SHOP FOR HOME

Capstone Project

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ABSTRACT

This paper intends to provide a concise overview of an angular, spring boot, and mysql based e-commerce web application. Since all of the physical stores are closed, the primary goal of this project is to create an e-commerce website for home décor items. More and more companies are putting in place websites with capability for conducting business transactions online. It is safe to argue that doing your buying online has become routine.

The goal of this project is to create a general-purpose online store where consumers can shop for products like home decorative while remaining at home.

However, for implementation purposes, this paper will deal with an online shopping for home decorative products A virtual store on the Internet where clients may browse the inventory and choose items of interest is known as an online store.

The chosen products might be put in a shopping basket. The goods in the shopping cart will be shown as an order when it is time to check out. At that point, more details will be required in order to finalize the purchase.

Home décor shop is aimed towards the vendors who want to reach out to the maximum cross-section of customer and common people who can be potential customer. This project envisages bridging the gap between the seller, the retailer and the customer.

OFS should be user- friendly, ‘quick to learn’ and reliable software for the above purpose. OFS is intended to be a stand-alone product and should not depend on the availability of other software. It should run on both UNIX and Windows based platform

CHAPTER-1

1. Introduction

1.1Motivation

This document aims to give a brief description about E-Commerce web application using angular, Spring Boot and Mongo db. The main aim of this project is to build an E-commerce website of home décor items in the Covid situation where all the offline shops are closed. E-commerce is fast gaining ground as an accepted and used business paradigm.

More and more business houses are implementing web sites providing functionality for performing commercial transactions over the web. It is reasonable to say that the process of shopping on the web is becoming commonplace. The objective of this project is to develop a general purpose e-commerce store where product like clothes can be bought from the comfort of home through the Internet.

However, for implementation purposes, this paper will deal with an online shopping for clothes. An online store is a virtual store on the Internet where customers can browse the catalog and select products of interest. The selected items may be collected in a shopping cart. At checkout time, the items in the shopping cart will be presented as an order. At that time, more information will be needed to complete the transaction.

Usually, the customer will be asked to fill or select a billing address, a shipping address, a shipping option, and payment information such as credit card number. An e-mail notification is sent to the customer as soon as the order is placed.

1.2 Problem Statement

Shop For Home is a popular Store in the market for shopping the home décor stuff .Due to Covid 19 all the offline shopping stopped. So, the store wants to move to the online platforms and wants their own web application.

There are 2 users on the application:

1. User

2. Admin

User Stories –

1. As a user I should be able to login, Logout and Register into the application.

2. As a user I should be able to add the items into the shopping cart.

3. As a user I should be able to add numerous products in the cart.

4. As a user I should be able to see the goods in various categories.

5. As a user I should be able to get a wish list where I can add products which I want but don't want to order now.

6. As a user I should be able to classify the products.

7. As a user I should get various discount coupons.

8. As a user I should be able to increase or decrease the quantity added in the cart.

Admin Stories –

1. As an Admin I should be able to login, Logout and Register into the application.

2. As an Admin I should be able to get the stocks.

3. As an Admin I should be able to perform CRUD on Users.

4. As an Admin I should be able to Perform CRUD on the products.

5. As an Admin I should be able to mail if any stock is less than10.

6. As an Admin I should be able to set the discount coupons for the particular set of users

7. As an Admin I should be able to get bulk upload option to upload a csv for products features

8. As an Admin I should be able to get the sales report of a particular duration.

1.3 Objective of the Project

Reaching as many clients as possible at the correct moment will enhance sales and the profitability of the company. E-commerce involves the purchasing and selling of items as well as sending money or data through the internet.

The main objectives are as follows:

1. Find the best way for the customer needs
2. Make them purchase the products
3. Clarify their Queries by mailing or any Contact service
4. Deliver the products

1.4 Theory

The logo creates a feel, an image, and a brand for your site. The Web is a visual medium, and an eye-catching logo is the first impression that you will send out to your visitors. A well designed logo showcases professionalism and conveys what your site is all about.

You have the option of choosing to host your website on your own internal server if you have the necessary hardware, space, and high-speed internet access and are prepared to pay the associated costs. This is the ideal choice if you want more control over the administration of your website or have content that is not seen as appropriate by hosting providers, are prepared to operate as your own system administrator, and have the technical capacity to do so.

Be aware that this option requires a lot of time and money, and that you are solely responsible for making sure the site is operational. Windows will be the operating system for the product. The system for an online store selling home decor is a website that should function in all well-known browsers. For example, consider Microsoft Internet Explorer, Google Chrome, and Mozilla Firefox. Additionally, IE 6.0 will be compatible with it.

The majority of the functions will work with Mozilla Firefox and Opera 7.0 or later. The internet connection would be the only prerequisite for using this online product. The hardware configuration consists of a 40GB hard drive, a 15-inch colour monitor, and a 7 keyboard with 122 keys. Keyboards and mice are the two most essential input and output devices.

CHAPTER-2

SHOP FOR HOME

2.1 INTRODUCTION

E-commerce brings convenience for customers as they do not have to leave home and only need to browse website online, especially for buying the products which are not sold in nearby shops. It could help customers buy wider range of products and save customers' time. Consumers also gain power through online shopping. They are able to research products and compare prices among retailers. Also, online shopping often provides sales promotion or discounts code, thus it is more price effective for customers.

Moreover, e-commerce provides products' detailed information; even the in-store staff cannot offer such detailed explanation. Customers can also review and track the order history online. E-commerce technologies cut transaction costs by allowing both manufactures and consumers to skip through the intermediaries. This is achieved through by extending the search area best price deals and by group purchase. The success of e-commerce in urban and regional levels depend on how the local firms and consumers have adopted to e-commerce.

However, e-commerce lacks human interaction for customers, especially who prefer face-toface connection. Customers are also concerned with the security of online transactions and tend to remain loyal to well-known retailers. In recent years, clothing retailers such as Tommy Hilfiger have started adding Virtual Fit platforms to their e-commerce sites to reduce the risk of customers buying the wrong sized clothes, although these vary greatly in their fit for purpose.

When the customer regret the purchase of a product, it involves returning goods and 20 refunding process. This process is inconvenient as customers need to pack and post the goods. If the products are expensive, large or fragile, it refers to safety issues.

2.2 FEATURES

1.Multiple Payment Options

Shopping cart abandonment is often a big issue for online retailers. To improve your chance of sealing the deal in the final checkout process on your website, be sure to make the purchasing stage as easy as possible for your customers by offering multiple online payment methods in the shopping cart. In addition to offering debit and credit card options, consider adding options for payment providers like PayPal or Stripe. You could also add plugins that have a buy now, pay later functionality to encourage customers to press the “purchase” button.

2.Discount to Customers

Then feel that they’re getting a good deal and being treated differently from other customers. Offer personalized deals, offers, and other user features to give them this type of attractive, customized experience. Offer user accounts where customers can access loyalty pricing offers, their personalized Wishlist, and account history. You can also use an ecommerce platform automated emailing system to send targeted special offers to loyal customers.

3.Customer Services

A big part of a successful customer experience is providing helpful, accessible customer service. According to Microsoft, 90% of Americans consider customer service an important feature when deciding whether or not to purchase from a company. Include a 24/7 customer service chatbot as one of your ecommerce website features to address customer needs at any time. Plugins like Zendesk or Live Person make it easy for you to add this feature to your website for a small fee.

4.Best Reliability

In the modern marketplace, ecommerce consumers are increasingly reliant on their mobile devices. According to Sale Cycle, mobile devices were used in 56% of all online purchases in 2020. In other words, most customers want to browse online stores on their phones.

2.3 PERFORMANCE AND SCALABILITY

Performance:

For increasing the traffic on your website, you have to give special attention to the performance in the non-functional requirements documentation. The focus should be on loading the e-commerce store as fast as possible regardless of the number of integrations and traffic on your website. You can set up the speed benchmark, maximum SKUs which you want to add, or any other performance indicator best for your business. Don't consider the 3rd party system delivery time, because the developers will not have control over the 3rd party API calls.

The operational costs for maintenance are the tricky part of planning a business budget. Thriving the website maintenance from the initial development means cutting the time & cost to determine and resolve the faults of the system in the future. Well, it sounds sad but there is no way to avoid issues in the future and you have to look for a website development company that can maintain your website.

Scalability:

Last but not the least, you have to look for a future-proof solution considering the scalability. It will define how the website can grow and increase its features and functionality without impacting the performance of your website.

You must be able to add more memory, servers, or disc space for making more transactions on your website. On the server side, while entering new markets you may need to add localization features. Overall, this NFR accounts for painless business expansion and has both hardware and software implications.

Security comes with utmost importance if your site is dealing with monetary transactions, users' financial and sensitive data. Using an SSL certificate and data privacy policy will create trust among the users for your website and convert the customers into brand advocates. It is also considered for the different admin roles by which you can control who can create, see, copy, change or delete information. Depending upon the location of your business, security also refers to compliance with customer data protection rules such as GDPR in Europe.

2.4 ARCHITECTURE

1.Angular Architecture:

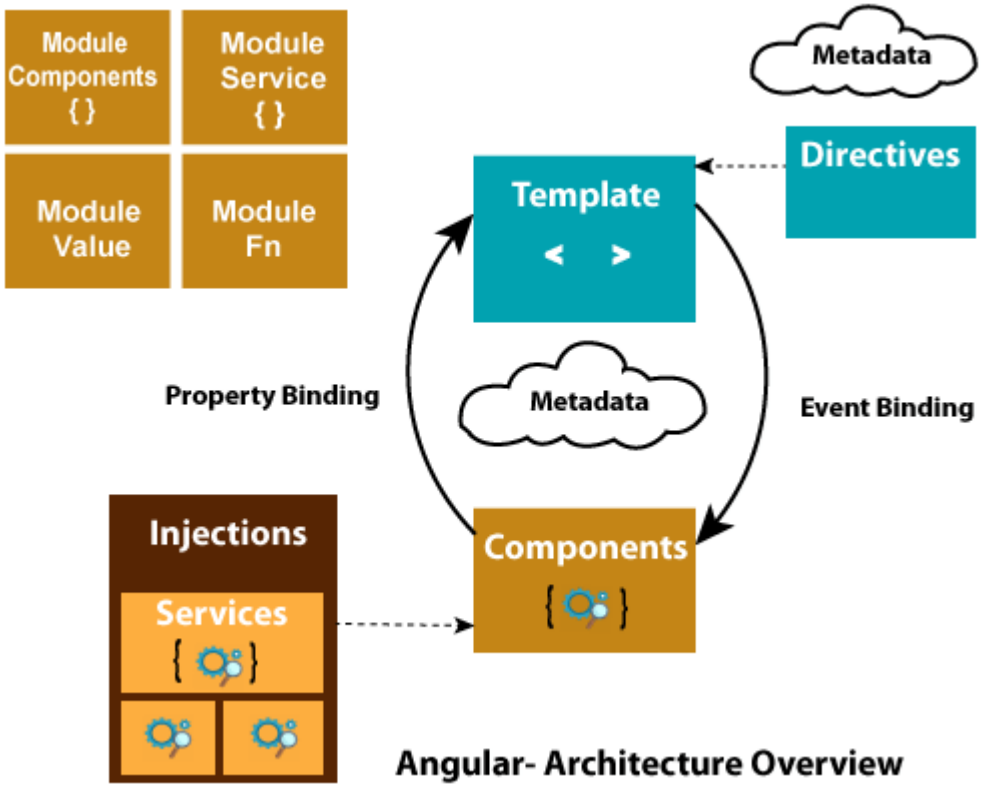


Fig.1: Angular Architecture

There are main eight blocks of Angular.

1. Module

2. Component

3. Metadata

4. Template

5. Data Binding

6. Service

7. Directive

8. Dependency

Injection Description The architecture of an Angular application relies on certain fundamental concepts. The basic building blocks of the Angular framework are Angular components that are organized into Ng Modules. Ng Modules collect related code into functional sets; an Angular application is defined by a set of Ng Modules

2.Spring Boot Architecture:

- The Client makes an HTTP request (GET, PUT, POST, etc.)
- The HTTP request is forwarded to the Controller. The controller maps the request. It processes the handles and calls the server logic.

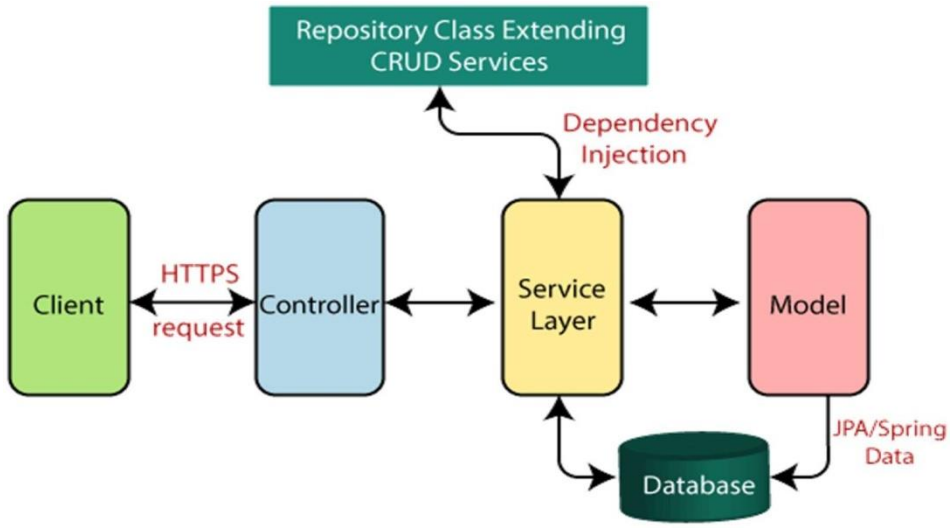


Fig.2: Spring Boot Architecture

- The business logic is performed in the Service layer. The spring boot performs all the logic over the data of the database which is mapped to the spring boot model class through java persistence library (JPA).

- The JSP page is returned as Response from the controller. The spring boot consists of the following four layers:

1. Presentation Layer – Authentication & J Son Translation

2. Business Layer – Business Logic, Validation & Authorization

3. Persistence Layer – Storage Logic

4. Database Layer – Actual Database

1 Presentation Layer

The presentation layer is the top layer of the spring boot architecture. It consists of Views. i.e., the front-end part of the application. It handles the HTTP requests and performs authentication.

It is responsible for converting the JSON field's parameter to Java Objects and vice-versa. Once it performs the authentication of the request it passes it to the next layer. i.e., the business layer.

2. Business Layer

The business layer contains all the business logic. It consists of services classes. It is responsible for validation and authorization.

3. Persistence Layer

The persistence layer contains all the database storage logic. It is responsible for converting business objects to the database row and vice-versa.

4. Database Layer

The database layer contains all the databases like My SQL. This layer can contain multiple databases. It is responsible for performing CRUD operations.

3.Micro services Architecture:

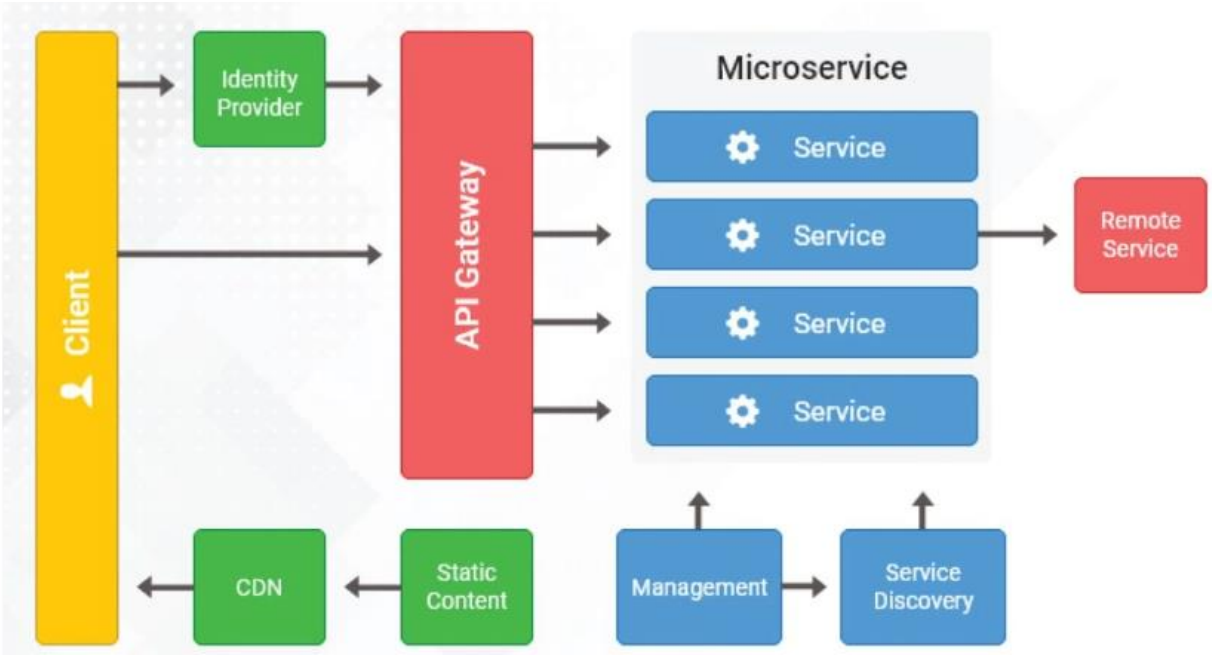
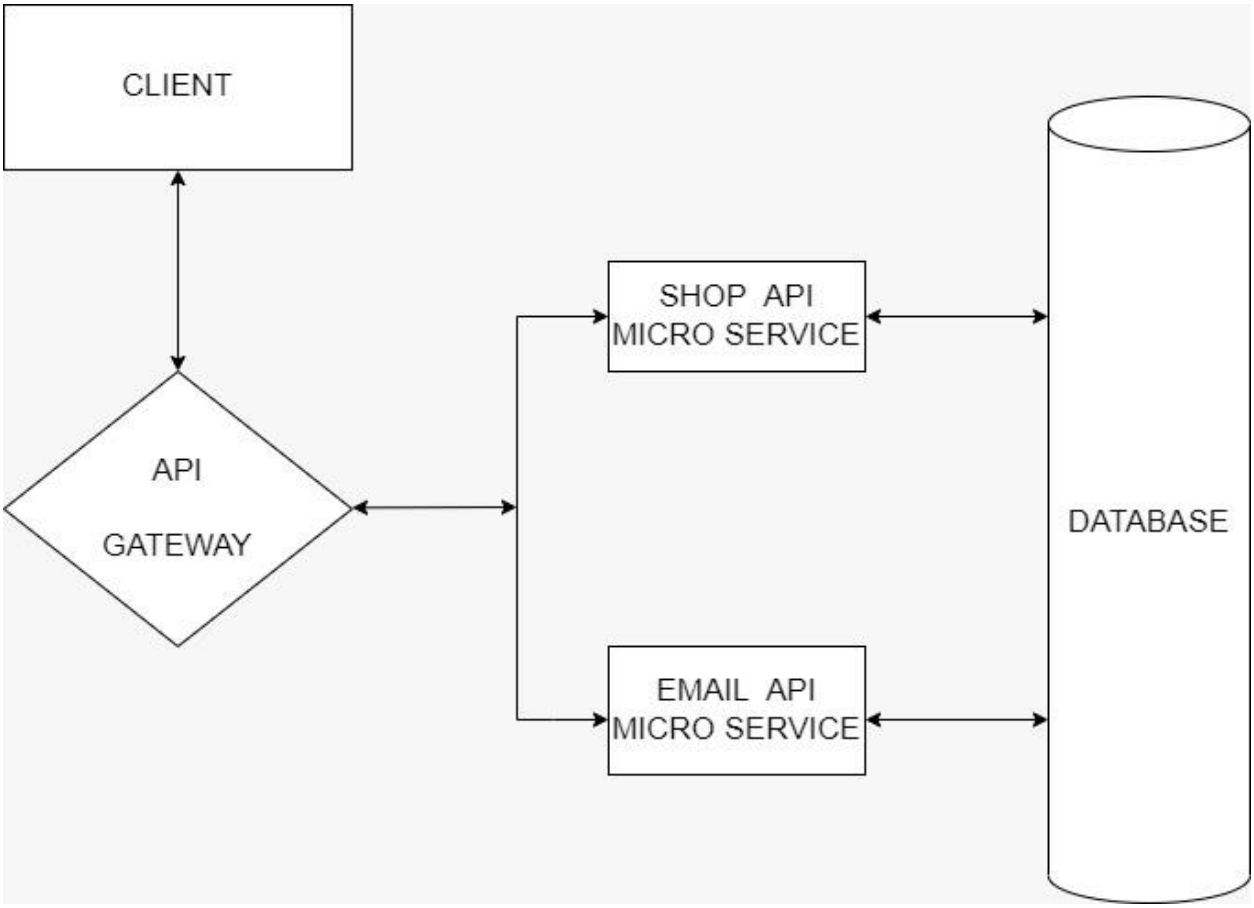


Fig.2:Micro Services Architecture

Micro service architectures are the 'new normal'. Building small, self-contained, ready to run applications can bring great flexibility and added resilience to your code. Spring Boot's many purpose-built features make it easy to build and run your micro services in production at scale

4.Project Architecture



APIGateway.

TheAPIgatewayistheentrypointforclients.Insteadofcallingservicesdirectly,clientscalltheAPIgateway,whichforwardsthecalltotheappropriateservicesonthebackend.

AdvantagesofusinganAPIgatewayinclude:

- Itdecouplesclientsfromservices.Servicescanbeversionedorrefactoredwithoutneedingtoupdateallofthe clients.
- Servicescanusemessagingprotocolsthatarenotwebfriendly,suchasAMQP.
- TheAPIGatewaycanperformothercross-cuttingfunctionssuchasauthentication,logging,SSLtermination,andloadbalancing.

- Out-of-the-boxpolicies,likeforthrottling,caching,transformation,orvalidation.

Shop Microservice

Shop Microservice contains business logic and functionalities related to product view page,Cart,CheckoutandUserloginFeatures.ItconnectstoecommerceDB(MySQL). Thisservicerunswithportnumber8080inthisapplication

Eureka Server for Microservice

Eureka Server is service discovery for your microservices, where all client applications can register by themselves and other microservices look up the Eureka Server to get independent microservices to get the job complete.

Eureka Server is also known as Discovery Server and it contains all the information about client microservices running on which IP address and port.

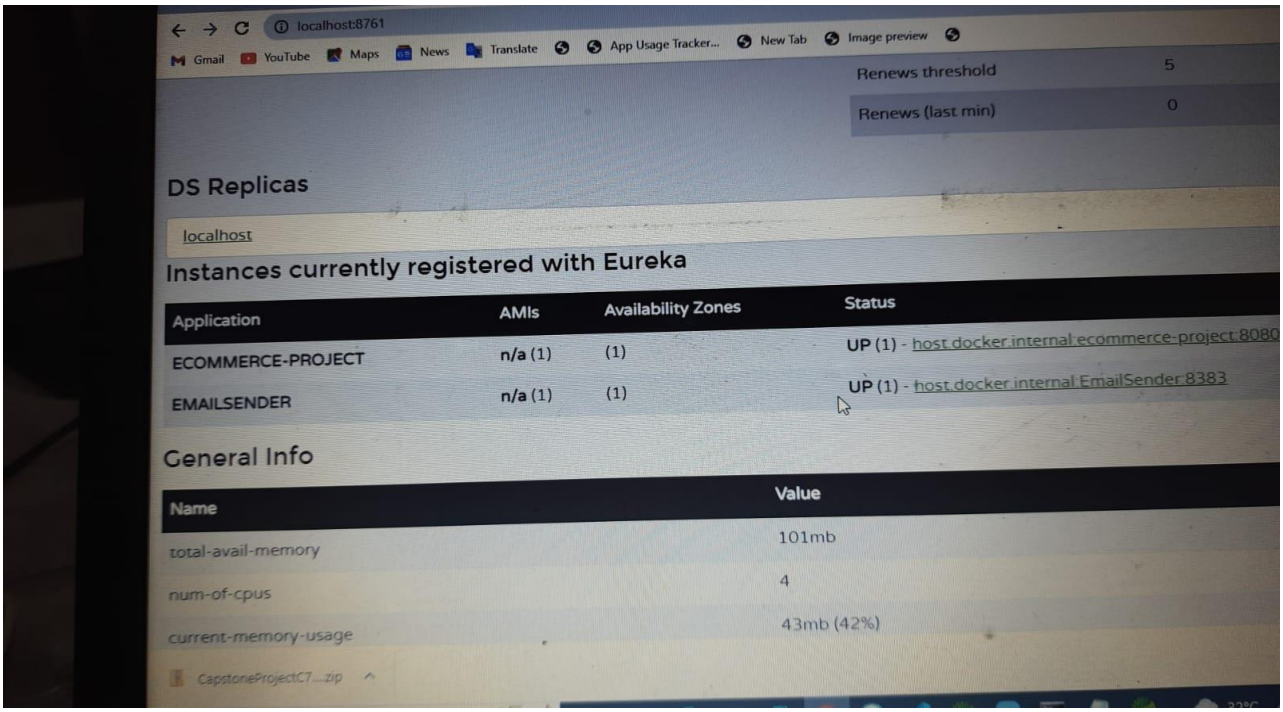
To achieve this you need to create a Eureka Server application and add the below dependency in POM.xml.

<dependency>
<groupId>org.springframework.cloud</groupId>
<artifactId>spring-cloud-starter-netflix-eureka-server</artifactId>
</dependency>

- **spring.application.name** is a unique name for your application.
- **server.port** in which your application will be bound and wewill use default port 8761 for eureka server.
- **eureka.client.fetch-registry** doesn't register itself in eureka server.
- **eureka.client.register-with-eureka** is determines if service register itself as a client in eureka server.

Running the Eureka Server

Run the Eureka server as Java application and go the URL: http://localhost:8761



2.5 DATABASE

The Database is responsible for total storing information in it, The main operations retrieving data, insertion deletion and updating all these of important points will be takes place in the database.

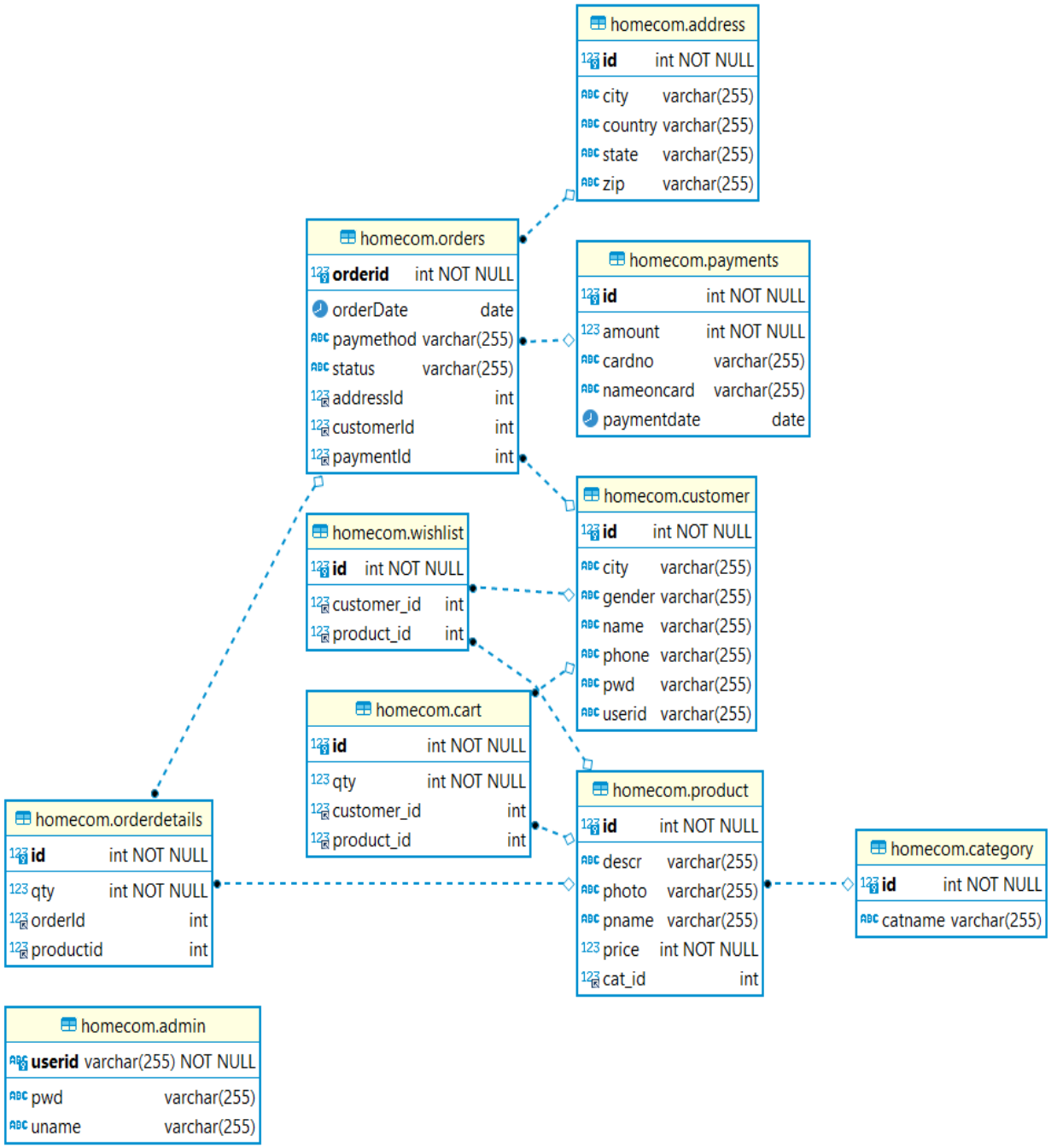
Tables are created for all entities.

Entities in the Database include

1. Product Category
2. Product info
3. Cart
4. Users
5. Discount
6. Wishlist
7. Product_in_order
8. Order main

The total information regarding products, users information, admin information every login credentials were stored in the data base.

Schema:



CHAPTER-3

REQUIREMENTS AND RESULTS

3.1 SYSTEM REQUIREMENTS

1 SOFTWARE REQUIREMENTS: The practical necessities or the general description files consist of the product angle and features, running gadget and working environment, images necessities, layout constraints and consumer documentation. Mapping performance requirements and constraints provides an overview of the project in terms of strengths and weaknesses, and where these issues can be addressed.

IDE– eclipse, Visual studio code,MySQL

TECHNOLOGIES- Spring boot, Angular, MySQL

LANGUAGES– Java, Html, CSS, JavaScript& type script

OPERATINGSYSTEM - windows 7/10/11, Linux & mac os

2 HARDWARE REQUIREMENTS: The minimum hardware requirements are highly dependent on the specific software developed by the specific Enthought Python/VS Code user. Applications that need to store large arrays/objects in memory require more RAM, and applications that need to perform many calculations or operations faster require a faster processor.

RAM-Prefer 4 GB or above

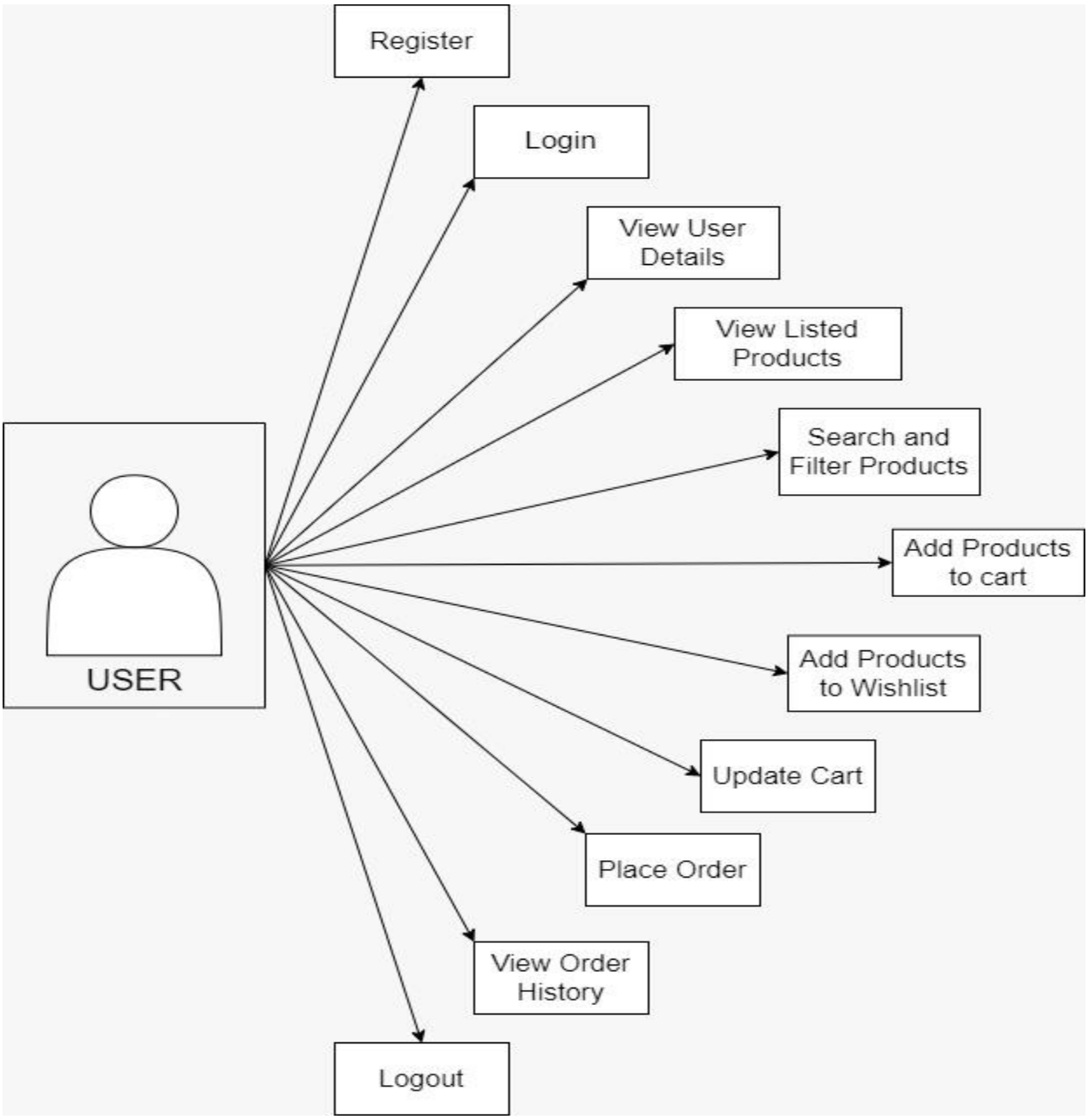
PROCESSOR-Intel or AMD dual core x86 processor

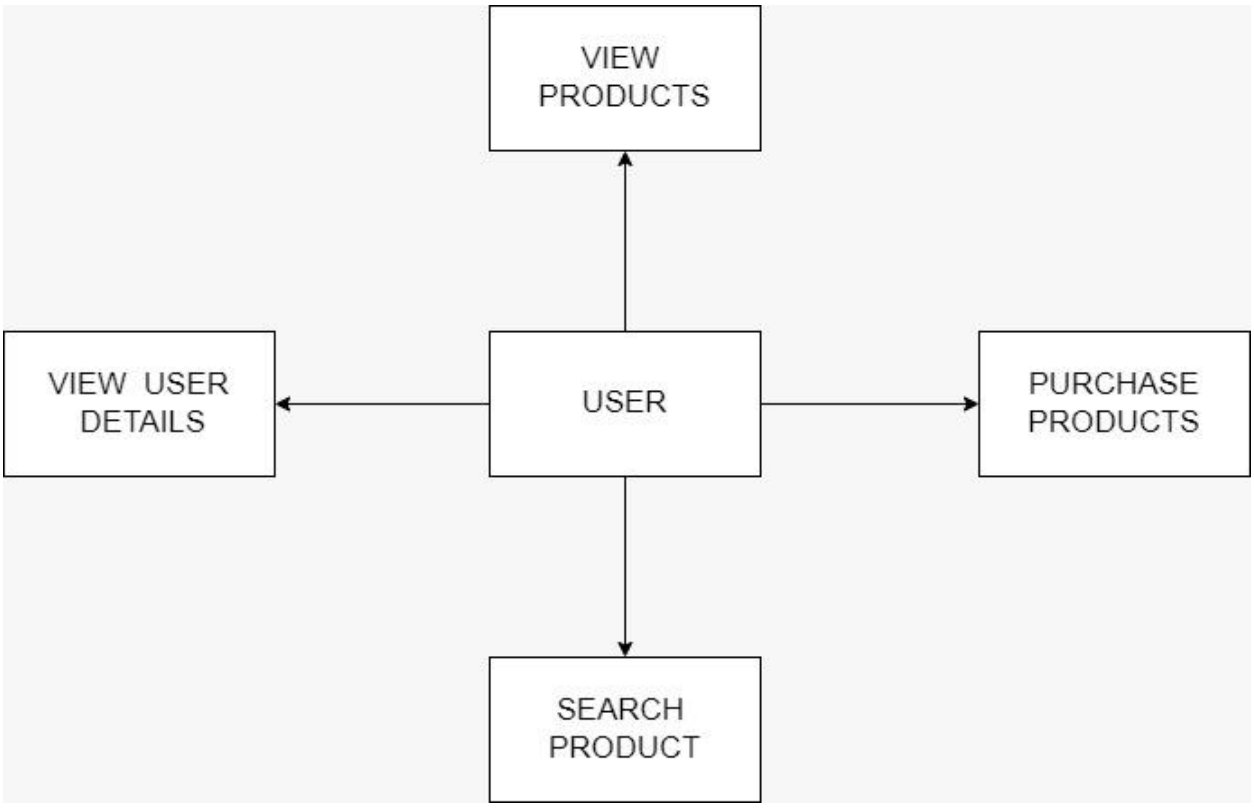
HARDDISC - 500 MB of free disk space or more

3.2. CASE DIAGRAMS

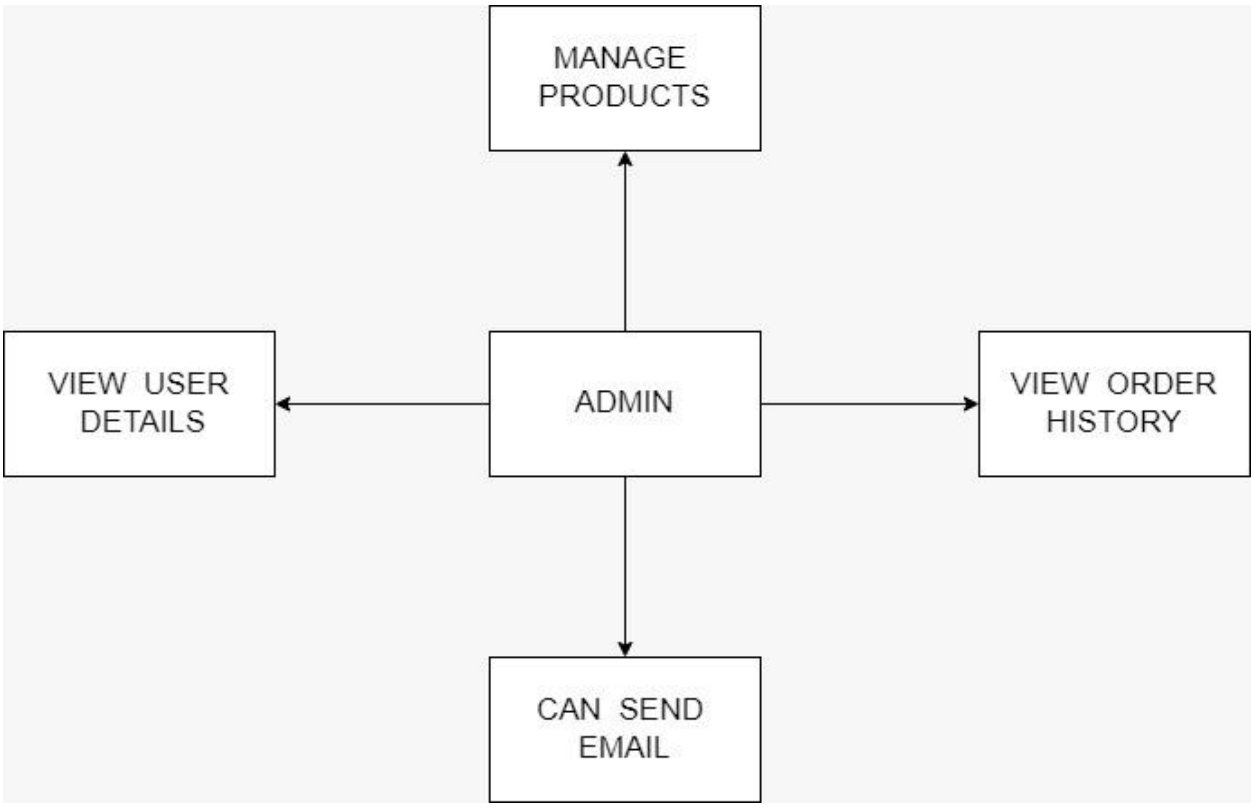
IntheUnifiedModelingLanguage(UML),ausecasediagramisaspecifickindofbehavioraldiagramthat resultsfromandisdefinedbyause-casestudy.Itsobjectiveistoofferagraphicalpictureofasystem'sfunctionalityintermsofactors,theirobjectives(expressedasusecases),andanyrelationshipsamongthoseusecases

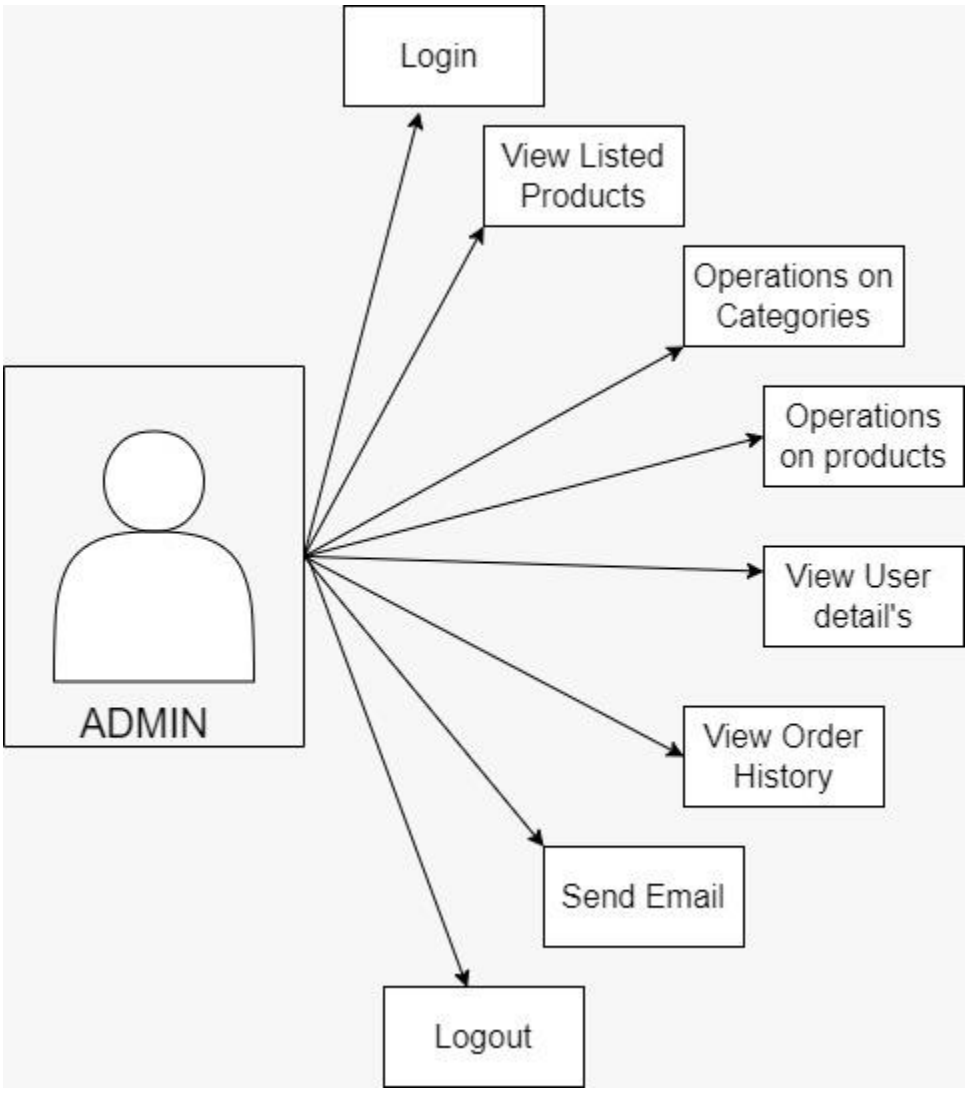
User Operations


Register
Login
View User Details
View Listed Products
Search and Filter Products
Add Products to cart
Add Products to Wishlist
Update Cart
Place Order
View Order History
Logout
USER



Admin Operations





3.3 IMPLEMENTATION

We will implement a simple e-commerce application. We'll develop an API using Spring Boot and a client application that will consume the API using Angular. Basically, the user will be able to add/remove products from a product list to/from a shopping cart and to place an order.

TECHNOLOGY USED

In below I would like to explain which technologies are used in this project. It's helpful for understand the project layouts & overview of documentation.

BACK-END

1. Java
2. Spring Boot
3. Spring Security
4. Hibernate
5. MySQL
6. Maven

FRONT-END

1. Angular
2. Bootstrap

IMPLEMENTATION STEPS

First you need to start back-end server, after that execute client side. Follow below steps to run this application on your system.

1. First Install Java 11 jdk, Vs code, Eclipse, MySQL
2. From your local FrontEnd code path -> open cmdEg -> {local path}\ecommerce-eshop\frontend
3. Run this command -- code .
4. Run Npm install from vs code terminal
5. Run npm start 23
6. After the successful compiling you got this link in terminal localhost/4200.
7. Open this link in google chrome

Database

1. Install Mysql workbench

2. Open that Mysql

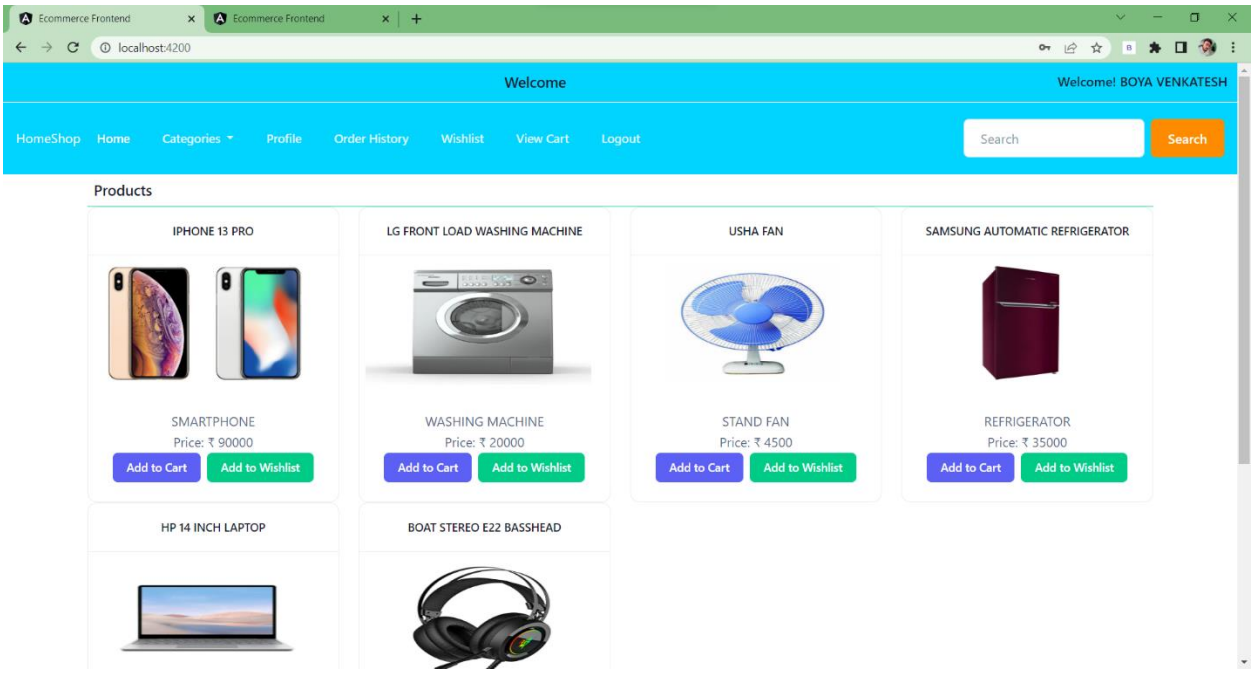
3. Open this query editor and You can run the query from sql file.

4. Run the query.

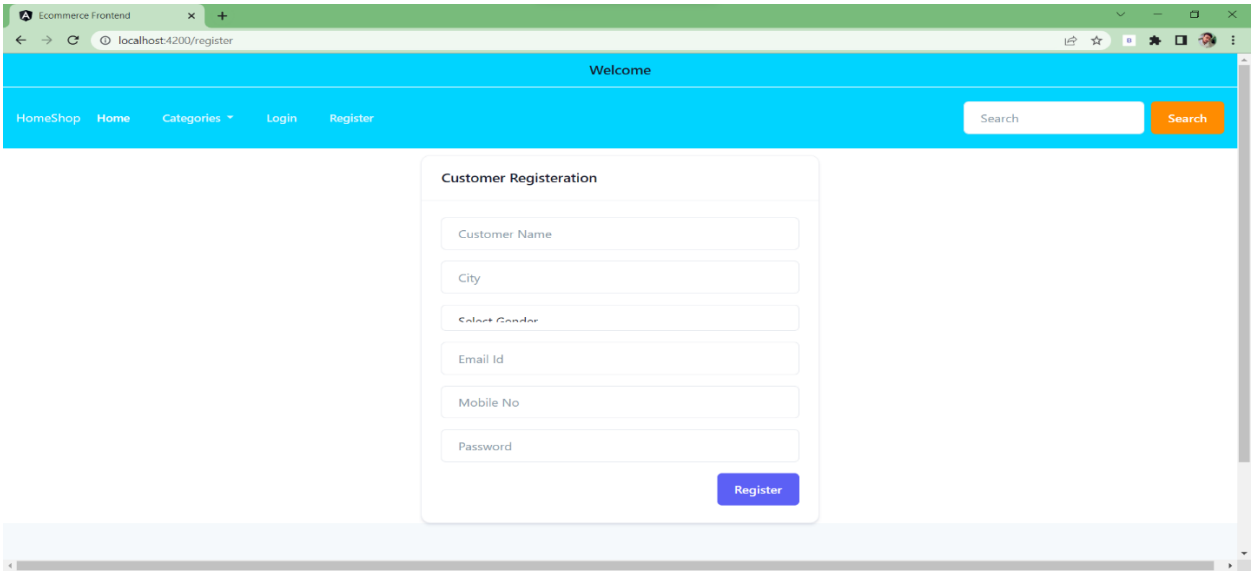
3.4. Result

USER FUNCTIONALITIES

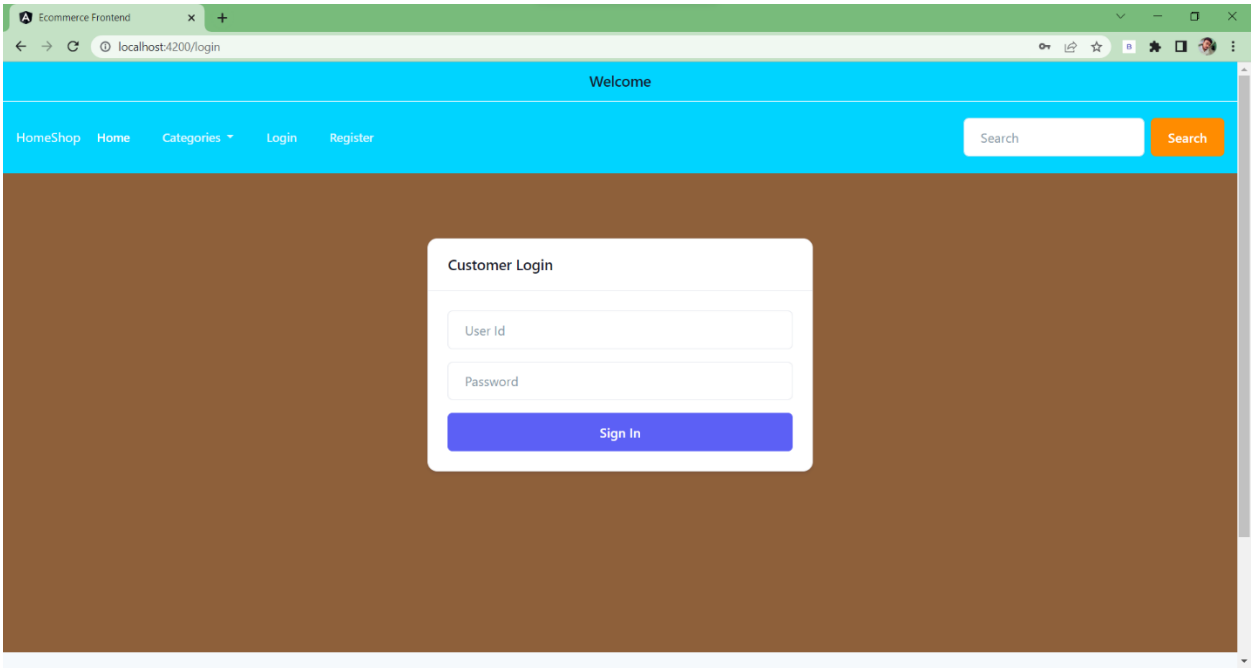
1.Home Page Showing Products to User



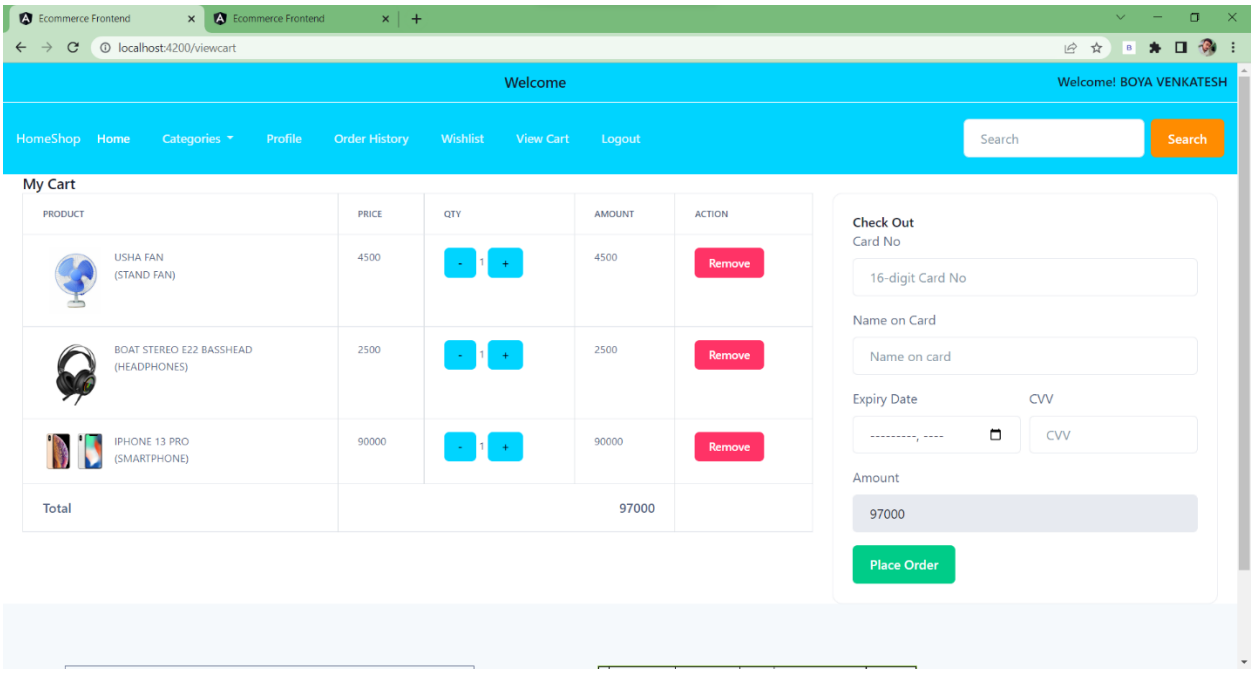
2.Customer registration



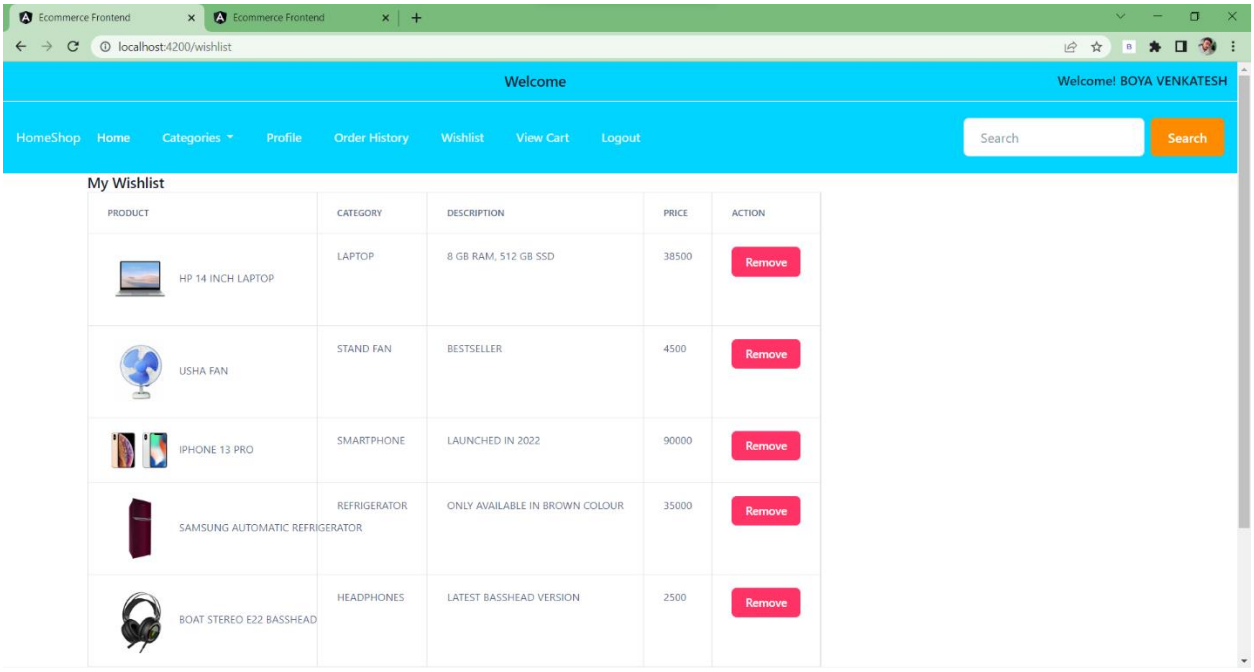
3.Customer Login



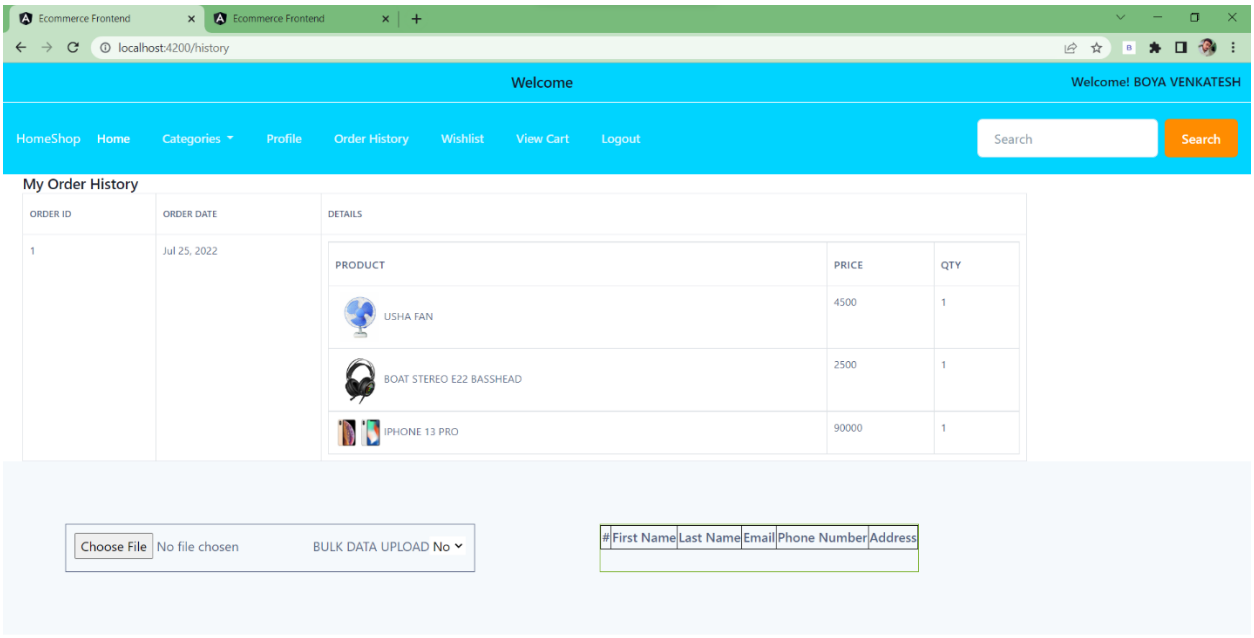
4.My Cart



5.WishList

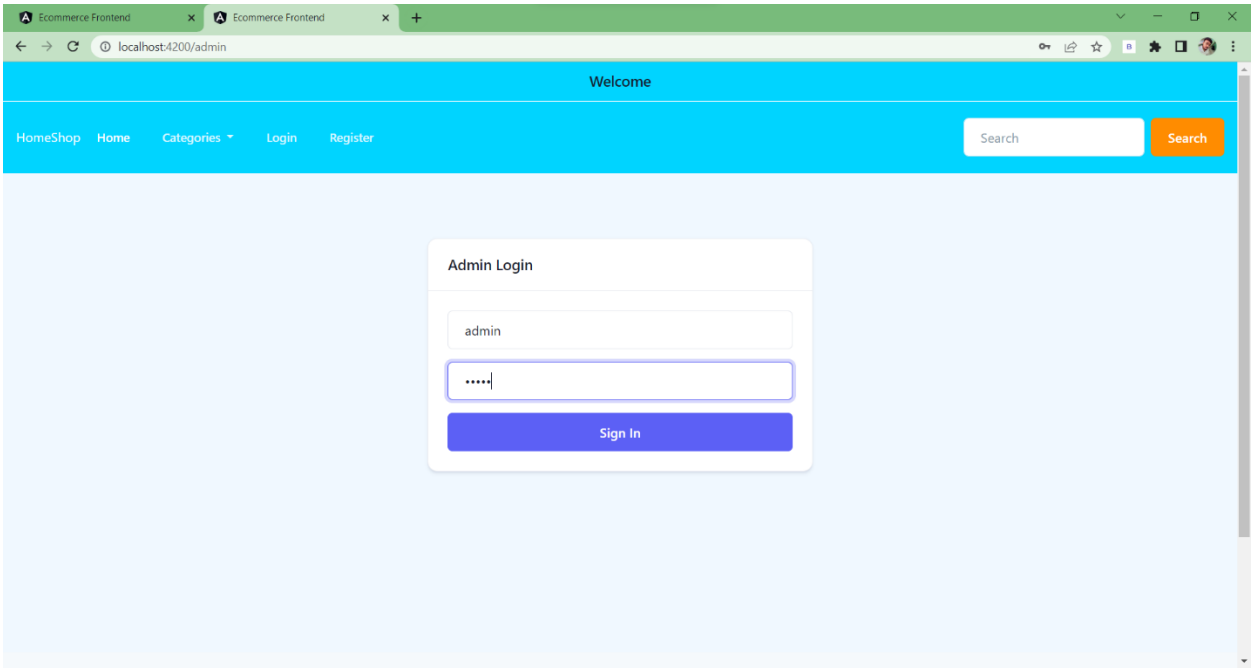


6.Orders

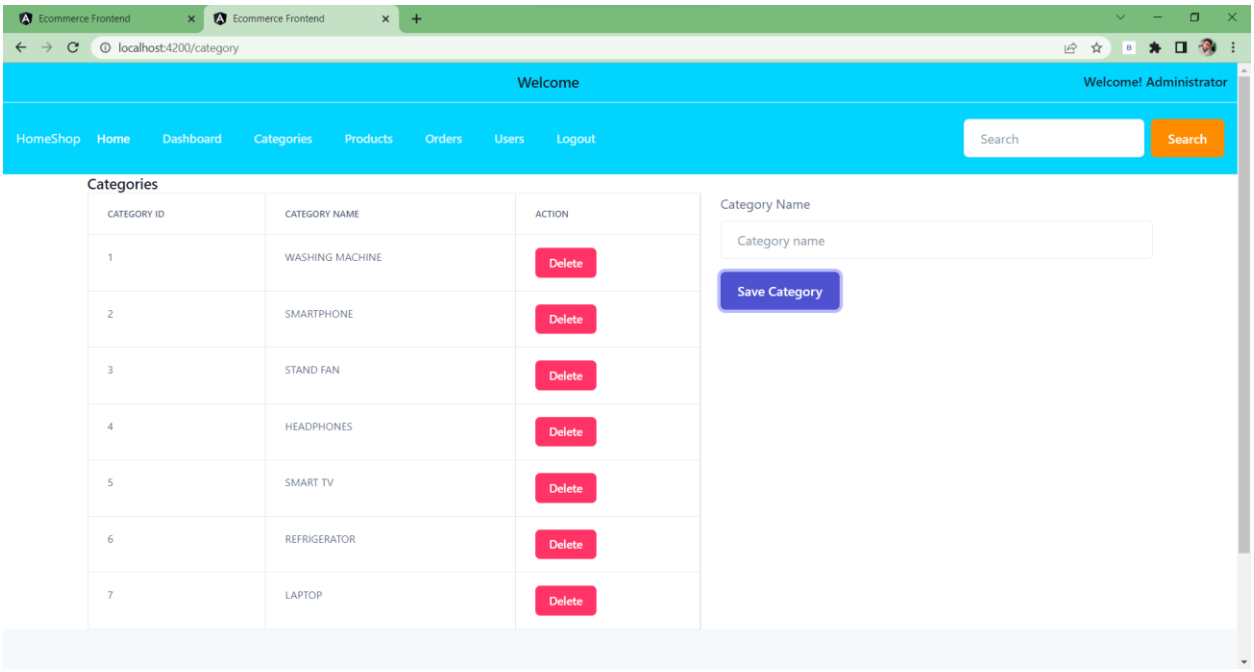


ADMIN FUNCTIONALITIES

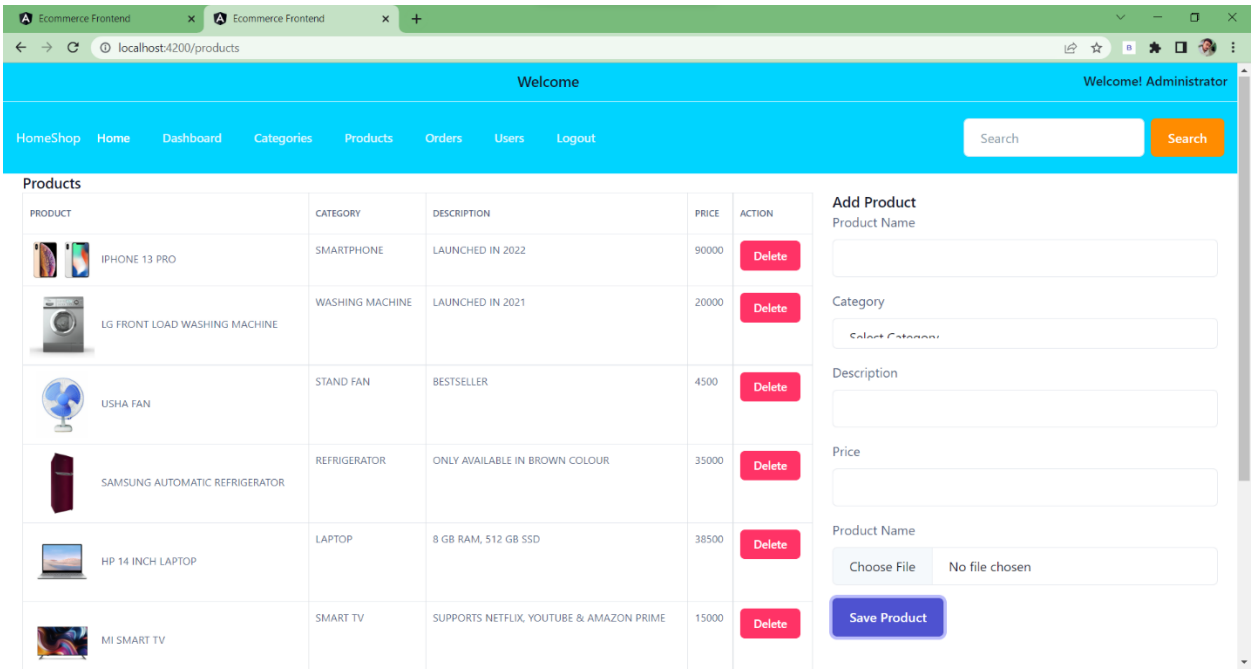
1.Admin Login



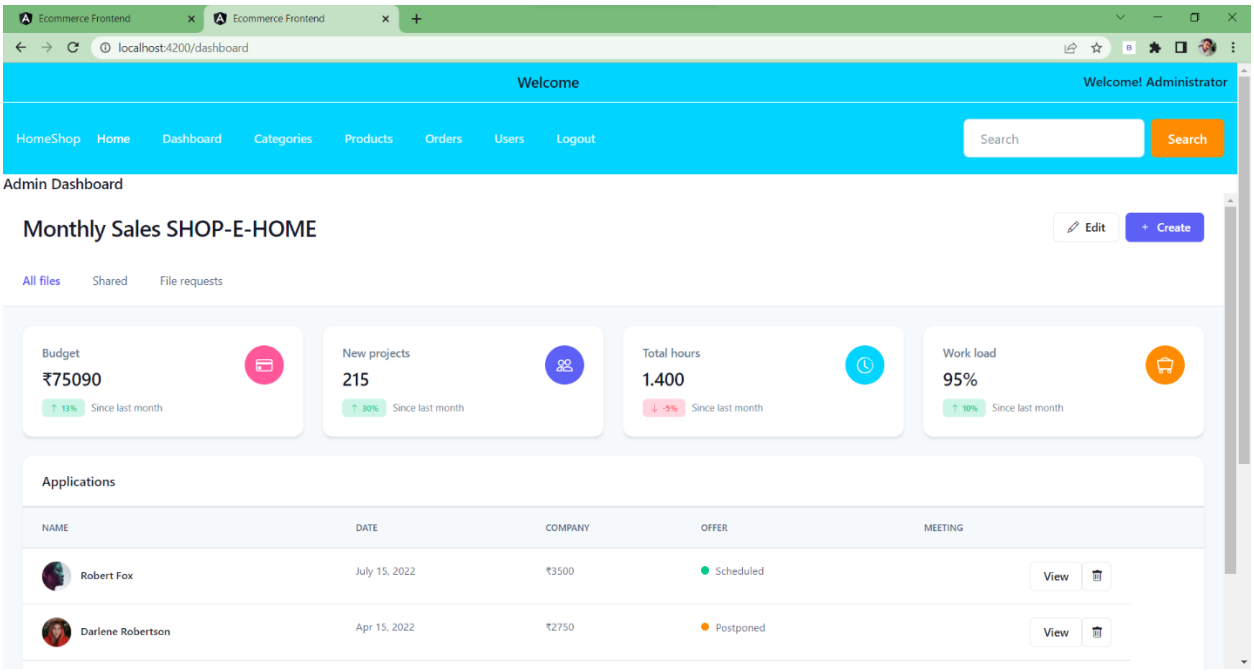
2.Adding Categories



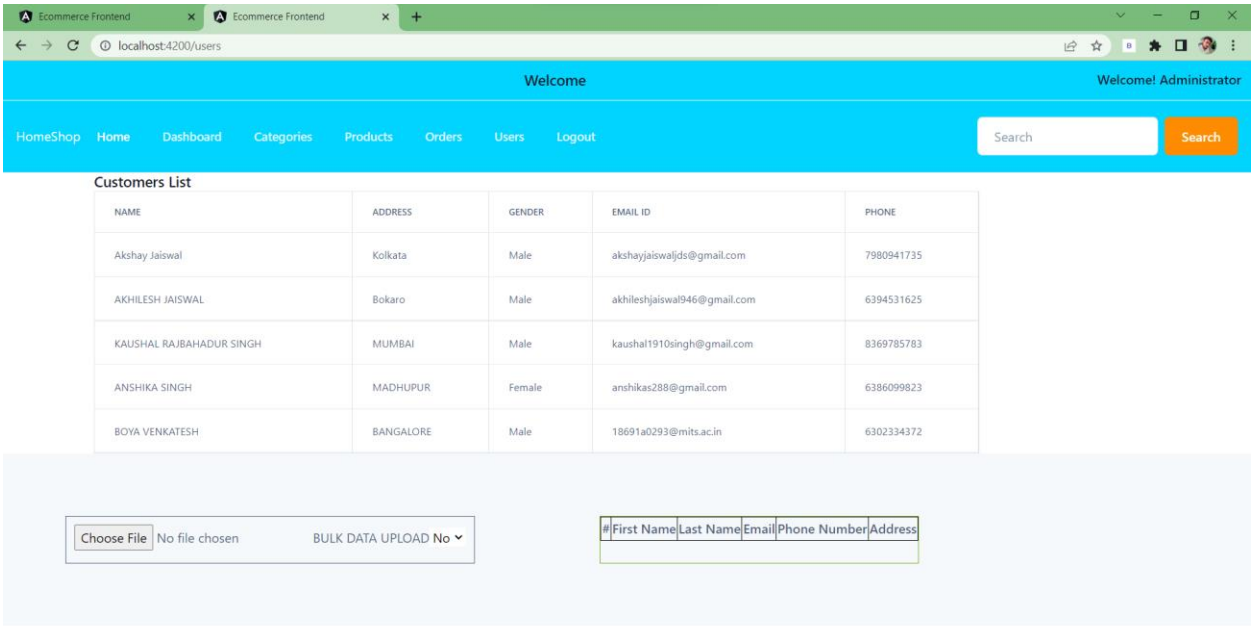
3.Adding Products



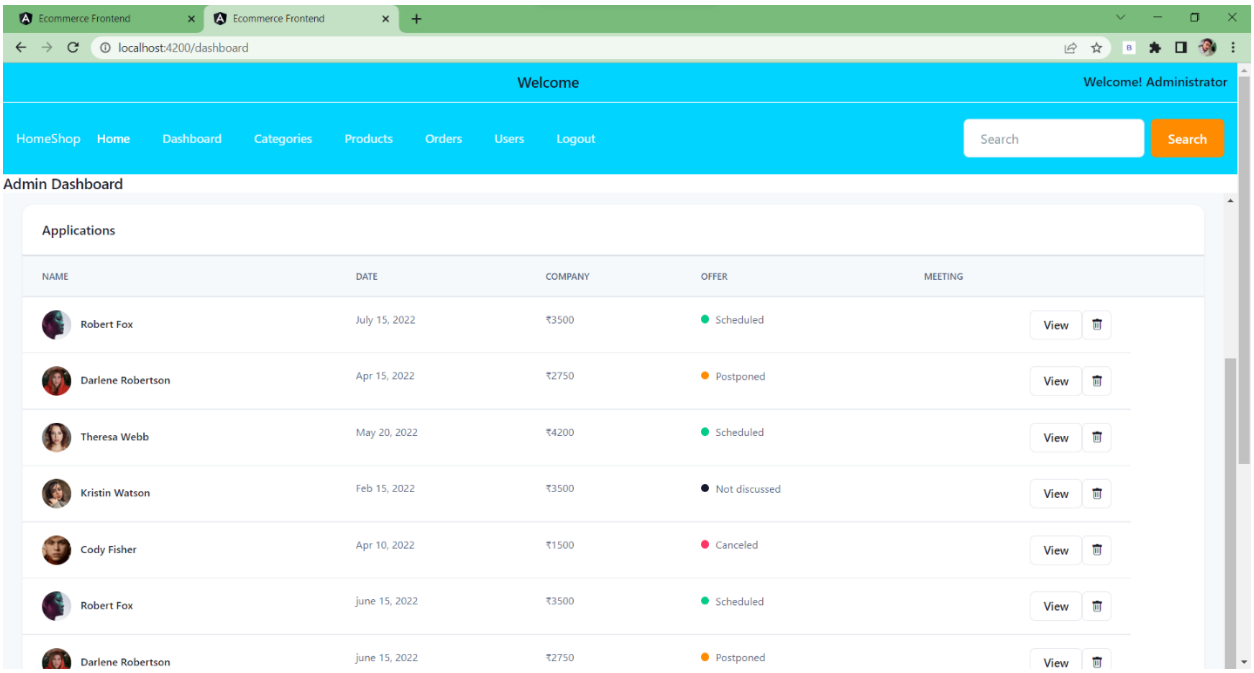
4.Admin Dashboard



5.Customer List



6.Monthly Sales Report



CHAPTER-4

CONCLUSION

4.1 Conclusion

E-Commerce has undeniably become an important part of our society. The successful companies of the future will be those that take E-Commerce seriously, dedicating sufficient resources to its development. E-Commerce is not an IT issue but a whole business undertaking.

Companies that use it as a reason for completely re-designing their business processes are likely to reap the greatest benefits. Moreover, E-Commerce is a helpful technology that gives the consumer access to business and companies all over the world.

4.2 Future Scope

The e-commerce industry saw major traction in 2020. Technology innovation, easy scalability, increased internet penetration and changed user habits due to COVID-19 let the industry improve experiences and compete against brick-and-mortar shops.

Engaging customers directly is top priority for brands, and in this era of widespread awareness and cutthroat competition, the only way to survive is to stay ahead of the curve, identify lagging areas and capture evolving trends at the onset.

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