CHAPTER -1

ORGANIZATION OVERVIEW

Infosys Limited is an Indian corporation that works in business consulting, information technology and outsourcing service. Its headquarters are located in Bangalore, Karnataka, India.

Infosys, Bangalore

1.1 History

Infosys was found by seven engineers in Pune, in 1981. In 1983 its office was moved to Bangalore.

The company's name was changed to Infosys Technologies Private Limited in April 1992 and then to Infosys Technologies Limited in June 1992 when it became a public limited company. Later it was renamed to Infosys Limited in June 2011.

In 1999 the company's annual revenue reached US$ 100 million, in 2004 it reached US$1 billion and in 2017 it was US$10 billion.

Infosys started a product subsidiary Edge Verve Systems in July 2014. It focuses on enterprise software products for business operations, customer service and commerce network areas. Finacle

a Global Banking Solutions was officially transferred from Infosys which then became a part of Edge Verve Systems product portfolio in August 2015.

Infosys Headquarters

1.2 **Geographical Presence**

As of March 31,2018, Infosys has 82 sales and marketing offices and 123 development centers all across the world. It is majorly present in India, Australia, United States, Middle East, Europe and China.

61.9% of its revenues were derived from North America, 22.5% from Europe and 3.2% from India in 2017. The rest of 12.4% of revenue was derived from the rest of the world.

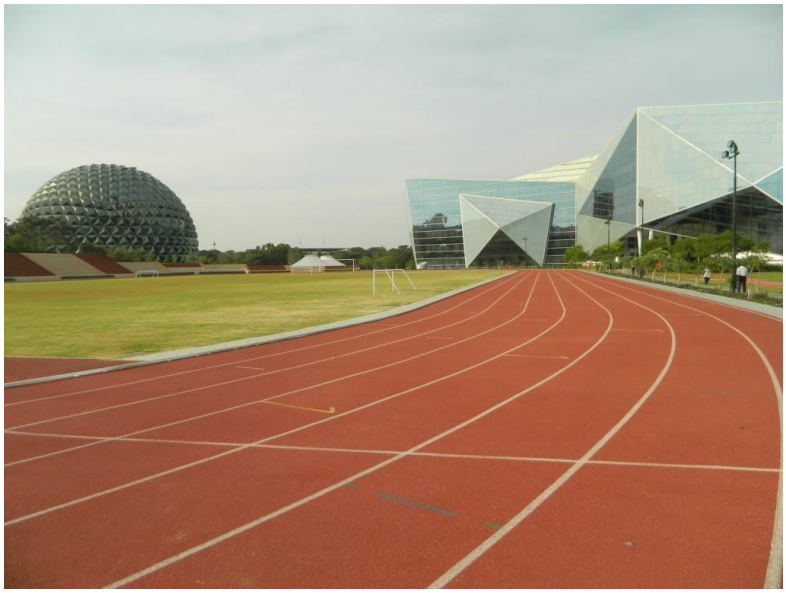
1.3 Infosys Training

Infosys training takes place at Infosys Mysore Campus which makes it world's largest corporate university.

It is spread over an area of 350 acres in the outskirts of Mysore. It has 400 instructors and 200+ classrooms. It was established in 2002 and has trained 125,000 engineering graduates by 2015. At a given point of time it can train 14,000 employees in various technologies.

Infosys Mysore Campus (GEC 2)

Infosys provides all its new recruits with a four months training at their Mysore campus. It is considered to be the best training world-wide. The Global Education Centers have classes with all the facilities and the library with diverse collection of books.



Other facilities provided are badminton, swimming pool, gym, basketball and so much more.

CHAPTER-2

INTRODUCTION

Online auctions mimic traditional auction systems with a number of participants bidding for products or services on the internet. Users can also sell their products online using virtual auction services. This business model has various added advantages over traditional auction systems. The online auction system 'Flashbid' is a web application which holds online auctions for various products under different categories. The online auction system deals between sellers and bidders. Users can sign in using different profiles-seller and bidder.

'Flashbid' provides a user friendly interface and performs necessary operations - buying and selling of products according to the user's request via e-bidding. This project will provide more facilities to the user. The user can sign in as the bidder and bid on various products put up for auction by different sellers. All products up for bidding have a ten-day time span to finish. The user logged in as the seller can upload products on the site from their account, provide details and decide the base price for the same. Users can edit their profiles and view their uploaded product details. The admin monitors bidding and can approve products, update and delete ongoing bids and view all the products, categories, users and bids. The web application is a dynamic system that provides a good online, easy to access alternative for a physical bidding system that is easy to operate and saves time and effort.

2.1 Purpose

The purpose of the project is to virtualize auction services by developing a user friendly and effective online web auction system using Angular 4. The system should provide an effective platform to minimize disadvantages of traditional auction systems like geographical and time constraints thus saving resources-time, effort and money and maximize profit. The website should support advanced features and should be able to link with database and object oriented program. The proposed system should be more useful and hardware compatible when compared to existing systems.

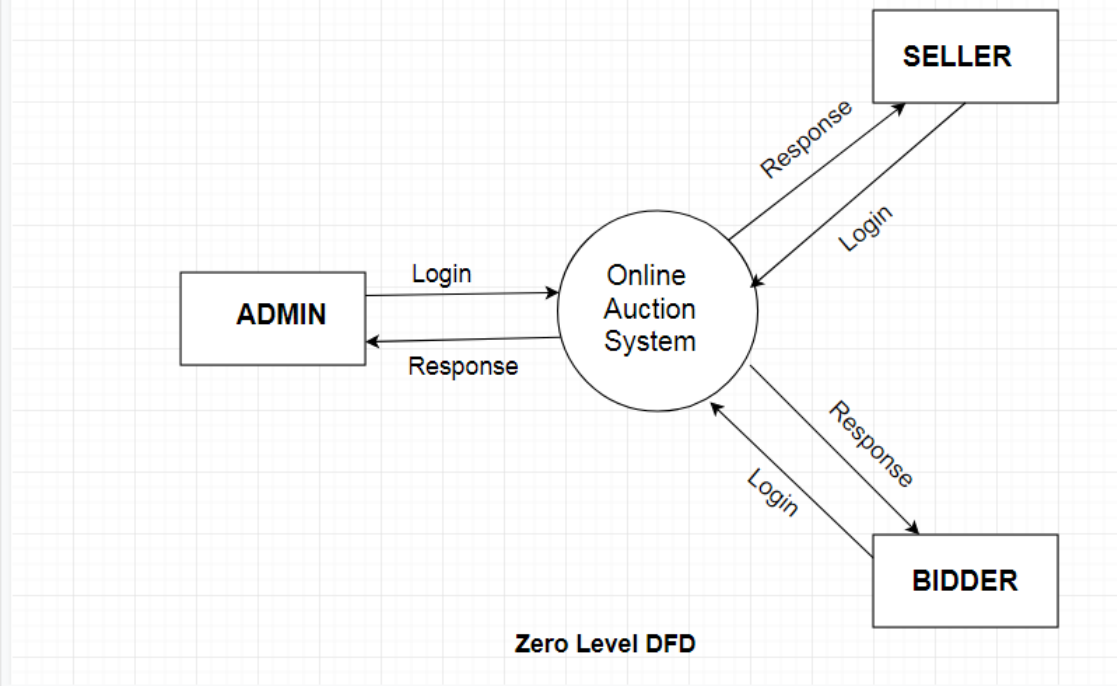
2.2 Motivation

The motivation to create this project comes from the following:

- To provide an easily accessible online platform that mirrors the physical auction services without the disadvantages of the traditional system that is time and money saving where people can compare prices and sell products by comparing prices to the highest bidder to maximize profit.
- Interest to develop a good user friendly website with many online transactions using a database.
- To increase my knowledge horizon in technologies like JAVA, SQL, CSS, HTML, Bootstrap, Angular CLI (version 4).

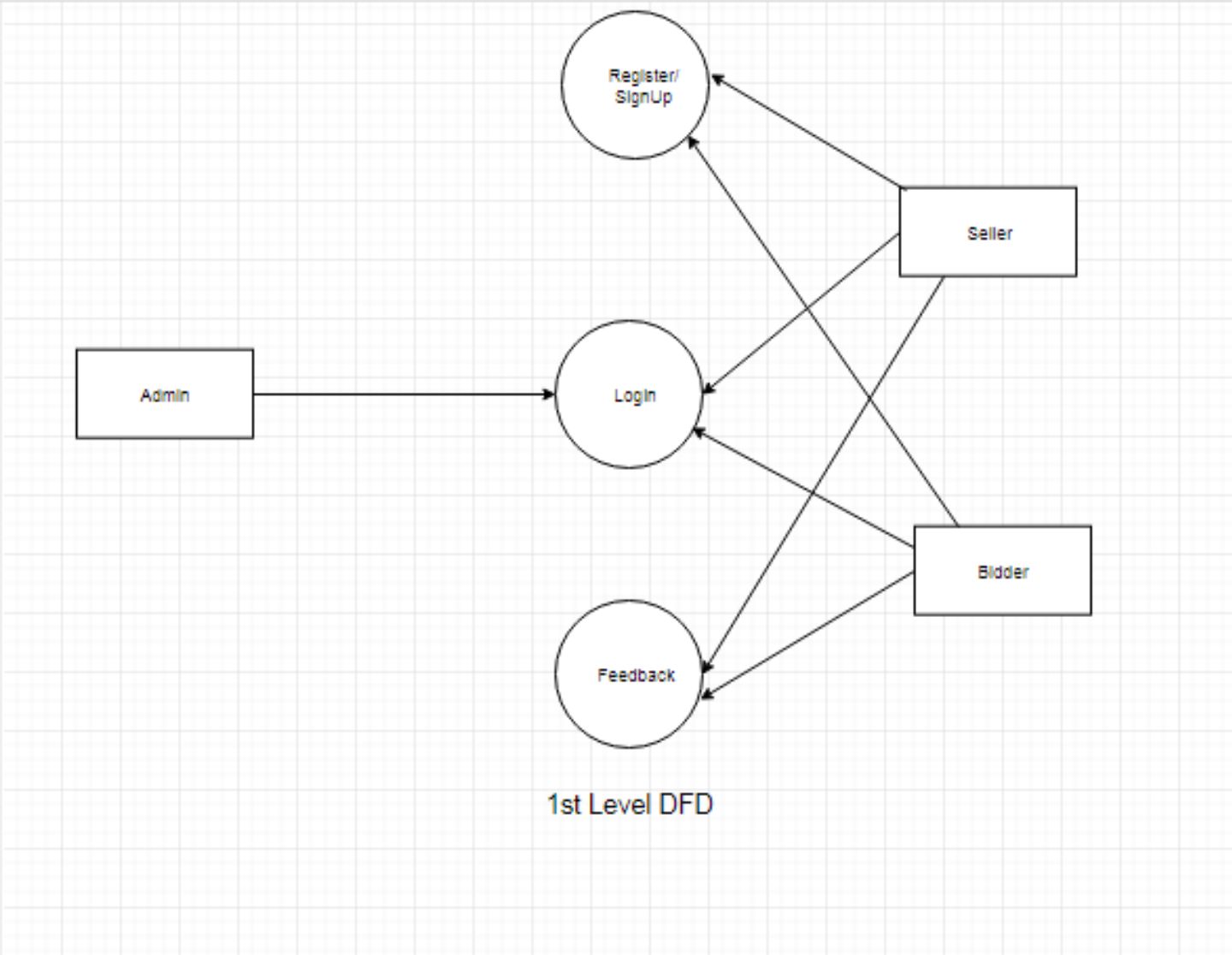
2.3 DFD

A DFD or data flow diagram represents the flow of data in a process or a system.



Zero Level

A zero level diagram is also known as the context diagram and shows the data system as a whole and shows the way it interacts with internal as well as external entities.



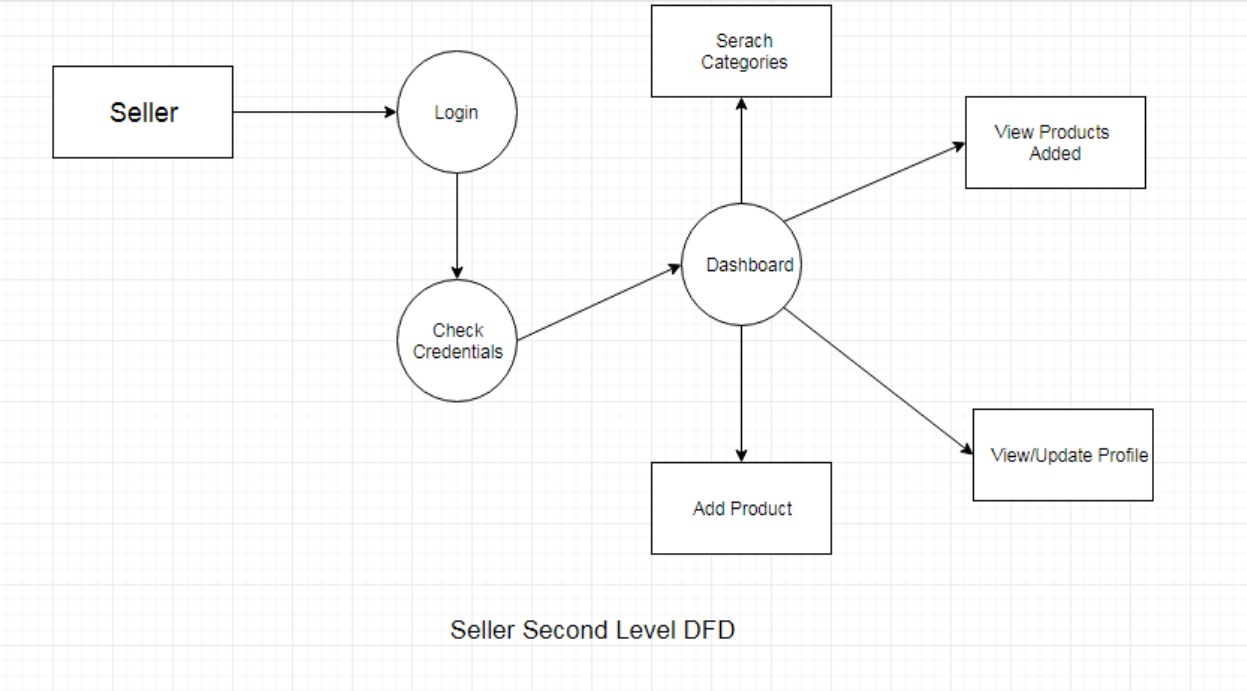
1st Level DFD

First Level

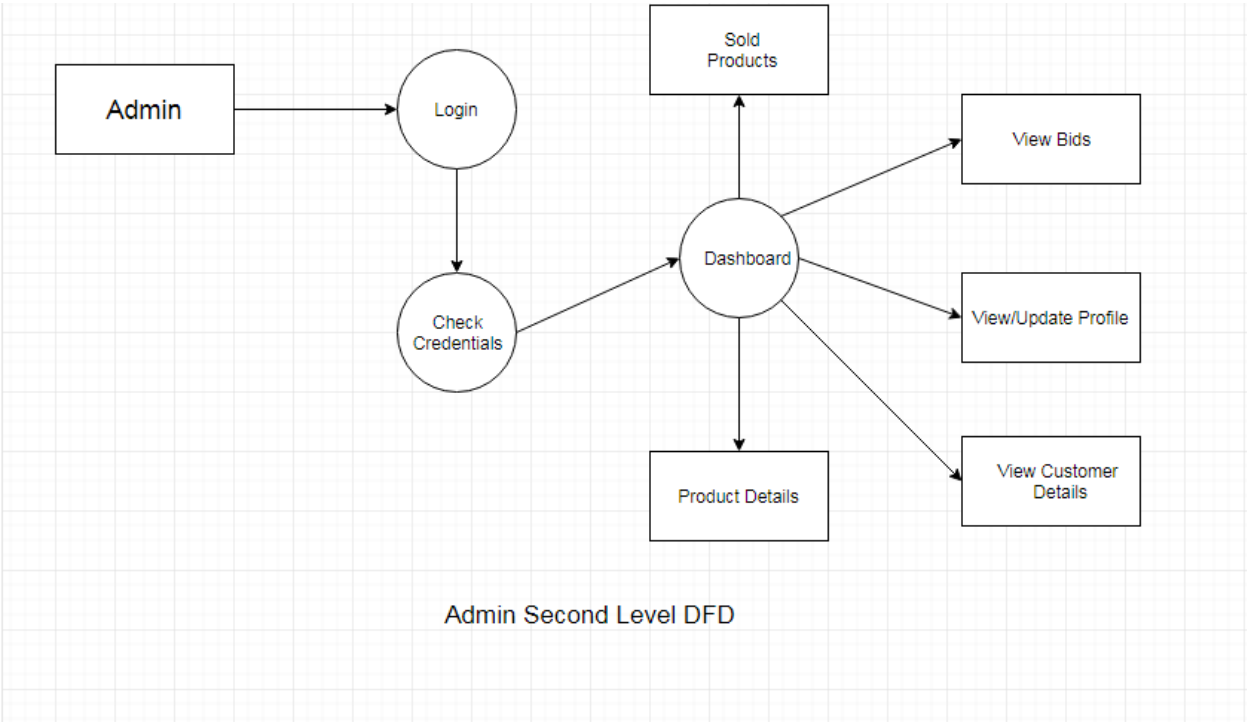
A first level DFD gives more detailed information than the zero level DFD. The main process is broken down into sub-processes.

Second Level

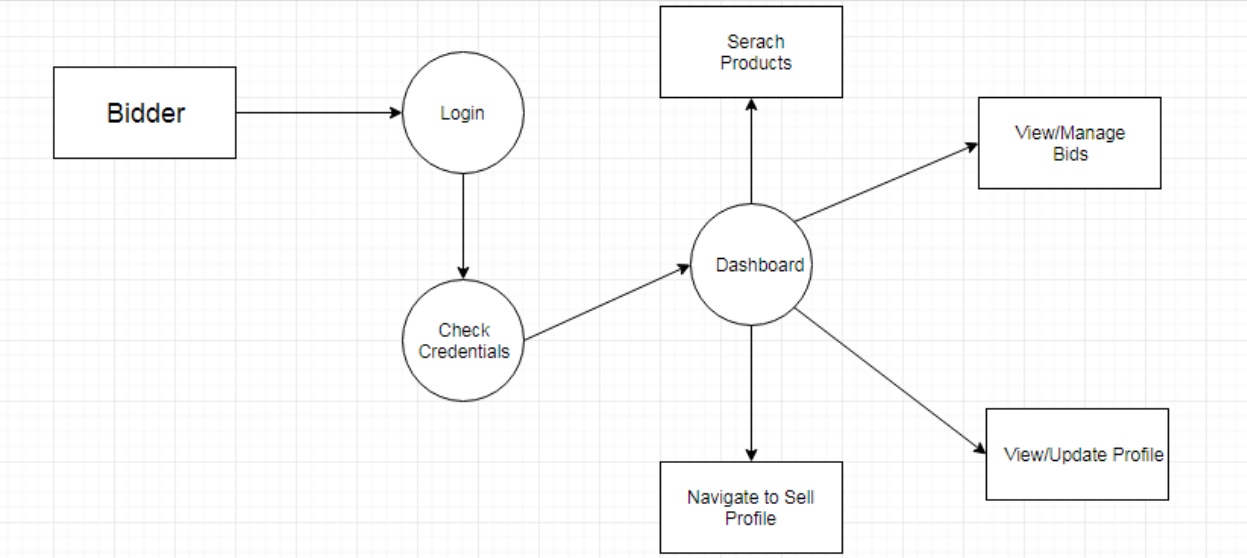
A second level DFD gives more details about the processes as compared to the first level DFD. It can be used to plot or record the specific making of a system.



Seller Second Level DFD



Admin Second Level DFD



Bidder Second level DFD

CHAPTER-3

PROJECT PLANNING

The project has the following functionalities:

3.1 General

- Homepage- The application opens to the page where the user first has to either register or login in order to perform any operations.
- Sign up/Register- If the user does not have an account then he will have to register.
  The user will enter the details in the registration form according to the required fields through the form which are stored in the database. The fields included are:
  1. Username- It has the validation that requires the username to contain only alphabets and digits.
  2. Name- User's full name required. It has the validation that it can only contain space and alphabets.
  3. Mobile no.- User's phone number with the validation that the number should be ten digits long and should contain only numbers and it cannot start from 0.
  4. Email-id- User's email id. It has the validation that requires the username to be in the proper format (i.e. containing '.trn').
  5. Password- The password which the user will use to login. It has the validation according to which the password should be of minimum length 8, should contain at least one uppercase character, one lower case character, a digit and a special character.

  Once the user has registered the user can login as seller or bidder using his registered email id and password and perform the tasks specified for them.

3.2 Bidder

- Login- The bidder first needs to login. He can login using his email id and password and selecting the bidder profile. Once logged in he will be directed to the bidder dashboard.
- Dashboard- It shows the options to search for products, add bids, view my bids, view/edit his profile, redirect to the seller profile. The navigation bar has the following options: admin login, user login, feedback and logout.
- Search/Add product-- Any product under different categories can be looked up by the user. All the products added by the sellers are shown in a tabular format. The table shows the profile of the seller, name of product, product description, date of availability, and current bid amount. The last column of table has the bid button beside each product name clicking on which the user can start bidding on the product by specifying his/her bidding price.
- My Bids-The user can view all current products he has bid on in the My Bids section in the bidder profile. It contains product name, availability and current bid status of the products.
- Profile- The user can view and update his profile details.
- Logout- The bidder logs out by clicking on the logout button on the navigation bar at the top and is redirected to the homepage.

3.3 Seller

- Login- The seller logs in using his/her registered email id and password. Once logged in the seller is redirected to his dashboard where he can perform all specified operations.
- Dashboard- The dashboard shows all the categories to choose from, add new products ad view products sold. The categories are displayed in the form of cards and have an add button when hovered. The navigation bar has the following options: admin login, user login, feedback and logout.
- Categories- It contains all different categories provided under which the seller can display his products like Antiques, Home decor, Electronics, etc. User can just hover over the category image and click on the add product button which redirects to add product details page.

- Add new product- user can add product to be auctioned by uploading details of the product.

  1) Product Name- user provides the product name with the validation that it should not be empty and should not contain numbers.
  2) Product Category- user can select from a drop down list of categories available.
  3) Product Description-user provides details and description about product he is selling.
  4) Base Price-User decides base price for the product which should be greater than 100. This field should only accept digits.

  Once all the fields are filled by the seller the product is added to the My Products list of the seller which can be viewed by the seller.

- My Products- It shows all the products added by the seller for auction in tabular form the table contains the following columns:
  1) Product Name
  2) Product Description
  3) Posted On- date the product was added by seller for auctioning.
  4) Available Till- shows date till which product is available which would be 10 days after product is added.
  5) Edit- User can click on edit button to edit details of product added.
  6) Delete- The last column contains the delete button. On clicking that button the product can be removed by the seller.
- Profile- The user can view and update his profile details.
- Feedback on the navigation bar-users can submit feedback on the overall experience of the website.
- Logout- The bidder logs out by clicking on the logout button on the navigation bar at the top and is redirected to the homepage.

3.4 Administrator

- Login- The admin is the super user who logs in using admin username and password after clicking on the admin login button on the navigation bar of the application. Once logged in the admin is redirected to his dashboard where he can perform all specified operations.
- All Bids- The admin can view and manage all bids taking place and their status. This shows the product details, description, availability, seller details, price bid and bidder name.
- Profile- the admin can view and update his/her profile.
- Customer Details- this shows the details of the registered customers- name, username, address, email, phone no.
- Product Details- shows details of products on the website- name of the product, description, category it belongs to, starting price, bid price, posted date and available till.
- Sold Products- lists all the products sold and the details in tabular format. The table contains columns- name of product, description, category, base price, bid price and the name of the highest bidder.
- Feedback on the navigation bar- the administrator can view feedbacks submitted by users for the products or the overall experience of the website.
- Logout- The admin logs out by clicking on the logout button on the navigation bar at the top.

CHAPTER-4

4.1 Hardware Requirements Analysis

Processor : Any new generation processor.
RAM : Reasonable for the processor
Hard Disk Drive : More than 128 MB recommended

4.2 Software Requirement Analysis

Operating System : Any operating system supporting Internet Browsing.
Front End : Angular 4, Visual Studio
Back End : Oracle 11g, Tomcat server, Eclipse Luna

4.3 Requirements

Users of FlashBid can be divided into two categories: Bidder and Seller. The requirements for each category of users, are as follows:

General Requirements

- Register- Any user should be able to register first in the application so that they can perform any operations later on. The registered user should be either seller or bidder.
- Login- The users can perform any operation specified to them only once they have logged in.

Seller Requirements

- Sell Product- User should be able to sell products to the highest bidder.
- View Ratings- Seller should be able to view ratings given by the bidders for the products being sold by him.

- View/Edit Products- Seller should be able to view or edit the status and details of the product uploaded by him/her.
- Remove Products- Seller should be able to remove a product that has been added by him/her if required.

Bidder Requirements

- View/Bid for Products- Bidder should be able to view all the products put up for bidding by various sellers and place their bids to purchase the product they like.
- View Ratings- Bidder should be able to read reviews or ratings for their products on the application.
- View/Manage Bids- Bidder should be able to view and manage the bids placed by them on products.

Admin Requirements

- Manage Users- Admin is responsible for managing accounts of bidders/sellers by adding accounts or deleting accounts.
- Manage Products- review product before seller is able to upload product for auction.
- Generate reports- admin generates reports and checks logs of different users of online auction system to sustain system integrity.
- Take system backup- takes backup of database to prevent loss of data.

Non-Functional Requirements

- Security- Users should be able to perform operations that are specific to only them. For example- a bidder should not be allowed to delete a product from the application and seller should not be allowed to write reviews.
- Performance- Application should be prevented from crashing in the middle of a transaction. It should also be able to process several users at the same time.
- Scalability- Addition of modules in the future should be easier

- Availability/Reliability-The application should be accessible from anywhere and at any time.

CHAPTER-5

5.1 Testing

Testing basically defines the success of the project. It includes the matching of desired output with the output received on running the code. Testing is conducted in order to find error or software bugs in the code with the intention of resolving them thus improving the quality of our product.

Functional Testing

Functional Testing deals with the testing of the functionalities of software. It deals with the result rather than the processing. Black Box Testing is a technique which is used in functional testing. In Black Box Testing user is not concerned with the internal processing of the unit, user is concerned only with the output. In this the internal logic is not known to the tester.

Structural Testing

Structural Testing deals with the testing of structure of the code. Knowledge of code is necessary in case of structural testing. So it is mostly done by developers. White Box Testing is a technique which is used in structural testing.

Structural Testing Technique:

- Statement Coverage – This technique is aimed at testing all the statement with minimal test cases.
- Branch Coverage – This technique is aimed at testing all the branches at least once.
- Path Coverage – This technique is aimed at testing the possible paths thus including all the statement and branch at least once.

5.2 Levels of Testing

- **Unit Testing**

  In this the code is divided into small parts called unit and each unit is tested separately. It checks whether the received output is same as desired output. This type of testing is performed by developers. This project has so many modules like new book insertion, deletion, modification of the book details. All the individual modules are tested and validated for checking whether it gives the desired output.

- **Integration Testing**

  In this type of testing the different software module is combined as a group and tested. This type of testing is performed by testers. It checks the flow of data from one module to another. This project has so many modules like new book insertion, deletion, modification of the book details. All the individual modules are tested and validated for checking whether it gives the desired output.

- **Acceptance Testing**

  We conduct acceptance testing to see whether a specific requirement or contract meets as per its delivery. Acceptance is basically performed by the customer or user. Other bondholders can also be involved in this procedure.

5.3 Testing The Project

Unit testing for backend-

Once the code was written it was checked using the PMD to make sure that all the basic conventions were followed of the programming language and there weren't any syntax or compilation errors.

The working of the API was separately tested using the Postman on which all the methods returned the desired outputs.

Unit testing for frontend-

The frontend was made in Visual Studio. The unit testing was done using the Chrome console and it was made sure that the website being made was responsive at the same time.

Integration testing-

When the service class was made the integration testing was done. On adding of information from the form the data was being stored in the database at the backend and the data was being successfully fetched from the backend. The bidder was able to see all the products in the database and the seller was able to add or delete the products successfully. The seller was able to add products to the My Products list as well as place bids as bidder successfully.

Acceptance testing-

User acceptance testing requires involvement of user for analyzing the acceptability and usability of the online auction system and also identification of areas that require improvement before application is deployed. On registering a new user the email id and password along with other data of user were being successfully stored in the backend thus creating a new account.

After logging in as seller we were able to add products. If the seller wanted he could also remove the products added by him.

On logging in as bidder we could view all the books written by different sellers. The products could be added to the seller my products profile and removed as well. The bidder could place their bids by providing bid price and the data was stored in the database. The products were available for bidding for ten days since the date of adding product after which bids cannot be placed and the product page becomes redundant. If required, the bidder could view bids placed by him which was then fetched from the database and the current status of the bids.

CHAPTER-6

SYSTEM DESIGN

6.1 Flowchart

- Login

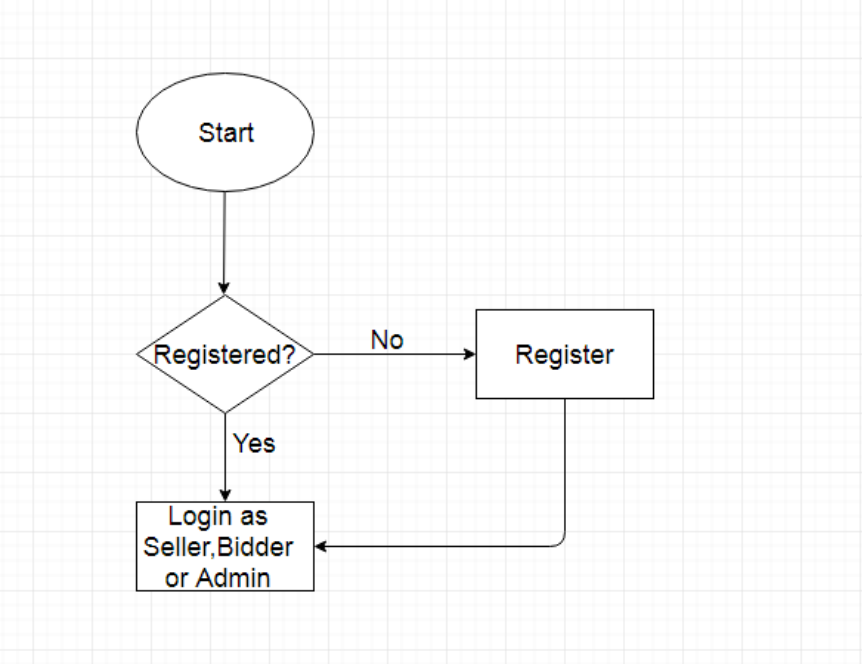


Fig 6.1 – Flowchart for Login

- Add Product

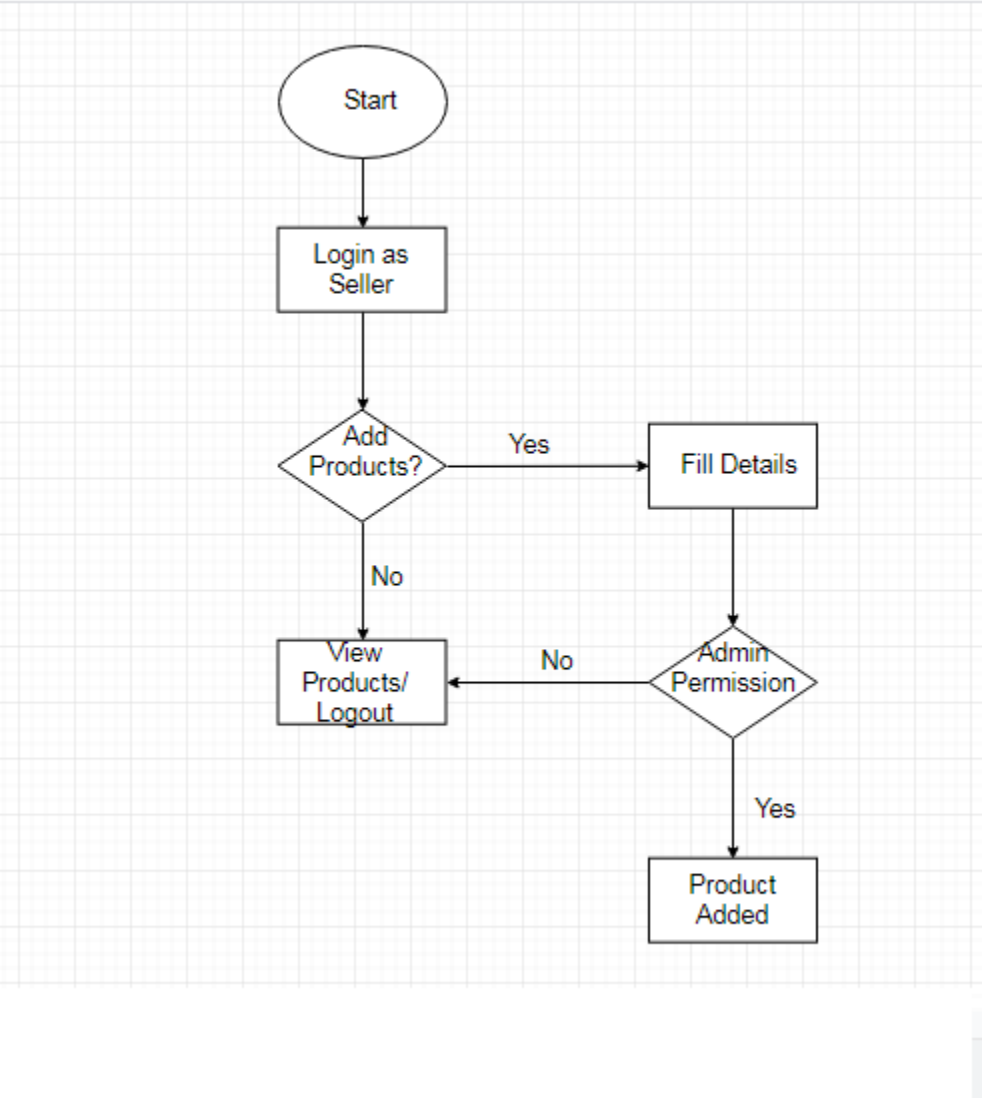


Fig 6.2 – Flowchart to add Product

- Place Bid

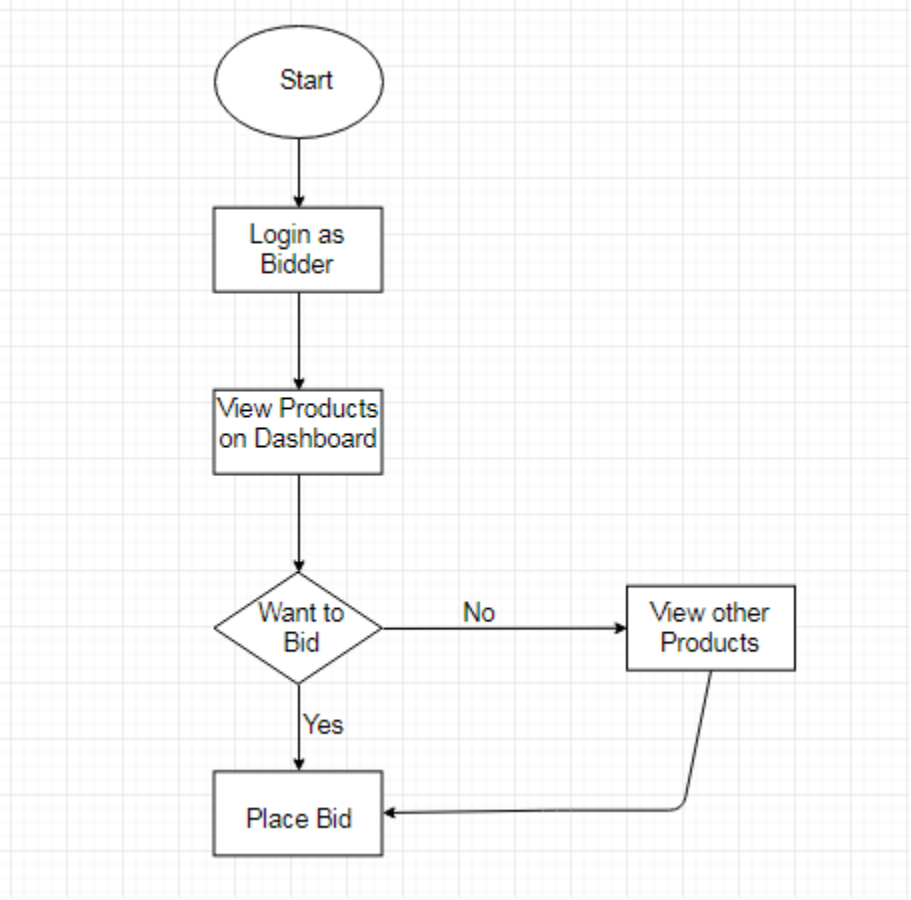


Fig 6.3 – Flowchart to Bid on Products

6.2 ER Diagram

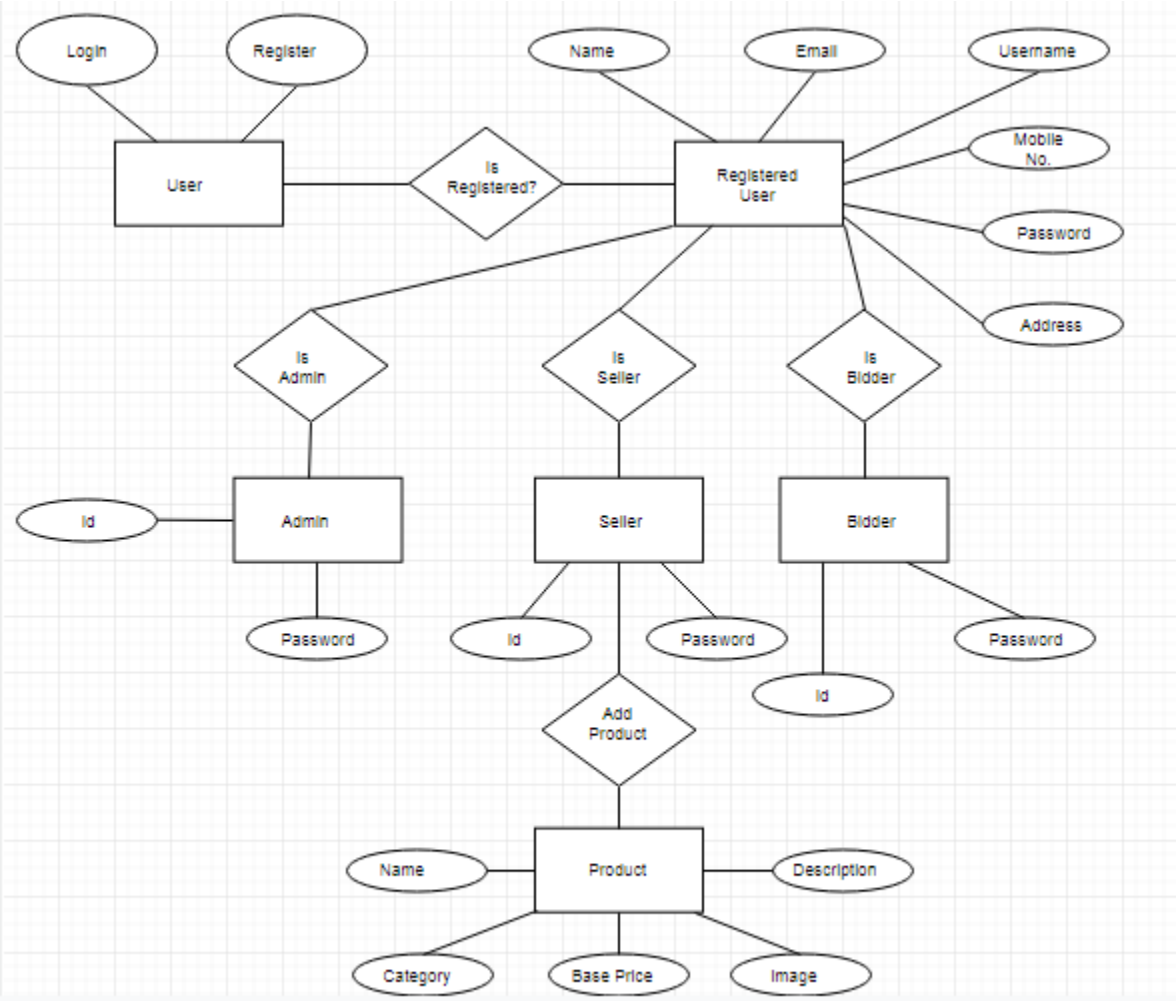


Fig 6.4 – ER Diagram to show relationship

6.3 Pseudo codes

Database Tables of Products, Customer, Bids, ProductBid, CustomerProduct, AdminDetails, Feedback, Review

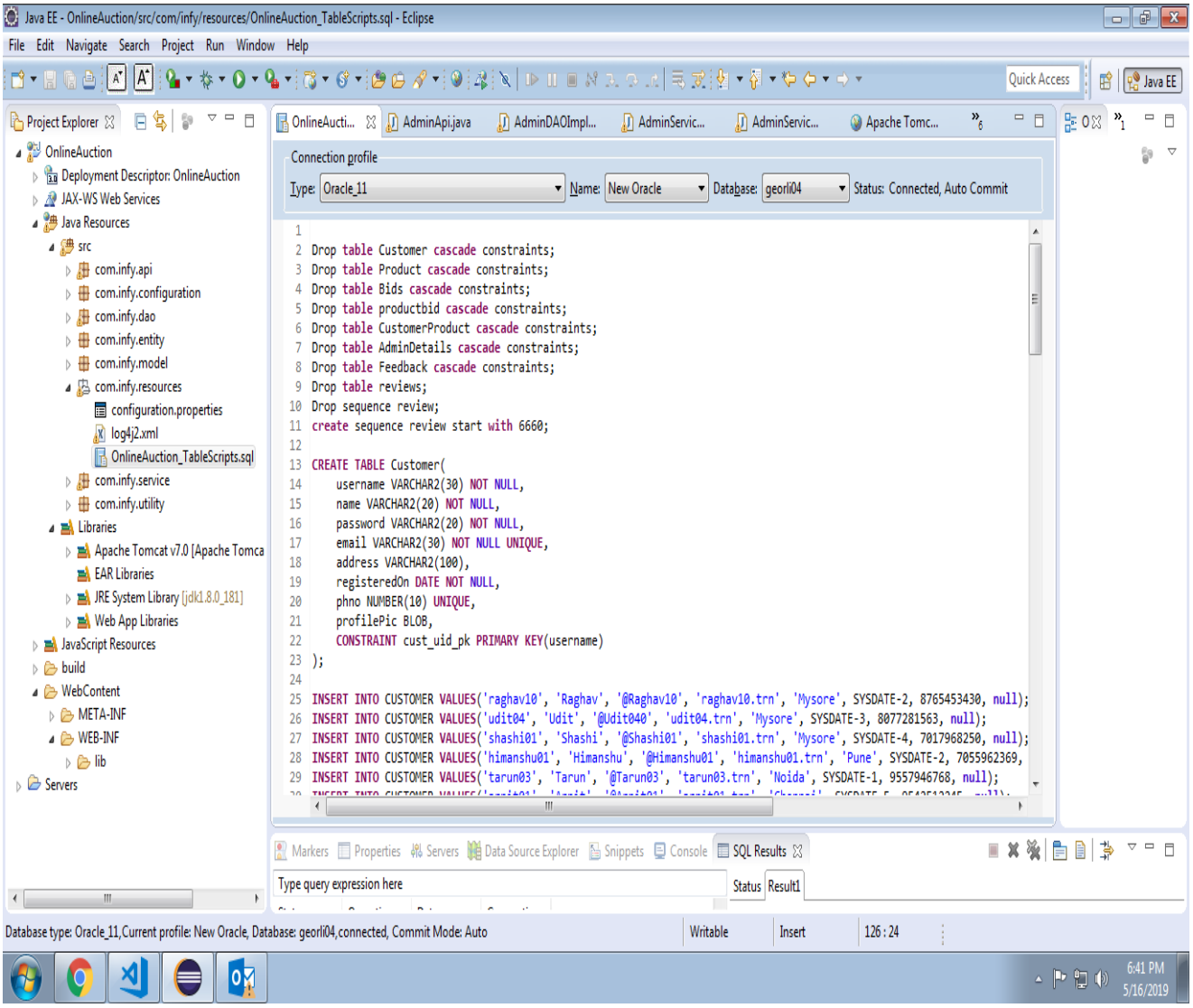


Fig 6.5 – Database Tables

FlashBid API

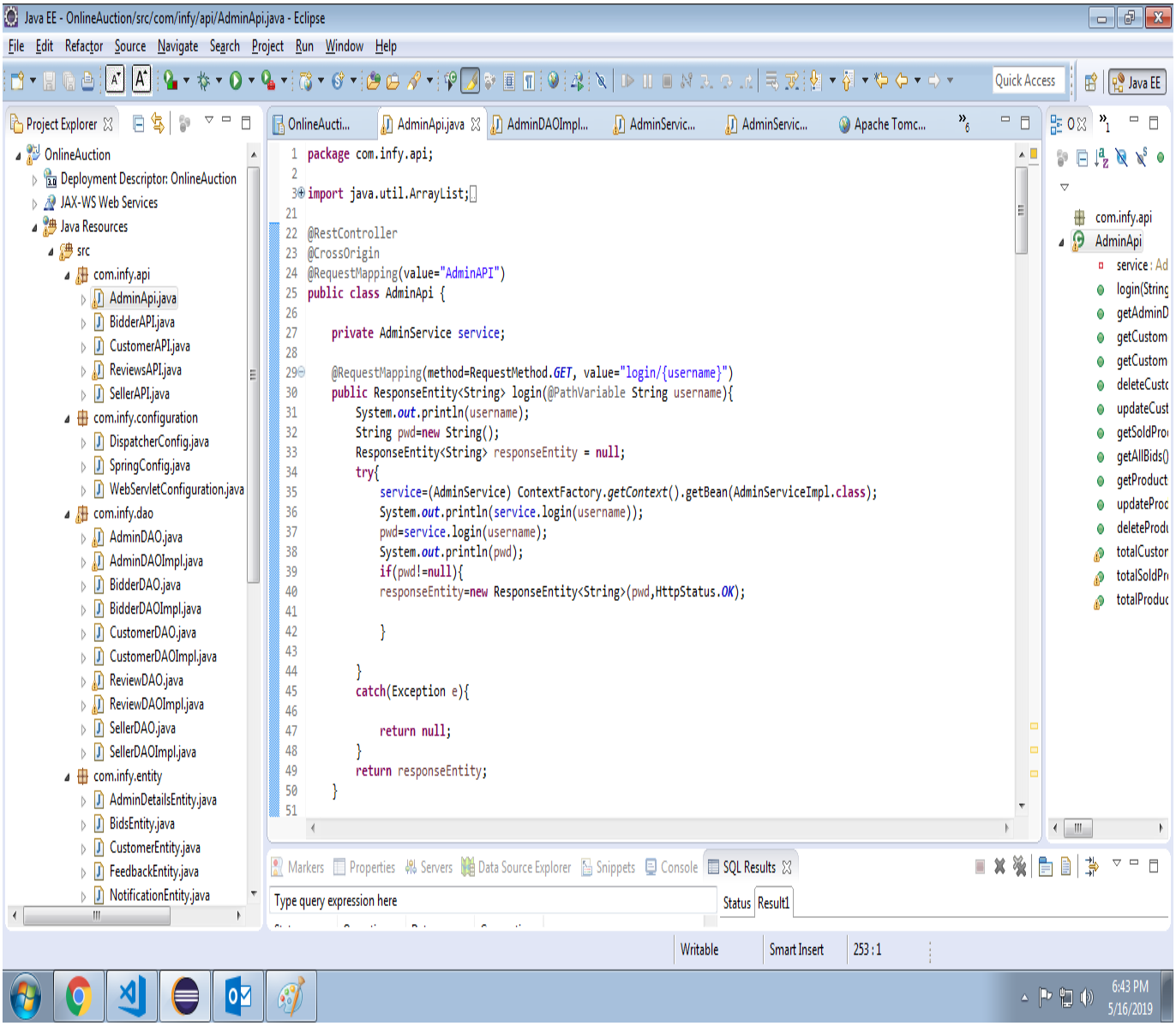


Fig 6.6 - API

Admin DAO Implementation Class

Admin DAO Implementation is a Java class which implements Admin DAO Interface thus overriding get Admin Details (), delete Customer (String userName), delete Product (Integer ProductId) methods.

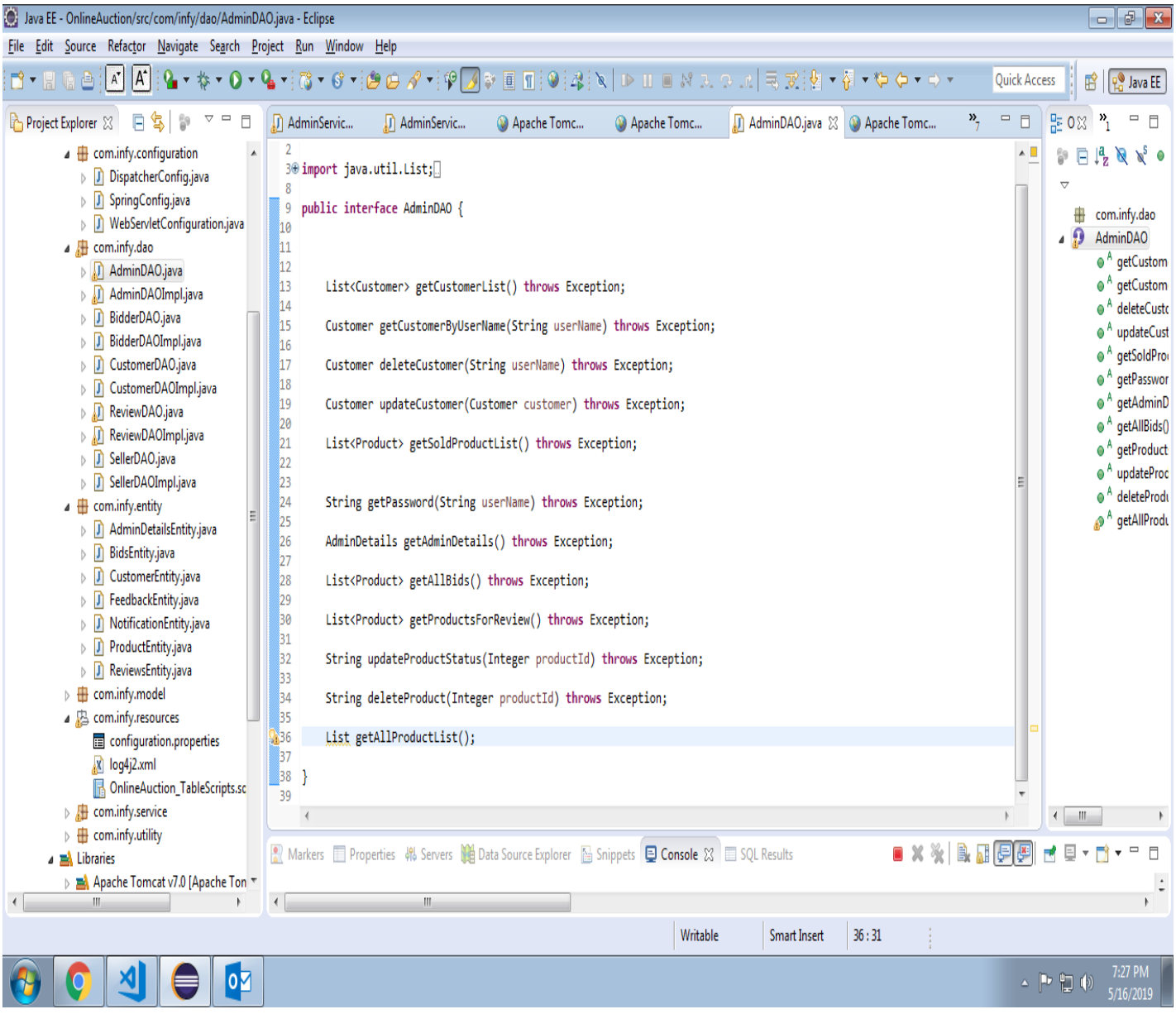
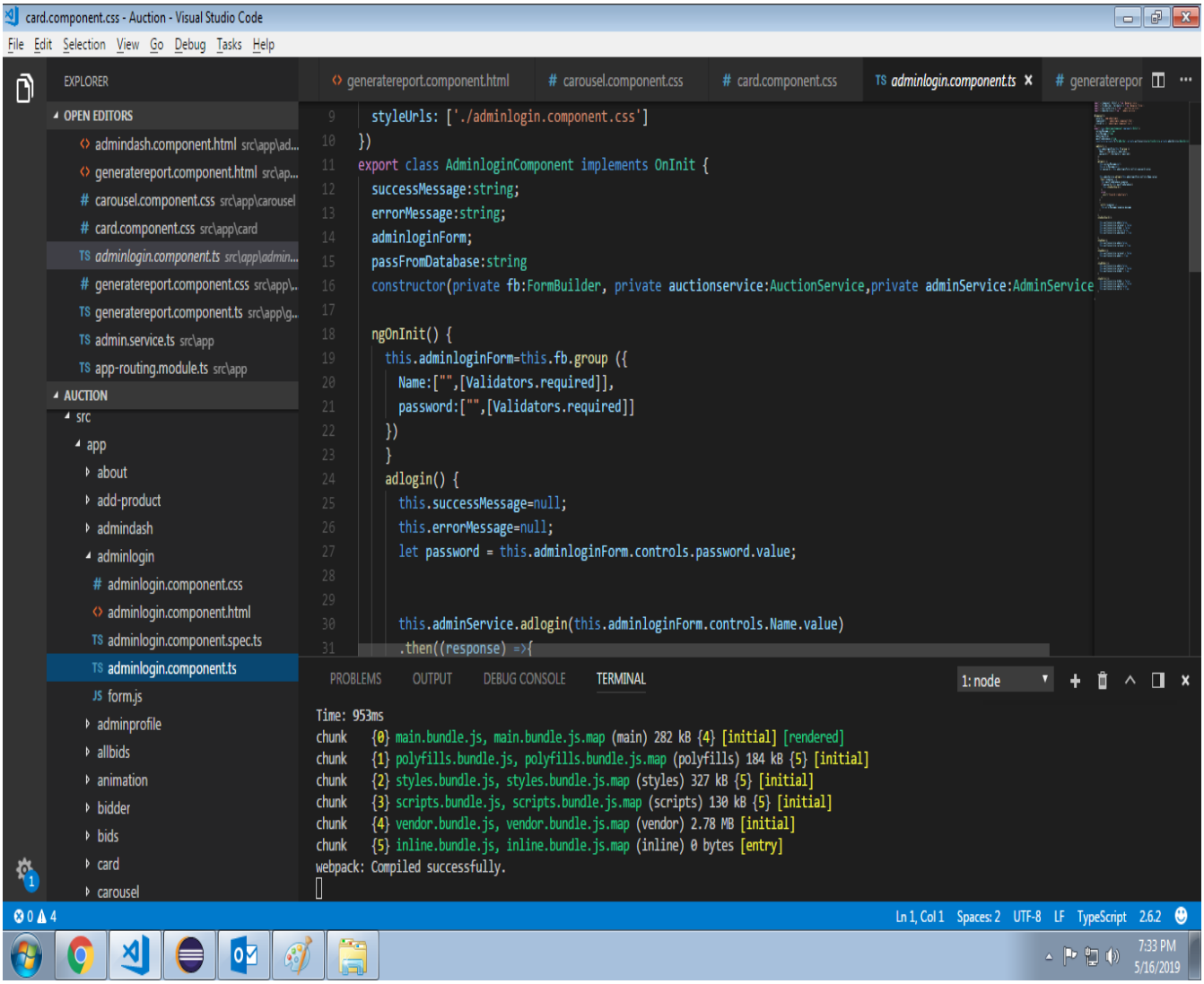


Fig 6.7 – DAO Implementation

Registration- Admin Component

Frontend of the registration component



Admin-dashboard Component

Code for the frontend of admin dashboard

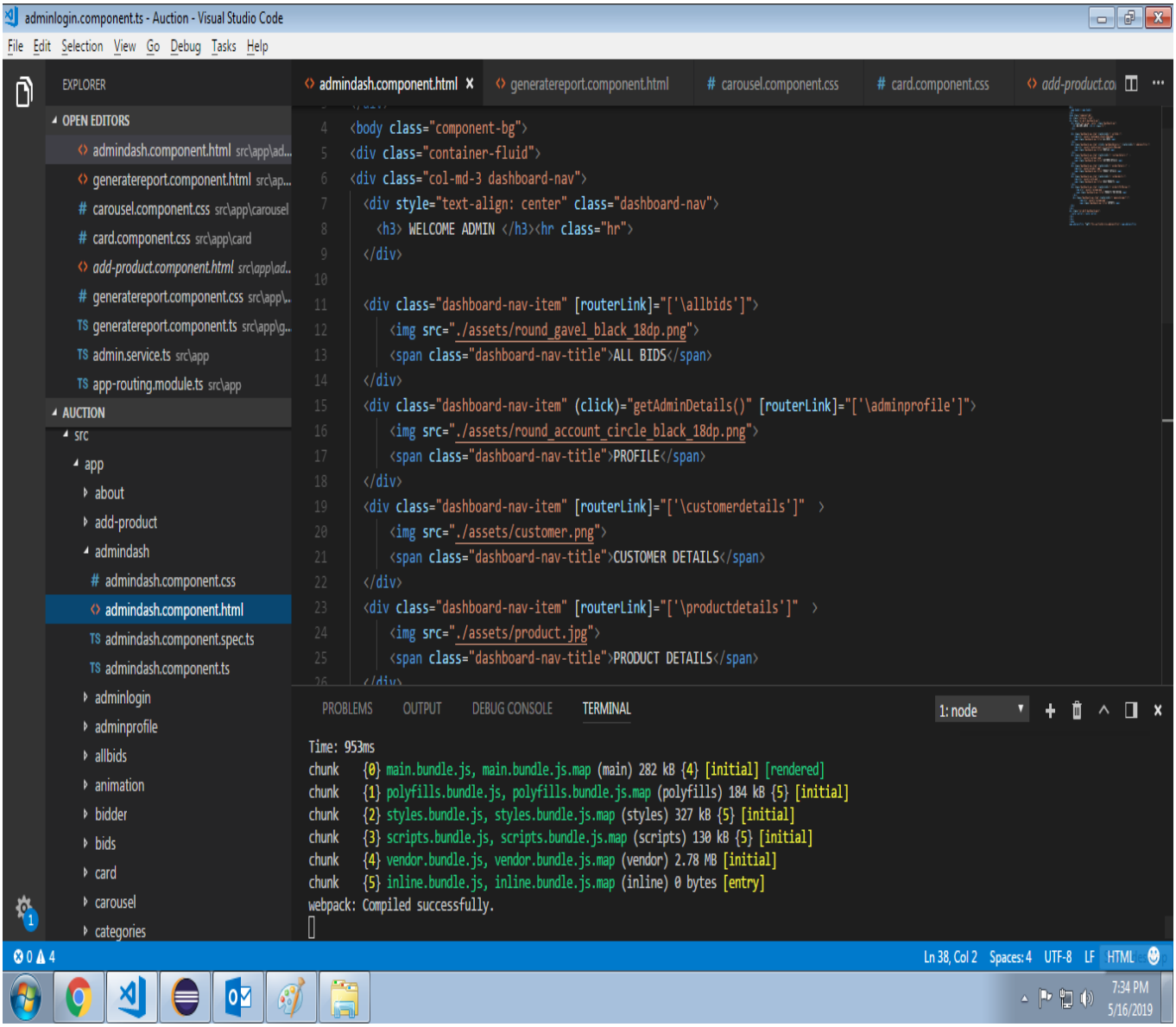


Fig 6.9 – Admin Dashboard HTML Code

6.4 Outputs

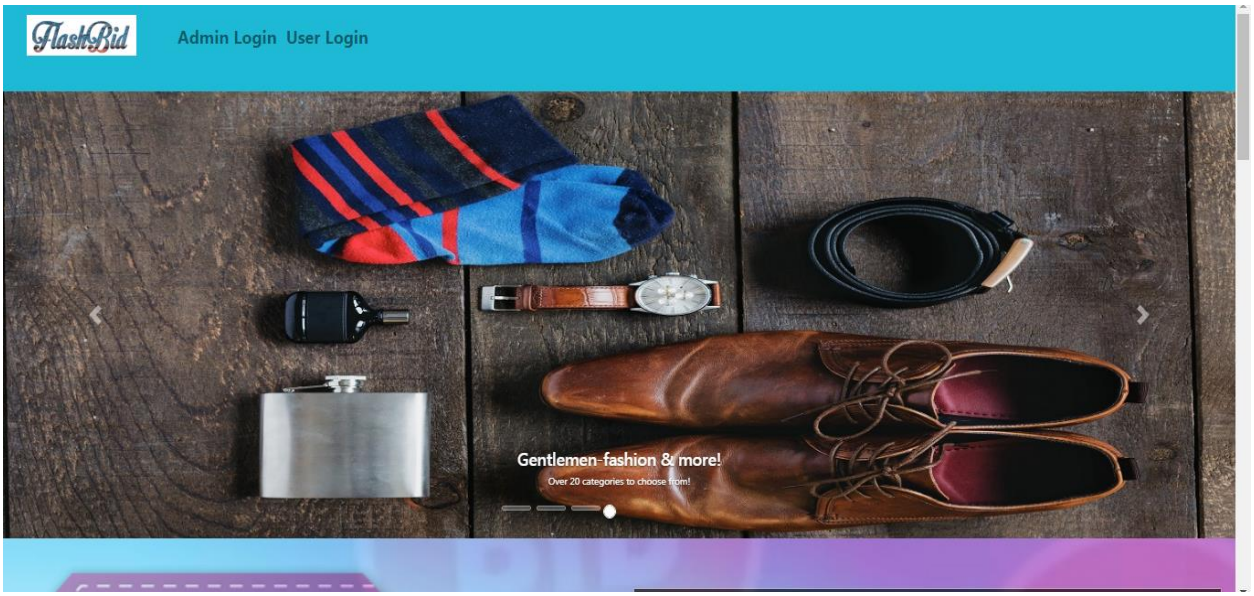


Fig 6.10 – FlashBid Homepage

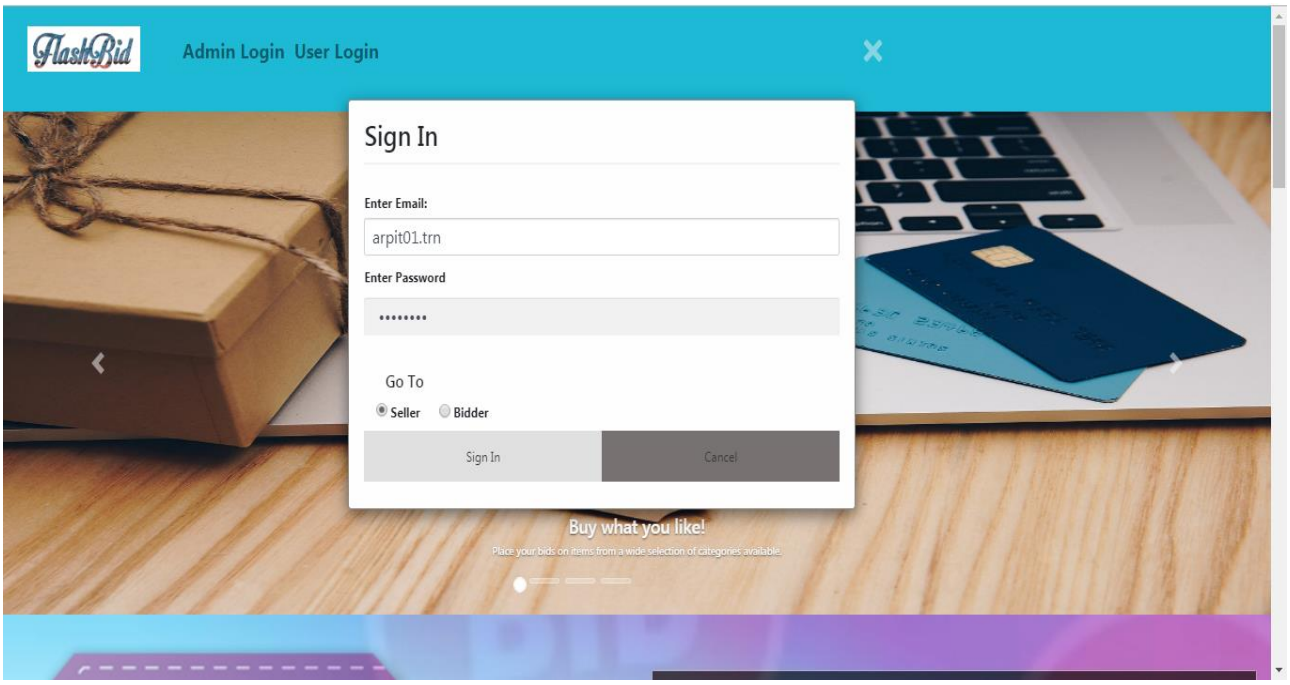


Fig 6.11 – Customer SignUp

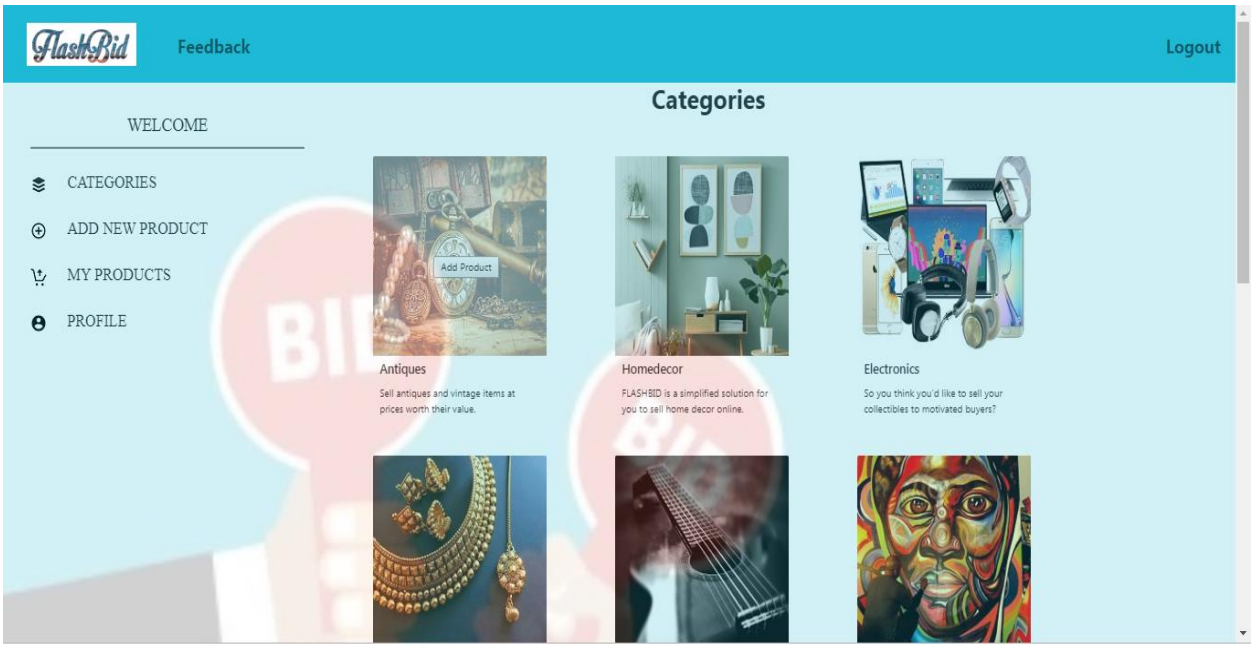


Fig 6.12 – Seller Dashboard

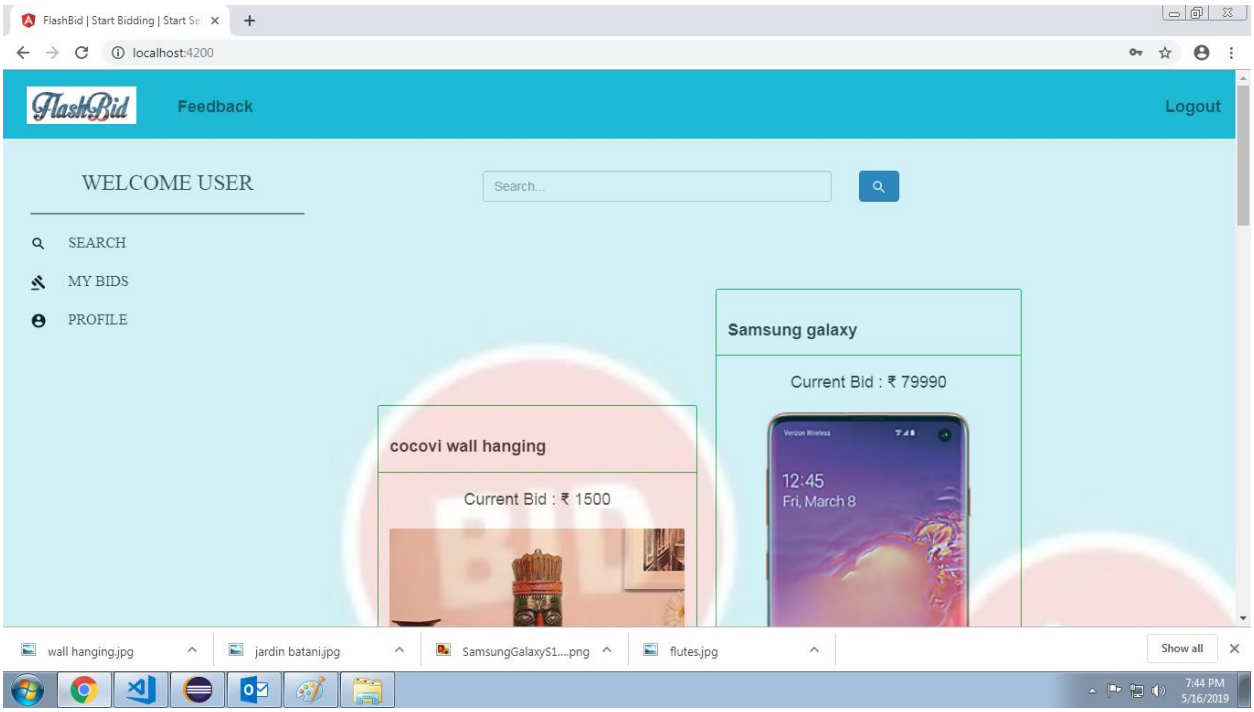


Fig 6.13 – Bidder Dashboard

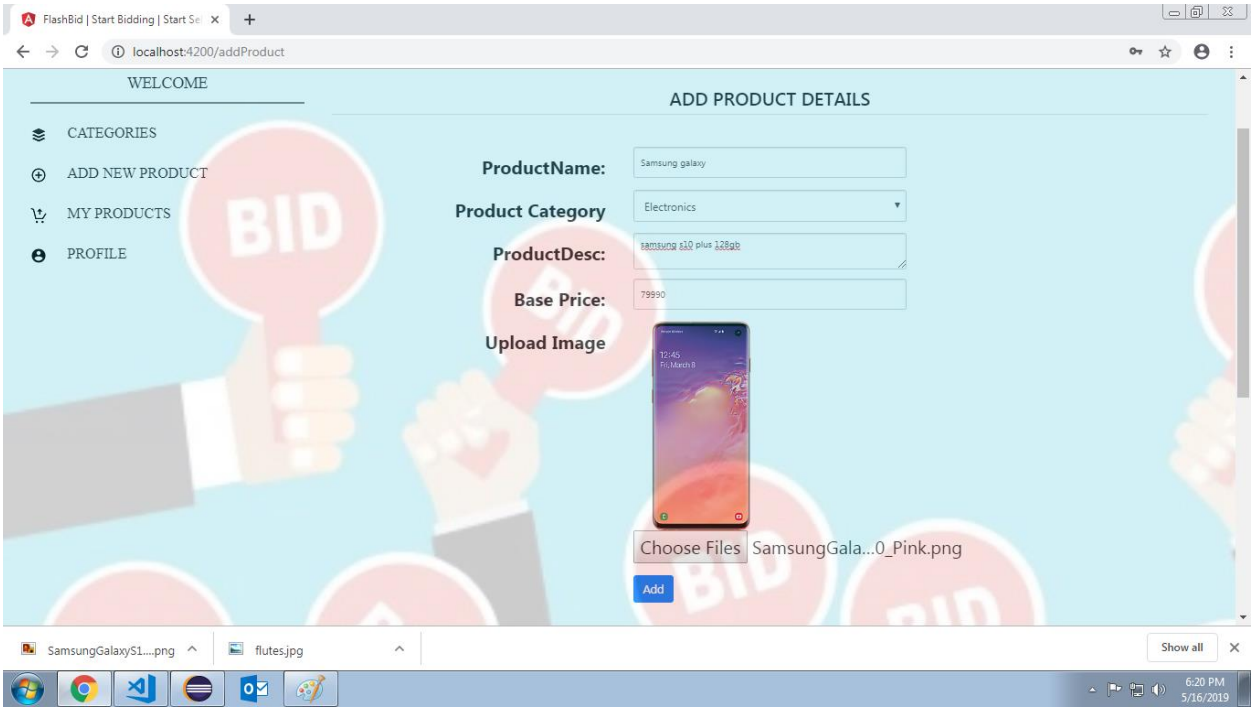


Fig 6.14 – Add Products Form

CHAPTER-7

CONCLUSION

Online auction system has greatly impacted the lives of consumers in its short time of existence. It is expected to grow constantly in years to come with advancements in technology. Online auction system has made consumers more effective and efficient in their behavior and has driven businesses to a new level, forcing many to make the necessary adjustments and changes to reach the new market of knowledgeable consumers. Our website aims to attain the same.

It is designed in such a way that modification or addition of new modules can be done without much trouble. The website has been developed keeping in mind the advance features and technologies, making it as versatile and user friendly as possible. Our website provides an effective platform to minimize disadvantages of traditional auction systems like geographical and time constraints thus saving resources-time, effort and money and maximize profit.

Its renovation can increase its flexibility more than now. The website was built using Java, SQL, HTML, Bootstrap making it responsive and has been tested with all possible sample data. In all the system has been designed and planned to the best of our knowledge.

7.1 Suggestions

The website it has a wide scope for improvement in the future. The future plan of this project is to improve design, implementation and documentation in such a way that anyone can use it for better performance. As the technology advances and the business plans improve additional functionalities can be added to the site without disturbing the existing part much.

There is scope for improvement to make the website more user friendly and secure. SSL and online transaction system can be added. Features to protect against shell bidding can be implemented. No online payment option is available yet. The project can be enhanced so that users can make payments for their product online and that too securely. The sensitive information of the users related to payments needs to be stored with high security as well.

7.2 Technical and Managerial Lessons Learnt

- The success of the project largely depends on the skills and strength of the people involved. Therefore, the project needs to have a dedicated, talented set of individuals working towards a common goal.
- Together with leadership skills the team leader needs to be aware of strength and weaknesses of his/her staff, so that the talents are harnessed and the shortfalls downplayed for the benefit of the project.
- One needs to be proactive in the approach. Reactivity is just not good enough.
- Respect and understanding the decision of the team leader is important. Voice your objections, especially if they are reasonable. But once an action has been decided upon even if it is contrary to your idea of what should have been done, support it and try to make it a success.
- Do not be afraid of taking calculated risks.
- When things go wrong, know who you can turn up for help.
- Do not blindly rush into decisions. Careful thoughts need to be given to the circumstances at hand prior to engaging in decision making. This will save time in the long run by minimizing the need to redo work.
- Efficient project management plan keeps all the team members well informed about the project happening.
- Working on various project modules enhanced the technical knowledge and working skills of each one of us.