VISVESVARAYA TECHNOLOGICAL UNIVERSITY,

BELGAUM, KARNATAKA

MINOR-PROJECT-I REPORT

ON

"DESIGN AND DEVELOPMENT OF AN ANDROID BASED E-COMMERCE MOBILE APPLICATION"

Submitted in partial fulfilment of the requirement for the award of the degree of

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE AND ENGINEERING

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CERTIFICATE

*Certified that the Minor-Project-1 work and presentation entitled "***Design and Development of an Android based E-Commerce mobile application***" is a bonafide work carried out by* **Keerti K Naikwad (2SD19CS048), Madhumita K Naik (2SD19CS054), Shivani B Bagodi (2SD19CS101) and Sourabh (2SD19CS111)** *students of S.D.M College of Engineering & Technology, Dharwad, in partial fulfilment of the award of* **Bachelor of Engineering in Computer Science and Engineering of *Visvesvaraya Technological University, Belgaum*,** *during the year 2021-22. It is certified that all corrections/suggestions indicated for internal assessment have been incorporated in the report deposited in the department library. The Minor-Project-1 has been approved, as it satisfies the academic requirements in the respect of project report prescribed for the said degree.*

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ABSTRACT

The aim of our project is to build an Android based e-commerce mobile application to facilitate the street vendors/daily wage workers to electronically buy or sell the products on online. It enables direct dealing of the street vendors with their customers, without the intervention of third-party sellers/mediators. There is a scope of making the nation completely digitalized, which also takes a step ahead towards DIGITAL INDIA. The future scope of this project will allow the user to locate the vendor based on the location.

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PROBLEM STATEMENT

The street vendors generally have mobile stalls, but do not have a permanently built structure. They are neither protected by government, NGOs, labour union nor by any labour law and are deprived by the laws made by government, due to which they are forced to pay a major portion of their daily income as fines to various law enforcing agencies. Their incomes are often minimal and their sales fluctuate.

CHAPTER 1: INTRODUCTION

Street Vendors are very important part of the Informal sector in the country. They often face many problems as they are neither protected by the Govt, NGOs, nor by the labour laws and are deprived by the laws made by them. Due to this, they are forced to pay 15-20% of their daily income as bribes to various law enforcing agencies and also suffer competition with other street vendors because of the fluctuation in market price.

Therefore, keeping the above information in view, our team has developed an Android application that facilitates the street vendors/daily wage workers to electronically buy or sell the products on online services or over the internet. It enables direct dealing of the street vendors with their customers, without the intervention of third-party sellers/mediators. Customer interacts with the vendors through our application and lists the products/services he/she wishes to buy. If the respective products are available then the order is confirmed and both the vendor and the customer will receive a confirmation about the order. Depending upon the vendor's location the delivery process is initiated. Payment is done after the completion of delivery.

CHAPTER 2: LITERATURE SURVEY

The first World Wide Web server and browser, created by Tim Berners-Lee in 1989, opened for commercial use in 1991. Thereafter, subsequent technological innovations emerged in 1994: online banking, the opening of an online pizza shop by Pizza Hut, Netscape's SSL v2 encryption standard for secure data transfer, and Intershop's first online shopping system. The first secure retail transaction over the Web was either by NetMarket or Internet Shopping Network in 1994. Immediately after, Amazon.com launched its online shopping site in 1995 and eBay was also introduced in 1995. Alibaba's sites Taobao and Tmall were launched in 2003 and 2008, respectively. Retailers are increasingly selling goods and services prior to availability through "pretail" for testing, building, and managing demand.

Online shopping is a form of electronic commerce which allows consumers to directly buy goods or services from a seller over the Internet using a web browser or a mobile app. Consumers find a product of interest by visiting the website of the retailer directly or by searching among alternative vendors using a shopping search engine, which displays the same product's availability and pricing at different e-retailers. As of 2020, customers can shop online using a range of different computers and devices, including desktop computers, laptops, tablet computers and smartphones.

Online customers must have access to the Internet and a valid method of payment in order to complete a transaction. Generally, higher levels of education and personal income correspond to more favorable perceptions of shopping online. Increased exposure to technology also increases the probability of developing favorable attitudes towards new shopping channels.

Consumers find a product of interest by visiting the website of the retailer directly or by searching among alternative vendors using a shopping search engine. Once a particular product has been found on the website of the seller, most online retailers use shopping cart software to allow the consumer to accumulate multiple items and to adjust quantities, like filling a physical shopping cart or basket in a conventional store. A "checkout" process follows (continuing the physical-store analogy) in which payment and delivery information is collected (depends on vendor). Some stores allow consumers to sign up for a permanent online account so that some or all of this information only needs to be entered once. The consumer often receives an e-mail confirmation once the transaction is complete. Less sophisticated stores may rely on consumers to phone or e-mail their orders (although full credit card

numbers, expiry date, and Card Security Code, or bank account and routing number should not be accepted by e-mail, for reasons of security).

The most important factors determining whether customers return to a website are ease of use and the presence of user-friendly features. Usability testing is important for finding problems and improvements in a web site. Methods for evaluating usability include heuristic evaluation, cognitive walkthrough, and user testing. Each technique has its own characteristics and emphasizes different aspects of the user experience.

On-ground Survey:

On 4 January 2021, we went for a survey, in the streets of Dharwad. We interacted with few street vendors and customers, and recorded their statements.

From this interaction we came to a conclusion that, most of the street vendors are facing problems such as:

Loss of customers due to third party inclusion, once they sell their products to some other platform, they will add their stuff, increase the price and make profit.

They are unrecognized / unidentified in their own area, even though they sell the same product, customers have started moving to online shopping app like Grofers or Supermarts like Reliance Fresh.

They pay fines/taxes for selling their goods on the streets.

They start a cart, say a food cart, but they are not confident about it, as ***they don't have enough budget for publicity and pamphlet***. Even though their goods are of great quality, people don't have an idea about their existence due to which their business fails.

They spend most of their time toiling hard in bright sun and drizzling winds on the streets. Eventually ***their carts get damaged or will need a repair.*** But if they get a platform where they can sell directly from their home, it will at least reduce the pain of cart maintenance.

Customer Requirements:

- Customers expect an estimated delivery time.
- An online feature that enables the customer to compare the price difference between one vendor and another in real time, is also desired by the customer.

CHAPTER 3: DETAILED DESIGN

3.1 DATA-FLOW MODEL

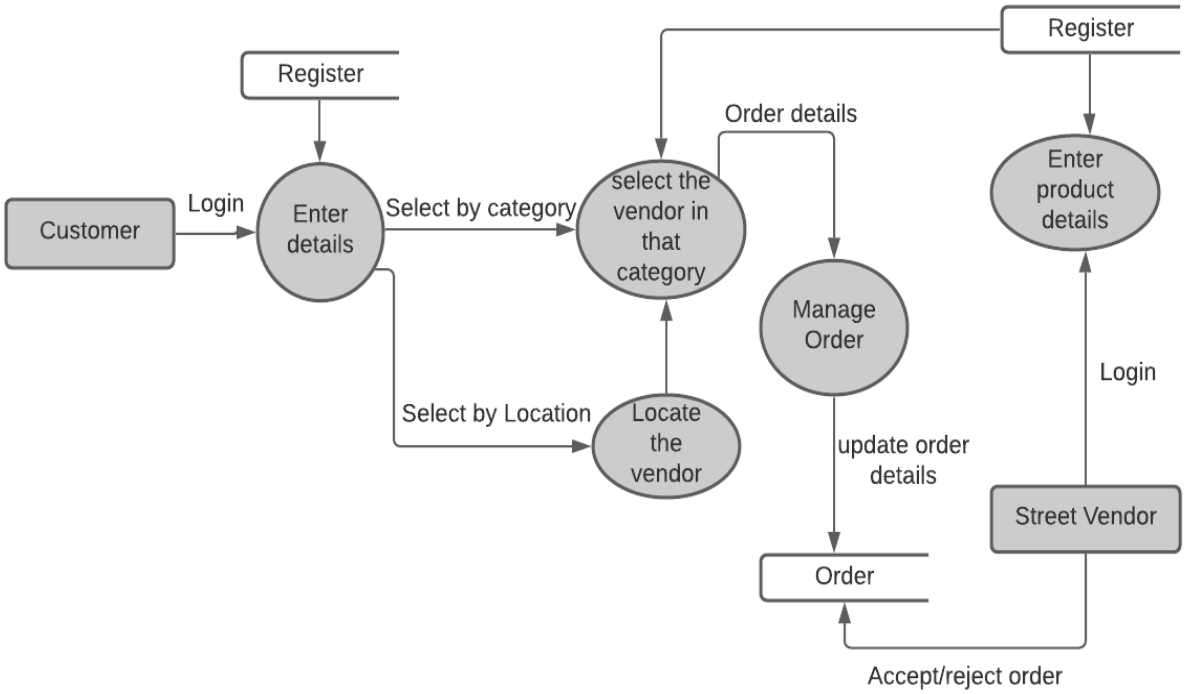

Figure 3.1 Data Flow Model

- A **data-flow diagram** is a way of representing a flow of data through a process or a system (usually an information system).
- The DFD also provides information about the outputs and inputs of each entity and the process itself.
- It shows how data enters and leaves the system, what changes the information, and where data is stored.

3.2 USE CASE MODEL

Figure3.3 Use-Case Model

A use case diagram contains four components.

- **The boundary**: which defines the system of interest in relation to the world around it.
- **The Actors:** The entities that interact with the target system by producing and consuming information that is necessary with the requisite
- **The use cases:** which are the specific roles played by the actors within and around the system.
- **The relationships** between and among the actors and the use cases.

3.3 ARCHITECTURAL DIAGRAM

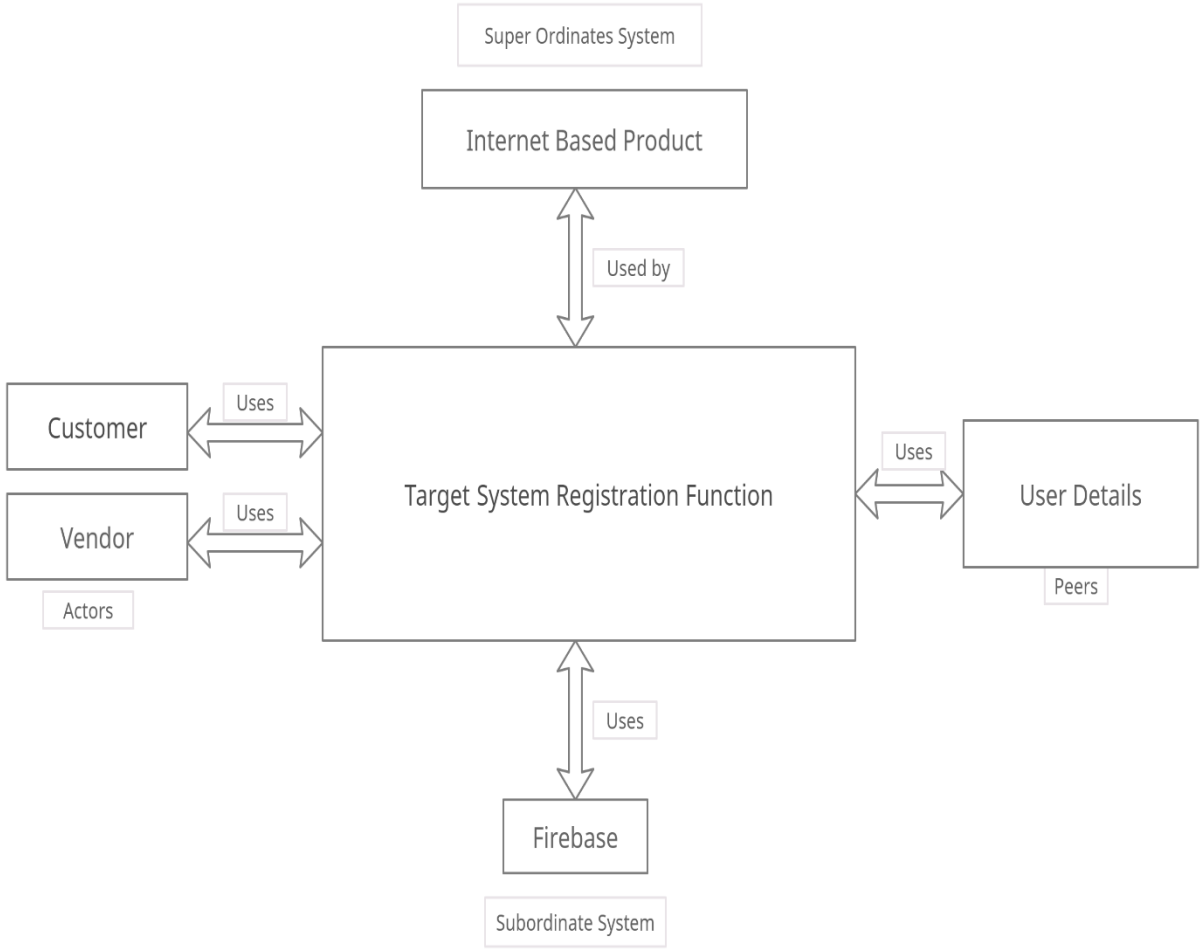

Figure 3.3 Architectural Diagram

- **Super Ordinate System:** Using the target system as part of some higher-level processing scheme.
- **Sub Ordinate System:** Used by the target system to provide data or processing needed to complete the target system. Subordinate in this project is Firebase.
- **Peer Level System:** Producing or consuming information needed by peers and the target system.
- **Actors:** The entities that interact with the target system by producing and consuming information that is necessary with the requisite.

3.4 SEQUENCE DIAGRAM

3.4.1 Login Scenario

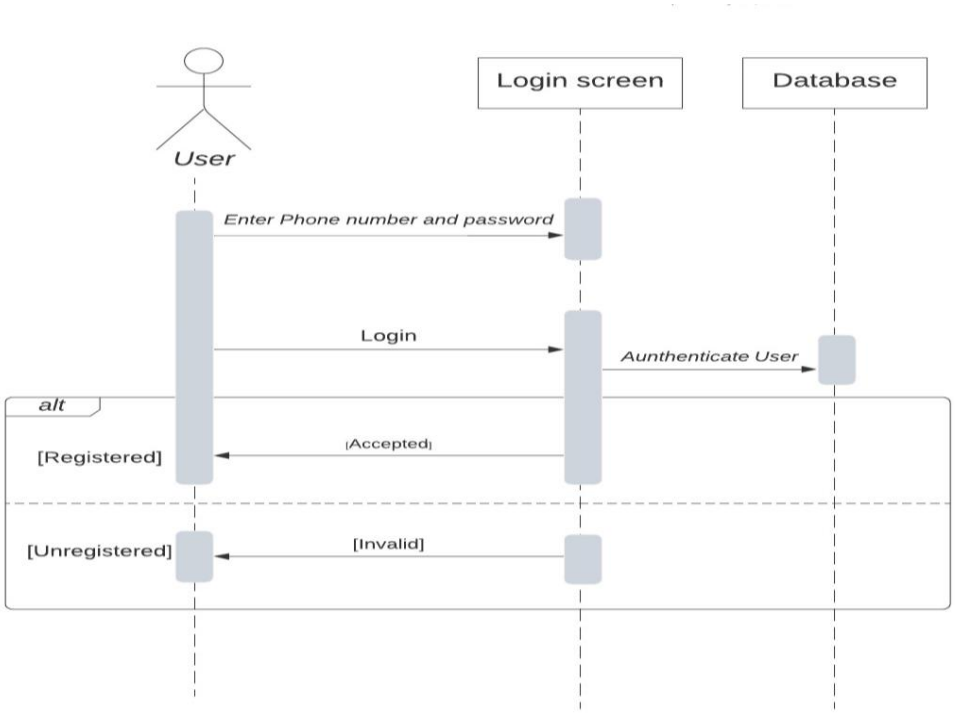

Figure 3.4(a)

3.4.2 Registration Scenario

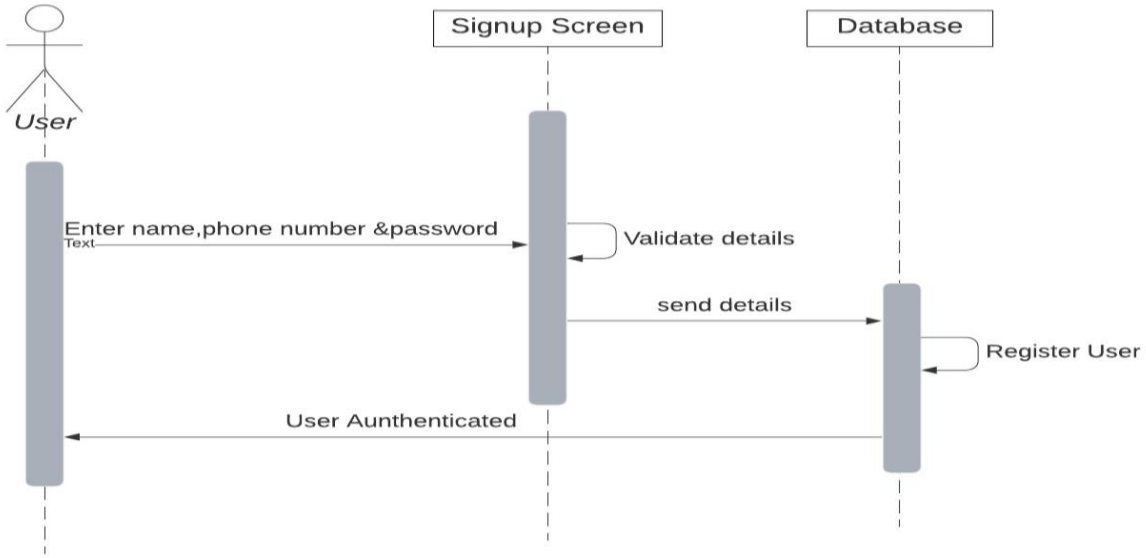

Figure 3.4(b)

CHAPTER 4: PROJECT SPECIFIC REQUIREMENTS

4.1 Hardware Requirements

- A device running Android version 5.0 [Lollipop] or Higher.
- Memory: Minimum 2GB required.
- Storage: Minimum 150MB required

4.2 Software Requirements

- **Android Studio**
  An official integrated development environment (IDE) for Google's Android operating system, built on JetBrains's IntelliJ IDEA software and designed specifically for Android development. It is available for download on Windows, MacOS and Linux based operating systems.
  https://developer.android.com/studio

- **Firebase**
  Firebase is a platform developed by Google for creating mobile and web applications. In 2014, Google acquired the platform and it is now their flagship offering for app development. It is an API for application data synchronization across Android, web, and iOS devices.
  https://firebase.google.com

- **Brackets**
  Brackets is a source code editor with a primary focus on web development. Created by Adobe Systems, it is free and open-source software licensed under the MIT License, and is currently maintained on GitHub by open-source developers. It is written in JavaScript, HTML and CSS.
  https://brackets.io

- **Canva**
  Canva is an Australian graphic design platform, used to create social media graphics, presentations, posters, documents and other visual content. This platform has been used for logo creation and for editing stories that have been put up on the webpage.
  https://www.canva.com

CHAPTER 5: IMPLEMENTATION

- **Application Configuration:** Firstly, download the latest version of the android application from android studio using an android USB cable. Secondly, run the application on the device.

- End users have option to Sign up if they are new to the Application.

- Following login, the user will be presented with two options: "Select by Location" and "Select by Category".

- By selecting the "Select by Category" option, the user will be directed to a screen displaying the different categories of goods available.

- Once the user selects a particular category (e.g., Vegetables), the user is directed to a screen that shows a list of the various vendors.

- If the user is willing to buy the product at the given price, he can place the order and the order confirmation message is displayed.

- The vendors will have an option to login using their login credentials.

- Following login, the vendor will be presented an option to “Select by Category” where the vendor can choose the particular category of goods.

- After a vendor selects a category (e.g., Vegetables), a screen appears where the vendor can upload the details of their goods (i.e., image, description, price).

CHAPTER 6: RESULTS

6.1 Launcher screen

Figure 6.1

6.2 Customer Login Page: Allows a registered user to login into the application

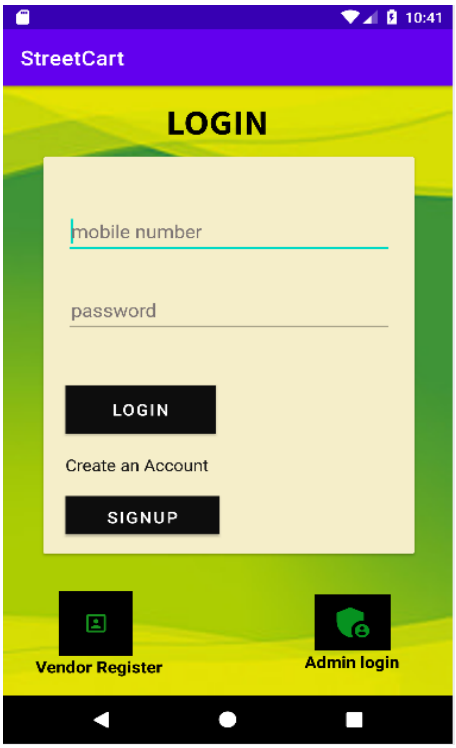

Figure 6.2

6.3 Customer Signup page: Allows an unregistered user to sign-up for the application.

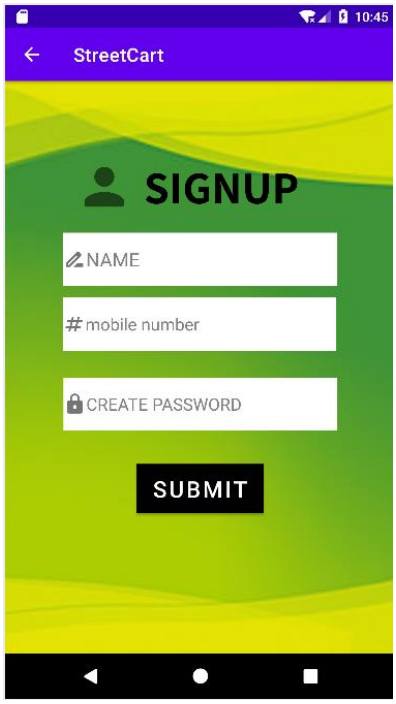

Figure 6.3(a)

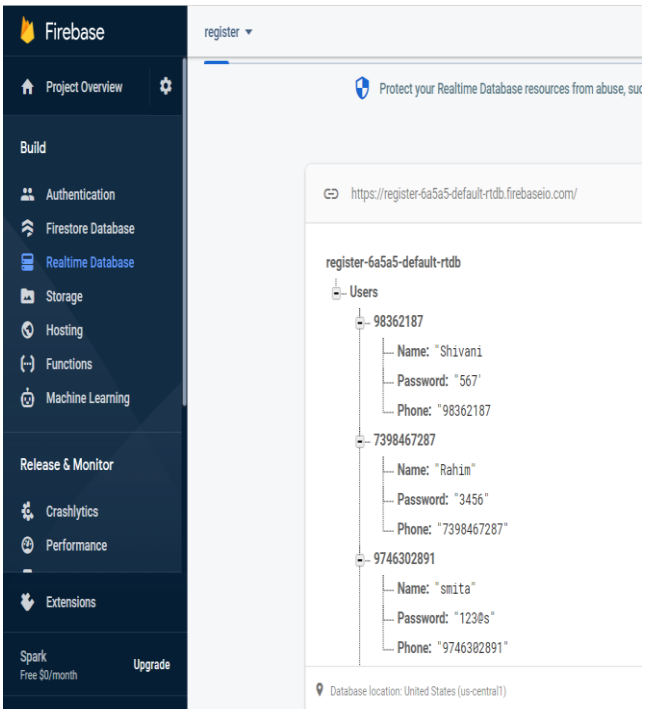

Figure 6.3(b)

6.4 Vendor Login Page: Allows a registered vendor to login into the application

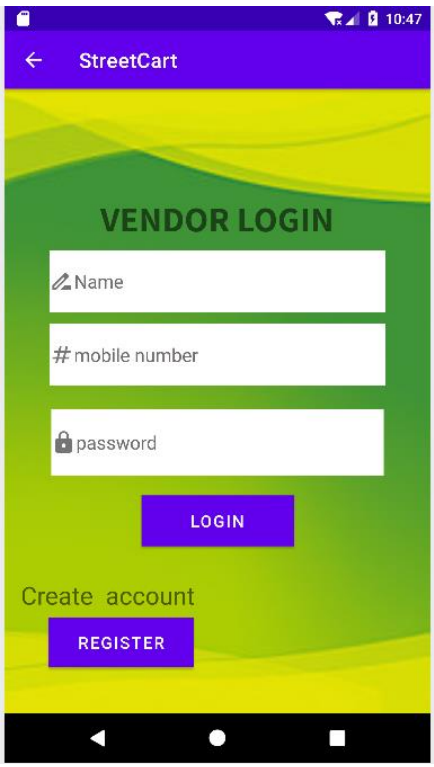

Figure 6.4

6.5 Vendor Register page: Allows an unregistered vendor to register their product.

Figure 6.5(a)

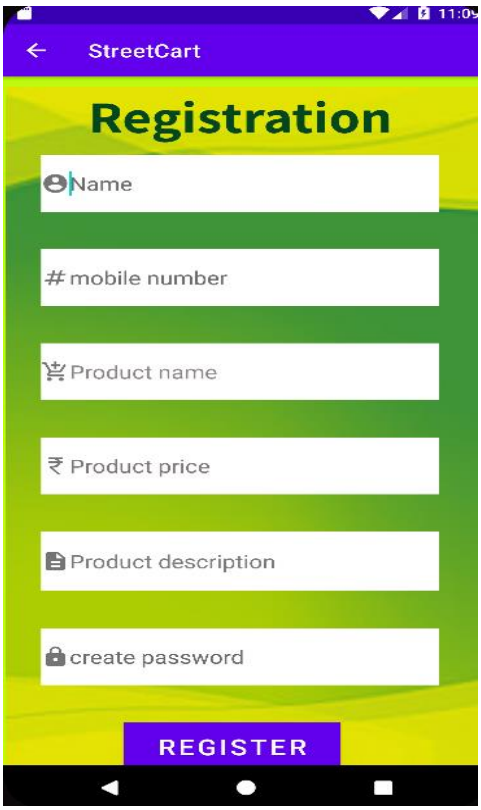

Figure 6.5(b)

6.6 Admin login

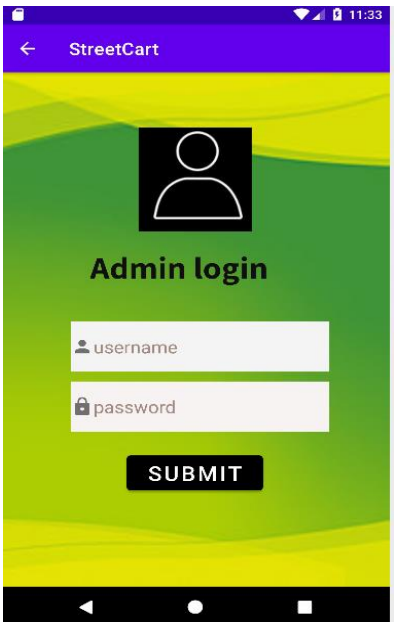

Figure 6.6

6.7 Select page-where customer can select btween the options for the selection of vendor

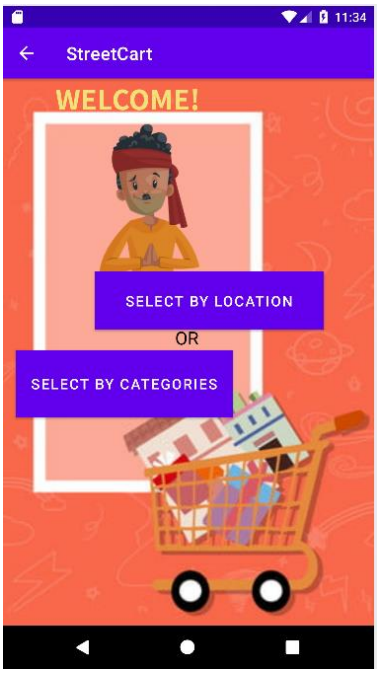

Figure 6.9

6.8 Select by Category Screen-Where the customer can select the products by category

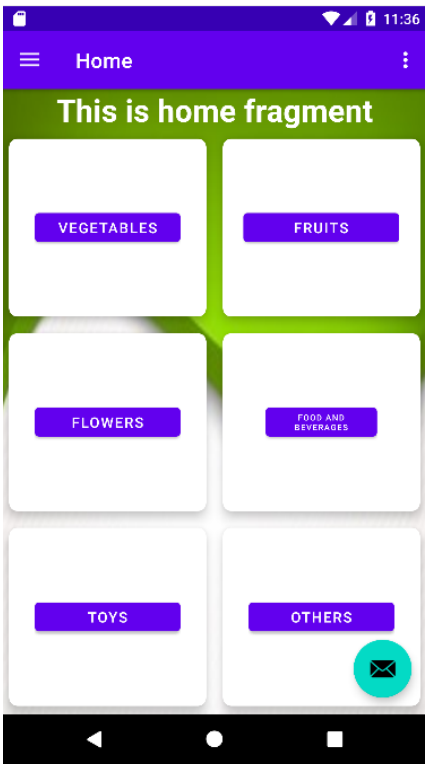

Figure 6.8(a)

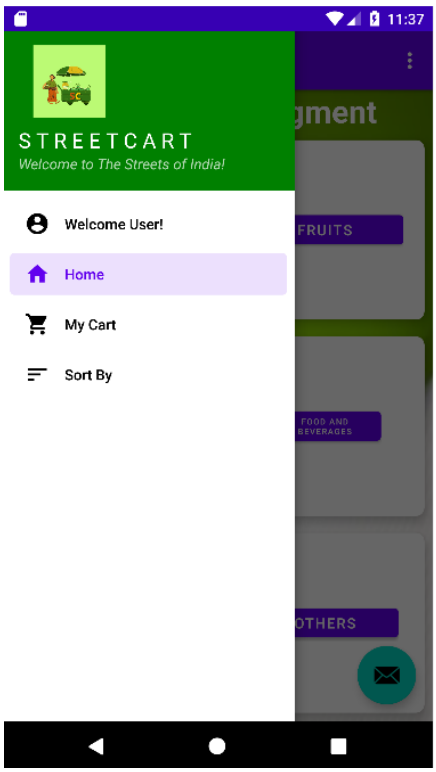

Figure 6.8(b)

6.9 Order confirm Screen

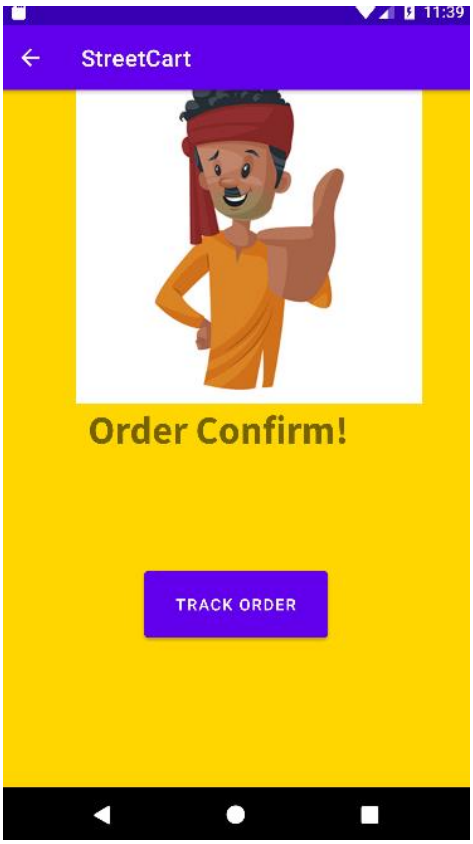

Figure 6.9

CHAPTER 7: CONCLUSION AND FUTURE SCOPE

- For now, vendors can add a single photo of their product, but in the future, they will be able to add multiple photos or a short video, which will give customers a better view.
- As part of Maps, we will provide the customer with a feature where they can find vendors within 5km of their location.
- Some sellers like street food vendors face issues with fluctuating vegetable prices, so we'll give them a feature where they can adjust their prices based on market conditions.
- We will provide a push notification (in-app) for the vendors.
- Integrate Gmail, Facebook and other social media apps for customer sign up.
- Provide more filters and better UI.
- We have provided a feature that allows users to visit the home page and order products from that page, but we are planning to add a "cart system" where customers can order a list of items they need.
- Once the app is ready, we will register the vendors and create the cloud store system, which will eventually lead to many cost savings for them.

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7) https://firebase.google.com
8) https://www.spec-india.com/blog/kotlin-developer#:~:text=Kotlin%20Developer%2C%20popularly%20known%20as,build%20android%20applications%20with%20Kotlin.