



ASHESI UNIVERSITY

**AN ECOMMERCE WEB APPLICATION FOR THE BUSINESSES ON THE ASHESI
CAMPUS**

APPLIED PROJECT

B.Sc. Computer Science

Chrisfel Dolayine Afanam

April 2021

ASHESI UNIVERSITY

**AN ECOMMERCE WEB APPLICATION FOR THE BUSINESSES ON THE ASHESI
CAMPUS**

APPLIED PROJECT

Applied Project submitted to the Department of Computer Science, Ashesi
University College in partial fulfillment of the requirements for the award of
Bachelor of Science degree in Computer Science

Chrisfel Dolayine Afanam

April 2021

DECLARATION

I hereby declare that this applied project is the result of my own original work and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature:

C.D.A

.....

Candidate's Name:

Chrisfel Dolayine Afanam

.....

Date:

13th May, 2021.

.....

I hereby declare that preparation and presentation of this applied project were supervised in accordance with the guidelines on supervision of applied project laid down by Ashesi University College.

Supervisor's Signature:



.....

Supervisor's Name:

Mr David Sampah

.....

Date:

13th May, 2021

.....

ACKNOWLEDGEMENT

First of all, I would like to thank the Almighty God for His grace to be able to see this project through all the difficulties.

I also express my special thanks to my wonderful supervisor Mr. David Sampah who not only gave me the golden opportunity to undertake this project, but also helped me when I encountered difficulties during this project and helped me research on materials essential to this project.

I would also to thank Mister Gilbert Dery for giving me this project idea when I was struggling to find one.

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Finally I would like to thank my friends and family who supported me to do project especially my parents and Yvonne Dewortor.

GOD RICHLY BLESS YOU ALL!

ABSTRACT

This project is about building an ecommerce web application for the businesses on the Ashesi University campus to help them have access to their customers (students) better and to also help the customers have access to these businesses easily. Throughout my four years of undergraduate studies with the University I have realized the necessity for this application.

It is quite difficult to access the businesses on campus at times. These businesses either have a physical presence or an online presence. For the businesses with a physical presence, students may go to the shop only to realize that the good that they want is out of stock or the price of what they want is higher than they had budgeted for. For the businesses with an online presence, students have to wait for those businesses to make themselves available before they can purchase what they want. These challenges of accessing the businesses on campus eventually leads to low patronage on the side of the students.

This project seeks to make these businesses on campus always available to the students and also influence the flow of accurate information concerning goods in terms of availability and price. Upon completion of this project, it is the aim of the developer that not only would students have better access and accurate information concerning the businesses on campus but also the businesses would also reach their customers easily.

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CHAPTER 1

BACKGROUND

Buying and selling of products and services has been a part of society even in non-commercial institutions like Ashesi to ensure easy access to goods and services. In Ashesi, students have to physically visit a shop or personally contact a business owner to buy products only to find out that the price is higher than expected, the product is out of stock or the shop is closed, and this results in low patronage of the businesses due to lack of information about products or low accessibility to businesses. This problem is not only present in Ashesi but in other places as well and e-commerce is a tool that has been used to solve the issues associated with face to face businesses. Most institutions see e-commerce only for business environments, but it can be used in a non-commercial environment such as Ashesi as a supporting tool for its management and administration (Bancilhon, 2002).

PROBLEM STATEMENT

Clearly there is a gap between Ashesi businesses on campus and consumers as 57.4% of the respondents stated so in the survey (check Figures 1, 1.1, 1.2 and 1.3) the developer conducted, and this is a disadvantage to both the business and the consumer. It is a disadvantage to the business in the sense that the business receives low patronage, and for the consumer it is a disadvantage because they do not get the product that they want in the end.

What best describes you?

57 responses

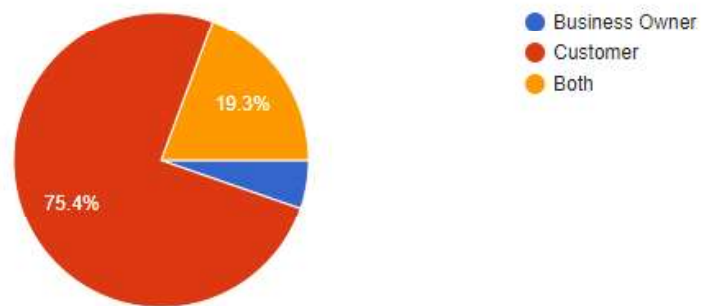


Figure 1.1

Do you think there is a gap between you and your customers?

3 responses

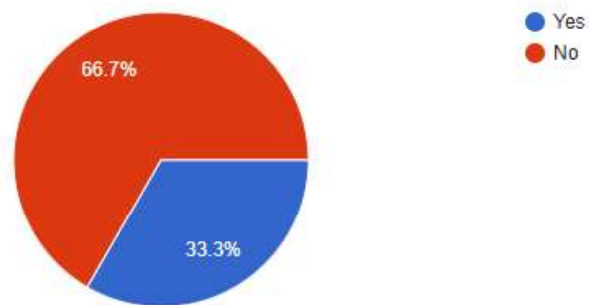


Figure 1.2

Do you think there is a gap between you and your favorite businesses on campus?

43 responses

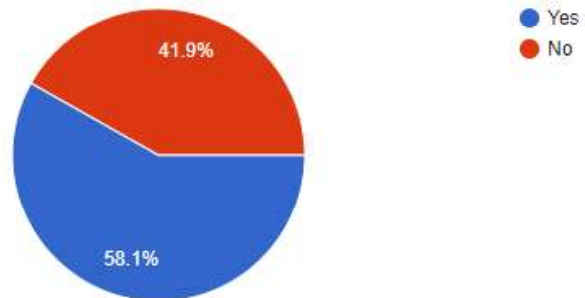


Figure 1.3

Do you think there is a gap between you and your customers or favorite businesses?

11 responses

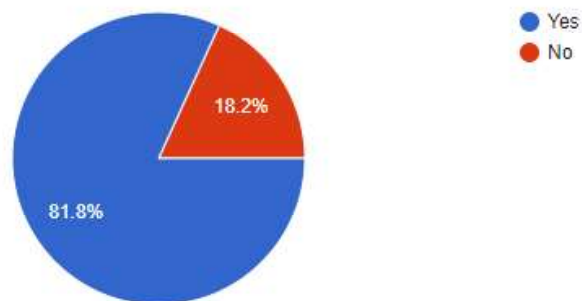


Figure 1.4

PROJECT MOTIVATION

The developer has personally encountered the difficulties associated with these businesses on campus. Mostly, it's either orders get mixed up or the ordering limit has been reached or the price is higher than the price you heard from a friend and this can be quite frustrating. Once, the

developer ordered food from Munchies, an alumni's food joint on campus and had to wait for over 3 hours to get the food delivered. Eventually, when the food was brought it was something the developer had not ordered. It was devastating and the developer imagined the similar things people had gone through on campus and how they would have felt. The developer therefore decided to do something that would lessen the frustration of students in terms of patronizing products and services from businesses on campus.

Mejabi et al. (2017) also point out the fact that a tertiary institution consists of dozens of students and staff business owners who need a wide market for their businesses hence the need for an e-commerce site to be dedicated to university community businesses which can prove to be very beneficial and necessary.

PROJECT OBJECTIVES

Serve as an intermediary between businesses on campus and consumers.

- Enhance the flow of information concerning the businesses on campus.
- Enhance the transaction between consumer and businesses on campus by making it easier and faster.
- Facilitate communication between consumer and business owner.

SYSTEM OBJECTIVES AND FUNCTIONALITIES

- Allow students to easily register their business at any time.
- Display all the businesses on campus once registered on the system.
- Display the products and services of the businesses as well as necessary details such as prices and availability of products.
- Enhance e-payment through mobile money instead of physical cash.
- Provide a WhatsApp feature that allows the consumer to connect with the business owner easily.

SIGNIFICANCE OF THE PROJECT

The main significance of this project is to bridge the gap between Ashesi businesses and consumers (students) and facilitate a better business-consumer relationship.

CHAPTER 2

USERS/STAKEHOLDERS

The users or stakeholders of this application will be Ashesi students since the project involves businesses on Ashesi campus as well as students owned businesses.

REQUIREMENTS GATHERING

For the requirements gathering process, a survey was sent out for Ashesi students to fill in order to fully understand what the user would want such an application to do. So far, 57 students filled the survey and the observation made is that they all have similar requirements with regards to what is expected of the e-commerce application. Some of the requirements include

- The option of mobile money payment on the application
- A text feature that would enhance the interaction between customer and business and accurate information of the products on the application.
- Delivery of products bought.
- Categorization by businesses and catalogue viewing.

The survey was divided into 3 parts based on what the respondent chose: customer, business owner and both (business owner and customer). The survey consisted of four questions that centered on:

- Whether they felt it was easy to access their customers or the businesses.
- How easy it was for them to access their customers or the businesses.
- Their thoughts on an e-commerce application.
- The things they would like to see in the application or want the application to do.

FUNCTIONAL REQUIREMENTS

Customers

CR-1: System should allow customers to register, sign-in and sign-out of the application easily

CR-2: Customers should be able to view all the campus businesses registered on the system.

CR-3: Customers should be able view products under various businesses as well as the details of the products like prices and availability status.

CR-4: Customers should be able to pay through mobile money.

CR-5: Customers should be able access business owners directly through a text feature on the application.

Business Owners

BR-1: System should allow business owners to register their businesses, sign-in and sign-out of the application with ease.

BR-2: Business owners should be able to upload and update their business catalogue (products) as well as details like prices and availability status of the product.

BR-3: Business owners should be able to manage orders made by customers.

BR-4: Business owners should be able to have direct access to their customers through the text messaging feature on the application.

BR-5: Business owners should be able to accept mobile money payment directly from the application.

NON-FUNCTIONAL REQUIREMENTS.

- **User-Friendly(NFR-1):** System should be easy to use for anyone.
- **Security(NFR-2):** System should protect all the personal information on it.
- **Usability & Learnability(NFR-3):** New users should be able to use the system easily regardless of whether they are novices or not and be able to use it easily anytime they return to the application.
- **Reliability(NFR-4):** System should be reliable for both the customers and business owners.
- **Effectiveness(NFR-5):** System should be able to meet all or almost all the requirements to produce the desired functionalities.

USE CASE SCENARIO

CUSTOMER

Use case 1	Login
Description	The customer logs into his or her account
Stakeholders/Actors	Customer
Trigger	Customer clicks on the login button
Pre-condition	Customer has previously created an account

Post-condition	The customer is either logged in or not logged in
Main success scenario	Customer successfully logs into his or her account

Use case 2	View registered businesses
Description	The customer sees all the businesses registered on the application.
Stakeholders/Actors	Customer
Trigger	Customer successfully logs in to his or her account.
Pre-condition	Customer has previously created an account and logged in.
Post-condition	
Main success scenario	Customer is able to see all the businesses registered on the application.

Use case 3	View business catalogue
Description	The customer sees the business catalogue of a specific business
Stakeholders/Actors	Customer
Trigger	Customer clicks on a particular business to view
Pre-condition	Customer must see that specific business on the application
Post-condition	
Main success scenario	Customer is able to see the catalogue of the desired business

Use case 4	Add to Cart
Description	The customer adds an item to his or her cart
Stakeholders/Actors	Customer
Trigger	Customer clicks on the add to cart button
Pre-condition	Customer should have clicked on the add to cart button for any product
Post-condition	
Main success scenario	Customer successfully adds an item to his or her cart

Use case 5	Order
Description	The customer makes an order
Stakeholders/Actors	Customer
Trigger	Customer clicks on the order button
Pre-condition	Customer has added an item or items to cart
Post-condition	
Main success scenario	Customer successfully makes an order

Use case 6	e-payment
Description	The customer pays for his or her order
Stakeholders/Actors	Customer

Trigger	Customer makes an order
Pre-condition	Customer has made an order
Post-condition	
Main success scenario	Customer pays for his or her order

Use case 7	Request for Delivery
Description	The customer requests for delivery of his or her order
Stakeholders/Actors	Customer
Trigger	Customer makes an order
Pre-condition	Customer has paid for the order
Post-condition	
Main success scenario	Customer receives his or her order

Use case 8	Contact business
Description	The customer contacts business through a text feature
Stakeholders/Actors	Customer
Trigger	Customer clicks on the text feature
Pre-condition	Customer has opened that business's page
Post-condition	
Main success scenario	Customer is able to contact business

BUSINESS

Use case 1	Login
Description	The business logs into his or her account
Stakeholders/Actors	Business
Trigger	Business clicks on the login button
Pre-condition	Business has previously created an account
Post-condition	The business is either logged in or not logged in
Main success scenario	Business successfully logs into his or her account

Use case 2	Create business catalogue
Description	The business creates a catalogue.
Stakeholders/Actors	Business
Trigger	Business logs in
Pre-condition	Business has previously created an account
Post-condition	
Main success scenario	Business successfully creates a catalogue

Use case 3	Manage Orders
Description	The business manages orders made by customers
Stakeholders/Actors	Business
Trigger	Business clicks on the manage orders tab
Pre-condition	Business has previously created a catalogue
Post-condition	

Main success scenario	Business manages orders made by customers
-----------------------	---

Use case 4	Contact customers
Description	The business contacts customers through a text feature
Stakeholders/Actors	Business
Trigger	Business clicks on the text feature
Pre-condition	Account has been registered as a business
Post-condition	
Main success scenario	Business is able to contact customer

CHAPTER 3

UML DIAGRAMS

USE CASE DIAGRAM

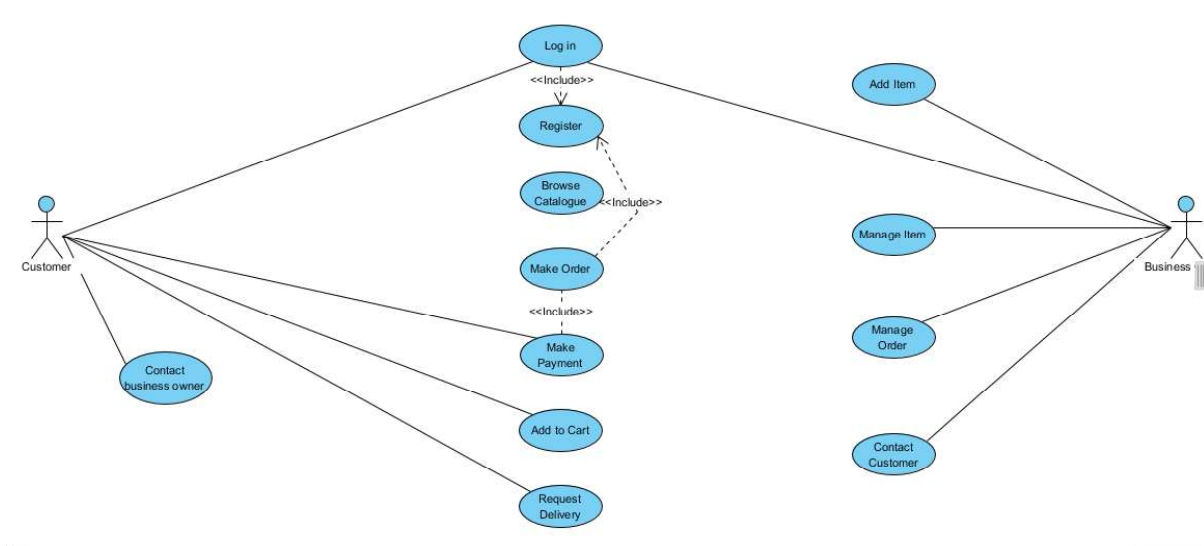


Figure 3.1

CUSTOMER REQUIREMENTS MAPPED

- System should allow customers to register, sign-in and sign-out of the application easily
- Customers should be able to view all the campus businesses registered on the system.
- Customers should be able view products under various businesses as well as the details of the products like prices and availability status.
- Customers should be able to pay through mobile money.
- Customers should be able to request for a delivery of their bought product.
- Customers should be able access business owners directly through a text feature on the application

BUSINESS REQUIREMENTS MAPPED

- System should allow business owners to register their businesses on the application with ease.
- Business owners should be able to upload and update their business catalogue (products) as well as details like prices and availability status of the product.
- Business owners should be able to manage orders made by customers.
- Business owners should be able to have direct access to their customers through the text messaging feature on the application.
- Business owners should be able to view the catalogue of other businesses.
- Business owners should be able to make purchases as well from other businesses and request deliveries.

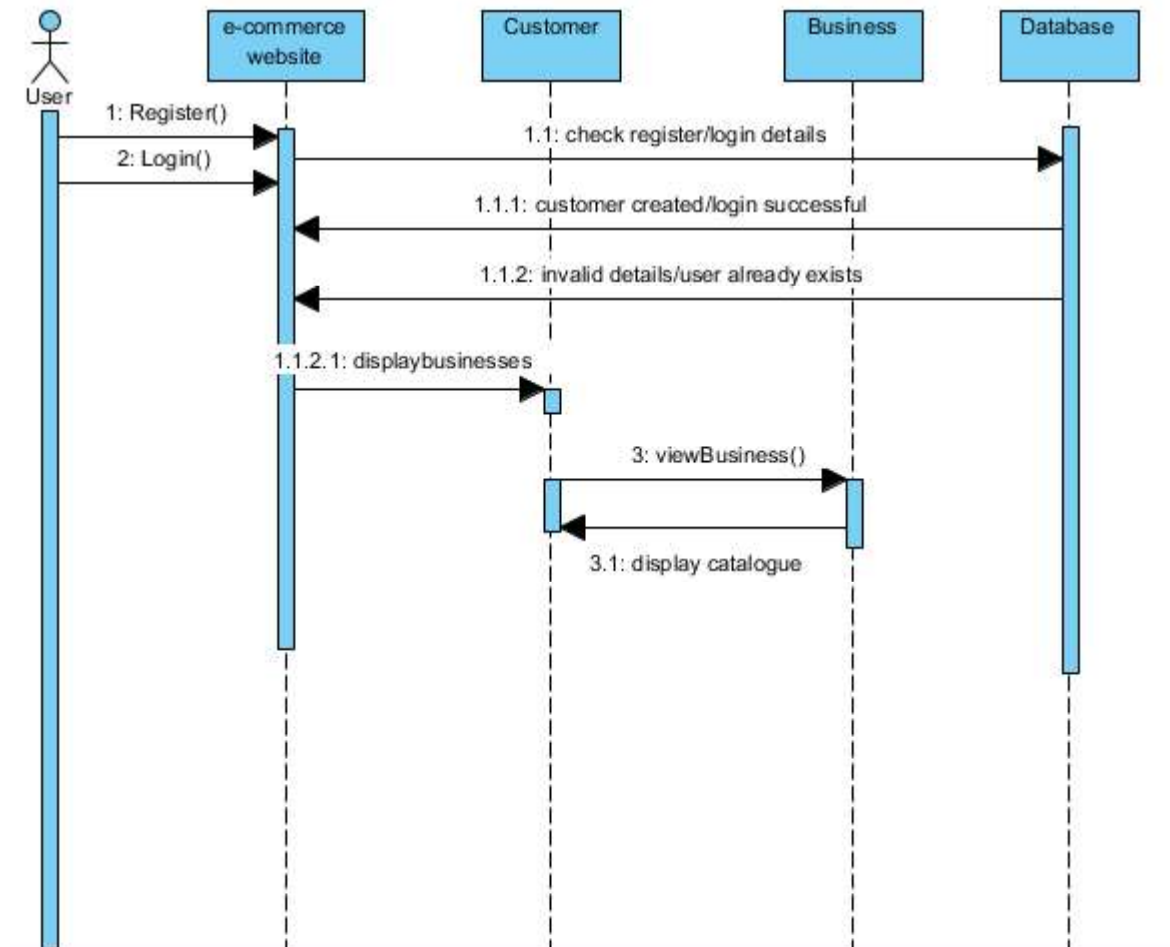
SEQUENCE DIAGRAM FOR CUSTOMER.

Figure 3.2

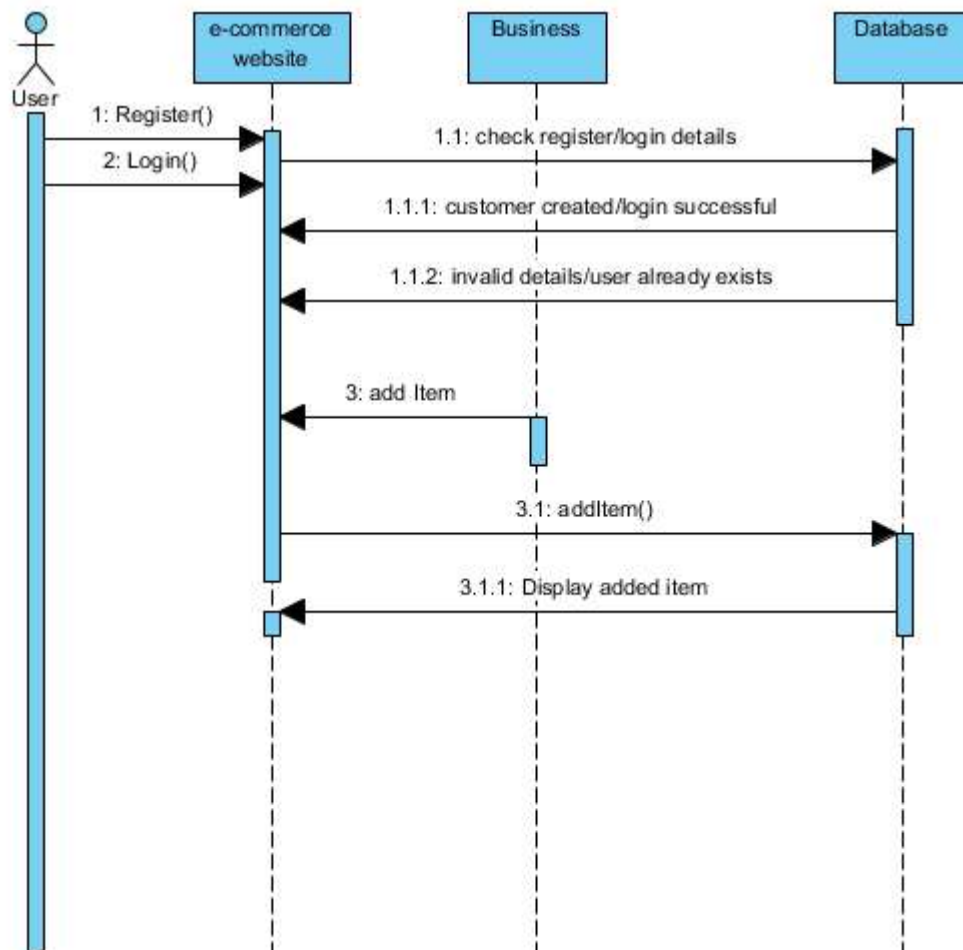
SEQUENCE DIAGRAM FOR BUSINESS.

Figure 3.3

ACTIVITY DIAGRAM FOR CUSTOMER

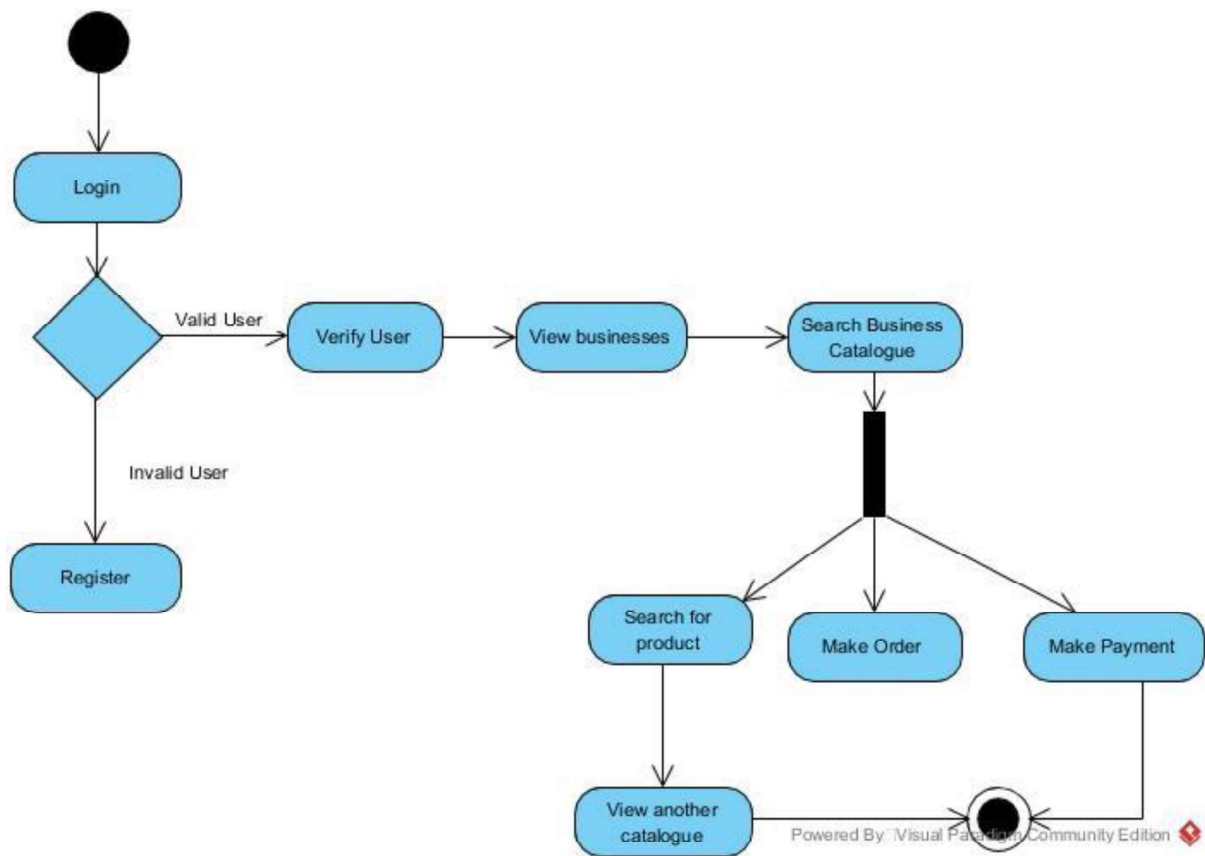


Figure 3.4

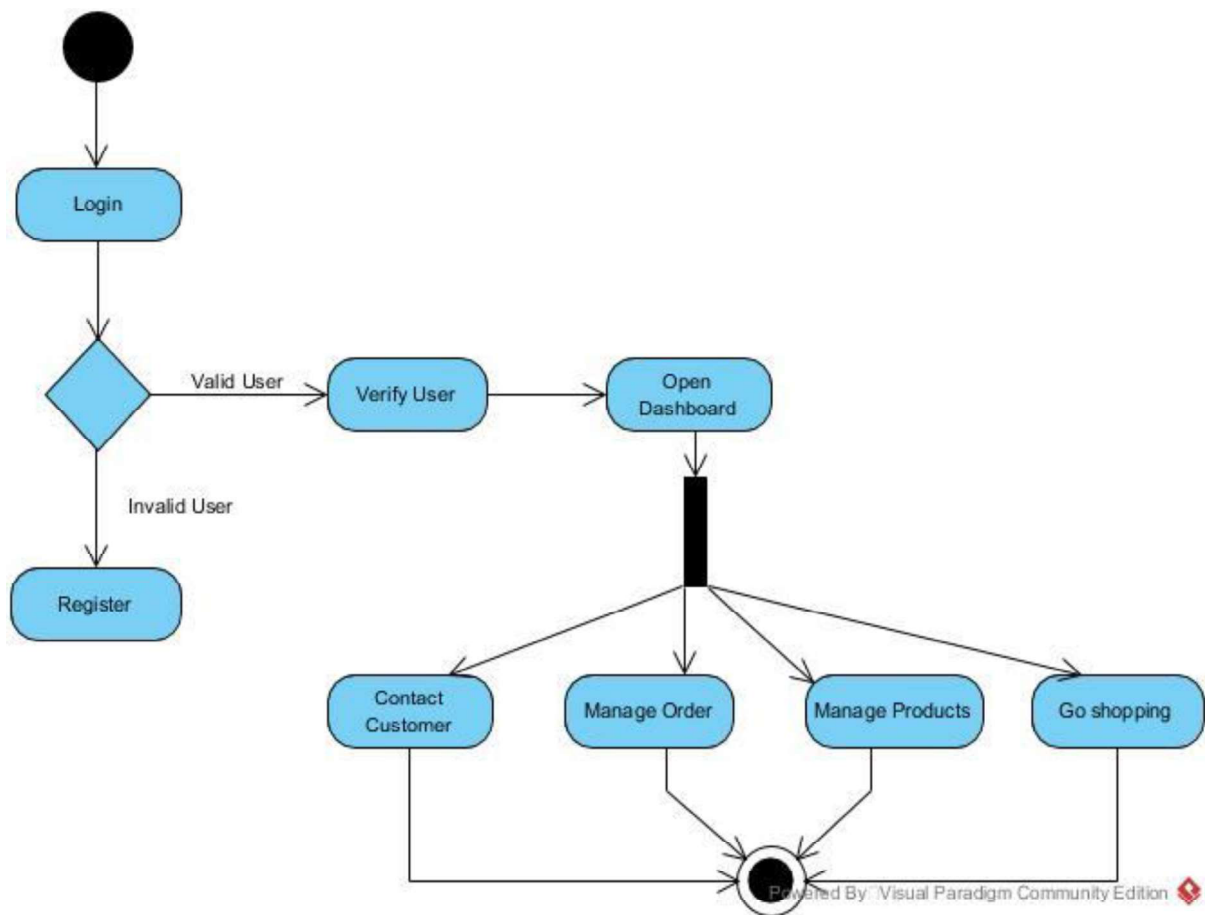
ACTIVITY DIAGRAM FOR BUSINESS.

Figure 3.5

THE 3-TIER ARCHITECTURE

The architecture to be used in this web application is the 3-tier architecture. The 3-tier architecture is a type of software architecture that is composed of 3 tiers or layers (Client-side, Server-side and Database). This architecture provides many benefits such as giving developers flexibility by allowing them to update a specific part of the application independently of the other parts. For example, the user interface of a web application can be redeveloped without affecting the other components of the system.

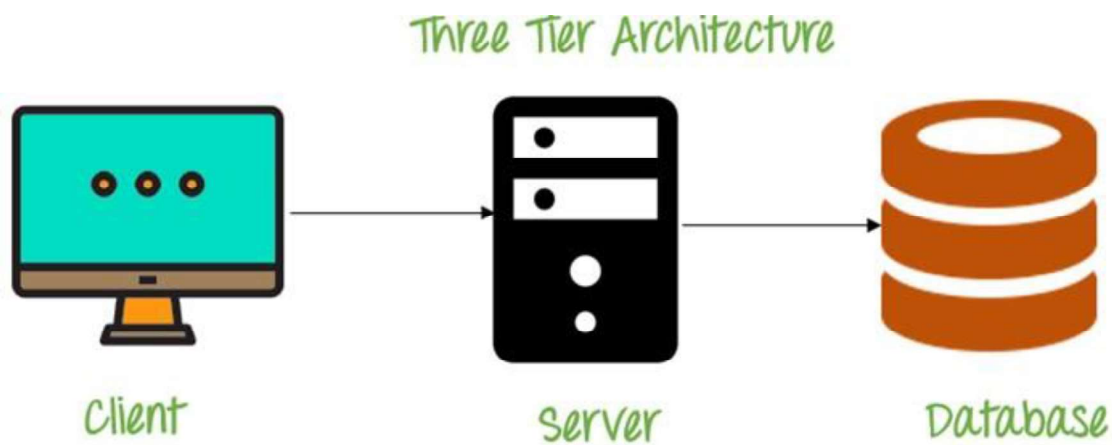


Figure 3.6

Client-Side: This is the front-end layer and consists of the user interface. This layer is a graphical one that is seen by the users and displays content and information useful to the users. It is often built with HTML5, CSS and JavaScript.

Server-Side: This layer contains the back-end logic that drives the application's core functionalities. It is mostly written in C++, Java, Python etc.

Database: This layer comprises of the data storage system of the application. It is often written in MySQL, PostgreSQL, MongoDB etc.

ER DIAGRAM

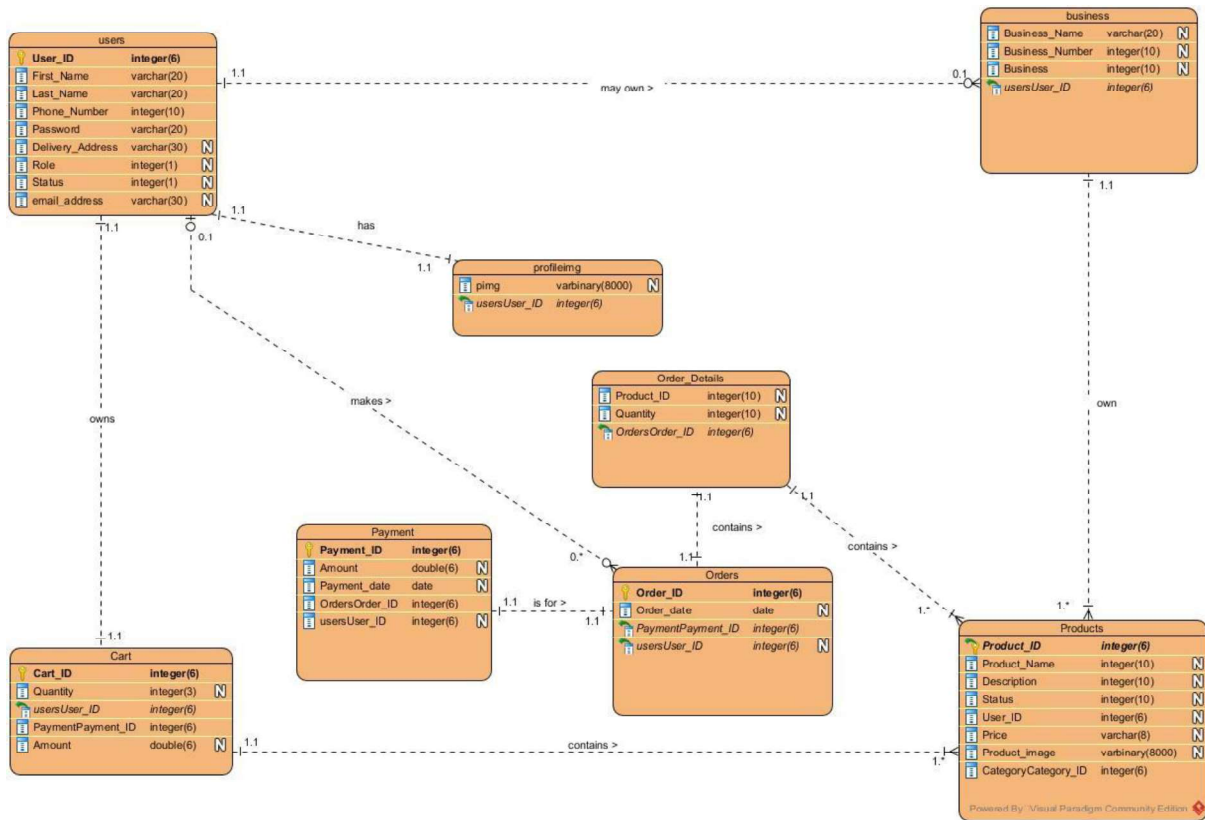


Figure 3.7

CHAPTER 4

PROJECT IMPLEMENTATION.

The project is hosted on the localhost inside the htdocs folder. The root directory of this project is a folder called Capstone Project within the htdocs folder. Inside the Capstone Project are 3 folders: Client-Side, Database and Server-Side. (See figure 4.1)



Figure 4.1

CLIENT-SIDE IMPLEMENTATION

The client-side includes all the front-end files that the user would interact with such as the homepage or index page, login and register pages, customer and business dashboards and the checkout page (See figure 4.2).

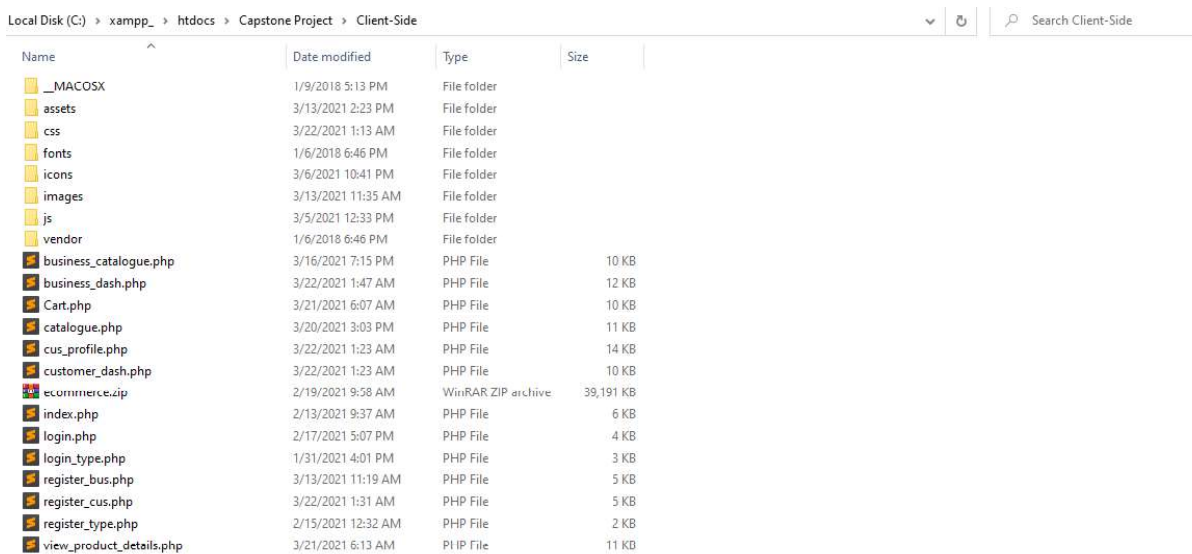


Figure 4.2

DATABASE IMPLEMENTATION

The database(final_project) was created in phpMyAdmin with 8 tables. The tables are :

- Users
This table contains all the details of the users of the system regardless of whether they were a customer or a business owner.
- Business
This table contains all the information regarding businesses that register on the application.
- Products
This table contains all the products that are uploaded by the businesses registered on the application with their user id as a foreign key.
- Cart
This table is a temporary table that contains all the products that customers want to buy with their user id as foreign key in order to identify whose product is whose.
- Profileimg
This table contains the profile pictures of all the customers on the system.
- Orders
This table contains all the orders that users make on the system.
- Payments
This table contains all the payments that customers make on the system.
- Order_Details
This table contains the specific details of the orders that customers make on the system.

SERVER-SIDE IMPLEMENTATION

The server-side includes all the back-end logic that controls what happens in the database and the front-end (See figure 4.3)

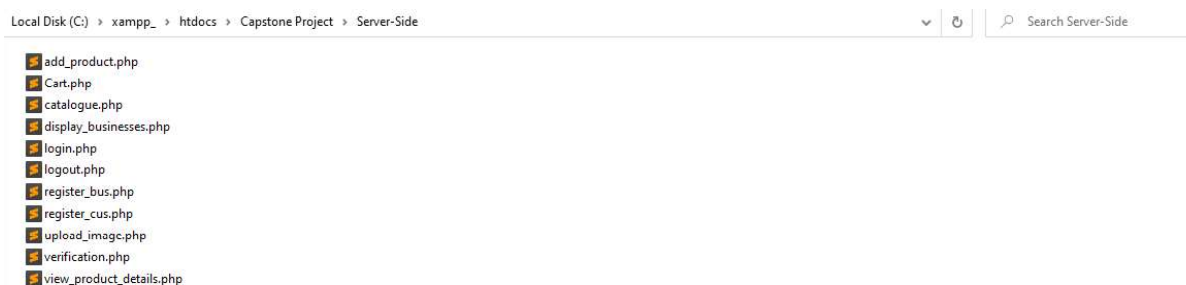


Figure 4.3

CODE SNIPPETS OF IMPORTANT SYSTEM FUNCTIONALITIES

```
if(!isset($_SESSION['role']))
{
    echo'
    <script>
        alert("You are unauthorized to visit this page. You would be redirected to the home page");
        window.location = "index.php";
    </script>';
    // header('location: index.php');
}
```

Figure 4.4

This chunk of code prevents any unauthorized person from accessing the customer dashboard. For a user to access the customer dashboard, they must have a role of 1, so if that role has not been set, the page is blocked out to prevent just anyone from loading that page provided they have the link.

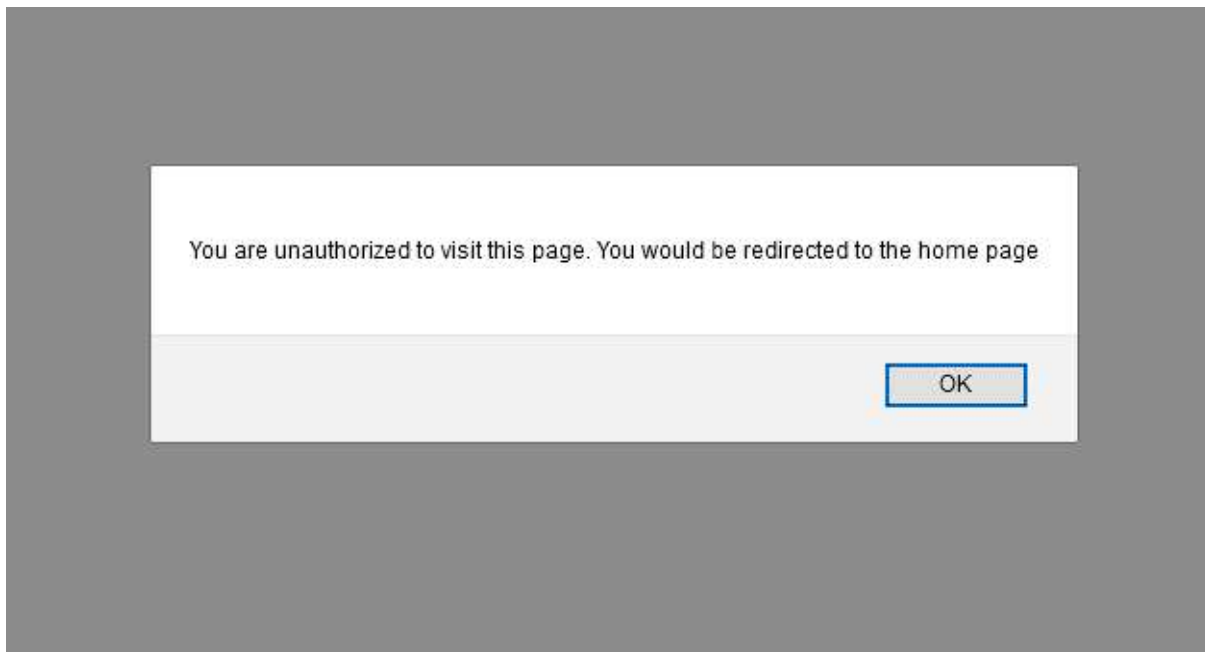


Figure 4.4.1

This is the corresponding front-end that shows what the code snippet does.

```
$servername='localhost';
$username='root';
$password='';
$dbname = "final_project";
$conn=mysqli_connect($servername,$username,$password,"$dbname");
if(!$conn)
{
    echo('Could not Connect MySql Server:'.mysql_error());
}
```

Figure 4.5

This chunk of code is responsible for the connection to the database.

```

while($row = mysqli_fetch_array($result, MYSQLI_ASSOC)){

    echo '<div class="card col-sm-3 align-items-center">
    <div class="card-body m-1 p-1">
    <div class="row">
        <div class="col-sm-6">
            
        </div>
        <div class="col-sm-9">
            <h5 class="card-title">'.$row['Product_Name'].'</h5>
            <p1>GHS'.$row['Price'].'</p1>
            <br>
            <p2>'.$row['Status'].'</p2>
            <br>
            <a href="view_product_details.php?id='.$row['Product_ID'].'"' class="btn btn-primary">View
            Product</a>
        </div>
    </div>
    </div>
    </div> ';
}

```

Figure 4.6

This chunk of code displays the items that a specific business has uploaded as their catalogue on the customer front-end.

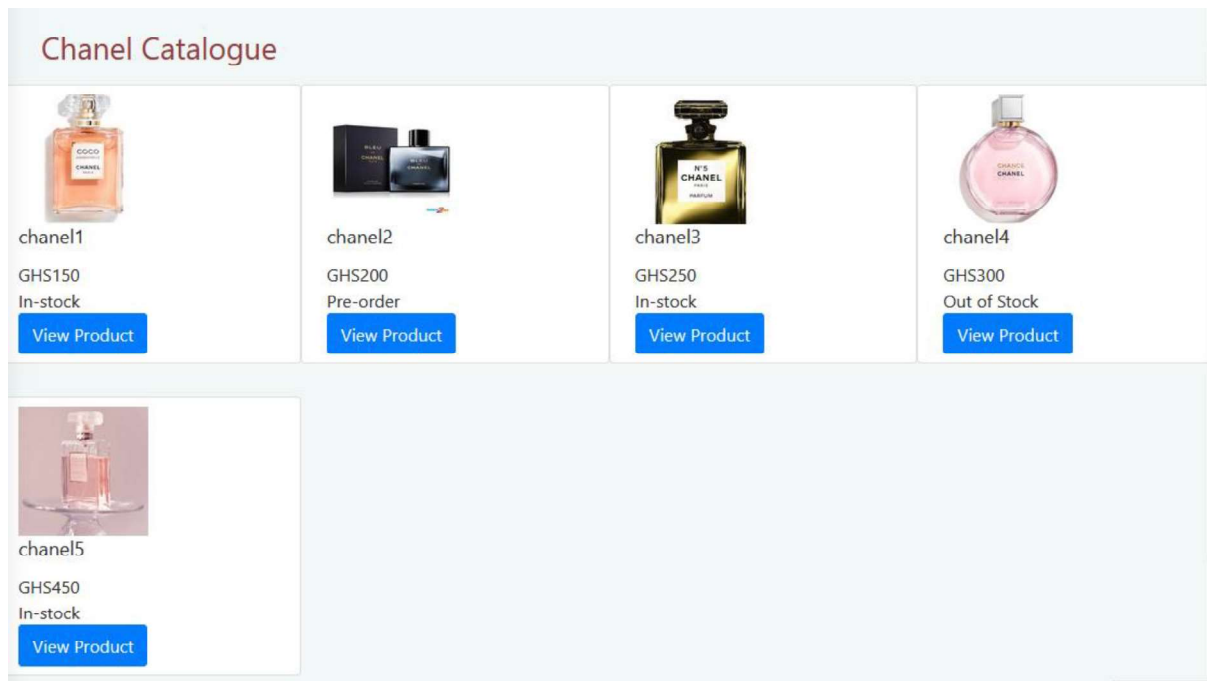


Figure 4.6.1

This is the corresponding front-end that shows the catalogue of the business chanel displayed on the customer front-end.

```
echo '<a href="https://wa.me/233' . $_SESSION['num'] . '" style=" padding-left: 1025px;"
target="_blank"><i class="fa-4x fab fa-whatsapp"></i></a>'
```

Figure 4.7

This chunk of code picks the WhatsApp number of the business owner stored in a session variable and puts in a URL that would redirect the user to WhatsApp to chat with the business owner.

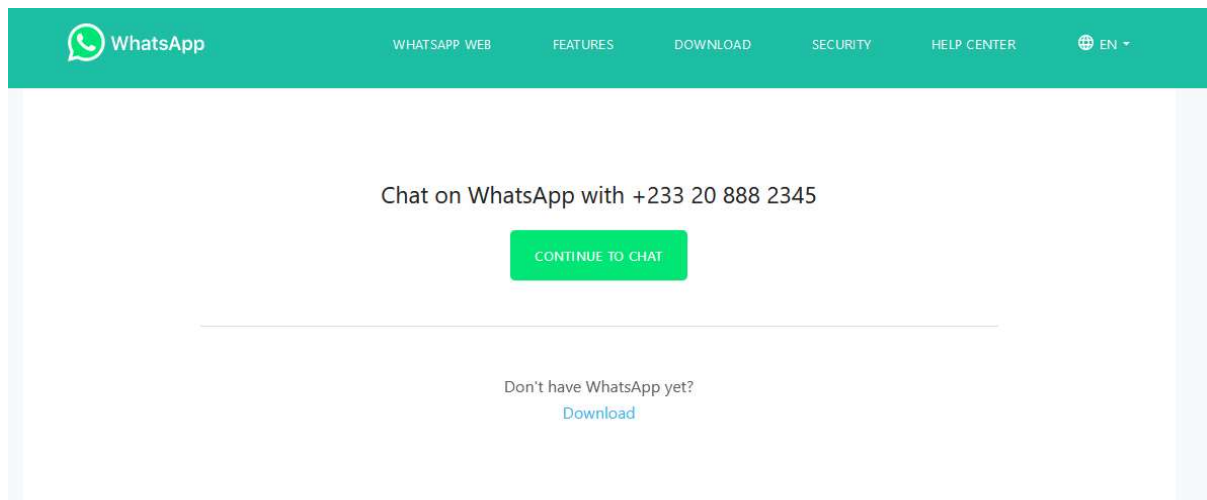


Figure 4.7.1

This is the page that the user is directed when they click on the WhatsApp button the business catalogue page.

```
<div class= "row" >
<div class="col-sm-9 col-md-7 col-lg-5 mx-auto " style="padding-top: 100px;">
<div class="card card-signin my-5">
<div class="card-body">
<h5 class="card-title text-center">Sign In</h5>
<form class="form-signin" action="../../Server-Side/login.php">
<div class="form-label-group">
<input type="email" name="inputEmail" class="form-control" placeholder="Email address" required
autofocus>
<label for="inputEmail">Email address</label>
</div>

<div class="form-label-group">
<input type="password" name="inputPassword" class="form-control" placeholder="Password"
required>
<label for="inputPassword">Password</label>
</div>

<div class="custom-control custom-checkbox mb-3">
<input type="checkbox" class="custom-control-input" name="customCheck1">
<label class="custom-control-label" for="customCheck1">Remember password</label>
</div>
<button class="btn btn-lg btn-block text-uppercase btn-sign" type="submit" name="submit">Sign in
</button>
<p class="sign-link" style="color: #923D41;">
<a class="nav-link text-center " href="register_type.php">New here? Sign up here.</a>
</p>
</div>
```

Figure 4.8

This chunk of code is responsible for the design of the login page.

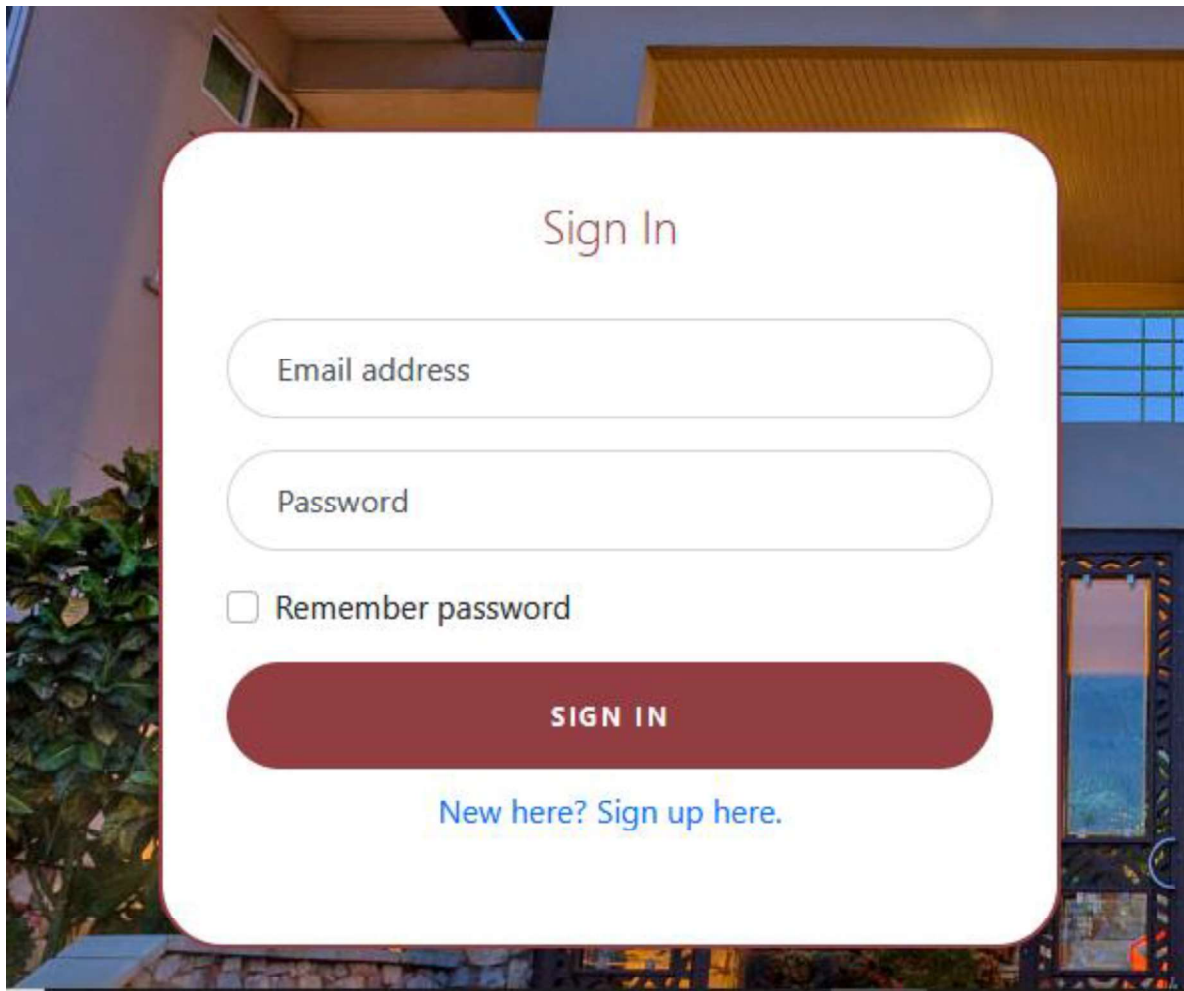


Figure 4.8.1

This is the corresponding front-end of the login page.

CHALLENGES FACED IN IMPLEMENTATION

The main challenge I faced during the implementation was the integration of the paystack api to accept payment. In order to use paystack for payment, I had to register the business that I wanted to use the API for, on their application and submit proof that it is indeed a real business. This was a big challenge for me as my application for a live account on paystack was initially rejected due to lack of information and proof concerning the business. After updating my account on paystack, my application request on paystack was finally accepted.

Another challenge I faced was having to learn a lot of things about e-commerce alongside implementing the project. The concept of e-commerce is completely new to me as I have never undertaken any project concerning e-commerce nor have, I taken any course in e-commerce.

CHAPTER 5

TESTING PROCESS

The testing would be done in two stages using two different testing types. The first stage would be done using the system & component testing method which involves testing the integrated components of the application. The second stage would be done using the user testing method which involves testing the application as whole with the actual users.

SYSTEM & COMPONENT TESTING

As the code for the application being worked on, some test cases of integrated components of the application are being tested to ensure that the application is working properly. Below are the results for the development testing:

Test Case ID	Requirement Tested	Test Scenario	Test Scenario Steps	Test Input	Expected Results	Actual Results	Pass/Fail
DT-1	BR-2	Add a product to the database	a)Business logs into their account. b)Clicks on the add icon at the center of the dashboard. c)Adds product details and clicks on add button.	Product image, name, price, description, status	Product is added to the database	Product is added to the database.	Pass
DT-2	N/A	Add a product to cart array	a)Customer opens a business catalogue from their dashboard. b)Customer clicks on preferred product c)Customer click on buy and enters quantity preferred. d)Customer clicks on the add to cart button.	Product ID, Amount, Quantity	Product is added to the cart array.	Product is added to the cart array	Pass

DT-3	N/A	Add products in cart array to cart table in database by User ID	a)Customer clicks on the add to cart button on product page.	User ID	Cart items in array are added to the Cart table in database by User ID	Cart items in array are added to the Cart table in database by User ID.	Pass
DT-4	NFR-2	Block unauthorized access to customer dashboard	a)User loads the URL of the customer dashboard page without logging in as customer.	Customer Role : 1	The page issues a warning that the user is not allowed on that page and redirects the user back to the index page.	The page issues a warning that the user is not allowed on that page and redirects the user back to the index page.	Pass
DT-5	NFR-2	Block unauthorized access to business dashboard	a) User loads the URL of the customer dashboard page without logging in as business.	Business Role : 2	The page issues a warning that the user is not allowed on that page and redirects the user back to the index page.	The business dashboard page does not load at all.	Fail
DT-6	CR-2	Display all businesses registered on the application on the customer dashboard.	a)Customer logs into their account	N/A	The customer views all businesses registered on the application on their dashboard upon logging in.	The customer views all businesses registered on the application on their dashboard upon logging in.	Pass
DT-7	N/A	Upload customer profile picture	a)Customer logs into their account	Picture selected by customer	The profile image appears on	The profile image appears on	Fail

			b)Customer opens profile page. c)Customer clicks on browse button and selects a picture. d)Customer on clicks on change picture button		their profile and remains there even after they logout.	their profile but disappears once they log out.	
DT-8	BR-1	Create business account	a)User loads the URL of application. b)User clicks on log in and clicks on sign up here d) User clicks on register as a business button e)User enters required details. f)User clicks on register button	First Name, Last Name, Business Name, Business email address, Business Phone number, Business cover photo, Password, Role, Status	Business account is added to the database.	Business account is added to the database.	Pass
DT-9	CR-1	Create customer account	a)User loads the URL of application. b)User clicks on log in and clicks on sign up here d) User clicks on register as a customer button e)User enters required details. f)User clicks on register button	First Name, Last Name, email address, Business Phone number, Password, Role, Status	Customer account is added to the database.	Customer account is added to the database.	Pass
DT-10	CR-1, BR-1	Login	a) User loads the URL of application. b)User clicks on log in. c)User enters email address and password	Email address, Password, Role	Login successful	Login successful	Pass

DT-11	CR-1, BR-1	Logout	a)User clicks on logout from their dashboard	N/A	Log out successful and user is redirected to index page.	Log out successful and user is redirected to index page.	Pass
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USER TESTING

For the user testing process, a survey was sent out once again to 5 customers and 5 business owners to give feedback after playing around with the application. Six questions were asked in the survey(check figures 5.1,5.2 & 5.3) namely:

- How good is the approach used in the implementation of this application?
- On a scale of 1 to 5 how good is the overall design of this application?
- Check the qualities you think this application has(security, reliability, effectiveness, user-friendly, usability)
- What are some areas of this application that can be improved on or can be added in the future?
- What are some of the shortcomings or limitations of this application?
- To what extent does this application meet the requirements?

User Testing

Form description

How good is the approach used in the implementation of this application? *

	1	2	3	4	5	
Poor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	excellent


On a scale of 1 to 5 how good is the overall design of this application? *

	1	2	3	4	5	
Poor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	excellent

Figure 5.1

⋮

Check the qualities you think this application has?



☒ Checkboxes

☐ Security

×

☐ User-friendly

×

☐ Usability

×



☐ Reliability

×

☐ effective

×

☐ Add option or [add "Other"](#)



Required ☒

⋮

What are some areas of this application that can be improved on or can be added in the future? *

Long answer text

Figure 5.2

[illegible]

Figure 5.3

ANALYSIS OF TEST RESULTS

From the system and component testing results, it was realized that the system has not fully met all the requirements as expected.

From the user testing it was realized that (check figures 5.4, 5.5 & 5.6) first of all, the users were happy with the progress and implementation of the application so far, more could be one to make the application even better and the main non-functional qualities that the system has are:

- User-friendly
- Usability
- effectiveness

Check the qualities you think this application has?

5 responses

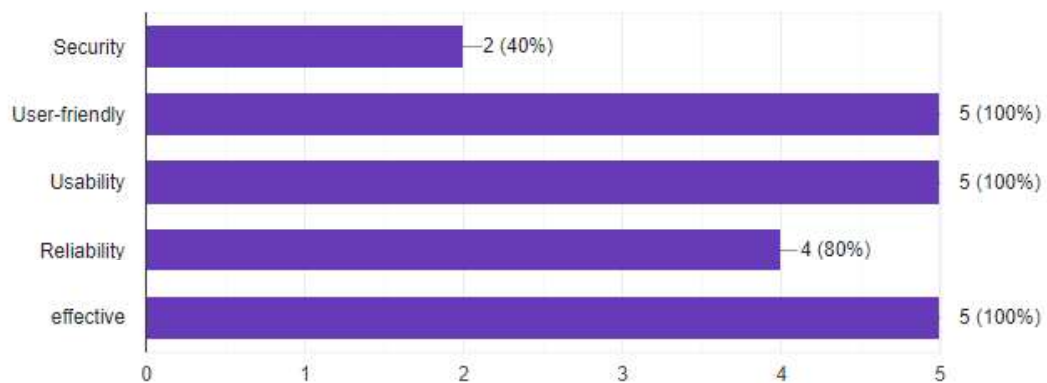


Figure 5.4

How good is the approach used in the implementation of this application?

5 responses

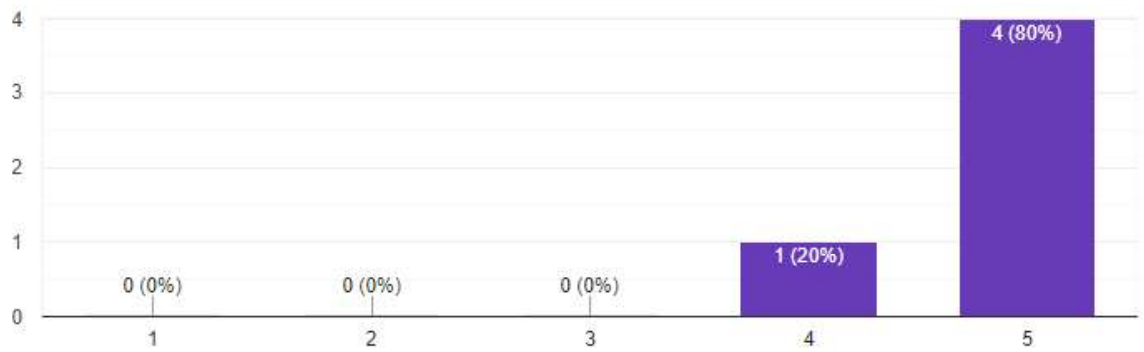


Figure 5.5

On a scale of 1 to 5 how good is the overall design of this application?

5 responses

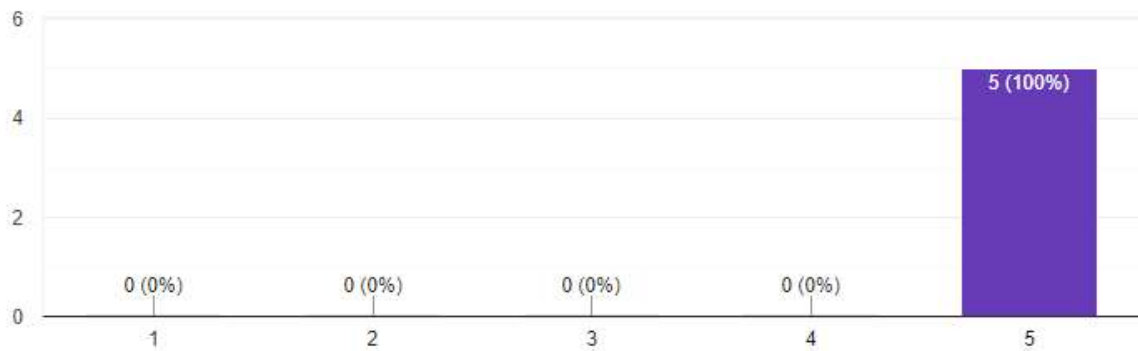


Figure 5.6

CHAPTER 6

CONCLUSION

This e-commerce web application for the businesses on campus would go a long way in helping both students and staff to have access to their favorite businesses on campus and get the goods that they want. Based on the feedback that was given by the actual users, this project meets the requirements higher than average (check figure 6.1) . This project has been a very wonderful learning experience for me as I got to learn things I have not encountered before. Going through all the project development phases, I have gained real insight into the world of software engineering and its practical applications. This project has been very challenging and has broadened my perspective on professional software development.

To what extent does this application meet the requirements?

5 responses

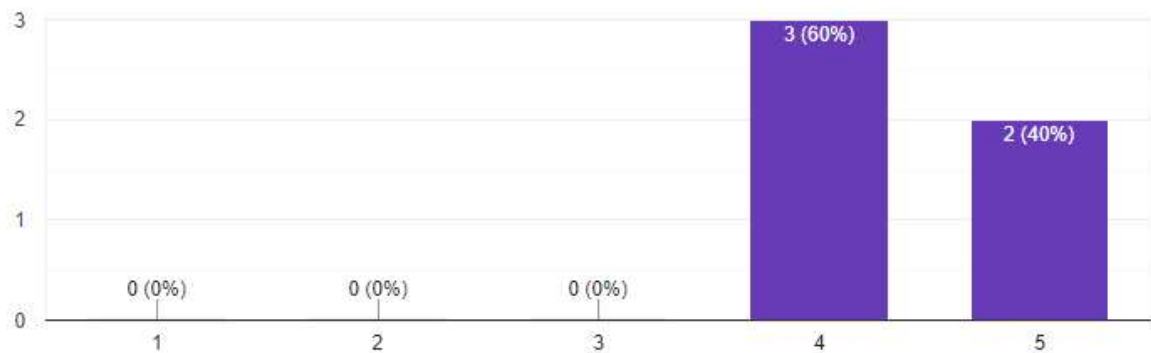


Figure 6.1

DEPLOYMENT TO PRODUCTION.

This project was deployed on a live server called 000webhost via FileZilla. Below is a screenshot of the application that has been deployed on the server.

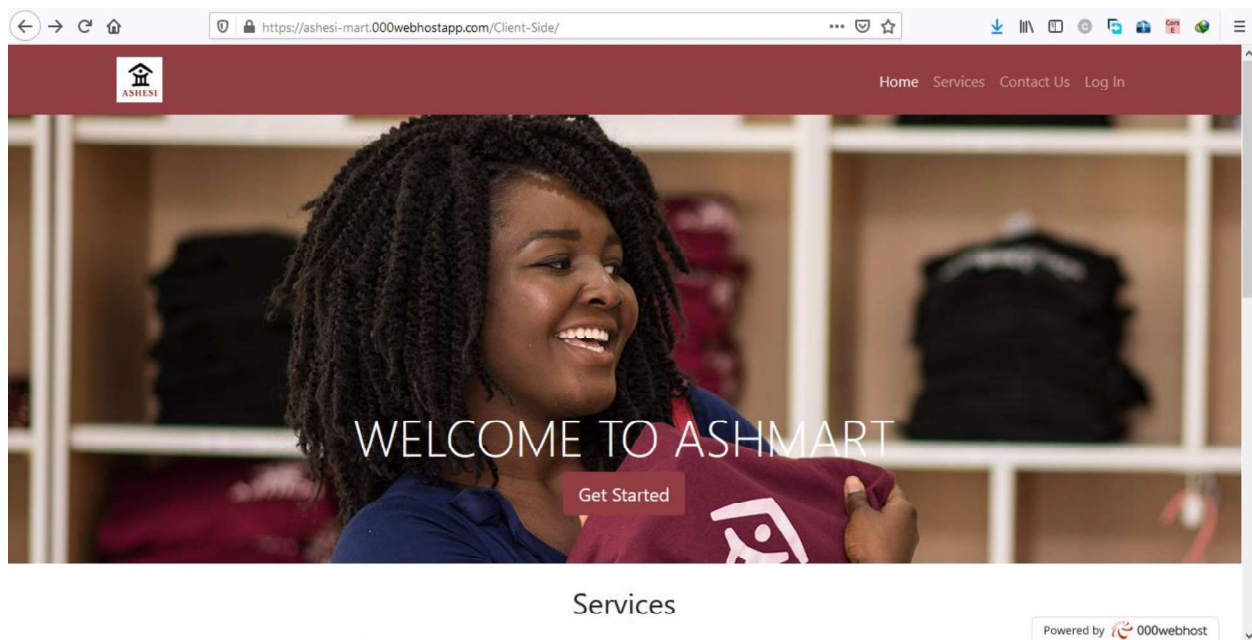


Figure 6.2

PROJECT LIMITATIONS

There are but a few limitations with regards to this project. These are:

- A customer can not engage or chat with a business owner if they do not have WhatsApp installed on their device.
- The businesses that the customer would see on their dashboard are the businesses that register on the application.
- The application has not been fully deployed to the live server due to issues with connecting the database to the application on the live server therefore users cannot yet access this application on the web.

FUTURE WORK

Per the feedback given by the users during the user testing stage and additional research, there seems to be room for improvement for this application with regards to:

- the inclusion of a code scanner to enable students to pay with their student ID cards.
- An integration of an actual chat box to enable customers without WhatsApp to engage or chat with business owners.
- A mobile version of this application.
- Splitting payments amongst respective vendors.
- Full deployment of application to the live server.

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- [2] Mejabi, O.V., Okai,B.A., Oyekunle,R.A. & Jimoh,R.G. (2017). E-Commerce in a Closed System: Development of an E-Marketspace for a University Community. . . *Number, 18(1)*, 7.