SHOP FOR HOME - SHOP AT YOUR HOME

CAPSTONE PROJECT REPORT

Submitted in fulfillment of the requirements for the award of the certificate of

Java Full stack Development Course

from

Great Learning (Sponsored by Wipro)

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INTRODUCTION

1.1 MOTIVATION:

The aim of this document to give a brief description about E-Commerce web application using angular, Spring Boot and My sql. The main aim of this project is to build an Ecommercewebsite 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:

This project aims to develop online shopping for customers with the global so that it is very easy to shop your loved things from your extensive number of online shopping sites available on the web .With the help of this you can carry out an online shopping from your home. Here is no compelling reason to go to the crowed stores or shopping centers during festival seasons .You simply require a PC or a laptop and one important payment sending option to shop online

There are 2 users on the application:

- 1. User
- 2. Admin

1.3 SOLUTION:

Hence E – commerce web application came into picture. Where the vendors can sell their products online so that customers don't have to travel during these hard times and the business will be continued to run.

1.4 SCOPE OF THE PROJECT:

One of the biggest reasons for the expansion of eCommerce in India is rapidly advancing Internet services. Today the Internet has reached households located in the most remote locations of the country. Be it villages or a small town, a majority of people have access to Internet services. Online selling and purchasing offer innumerable benefits to both sellers and buyers, and theseadvantages are also the reasons for the rising scope of e-Commerce. As of 2017, the total value of the e-commerce business in India was USD 38.5 billion, according to IBEF, and it is expected to hit USD 200 billion by 2026. That gives us a good idea about the future scopeof e-commerce in India.

1.5 OBJECTIVES:

ShopForHome – Its like a market at your doorstep, you can purchase goods online. You have no need to step out of home that's why its named shop for home. It is a popular Store in the market for shopping the home decor stuff. Due to pandemic all the offline shopping is deeply affected . So, the store wants to move to the online platforms and wants their own web application.

The three main objectives are as follows

- 1. Find the best solution for their needs
- 2. Make a purchase, and
- 3. Get information/answers to their questions

OVERALL DESCRIPTION

2.1 PRODUCT PERSPECTIVE

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

2.2 USER CLASSES AND CHARACTERISTICS

The user should be familiar with the Shopping Mall related terminology like Shopping cart /Checking out/ Transaction etc.

The user should be familiar with the Internet.

2.3 OPERATING ENVIRONMENT

The product will be operating in windows environment. Home décor online shop system is a website and shall operate in all famous browsers, for a model we are talking Microsoft Internet Explorer, Google Chrome and Mozilla Firefox. Also it will be compatible with the IE 6.0. Most of the features will be compatible with the Mozilla Firefox and Opera 7.0 or higher version. The only requirement to use this online product would be the internet connection. The hardware configuration include Hard Disk: 40GB, Monitor: 15 inch Color monitor, Keyboard:122 keys. The basic input devices required are keyboard, mouse and output devices are monitor etc.

2.4 OVERVIEW:

A E-commerce website that allows people to buy and sell physical goods, services, and digital products over the internet rather than at a brick-and-mortar location. Through an e-commerce website, a business can process orders, accept payments, manage shipping and logistics, and provide customer service.

2.5 Must have Features

Here are the top 10 features for an eCommerce website which you should look out for:

Shopping Cart

This is an integral part of any eCommerce store, the <u>shopping cart</u>. This is where your end consumers store their products to continue with the checkout process. A flexible cart allows both the guest user and registered user to checkout. In comparison, the guest checkout does not require the user to sign up on the site, hence making the process faster. The best examples of eCommerce websites shopping carts are <u>Printify</u>, and Flipkart.

• Payment Gateway Integrations

A good eCommerce website gives you the option of integrating with diverse payment gateways by not limiting your choices to a selected few. It is an integral feature of eCommerce websites that can make or break the customer experience. Shiprocket comes with pre-approved payment gateways that you can easily integrate with your online store.

• Order Management

A wholesome order management panel simplifies the merchants' task to get the deed information regarding buyer cancellation, refunds, COD order verification, exchange order status update, and more. The panel helps the merchant manage his order fulfillment and oversee the completion of the same.

Security

This feature is one of the most important feature as it ensures that no crucial data such as credit card information is saved and for all prepaid shipments the checkout is carried out through a secure <u>payment gateway</u>. The passwords are hashed and not stored in a readable format. All web pages should be protected by SSL. The servers are secure and protected using state of the art services.

• Scalable Infrastructure

Your hosting infrastructure should be able to scale as you get more and more traffic. A higher latency leads to drops in transaction rates and leads to loss of marketing dollars. CDN should be used to improve the website's performance and to manage the products online. It also provides excellent uptime, ensuring that the website is readily available everywhere and at any time.

Mobile Compatibility

Great <u>eCommerce websites</u> usually offer three types of solutions for mobile compatibility. First is ensuring that the mobile view is responsive and properly accommodated according to the device. The WAP is a mobile-specific template which optimizes the website in size and generates less loading time. API's for building mobile apps is essential since everyone now likes to browse via phones. It is one of the most relevant features of eCommerce websites as it drives engagement and visits on a relatively large channel.

• Reports & Analytics

The reports should be available as exports which contain detailed information regarding the orders, customer database, and product reports in terms of catalogue. It is quite useful for analyzing the growth of the business. The websites should be pre-integrated with marketing tools and <u>analytics</u> to better market the brand and read reports about the performance of the store.

• Logistics integration

Integrating logistics services allows not only seamless shipping but also ensures that the merchant and the consumer get real time courier updates along with order tracking capability. This allows the user to manage shipments from the same panel instead of approaching the courier partners separately.

• Communications & Regular Updates

Provisions to send and receive timely notifications regarding your orders are available on the panel. This way a merchant can keep his customers informed about the status of the order and receive the same via the system.

• Content Management Systems

Content Management System is used to manage the website content such as, logo, banner, footer links, policies, and <u>products</u> from the back end itself.

2.6 A proportioning of Requirements

As stated by the customer, security is not a concern of this project. As such, it is beyond the scope of this system to encrypt personal user data, encrypt credit card information, prevent unauthorized login attempts, or any other concern of this nature. Additionally, the system is not responsible for the following:

- Verifying that credit card information is valid
- Verifying the email address provided by a user

• Allowing customers to o		of product in a sing	le order
• Providing individual pro			
• Allowing the Admin to	update login credent	ials or other informa	ation about the Admin

SPECIFIC REQUIREMENTS

3.1 FUNCTIONAL REQUIREMENTS

Admin Stories -

- 1. Admin should be able to login, Logout and Register into the application, be able to perform CRUD on Users and products.
- 2. Admin should be able to Perform CRUD on the products.
- 3. Admin should be able to get bulk upload option to upload a csv for products details
- 4. Admin should be able to get the stocks and be able to mail if any stock is less than 10.
- 5. Admin should be able to get the sales report of a specific duration.
- 6. Admin should be able to set the discount coupons for the specific set of users.

User Stories -

- 1. User should be able to login, Logout and Register into the application and able to see the products in different categories.
- 2. User should be able to sort the products and add the products into the shopping cart.
- 3. User should be able to increase or decrease the quantity added in the cart, can be "n" number of products.
- 4. User should be able to get the Wishlist, add those products which don't want to order now
- 5. User should get different discount coupons

3.2 SOFTWARE REQUIREMENTS:

The functional requirements or the overall description documents include the product perspective and features, operating system and operating environment, graphics requirements, design constraints and user documentation.

The appropriation of requirements and implementation constraints gives the general overview of the project in regards to what the areas of strength and deficit are and how to tackle them.

Technologies	Angular, Spring Boot, MySQL	
Languages	Type Script, Java, SQL Queries	

IDE	Eclipse , Vs code, MySQL
Operating System	Windows 8/10/11, Linux distros, MacOSX or later.

3.3 HARDWARE REQUIREMENTS:

Minimum hardware requirements are very dependent on the particular software being developed by a given Enthought Python/ VS Code user. Applications that need to store large arrays/objects in memory will require more RAM, whereas applications that need to perform numerous calculations or tasks more quickly will require a faster processor.

Processor	Processor Speed- 1.5 Ghz and above	
Ram	Minimum 2GB (though 4GB is recommended),	
Hard disk	500 MB ,Preferred Operating System – Windows 8 above	

3.3 ARCHITECTURE

Angular Architecture:

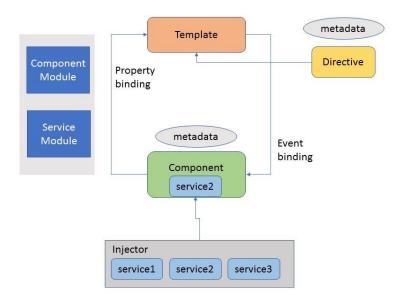


Fig. 3.1 Angular Architecture

There are eight blocks of Angular.

- 1. Module
- 2. Component
- 3. Metadata
- 4. Template
- 5. Data Binding
- 6. Service
- 7. Directive
- 8. Dependency Injection

Spring Boot Architecture:

Spring Boot flow architecture

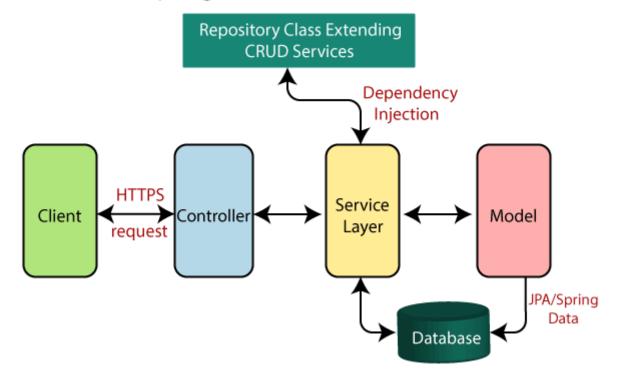


Fig. 3.2 Spring Boot Architecture

The spring boot consists of the following four layers:

- 1. Presentation Layer Authentication & Json Translation
- 2. Business Layer Business Logic, Validation & Authorization
- 3. Persistence Layer Storage Logic
- 4. Database Layer Actual Database

Micro Services Architecture

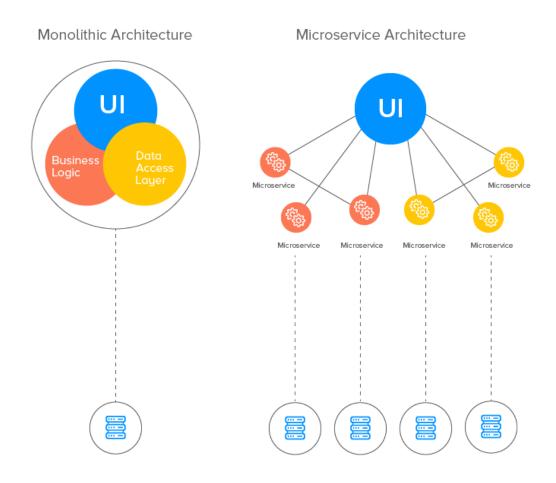
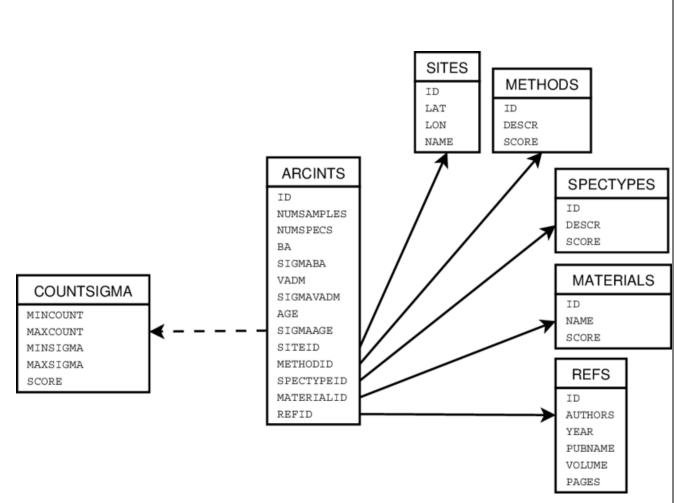


Fig 3.3 Microservices Architecture

Typically, microservices are used to speed up application development. Microservices architectures built using Java are common, especially Spring Boot ones. It's also common to compare microservices versus service-oriented architecture. Both have the same objective, which is to break up monolithic applications into smaller components, but they have different approache



Database Design:

Tables are created for all entities

Entities in the Database include

- 1. Product_category
- 2. Product_info
- 3. Cart
- 4. Users
- 5. Product_in_order
- 6. Order_main

3.3 NON FUNCTIONAL REQUIREMENTS

1. Usability:

Regardless of the size of your business, the website of your business should be easy to use for even a non-technical user. Do you know that a general user takes just 0.05 seconds to figure out whether the website is worth its time or not? Thus you have to give special attention to the design of your homepage, CTAs, and easy checkout to get past those milliseconds of doom. The usability of a website is also defined by:

- How easily a user can achieve their target in a single page visit
- How quickly they can perform tasks in the store
- The memorable & intuitiveness of the design
- Number and types of errors users make

.

2. 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.

3. 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.

4. Security:

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

5. Maintainability:

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.

MODELING REQUIREMENTS

4.1 UML DIAGRAMS:

UML stands for Unified Modeling Language. UML is a standardized general-purpose modeling language in the field of object-oriented software engineering. The standard is managed, and was created by, the Object Management Group.

The goal is for UML to become a common language for creating models of object oriented computer software. In its current form UML comprises two major components: a Metamodel and a notation. In the future, some form of method or process may also be added to; or associated with, UML.

The Unified Modeling Language is a standard language for specifying, Visualization, Constructing and documenting the artifacts of software systems, as well as for business modeling and other non-software systems.

The UML represents a collection of best engineering practices that have proven successful in the modeling of large and complex systems.

The UML is a very important part of developing objects oriented software and the software development process. The UML uses mostly graphical notations to express the design of software projects.

GOALS:

The Primary goals in the design of the UML are as follows:

- 1. Provide users a ready-to-use, expressive visual modeling Language so that they can develop and exchange meaningful models.
- 2. Provide extendibility and specialization mechanisms to extend the core concepts.
- 3. Be independent of particular programming languages and development processes.
- 4. Provide a formal basis for understanding the modeling language.
- 5. Encourage the growth of the tools market.
- 6. Support higher level development concepts such as collaborations, frameworks, patterns and components.

7. Integrate best practice

4.1.1 USE CASE DIAGRAM

A use case diagram in the Unified Modeling Language (UML) is a type of behavioral diagram defined by and created from a Use-case analysis. Its purpose is to present a graphical overview of the functionality provided by a system in terms of actors, their goals (represented as use cases), and any dependencies between those use cases.

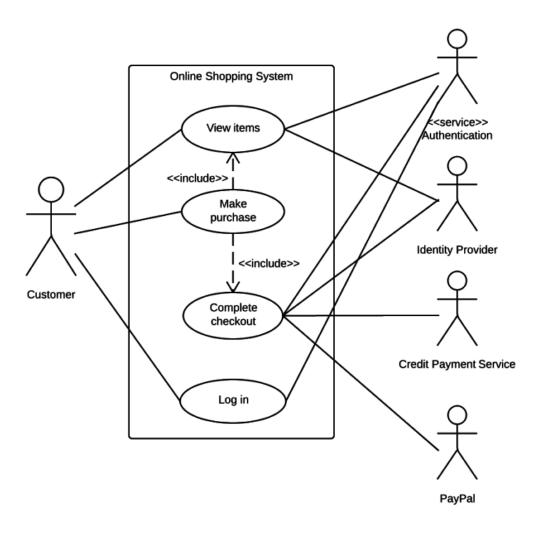
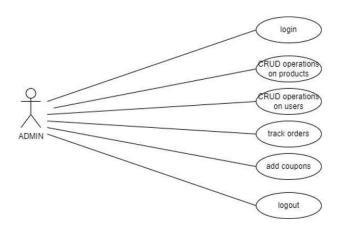


Fig. 4.1 Use Case Diagram



Admin Functionality

4.1.2 CLASS DIAGRAM

The class diagram is used to refine the use case diagram and define a detailed design of the system. The class diagram classifies the actors defined in the use case diagram into a set of interrelated classes. The relationship or association between the classes can be either an "isa" or "has-a" relationship. Each class in the class diagram may be capable of providing certain functionalities. These functionalities provided by the class are termed "methods" of the class. Apart from this, each class may have certain "attributes" that uniquely identify the class

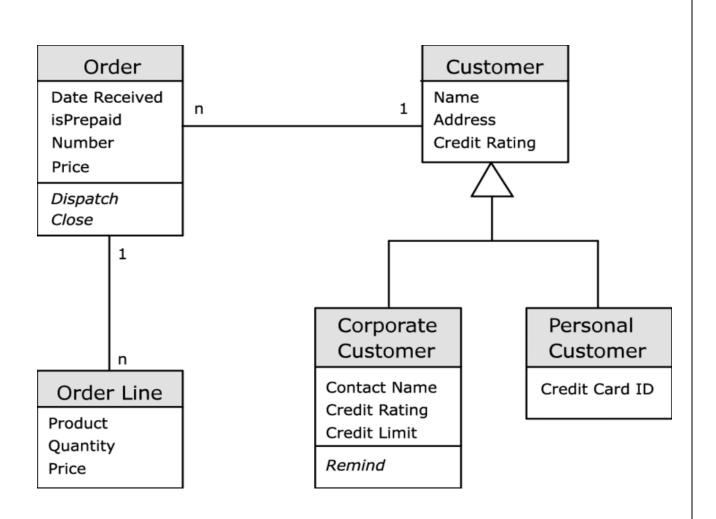


Fig. 4.2 Class Diagram

4.1.3 STATE CHART DIAGRAM

A state diagram, as the name suggests, represents the different states that objects in the system undergo during their life cycle. Objects in the system change states in response to events. In addition to this, a state diagram also captures the transition of the object's state from an initial state to a final state in response to events affecting the system.

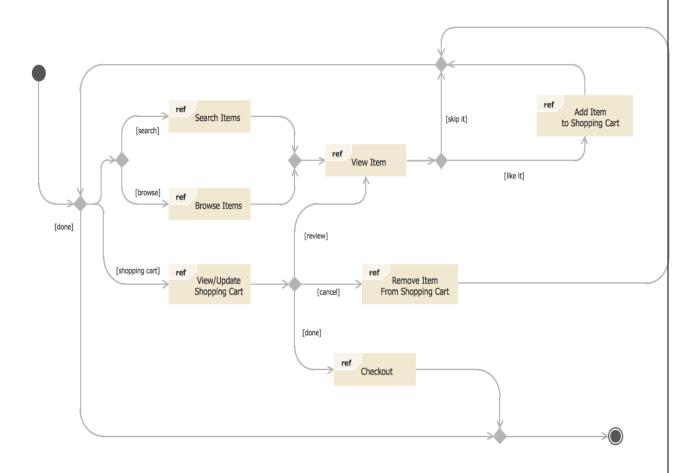


Fig. 4.3 State Chart Diagram

4.1.4 ACTIVITY DIAGRAM:

The process flows in the system are captured in the activity diagram. Similar to a state diagram, an activity diagram also consists of activities, actions, transitions, initial and final states, and guard conditions.

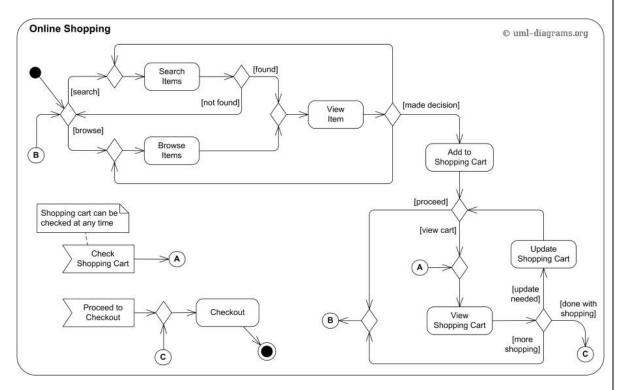


Fig. 4.4 Activity Diagram

4.1.5 SEQUENCE DIAGRAM:

A sequence diagram represents the interaction between different objects in the system. The important aspect of a sequence diagram is that it is time-ordered. This means that the exact sequence of the interactions between the objects is represented step by step. Different objects in the sequence diagram interact with each other by passing "messages"

Purchase Browse Item Credit Card Checkout Interface DB Interface Authorization Customer queryItems selectItems purchase <u>getSelectedItems</u> displaySelectedItems displayPriceInfo authorizePurchase I authorizeCredit immediateNotification sendEmail

Fig. 4.5 Sequence Diagram

4.3 DATA FLOW DIAGRAM

The flow chart diagram is a special kind of class diagram. The flow chart diagram depicts the flow of the process or algorithm using a set of symbols. The flow chart diagram is a pictorial representation of the algorithm or working of the algorithm.

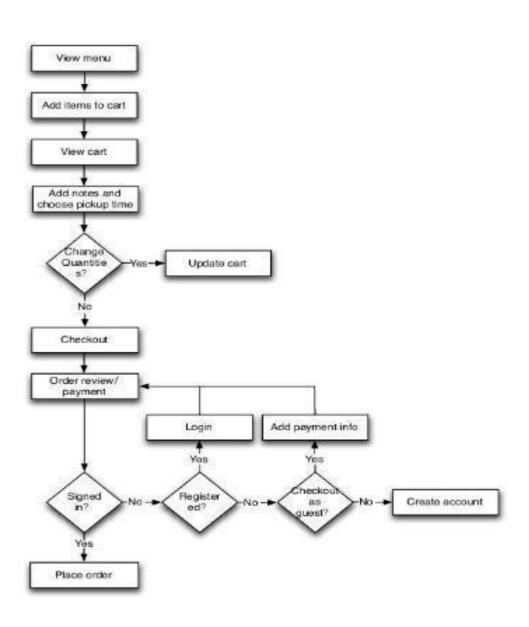


Fig 4.6 Data Flow Diagram

5. 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.

5.1 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. Micro services
- 5. Hibernate
- 6. MySQL
- 7. Maven

Front-end

- 1. Angular
- 2. Bootstrap

5.2 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 Front End code path -> opencmd
 - Eg -> {local path}\ecommerce-eshop \frontend
- 3. Run this command -- code.

- 4. Run Npm install from vs code terminal
- 5. Run npm start
- 6. After the successful compiling you got this link in terminal localhost/4200.
- 7. Open this link in google chrome

Database

- 1. Install postgres SQL or MySQL Workbench.
- 2. After installation in your computer
- 3. Open that MySQL
- 4. Open this query editor and You can run the querry from sql file.
- 5. Run the query

RESULT AND DISCUSSION

FRONT END SCREENSHOTS

FRONT END STRUCTURE:

VS Code page

SIGN IN PAGE:



Sign in page

CART PAGES:

Carefully created collections

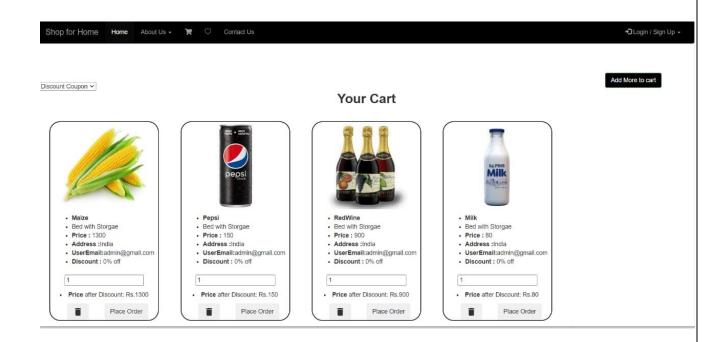
Browse our categories

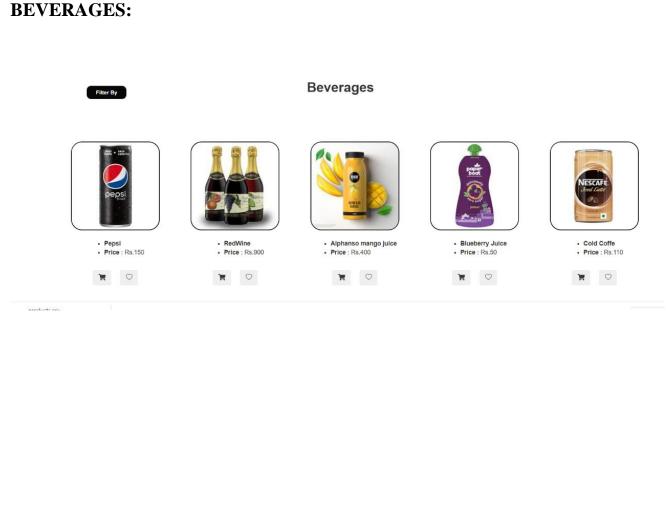




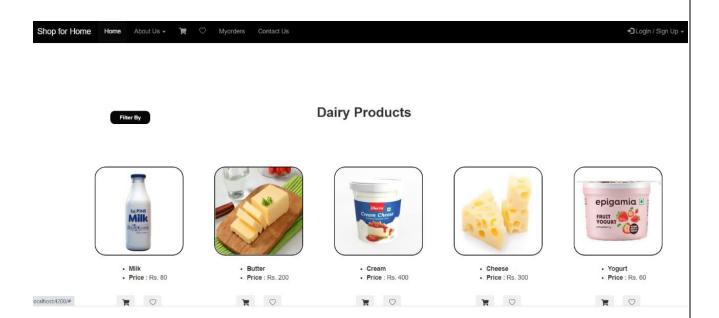


Beverages Cereals Dairy Products

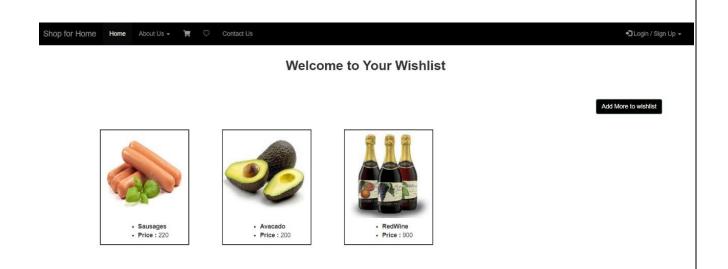




DAIRY PRODUCTS:

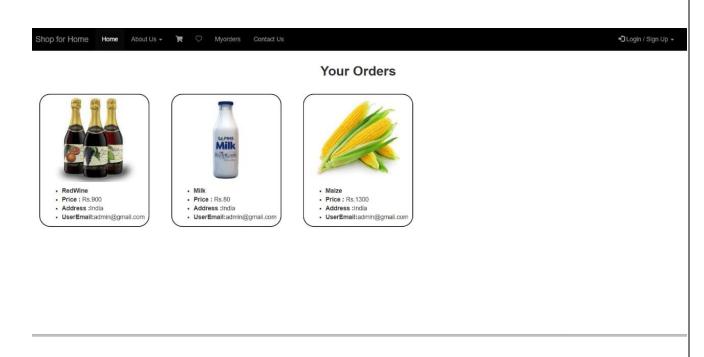


WISH LIST:

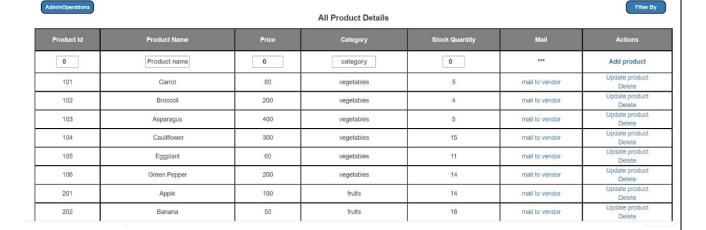


YOUR WISH LIST:

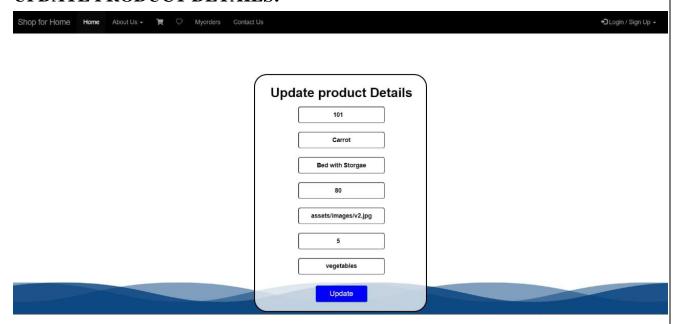
ORDER PAGE:



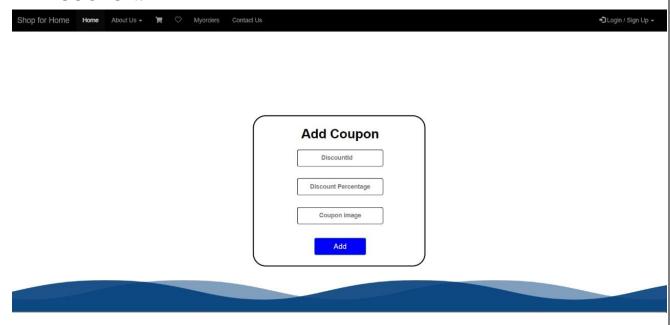
ALL PRODUCT DETAILS:



UPDATE PRODUCT DETAILS:



ADD COUPON:



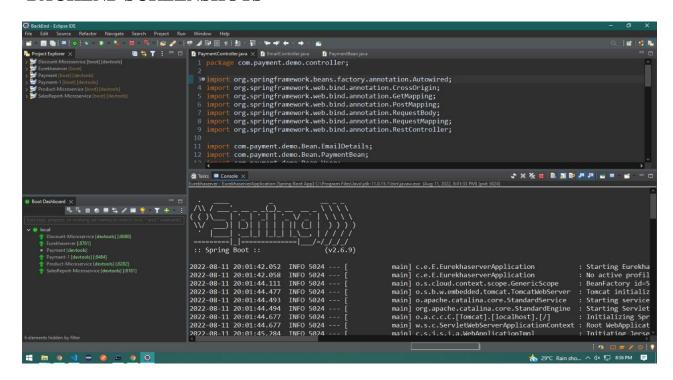
SALES REPORT PAGE:



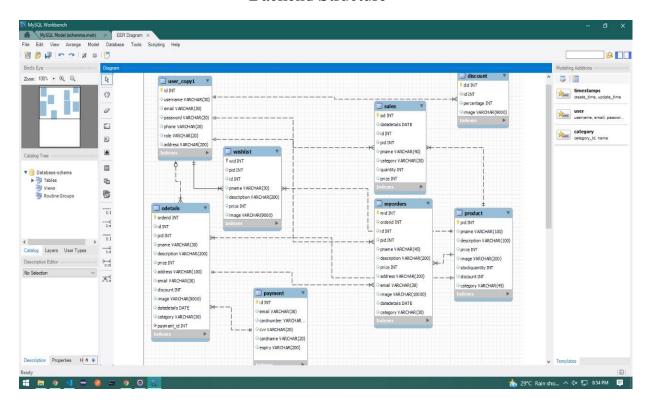
Date	Userid	Productid	Product Name	Category	Total Price
Date	Useria	Froductid	Froduct Name	Category	Iotal Frice
2022-08-11	1	702	RedWine	Beverages	900
2022-08-11	1	701	Pepsi	Beverages	150
2022-08-11	1	806	Millet	Cereals	1500
2022-08-11	1	905	Yogurt	Dairy Products	60
2022-08-11	1	801	Rice	Cereals	1200
2022-08-11	1	705	Cold Coffe	Beverages	110
2022-08-11	1	805	Wheat	Cereals	1100
2022-08-11	1	902	Butter	Dairy Products	200
2022-08-11	1	802	Maize	Cereals	1300
2022-08-11	1	704	Blueberry Juice	Beverages	50
			3	- %	6570

Discount Id	Discount Image	Discount percentage	Add to user by using userid
11	DISCOUNT	30%	0 Add to user Delete
12	DISCOUNT 20%	20%	Add to user Delete
13		10%	0 Add to user Delete
14	25% piscourt	25%	0 Add to user Delete
15	Bug Sale	40%	0 Add to user Delete

BACKEND SCREENSHOTS



Backend Structure



Database Schema

CONCLUSION AND FUTURE ENHANCEMENTS

8.1 CONCLUSION:

The existence of electronic commerce has changed the ways and manners we conduct business and carryout transactions. Globalization of ecommerce is widely embraced by both organizations and consumers; our marketplace is more efficient, reliable and more accountable than the way it use to be before the exiting of electronic commerce. The world is coming to be one marketplace by building a strong network opportunity with the use of electronic commerce .Electronic commerce is the only online activities drive and crease efficient economy around the world, is free market systems who has free entry and exit everyone at the marketplace have equal right to the product and services with electronic commerce. In this model world, the economy depends on business and business depends on consumer to drive the goods and services and move the economy forward. Electronic commerce enhances and promotes business to business transactions include consumer to consumer relations for greater services and organizations productivity.

8.2 FUTURE ENHANCEMENTS:

The scope of e-commerce in India bloomed during the pandemic. This success can also be the result of increased internet use among our generation. The soaring popularity of e-commerce websites can be rightly called a 'positive impact of covid-19 on e-commerce. Some of the most successful e-commerce business 2022 are Amazon, Flipkart, etc. One of the biggest benefits of e-commerce to business is that an e-commerce website makes it easy to sell products to a larger audience, no matter where their physical location is. India has shown rapid growth in the eCommerce sector. It is now brimming with job opportunities and service providers

GITLAB LINK -

https://gitlab.com/Group0025/capsotone_project/-/blob/main/Great_Learning_group-25.zip

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