Lebanese American University

Department of Computer Science and Mathematics

CSC599: Capstone Project

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# Dekanji: Online delivery service for small businesses

DEKANJI
Let's Groceries!

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# I. Abstract

## Introduction

In our world, there is unfairness in the concept of development. Many people work on themselves to improve, while others depend on luck. Sometimes, luck is the winning team leaving all people working hard broken and back to the start. Developing an idea to help those people in upgrading their workplace is our goal. The idea is to create an application to allow local stores to put their home-made products online to let people find them and order to their home. The following paper presents the idea of "Dekanji" which is an application that allows the user to sign up as a buyer or store owner, sign in, and display his products. This application will be a great benefit for local store owners to display their products for people to allow them to purchase them. As we know, Lebanon is living a crisis affecting all stores and closure of small business. This application shall help the owners of the small businesses by providing them with a free application to help them in surviving this pandemic.

## Overview

With the development of multinational supermarkets, local stores are losing their customers resulting in their closure. With the spread of Covid-19, multinational supermarkets also could allow customers to shop online. The most affecting factor is the economic crisis we are facing which is leading the local business to closure faster than ever. Customers are appealing to online shopping neglecting the local stores and making them lose. In these days, online shopping is the key to grab the people.

Nowadays, mobile applications are the key to success. Wherever and whenever you go, your smartphone is always with you. Add to this, mobile applications allow the user to have easy, functional access to information, products, services, and processes that they need in real-time and are optimized for hands on interaction (Hilliard, 2014). Users may order products whenever they want because of having their phone with them. Which will help the local stores in increasing their sales. As we are evolving into a mobile-centric society, it comes as no surprise that mobile apps are at the center of the developmental push. Mobile apps shall help in expanding the audience and increasing engagement (staff reporter, 2020). Mobile applications help improve customer engagement through chats and order forms. Ordering a product in just a few clicks is significantly faster and less stressful for many than making a phone call for the same purpose. Add to this, mobile apps enable companies to receive feedbacks from the customers side to be able to improve their performance and customer experience. With expectations set by mobile applications such as Amazon and Ali Express, delivery and order tracking are a standard requirement (Hanaoka, 2020).

Based on what is mentioned above, developing a free-based mobile application for local grocery stores is an important step in helping people during this crisis we are passing through. With all the negative factors mentioned that are leading to the closure of small

businesses, developing a mobile app to allow them to add their signature product is a big step in decreasing the closure rate of small business.

### Literature Review

As for the literature behind a delivery app, of course, I am not the first attempting to create such an application, but surely, I am the only ones providing free services with the application. As for the features provided by my application, it is surely not the best out there, but providing this one feature to local store owners to boost their business is a unique one. None of the delivery apps allow store owners to display their products unless paying. Some of them are not capable of paying due to their business's economic situation, so they are not having the opportunity to display their signature products so the people would see them. Toters Lebanon is an online delivery application that delivers food, groceries, cosmetics, etc.… Delivering all these products from stores that should apply on the website and then be accept but should pay a certain amount of fee to be able to register.

Although there are many delivery applications, none of them allows the store to display some signature products for free to help them in growing. Our application's purpose is to help local stores grow and give them the chance to continue in this crisis we are living.

## II. Project Requirements and Functions

As I am implementing a mobile application for our final year project. It was a key to setting some of the requirements before starting the implementation. The requirements for the project can be divided into two parts: user requirements, and application functions.

### User Requirements

The user requirements are:

- The user shall be able to register for an account (either buyer or store owner)

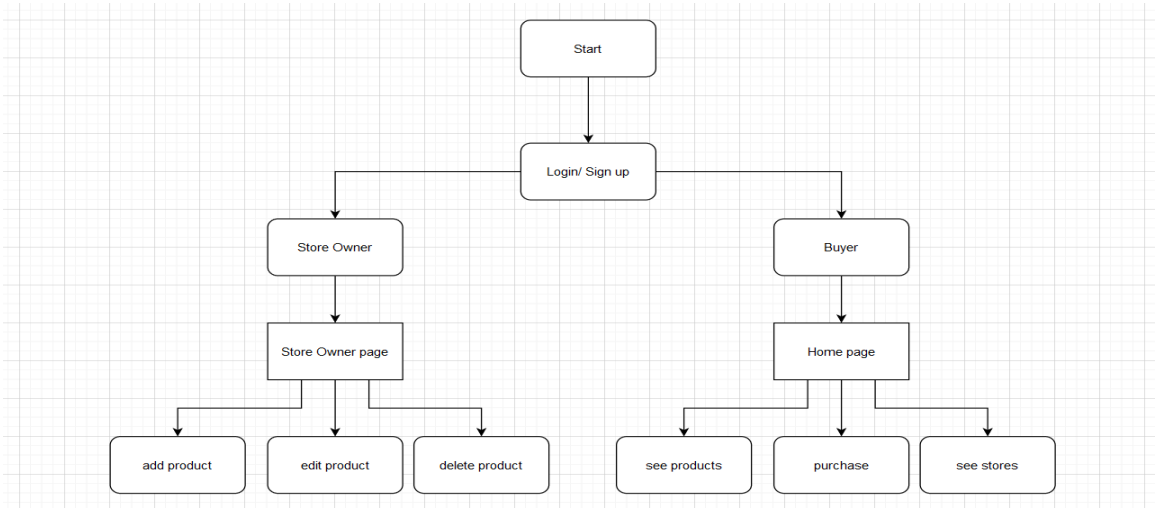
- The user shall be able to register using his unique credentials (username and password)
- The store owner shall be able to see the products in his own store
- The store owner shall be able to delete and edit any product in his store
- The buyer shall be able to see stores and their products
- The buyer shall be able to request a delivery for the products he want.
- The buyer shall be able request an “in store pickup”

## Application Functions

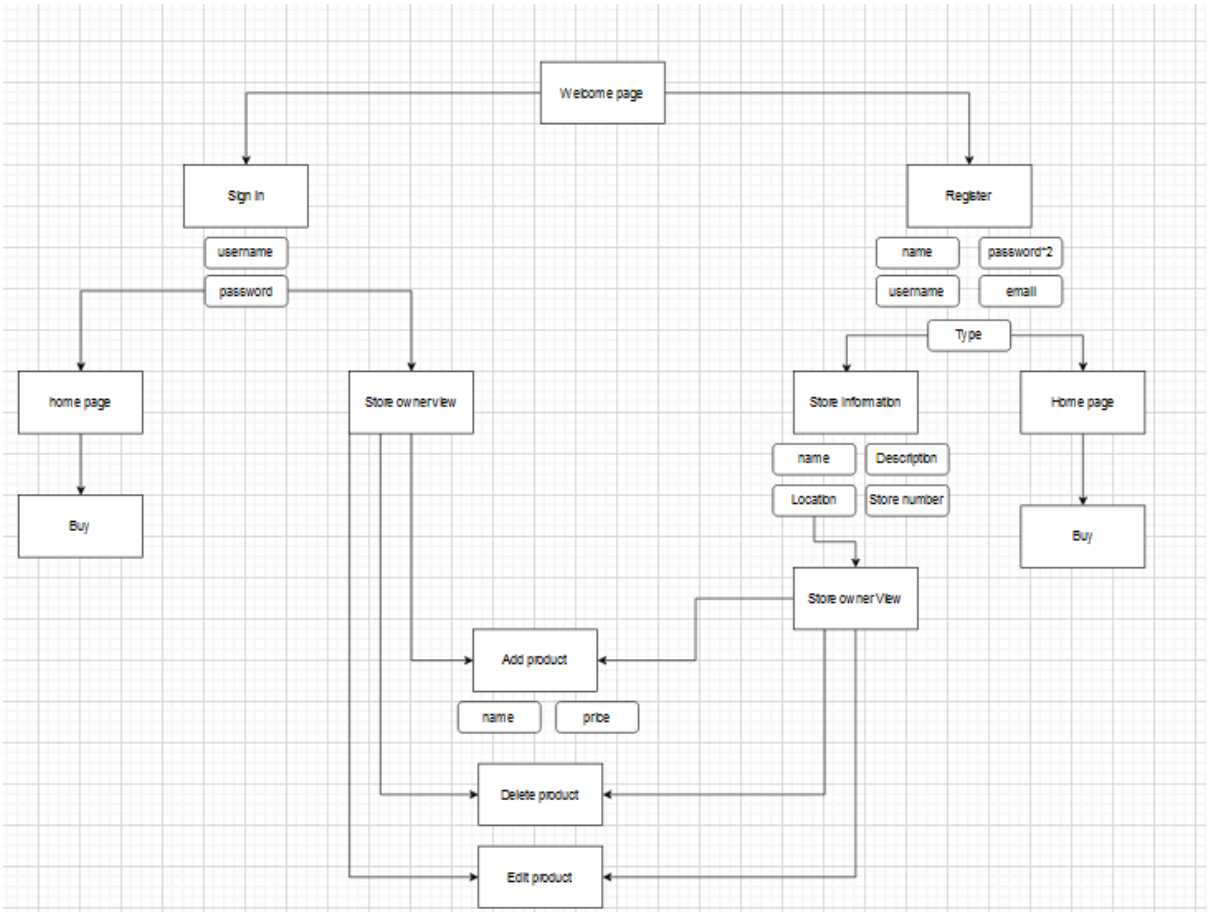
- Login: This function is responsible for logging the user in by checking his username and password.
- Register: This function allows the user to register for a new account either as store owner or as buyer. Checking if the credentials are unique and valid.
- Home page: Displays the stores registered
- View store: allows the buyer to enter the page of the store and check the products he added on display.
- Buy: Allows the user to buy the products he selected.
- Add product: allows the store owner to add products to his page.

# III. Project Design

## Overview Flowchart

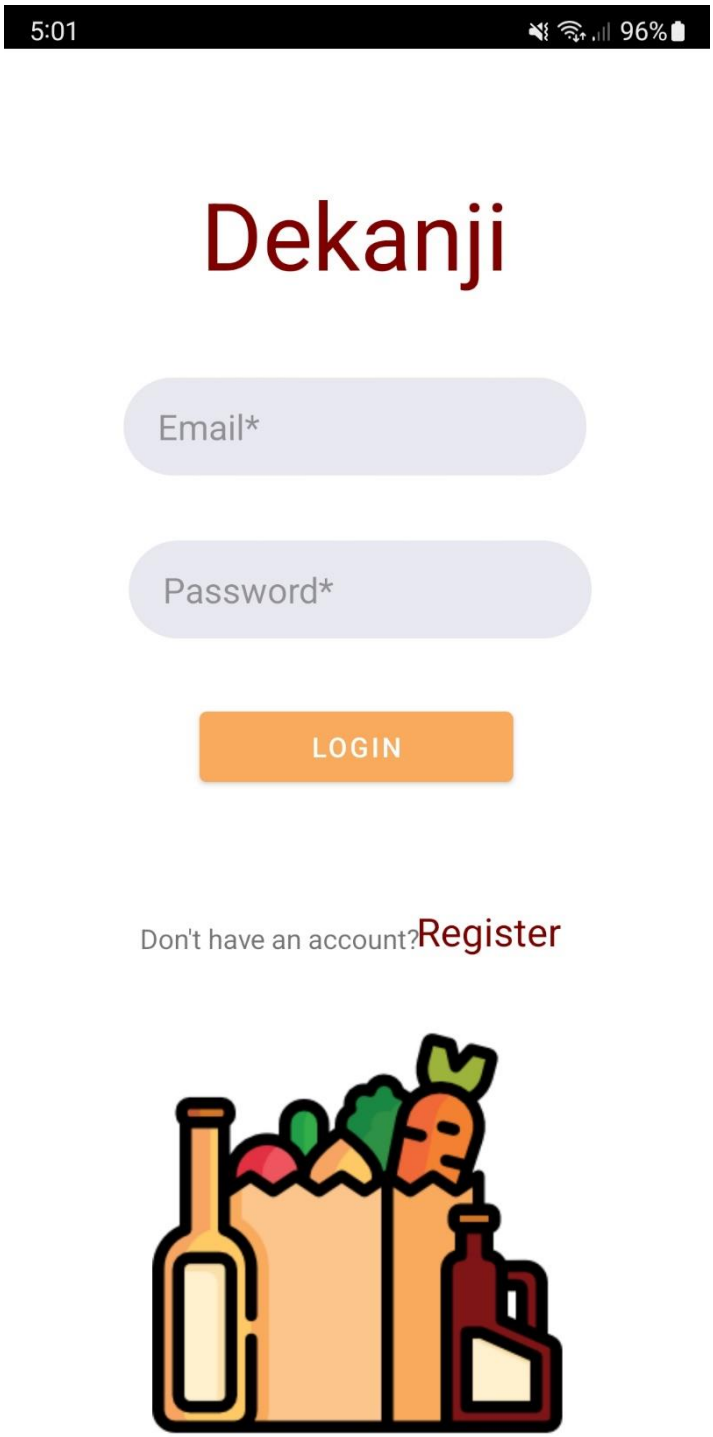



## Detailed Flowchart



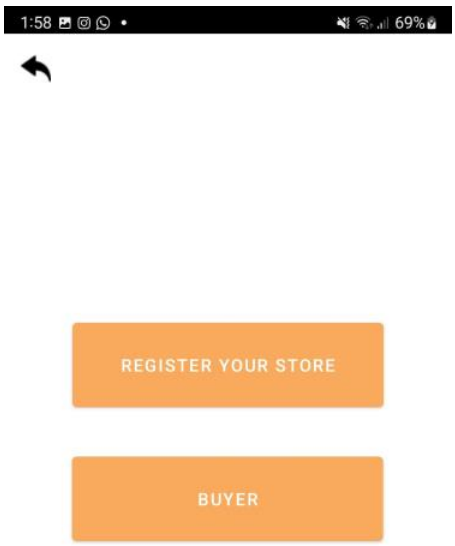
Login page

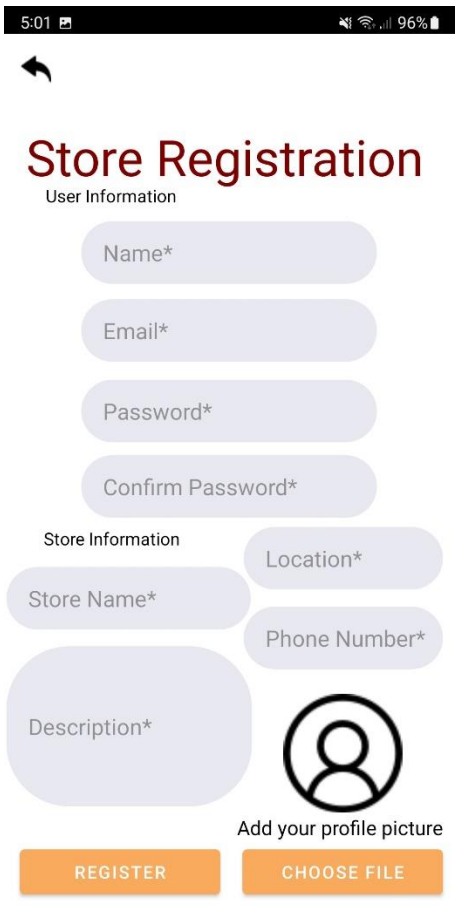
When the user enters his credentials, the code checks if they are found in the database. In the case where they are found, the user is logged in and continued to main page, otherwise an error message appears.

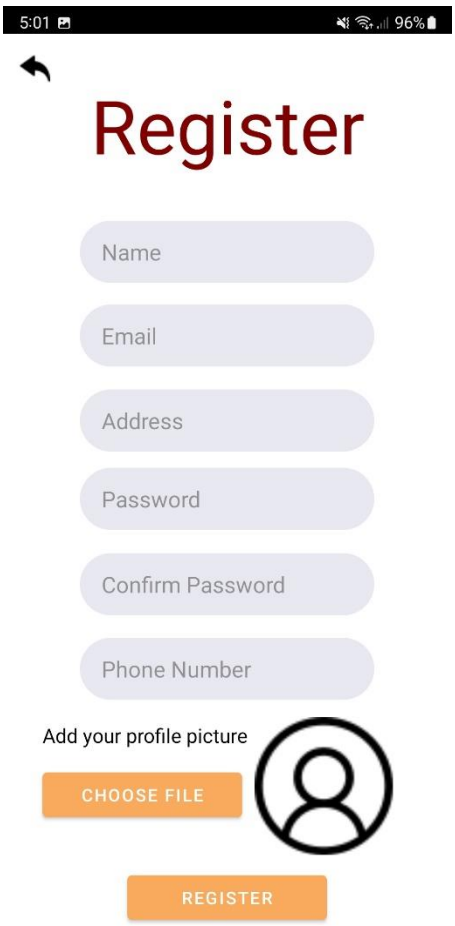


Sign up page

In this page the user is allowed to create a new user and then added to the database. During registration, credentials are taken from the user and if the user wants to register as a store owner, he is prompted to enter more information. Then all are saved into the database.

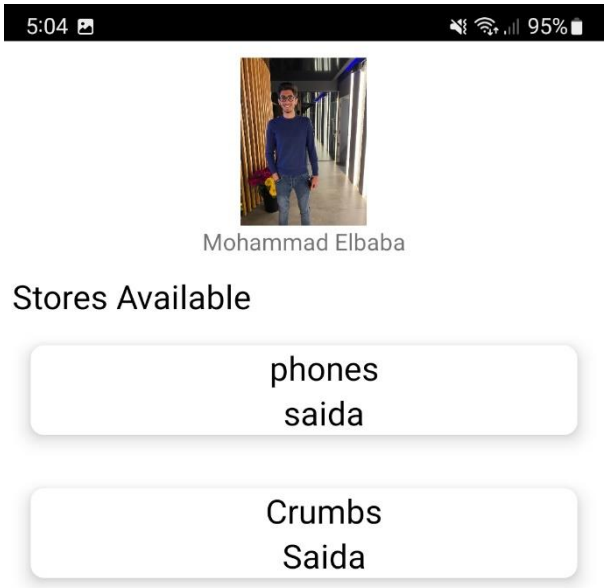


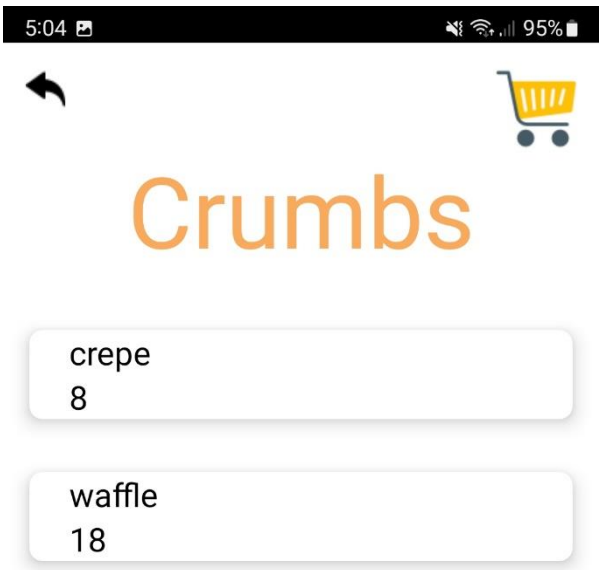



Home page & Store page

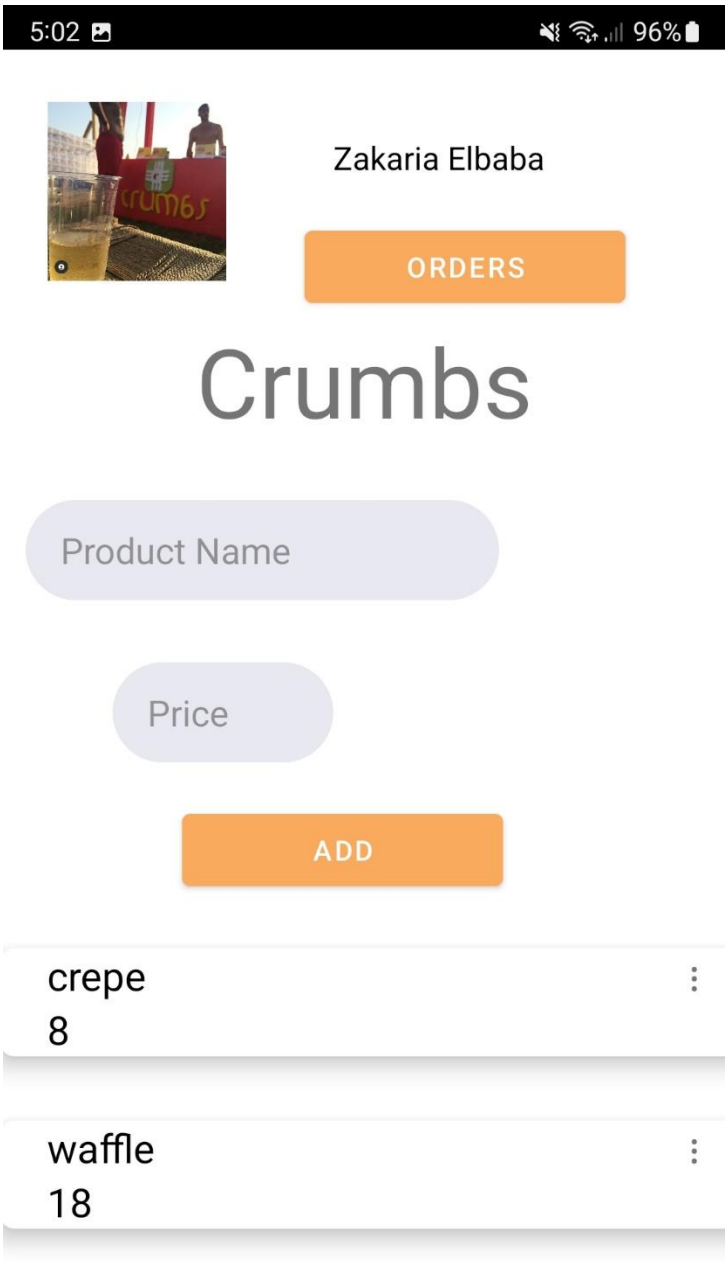
The user, who is a buyer in this case, can navigate between different stores in this page and then enter a store to check the available products. He can also request a delivery or pick-up from the store by selecting several items and adding them to the cart. The user shall also enter each store and the products available will show up. Each time the user presses on a product it will be added to the cart. To delete the product the user shall enter the cart and press on the product from there to delete it.



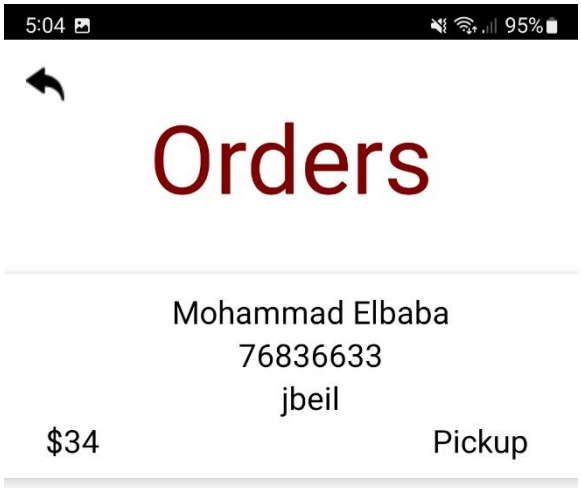
My store page

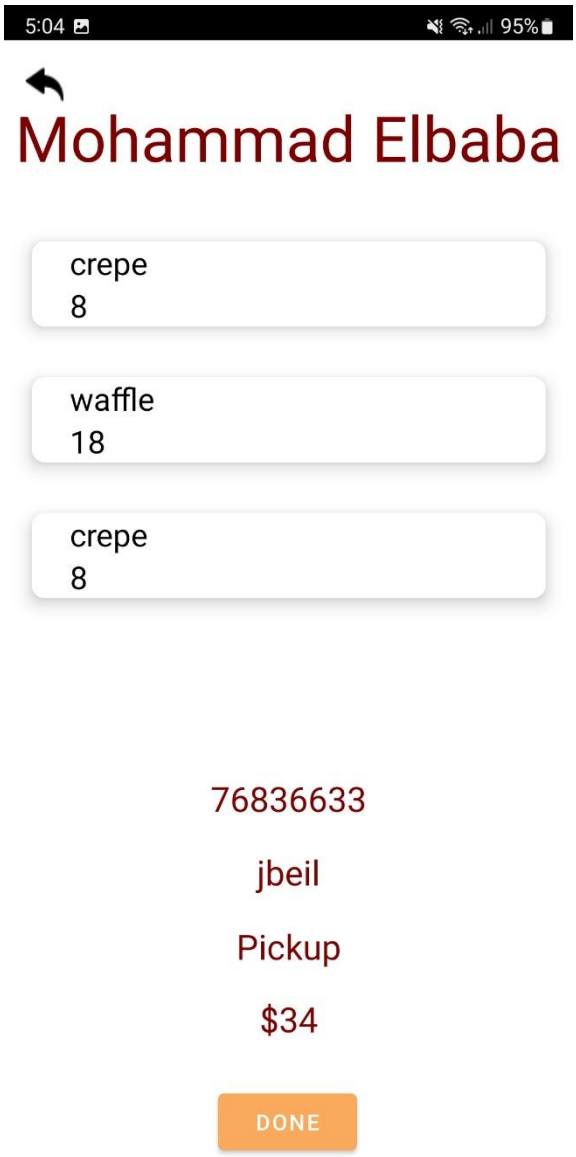
The user, who is a store owner, can add, delete, and edit products in his store. He also has a store-admin screen to show him the orders requested by people.



Store Orders page

These two pages are to track if there are any order request. The store owner shall mark a request done if the customer received his order.



Cart

The user shall enter the cart to check his desired products. He may also checkout, request, the products he wants. Then the store owner will see that he has a request from a customer to start packing it up.

# IV. Integration and Testing

As for the integration, the use of android studio and firebase is a great decision since both are developed by google. This made the procedure more efficient and helped in implementing all the functionalities of the application.

In the testing, the application went through many procedures to be tested and thankfully all the functionalities work.

# V. Problems faced

The problems faced in this project were endless. Regarding the design, 100s of ideas were implemented. Each time the idea gets changed to a better one, a lot of time was lost on the design of the project. When I wanted to start implementing the project, I considered choosing Ionic since it was based on HTML and CSS and will help us in the design. When I started to work with ionic, I tried as much as I can to learn, but learning how to use a new IDE during 1 month with a lot of exams and quizzes, I found out that it was nearly impossible, so I considered using an IDE that I am more familiar with and not start to learn a new one. After that, I then started to implement on Android Studio.

As I am implementing on Android Studio, I got dragged into many problems. To start with the UI, copying the Figma design on android studio was harder than expected due to the fact that it does not intricate designs and beautiful UIs. Add to this, because of the complexity of android studio, the functionalities that were planned to be implemented took a long amount of time. Moreover, the biggest problem faced is that I am working on this project solo which was a major issue. Suddenly Android studio stopped working, the emulator is no longer turning on and neither any wireless nor usb debugging from an android phone. This problem left me on writing a code without testing it because of the emulator crashing.

It was also very tough to integrate and connect the backend to the frontend, which is connecting Dekanji to a local database on xampp, called phpMyAdmin, a SQL database. This choice of database was helpful. Unfortunately, I figured out that using xampp as my local database and linking android studio manually will take too long to finish the requirements of the project, so I changed to firebase. It was a better way to have a realtime database and connecting android studio was shorter than expected which helped throughout the procedure.

As for the load of courses taken this semester to be able to graduate, creating more than 6 projects this semester, including the capstone I was able to complete the functionalities planned. Moreover, during this semester I have also taken Mobile computing, which was introducing me to full stack development. I also used some online sources, tutorials, and documentation to be able to continue this project and implement several functionalities.

# VI. Improvements for the future

In the future, I plan on adding several ideas to make this application user friendly as I can. Also, getting the location of the user that I could not implement, will hopefully be implemented to ma ethe application more feasible for the user.

As for the application, a major change can be made to proctor the products that are being displayed and the stores being registered which is implement an admin user. The admin page receives the stores registered and confirms if they are credible or not. Add to this, the admin may have a view at every user and store and has the ability to deactivate any user in case of any violation. There is always something to add to the application to improve the user experience. Several ideas were brought to the table, but because of shortness of time could not be implemented. Hopefully, in the future these would be implemented to make the application more efficient and more reliable. The ideas were to use geolocation to access

someone's location and get him all the stores around him rather than searching for a store near him. Also, time scheduling for a pick-up or delivery could be added to help the user.

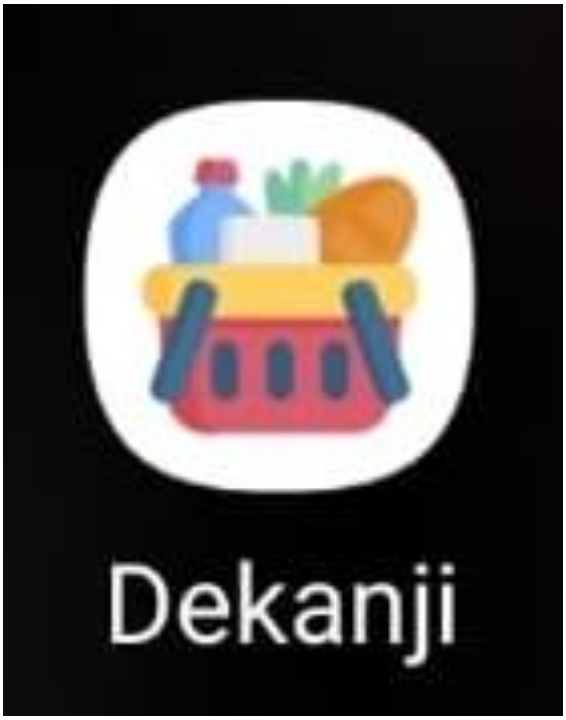
An improvement that can be implemented later on which will make it easier from the user's side is online payment. This feature will allow the user to pay for the products online which will make it easier for a parent to send an order to his kids at home when he is out or at work.

Add to this, a very important feature that could be implemented later on is checking if the email is valid or not, if the email exists or not, for the security of the application.

Later on, points can also be implemented, loyalty points, by the users buying products that will then get them free deliveries, free products, gifts and many more.

# VII. Conclusion

Finally, I was able to create "Dekanji", an application to help small business owners to boost their stores and let people notice them. This application's purpose to let these small



businesses survive during these tough times by creating some of there signature products and adding them to this application.

# VIII. References


Hanaoka, P. (2020, september 23). *The importance of mobile applications and the impact on retailer's revenue*. Retrieved from Marketingmag: https://www.marketingmag.com.au/hubs-c/opinion-the-importance-of-mobile-applications-and-the-impact-on-retailers-revenue/

Hilliard, A. (2014, December 22). *Why Mobile Applications Are Important; Especially Its Development*. Retrieved from Accelerance: https://www.accelerance.com/blog/why-is-mobile-app-development-so-important-today

staff reporter, t. t. (2020, May 7). *The Importance of Mobile application*. Retrieved from Tech Times: https://www.techtimes.com/articles/249457/20200507/the-importance-of-mobile-applications.htm

https://www.youtube.com/watch?v=BeQbHTh6HlA

https://www.youtube.com/watch?v=7AkoI21Q9mI