#### 1. INTRODUCTION TO PROJECT GR-Mart

This project is a web-based grocery shopping system for an existing shop. An Online Shopping Management System where the Admin can Add, Update and Delete the Categories and Products. The Products are divided into various categories like Grains, Oils and solids, Biscuits , Vegetables etc. A user can select a particular item to view the details, choose the number of items and fill in details like Name, Address etc. to buy a product the project objective is to deliver the online grocery shopping application into web platform. Online Grocery shopping is the process whereby consumers directly buy goods or services from a seller in real-time, without an intermediary service, over the Internet. It is a form of electronic commerce. This project is attempts provide the advantages of online Grocery shopping to customers of a real shop. It helps buying the products in the shop anywhere through internet by using any android device. Thus, the customer will get the service of online shopping and home delivery from his favorite shop. The objective of the project is to make a web application to enable any thin client to purchase items in an existing shop. In order to build such an application complete web support, need to be provided. A complete and efficient web application which can provide the online shopping experience is the basic objective of the project. The web application can be implemented in the form of an application with web view.

#### Features:-

- 1. Products Available-Biscuits, Vegetables, Juices
- 2. Search for groceries (Rice, Lintels) products easily
- 3. Category of Products- Grains, Bakery, Vegetables, Biscuits
- 4. Cart feature
- 5. Date and time of product delivery will be notified by the system
- 6. The admin can add/delete Suppliers and delivery Persons.
- 7. Allows the customers to maintain cart

#### PROJECT OBJECTIVE

The objective of the project is to make an web application to purchase items in an existing shop. In order to build such an application complete web support, need to be provided. A complete and efficient web application which can provide the online shopping experience is the basic objective of the project. The web application can be implemented in the form of an android application with web view.

#### **PROJECT OVERVIEW**

The central concept of the application is to allow the customer to shop virtually using the internet and allow customers to buy the items and articles of their desire from the store. The information pertaining to the products are stores on an RDBMS at the server side (store). The server processes the customers, and the items are shipped to the address submitted by them.

The application was designed into two modules first is for the customers who wish to buy the articles. Second is for the storekeepers who maintains and updates the information pertaining to the articles and those of this product is a departmental store where the application is hosted on the web and the administrator maintains the database. The application, which is deploy the customer database, the details of the items are brought forward from the database for the customer view based on the selection through the menu and the database of all the products are updated at the end of each transaction. Data entry into the application can be done through various screens designed for various levels of users. Once the authorized personal feed the relevant data into the system, several reports could be generated as per the security.

#### PROJECT SCOPE

This system can be implemented to any shop in the locality or to multinational branded shops having retail outlet chains. The system recommends a facility to accept the orders 24X7 and a home delivery system which can make customers happy. If shops are providing an online portal where their customers can enjoy easy shopping from anywhere, the shops won't be losing any more customers to the trending online shops such as BlinkIt or BigBasket. Since the application is always available.

#### 2. SYSTEM ANALYSIS

System analysis is the process of gathering and interpreting facts, diagnosing problems, and using the information to recommend improvements on the system. System analysis is a problem-solving activity that requires intensive communication between the system users and system developers. System analysis or study is an important phase of any system development process. The system is viewed as a whole, the inputs are identified, and the system is subjected to close study to identify the problem areas. The solutions are given as a proposal. The proposal is reviewed on user request and suitable changes are made. This loop ends as soon as the user is satisfied with the proposal.

#### 2.1 EXISTING SYSTEM

The current system for shopping is to visit the shop manually and from the available product choose the item customer want and buying the item by payment of the price of the item.

- It is less user-friendly.
- User must go to shop and select products.
- It is difficult to identify the required product.
- Description of the product limited.
- It is a time-consuming process
- Not in reach of distant users.

#### 2.2 PROPOSED SYSTEM

In the proposed system customer need not go to the shop for buying the products. He can order the product he wish to buy through the application in his Smartphone. The shop owner will be admin of the system. Shop owner can appoint moderators who will help owner in managing the customers and product orders. The system also recommends a home delivery system for the purchased products.

#### 2.3 SYSTEM REQUIREMENT SPECIFICATION

#### 2.3.1 GENERAL DESCRIPTION

### **Product Description:**

The system consists of two parts. A web application which can provide the online shopping service for the customer to access the web service from his Smartphone/System. Web application should be able to help the customer for selecting his item and to help the owner in managing the orders from the customers.

#### **Problem Statement:**

As online shopping became a trend nowadays the regular shops are losing their customers to online brands. Customers have effortless shopping experience and saving time through shopping online. For competing with those online brands, if shops are providing an online portal where their customers can shop through internet and get the products at their doors it will increase the number of customers

#### 2.3.2 SYSTEM OBJECTIVES

- > To provide a Web application for online shopping of products in an existing shop.
- ➤ To provide an online shopping web site for the same shop.

#### 2.3.3 SYSTEM REQUIREMENTS

#### 2.REQUIREMENTS

#### 2.3.3.2 FUNCTIONAL REQUIREMENTS

#### **USER**

#### > USER LOGIN

Description of feature This feature used by the user to login into system. A user must login with his username and password to the system after registration. If they are invalid, the user not allowed to enter the system.

#### **Functional Requirement**

- Username and password will be provided after user registration is confirmed.
- Password should be hidden from others while typing it in the field

#### > REGISTER NEW USER

Description of feature A new user will have to register in the system by providing essential details in order to view the products in the system. The admin must accept new user by unblocking him.

#### **Functional Requirement**

- System must be able to verify and validate information
- The system must encrypt the password of the customer to provide security.

#### > PURCHASING AN ITEM

Description of feature The user can add the desired product into his cart by clicking add to cart option on the product. He can view his cart by clicking on the cart button. All products added by cart can be viewed in the cart. User can remove an item from the cart by clicking remove. After confirming the items in the cart, the user can submit the cart by providing a delivery address. On successful submitting the cart will become empty.

#### **Functional Requirement**

- System must ensure that, only a registered customer can purchase items.
- Admin account should be secured so that only owner of the shop can access that account.

#### **MODERATOR**

#### **Description of features**

A moderator is considered as a staff who can manage orders for the time being. As a future update moderator may give facility to add and manage his own products. Moderators can reduce the workload of admin. Now moderator has all the privilege of an admin having except managing other moderators. He can manage users and manage products. He can also check the orders and edit his profile.

#### **Functional Requirement**

• The system must identify the login of a moderator.

#### **ADMIN**

#### > MANAGE USER

#### **Description of features**

The administrator can add user, delete user, view user and block user.

#### > MANAGE MODERATOR

#### **Description of features**

The administrator can add moderator, delete moderator, block moderator and search for a moderator.

#### > MANAGE PRODUCTS

#### **Description of features**

The administrator can add product, delete product, and view product

#### > MANAGE ORDER

#### **Description of features**

The administrator can view orders and delete orders.

#### **Functional Requirements:**

- The system must identify the login of the admin.
- Admin account should be secured so that only owner of the shop can access that account.

#### **MODERATOR**

#### **Description of features**

A moderator is considered as a staff who can manage orders for the time being. As a future update moderator may give facility to add and manage his own products. Moderators can reduce the workload of admin. Now moderator has all the privilege of an admin having except managing other moderators. He can manage users and manage products. He can also check the orders and edit his profile.

#### **Functional Requirement**

• The system must identify the login of a moderator.

### 2.3.3.1 NON-FUNCTIONAL REQUIREMENTS

#### i. EFFICIENCY REQUIREMENT

When an online shopping cart android application implemented customer can purchase product in an efficient manner.

#### ii. RELIABILITY REQUIREMENT

The system should provide a reliable environment to both customers and owner. All orders should be reaching at the admin without any errors.

#### iii. USABILITY REQUIREMENT

The Web application is designed for user friendly environment and ease of use.

#### iv. IMPLEMENTATION REQUIREMENT

Implementation of the system using React in front end with Spring Boot as back end and it will be used for database connectivity. And the database part is developed by MySQL. Responsive web designing is used for making the website compatible for any type of screen.

#### v. DELIVERY REQUIREMENT

The whole system is expected to be delivered in four months of time with a weekly Evaluation by the project guide.

#### 3. DESIGN

## **SYSTEM DESIGN**

System design is the solution for the creation of a new system. This phase focuses on the detailed implementation of the feasible system. Its emphasis on translating design. Specifications to performance specification. System design has two phases of development.

#### **➤** Logical Design

## > Physical Design

During logical design phase the analyst describes inputs (sources), outputs(destinations), databases (data sores) and procedures (data flows) all in a format that meets the user requirements. The analyst also specifies the needs of the user at a level that virtually determines the information flow in and out of the system and the data resources. Here the logical design is done through data flow diagrams and database design. The physical design is followed by physical design or coding. Physical design produces the working system by defining the design specifications, which specify exactly what the candidate system must do. The programmers write the necessary programs that accept input from the user, perform necessary processing on accepted data and produce the required report on a hard copy or display it on the screen.

#### 3.1 INPUT AND OUTPUT DESIGN

#### 3.1.1 INPUT DESIGN:

Input design is the link that ties the information system into the world of its users. The input design involves determining the inputs, validating the data, minimizing the data entry and provides a multi-user facility. Inaccurate inputs are the most common cause of errors in data processing. Errors entered by the data entry operators can be controlled by input design. The user-originated inputs are converted to a computer-based format in the input design. Input data are collected and organized into groups of similar data. Once identified, the appropriate input media are selected for processing. All the input data are validated and if any data violates any conditions, the user is warned by a message. If the data satisfies all the conditions, it is transferred to the appropriate tables in the database. In this project the student details are to be entered at the time of registration. A page is designed for this purpose which is user friendly and easy to use. The design is done such that users get appropriate messages when exceptions occur.

#### 3.1.2 OUTPUT DESIGN:

Computer output is the most important and direct source of information to the user. Output design is a very important phase since the output needs to be in an efficient manner. Efficient and intelligible output design improves the system relationship with the user and helps in decision making. Allowing the user to view the sample screen is important because the user is the ultimate judge of the quality of output. The output module of this system is the selected notifications.

#### 3.2 DATABASE DESIGN

Databases are the storehouses of data used in the software systems. The data is stored in tables inside the database. Several tables are created for the manipulation of the data for the system.

Two essential settings for a database are

- **Primary key** the field that is unique for all the record occurrences
- **Foreign key** the field used to set relation between tables Normalization is a technique to avoid redundancy in the tables.

#### 3.3 SYSTEM TOOLS

The various system tools that have been used in developing both the front end and the back end of the project are being discussed in this chapter.

#### **3.3.1 FRONT END:**

React is a library which is developed by Facebook are utilized to implement the frontend. React (also known as React.js or ReactJS) is a free and open-source front-end JavaScript library for building user interfaces or UI components. It is maintained by Facebook and a community of individual developers and companies. React can be used as a base in the development of single page or mobile applications. However, React is only concerned with state management and rendering that state to the DOM, so creating React applications usually requires the use of additional libraries for routing, as well as certain client-side functionality.

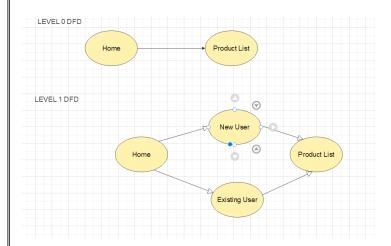
#### **3.3.2 BACKEND:**

The back end is implemented using MySQL which is used to design databases. **MySQL**: MySQL is the world's second most widely used open-source relational database management system (RDBMS). The SQL phrase stands for Structured Query Language. An application software called Navicert was used to design the tables in MySQL.

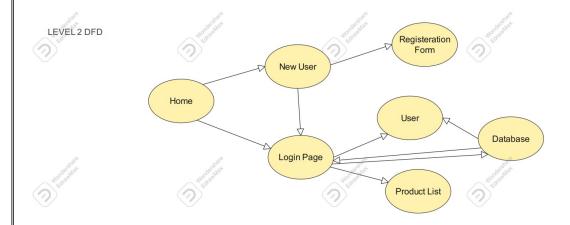
#### **Spring-Boot**:

This is used to connect MYSQL and fetch data from database and store the data in database. The Spring Framework is an application framework and inversion of control container for the Java platform. The framework's core features can be used by any Java application, but there are extensions for building web applications on top of the Java EE (Enterprise Edition) platform. Although the framework does not impose any specific programming model, it has become popular in the Java community as an addition to the Enterprise JavaBeans (EJB) model. The Spring Framework is Open-source Framework.

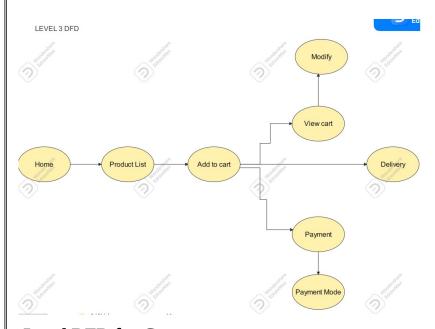
#### DFD Level 0:



## **DFD LEVEL 2**



## **DFD LEVEL 3**



**Level DFD for Customer** 

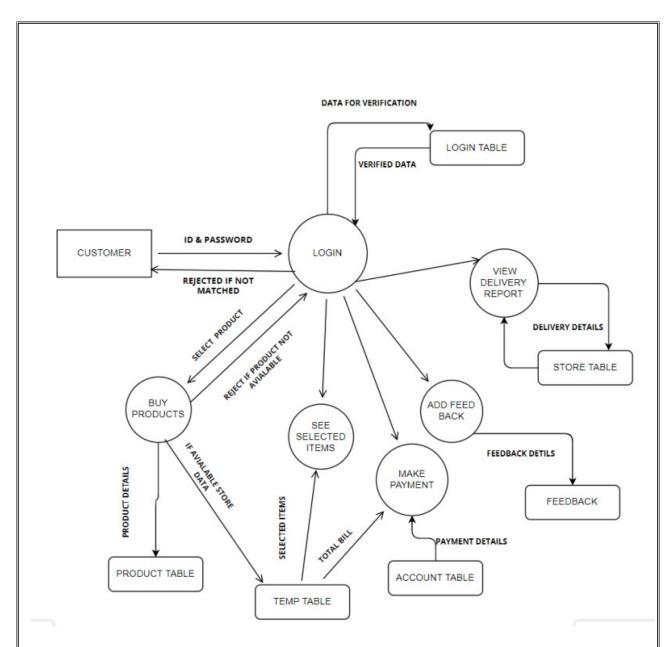
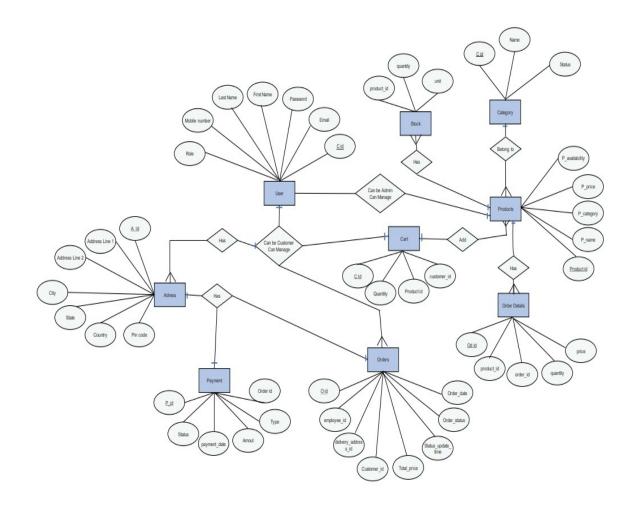
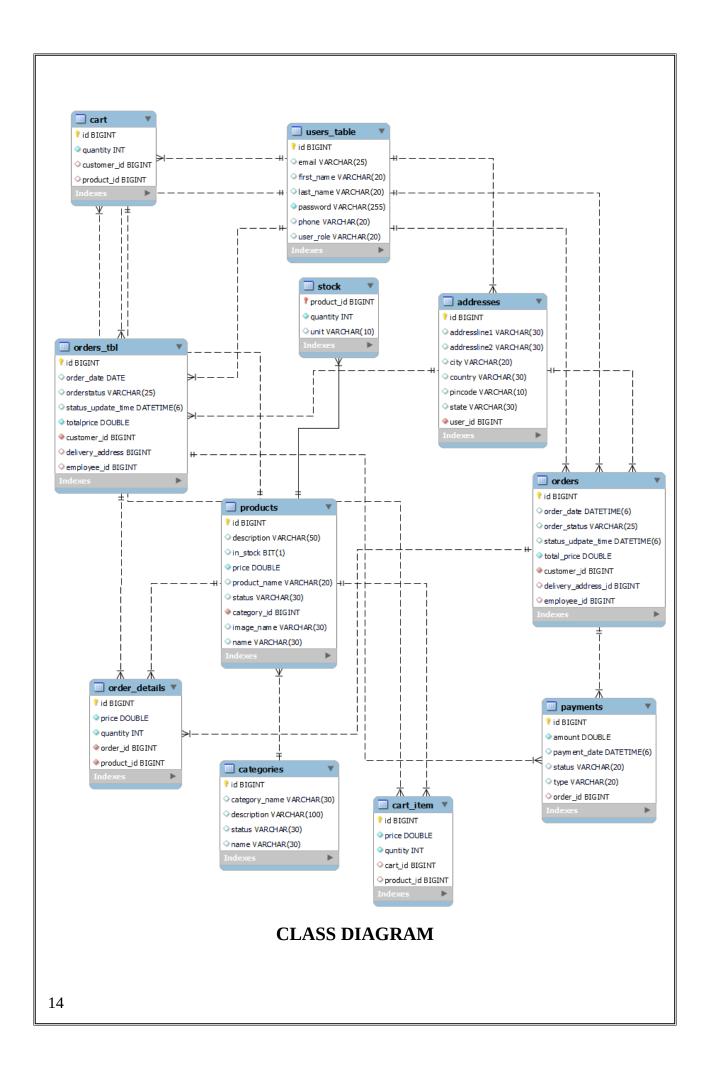
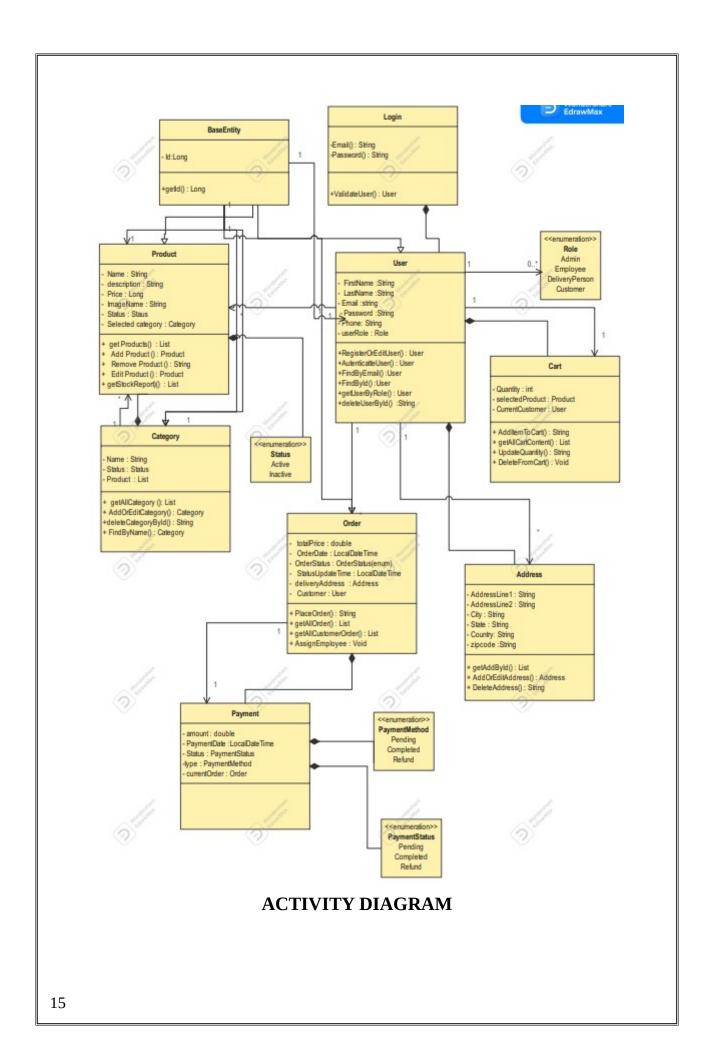


Figure 6 1 Level DFD for CUSTOMER

## E – R DIAGRAM







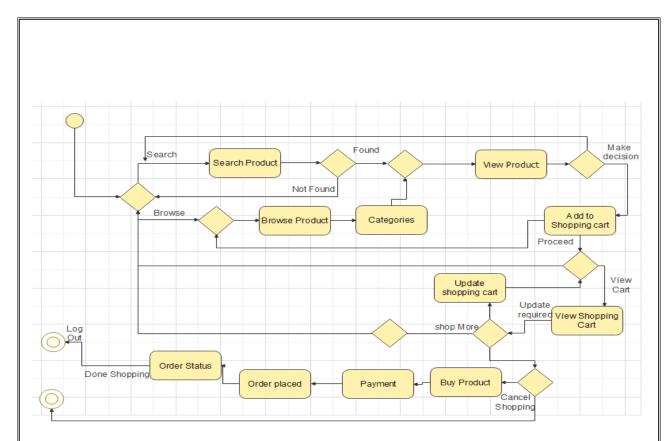


Figure : Activity Diagram

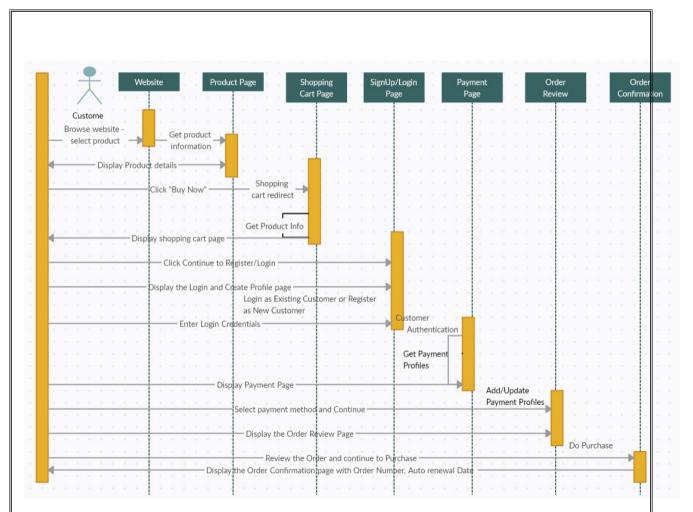


Figure : Sequence Diagram

### TABLE STRUCTURE

Database: **grmart** 

## 1)List of Tables:

mysql> use grmart

Reading table information for completion of table and column names You can turn off this feature to get a quicker startup with -A

Database changed mysql> show tables;

9 rows in set (0.00 sec)

## 2) Category Table:

mysql> desc categories;

Field	Туре	Null	Key	Default	+
id	int	N0	PRI	NULL	auto_increment
name	varchar(30)	YES		NULL	
status	varchar(30)	YES		NULL	

3 rows in set (0.00 sec)

## 3)Products Table:

mysql> desc products;

L	<u> </u>	<b>L</b>	4 4		L	L	ı
	Field	Туре	Null	Key	Default	Extra	
	id   description   image_name   name   price   status   category_id	int varchar(100) varchar(40) varchar(30) double varchar(30) int	N0   YES   YES   YES   N0   YES   N0	PRI MUL	NULL NULL NULL NULL NULL NULL NULL	auto_increment	.

7 rows in set (0.00 sec)

## 4)Cart Table:

mysql> desc cart;

Field	Type	Null	Key	Default	++   Extra
·	int   int   int   int	N0   N0   YES   YES	PRI     MUL   MUL	NULL NULL NULL NULL	auto_increment       

<sup>4</sup> rows in set (0.00 sec)

## 5) Orders Table:

mysql> desc orders;

		L			L	L	ı
Fie	eld	Туре	Null	Key	Default	Extra	ļ
ord sta tot cus del	der_date der_status atus_update_date :al_price stomer_id .ivery_address_id loyee_id	int   datetime(6)   varchar(25)   datetime(6)   double   int   int	N0   YES   YES   YES   N0   N0   YES   YES	PRI           MUL   MUL	NULL NULL NULL NULL NULL NULL NULL NULL	auto_increment	

<sup>8</sup> rows in set (0.00 sec)

# 6) Order\_details Table:

mysql> desc order details;

<u>.                                    </u>				L	+	L
Field	Type	Null	Key	Default	•	
id   price   quantity	int   double   int   int   int	NO   NO   NO   NO   NO	PRI       MUL   MUL	NULL NULL NULL NULL	auto_increment       	

<sup>5</sup> rows in set (0.00 sec)

# 7) Payments table:

### mysql> desc payments;

Field	Туре	Null	Key	Default	Extra
id   amount   payment_date   status   type   order_id	int   double   datetime(6)   varchar(12)   varchar(12)   int	YES	PRI           MUL	NULL NULL NULL NULL NULL NULL	auto_increment       

6 rows in set (0.01 sec)

## 8) Stock table:

mysql> desc stock;

li		Null	Key	Default	Extra
product_id   quantity	int	NO NO	PRI	'	

3 rows in set (0.00 sec)

# 9) Users table:

mysql> desc users;

+	Type	+   Nu11	+   Kev	⊦   Default	+   Extra
÷		+	+		<del>-</del>
id     email	int varchar(30)	NO   YES	PRI   UNI	NULL   NULL	auto_increment   
first_name	varchar(30)	YES		NULL	
last_name     password	varchar(30) varchar(255)	YES   NO	 	NULL   NULL	
phone	varchar(15)	YES		NULL	
role	varchar(255)	YES +	 +	NULL 	 
7 rows in set	(0.00 sec)				

## 10)Addresses table:

mysql> desc addresses;

Field	Type	Null	Key	Default	Extra
id   address_line1   address_line2   city   country   pin_code   state   user_id		NO   YES   YES   YES   YES   YES   YES	PRI	NULL NULL NULL NULL NULL NULL NULL NULL	auto_increment               

8 rows in set (0.00 sec)

## 11)User table testing via Junit Test:

mysql> drop database grmart; Query OK, 9 rows affected (0.08 sec)

mysql> use grmart;

Reading table information for completion of table and column names You can turn off this feature to get a quicker startup with -A

Database changed mysql> select \* from users;

i	d   email	first_name	last_name	password	phone	role
	l   abhay@gmail.com	Abhay	Krishna	\$2a\$10\$TuvX2Suo600m24pXFvs4tul79iroA18XEAUsbhiBZlHSbbfvf07Ni	8765204921	ADMIN
	2   pratik@gmail.com	Pratik	Mohite	\$2a\$10\$0ubU8.Y/EPG2ANdyNwGmZeKuovUVnpVP8QfmBBpwR.fmNvELpm6Zi	888746486	ADMIN
	3   mayuresh@gmail.com	Mayuresh	Kholekar	\$2a\$10\$VS7KGFMgFqyCxALEbl5XwO.uEnBbA9lwENBYrbTpXnxlPfLGauZ9i	999753548	ADMIN

3 rows in set (0.00 sec)

## 12) Categories table testing via Junit Test:

mysql> drop database grmart; Query OK, 9 rows affected (0.08 sec)

Reading table information for completion of table and column names You can turn off this feature to get a quicker startup with -A

Database changed mysql> select \* from users;

		1			+	_		4		_
id	email	i	first_name	last_name	•	İ	phone	i	role	i
1   2	abhay@gmail.com pratik@gmail.com mayuresh@gmail.com	İ	Abhay Pratik	Krishna   Mohite   Kholekar	\$2a\$10\$TuvX2Suo600m24pXFvs4tul79iroA18XEAUsbhiBZlHSbbfvf07Ni   \$2a\$10\$0ubU8.Y/EPG2ANdyNwGmZeKuovUVnpVP8QfmBBpwR.fmNvELpm6Zi   \$2a\$10\$VS7kGFMgFqyCxALEbl5XwO.uEnBbA9lwENBYrbTpXnxlPfLGauZ9i	İ	8765204921 888746486	İ	ADMIN ADMIN ADMIN	İ

3 rows in set (0.00 sec)

mysql> select \* from categories;

		+	
l	id	name	status
+		+	+
ı	1	Grains	ACTIVE
Ĺ	2	Biscuit	ACTIVE

2 rows in set (0.00 sec)

## 4. CODING STANDARDS IMPLEMENTED

## **Naming and Capitalization**

Below summarizes the naming recommendations for identifiers in Pascal casing is used mainly (i.e. capitalize first letter of each word) with camel casing (capitalize each word except for the first one) being used in certain circumstances.

Identifier	Case	Examples	Additional Notes	
Class	Pascal	Person, BankVault,	Class names should be based on "objects" or "real	
		SMSMessage,	things" and should generally be <b>nouns</b> . No '_' signs	
		Dept	allowed. Do not use type prefixes like 'C' for class.	
Method	Camel	getDetails,	Methods should use <b>verbs</b> or verb phrases.	
Method		updateStore	Wiethous should use <b>verbs</b> of verb philases.	
	Camel		Use descriptive parameter names. Parameter names	
Parameter		personName,	should be descriptive enough that the name of the	
Parameter		bankCode	parameter and its type can be used to determine its	
			meaning in most scenarios.	
Interface	Pascal with "I"	Disposable	Do not use the '_' sign	
	prefix	Disposable	o not use the _ sign	
Property	Pascal	ForeColor,	Use a noun or noun phrase to name properties.	
rioperty		BackColor	ose a noun of noun phrase to name properties.	
Associated		_foreColor,		
private member	_camelCase	backColor		
variable		_backColor	Use underscore camel casing for the private member	
			variables	
	Pascal with			
Exception Class	"Exception"	WebException,		
	suffix	,		
	Jamin			

# 5. TEST REPORT

GENERAL TESTING:

SR- NO	TEST CASE	EXPECTED RESULT	ACTUAL RESULT	ERROR MESSAGE
	Create Admin	Creation of users in		
1	User	Database	OK	Nothing
2	Create	Creation of categories in	Ok	Nothing
	Categories	Database		_

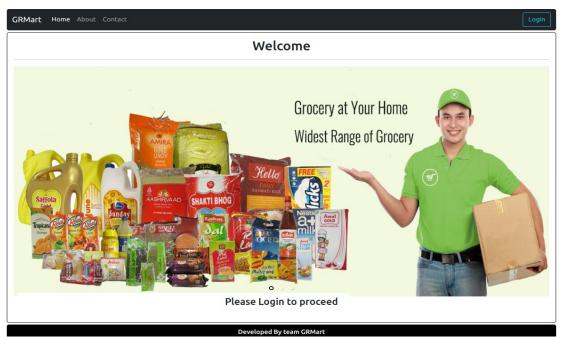
## 6. PROJECT MANAGEMENT RELATED STATISTICS

			_
DATE	WORK PERFORMED	SLC Phase	Additional Notes
JUNE 12,2023	Project Allotment and User Requirements Gathering	Feasibility Study	Submission and Decision on Gr Mart E-comm Project.
JUNE 19,2023	Initial SRS Document Validation And Team Structure Decided	Requirement Analysis (Elicitation)	The initial SRS was presented to the client to understand his requirements better
JUNE 26,2023	Designing the use-cases, Class Diagram, Collaboration Diagram, E-R Diagram and User Interfaces	Requirement Analysis & Design Phase	Database Design completed
JUNE 30,2023	Business Logic Component design Started	Design Phase	
JULY 3,2023	Coding Phase Started	Coding Phase	Homepage complete.

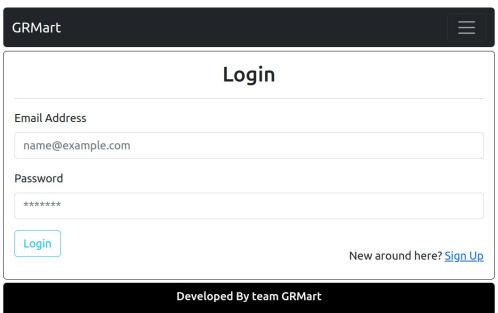
Started Front end React code	Coding Phase	Class Library Development going on.
Off	Off	Off
React Front end completed		Class Library Modified as per the need.
Implementation of Web Application and Window Application Continued	Coding Phase and Unit Testing	
After Ensuring Proper Functioning the Required Validations were Implemented		Module Integration was done by the Project Manager
Implementation of Web Application and Window Application Started	Testing Phase (Module Testing)	
		The Project of Other Team was Taken up by the Team for Testing
The Errors Found were Removed	Debugging	The Project was complete for submission
Final Submission of Project		
	Off  React Front end completed  Implementation of Web Application and Window Application Continued  After Ensuring Proper Functioning the Required Validations were Implemented  Implementation of Web Application and Window Application Started  The Project was Submitted to Other Project Leader of Other Project Group For Testing  The Errors Found were Removed	React Front end completed  Implementation of Web Application and Window Application Continued  After Ensuring Proper Functioning the Required Validations were Implemented  Implementation of Web Application and Window Application Started  Testing Phase (Module Testing)  The Project was Submitted to Other Project Leader of Other Project Group For Testing  The Errors Found were Removed  Debugging

# Appendix A

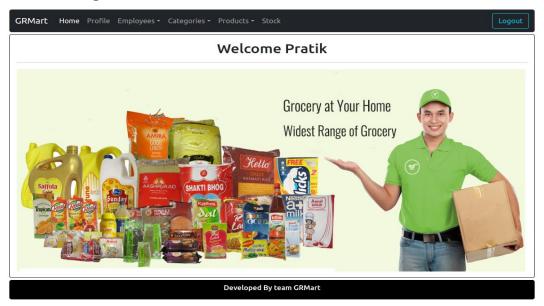
## Homepage:



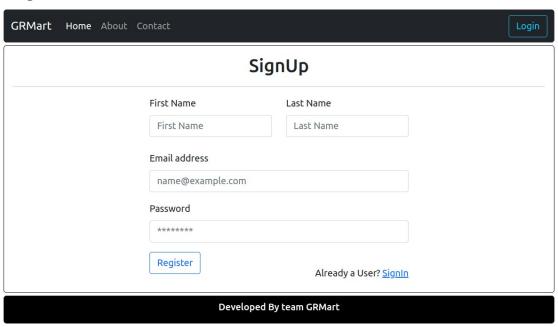
## LoginPopup



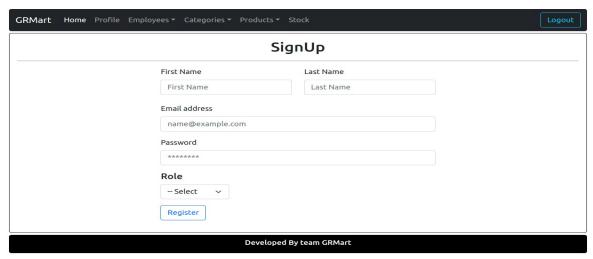
## **Administrators Login:**



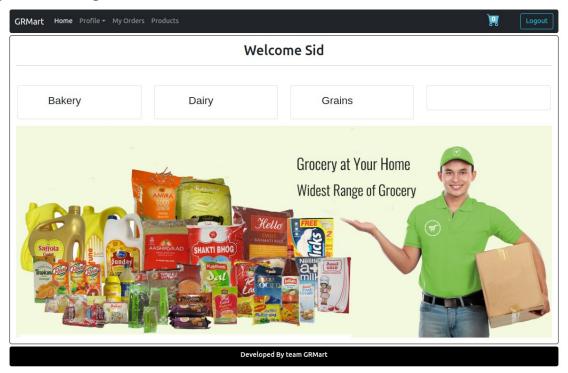
## **User Registration:**



## **Add Employee and Delivery Person**

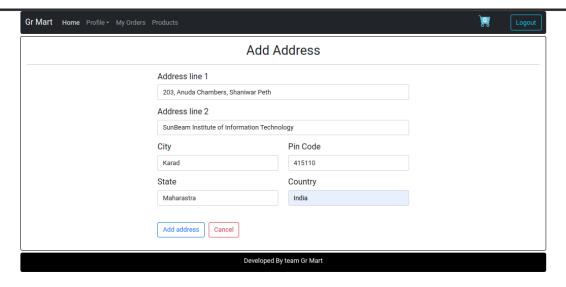


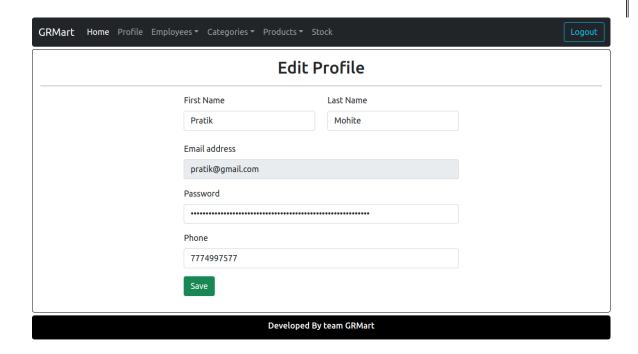
## **Login For Placing Order:**



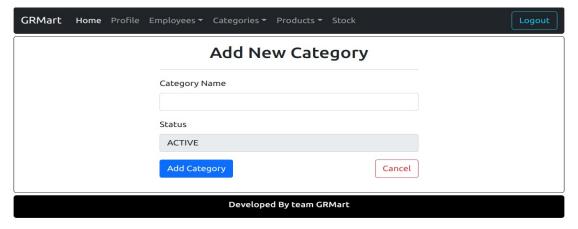
#### **User Profile Details**

#### **Addresses**

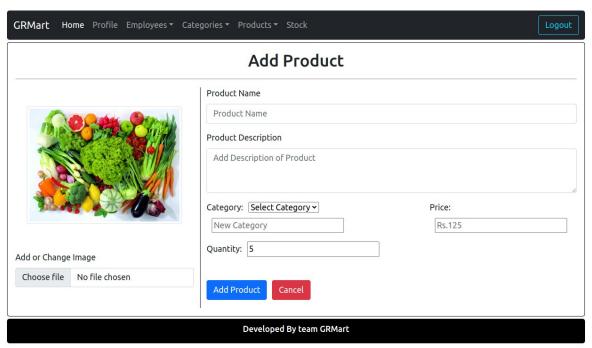




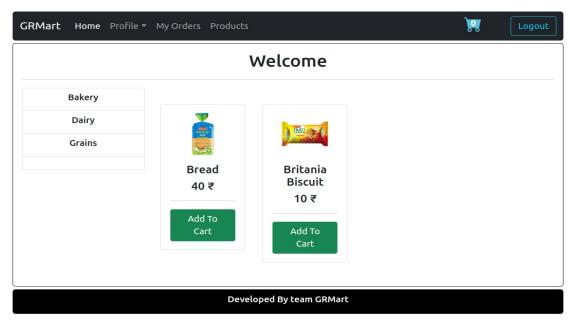
### **Add new Categories**



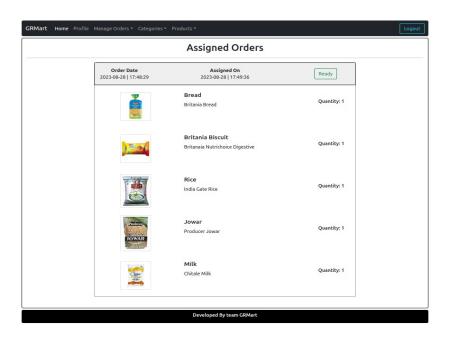
#### **Add Product**



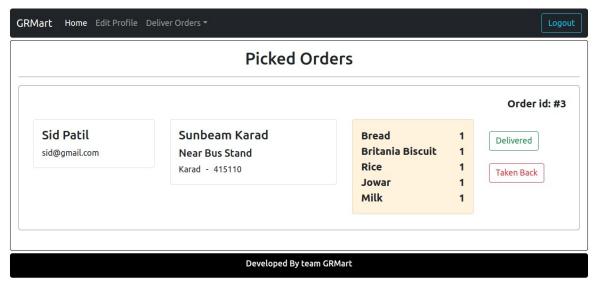
#### **Product List**



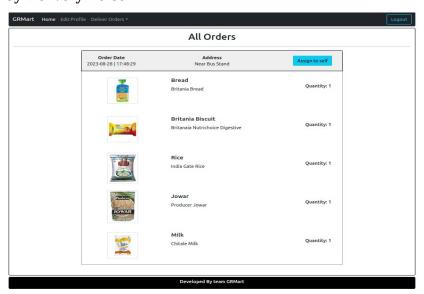
## **Assign Orders**



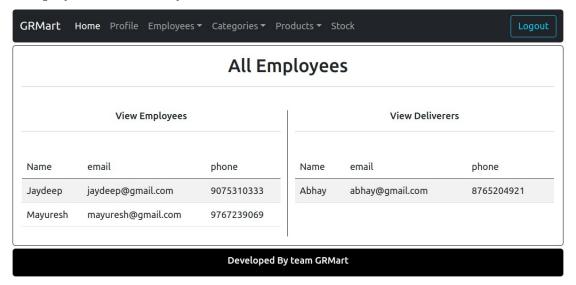
## **Picked Order by Delivery Person**



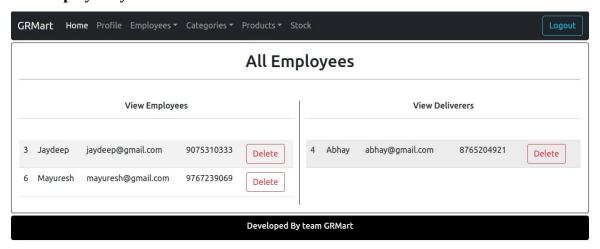
## **Ready Orders by Delivery Person**



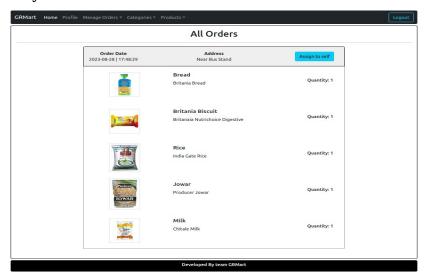
## **View Employees and Delivery Person**



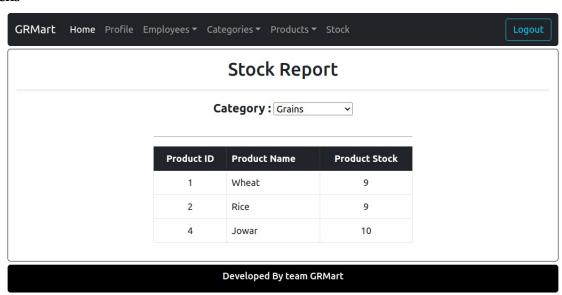
## **Delete Employee by Admin**



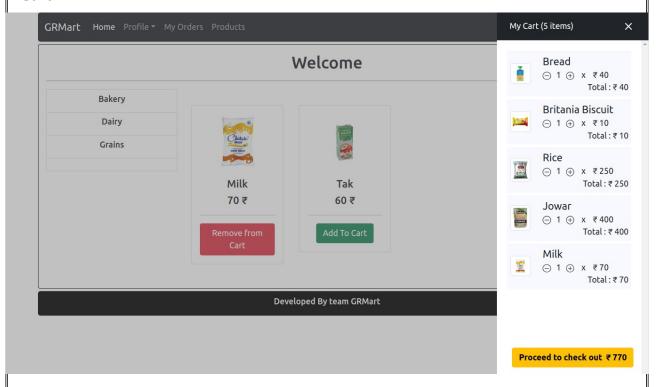
## **User Order History**



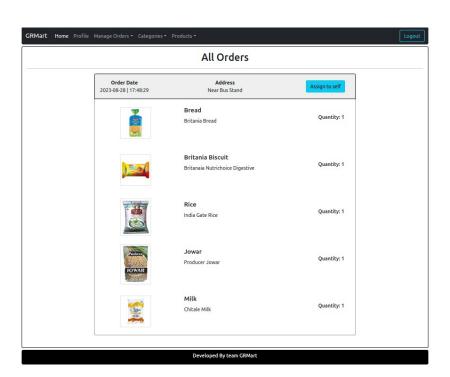
### **Stocks**



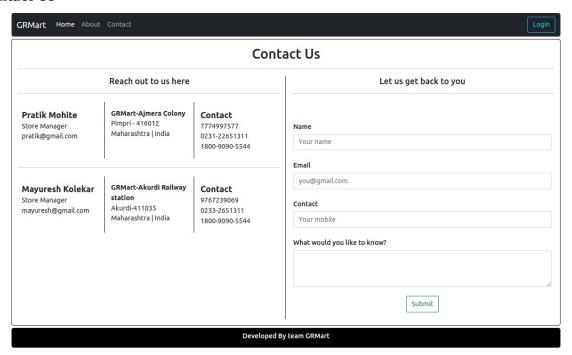
#### Cart



#### **All Orders**

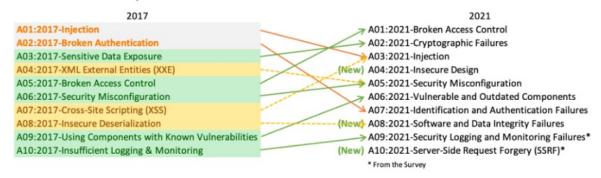


#### **Contact Us**



## **Top 10 Web Application Security Risks**

There are three new categories, four categories with naming and scoping changes, and some consolidation in the Top 10 for 2021.



**A01:2021-Broken Access Control** moves up from the fifth position; 94% of applications were tested for some form of broken access control. The 34 Common Weakness Enumerations (CWEs) mapped to Broken Access Control had more occurrences in applications than any other category.

- <u>A02:2021-Cryptographic Failures</u> shifts up one position to #2, previously known as Sensitive Data Exposure, which was broad symptom rather than a root cause. The renewed focus here is on failures related to cryptography which often leads to sensitive data exposure or system compromise.
- <u>A03:2021-Injection</u> slides down to the third position. 94% of the applications were tested for some form of injection, and the 33 CWEs mapped into this category have the second most occurrences in applications. Cross-site Scripting is now part of this category in this edition.
- <u>A04:2021-Insecure Design</u> is a new category for 2021, with a focus on risks related to design flaws. If we genuinely want to "move left" as an industry, it calls for more use of threat modeling, secure design patterns and principles, and reference architectures.
- **A05:2021-Security Misconfiguration** moves up from #6 in the previous edition; 90% of applications were tested for some form of misconfiguration. With more shifts into highly configurable software, it's not surprising to see this category move up. The former category for XML External Entities (XXE) is now part of this category.
- A06:2021-Vulnerable and Outdated Components was previously titled Using Components with Known Vulnerabilities and is #2 in the Top 10 community survey, but also had enough data to make the Top 10 via data analysis. This category moves up from #9 in 2017 and is a known issue that we struggle to test and assess risk. It is the only category not to have any Common Vulnerability and Exposures (CVEs) mapped to

the included CWEs, so a default exploit and impact weights of 5.0 are factored into their scores.

- <u>A07:2021-Identification and Authentication Failures</u> was previously Broken Authentication and is sliding down from the second position, and now includes CWEs that are more related to identification failures. This category is still an integral part of the Top 10, but the increased availability of standardized frameworks seems to be helping.
- A08:2021-Software and Data Integrity Failures is a new category for 2021, focusing on making assumptions related to software updates, critical data, and CI/CD pipelines without verifying integrity. One of the highest weighted impacts from Common Vulnerability and Exposures/Common Vulnerability Scoring System (CVE/CVSS) data mapped to the 10 CWEs in this category. Insecure Deserialization from 2017 is now a part of this larger category.
- <u>A09:2021-Security Logging and Monitoring Failures</u> was previously Insufficient Logging & Monitoring and is added from the industry survey (#3), moving up from #10 previously. This category is expanded to include more types of failures, is challenging to test for, and isn't well represented in the CVE/CVSS data. However, failures in this category can directly impact visibility, incident alerting, and forensics.
- A10:2021-Server-Side Request Forgery is added from the Top 10 community survey (#1). The data shows a relatively low incidence rate with above average testing coverage, along with above-average ratings for Exploit and Impact potential. This category represents the scenario where the security community members are telling us this is important, even though it's not illustrated in the data at this time.

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### **References:**

Java: <a href="https://docs.oracle.com/javase/8/docs/api/">https://docs.oracle.com/javase/8/docs/api/</a>

React: https://developer.mozilla.org/en-US/docs/Learn/Tools and testing/Client-

side JavaScript frameworks/React resources

Html: https://developer.mozilla.org/en-US/docs/Web/HTML

html/css: <a href="https://www.w3schools.com/">https://www.w3schools.com/</a>

Security: <a href="https://owasp.org/www-project-top-ten/">https://owasp.org/www-project-top-ten/</a>

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