KENYA METHODIST UNIVERSITY

SCHOOL OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF PURE AND APPLIED SCIENCE

RESEARCH PROJECT

COMP 401

TITLE: ONLIDEALZ MOBILE APPLICATION

PRESENTED BY: JIMMY MADADI

REG No: MAC-1-8944-2/2019

Submitted by Jimmy Madadi to Kenya Methodist University in partial fulfillment of the requirements for the degree in Bachelors of Science in Mathematics and Computer Science.

DATE OF SUBMISSION: 4th APRIL, 2022

ABSTRACT

Onlidealz Company is an e-commerce company that deals with the importation and distribution of home and living equipment either in wholesale or retail prices. The development of the proposed mobile application, Onlidealz mobile application, will help cater the needs of the company in that, customers will be able to check if products are available, place an order and have it delivered to them using the company's logistic partners named Speedof courier. It'll also help the company in keeping record of the goods available in the company and have them updated if they are out of stock. The SDLC model that will be used in the development of this mobile application will be waterfall model since it follows a linear sequential flow to mean you have to be done with previous process before going to the next process. Some of the users of this mobile application include administrator, customers, finance manager, inventory manager, driver and supplier.

DECLARATION

I the undersigned solemnly declare that this research project, is based on my own work carried out during the course of our study. No part of this research may be reproduced without the prior permission the other and /or KEMU.

Candidate

NAME OF CANDIDATE: JIMMY MADADI

SIGNATURE: …….

DATE: ……..

DEPARTMENT: PURE AND APPLIED SCIENCE

UNIVERSITY: KENYA METHODIST UNIVERSITY

DECLARATION BY THE SUPERVISOR (S)

This research proposal have been submitted for examination with our approval as the university

Supervisor.

NAME OF SUPERVISOR: **DAVID KAJE**

SIGNATURE: …….

DATE: **……**

DEPARTMENT: COMPUTER SCIENCE DEPARTMENT

ACKNOWLEGDEMENT
Personally, I would like to acknowledge the following persons for their help and support in this project:

- My supervisor, Mr. David Kaje from the department of Computer Science, Kenya Methodist University for his proper guidance and direction till its completion.
- My colleagues from the department who helped me in the development of the project.
- My parents for paying my school fees and ensuring that I was in school at all time until the project came to an end.
- And above all, I would like to thank the Almighty for giving me life and enabling me to do this project till I've finished.

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1.0 CHAPTER ONE

INTRODUCTION

1.1 BACKGROUNG STUDY

The COVID-19 pandemic has crippled major services from the social, political, labor, and economic life. The social dimension and staying at home, has pushed consumers to back down due to a drop in informal shopping, supply chain disruptions, this is because the government in support with the World Health Organization(WHO) has led to closure of business centers, schools and various services with an aim of maintaining the wide spread of the Corona virus. This has led to a significant growth of E-Commerce in Kenya and worldwide generally, especially the small and medium business. E-commerce gathered a fast penetration in the market and has led in an increase in the online shopping. Consumers are able to purchase their goods and services like home and living equipment, clothing, food and properties online from the comfort of their homes.

Onlidealz is an E-commerce company that deals with the importation and distribution of home and living equipment either in wholesale or retail prices. It was established in the year 2012, and is based in Nairobi, Kenya. It has got several branches within Nairobi. Its trading name is affordable brand Kenya. They do their distribution majorly within this counties but still deliveries can be done countrywide through there logistics partners named Speedof courier. Customers have to go to the company in order to check if the product they want is available in order to make a purchase or make a phone call to the company to make their orders. After purchase of the products, customers can also collect their orders after the purchase from any of the branches in Kitengela, Kamukunji, university way, tea room and soon to be launched Nyamakima. They have partnered with several brands which include: NUNIX (being the main brand), LYONS, SUNDABEST, GENERIC and SOKANY in their distribution. Some of the products that are sold by the company in conjunction with the brands are as follows: Electronics – televisions and home audios; small appliances- blender, kettle, toasters, ironing and laundry; appliances – water dispensers, washers and dryers, cooking appliances – cook top, microwave oven, cookers; home and kitchen – wardrobes, utensils, carpets, duvets, shoe racks. The company has approximately 100 employees who are distributed in the branches to help in the sales of the products. This is an example of a

business that was affected by the pandemic due to the strict rules and measures that were placed by the government in order to regulate the spread of coronavirus.

With the emergence of smartphones, a lot has changed with the definition of mobile phones. Phone is no longer just a communication tool, but also an essential part of people's daily life. The android system in the electronic market is becoming more and more popular, especially in the smartphone market. Because of the open source, some of the development tools are free, so there are plenty of application developed. This has greatly inspired people to use the android system thus, the development of a mobile application for Onlidealz Company will help to build a strong brand for the company i.e. it will offer customers and other consumer's awareness of and communication with the company's brand. Through the regular interaction with the target market, it will foster trust between the customers and the company. The more the customer trust the company, the more they will likely listen to later sales and commit to buying goods from the company. This will help strengthen the company's brand.

The mobile application will help the company to connect better with the customers. From the onset of the pandemic, customer services has been reduced from face to face communication to phone calls and since human beings are subjects to mood swings, they (company's employees) might tend to clash with the customers and thus poor performance which in turn lead to low sales because of the poor connection with the customers. With the help of a mobile application, customers will be able to communicate with the company through it and the services will be great since they will be able to study and decide whether they want to buy the company's product. Still the customer can have a live communication with the company's agents in order to specify their needs and be answered through a WhatsApp link provided or in the inbox section. Also, when someone hears about the products the company sells, all they have to do is download the mobile application and get the information they want from it. Later when they want to purchase a product, they can do it immediately without having to go to the store itself or make several calls to the company to inquire about the products availability. From this, it will help the company to stand out from other competitive company's.

1.2 PROBLEM STATEMENT

In an ideal situation, customers should be able to check availability of products and purchase them flexibly from the comfort of their home without having to make phone calls or going to the shop itself, and receive them either from the stores or have it delivered to their preferred destination using the company's logistic services i.e. Speedof courier thus customers satisfaction. The company will be able to keep track of the products in the company and also update them once they are out of stock. Suppliers will also be able to know the amount of product they have to supply to the company without having to go to the company. Drivers too will be able to know where to deliver the products once customers have purchased them.

Currently customers are required to go to the company stores or make a phone call in order to make a purchase of the product they want. This has brought some challenges to the company since they have to deal with lots of customers where some buy their goods in wholesale or retail thus it has slowed down the process of delivery and loosing track of the customer orders. The customers also have faced some challenges since they cannot tell if the product they want is available or not. Keeping track of the product available in the company is done manually and having them updated is tiresome. Also, the suppliers have to be contacted every other time so as for them to come and deliver the products needed by the company: and the driver a times losses track of the delivery due to confusion brought about.

The development of this mobile application will help to cater the needs of the company such as ordering of goods will be less stressful for the customers since they'll do it through the mobile application without having to make a phone call to the company. This will reduce the traffic and coalition in the delays from customers accessing the services Also they'll be able to know if the products they want are available instead of calling or going to the company store itself to know. Delivery of goods will be easier since the driver will have the details of the drop off points through the mobile application. The stock manager will also be able to keep track of the items in the company and update them if they are out of stock.

1.3 JUSTIFICATION

The proposed mobile application will enable customers to have an account and be able to access the company's products. They will know if the product they want is available or not. From this, they'll be able to make an order and have it delivered to their homes or either go and collect it

from the company's store. It will also help reduce the number of phone calls to make orders from the customers since they will be able to access the company's product via the mobile application.

With the development of the mobile application, the company stock manager will be able to track the product available in the company and update it if it almost done so that customers can still have access to them. They will get a feedback from the customer about their satisfaction and possible improvement and changes to be done to the system.

Thanks to the ubiquity of mobile phone usage, customers will be able to connect with their favorite brands, 24×7. Not only will the mobile application be the go-to option for them, but also they will use the former to gain information about the company and its latest offerings.

1.4 OBJECTIVES

1.4.1 General Objective

To develop a mobile application for Onlidealz company

1.4.2 Specific Objectives

- To design a database for Onlidealz Company
- To develop a web interface for the administrator
- To build a mobile application for the frontend users of Onlidealz Company
- To create a module for generating reports for the company

1.5 SCOPE OF THE STUDY

The mobile application to be developed is an e-commerce platform intended to improve the sales of the company and also market it for customers to be able to reach it easily without having to go to the company stores. The users of the mobile application are as follows:

- Administrator
- Customer
- Stock manager
- Finance manager
- Driver
- Supplier

Some of the mathematical operation that the system will be able to conduct are:

- Sums up the total amount of item bought and the delivery fees applied
- Calculates the stock in and out
- Calculate the amount of money to be paid to the supplier
- Calculate the amount of sales done within a month and generate a report

Some of the modules that the system will have are as follows:

1.5.1 Database module

This module will be responsible for holding information such as the customer's details, number of stock in the company at the moment, numbers of orders placed and of suppliers in the company.

1.5.2 Administrative module

The administrator is the one who is in-charge of the system. Some of the responsibilities of this module are as follows:

- Approves accounts of the users.
- Access all the modules in the system.

1.5.3 Customer module

This module will enable the customers to perform the following functions;

- Create an account and login to the mobile application.
- Enable customers to view the items in the company.
- Enable them to order items they want.
- Receive notification on offers that are running that time.

1.5.4 Inventory management module

This module will allow keep track on the stock available in the company and update them if they are out.

1.5.5 Financial control module

This module will be used by the financial manager and help them keep record of the finances of the company.

1.5.6 Supplier module

This module will help in keeping track of the suppliers of the goods and also know the products they are supplying.

1.5.7 Driver module

This module will provide information to the driver about the drop off points of the goods to the respective customers.

1.5.8 Payment module

This module will enable customers to pay for the products they have purchased and also the company to pay the suppliers after they have distributed their goods

1.5.9 Ordering module

This module will enable customers to place orders of the goods they have purchased and also the company will be able to place their orders of the supplies to be brought to the company by the suppliers.

1.5.10 Search module

The module will enable customer to search for products easily.

1.5.11 Help module

This module will guide the users while they are using the system.

1.5.12 Feedback module

This module will allow customers to give their feedbacks on how the system is working and a review of the products they have bought.

1.5.13 Reports module

This module will help in generating reports of finance of the company, receipts

1.5.14 About Us module

This module will entail information about the company.

2.0 CHAPTER TWO

2.1 LITERATURE REVIEW

Mobile application has greatly transformed the e-commerce experience. It has brought many business to a whole new dimension over the past few years. Some of the change that the mobile application has brought include image search where customers have access to a whole world of information on their mobile devices and can easily take an in-store picture with their phone and search that image against all m-commerce option. In the long run, better technology and increased functionality of all mobile devices have led to a completely different, more competitive commerce experience for almost all organizations. This mobile driven advantage has made it more important than ever for businesses to understand how their mobile applications are affecting and shaping their customer relationships and helping improving their businesses overall.

In the last decade, information technology infrastructure and internet penetration were developing rapidly across the world, leading to the growth of e-commerce. Globally, the internet and e-commerce are rapidly evolving, contributing to a positive customer experience (Išoraite, M.; Miniotien ˙ e, N., 2018). The emergence of the internet and e-commerce has brought about a wide range of opportunities to enterprises and customers worldwide (Išoraite, M.; Miniotien ˙ e, N., 2018).

With the rising importance and popularity, there is a growth in the number of active shoppers across the world (Basarir-Ozel, B.; Mardikyan, S., 2017). Therefore, an e-commerce system enables retailers and customers to streamline their relations. While most customers are rapidly embracing e-commerce, there is still a gap in the knowledge concerning mobile application acceptance and the way it is shaping e-commerce service. With the much attention being drawn to the use of mobile applications by online retailers, technology providers are focused on ensuring the services offered to customers align with their expectations.

Across the world, e-commerce is becoming the primary target for retailers as a strategy for improving their performance. Despite these developments, there is a gap in the literature concerning mobile application acceptance and its impact on customer experience. Digital adoption has followed a unique path dissimilar to other e-commerce markets (Khrais, L.T. 2020). As

customers move online, organizations typically follow suit, leading to a gradual growth of the digital ecosystem in e-commerce and media. Middle East customers and businesses are among the most connected and technology savvy globally, thereby explaining the reason why e-commerce activities are commonplace in the region (Algharabat, R.S.; Rana, N.P. 2020). The COVID-19 pandemic led to a change in consumer behavior and shopping habits. There is a change in consumer behavior where buyers avoid wasting time in queues, compare feedbacks from other users of the products and evaluate a variety of products when making purchasing decision.

Online shopping has grown rapidly, in terms of the number of online shoppers and online retail sales worldwide. The business of ordering and delivery of goods through digital applications has become intensely competitive with flooding of number of domestic as well as foreign players in the industry, and the importance of customer satisfaction with the services rendered by this applications cannot be underestimated. For example, the global 'online retail sales', as a proportion of total spending, has been increasing and is estimated to surpass 16% by 2021, compared to 7.4% in 2016 (eMarketer, 2017).

The mobile application technology plays a central role in the food delivery process. People search for new alternatives to make everyday tasks easier and adopted to their lifestyles (Orús, C.; Gurrea, R.; Ibáñez-Sánchez, S. 2019). In particular, last-mile logistic services are increasingly offering innovative solutions ranging from home deliveries to logistic service providers placing e-commerce package in self-collection points (Wang, X.; Yuen, K.F.; Wong, Y.D.; Teo, C.C. 2019). Home delivery services are convenient for online shoppers (Chen, M.C.; Hsu, C.L.; Hsu, C.M.; Lee, Y.Y 2014) and are an essential part of urban logistics services (). Furthermore, thanks to mobile applications, home delivery services have become even more important because customers prefer to enjoy products at the right time, right place, in the right quantity, and in the right condition (Mehmood, S.M.; Najmi, A. 2017).

The delivery service phenomenon has been defined as "the delivery service offered by store to deliver its products to the buyer's home" (). Among online delivery services, food is one of the fastest growing (). Even though the concept is not new, several companies have emerged in recent years and gained worldwide popularity because of increased mobile application penetration (Alalwan, A.A. 2020). Home delivery provides value-added to all the sectors in the system, which,

while it adds complexity to the distribution process, creates competitive advantage by better satisfying the customer (Ehmke, J.F.; Mattfeld, D.C. 2012, Bernal, E.; Mozas, A.; Medina, M.J.; Fernández, D 2018).

Development of this mobile application will address issues on the customer's access to services easily without having to go to the company or making phone calls to the company. They will be able to check the availability of the products through the mobile application, place an order and pay for the product through the mobile application in the comfort of their homes. Also, the delivery of the goods will be fast and reliable since the driver will be able to get the customers location and have it delivered to them easily. The company will be able to track the products easily and have them updated if they are out of stock in the inventory module. The mobile application will have a positive impact thus increasing the profit of the company and help increase its competitive edge among other brands.

3.0 CHAPTER THREE

3.1 RESEARCH METHODOLOGY

The system development life cycle (SDLC) is a process used by the software industry to design, develop and test software. There are several types of SDLC models defined and designed which are followed during the software development life process. Each process model follows a series of steps unique to its type to ensure success in the process of the software development.

The methodology approach we will use to develop the proposed Onlidealz Mobile Application is waterfall model. This model illustrates the software development life cycle in a linear sequential flow i.e. any phase in the development begins only if the previous phase is complete. The development of the proposed system will follow the following process:

3.1.1 Problem Identification

Customers use mobile phones in order to make their inquiries and orders from the company and there is limited number of customers going to the company stores because of social distancing in order to avoid being affected by the coronavirus. Development of a mobile application will be of much help to the company since customers won't have to go to the company to do their orders and there will be few calls to the company because they will be able to do their purchase through the mobile application.

3.1.2 Feasibility Study

A feasibility study was conducted in order to analyze whether software product was right in terms of development, implantation and measure how beneficial the system will be. Some of the feasibility that will be done include:

i. Schedule feasibility – this involves the time allocated for the development of the project. The allocated time for this project is three months by which one has to be completed by then.
ii. Operational feasibility – since most of the customers are equipped with mobile devices especially the smartphones, thus they're knowledgeable with using it and then it'll be easy for them to be integrated into the system easily.
iii. Economic feasibility – an analysis was conducted in order to establish whether the cost of developing the project is affordable and also if it will be beneficial for the company.

iv. Technical feasibility – a study was conducted to establish whether there exists the required technology and resources for the development of the mobile application. Also if the users of the system had the required resources in order to access the system i.e. smartphones and be able to operate it.

3.1.3 Project Planning and Management

The proposed system will be developed by one person using a laptop equipped with the required resources. The allocated time span for the development of the mobile application is three months. A project management tool that will be used to guide its development is the Gantt chart. It will help keep track of the time used in the development and utilize it efficiently.

3.1.4 Requirement gathering and Analysis

An analysis is conducted on how the company runs at the moment in order to establish the kind of challenges that are experienced by the users of the system and also the company itself. From this we get to know the system requirements needed for the development of the mobile application and also the user requirements. The user requirements include a smartphone and internet connection while the system requirements is RAM of net less than 1GBn internal storage of 4GB and above.

3.1.5 System Design

After conducting the analysis and knowing the requirements specifications, the system design is prepared by specifying the hardware and system requirements needed for the development of the mobile application. It also helps in defining the overall architecture of the system. A dataflow diagram will be used to map out the flow of information in the development of the system.

3.1.6 System Development, Testing and Integration

In this phase, coding is initiated where the design is converted into source code using the specified programming languages and tools. From the inputs that we have, the system is developed in small units which are then integrated together and tested to see if they've got errors i.e. debugging. If it meets the user requirements, it can then be deployed for it to start working.

3.1.7 Advantages of waterfall model

- Simple to use and understand
- Management simplicity thanks to its rigidity: every process has a defined result and process review

- Easy to arrange tasks

3.1.8 PROJECT RESOURCES, BUDGET AND SCHEDULE

RESOURCES

Laptop with the latest windows 10 installed

Internet connection

MySQL for database creation and management

Microsoft Word for documentation

Microsoft PowerPoint for slide presentation

Android studio for coding the mobile application

Sublime Text for coding the web-based interface

XAMPP which is the local server to the administrator web

Smartphone for running and testing the application

BUDGET

ITEMS	**COST**
PRINTING	500
COMPACT DISK	200
BINDING	400
INTERNET BUNDLES	1500
TRANSPORT	2000
TOTAL	4600

GANTT CHART

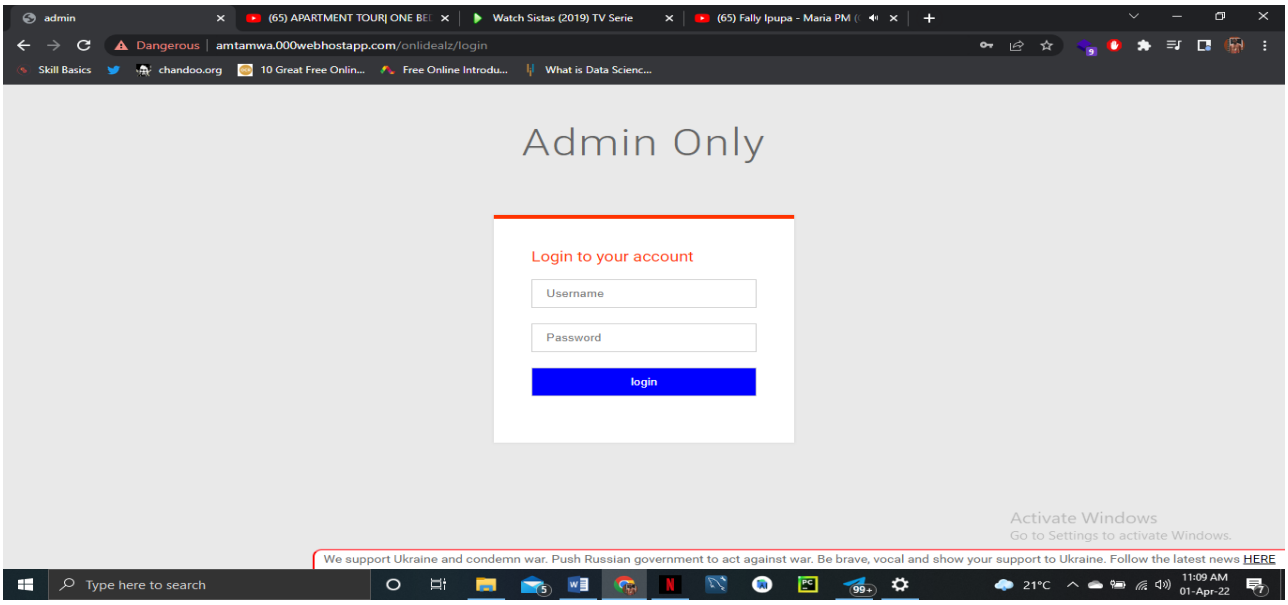
ONLIDEALZ MOBILE APPLICATION PROJECT SCHEDULE																															
Year		2021																													
Months		June				July				Aug				Sept				Oct				Nov				Dec					
Week		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		
Project identification	Requirement gathering																														
	Requirement specification																														
Feasibility study	Technical																														
	Operational																														
	Economic																														
Analysis	System requirement																														
	User requirement																														
Design	DFD																														
	Database																														
Development	User interface																														
	Admin interface																														
	Coding																														
	Testing																														
	Debugging																														
	Integration																														
Documentation																															
Consultation																															
Presentation	Proposal																														
	Project																														

4.0 CHAPTER FOUR

RESULTS

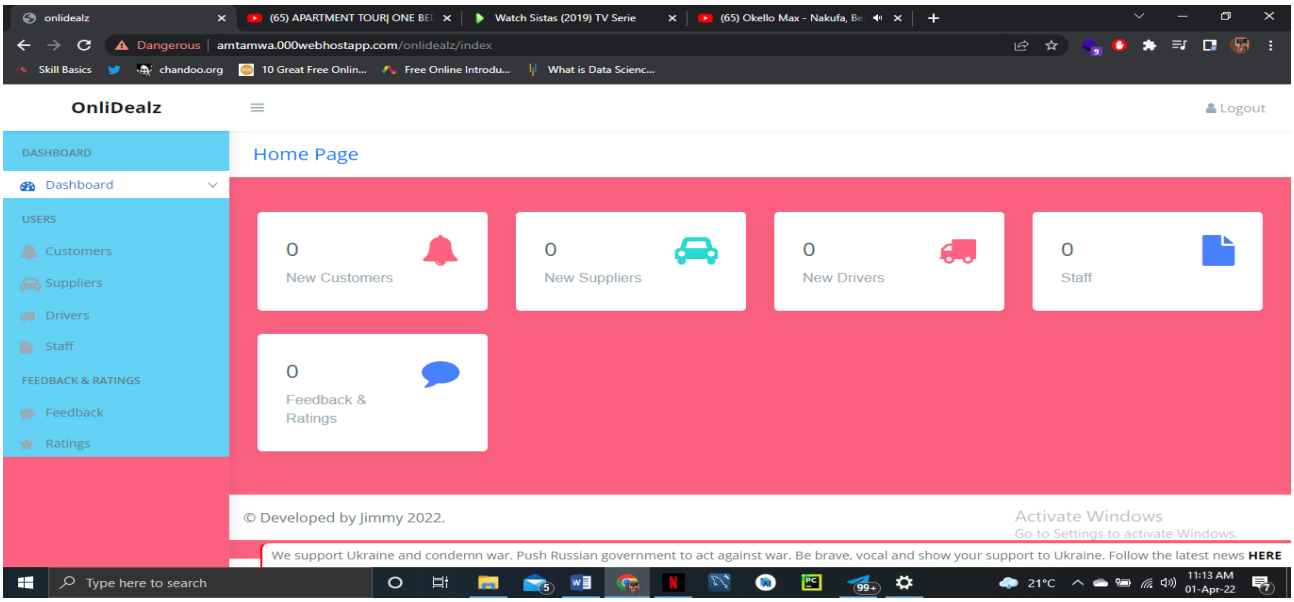
4.1 Admin Interface

This interface is used by the admin where he creates an account and logins in using a Username and Password.

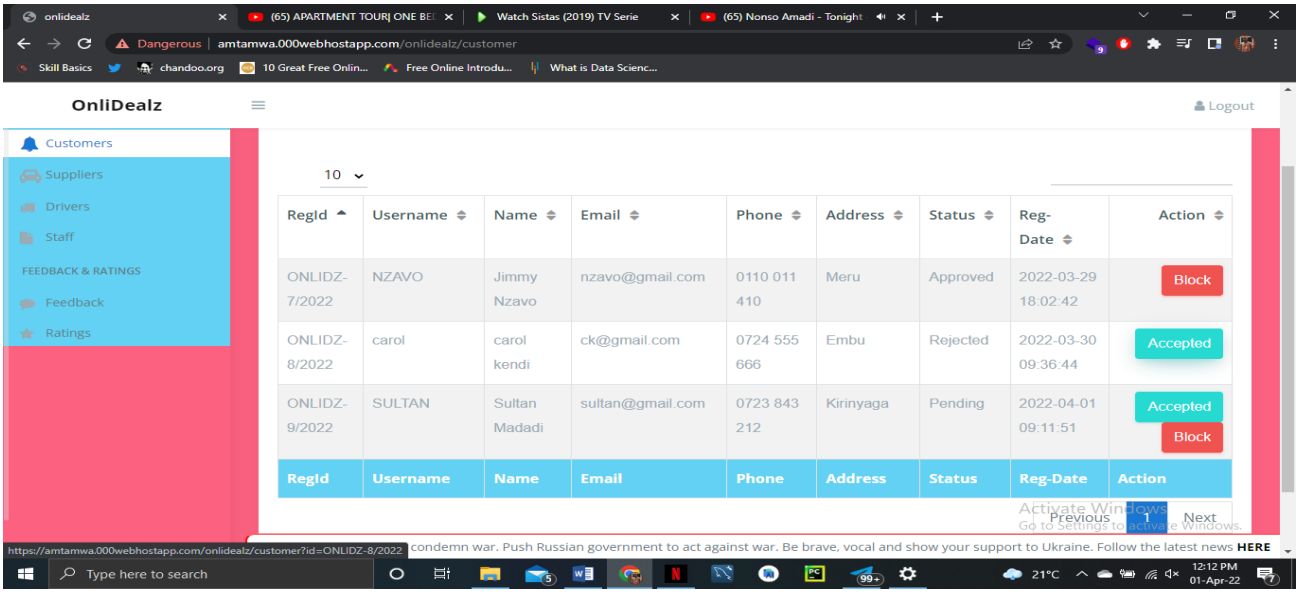


4.1.1 Admin Dashboard

This the first screen the admin sees when he/she logins into the system. He is able to activate and deactivate users of the system. He/ she is also able to receive feedback and ratings from the customer.

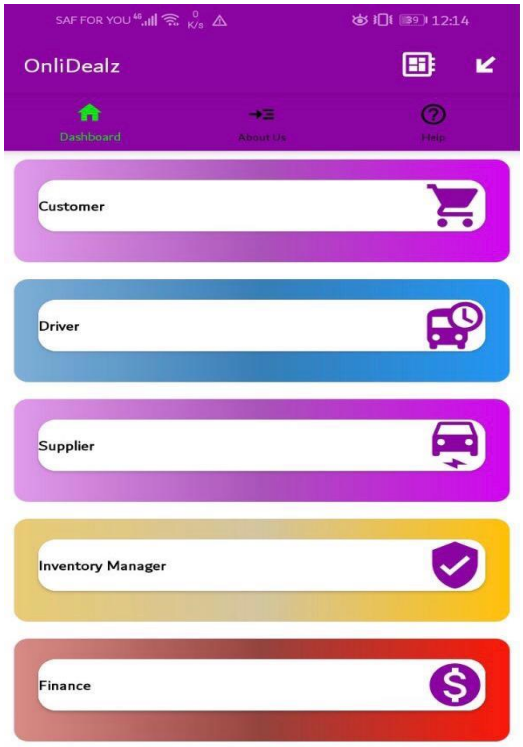


An example of admin functions of managing users of the system where we have pending, approved and blocked users' statuses.



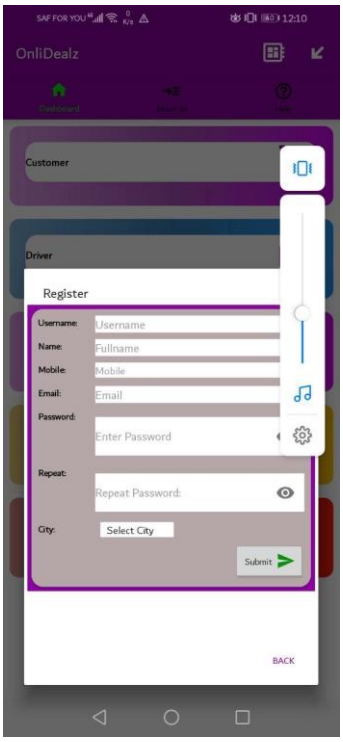
4.2 User Interface

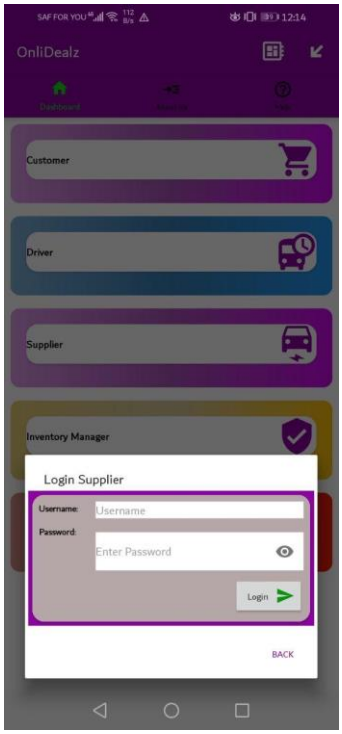
This part shows part of the mobile application where all the users of the system have their different cards to access the system by creating an account and accessing them after they have been approved by the admin. It also contains the About Us that shows information about the company and Help card where it contains frequently asked questions from users.

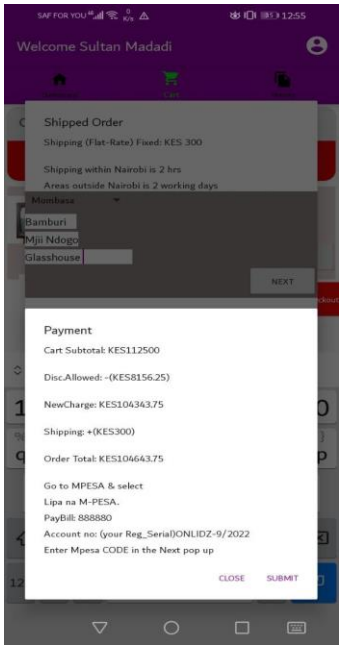


4.2.1 Customer Module

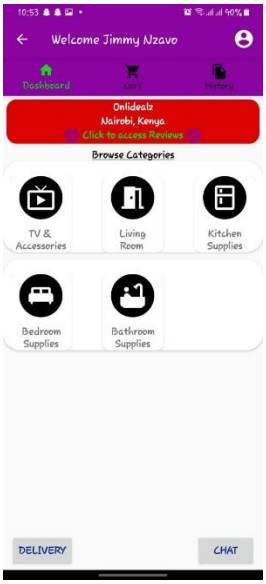
This module will allow customer to create an account and login into the system. He is also able to view products available in the company on the category cards, add them to a cart, make payment and have them delivered to his preferred destination.





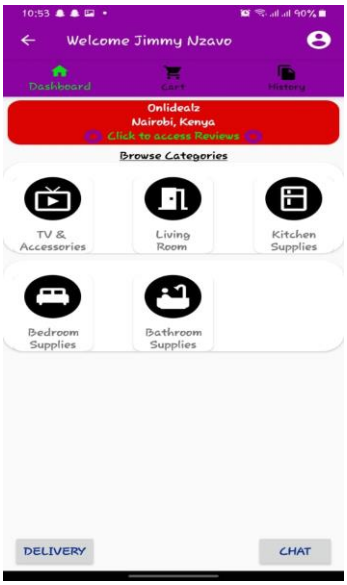


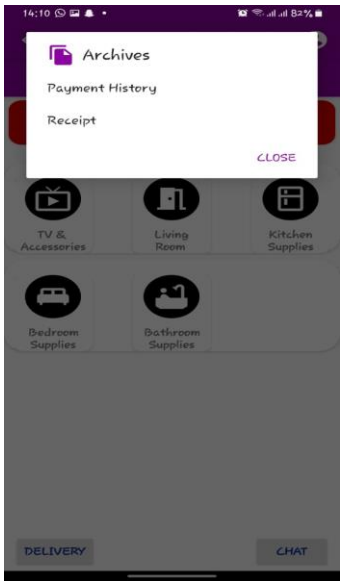
After delivery has been done, customer is able to give feedback and review (by clicking on the delivery button) of the product and also the services of the driver. He can also download receipts of the payment.

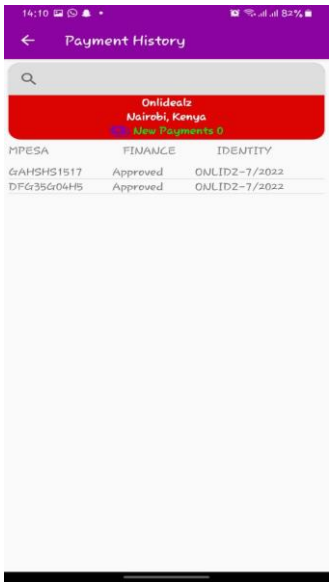


Customer is also able to check his/her payment history and also download receipts, by clicking on history.

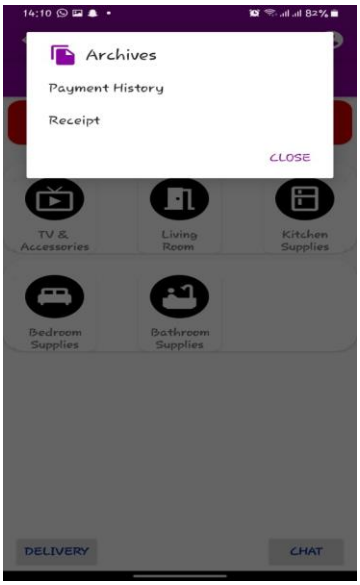
Payment history



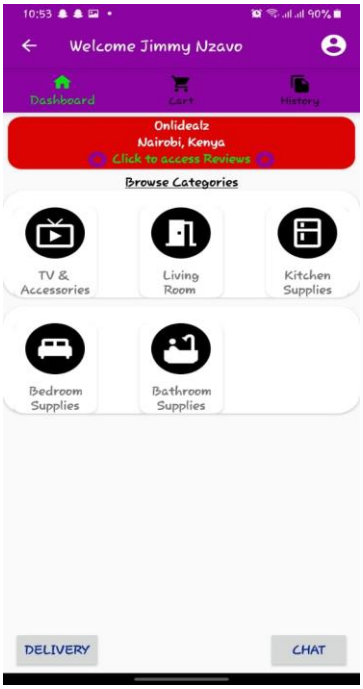




Receipt

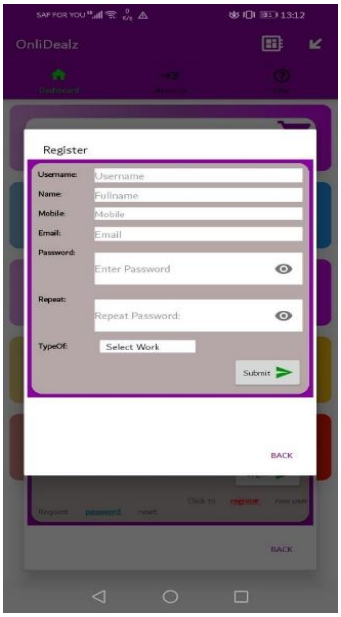


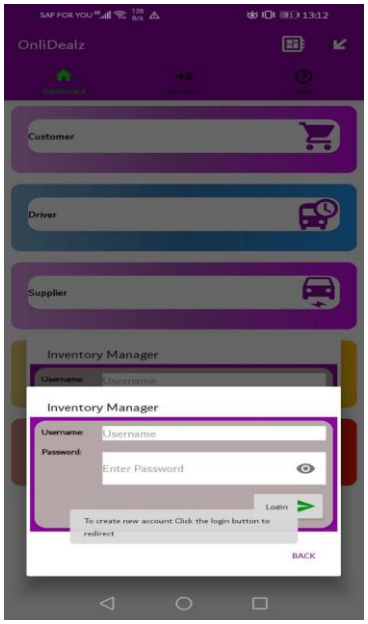
Also, customer is able to communicate with either the admin, inventory manager or finance manager about any issue he/she has experienced, by clicking on the chat button.

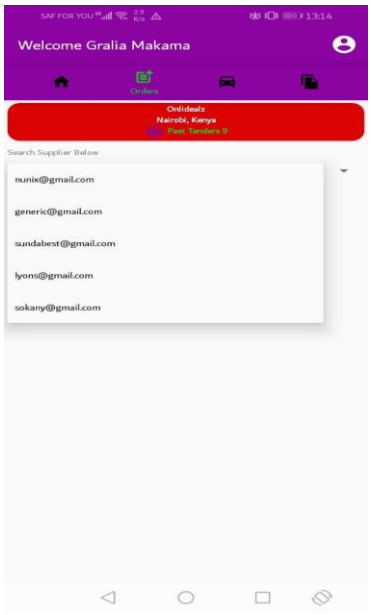


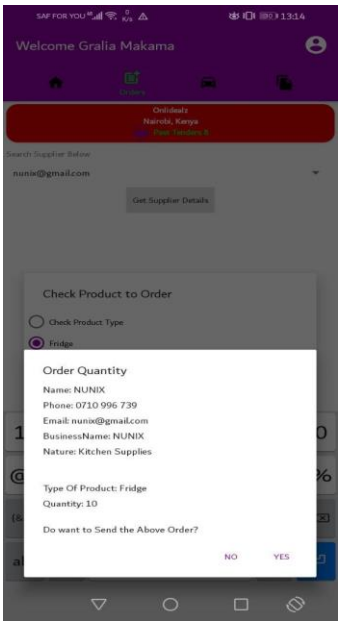
4.2.2 Inventory Manager Module

This module will allow the inventory manger to create an account and login into the system. He will then be able place an order of the goods not available in the company stores by sending the order to a specific supplier.

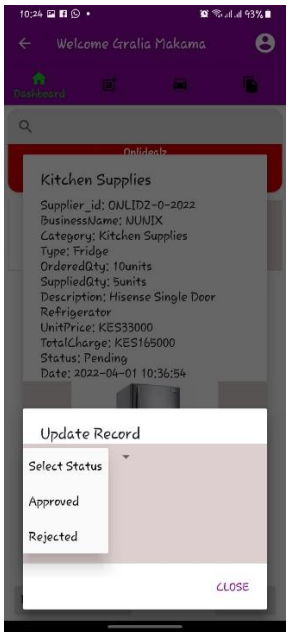








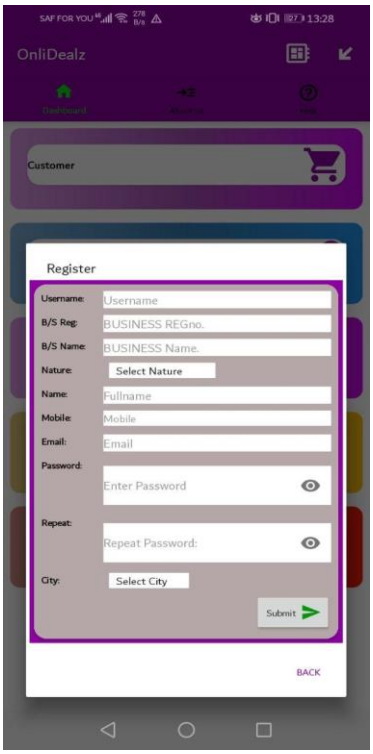
After the supplier has delivered the goods to the company, the inventory manager will either approve them or reject. He will then be able to check the available products in the company



He will also be able to assign the driver who is going to deliver the goods after customers have done their purchase.

4.2.3 Supplier Module

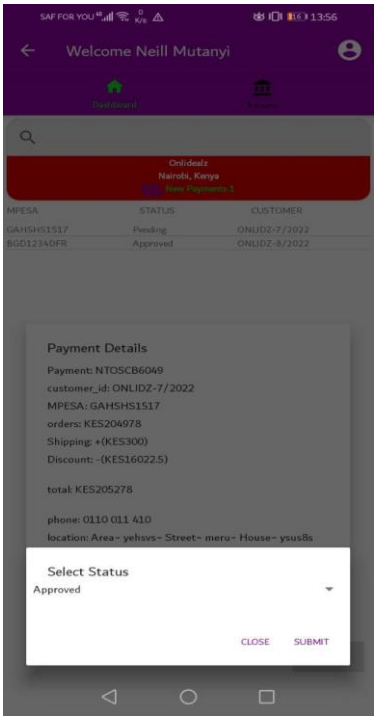
This module will allow different suppliers to create an account and login into the system. They will then be able to view the orders placed by the inventory manager and deliver them to the company stores. They will also be able to view on the history of products supplied to the company and their payments.



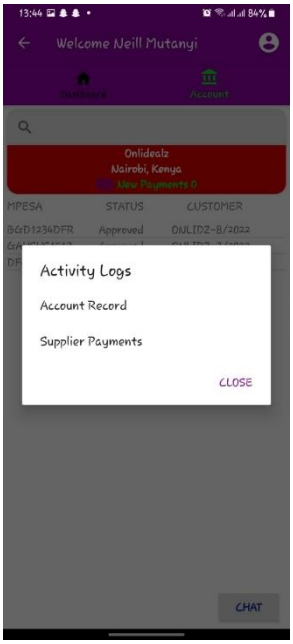
4.2.4 Finance Module

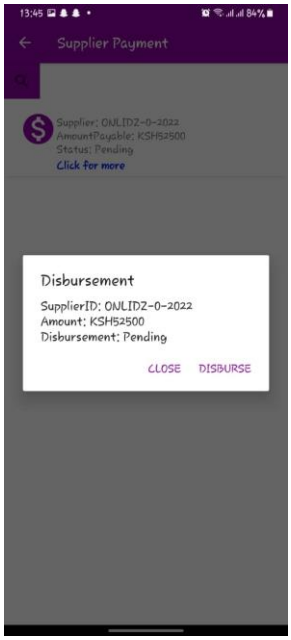
This module will allow the finance manager to create an account and login. He will then be able to approve payments made by the customer and also make payment to the supplier. Moreover he will be able to keep records of the company's financial status.

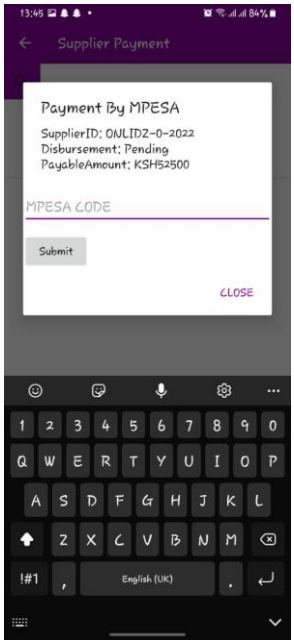
Customer payment



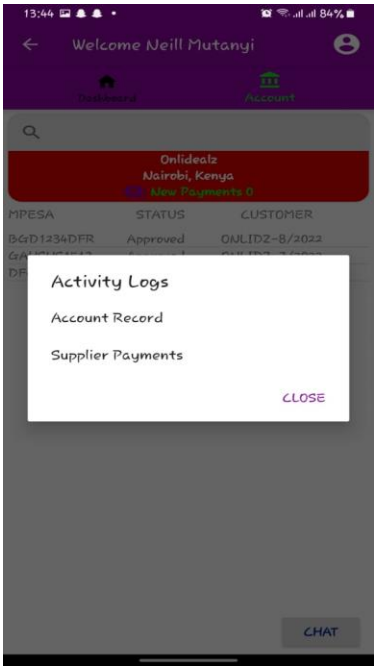
Supplier payment







Company's financial record



4.2.5 Driver Module

This module will allow driver to create an account and login into the system after which he will be able to check the number of deliveries he has to make and ship them. Also he will be able to check the number of deliveries he has made in the history section.

4.2.6 about Us Module

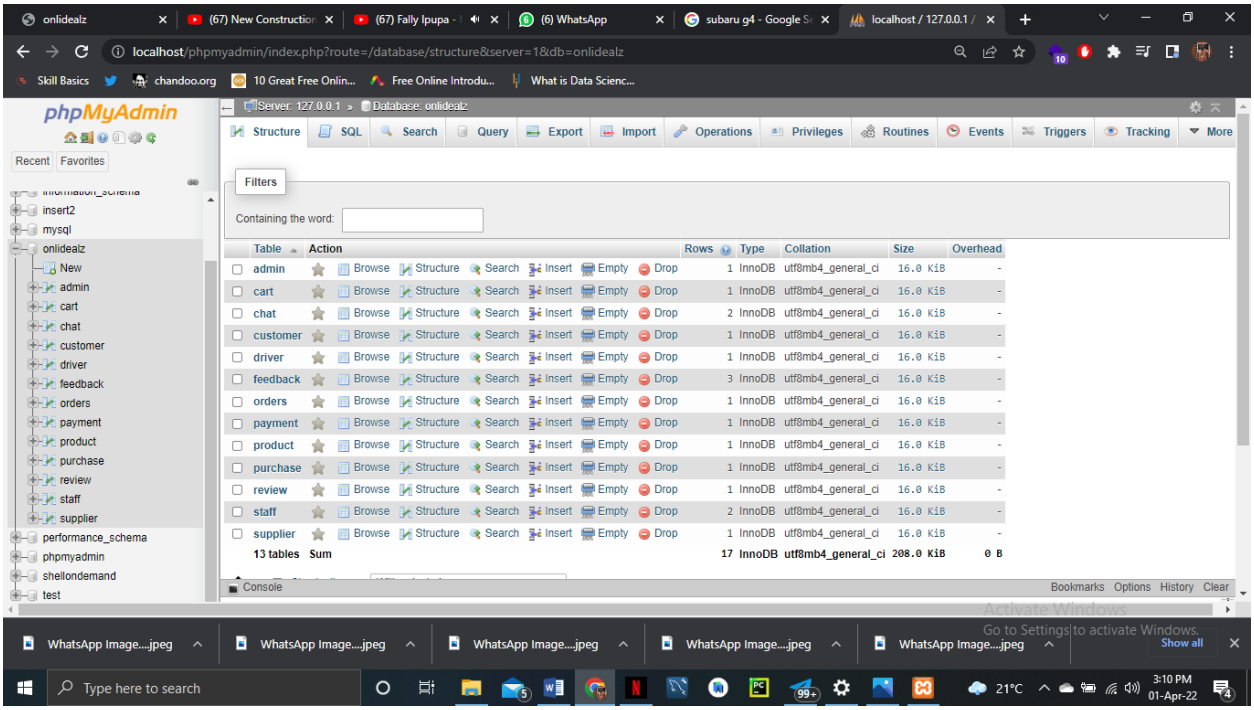
This module contains details of the company e.g. its location, working hours and also its contact details.

4.2.7 Help Module

This module contains the frequently asked questions that will help the customer to navigate through the mobile application.

4.2.8 Database Module

This is where all the system data are stored and can be extracted at any time through the execution of a various ranges of activities from both the web panel and android application.



5.0 CONCLUSION AND RECOMMENDATIONS

5.1 CONCLUSION

The development of this project was done after conducting research on the company and identify the shortcomings they were experiencing. This in turn enable me to develop the mobile application in order to solve the company's problem which was majorly customer purchasing of products from their home without having to go to the company store itself or making numerous phone calls to the company. Also the company is also able to keep track of the stocks and update them easily when they're out of stock.

Knowledge on mobile application development using java and xml was used in developing the mobile application on the android studio. Website knowledge was needed to develop the admin panel where the admin is able to approve and reject users of the system.

With the development of this mobile application, I've been able to gain some knowledge on software development thus I'll be able to use to solve other real world problems for different organizations.

5.2 RECOMMENDATIONS

Having completed all the phases of the development of this mobile application, I would highly recommend the deployment to the company for use since it meets 90% of operational feasibility which was highlighted earlier. Maintenance of the mobile application should be done by updating it with the latest technology.

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