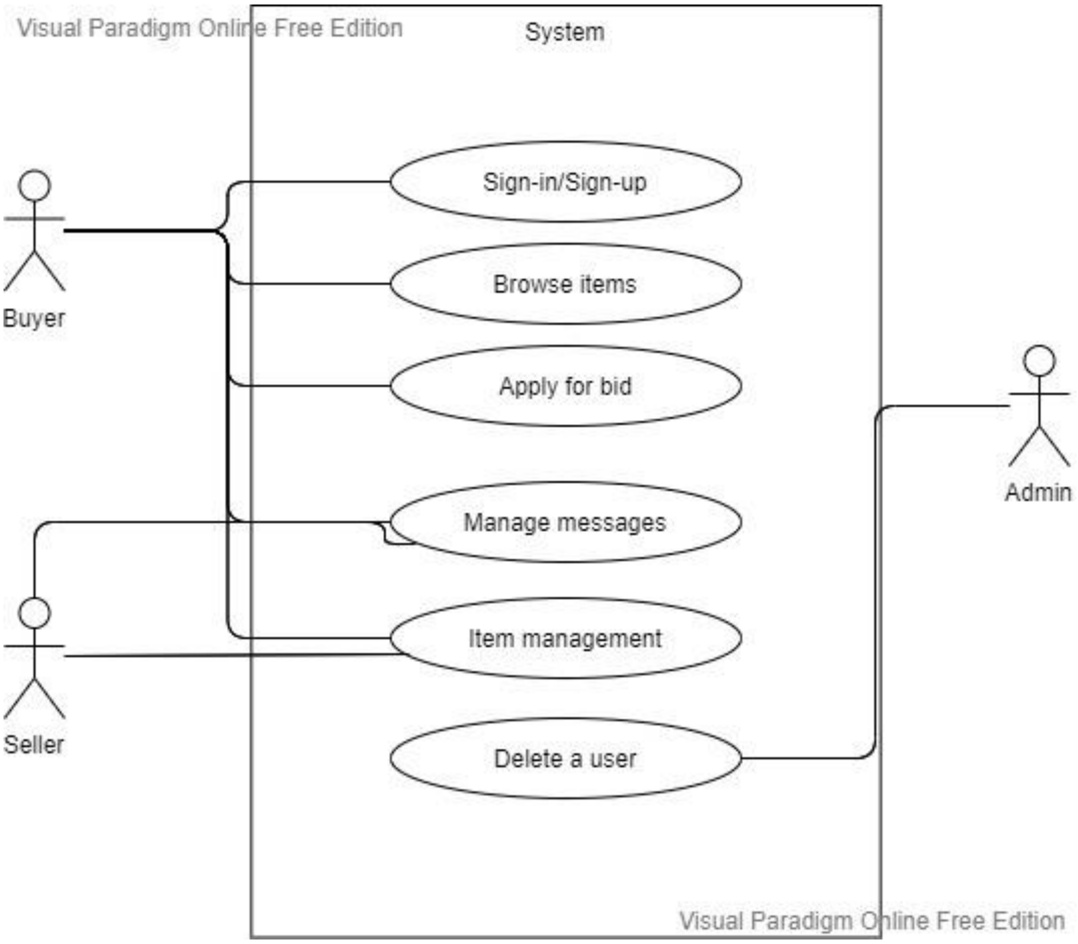


Figure 4.3: System Use-Case

4.3 State Transition Diagram

State transition Diagram is a graphical representation of the states and events that are involved in a particular system, and it is shown in Figure 4.4: -

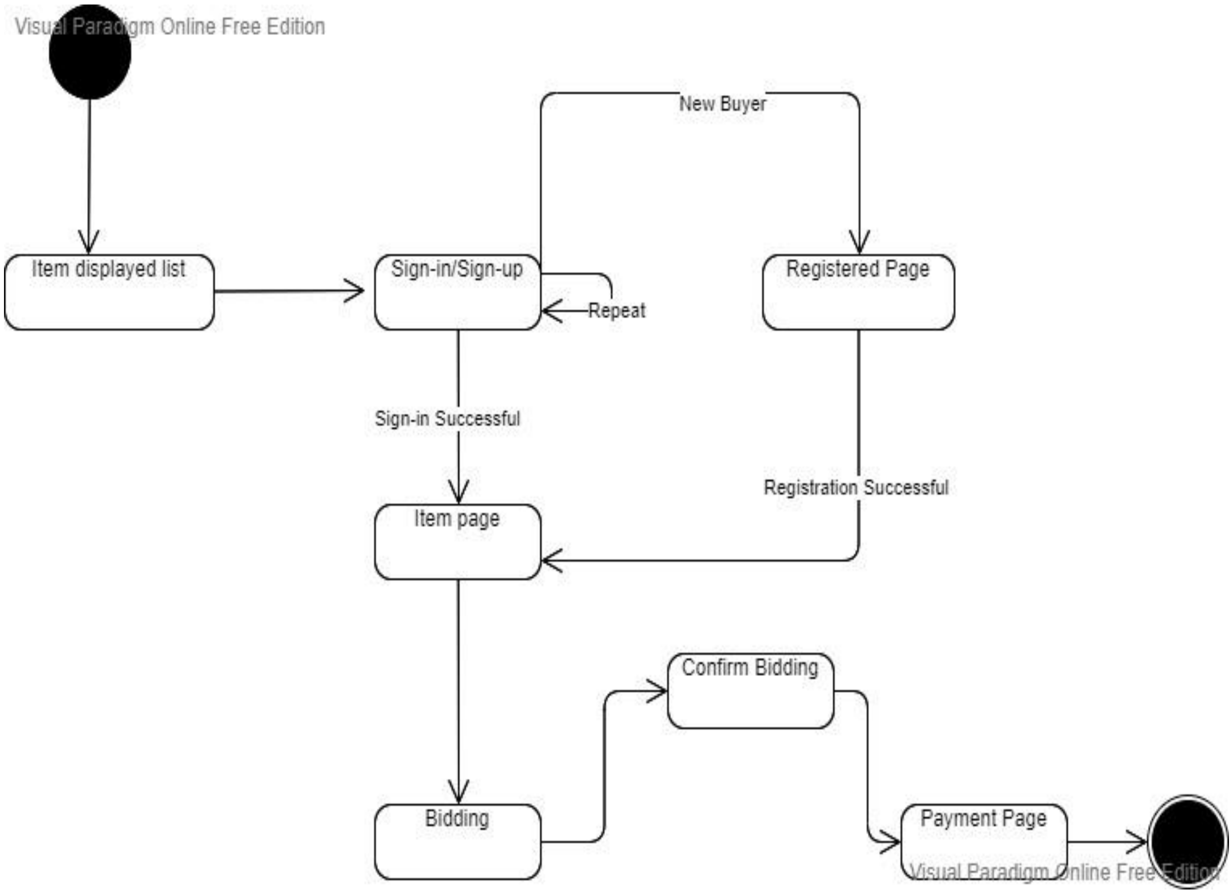


Figure 4.4: State Transition Diagram

4.4 Sequence Diagram

Sequence diagram is graphical representation of the whole system, that how the bidder and seller will login and how the entire system will work as a whole, and it is shown in Figure 4.5: -

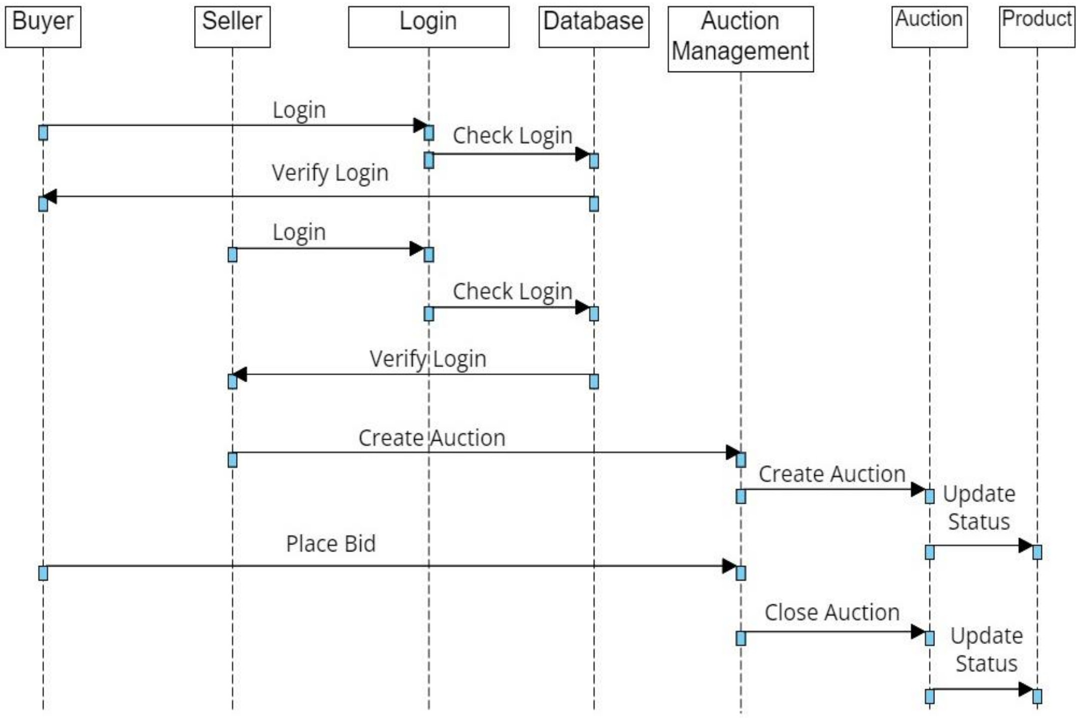


Figure 4.5: Sequence Diagram of the system

4.5 Domain Model

Domain models represent the set of requirements that are common to systems within a product line. There may be many domains, or areas of expertise, represented in a single product line and a single domain may span multiple product lines. Domain models represent the set of requirements common to a product line's systems. The domain model is further elaborated by Figure 4.6: -

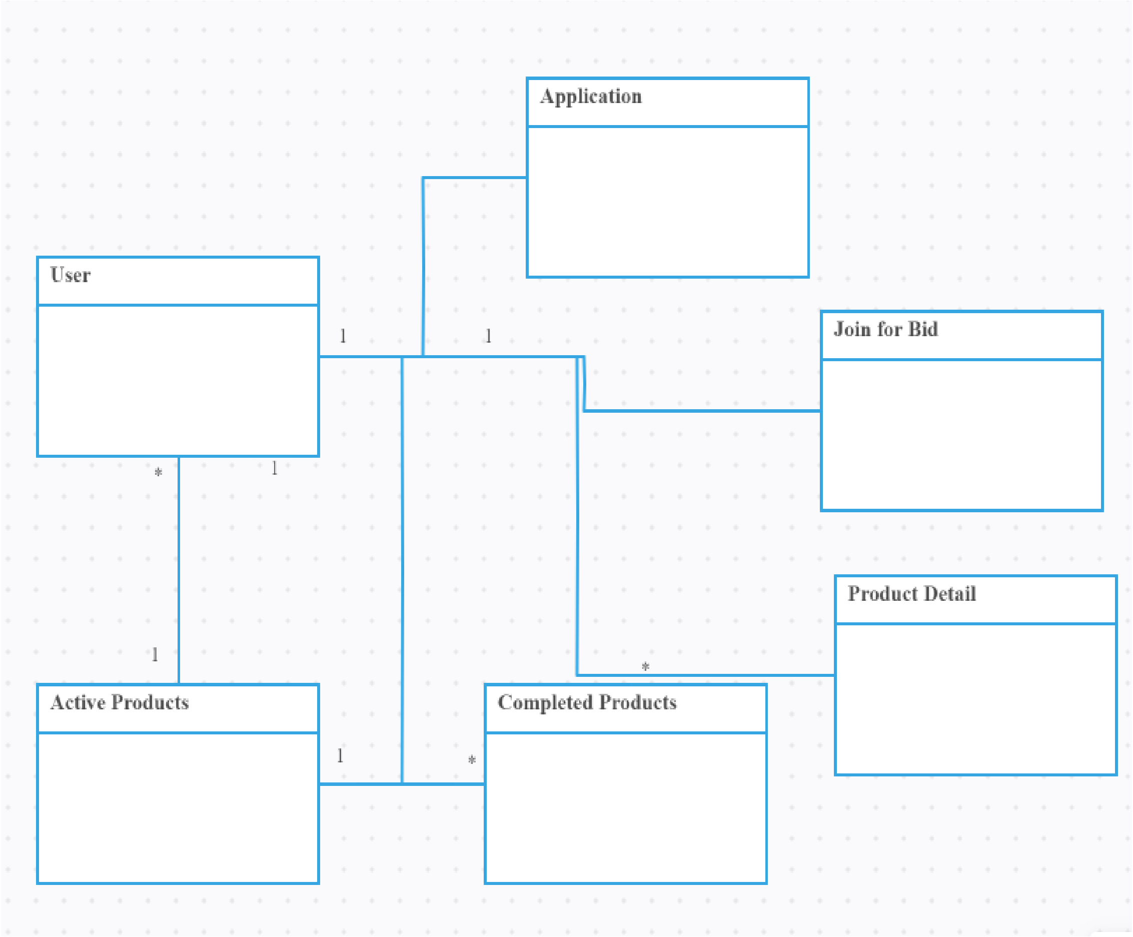


Figure 4.6: Domain Model of system’s components

4.6 Design Class Diagram

Classes are the workhorses of the design effort, which carries out the system's real work. The design class diagram is shown in the Figure 4.7: -

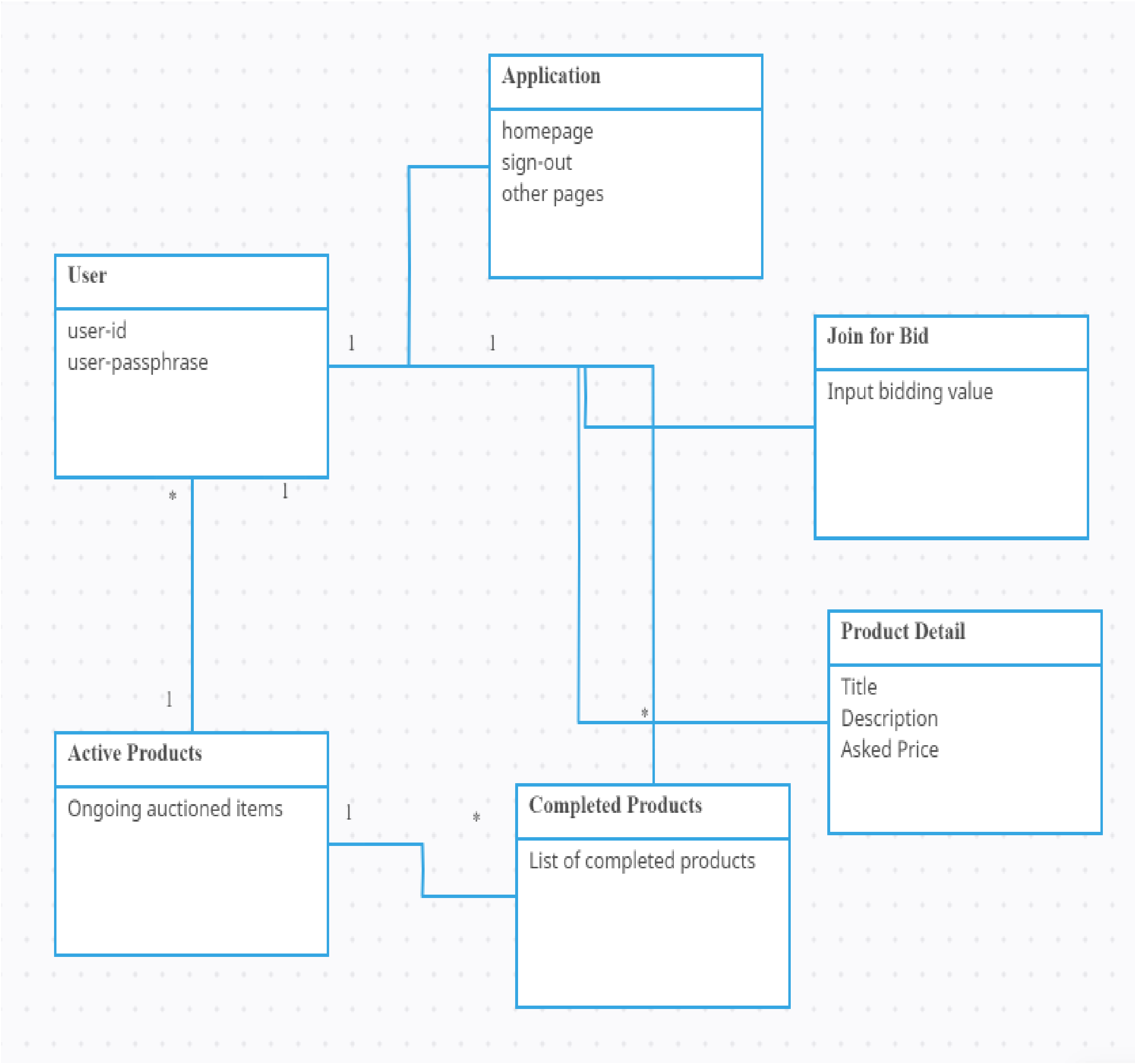


Figure 4.7: Design Class of system’s components

CHAPTER 5

DATA, EXPERIMENTS, AND IMPLEMENTATIONS

5.1 Software

This software will help users to participate in auctions and place their own auctions in the marketplace. There will be three actors present in system which will be Buyer, Seller, and Admin. Below is the Implementation of the project: -

5.2 Sign-up Screen

One of the most basic features of an application and the most vital one is its sign-in and sign-up page. The following figures elaborates the design and functionalities of the sign-in and sign-up pages of the application. The sign-up screen is shown in Figure 5.1: -

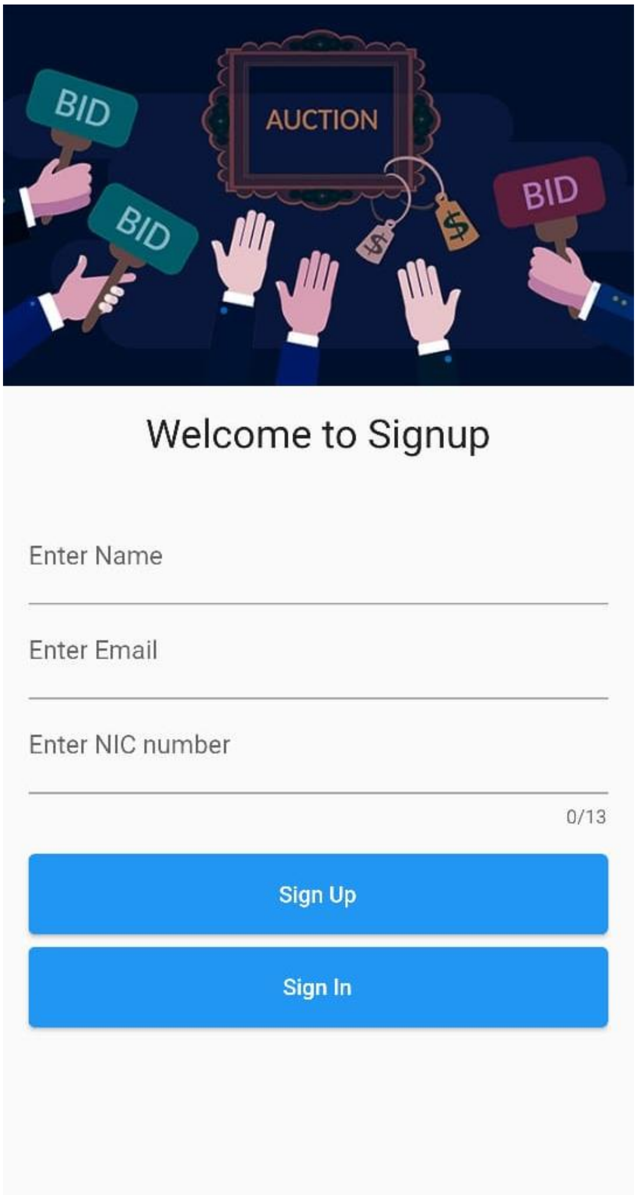


Figure 5.1: Sign-up for the application

5.3 Sign-in Screen

The sign-in screen is shown in Figure 5.2: -

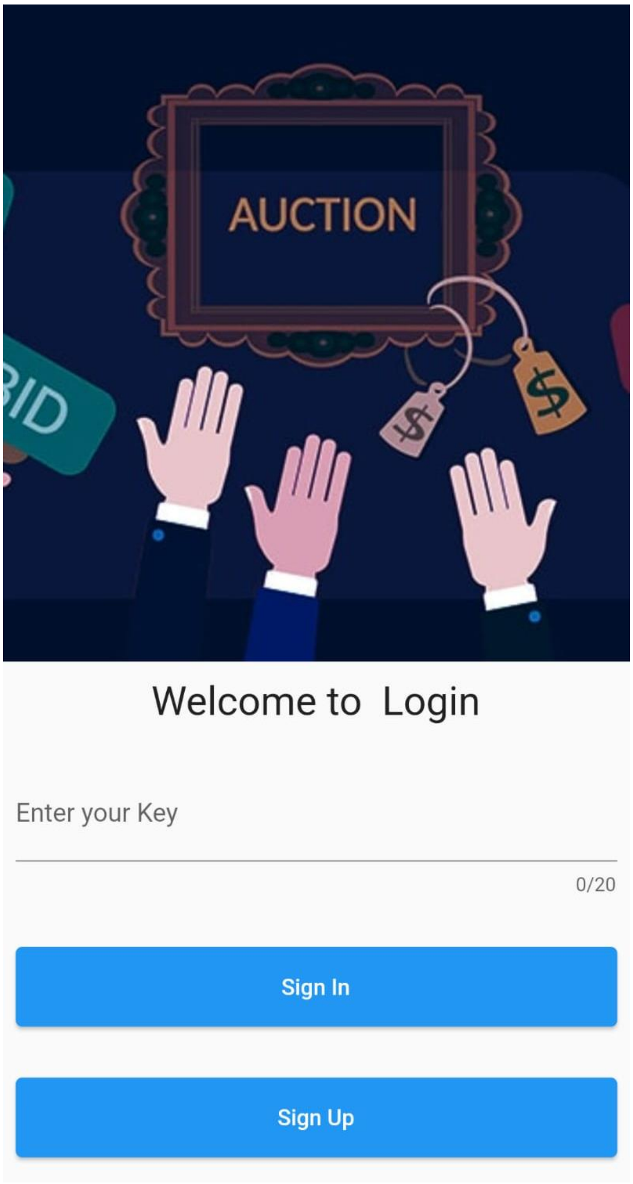


Figure 5.2: Sign-in for the admin

5.4 Admin's Screen

The admin screen is shown in the Figure 5.3: -

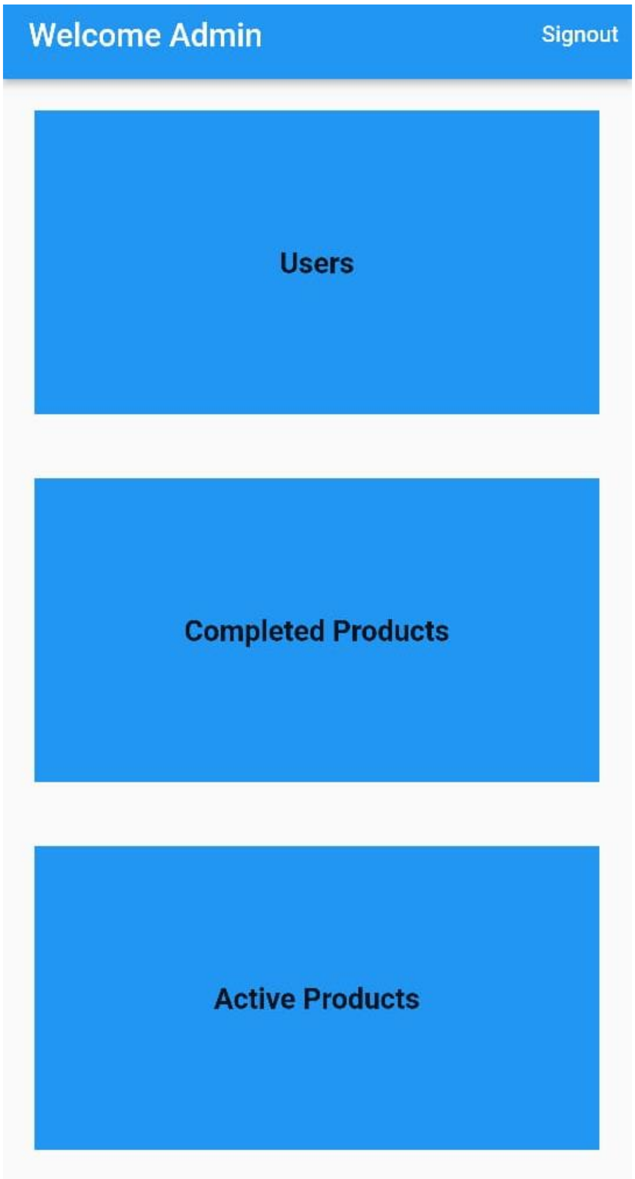


Figure 5.3: Homepage for sign-in for all three actors

5.5 Buyer’s Homepage

This screen will contain all the active products which are placed there by different sellers and the buyer would have the facility to choose any of the product according to his/her liking and place a bid on that and if he is fortunate enough, he might win the auction of the item. There is a hamburger menu which will allow the buyer to initiate chat. Buyer can also Sign-out if he/she wishes to login with another account. Buyer’s homepage is shown in Figure 5.4: -

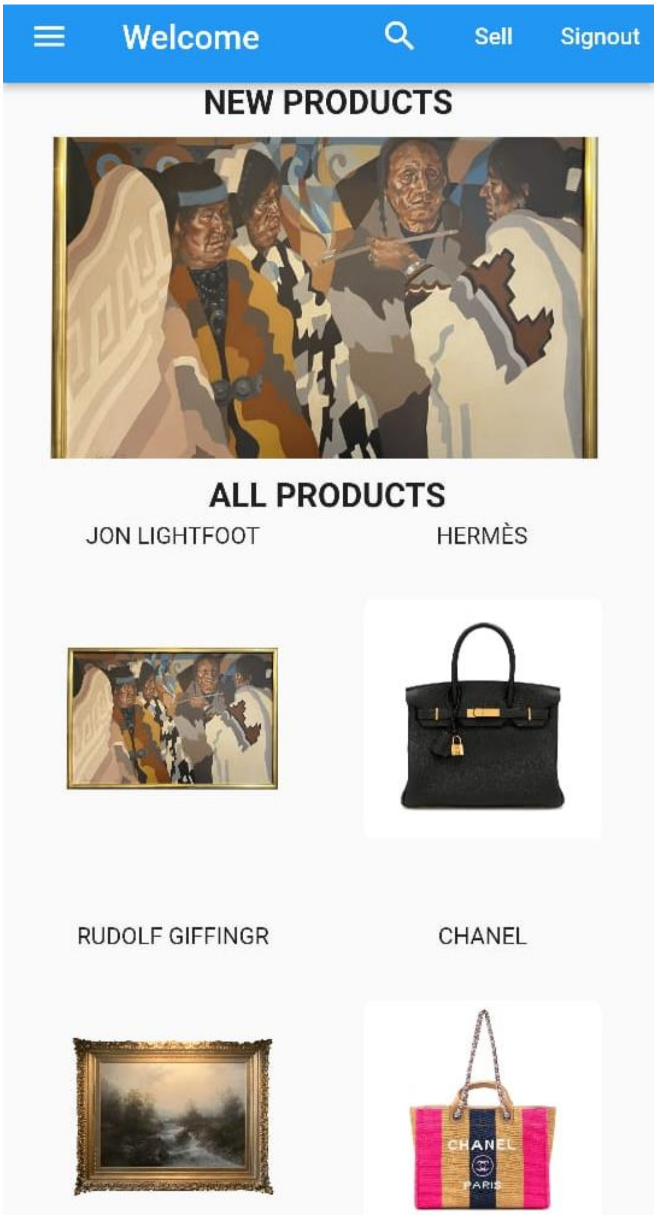
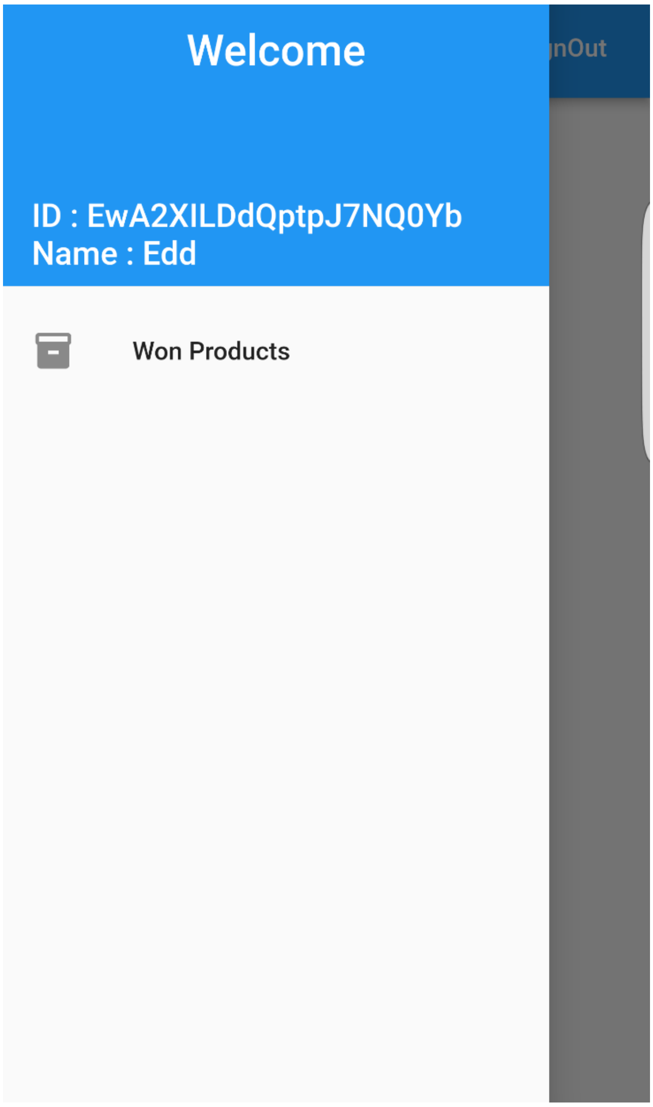


Figure 5.4: Buyer’s Homepage

5.6 Buyer’s Drawer

This screen is accessible from hamburger icon on the top left corner of the homepage, and it will allow the buyer to see his/her ID and Name as well as the Won Products. Buyer’s drawer is shown in Figure 5.5: -



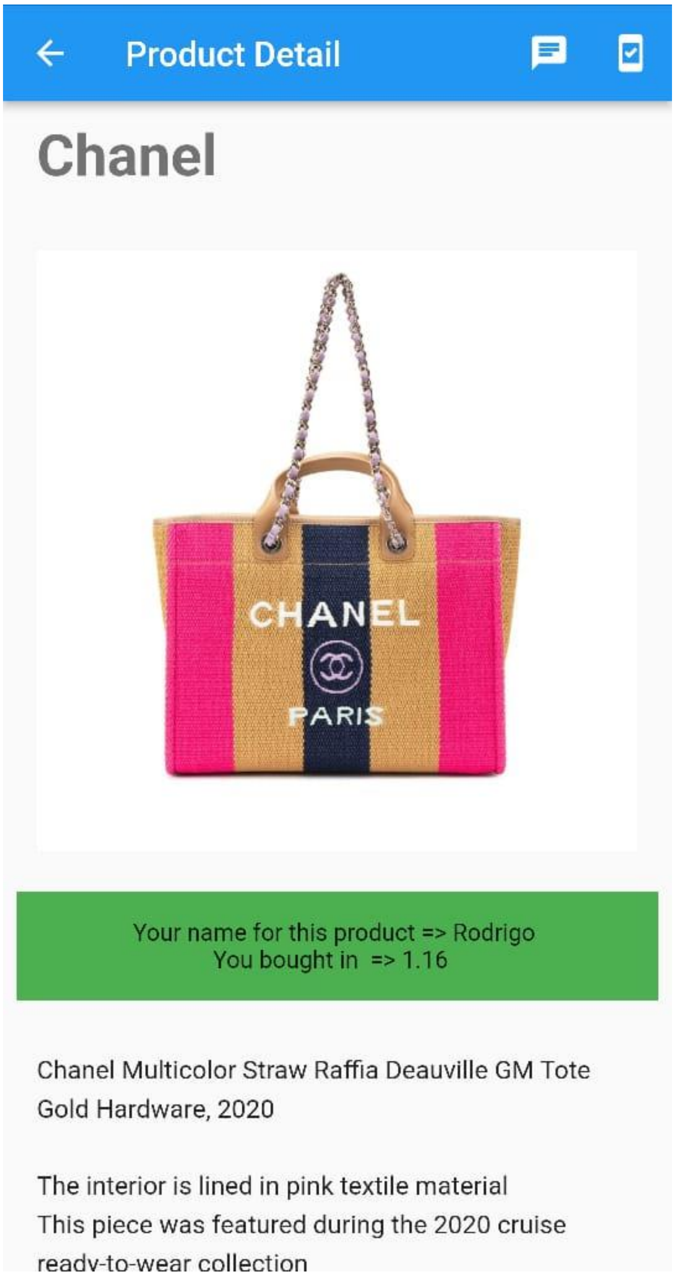
Welcome

ID : EwA2XILDdQptpJ7NQ0Yb
Name : Edd

Figure 5.5: Buyer's Drawer

5.7 Buyer’s Product Detail

This screen will allow the buyer to enter in the bid and a timer is displayed on top right-hand corner showing the expiration time of the bidding of a particular product. Moreover, there is a Title, Description and Image of the product is available for better understanding of the product for the buyer. The product detail page for the buyer is shown in Figure 5.6: -



Chanel

Your name for this product => Rodrigo
You bought in => 1.16

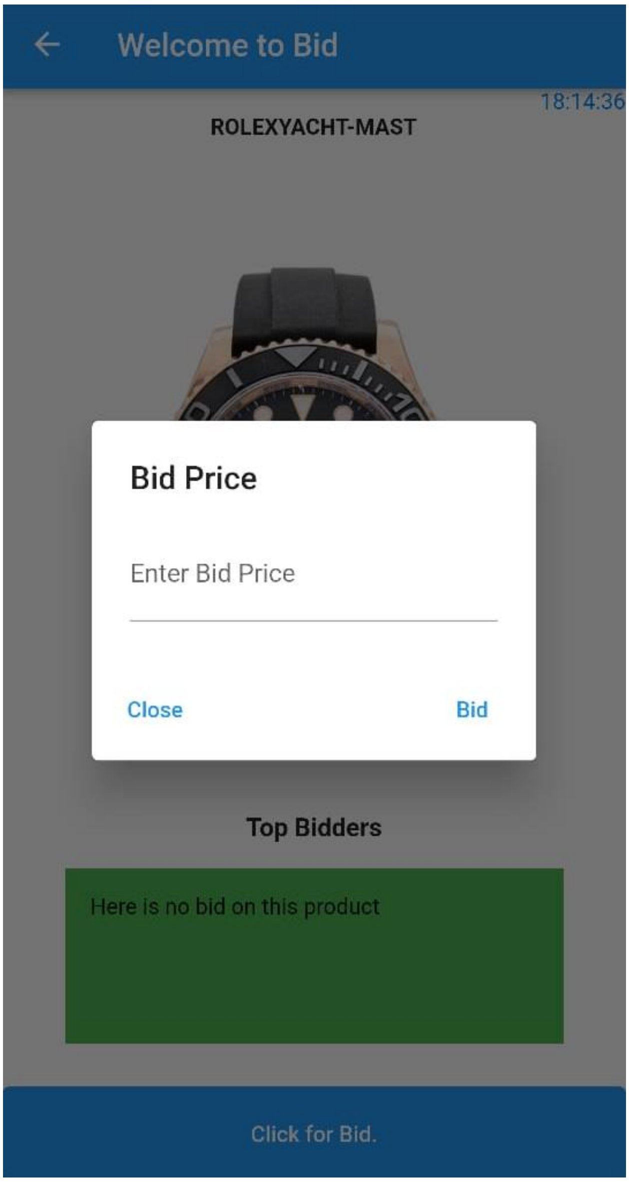
Chanel Multicolor Straw Raffia Deauville GM Tote Gold Hardware, 2020

The interior is lined in pink textile material
This piece was featured during the 2020 cruise ready-to-wear collection

Figure 5.6: Product Detail

5.8 Buyer's Input Bid

This screen will allow the buyer to input a numerical value for the bid and he can choose to either bid that value or close the pop-up menu by tapping on the close button. The pop-up for input is shown in Figure 5.7: -



Bid Price

Enter Bid Price

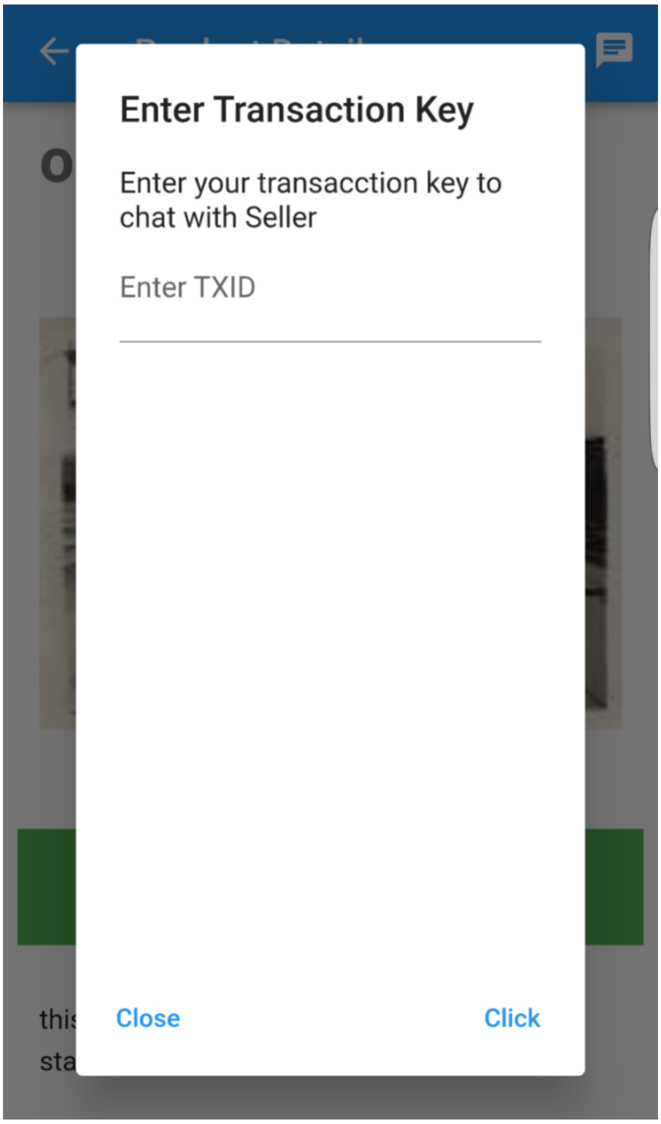
Top Bidders

Here is no bid on this product

Figure 5.7: Input Bid Amount

5.9 TXID Input

This screen will allow the buyer to input the transaction ID after successfully winning a product to initiate the chat with the seller. Pop-up for TXID is shown in Figure 5.8: -



Enter Transaction Key

Enter your transacction key to chat with Seller

Enter TXID

Figure 5.8: Transaction ID pop-up

5.10 Seller’s Homepage

Allows the seller to view his products. Moreover, the seller can sign-out or access the hamburger menu for other options like completed product. Seller’s homepage is shown in Figure 5.9: -

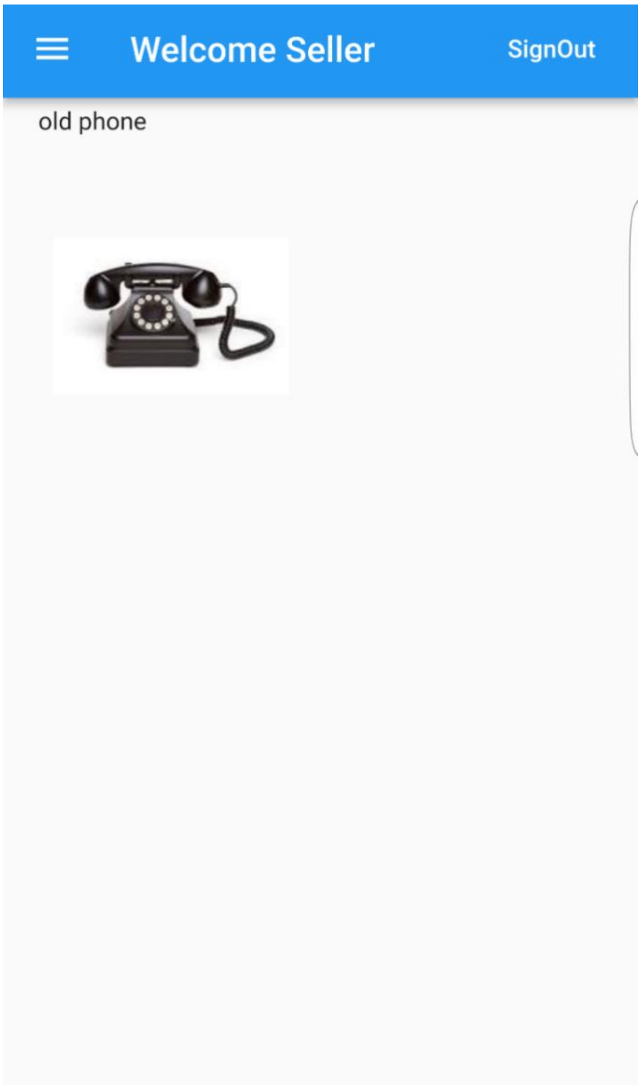


Figure 5.9: Seller's Homepage

5.11 Seller’s Add New Product

Allows Seller to add an additional new product into the catalogue by inputting the product title along with its description, price, and an image. This screen is shown in action in Figure 5.10: -

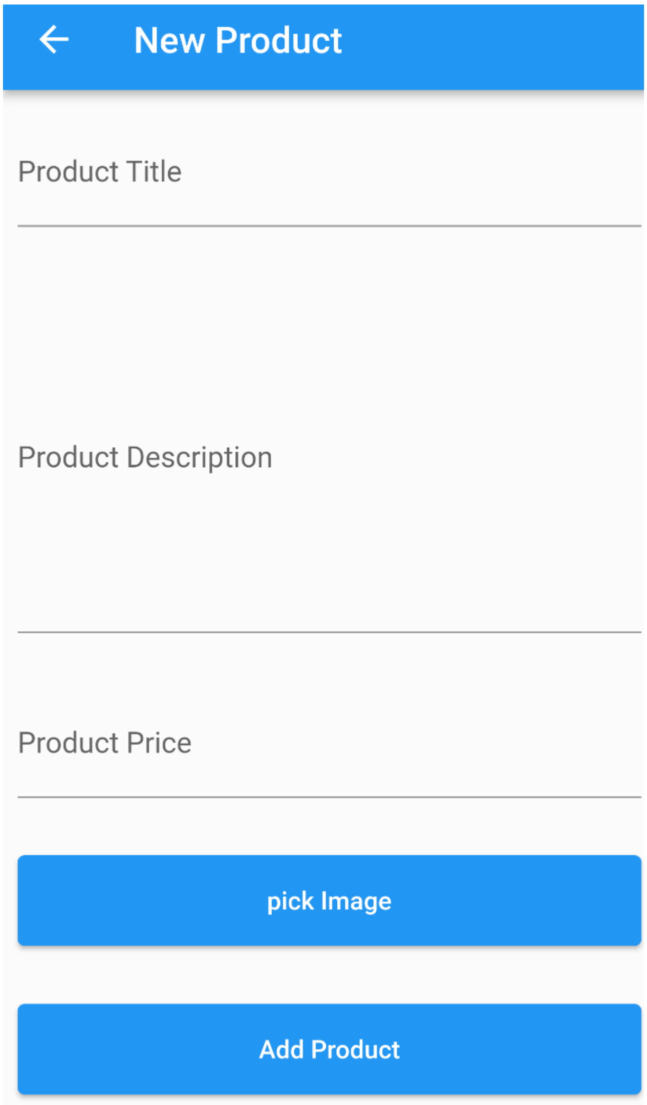
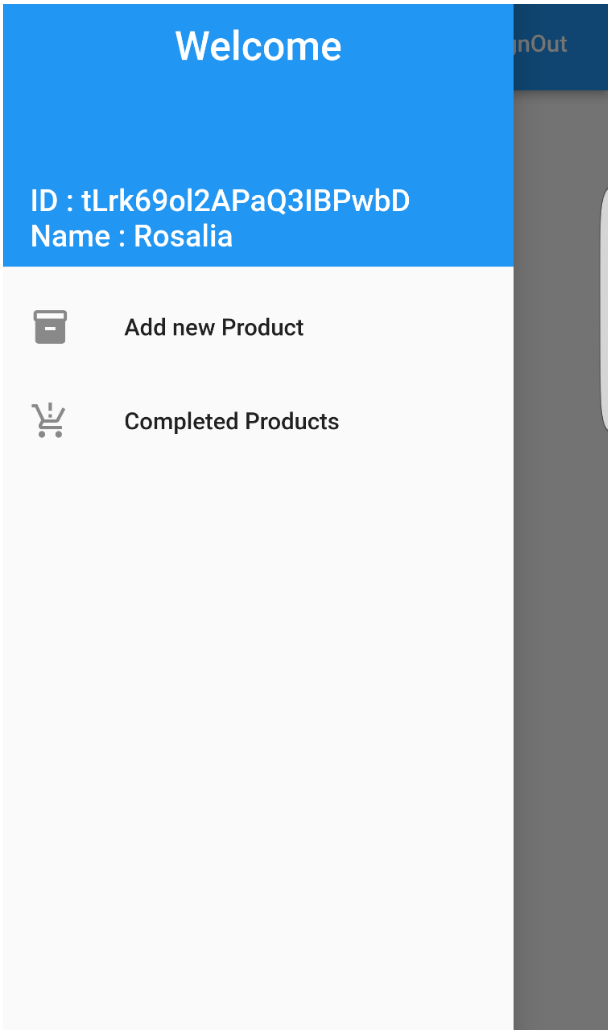


Figure 5.10: Seller Add New Product

5.12 Seller’s Drawer

It is accessible by clicking the hamburger icon on the top left corner of the seller’s homepage. It will allow the seller to view his/her ID and Name as well as the button to “Add new Product” & “Completed Products”. The screen is shown in the Figure 5.11: -



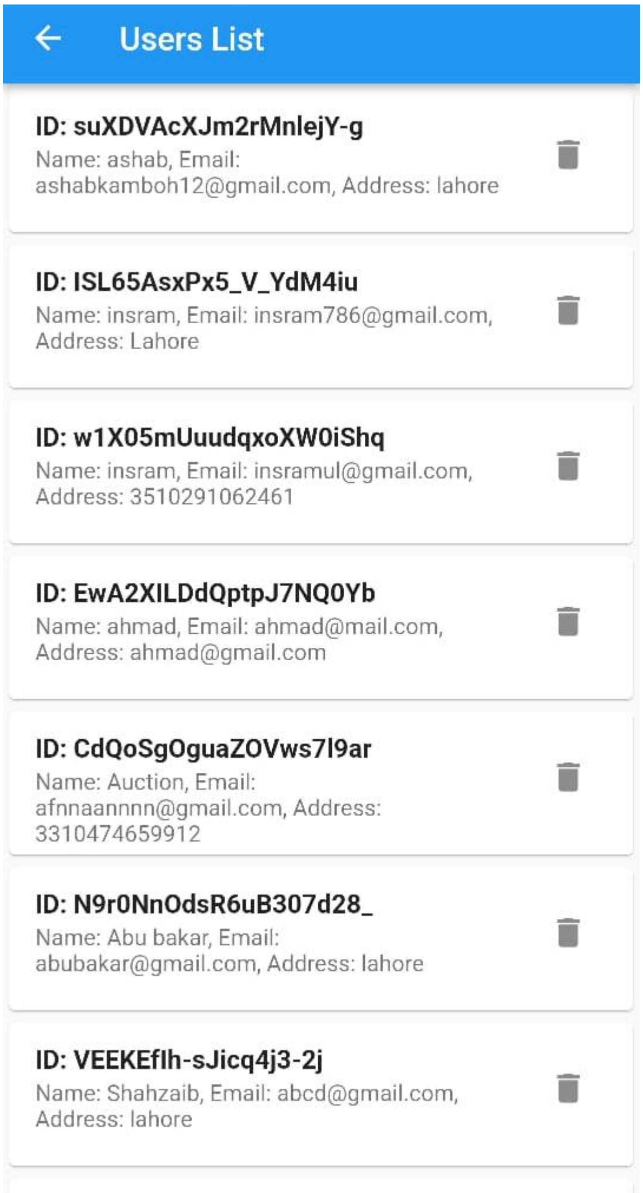
Welcome

ID : tLrk69ol2APaQ3IBPwbD
Name : Rosalia

Figure 5.11: Seller's Drawer

5.13 Admin’s Delete User

Allows admin to delete users stored in the system. This screen is shown in the Figure 5.12: -



Users List

ID: suXDVAcXJm2rMnlejY-g
Name: ashab, Email: ashabkamboh12@gmail.com, Address: lahore

ID: ISL65AsxPx5_V_YdM4iu
Name: insram, Email: insram786@gmail.com, Address: Lahore

ID: w1X05mUuudqxoXW0iShq
Name: insram, Email: insramul@gmail.com, Address: 3510291062461

ID: EwA2XILDdQptpJ7NQ0Yb
Name: ahmad, Email: ahmad@mail.com, Address: ahmad@gmail.com

ID: CdQoSgOguaZOVws7l9ar
Name: Auction, Email: afnnaannnn@gmail.com, Address: 3310474659912

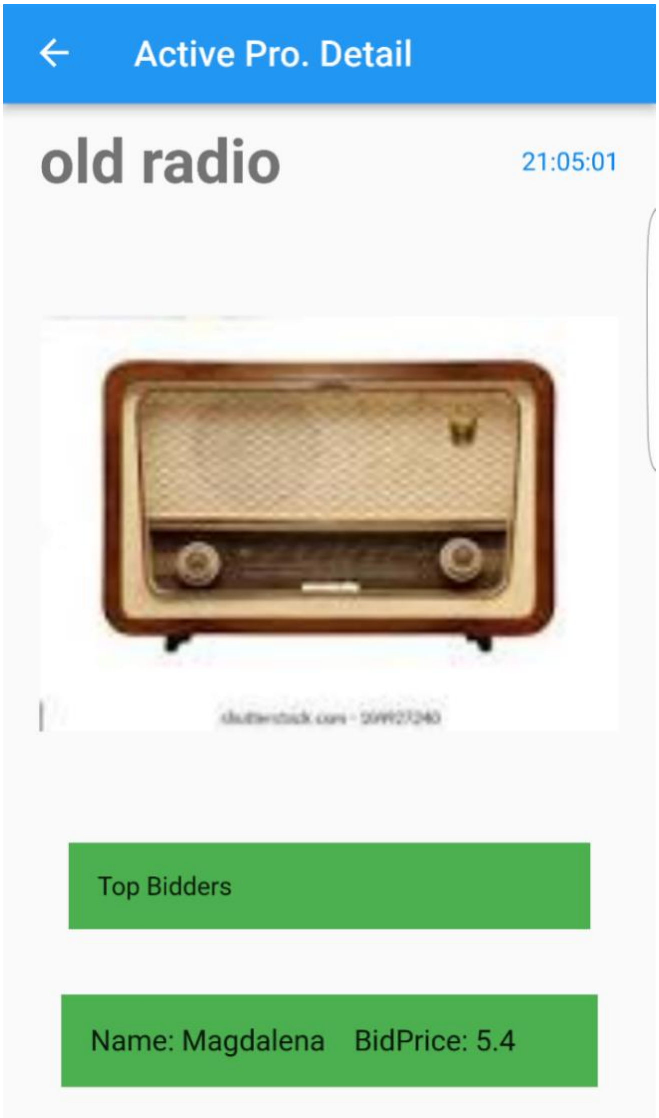
ID: N9r0NnOdsR6uB307d28_
Name: Abu bakar, Email: abubakar@gmail.com, Address: lahore

ID: VEEKEflh-sJicq4j3-2j
Name: Shahzaib, Email: abcd@gmail.com, Address: lahore

Figure 5.12: Admin Homepage

5.14 Admin’s Active Product

Admin can view any of the above pages and view each product individually as well. Moreover, a timer clock and the top bidders are also visible. This screen is shown in the Figure 5.13: -



old radio

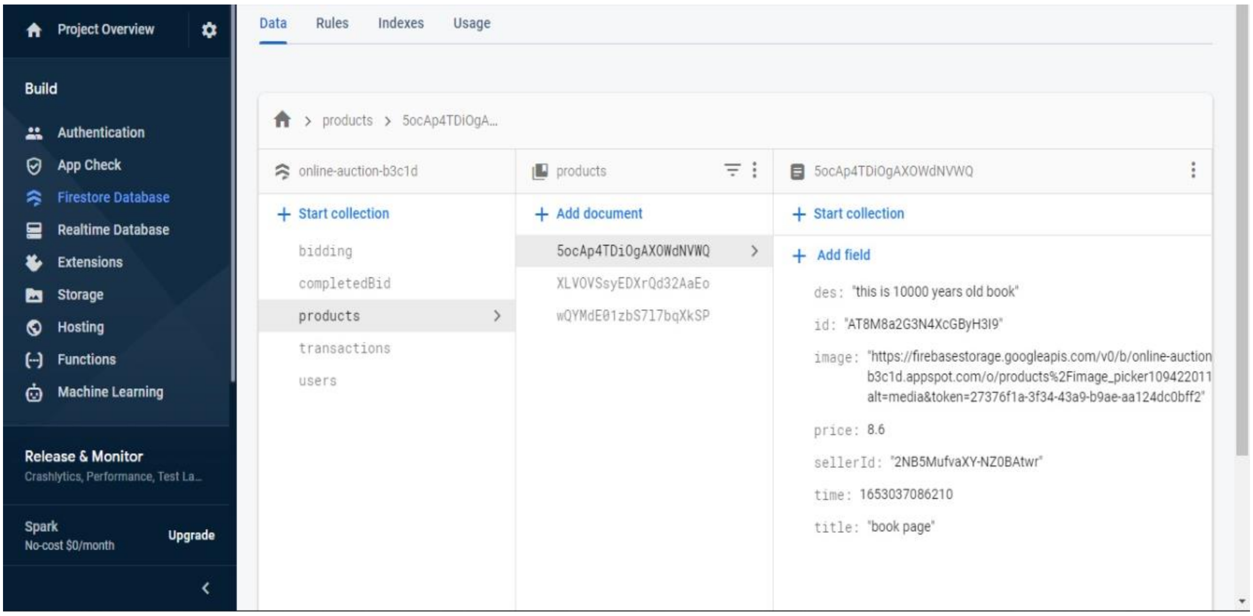
21:05:01

Name: Magdalena BidPrice: 5.4

Figure 5.13: Admin Active Product

5.15 Firebase Database

Firebase is a platform by google for the creation of mobile and web applications. In our application’s case we have used firebase database to store the contents we need instead of hosting a separate database. It is shown in the Figure 5.14: -



bidding
completedBid
products
transactions
users

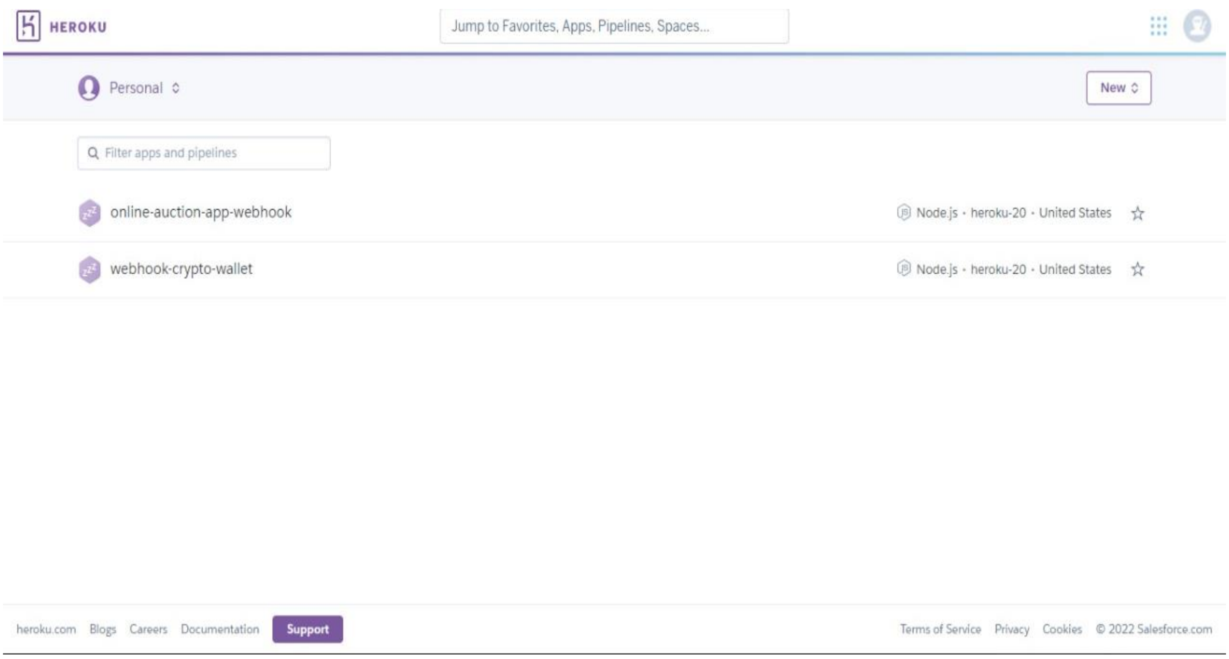
5ocAp4TDiOgAXOWdNVWQ
XLVOVSsyEDXrQd32AaEo
wQYMdE01zbS717bqXkSP

des: "this is 10000 years old book"
id: "AT8M8a2G3N4XcGByH3I9"
image: "https://firebasestorage.googleapis.com/v0/b/online-auction b3c1d.appspot.com/o/products%2Fimage_picker109422011 alt=media&token=27376f1a-3f34-43a9-b9ae-aa124dc0bff2"
price: 8.6
sellerId: "2NB5MufvaXY-NZ0BAtwr"
time: 1653037086210
title: "book page"

Figure 5.14: Firebase database to store users and the products along with transactions

5.16 Heroku

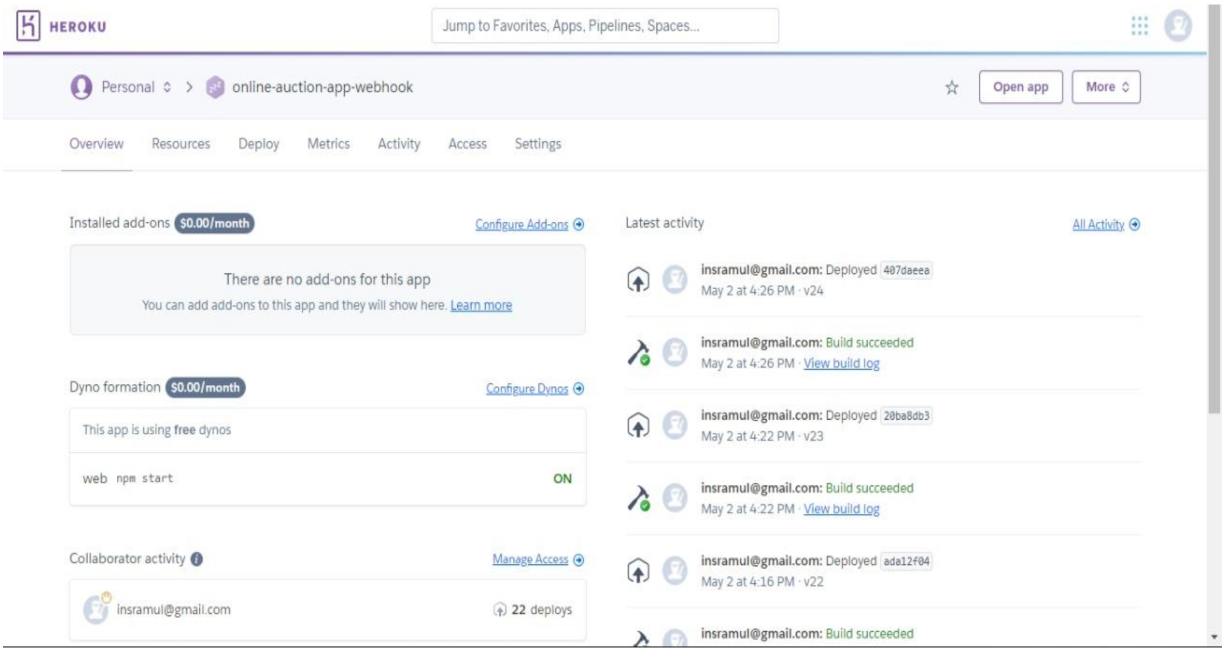
A webhook is essentially an HTTP post request delivered by Heroku to the designated URL when a given change happens the application. In our case this change is when a buyer proceeds with the transaction. Heroku webhook is shown in Figure 5.15 and Figure 5.16: -


HEROKU
Jump to Favorites, Apps, Pipelines, Spaces...
Personal
New
Filter apps and pipelines

online-auction-app-webhook — Node.js · heroku-20 · United States

webhook-crypto-wallet — Node.js · heroku-20 · United States

Figure 5.15: Heroku Webhook



Installed add-ons $0.00/month

There are no add-ons for this app

You can add add-ons to this app and they will show here. Learn more

Dyno formation $0.00/month

This app is using free dynos

web npm start ON

Collaborator activity

insramul@gmail.com 22 deploys

Latest activity

insramul@gmail.com: Deployed 407daeea
May 2 at 4:26 PM · v24

insramul@gmail.com: Build succeeded
May 2 at 4:26 PM · View build log

insramul@gmail.com: Deployed 20ba8db3
May 2 at 4:22 PM · v23

insramul@gmail.com: Build succeeded
May 2 at 4:22 PM · View build log

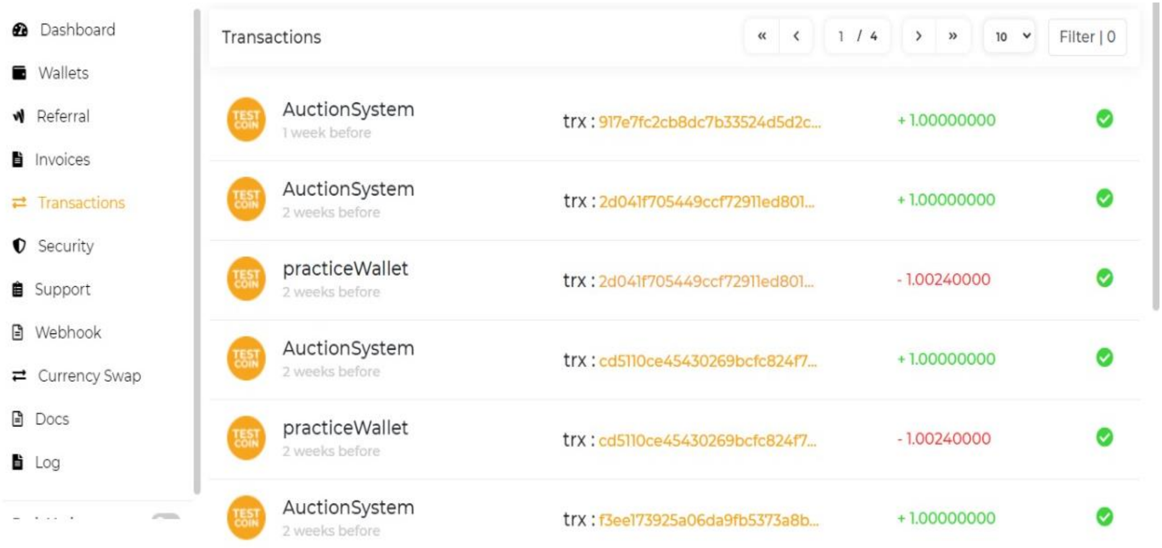
insramul@gmail.com: Deployed ada12f04
May 2 at 4:16 PM · v22

insramul@gmail.com: Build succeeded

Figure 5.16: Heroku Webhook showing latest activity of our system

5.17 Coin Remitter

Coin Remitter is a payment gateway for various types of cryptocurrencies. The transactions screen in coin remitter is shown in Figure 5.17: -



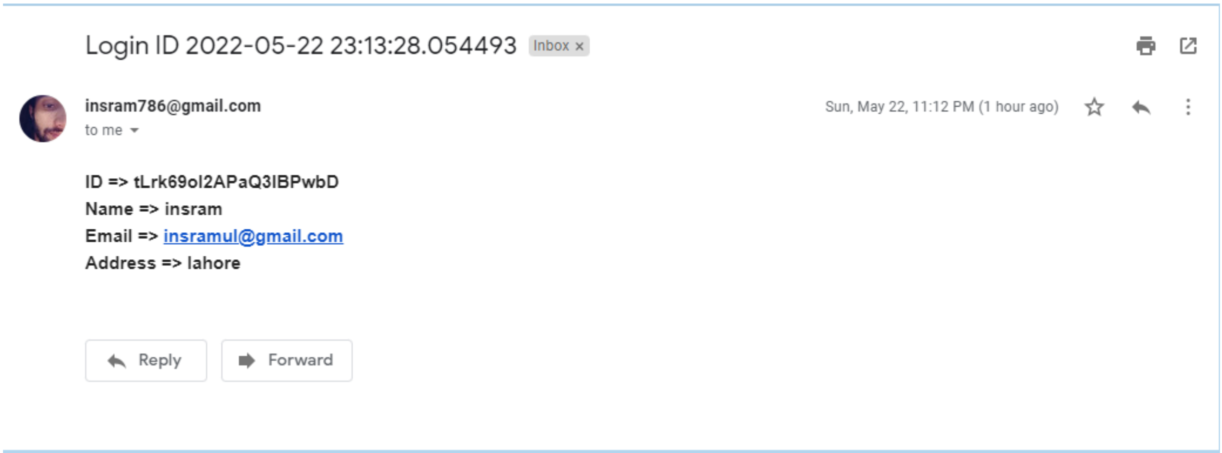
TEST COIN	AuctionSystem 1 week before	trx : 917e7fc2cb8dc7b33524d5d2c...	+ 1.00000000	✓
TEST COIN	AuctionSystem 2 weeks before	trx : 2d041f705449ccf72911ed801...	+ 1.00000000	✓
TEST COIN	practiceWallet 2 weeks before	trx : 2d041f705449ccf72911ed801...	- 1.00240000	✓
TEST COIN	AuctionSystem 2 weeks before	trx : cd5110ce45430269bcfc824f7...	+ 1.00000000	✓
TEST COIN	practiceWallet 2 weeks before	trx : cd5110ce45430269bcfc824f7...	- 1.00240000	✓
TEST COIN	AuctionSystem 2 weeks before	trx : f3ee173925a06da9fb5373a8b...	+ 1.00000000	✓

Figure 5.17: Showing various types of deposits and withdrawals from wallets

CHAPTER 6

RESULTS AND DISCUSSIONS

We have discussed down below about what happens when user performs a certain action for example in the Figure 6.1, user has signed up from the application and the email with the random ID and other details have been sent to the user for him to login by using those credentials: -



Login ID 2022-05-22 23:13:28.054493 Inbox ×

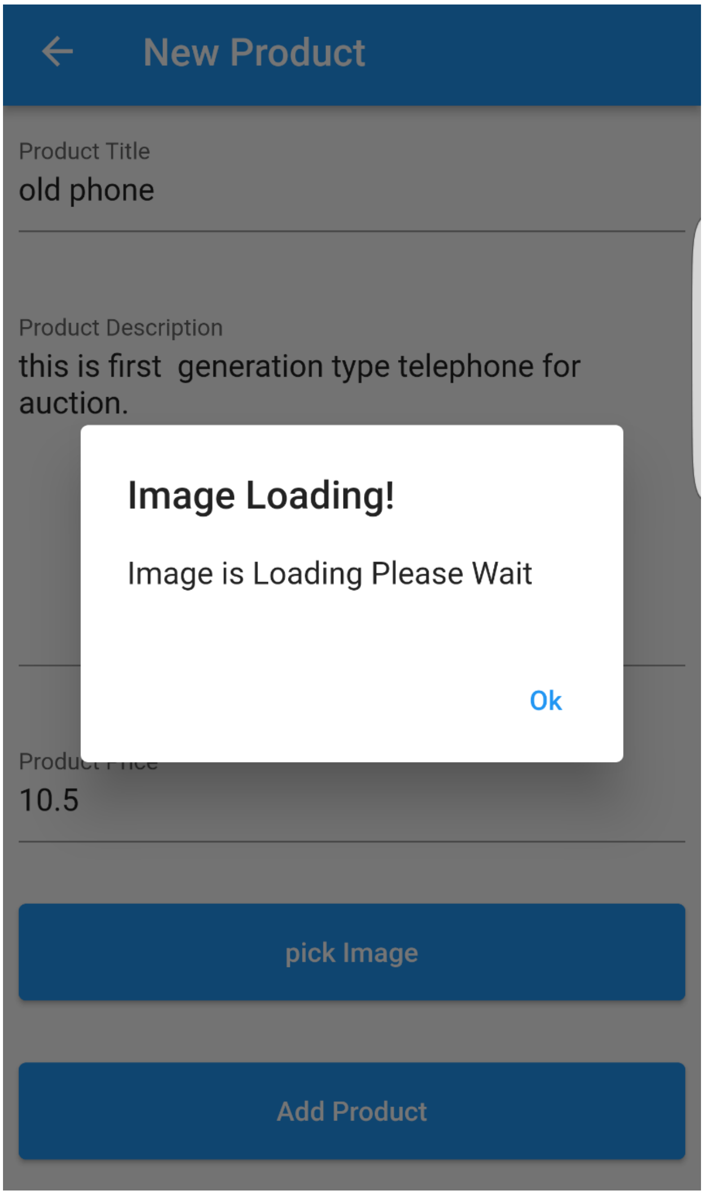
insram786@gmail.com
to me

Sun, May 22, 11:12 PM (1 hour ago)

ID => tLrk69ol2APaQ3lBPwbD
Name => insram
Email => insramul@gmail.com
Address => lahore

Figure 6.1: Check Email to get login ID

Moreover, In the Figure 6.2, the add product functionality has been tested in which there is an option to add image which is converted into a URL and then get stored into the database.



Product Title
old phone

Product Description
this is first generation type telephone for auction.

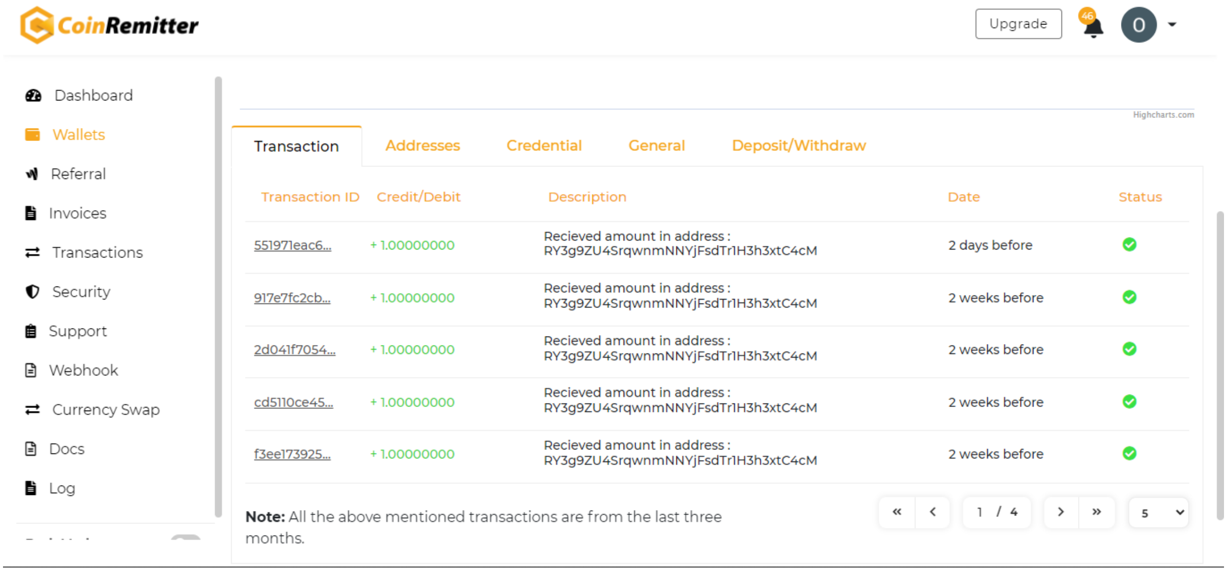
Image Loading!

Image is Loading Please Wait

Product Price
10.5

Figure 6.2: Image Loading

In the Figure 6.3, we have discussed the transactions which took place between the wallets. The figure shows the transaction ID which is later used to detect if the transaction came from the right user to allow him to proceed to the next stage of receiving the product and initiation of the chat with the seller: -

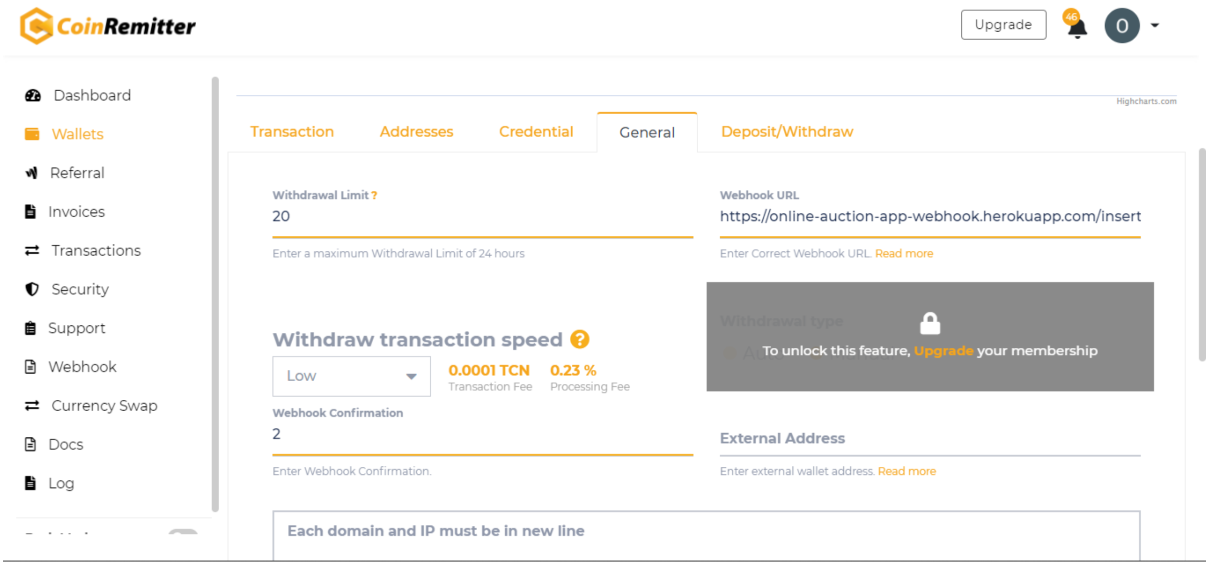


Transaction ID	Credit/Debit	Description	Date	Status
551971eac6...	+ 1.00000000	Recieved amount in address : RY3g9ZU4SrqwnmNNYjFsdTr1H3h3xtC4cM	2 days before	✓
917e7fc2cb...	+ 1.00000000	Recieved amount in address : RY3g9ZU4SrqwnmNNYjFsdTr1H3h3xtC4cM	2 weeks before	✓
2d041f7054...	+ 1.00000000	Recieved amount in address : RY3g9ZU4SrqwnmNNYjFsdTr1H3h3xtC4cM	2 weeks before	✓
cd5110ce45...	+ 1.00000000	Recieved amount in address : RY3g9ZU4SrqwnmNNYjFsdTr1H3h3xtC4cM	2 weeks before	✓
f3ee173925...	+ 1.00000000	Recieved amount in address : RY3g9ZU4SrqwnmNNYjFsdTr1H3h3xtC4cM	2 weeks before	✓

Note: All the above mentioned transactions are from the last three months.

Figure 6.3: Wallet Transactions

In Figure 6.4, we have discussed the withdrawal using coin remitter: -



Withdrawal Limit ?
20
Enter a maximum Withdrawal Limit of 24 hours

Webhook URL
https://online-auction-app-webhook.herokuapp.com/insert
Enter Correct Webhook URL. Read more

Withdraw transaction speed ?
Low
0.0001 TCN Transaction Fee
0.23 % Processing Fee

Withdrawal type
To unlock this feature, Upgrade your membership

Webhook Confirmation
2
Enter Webhook Confirmation.

External Address
Enter external wallet address. Read more

Each domain and IP must be in new line

Figure 6.4: Ability to create multiple wallets and general page showcase

CHAPTER 7

CONCLUSIONS AND RECOMMENDATIONS

The proposed application will allow people around the globe to perform bidding online that they otherwise could not. The application will allow user in putting up data for auction or any other high private or confidential information. Furthermore, it will open doors for more improvements in the upcoming releases of the application which will add further security mechanisms so that both the buyer and seller would have the satisfaction that their identity is secure, and their data is not going to be shared with anyone except the admin of application.

The first release of the application marks the long journey of development which will hopefully last for a very long time. In future, we aim to predict fake users who make the bids but do not accomplish it.

Declaration

I hereby acknowledged; this document is a result of self-commitment. The document is authentic and has not been in any case presented elsewhere for any educational award (BULC, 2022). The outcome of the work is copyrighted only to us.

Individual Contributions

Muhammad Afnan

- To design the user interface of the website in the form of UI aspects and wireframes
- To assist the development of the source code
- To develop and design the diagrams that may be required in the development activities
- Syncing of the back end and the front end

Insram Ul Hassan

- Back-end coding and development for the application
- Security of the database and conduction of verification and validation activities to make sure that the database is secure

REFERENCES

[1] Deep web. (2022). Retrieved May 20, 2022, from https://en.wikipedia.org/wiki/Deep_web.

[2] Bitcoin. (2022). Retrieved May 20, 2022, from https://en.wikipedia.org/wiki/Bitcoin.

[3] Flutter. (2022). Retrieved May 20, 2022, from https://flutter.dev.

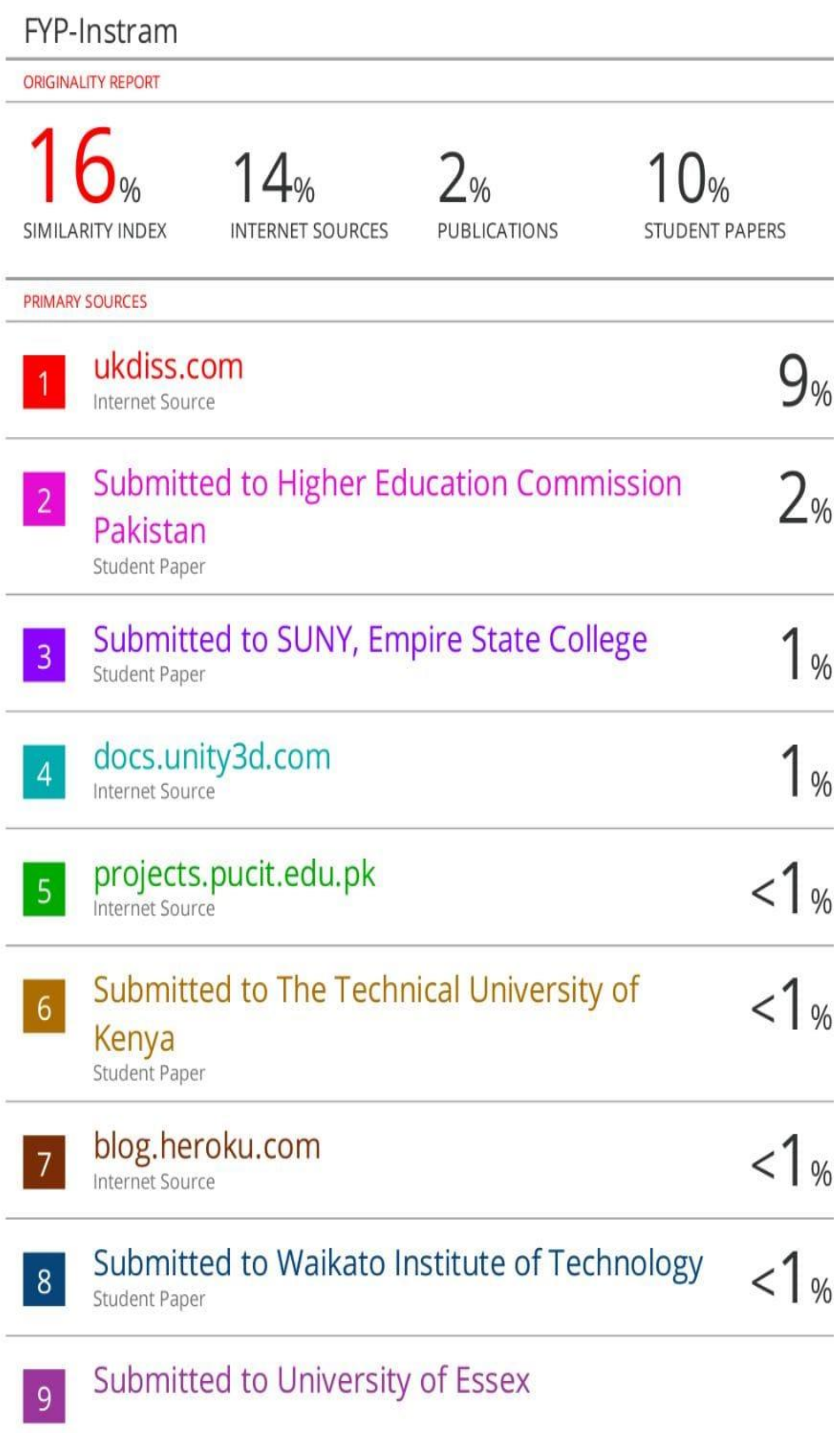
[4] Tor network. (2022). Retrieved May 20, 2022, from https://en.wikipedia.org/wiki/Tor_(network).

[5] Aldaej, Razan, et al. "Analyzing, Designing and Implementing a Web-Based Auction online System." *International Journal of Applied Engineering Research* 13.10 (2018): 8005-8013.

[6] Balqis, Amalia Nurul, et al. "Bid-Fish: An android application for online fish auction based on case study from Muara Angke, Indonesia." *IOP conference series: materials science and engineering*. Vol. 508. No. 1. IOP Publishing, 2019.

[7] Li, Bingbo, and Yu Cheng. "Auction system based on Java language." *2020 International Conference on Advance in Ambient Computing and Intelligence (ICAACI)*. IEEE, 2020.

[8] Koopmans, Daniel Mathias. "Building a Robust Auction Application in React, MobX, Node and Drupal for Konkurssihuutokauppa." (2019).



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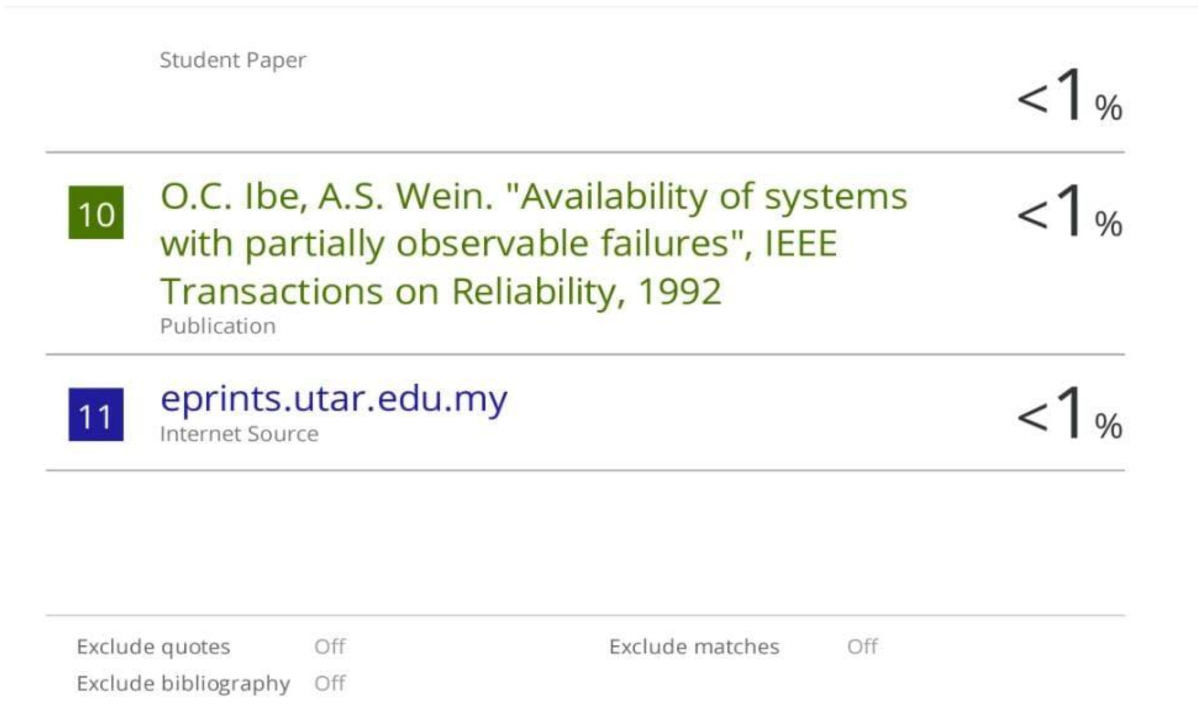

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