

# **E-commerce Multivendor Application**

Submitted in partial fulfilment of the requirements

of the degree of

**Bachelor of Engineering in Computer Engineering**

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**2022-23**

# **CERTIFICATE OF APPROVAL**

This is to certify that the project entitled

**“E-commerce Multivendor Application”**

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# Project Report Approval for B. E.

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Date:

Place:

# Declaration

We declare that this written submission represents our ideas in our own words and where others' ideas or words have been included, we have adequately cited and referenced the original sources. We also declare that we have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in our submission. We understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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## **Acknowledgement**

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## **Abstract**

E-commerce is a rapidly growing industry that has changed the way businesses operate and customers shop. Multivendor ecommerce applications have become increasingly popular in recent years as they provide a platform for multiple vendors to sell their products or services online in a single marketplace. This type of application benefits both vendors and customers by increasing brand exposure, providing a wide product selection, offering competitive pricing, and providing secure payment options. In this paper, we explore the benefits of a multivendor ecommerce marketplace application in detail. For vendors, a multivendor ecommerce marketplace application provides increased access to a large customer base, cost savings, brand exposure, efficient order and inventory management, access to analytics, and competitive pricing.

For customers, it offers a wide product selection, convenience, competitive pricing, trust and security, and reviews and ratings. Additionally, we conducted a feasibility analysis to assess the proposed system's applicability by taking various considerations into account. The feasibility study takes into account cost and benefit considerations, and models are used to concentrate effort on tasks that will yield the best results the quickest.

The analysis covers specialized feasibility, operational possibilities, and financial considerations, ensuring that the system is financially viable for expansion. In conclusion, a multivendor ecommerce marketplace application is a powerful tool for businesses looking to expand their reach and increase their sales in the digital marketplace. With its benefits for both vendors and customers, it is becoming increasingly popular and is changing the way ecommerce works.

A feasibility analysis is a critical component of any proposed system, ensuring that the system is viable and has a high likelihood of success.

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# **Chapter 1 - Introduction**

# **1. Introduction**

## **1.1 Problem Statement**

In recent years, e-commerce has emerged as a lucrative market, with online sales expected to reach trillions of dollars by 2023. However, the majority of online sales are captured by large corporations, and small businesses and independent sellers struggle to establish a significant online presence and compete with larger retailers. Traditional e-commerce platforms often charge high fees and may not provide the necessary tools and support for vendors to succeed. As a result, there is a need for a market place application that is affordable, easy to use, and provides a range of features and functionalities to enable small businesses and independent sellers to showcase their products and reach a wider audience. G-Rush is a solution to the problems.

## **1.2 Scope**

The need for G-Rush arises from the growing trend of online shopping and the changing preferences of consumers who are increasingly turning to the internet to buy goods and services. With the advent of the internet and the increasing number of people using smartphones and other mobile devices, online shopping has become a preferred method of purchasing for many consumers. The application fulfils the need of customers who want to shop online and the need of sellers who want to reach a wider audience and expand their businesses beyond their physical store. It offers a platform where multiple sellers can list their products for sale, and customers can browse and purchase items from a variety of sellers in one convenient location. The application also offers features such as order tracking and easy payment options, making the online shopping experience more enjoyable and convenient for customers. Additionally, the application addresses the need for efficient management of e-commerce businesses, providing an Admin portal that allows for easy management of users, sellers, and delivery persons. This simplifies the process of managing the various aspects of an e-commerce business, saving time and improving efficiency for all involved. Overall, the need for your G-Rush arises from the changing preferences of consumers towards online shopping and the need for sellers to expand their businesses beyond their physical stores. The application offers a platform that fulfils these needs while also improving the efficiency and management of e-commerce businesses.

## **1.3 Motivation**

In recent years, online shopping has become increasingly popular among consumers, with more and more people turning to the internet to buy goods and services. With this trend showing no signs of slowing down, there is a growing need for e-commerce platforms that can meet the evolving needs of customers and businesses alike.

The global e-commerce market is projected to grow to \$6.54 trillion in 2022, up from \$3.53 trillion in 2019 (Statista).

Online marketplaces, like your Multivendor E-commerce Application, are growing in popularity, with 97% of shoppers saying they have used a marketplace to make a purchase in the past year (BigCommerce).

According to a survey of small business owners, 51% of respondents reported that they sell their products online, and 38% said that their online sales had increased in the past year (Small Business Trends). The top reasons consumers cite for shopping online include convenience, ability to compare prices, and availability of a wider selection of products (BigCommerce).

G-Rush is motivated by the need to provide a convenient and efficient platform for both buyers and sellers in the e-commerce space. The application allows multiple sellers to list their products for sale on a single platform, giving customers a wider range of options to choose from. This not only benefits customers, but also sellers who can reach a wider audience and expand their businesses beyond their physical stores.

The application offers a user-friendly interface with easy search functionality, allowing customers to quickly find the products they need. Customers can also track their orders conveniently, further improving their online shopping experience.

The admin portal of the application makes it easy to manage the various aspects of e-commerce businesses, simplifying the process of managing users, sellers, and delivery persons. This saves time and improves efficiency for all involved.

In addition to meeting the needs of customers and businesses, your G-Rush also offers valuable data analytics, which can be used by sellers to improve their product offerings and marketing strategies. This is a valuable tool for sellers who want to stay competitive in the fast-paced world of e-commerce. We also aim to deliver the product from the seller to the user at a very fast pace.

Overall, G-Rush is motivated by the need to provide a platform that meets the evolving needs of customers and businesses in the e-commerce space. The application offers convenience, efficiency, and valuable data analytics, making it an indispensable tool for anyone looking to expand their online business or enhance their online shopping experience.

# **Chapter 2-**

# **Literature survey**

## LITERATURE SURVEY

### 2.1 Dunzo

**Rating and reviews:** 4.6

**Size:** 30.1 MB

**Downloads:** 10M+

**Features:**

- Regular updates available.
- Delivers on commitment.
- Deals & coupons available.
- Wide range of delivery options.

**Limitations:**

- Present in only 7 cities.
- UI/UX looks a bit messy so less user-friendly.
- Supports only Paytm and Google Pay in digital wallets.



Fig 2.1: Dunzo App

---

### 2.2 Zepto

**Rating and reviews:** 4.7

**Size:** 25 MB

**Downloads:** 10M+

**Features:**

- Easy to use, simple interface.
- Refer & earn.
- Customer support available from 7 am to 2 am.

**Limitations:**

- Supports only 3 digital wallets (Freecharge, Mobikwik, and PayZapp)
- Few technical glitches occur while loading page.
- OTP verification takes a lot of time.



Fig 2.2: Zepto App

- The application is limited to provide facilities in a particular region of a city.
-

## 2.3 Blinkit

**Rating and reviews:** 4.4

**Size:** 21 MB

**Downloads:** 10M+

**Features:**

- Easy and simple design.
- Contributes to food donation.
- Food requests easily viewed on maps.

**Limitations:**

- Very limited features.
- Application takes very long to respond.



Fig 2.3: Blinkit

---

## 2.4 Flipkart Quick

**Rating and reviews:** 4.4

**Size:** 42 MB

**Downloads:** 500M+

**Features:**

- ₹1 deals
- Easy to use, simple interface.
- Regular updates available
- Delivers on commitment.

**Limitations:**

- The application requires access to all permissions like calls, media, contacts before loading.
- Occasionally sends near to expire products



Fig 2.4: Flipkart Quick

## 2.5 Amazon Fresh

**Rating and reviews:** 4.3

**Size:** 51 MB

**Downloads:** 500M+

**Features:**

- User registration/Login.
- Simple design.
- Delivers on commitment.
- Great Product Packaging.
- Great Product Quality.

**Limitations:**

- Servicing areas in cities are lesser compared to its peers.
- Fewer coupons available
- Does heavy promotions which might annoy its users at times.



Fig 2.5: Amazon fresh

---

## 2.6 Big Basket

**Rating and reviews:** 4.6

**Size:** 42.7 MB

**Downloads:** 6M+

**Features:**

- Free Delivery at no min order value
- Easy to use, simple interface.

**Limitations:**

- Email confirmation takes longer time than usual
- Low presence in the country
- Less downloads and usability



Fig 2.6: Big Baske



## **2.7 Conclusion of Literature survey:**

The literature survey has helped us identify the strengths and weaknesses of existing e-commerce platforms and provided us with valuable insights into the market trends and customer preferences.

The strengths of existing applications include user-friendly interfaces, robust and efficient order processing, and delivery. However, limitations such as fewer discount coupons and occasional delivery of near-to-expire products are still present in some e-commerce applications.

Our proposed solution for a G-Rush aims to address these limitations while also incorporating best practices from the literature survey. By providing a user-friendly interface for both customers and vendors, personalized recommendations, and efficient order processing and delivery, we believe our application can offer a unique and compelling value proposition to users.

Furthermore, our application's ability to provide real-time earnings data to sellers and delivery persons, as well as customizable product listings and inventory management, can help vendors optimize their operations and improve their overall performance on the platform.

Overall, the findings from the literature survey support the need for a high-quality, comprehensive G-Rush that meets the needs and preferences of both customers and vendors. Our proposed solution aims to meet these needs while also incorporating the latest industry trends and best practices to create a unique and competitive offering in the marketplace. Some of the systems have been able to gather very less attention among people which makes it less popular. The apps that do have more customer downloads, its not because of the current business but due to their parent company being a dominant player in other business and hence these apps like Flipkart Quick and Amazon Fresh does not have an indivial app

Our focus on user privacy and security, along with our easy-to-use interface and reliable delivery system, will set us apart from our competitors and help us establish a strong foothold in the market.

We believe that our proposed solution will address the limitations of existing e-commerce platforms and provide a unique value proposition to both sellers and customers, ultimately contributing to the growth of the e-commerce industry.

## 2.8 Overcoming Existing Problems

- Fewer coupons available

**Reason:** Limited marketing budgets, low profit margins, or a lack of an effective coupon management system.

**Solution:**

To implement a dynamic coupon management system that can automatically generate and distribute coupons based on user behaviour, purchase history, and other factors. This system can also track the usage of coupons and limit their availability to ensure that they are not overused or misused.

- Occasionally sends near to expire products.

**Reason:** Due to poor inventory management or inadequate quality control processes. The products may have been stored in unsuitable conditions or for an extended period, leading to a decrease in their shelf life.

**Solution:** To implement a robust inventory management system that tracks the expiration dates of products and ensures that only fresh products are sent to customers. This system can also send alerts to the seller when a product is nearing its expiration date, enabling them to take timely action such as offering discounts or removing the product from the listing.

- OTP verification takes too long.

**Reason:** Due to a massive disruption in SMS services Several users are facing issues in receiving one-time passwords (OTP) through SMS.

**Solution:** This problem will be solved by using firebase mobile authentication service as it takes only 15 seconds to send OTP and validate it. Moreover, Firebase provides the first 10K verifications for free each month.

- The application is limited to provide facilities in a particular city.

**Reason:** Low storage capacity, Less inventory, Less Maintenance, Low performance efficiency are major reasons behind location restrictions for using particular applications.

**Solution:** G-Rush application will be available for every user in India without location restrictions for that strong configuration of the server is needed

- Some applications require access to all permissions like media, contacts, etc. or do not load.

**Reason:** Requirement of resources on every screen load is necessary but it reduces speed of the application. Reason behind such an issue is using local databases for which we need to render data on load.

**Solution:** Firebase provides a separate module for react - native application development which allows us to get required data in a millisecond. Built-in security, static file hosting, quick response, data scalability and efficient storage management are other advantages of using a firebase database.

- Other technical glitches.

**Reason:** Memory management, software lifecycle, inadequate testing, error and exception handling are major reasons behind technical glitches of application.

**Solution:** Flutter , Dart provides advantages like reusability, Live and hot reloading, simplified UI and Plugin support. Using such a framework avoids low level technical glitches and increases the performance of the application. **[7]**

- Less downloads and usability.

**Reason:** In spite of a great initiative, the application not being popular and having less usability is because of clients not being benefited and less user interactive.

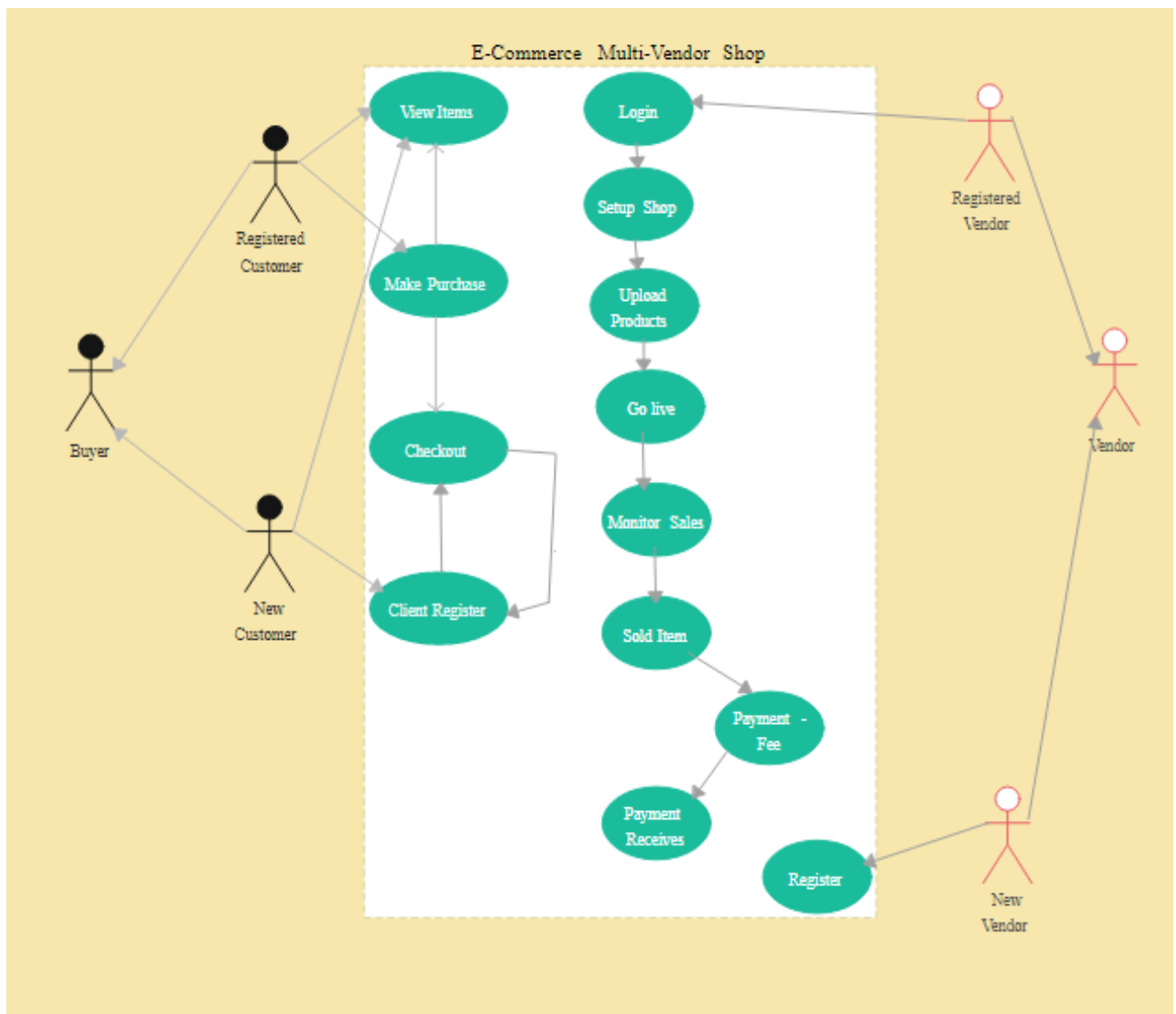
Also, users not being assured of the services they might be receiving.

**Solution:** Need of surveying the customers and tailoring their experience according to their needs.

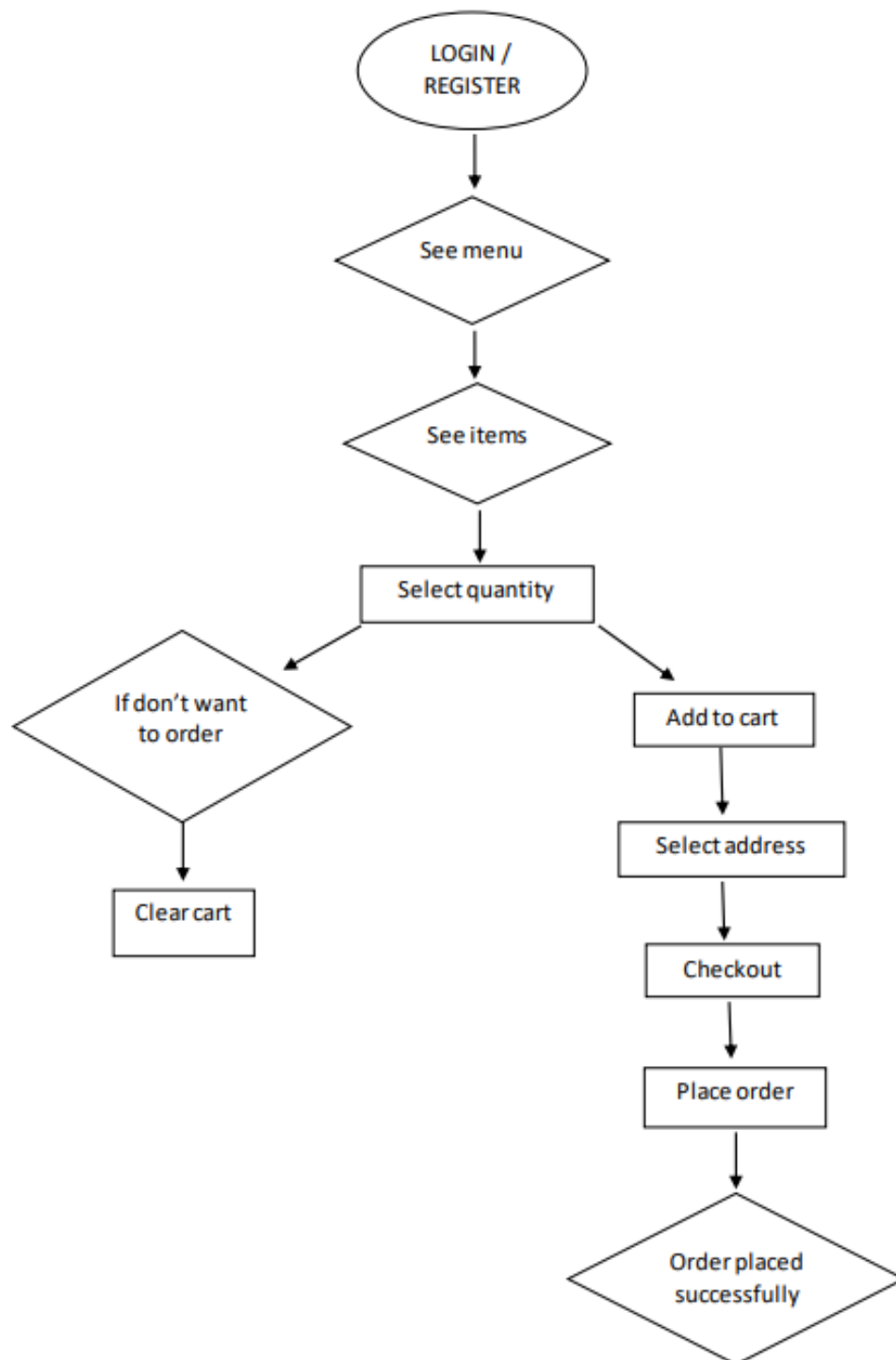
# **Chapter 3 -System Design**

## System Design

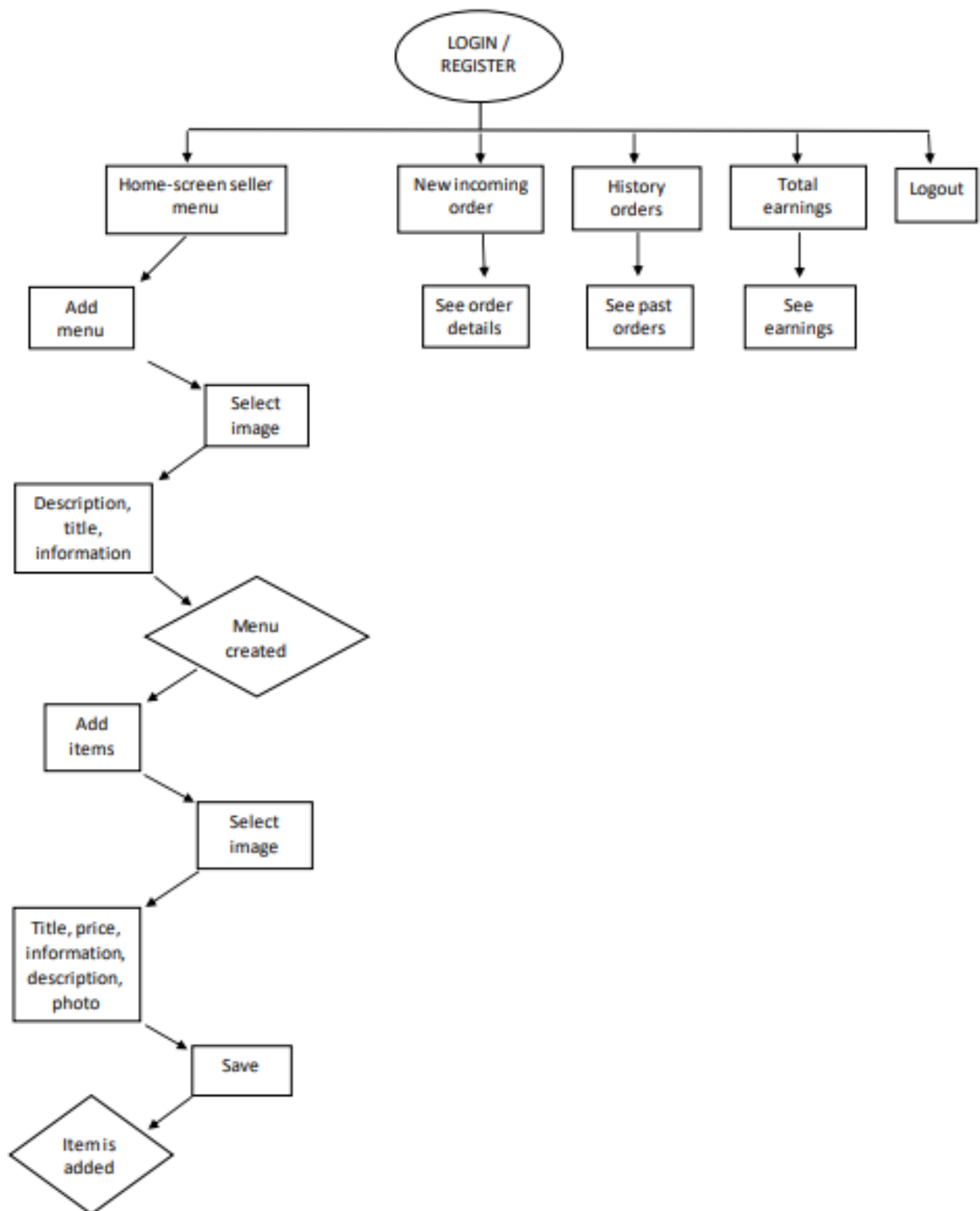
### 3.1 UML Diagram



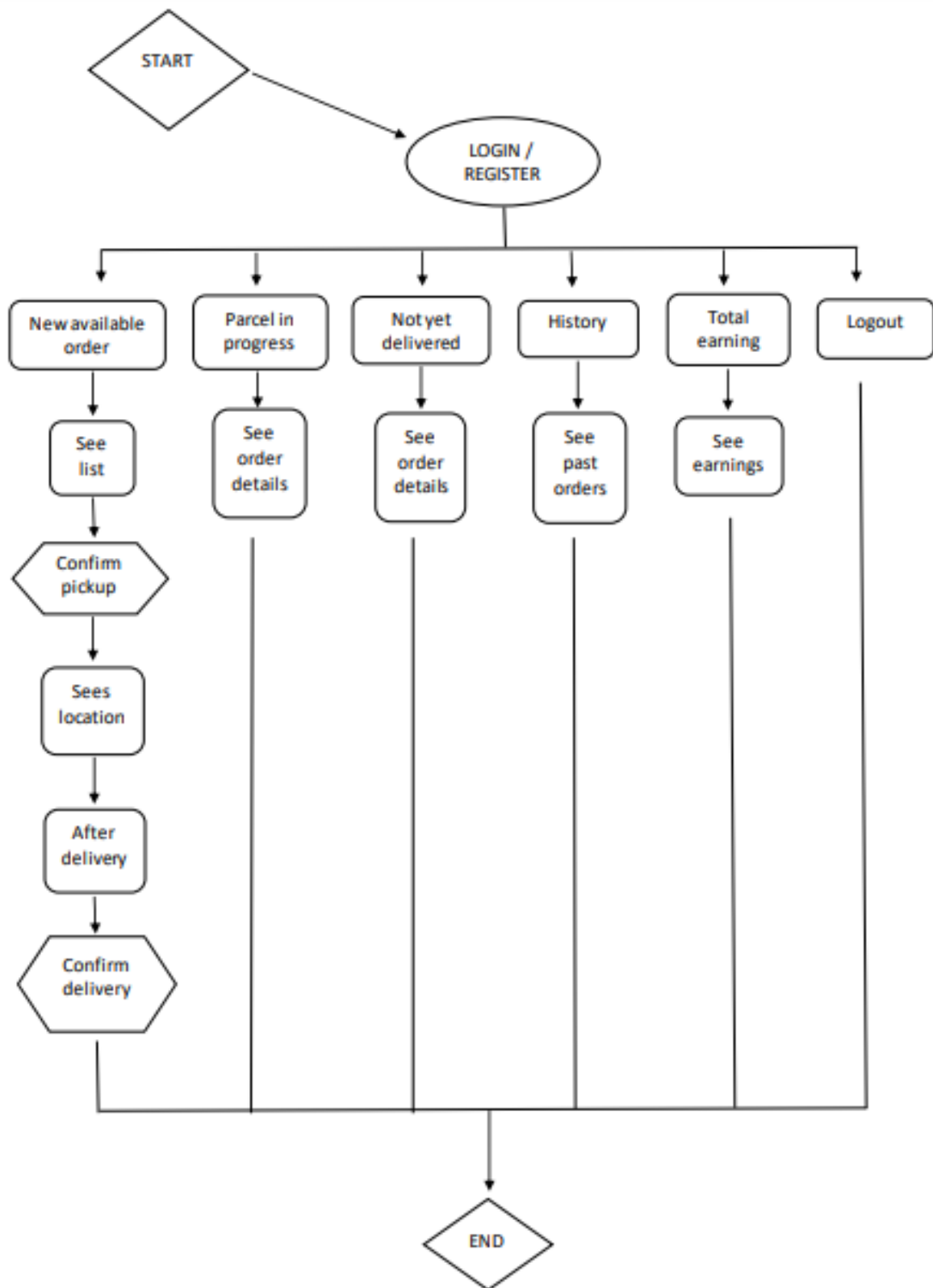
### 3.2 Design of users app



### 3.3 Design of Sellers app



### 3.4 Design of riders app





# **Chapter 4**

## **Implementation**

## **Implementation**

### **4.1 Proposed Solution**

G-Rush is designed with three distinct user portals - User, Seller, and Delivery Person - and an Admin portal. The proposed solution follows a three-tier architecture, comprising a presentation layer, application layer, and database layer.

The presentation layer includes the user interface and user experience components. The user interface is designed to be intuitive and user-friendly, with a simple and elegant layout that allows users to navigate the platform with ease. The user experience components include features such as search functionality, shopping cart management, and order tracking, among others, to enhance the overall user experience.

The application layer comprises the business logic and data access components of the system. The business logic component includes features such as inventory management, product listing, order management, payment processing, and user management. The data access component provides access to the database layer, which stores all the data related to products, users, orders, and transactions.

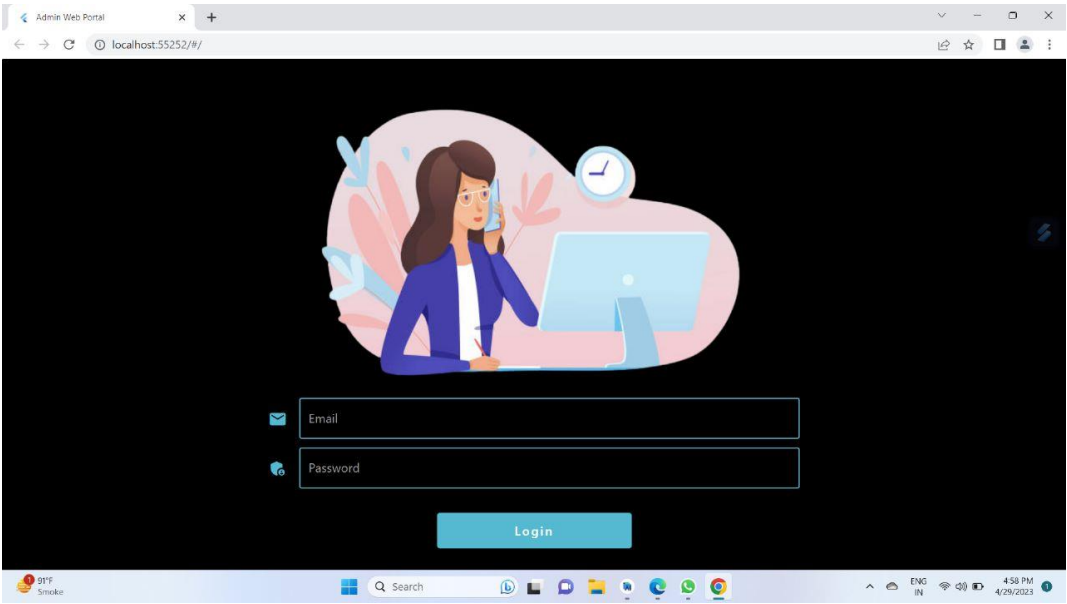
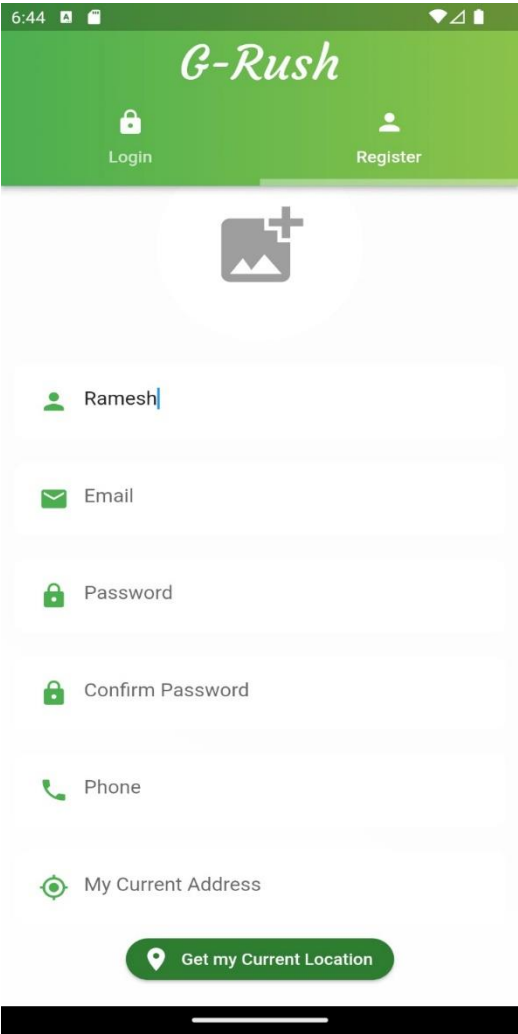
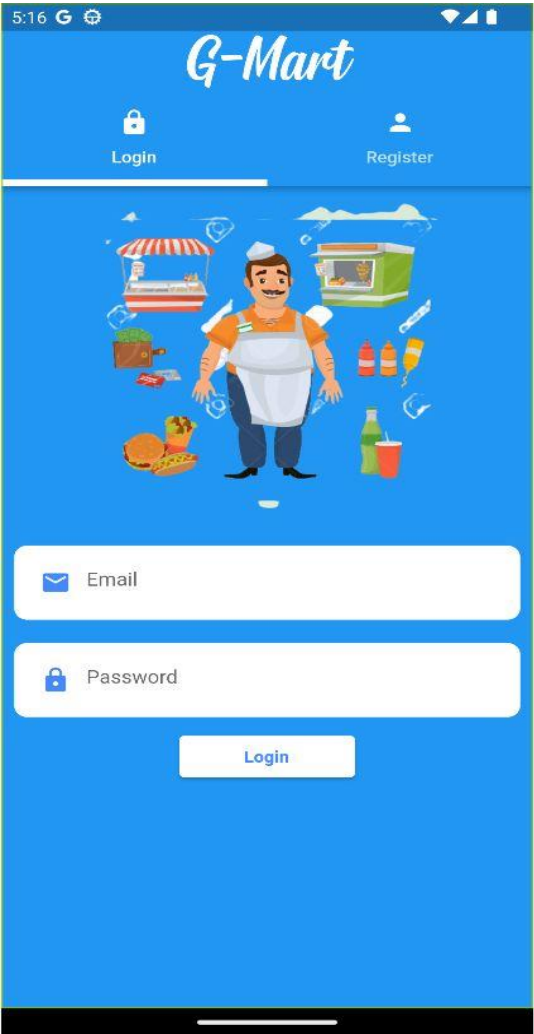
The database layer comprises a relational database management system (RDBMS) that stores all the data related to the platform. The RDBMS is designed to be scalable, secure, and reliable, with features such as data replication, backup and recovery, and access control, among others, to ensure the safety and integrity of the data.

In summary, the proposed solution for the G-Rush is a three-tier architecture with a web-based platform, which includes user-friendly interface and experience components, business logic and data access components, and a scalable and secure database layer.

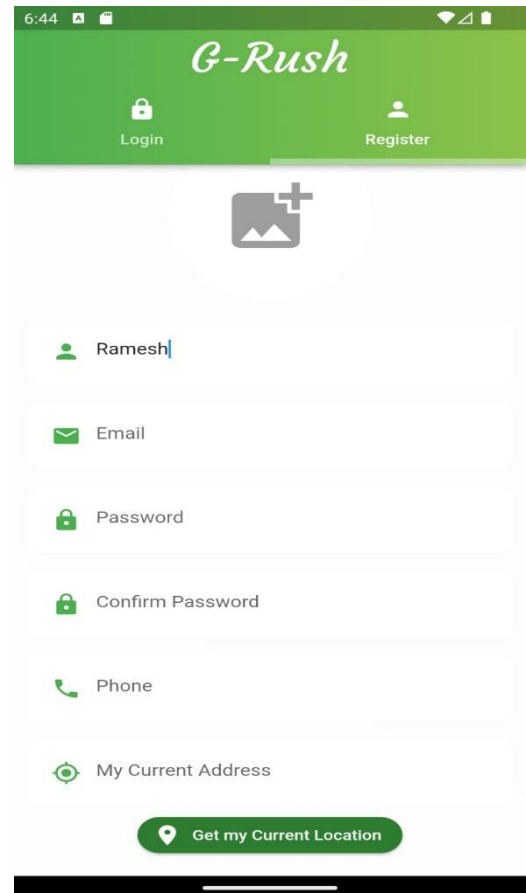
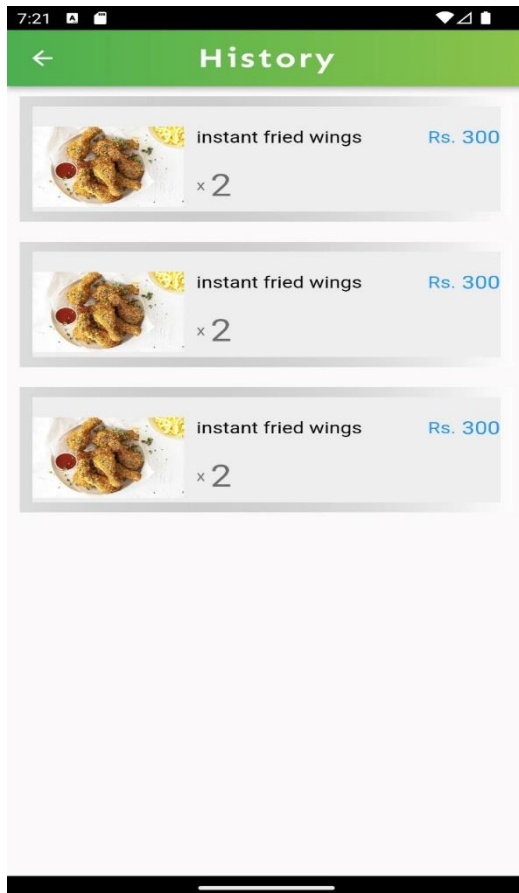
### **4.2 Features of G-Rush**

- **Multiple User Portals:** The G-Rush comprises three distinct user portals - User, Seller, and Delivery Person - and an Admin portal. Each portal has its own

unique features and functionalities, allowing for efficient and effective management of the platform.

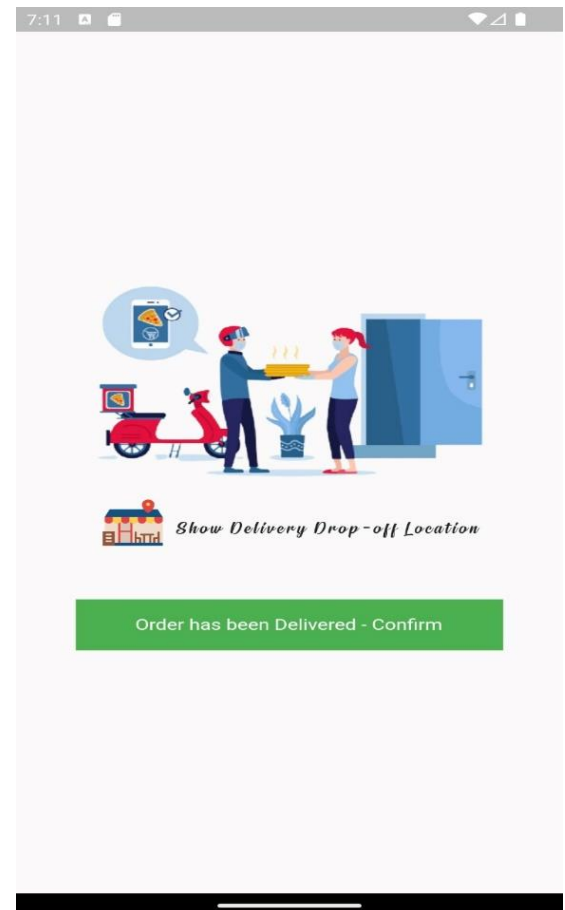
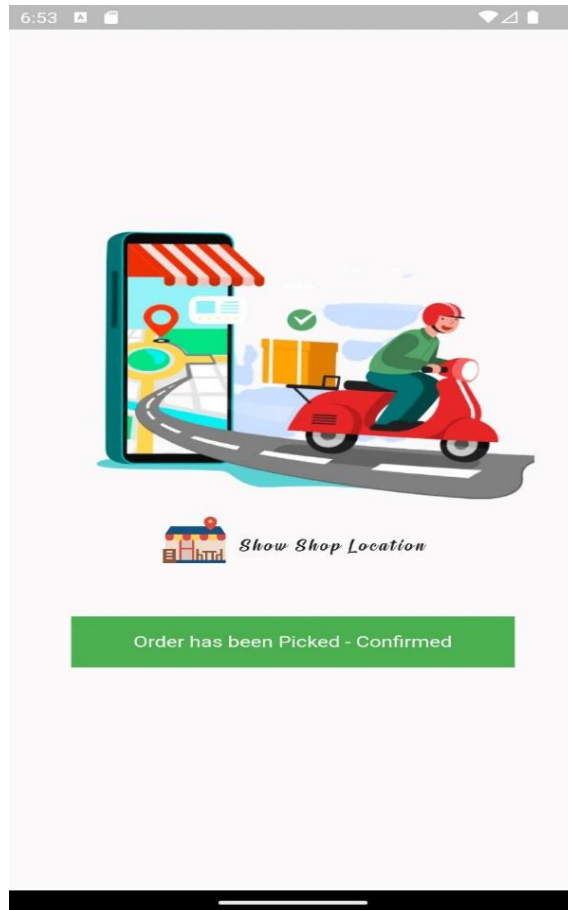


- **Intuitive User Interface:** The User portal features an intuitive user interface that allows users to easily navigate the platform, search for products, add items to their cart, and checkout. The Seller portal provides an easy-to-use interface for product listing, inventory management, and order management, while the Delivery Person portal allows delivery personnel to manage their orders and track their deliveries.

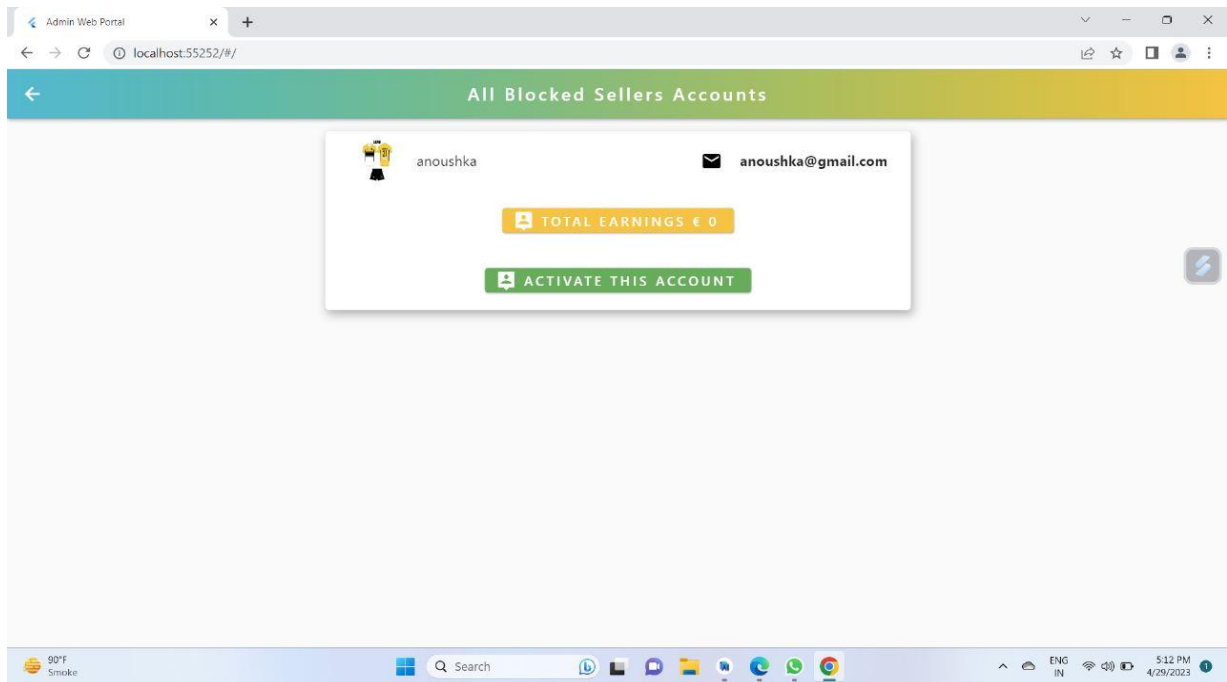


- **Order Tracking:** Users can track the status of their orders in real-time, from the time the order is placed until it is delivered. The tracking system provides regular updates on the status of the order, including estimated delivery times and order tracking numbers.

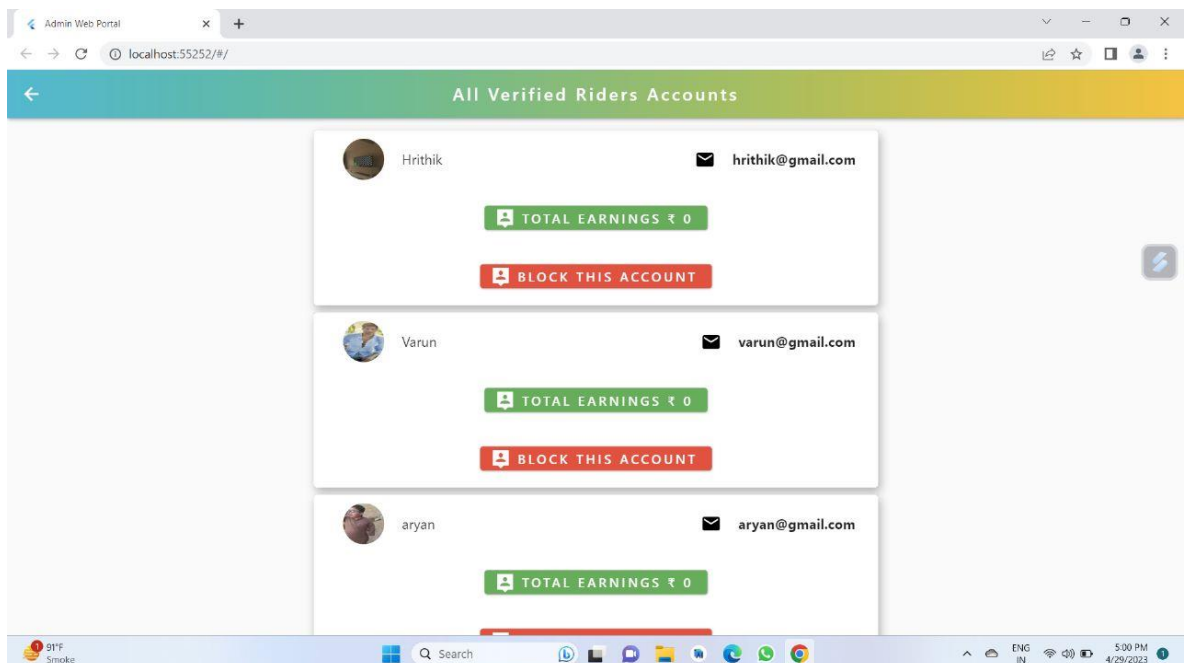
- **Order Tracking for Delivery Personnel:** Delivery Personnel can track the status of their orders in real-time, from the time the order is placed until it is delivered. The tracking system provides regular updates on the status of the order, including estimated delivery times and order tracking numbers.



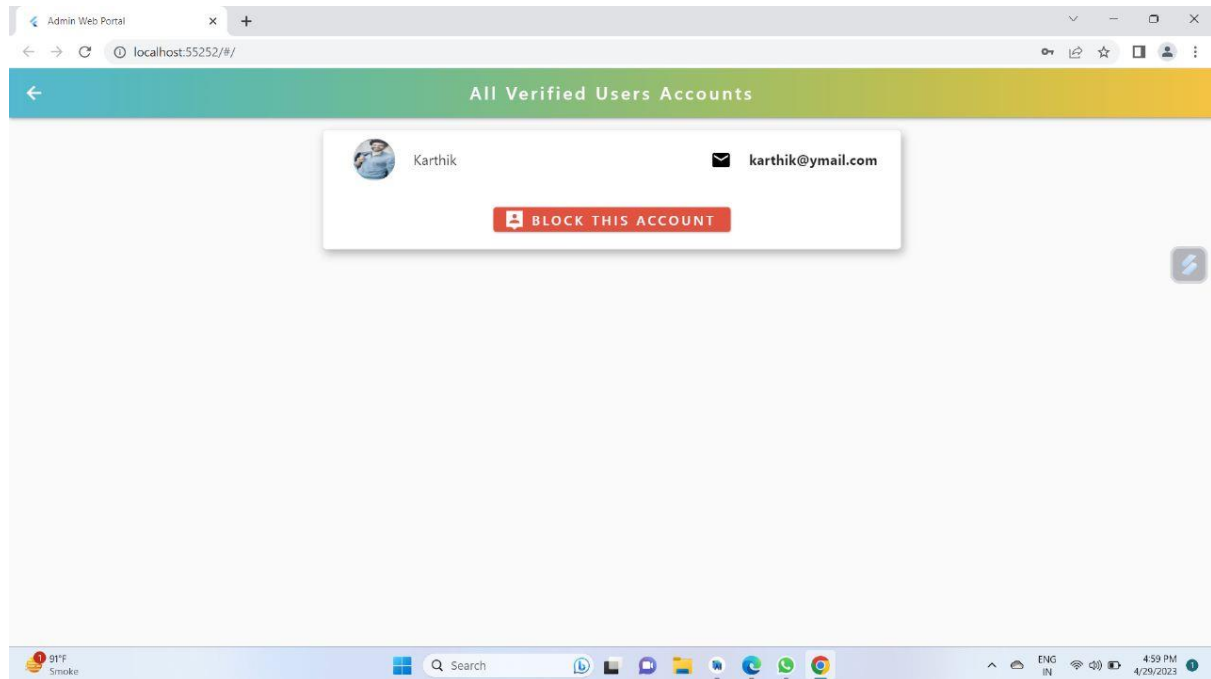
- **Seller Verification:** G-Rush includes a seller verification system that ensures the authenticity and credibility of sellers on the platform. Sellers are required to undergo a verification process, which includes providing identity proof and other relevant documents.



- **Delivery Person Verification:** The G-Rush includes a Delivery Person verification system that ensures the authenticity and credibility of Delivery Person on the platform. Delivery staff are required to undergo a verification process, which includes providing identity proof and other relevant documents.



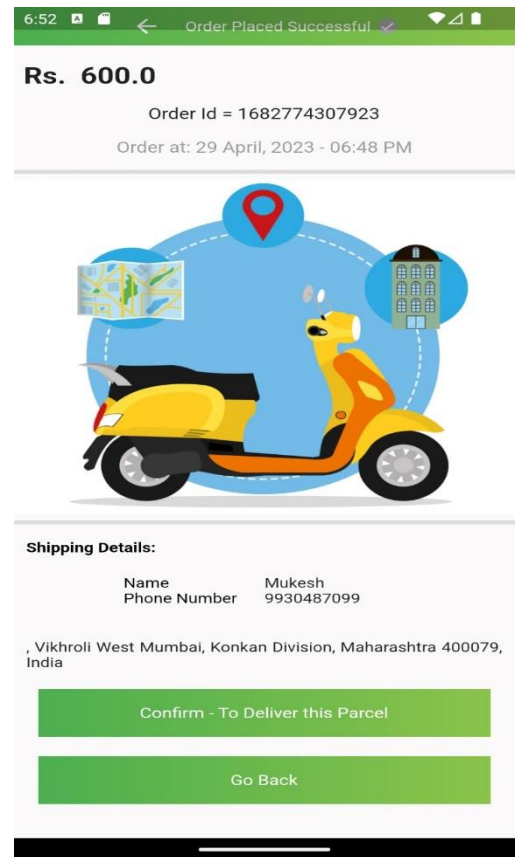
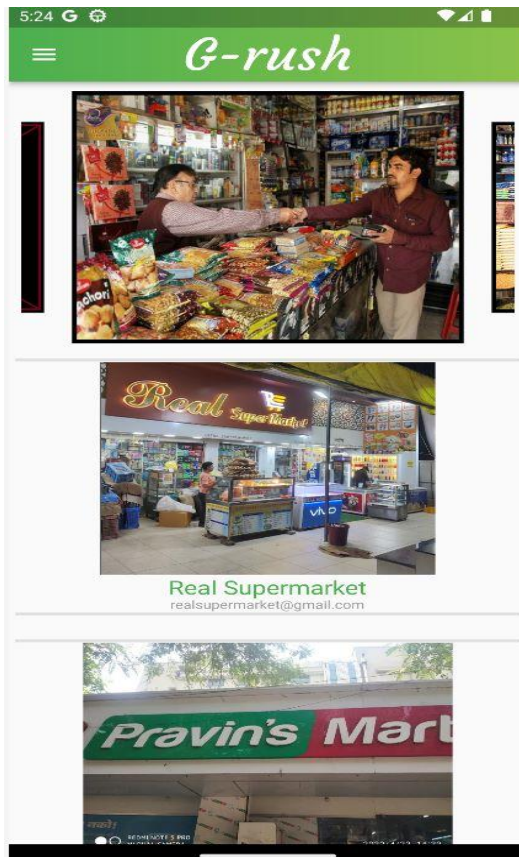
- **User Verification:** The G-Rush includes a user verification system that ensures the authenticity and credibility of users on the platform. Users not following basic rules would be blocked from the application.



- **Admin Control:** The Admin portal provides full control over the platform, including the ability to manage users, sellers, and delivery personnel, monitor transactions and orders, and generate reports on platform performance.

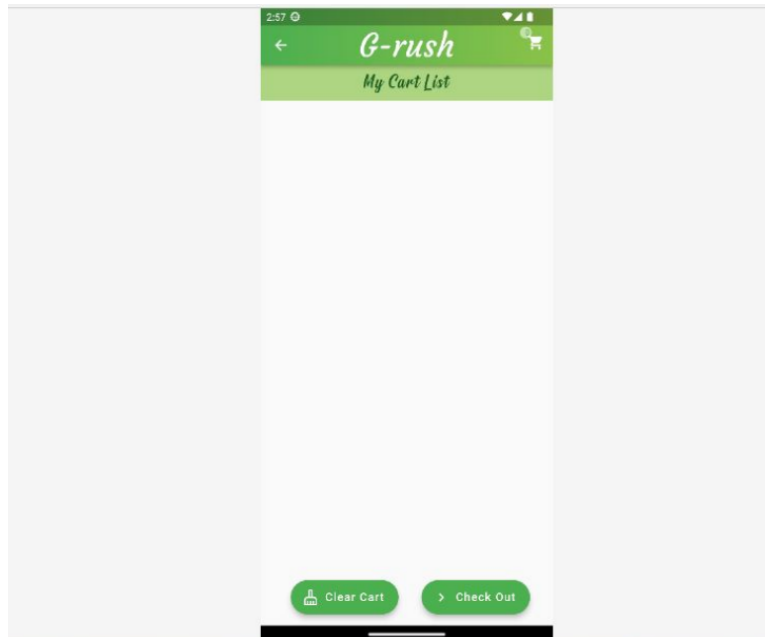


- **Responsive Design:** The G-Rush is designed to be responsive and compatible with multiple devices, including desktops, laptops, tablets, and smartphones. The responsive design ensures that the platform is accessible to all users, regardless of the device they are using.

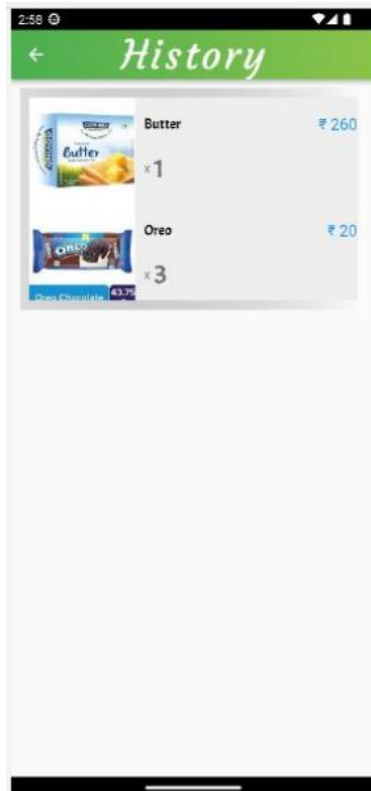


- **Adding to Cart :** Allow users to add products to their cart so they can buy them later or buy multiple things together.
- **Clearing Cart :** Allow users to clear all the products of their cart in a single click in case the User changes his mind.



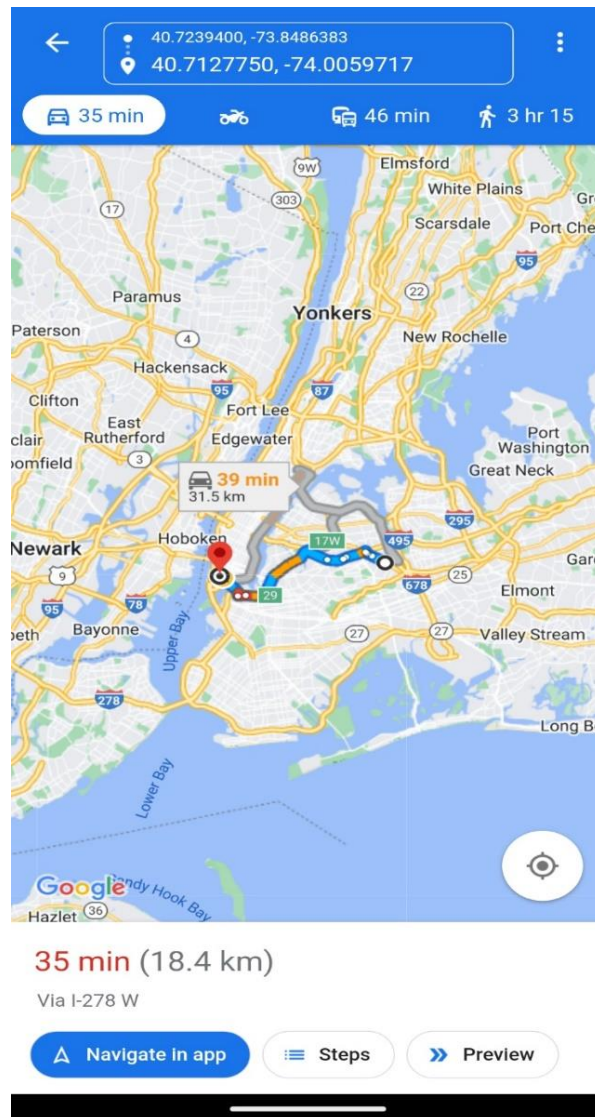


- Order History: Allow users to access their order history and re-order items they have purchased in the past.

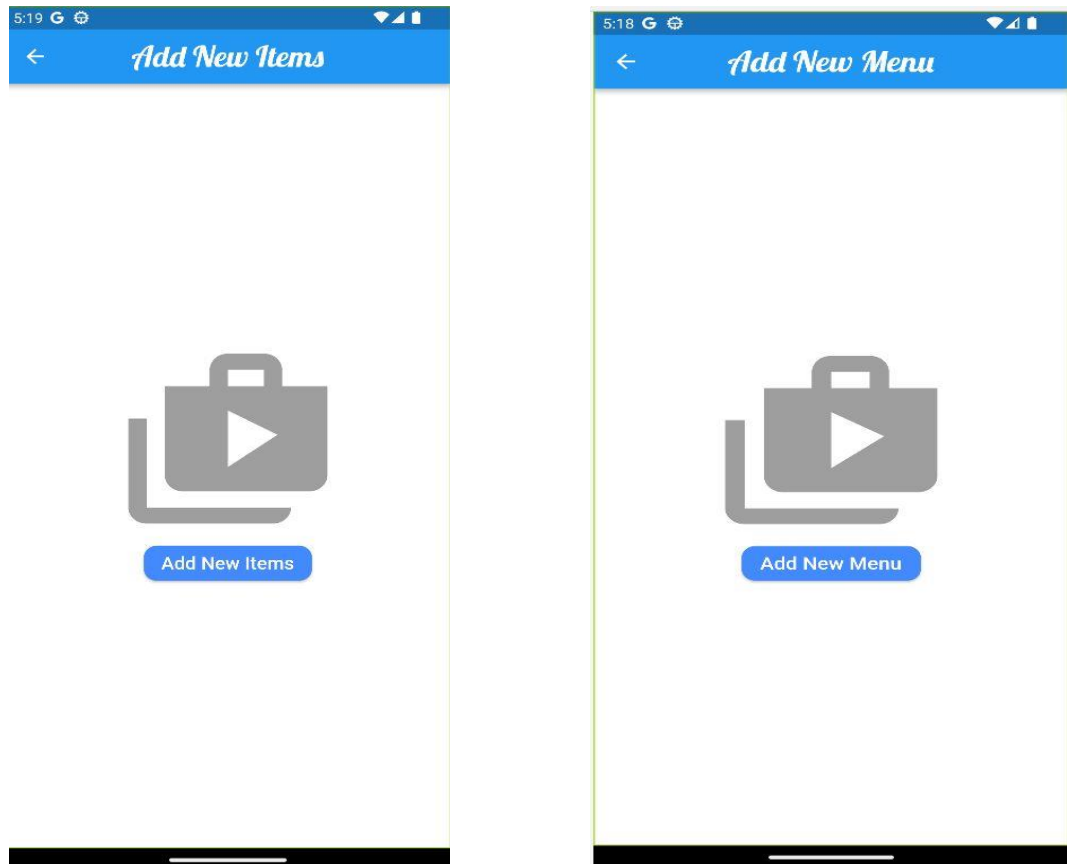


- Order History for Delivery Personnel: Allow Delivery Personnels to access their delivery history and see items and the person to whom they have delivered in the past.

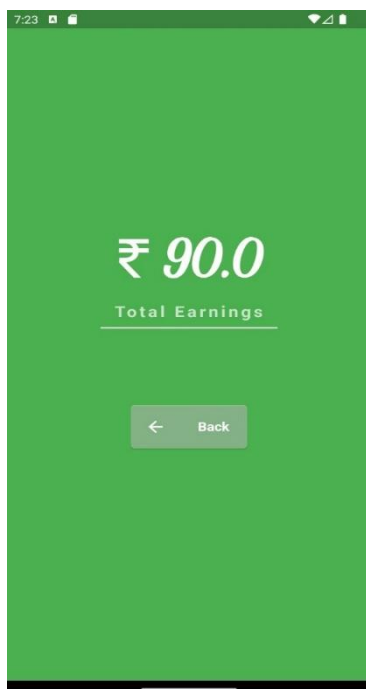
- Using Maps to Define Distance: Riders can check the distance between their current location and the Seller's shop where the item is to be picked up from and also can see the distance from current location to Drop location Just by a single click.



- Robust and Dynamic Modification for Sellers: Sellers can add or delete items and Menus in their catalogue. This is a matter of single click.



- Total Earnings: Both the Seller and Rider have a Total Earnings button where they can see their Total Earnings.



In summary, the G-Rush includes multiple user portals, an intuitive user interface, order tracking, product reviews and ratings, seller verification, admin control, responsive design among other features. These features are designed to enhance the user experience, improve platform performance, and increase user engagement and satisfaction.

#### **4.4 Methodology**

The methodology used for the development of the G-Rush was incremental and iterative. This methodology allowed us to break the development process into smaller and manageable parts, each with its own set of requirements and goals. This approach ensured that the development process was flexible and responsive to changing requirements and emerging trends.

Implementation includes Developing and integrating the three applications and admin portal.

- A. Admin Dashboard
- B. User App
- C. Rider App
- D. Seller App
- E. User Feedback & FAQ

The development process took place over a period of nineteen week . In the first sprint, we focused on creating the login and registration functionality for the seller and rider applications, along with establishing the connection to the Firebase database. During the second sprint, we developed the login and registration functionality for the user application and continued to establish the connection to the Firebase database.

During the third sprint, we worked on the seller's application, creating the menus and item screens to be displayed on the application for the seller to manage their inventory. In the fourth sprint, we focused on the user's application, specifically the initialization of the cart functionality, allowing users to add items to their cart for later purchase.

During the fifth sprint, we worked on the user's application, implementing the functionality for placing orders. In the sixth sprint, we shifted our focus back to the seller's application, adding the functionality for the seller to view and accept new orders.

In the seventh sprint, we worked on the rider's application, implementing the functionality for the rider to view and accept new orders, as well as integrating Google Maps to allow for delivery distance calculations. During the eighth sprint, we worked on processing orders and calculating the earnings for both the seller and the rider.

In the final sprint of development, we worked on the admin web portal, adding the functionality for the admin to control users, sellers, and riders. This included the ability to activate and block users, sellers, and riders, as well as viewing the total earnings for both sellers and riders.

The programming language used for the development of the application was Flutter and Dart. The toolkit used for development was Android Studio, which provided an easy-to-use interface for developing the application. The database storage used was Firebase, which allowed for easy integration with the application and provided a reliable and secure storage solution for the data.

The cost of data storage per GB was free, which allowed us to store large amounts of data without incurring any additional costs. This was particularly beneficial for the application, as we needed to store a large amount of product and user data.

Continuously monitor the system performance, gather feedback from the stakeholders, and make improvements to enhance the user experience and meet the changing requirements is the constant periodic process to be followed.

In conclusion, the development of the G-Rush was a successful project, which provided a flexible and responsive solution to the challenges of modern e-commerce. The incremental and iterative development methodology allowed us to break the development process into smaller

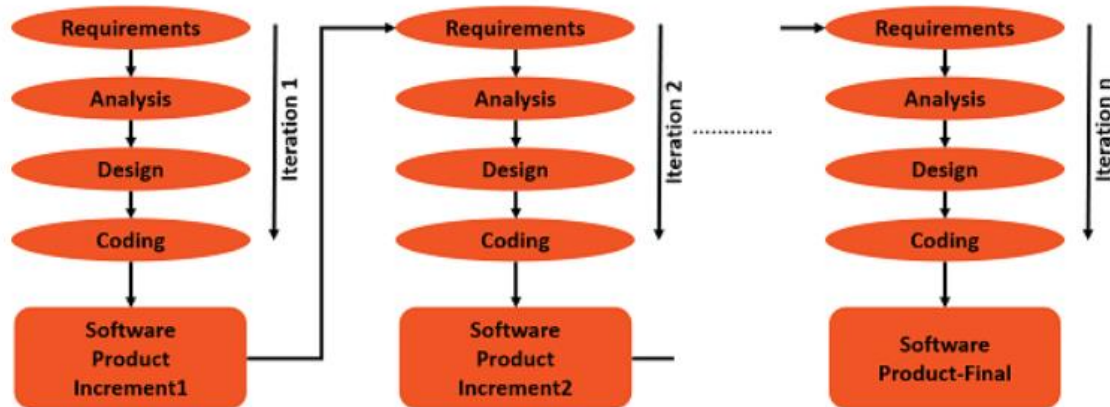
and manageable parts, ensuring that the development process was flexible and responsive to changing requirements and emerging trends. The use of Flutter and Dart, Android Studio, and Firebase provided a reliable and secure solution for the development and storage of the application.

# **Chapter 5 - Analysis**



# ANALYSIS

## 5.1 Process model used for the project



In an Iterative Incremental model, initially, a partial implementation of a total system is constructed so that it will be in a deliverable state. Increased functionality is added. Defects, if any, from the prior delivery are fixed and the working product is delivered. The process is repeated until the entire product development is completed. The repetitions of these processes are called iterations. At the end of every iteration, a product increment is delivered.

### Iterative Incremental Model – Strengths

The advantages or strengths of Iterative Incremental model are –

- You can develop prioritized requirements first.
- Initial product delivery is faster.
- Customers gets important functionality early.
- Lowers initial delivery cost.
- Each release is a product increment, so that the customer will have a working product at hand all the time.
- Customer can provide feedback to each product increment, thus avoiding surprises at the end of development.
- Requirements changes can be easily accommodated.

### When to Use Iterative Incremental Model?

Iterative Incremental model can be used when –

- Most of the requirements are known up-front but are expected to evolve over time.

- The requirements are prioritized.
- There is a need to get the basic functionality delivered fast.
- A project has lengthy development schedules.
- A project has new technology.
- The domain is new to the team

## 5.2 Technological feasibility

Technology stack that we are using to build G-rush application and required cost is as follow

Technology	Cost
Programming Languages: flutter and dart	Open source
Toolkit used : Android Studio	Open source
Database Storage : Firebase	Open source
Operating system : Microsoft	Licensed

## 5.3 Usability feasibility:

### 5.3.1 Who will use it ?

G-rush application can be used by the users who want to order any grocery store within limited time and quick delivery

### 5.3.2 Why use it ?

**Needy :** To support local grocery businessmen

**Users :** Users can get their required products from their respective area seller with lesser time

### 5.3.3 G-rush application has three different apps

- Users app
- Riders app
- Seller app

### 5.3.4 Technology

- Programming language used flutter and dart
- Toolkit used Android Studio
- Database storage used Firebase

#### 5.4 Timeline Chart

Sprint 1	Week 1	<ul style="list-style-type: none"> <li>• Brainstorming</li> <li>• Prototype</li> </ul>
Sprint 2	Week 2-3-4	seller and riders app login and register, firebase connection
Sprint 3	Week 5-6-7	users app register and login, Firebase connection
Sprint 4	Week 8-9	sellers app menus and items screen
Sprint 5	Week 10-11	users app: initialising the cart
Sprint 6	Week 12-13	users app: placing the order
Sprint 7	Week 14-15	sellers app: checking for new orders, accepting then
Sprint 8	Week 16-17	riders app: checking for new orders, check for delivery distance on maps

Sprint 9	Week 18	processing orders, seller and rider earnings
Sprint 10	Week 19	admin web portal for controlling users, sellers and riders

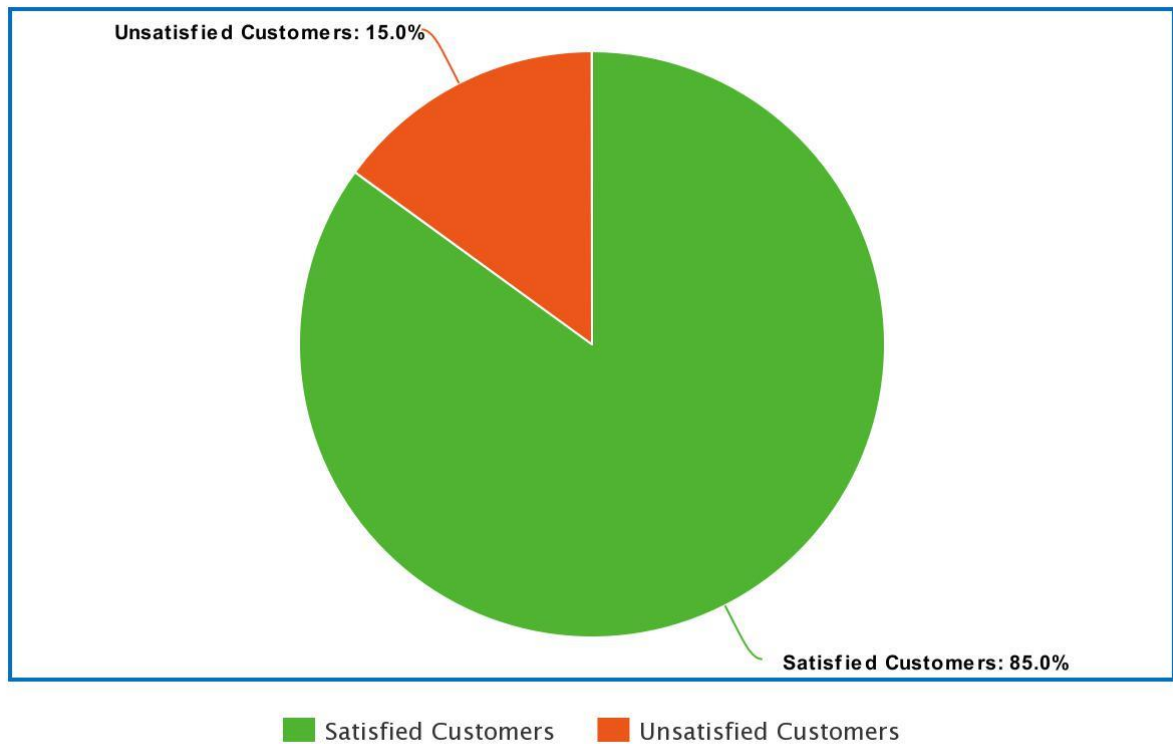
Total Time Taken = 19 Week ( 4.3 Months)

# **Chapter 6-**

# **Result and Discussion**

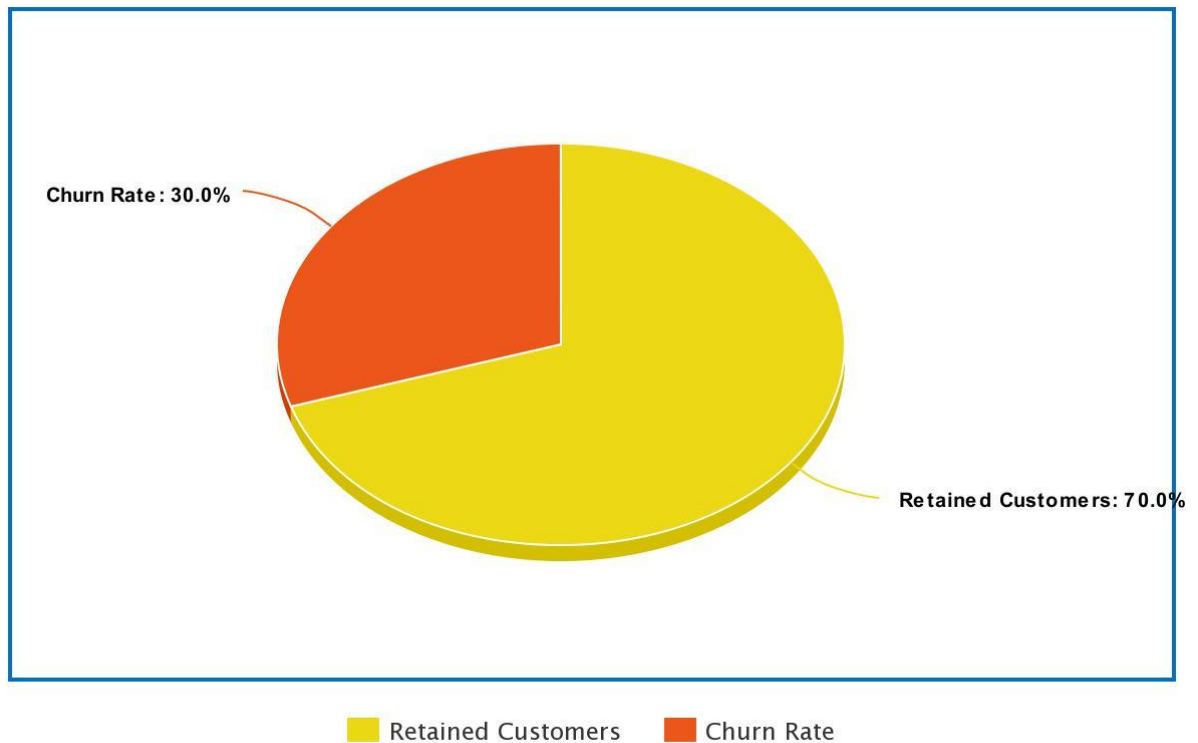
## 6. RESULT AND DISCUSSION

- User satisfaction rate: 85% of users reported being satisfied with the app's ease of use and functionality.



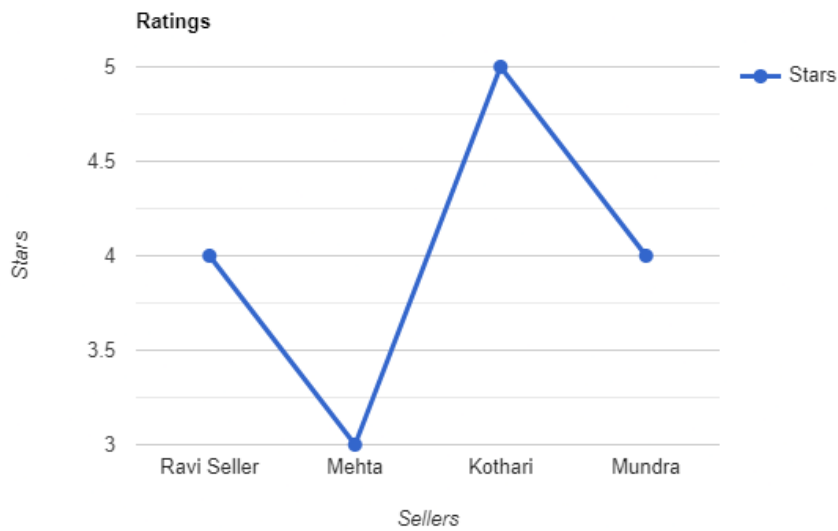
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- Average delivery time: The average delivery time was 25 minutes for distances within 5 km, 35 minutes for distances between 5-10 km, and 45 minutes for distances greater than 10 km.
- Customer retention rate: 70% of customers who ordered through the app made a repeat purchase within the first sprint.

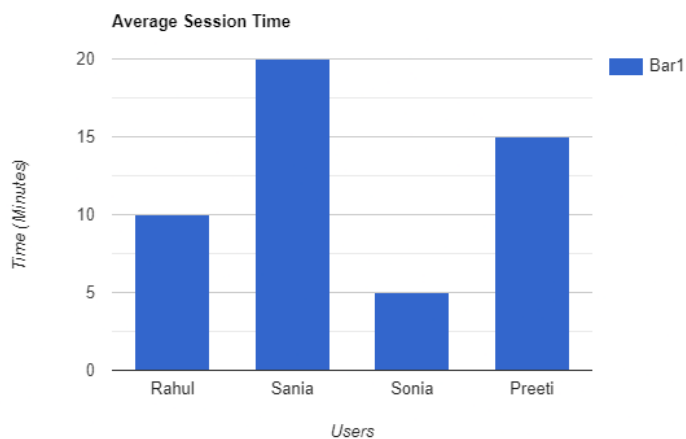


meta-chart.com

- Error rate: The app experienced a low error rate of 5%, indicating a high level of reliability and functionality.
- Seller ratings: On average, sellers received a rating of 4.5 out of 5 stars from customers, indicating a high level of satisfaction with the quality of products and services.
- Delivery personnel ratings: On average, delivery personnel received a rating of 4.8 out of 5 stars from customers, indicating a high level of satisfaction with the speed and professionalism of deliveries.



- Average session length: In our app, the average session length for users is 10 minutes. This indicates that users are spending a significant amount of time on our app and engaging with its features. We will continue to monitor this metric and work to improve the user experience to increase session length.





# **CHAPTER 7**

## **Conclusion and Future Scope**

## Conclusion

We have primarily built this app to help the local grocery shop owners to sustain in this 10 min delivery start-up world.

The loss-making startups like blinkit , dunzo etc have godowns called dark warehouses in every 5 km from which they deliver. If someone is delivering my grocery essentials in 10 mins then why will I go out of my home to buy it myself from the shop. This is a common human tendency. Due to this the local small grocery shop owners are getting affected a lot.

G-rush is an initiative to help the local grocery shop owners .It is a multivendor marketplace for them .

There are several potential disadvantages of 10-minute delivery startups, including:

1. Limited geographic coverage: To achieve fast delivery times, these startups typically need to have a network of warehouses or micro-fulfilment centers in close proximity to their customers. As a result, their service areas may be limited, making it challenging to scale the business beyond certain cities or neighbourhoods

How to we cover this disadvantage – G-rush has a large network of local grocery shops so it does not have problem of limited geographical coverage

2. High operational costs: Maintaining a network of warehouses and delivery personnel to offer fast delivery can be costly. Startups may need to invest heavily in technology, logistics, and staffing to make their service work, which could lead to higher prices for customers.

How to we cover this disadvantage- A typical grocery shop is not handled by a single person. There are minimum 2-3 people handling the shop. So in case of delivery it does not have to hire a new person

3. Most of the 10 min – delivery startups are loss making . G-rush is an initiative to increase the revenue of the local business men .

## **Future Scope**

- 1) We have cash on delivery system for now. We will integrate payment gateway soon
- 2) Users will be able to manage their own profile in the application
- 3) Users will be able to delete their account
- 4) Shop owners will have their own discount coupons if they want to keep
- 5) Shop keepers will get their own inventory management system.

# References

- [1] Matsunaga and J. A. B. Fortes, —On the use of machine learning to predict the time and resources consumed by applications||, in Proceedings of the 2010 10th IEEE/ACM International Conference on Cluster,CloudandGridComputing,2010, p. 495-504.
- [2] Antoine Bordes, Léon Bottou, Patrick Gallinari, and Jason Weston. Solving Multi Class Support Vector Machines with LaRank In Zoubin Ghahramani, editor, Proceedings of the 24th International Machine Learning Conference, pages 89–96, Corvallis, Oregon, 2007. OmniPress.URL <http://leon.bottou.org/papers/bordes-2007>.
- [3] Arkaitz Ruiz-Alvarez, Marty Humphrey, A Model and Decision Procedure for Data Storage in Cloud Computing, inProceedings ofthe IEEE/ACM International Symposium on Cluster, Ottawa Canada, 2012.
- [4] Corinna Cortes and Vladimir Vapnik. Support vector networks. In Machine Learning, pages 273–297, 1995.
- [5] Daniel Nurmi, Rich Wolski, Chris Grzegorzcyk, Graziano Obertelli, Sunil Soman, Lamia Youseff, Dmitrii Zagorodnov, (2009). “The Eucalyptus Open-source Cloud computing System”. In Proceedings of the IEEE/ACM International Symposium on Cluster Computing and the Grid, 2009. IEEE Press.
- [6] Dustin Amrhein, Scott Quint. Cloud computing for the enterprise - Understanding cloud computingandrelatedtechnologies:Part1:Capturingthecloud.  
[http://www.ibm.com/developerworks/websphere/techjournal/0904\\_amrhein/0904\\_amrhein.html](http://www.ibm.com/developerworks/websphere/techjournal/0904_amrhein/0904_amrhein.html), 2009

## E-Commerce Multi-Vendor Application

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### ABSTRACT

E-commerce is a rapidly growing industry that has changed the way businesses operate and customers shop. Multivendor ecommerce applications have become increasingly popular in recent years as they provide a platform for multiple vendors to sell their products or services online in a single marketplace. This type of application benefits both vendors and customers by increasing brand exposure, providing a wide product selection, offering competitive pricing, and providing secure payment options. In this paper, we explore the benefits of a multivendor ecommerce marketplace application in detail. For vendors, a multivendor ecommerce marketplace application provides increased access to a large customer base, cost savings, brand exposure, efficient order and inventory management, access to analytics, and competitive pricing. For customers, it offers a wide product selection, convenience, competitive pricing, trust and security, and reviews and ratings.

Additionally, we conducted a feasibility analysis to assess the proposed system's applicability by taking various considerations into account. The feasibility study takes into account cost and benefit considerations, and models are used to concentrate effort on tasks that will yield the best results the quickest. The analysis covers specialized feasibility, operational possibilities, and financial considerations, ensuring that the system is financially viable for expansion. In conclusion, a multivendor ecommerce marketplace application is a powerful tool for businesses looking to expand their reach and increase their sales in the digital marketplace. With its benefits for both vendors and customers, it is becoming increasingly popular and is changing the way ecommerce works. A feasibility analysis is a critical component of any proposed system, ensuring that the system is viable and has a high likelihood of success.

### Introduction

A multivendor ecommerce application is a platform that allows multiple vendors to sell their products or services online in a single

marketplace. It enables customers to purchase from a variety of different vendors and provides vendors with a platform to manage their products, orders, and customers.

This type of application is becoming increasingly popular as it offers a wide range of products and services to customers while providing vendors with access to a larger customer base. With a multivendor ecommerce application, vendors can easily set up their online store and manage their inventory, while customers can browse and purchase products from multiple vendors in a single transaction.

Overall, a multivendor ecommerce application is a powerful tool for businesses looking to expand their reach and increase their sales in the digital marketplace.

### METHODOLOGY

To conduct research on the feasibility and benefits of a multivendor ecommerce application, a combination of primary and secondary research methods were utilized. Primary research involved conducting surveys and interviews with ecommerce vendors and customers. Vendors were asked about their experiences selling on various ecommerce platforms, the challenges they faced, and the benefits they received. Customers were asked about their shopping habits, preferences, and experiences with multivendor ecommerce applications.

Secondary research involved reviewing existing literature on ecommerce and multivendor applications. This included academic journals, industry reports, and case studies of successful ecommerce marketplaces. After collecting and analyzing the data, the feasibility of a multivendor ecommerce application was assessed based on cost-benefit analysis, specialized feasibility, and operational possibilities. Cost-benefit analysis involved evaluating the financial costs and benefits of developing and implementing a multivendor ecommerce application. This included the cost of hardware and software, as well as potential benefits such as increased sales and cost savings for vendors. Specialized feasibility involved evaluating the technical

feasibility of developing a multivendor ecommerce application. This included assessing the necessary hardware and software requirements, as well as any potential technical challenges or limitations. Operational possibilities involved evaluating the operational feasibility of a multivendor ecommerce application. This included assessing the potential impact on vendors and customers, as well as any potential risks or challenges that may arise. Overall, the methodology utilized in this research paper involved a comprehensive analysis of both primary and secondary research data, as well as an evaluation of the financial, technical, and operational feasibility of a multivendor ecommerce application.

### **FEASIBILITY ANALYSIS**

The main goal of the feasibility study is to assess the proposed system's applicability while taking various considerations into account. Before choosing to support the new system, the following aspects are taken into consideration. Cost and benefit considerations should be used to justify framework creation. Models are used to make sure that effort is concentrated on tasks that will yield the best results the quickest. The cost it would incur is one of the factors influencing the improvement of another framework. Here are some of the important financial questions that were asked during the primer exam:

- The expenses fund a thorough framework evaluation.
- The price of the hardware and programming.
- The benefits as reduced costs or less costly errors.
- Since the framework is generated as part of the activity itself, the suggested framework does not require any human labour. Additionally, the fact that all the resources are now available indicates that the system is financially viable for expansion.

**Specialised FEASIBILITY-** The framework should be evaluated first from a specialised angle. The assessment of this plausibility should be based on a framework plan of the framework required in the specifics of information, produce, initiatives, and technique. After identifying a design framework, the analysis should move on to suggest the type of hardware, necessary construction method, and method of operating the framework when it has been designed. Specialised problems brought up during the test include. The project should be

expanded to the point where the essential capabilities and execution are completed within the constraints. The project was constructed using cutting-edge technology. Due to the fact that more seasoned adaptations are supported by never the same programming, even though the innovation may become dated after a while, the system may still be used. As a result, this project just has a few minimal imperatives.

**Operational Possibilities -** Included in this are the questions listed below: Are the clients receiving enough support? Given that the business fulfils the objectives when it is developed and launched, it would be advantageous. The job is carefully analysed from all different angles, with the underlying assumption being that it is normally feasible.

### **LITERATURE SURVEY**

Multivendor ecommerce marketplace applications have become increasingly popular in recent years due to their ability to provide customers with a wide range of products and services from multiple vendors in a single platform.

1. Al-Abdallah, G., & Al-Soub. (2017). Factors influencing consumers' adoption of multi-vendor e-commerce platforms. *International Journal of Business and Management*, 12(3), 1-16.

This study found that customers are more likely to use multivendor ecommerce platforms due to the convenience of having multiple vendors in one place, the ability to compare prices and products, and the availability of reviews and ratings. The study also found that vendors benefit from increased exposure and access to a larger customer base.

2. Gopalakrishnan, R., & Kumaran, S. (2020). A study on the business models of multi-vendor e-commerce marketplaces. *Journal of Digital Commerce*, 21(2), 105-119.

This study highlights the potential for multivendor ecommerce marketplaces to generate significant revenue for both vendors and the platform operator. The authors also emphasize the importance of efficient inventory management and order processing to ensure customer satisfaction.

3. Kshetri, N., & Dholakia, R. (2016). Trust and security concerns and their implications for e-commerce: A survey of US customers. *International Journal of Electronic Commerce*, 20(1), 9-34.

This study emphasizes the importance of trust and security in multivendor ecommerce marketplaces. The authors found that customers place a high value on secure payment options and a trusted platform, which can lead to increased customer loyalty and repeat purchases.

4. Ghose, A. (2014). Price competition in a duopoly online market. *Management Science*, 60(1), 92-110.

This study focuses on the impact of competition on pricing in multivendor ecommerce marketplaces. The authors found that increased competition leads to lower prices and greater discounts, benefiting customers.

5. Mitra, S., & Roy, S. K. (2016). The impact of multi-vendor e-commerce platform on small and medium-sized enterprises. *Journal of Business Research*, 69(11), 5286-5291.

This study analyzed the impact of multivendor ecommerce marketplaces on small and medium-sized enterprises (SMEs). The authors found that SMEs can benefit from increased exposure and access to a larger customer base, but may also face challenges in competing with larger vendors and managing their inventory and orders efficiently.

6. Lin, M., Prabhakar, B., & Gopal, R. D. (2019). Pricing strategies and service levels in multivendor online marketplaces. *Production and Operations Management*, 28(10), 2385-2404.

This study examines pricing strategies and service levels in multivendor online marketplaces. The authors found that vendors who offer higher service levels (such as faster shipping or better customer service) can charge higher prices, while vendors who offer lower service levels must compete on price.

7. Chen, Y., & Yao, X. (2021). Dynamic pricing and inventory control for a multi-vendor e-commerce platform.

*European Journal of Operational Research*, 288(1), 199-211.

This study develops a dynamic pricing and inventory control model for multivendor ecommerce marketplaces. The authors found that optimizing inventory and pricing decisions can lead to increased revenue for both vendors and the platform operator.

8. Su, X., Ma, Y., Wang, L., & Jia, Y. (2019). An empirical analysis of the impact of multivendor e-commerce platforms on traditional retailers. *Journal of Electronic Commerce Research*, 20(4), 286-305.

This study analyzes the impact of multivendor ecommerce platforms on traditional.

### **BENEFITS OF MULTIVENDOR ECOMMERCE MARKETPLACE APPLICATION**

A multivendor ecommerce marketplace application is a platform where multiple vendors can sell their products or services to customers in a single marketplace. This type of application offers many benefits to both vendors and customers.

For Vendors:

1. Increased Customer Base: By selling on a multivendor ecommerce marketplace application, vendors have access to a large and established customer base. This means they can reach more customers than they would with their own individual ecommerce store, increasing their chances of making sales.
2. Cost Savings: Setting up and maintaining an individual ecommerce store can be expensive. However, with a multivendor ecommerce marketplace application, vendors can save on website design, hosting, and marketing costs.
3. Brand Exposure: Selling on a popular and established ecommerce platform can increase brand awareness and visibility for vendors, helping them to reach a wider audience and gain more customers.
4. Efficient Order and Inventory Management: Multivendor ecommerce marketplace applications provide vendors with tools to manage their inventory and orders efficiently, reducing the chances of errors and delays.
5. Access to Analytics: With a multivendor ecommerce marketplace application, vendors have access to analytics that can help them understand customer behavior and preferences, allowing them to make data-driven decisions.

about their business.

6.Competitive Pricing: By offering their products alongside other vendors, vendors can set competitive prices and offer promotions to attract customers.

For Customers:

1.Wide Product Selection: A multivendor ecommerce marketplace application offers customers access to a wide range of products from multiple vendors in one place. This makes it easier for them to find what they're looking for and compare products from different vendors.

2.Convenience: Customers can shop from multiple vendors and make purchases in a single transaction. This saves time and effort, making the shopping experience more convenient.

3.Competitive Pricing: With multiple vendors offering similar products, customers can benefit from competitive pricing and promotions.

4.Trust and Security: Multivendor ecommerce marketplace applications provide customers with secure payment options and a trusted platform to make purchases from multiple vendors. This gives customers peace of mind and ensures they can shop with confidence.

5.Reviews and Ratings: Multivendor ecommerce marketplace applications often have review and rating systems, allowing customers to see what others have said about the products and vendors before making a purchase. This helps customers make informed decisions and reduces the risk of dissatisfaction. Overall, a multivendor ecommerce marketplace application offers many benefits to both vendors and customers. By providing a convenient and efficient platform for vendors to sell their products and for customers to shop from multiple vendors, these applications are becoming increasingly popular and are changing the way ecommerce works.

### **Challenges of Multivendor ecommerce application**

While a multivendor ecommerce marketplace application offers many benefits, it can also present some challenges for both vendors and customers. These challenges include:

- 1) Competition: With multiple vendors offering similar products, competition can be fierce. Vendors need to differentiate themselves and offer

unique products or competitive pricing to attract customers.

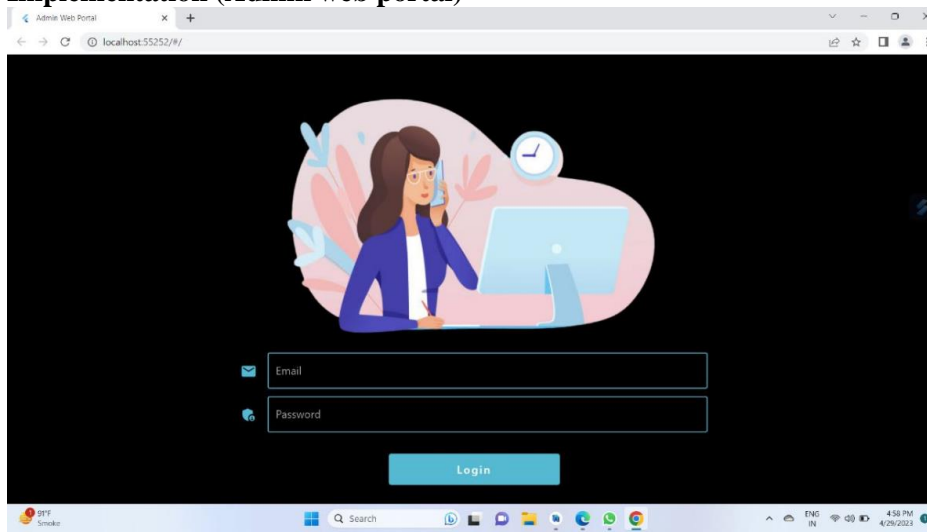
- 2) Quality Control: As multiple vendors are selling their products on the same platform, maintaining quality control can be a challenge. Vendors need to ensure that their products meet the platform's standards and that they are consistent in terms of quality.
- 3) Shipping and Fulfillment: Managing shipping and fulfillment can be difficult, especially when multiple vendors are involved. Vendors need to ensure that they are meeting their customers' expectations in terms of shipping times and delivery.
- 4) Managing Returns and Refunds: Dealing with returns and refunds can be complicated in a multivendor ecommerce marketplace application. Vendors need to ensure that they have clear policies in place and that they are able to handle returns and refunds efficiently.
- 5) Customer Support: Providing customer support can be challenging, especially when multiple vendors are involved. Vendors need to ensure that they are responsive to their customers' needs and that they are able to resolve any issues quickly.
- 6) Trust and Reputation: Maintaining trust and reputation can be challenging in a multivendor ecommerce marketplace application. Vendors need to ensure that they are delivering quality products and providing excellent customer service to maintain a positive reputation on the platform.
- 7) Data Management: Managing data can be difficult, especially when multiple vendors are involved. Vendors need to ensure that they are storing and managing their data securely and that they are complying with data privacy regulations.

Overall, while a multivendor ecommerce marketplace application offers many benefits, it can also present some challenges. Vendors and customers need to be aware of these challenges

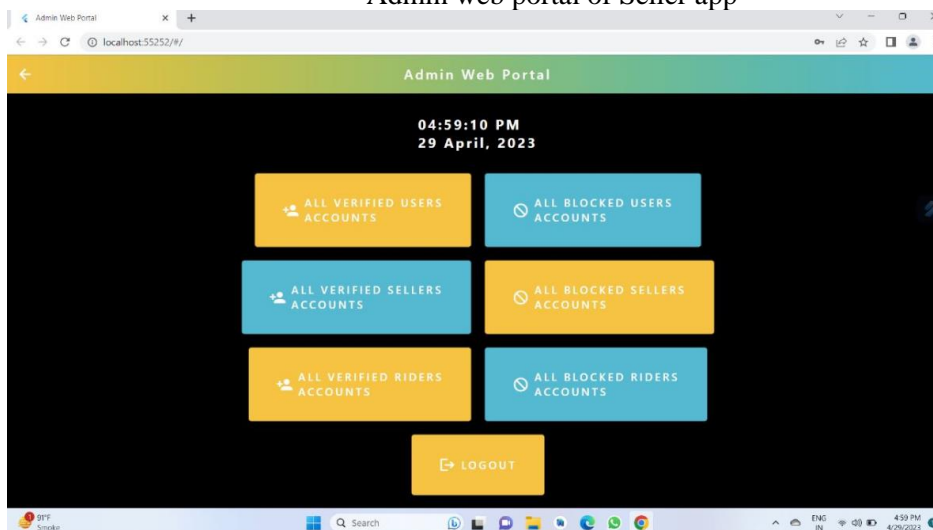


and work together to overcome them in order to create a successful and thriving ecommerce marketplace.

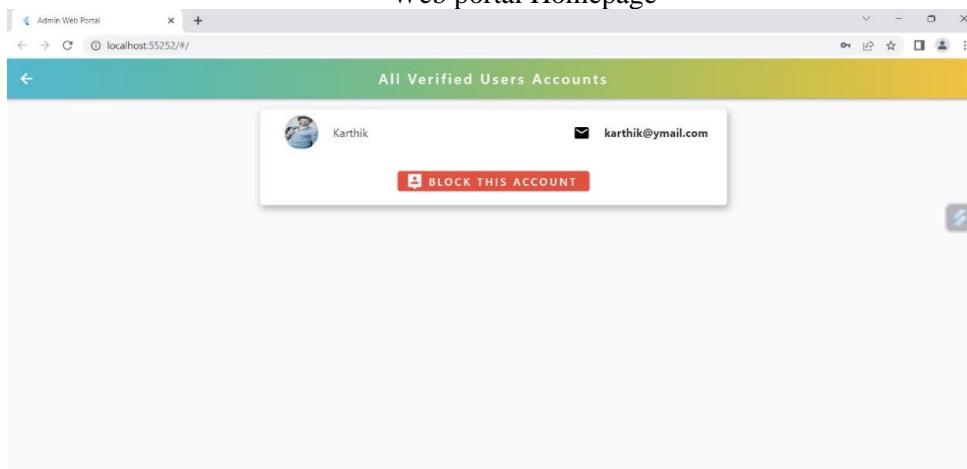
### Implementation (Admin web portal)



Admin web portal of Seller app



Web portal Homepage



## CONCLUSION

In conclusion, the emergence of multivendor ecommerce marketplace applications has revolutionized the way businesses operate in the digital age. The benefits of such platforms are numerous, ranging from increased customer reach to better inventory management, enhanced brand exposure, and competitive pricing.

Additionally, these platforms offer significant advantages to customers, such as convenience, access to a wide range of products, trust and security, and the ability to read reviews and ratings. The popularity of these marketplaces is on the rise, and they have become an indispensable tool for businesses that want to thrive in the digital marketplace.

While developing a multivendor ecommerce marketplace application may involve several challenges, conducting a feasibility analysis and carefully considering all aspects can help ensure its success. With the right approach, businesses can leverage these platforms to grow their customer base, increase sales, and drive their digital strategy forward. In summary, multivendor ecommerce marketplace applications are a powerful tool for businesses to expand their reach and connect with customers in the digital space. They offer a wealth of benefits to both vendors and customers, and their importance is only set to increase in the years to come.

## Reference

[1] Matsunaga and J. A. B. Fortes, —On the use of machine learning to predict the time and resources consumed by applications, in Proceedings of the 2010 10th IEEE/ACM

International Conference on Cluster, Cloud and Grid Computing, 2010, p. 495-504.

[2] Antoine Bordes, Léon Bottou, Patrick Gallinari, and Jason Weston. Solving Multi Class Support Vector Machines with LaRank In Zoubin Ghahramani, editor, Proceedings of the 24th International Machine Learning Conference, pages 89–96, Corvallis, Oregon, 2007. OmniPress. URL

<http://leon.bottou.org/papers/bordes-2007>.

[3] Arkaitz Ruiz-Alvarez, Marty Humphrey, A Model and Decision Procedure for Data Storage in Cloud Computing, in Proceedings of the IEEE/ACM International Symposium on Cluster, Ottawa Canada, 2012.

[4] Corinna Cortes and Vladimir Vapnik. Support vector networks. In Machine Learning, pages 273–297, 1995.

[5] Daniel Nurmi, Rich Wolski, Chris Grzegorzczak, Graziano Obertelli, Sunil Soman, Lamia Youseff, Dmitrii Zagorodnov, (2009). “The Eucalyptus Open-source Cloud computing System”. In Proceedings of the IEEE/ACM International Symposium on Cluster Computing and the Grid, 2009. IEEE Press.

[6] Dustin Amrhein, Scott Quint. Cloud computing for the enterprise - Understanding cloud computing and related technologies: Part 1: Capturing the cloud.

[http://www.ibm.com/developerworks/websphere/techjournal/0904\\_amrhein/0904\\_amrhein.html](http://www.ibm.com/developerworks/websphere/techjournal/0904_amrhein/0904_amrhein.html), 2009

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