A WEB-BASED APPLICATION FOR "FARMESTIC"

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Computer Science and Engineering.

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We hereby declare that, this project has been done by us under the supervision of **Most. Hasna Hena, Assistant Professor, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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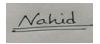
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ABSTRACT

The world is going to be more digitized nowadays. The smartphone is used for business or communication purposes. That's why web application is now more popular with anyone. We live in Bangladesh and Bangladesh is an agricultural country. Most of the people of Bangladesh is a farmer. But they are poor because they can't get the fair price of their product. They are also neglected by society. But they are the main heroes of our society or our country. To solve this problem we develop our web application which can help the poor farmers or sellers to get fair price of their product. At first, the sellers have to login or register on the web page. Then the sellers have to take the products photo. By capturing the photos of their product they can post in our web application. The bidder or buyer can easily bid on the products. By dealing with the sellers, bidders can buy the products at a fair price and they can also get the fresh products directly from the farmers. It will help both seller and buyer. The front-end was implemented using HTML,CSS, Bootstrap and Javascript [6]. On the other hand, Python [2], Django [8], SQLite [9] were used in the back-end. Through this web application, we can inspire poor farmers or sellers to produce more products and that's our main goal.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Our country is an agricultural country. Many types of crops are produced in the country in different seasons. Many products in our country are exported to foreign countries. Even after we are self-sufficient in agriculture, many problems arise.

Due to the syndicate, the prices of products in our country sometimes increase a lot. Sometimes it is seen that the farmer can't sell the crop at a fair price. In this case, the farmers lose a lot. As a result, they lose interest in producing the product next year.

Because of the syndicate, the qualitative characteristics of the products decline. When the seller sells that product after 10 to 15 days for hoping more profit also decreases the qualitative characteristics of those products. They use chemicals to keep that product looking fresh for more days. Another problem is that the seller uses different types of chemicals to store products to sell them in the off-season to gain more profit. It causes many kinds of diseases who buy those and consume that. So, we thought of making something to solve this problem. The best way we could think about is making a website where the seller (farmers) can sell their products directly to the buyer (bidders) at a fair price where both of the users can gain profit.

It is a matter of sorrow that by doing these kinds of things like mixing chemicals in the product neither the farmers get the price of products they deserve nor the people of our country remain healthy. That is why we need farmers to be able to sell their produce at a fair price and people to be able to buy at a lower price. We hope that by using our website, it will benefit the people and the farmers will also get a fair price.

1.2 Motivation

As we know, Agriculture has a vast effect on our economic system. But because of various reasons, it is now in the loss. The farmers of our country are at a loss day by day. They are losing their hope for gaining profit. They sell their product at a low price many times. That's why farmers are disengaging from agriculture. It will severely affect our economy a few years later. So, we got our motivation from here. We got the motivation to do something for our farmers. This will also help us to develop our economy.

Our farmers cannot get their desired price. The price they expand to grow up the crops, vegetables, they cannot earn any profit by selling them. Sometimes agents or syndicates don't tell the farmers about the fair price of their products, gain profit by seizing them.

Besides them, syndicates or agents mixed different chemicals in products to keep them fresh. Those chemicals waste the product's qualitative characteristics and also human health. So, living a healthy life is another source of our motivation.

1.3 Objective

The main objective of our project is to help farmers to earn a profit. Agriculture plays an important role in the development of our country. So, our other objective is to help to grow our economy. This will also take our country one step closer to development. By using our websites farmers can easily sell their product directly to the buyers, where both seller and buyer can easily earn profit by the bid.

Then because of chemicals and formalin's not only the qualitative characteristics of the products we consume daily are spoilt but also ruin our health. So, another objective is to lead a healthy life and alleviate the use of chemicals in products.

1.4 Expected Outcome

As we are making a website, so we set a benchmark for this. The expected outcomes of our project are-

- > Users can easily visit our website.
- > Users can easily understand every feature of it.
- > Users can be able to adapt the environment of the website.
- > The registration process must be easy for every user.
- > Users have to log in before doing any activity.
- There will be different administration for both buyer and seller.
- The seller can easily choose the buyer who is suitable for sell by the bid.
- ➤ Both seller and buyer can contact each other after a bid.
- ➤ Make the whole process and system reliable so that users can use it without any worry.

Although we are expecting many outcomes. But the outcome we are mainly expecting is to fulfill all our expected consequences properly.

1.5 Report Layout

In the first chapter of our project report, we have discussed-

- > The overview of our project
- > Gave a brief introduction
- > Our motivation for this project
- Our objective regarding this project
- Our project management and finance
- And expected outcomes for this project

In the second chapter, we will discuss -

- > Our project preliminaries
- > Related Works
- ➤ Comparative Analysis of our project
- > Scope of the Problem
- > Challenges we will face for this project

In the third chapter, we will discuss-

- Business Process Modeling
- > Requirement Collection and Analysis
- > Use Case Modeling and Description
- Logical Data Model
- > Design Requirement

In the fourth chapter, we will discuss-

- > Front-end Design
- ➤ Back-end Design
- > Interaction Design and User Experience (UX)
- > Implementation Requirements

In the fifth chapter, we will discuss-

- > Implementation of Database
- > Implementation of Front-end Design
- > Testing Implementation
- > Test Results and Reports

In the sixth chapter, we will discuss-

- Discussion and Conclusion
- > Scope for Further Developments

CHAPTER 2

BACKGROUND

2.1 Preliminaries

Shyamal is the main source of the economy of Bengal agriculture. Bangladesh is an agrarian country. The livelihood of most of the people of this country is related to agriculture. The economic foundation of this country has been built in exchange for unlimited labor and the sacrifice of farmers. Not only has the role of farmers ended in the domestic economy but also the farmers have contributed significantly to national development and progress.

2.1.1 Importance of farmers:

Farmers are directly involved in the role played by agriculture in the national income and economy of the country. Farmers have survived our existence by providing useful food. If the farmers of Bangladesh had not played an active role in the production of crops, the human existence of the country would have been endangered by constant famine. Farmers in Bangladesh provide 80 percent of the food grains. [10]



Figure 2.1.1 Farmers of our country (Bangladesh)

Once upon a time, the highest foreign exchange was earned from the jute produced by the farmer. Even today, all the supplies of jute products come from the farmers. Malnutrition is a national problem in our country. Farmers are trying their best to solve this problem. The demand for vitamins is met from their agricultural products, vegetables, and fruits, which is a very important thing. If farmers had stopped their production, not only public health would have been threatened, but people would die without food shortage. Agriculture is mainly the focus of our hopes and aspirations and confidence in agriculture in Bangladesh.

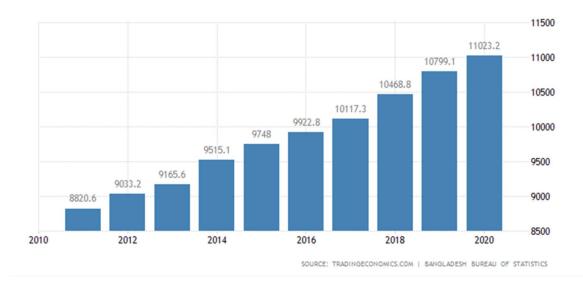


Figure 2.1.2 Bangladesh GDP from Agriculture

GDP from agriculture of our country is 11023.20 BDT Million (Previous) and 10799.10 BDT Million (last) in 2019 to 2020.

2.1.2 Current status of farmers:

The farmers of present-day Bangladesh are landless. The amount of land in the country has come down. The farmer is living their life in with squares on other people's land anyhow. The price of fertilizers, pesticides is now high.

The purchase of essential commodities is going beyond the reach of the farmers. Even the manure that you buy with money is not enough in the country, but the farmer has to give life while asking for fertilizers. In the age of science and technology, where 0

2.2 Related Works

There are not many works on the internet that are related to our work. There have some websites which are slightly related to our project. That is-

- ➤ ShopUp Reseller
- > Chaldal.com
- ➤ Birkroy.com

ShopUp Reseller

It is an app which also found in the Google play store. In this app, there has no option for a bid. That's why the buyer has to buy any products at the given price.

Chaldal.com

It is an e-commerce site. And same as ShopUp reseller, there has also no option for a bid. Buyers have to buy products at the seller's given price.

Bikroy.com

It is a website and it is also the same as others. There has no bid option and buyers have to purchase with the given price. It has also an app.

2.3 Comparative Analysis

Although there have not many works related to ours on the internet. Some of them are slightly related. Comparisons between them and our works are given below-

Table 2.3.1 Comparative analysis among other apps with ours

| Name | Type | Registration | Contact | Bid | Product |
|-------------|---------|--------------|-----------|-----|-------------|
| | | | between | | |
| | | | Buyer and | | |
| | | | Seller | | |
| ShopUp | App | ✓ | ✓ | * | All types |
| Reseller | | | | | |
| Chaldal.com | App, | ✓ | ✓ | * | All types |
| | website | | | | |
| Bikroy.com | App and | ✓ | ✓ | * | All types |
| | website | | | | |
| Farmestic | website | ✓ | ✓ | ✓ | Agriculture |
| | | | | | Related |
| | | | | | |

Nowadays, the bid is essential while buying or selling anything online. Cause without bid most of the time only the seller gain more profit where buyer remains in a loss without knowing the fair price. Although there are many similar applications or websites are available but none of them use the bid to sell anything. That's why our website is better than any other website or application.

2.4 Scope of the problems

The scope of this problem is continuously increasing because of some dishonest people and less opportunity to directly sell the products from farmers to buyers. If we do not try to prevent this from now on, then it will create a vast effect on our country, its economy, and its development. [1]

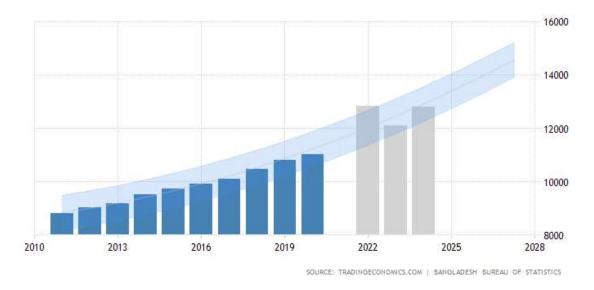


Figure 2.4.1 Assuming GDP from Agriculture of our country

We can see from that graph how much impact agriculture has on our economic system. So, we must protect our farmers and help them get the fair price of their products and inspire them to grow more foods. That's why we are making websites for them, where they can sell their product directly to the buyers at a fair price by bidding.

2.5 Challenges

There are many challenges we have to face regarding our project. They are-

- We have to enlighten farmers and other users about our website.
- > Tell the users about our project benefits
- > Teach them how to use the website properly

- > Teach them how they can complete their registration
- > Teach them how to bid, sell their product and earn profit
- And the most challenging one is that farmers must have an android phone, a stable network and an internet connection.

CHAPTER 3

REQUIREMENT SPECIFICATION

The website is made using Django.[8] Python is used in this project as the language. Python is now one of the most popular languages in the world because of its simplicity. There are lots of models like use case diagram, business process modeling, UML diagram etc. [2]

3.1 Business Process Modeling

For becoming more user-friendly each project needs analysis of designs. So, we tried to navigate the scenario ordered and well-drawn and had no complications in it. Mainly a business process module represents the graphical notation. A simple visual is often offered by a business process model.

The business process model of our project is given below:

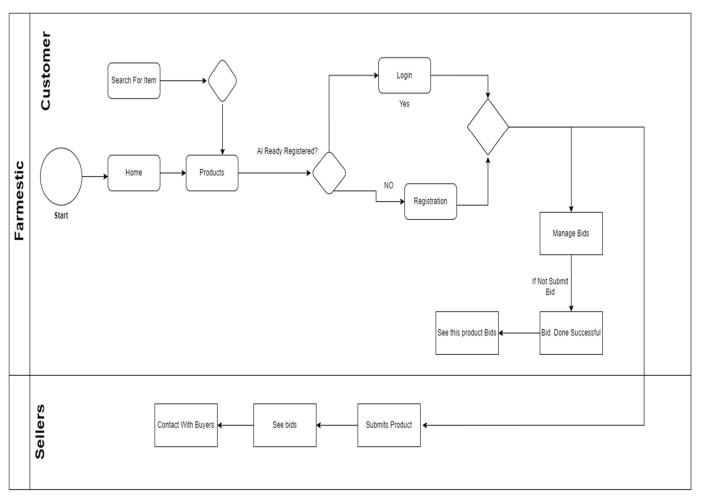


Figure 3.1: Business Process Modeling

The seller can post the product easily by registration and the bidder can bid on the product from this website.

3.2 Requirement collection and analysis

For our work, we collected so many requirements and built up the web application. we need

some main requirements. Software and hardware are the divided two types of our

requirements.

3.2.1 Software

Analysis of the design is essential for every project. So that, it becomes more user friendly

for the users so this project carries similarly. For that, we just tried to navigate the scenario

ordered and well-drawn and had no complication in it. To grab all devices we tried to build

our web application more responsive. Here Django was chosen for building up the project.

Here are our software requirements: [8]

• Operating System: All kinds of operating systems

• Language: HTML, CSS, Javascript, Python

• Tools: Visual studio code

Technologies utilized: Django

3.2.2 Hardware

For building up the web application, we need the accompanying Hardware Requirements:

Processor: Higher RAM 512 MB

Space on plate(disk): Least 512 MB

To run the application:

• Device: Supports any browser

Minimum space to execute: Any

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3.3 Use case modeling and description

For expressing high-level purposes and opportunities of a system use case diagram is used. Use case graphs are comprised of performing artists, use cases and their connections. The graph is utilized to demonstrate the framework or subsystem of a web application. A solitary use case chart catches the specific usefulness of a framework.

Use case charts are utilized to assemble the necessities of a framework including inward and outside impacts. For the most part structured necessities these prerequisites are.

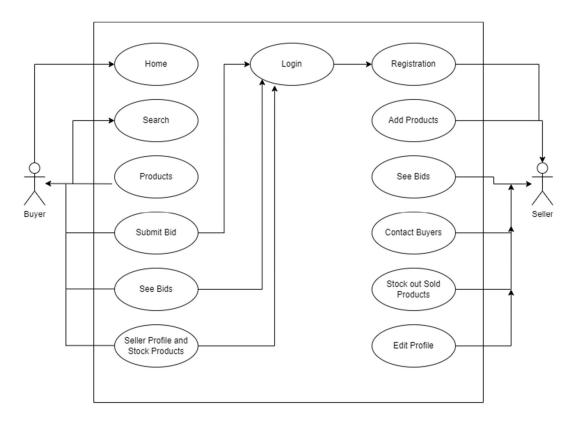


Figure 3.3: Use Case Diagram

In our project's use case diagram there are two actors seller and bidder. The seller can sell anything related to the website product.

- > Seller
- ➢ Bidder

So many actions that can be performed by the seller. All of the actions are useful for any bidder. All the activities that can be performed on this web application can be easily understood by the use case model that is given below.

The option is given below for the seller:

- Registration/Login
- Product details (Name, ID, description of products)
- **❖** Product quantity
- Minimum bid price
- Product image

The option is given below for the bidder:

- ❖ Registration/Login
- Product quantity to buy
- ❖ Share bid price
- Contact number
- Message (optional)

The use case model is given to understand easily what can be performed on this web application.

3.4 Logical Data Model

To store and call back the important data we use SQLite. In our web application, we need to store some information e.g. seller or buyer name, email, contact number and address also store product details etc. [9]

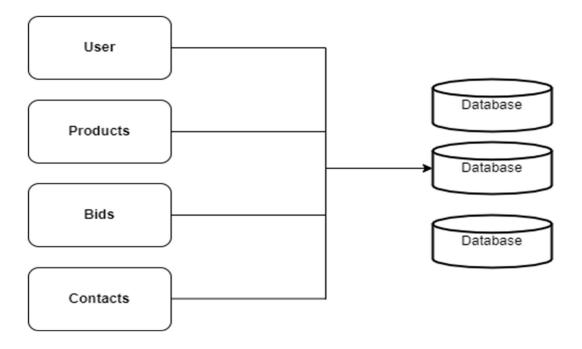


Figure 3.4: Logical Data Model

3.5 Design requirement

For developing any project a good design is necessary. Because a good design influences any user to use the application. We researched UI/UX and try to understand which kind of design can attract the user. Mainly we found the simple and clean user interface is best because any user can use this kind of web application. This is more friendly than any other complex web design. That's why we try to do our best to build a very user-friendly design for our "Farmestic" web application.

CHAPTER 4

DESIGN SPECIFICATION

This chapter contains about front-end and back-end design of this project.

4.1 Front-end Design

Generally, whatever a user sees as the interface is the front-end design. Front-end design is the graphical form of a system. Users can be attracted by this that's why it is the most important part. So, the front-end design of any application should be user-friendly, attractive and beautiful. We tried our best to make our web application so simple and attractive so that users can easily use the web application and be attracted by the front-end design.

Here are some images of the front-end design of our web application:

The following figure 4.1 is the homepage of our web application. After coming to this page seller or bidder has to be login or create a new account to continue.

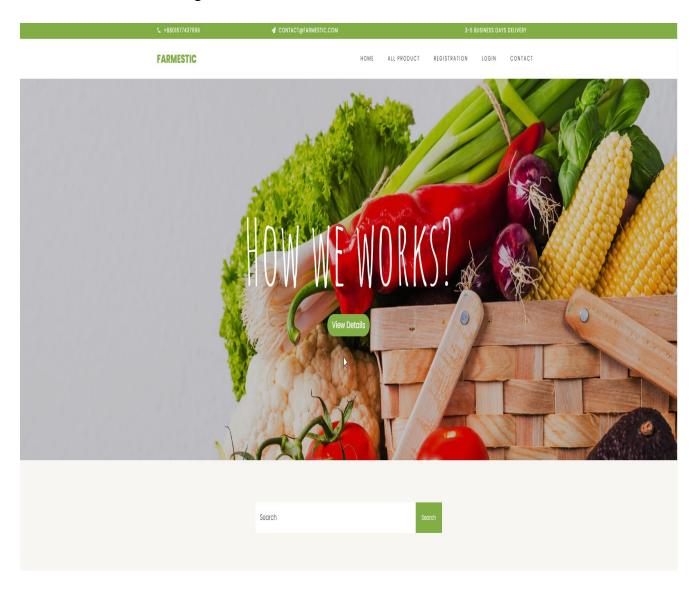


Figure 4.1: Homepage

The following figure 4.2 is the login page. If the seller/bidder already has an account then the seller/bidder has to be login.

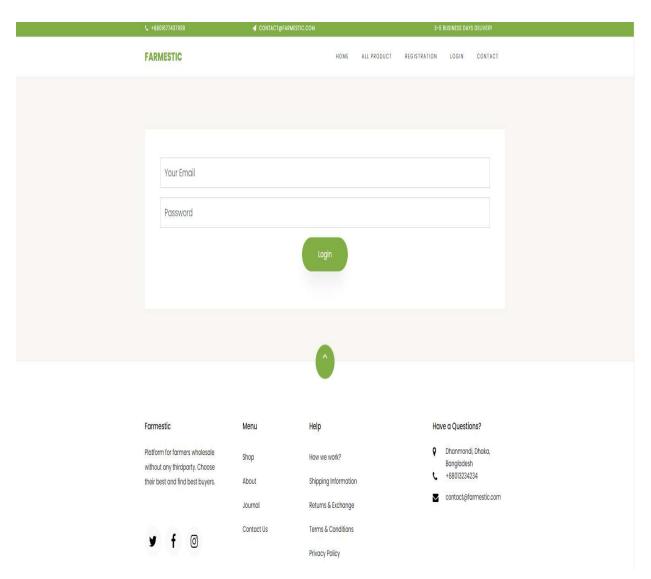


Figure 4.2: Login Page

The following figure 4.3 contains the registration page. If seller/bidder hasn't any account Then the page will show. Some information has to be given for creating a new account.

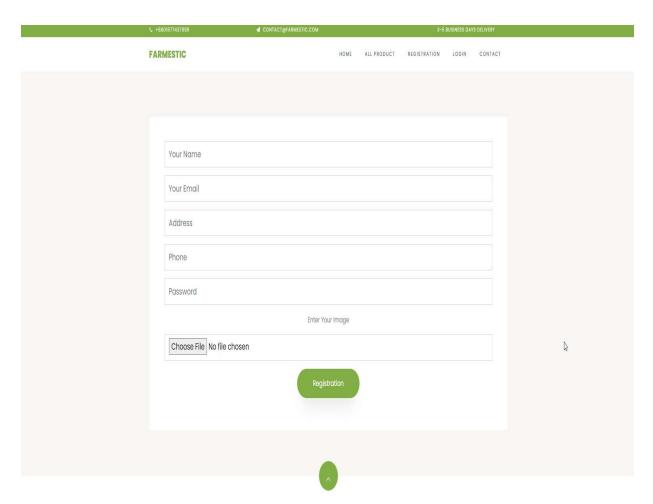


Figure 4.3: Registration Page

The following figure 4.4 contains the feature products.

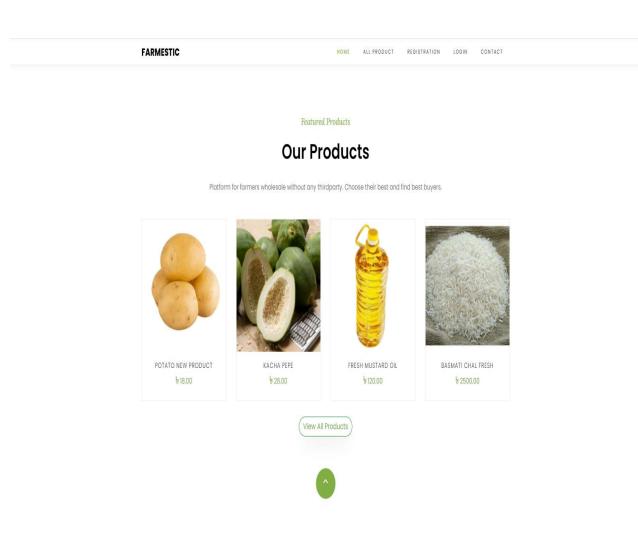


Figure 4.4: Feature Products

The following figure 4.5 shows the all products posted by sellers. When the bidder clicks the products page then it shows that page. Here bidder can see the product list.

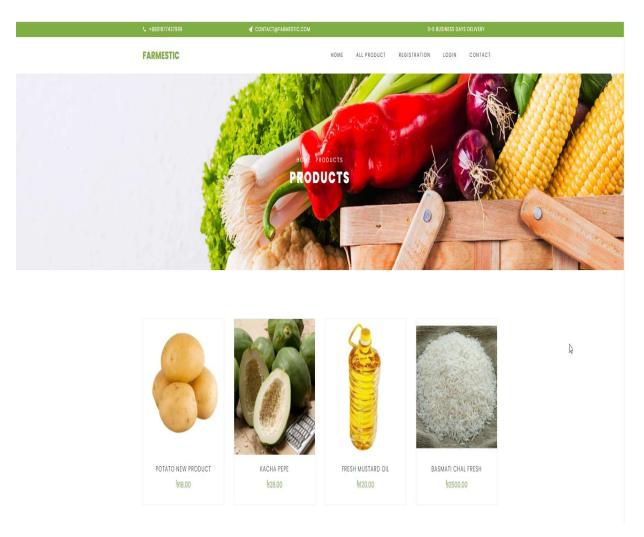


Figure 4.5: All Products

The following figure 4.6 contains the details (Quantity, Place, seller information, minimum bid price) of any product. If the bidder clicks the products then the details of this product will show like this.

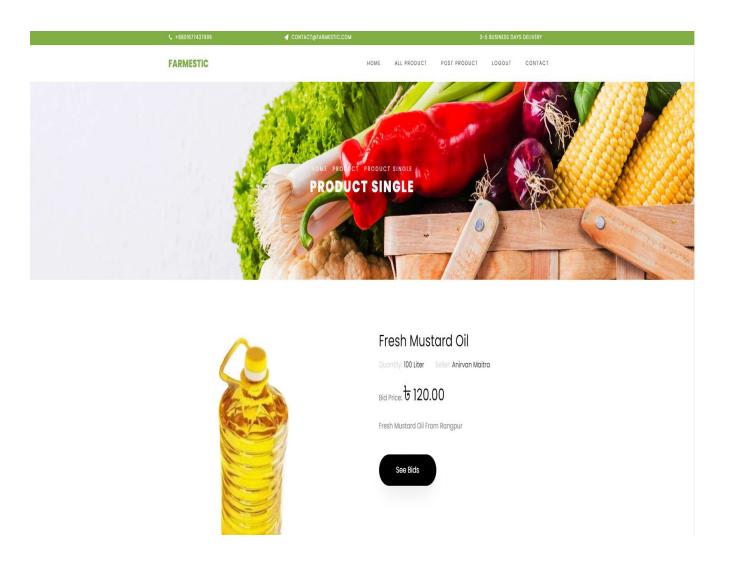


Figure 4.6: Product Details

The following figure 4.7 is the page where the bidder can bid on the product easily. To bid on the product bidder has to maintain the following process. After bidding on the product successfully bidder can see his bidding detail as confirmation.

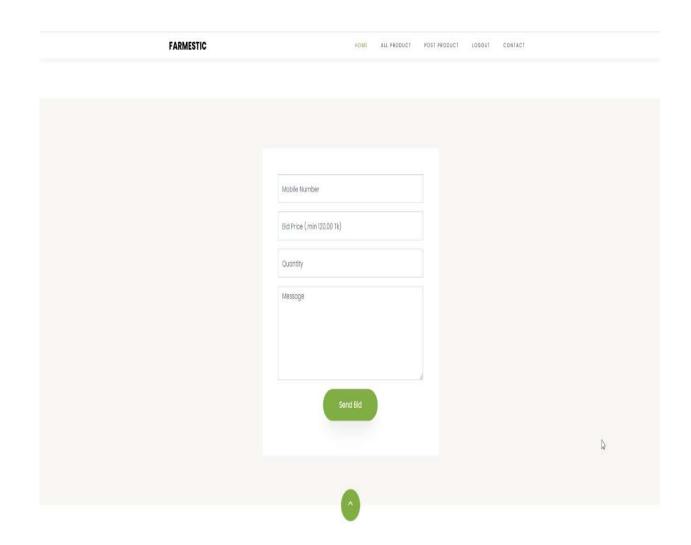


Figure 4.7: Bid process

Figure 4.8 shows the bidding details in real-time and date. Bidder can also see the bidding details by product.

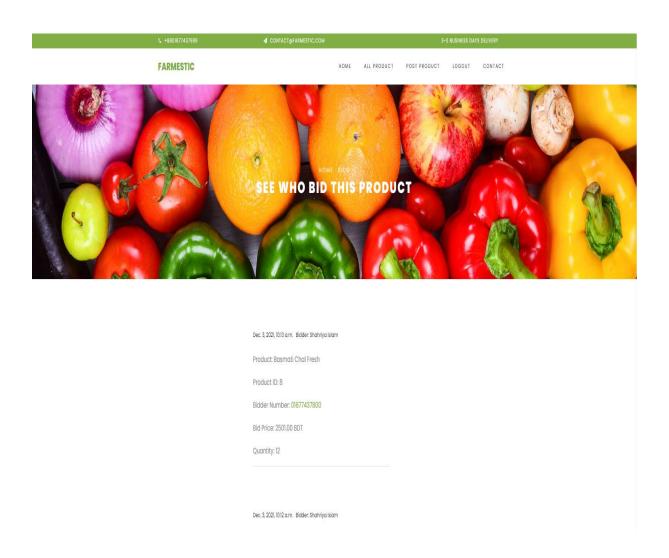


Figure 4.8: Bidding details

Figure 4.9 is for the only seller. The seller can post any product by category. To sell any product seller has to maintain some rules e.g. products name, category of this product, price, quantity, description of the product and most importantly the image of the product. All of the rules are required for the seller.

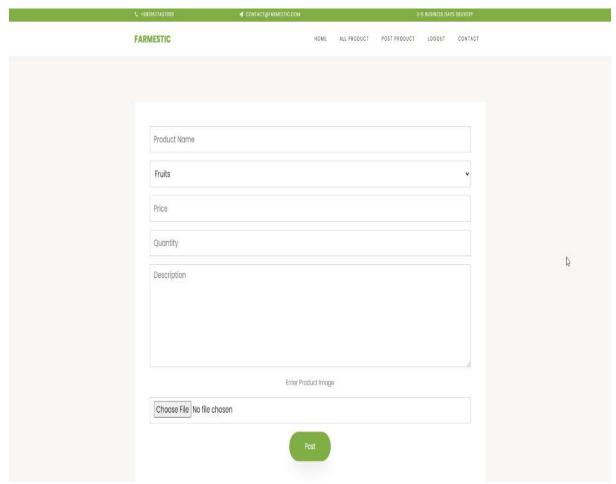


Figure 4.9: Process of posting product (only for seller)

Figure 4.10 contains the contact of the admin panel. Seller/Bidder can contact the admin at any time. If the seller/bidder clicks the contact page then the page shows like the image that is given below.

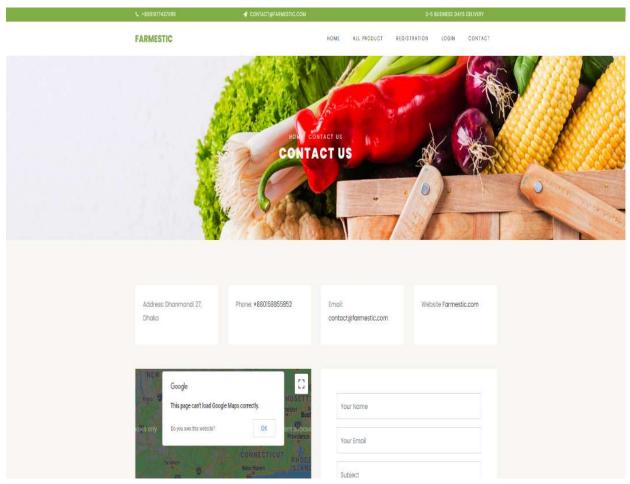


Figure 4.10: Contact page

4.2 Back-end Design

The class diagram offers a review of the objective framework by portraying the articles and classes inside the framework and the connections between them. It also offers an assortment of utilizations.

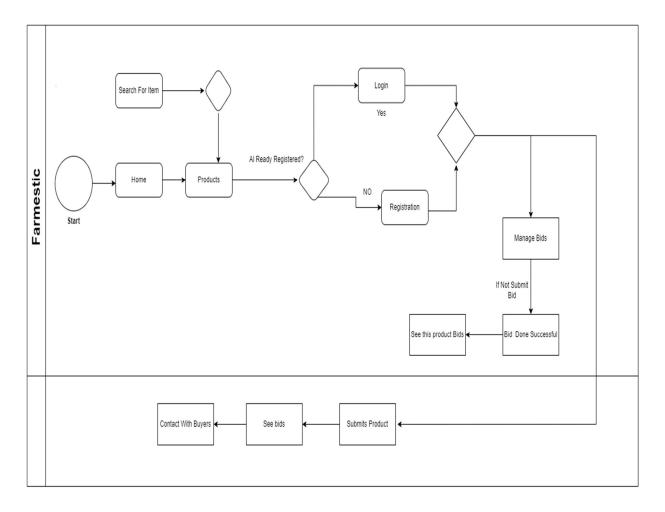


Figure 4.2.1: Process Model Diagram

To build this web application we use a large number of python functions. Django is used to build this web application as a framework. Some important methods are also used in this web application. [2]

Here are some samples of our back-end design:

Figure 4.11 is only for the admin. To continue this page there must be needed email address and password. Without email and password no one can enter this page.

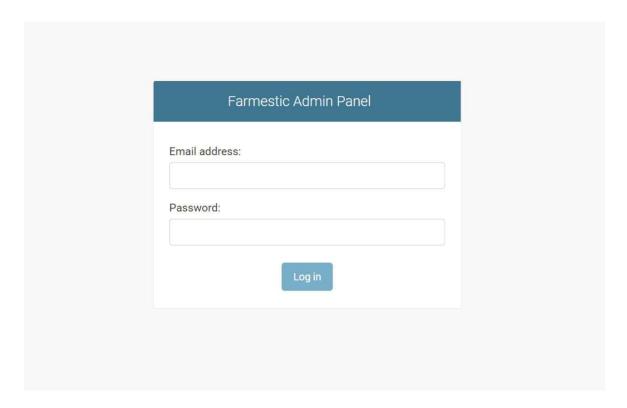


Figure 4.11: Admin panel (login page)

Figure 4.12 & 4.13 contains the data of all products and seller/bidder.

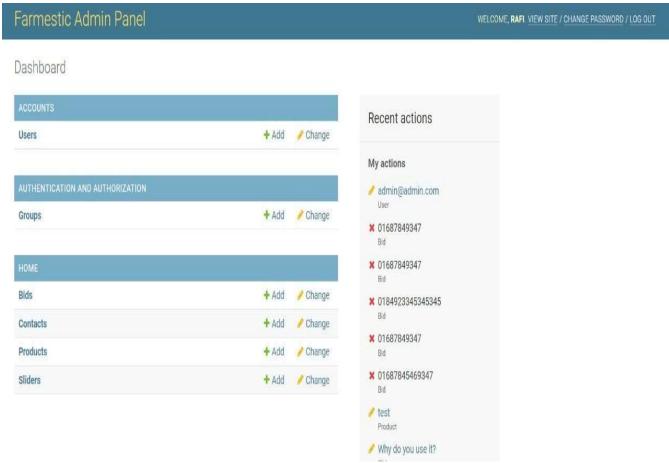


Figure 4.12: Database

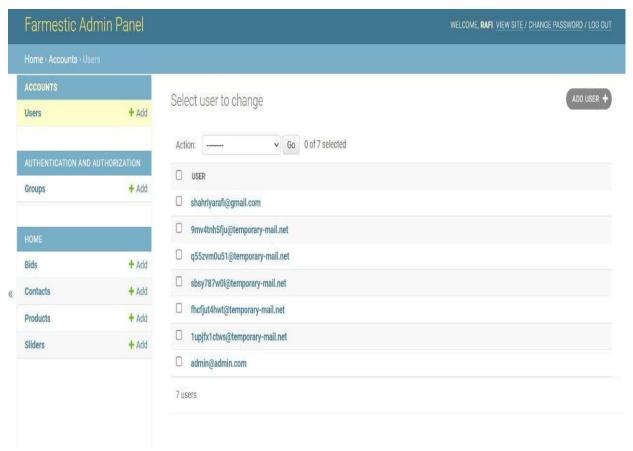


Figure 4.13: Database

4.2.1 Web application Role is to:

This section expresses the web application roles and the role's responsibilities:

- > Check request from the bidder choice.
- > Get essential information from the right activity.
- > During loading, the result shows a web view for waiting.

Responsibilities of the web application:

- > Collecting feedback on the application every month.
- ➤ Identifies the errors and bugs for improved user experience
- > Decide the possibilities for proceeding with use.

.

4.3 UI/UX DESIGN

UI means the visualization of any application. It is the most important part for attracting to use the application. If the UI is so simple and clean then the user can easily use the application.

UX means the user experience. It is also very important to develop any application. If the user experience is bad then the developer needs to improve the design or function of the application.

To attract the users we tried our best to develop the web application so simple and clean. For better enhancements, there is a section for feedback of users. Every time, we are checking our users' feedback and try to fulfill their requirements.

4.4 Implementation Requirement

This project has the following requirements:

- i. Python for coding. [2]
- ii. Django as the framework. [8]
- iii. HTML page for GUI. [3]
- iv. CSS for styling (decorative purposes). [5]
- v. Bootstrap for responsive. [7]
- vi. Perform able laptop or desktop.

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation of Database

In this project, we use SQLite for creating a database. All the database highlights are supported by SQLite. SQLite is an open-source system that stores information on any content or document. We have to store a lot of data in this project. For running the database smoothly we choose the best server because our project is based online. That's why we choose SQLite. [9]

5.2 Implementation of Front-end Design

There are two parts to any application. One is front-end design and another is back-end design. This project is fully designed by the Django framework. Django is a python framework. Nowadays Django is a very popular framework because python is the most popular language for programmers. Django is more user-friendly. [8]

Front-end:

- Front-end is the visualization of the application.
- There are lots of functions in this web application.
- To design the application we need XML

Recycler view for the user:

- All products
- All categories
- Details of seller or bidder

Recycler view for the admin:

- All products
- All information of seller and bidder

5.3 Testing Implementation

After developing any application it needs to be tested. The main reason for testing any application is to discover bugs or errors. There are so many functions in our web application. For better implementation, we have to test so many times and so many functions. We had to match all our expected outcomes when we were testing. The list of functions are given below:

- * Registration for new user
- Login for already registered user
- Category of all products
- Product details
- Checking seller information whether it is correct or wrong
- * Checking bidder information whether it is correct or wrong
- Checking the availability of the product
- ❖ Product base bidder details
- ❖ Bidder time and date and
- Many more.

We tested every function individually. At first, we checked our expected interface. It showed perfectly. Then we checked the other functions manually. There were no errors in the web application. It took more time to check all the functions manually.

5.4 Test Result and Reports

We develop this "Farmestic" web application with a great concept. We implement this project so that we can help the farmers because we are living in an agricultural country. Day by day farmers are losing their hopes because they couldn't get their expected profit or the price of their products. For this, we develop this web application. So that they can directly sell their products to the buyer. So, we tested all the functions individually that's why we are using a testing algorithm.

Table 5.5: Testing of all kinds of user case result:

| Serial No | Test Input | Expected Outcome | Actual outcome | Result |
|--------------|------------------------------|----------------------------------|----------------------------------|---------|
| 1.1 | Click to the web application | Home | Successfully go to the home | pass |
| 1.2 | Registration | Registration page | Successfully go to the page | alright |
| 1.3 | Login | Login successfully | Successfully login | pass |
| 2.1 | Add product | Go to the product add page | Product added in the application | okay |
| 2.2 | Show product | Product details will be shown | Show the details | pass |
| 2.3 | Seller information | Information of seller | Show the information | okay |
| 3.1 | Bidder information | Information of bidder | Show the details | pass |
| 3.2 | Product category | Shows product category in a list | Show the list of product | pass |

| 3.3 | Product bid | bid details | Details forbid | pass |
|-----|-------------------|---------------------|--------------------|------|
| | g 1 | 0.11 111 1.1 | | |
| 4.1 | Send a message to | Seller will get the | Message send | okay |
| | the seller | message | successfully | onay |
| | | | | |
| 4.2 | Show all bid list | List of all bidder | Successfully shown | pass |
| | | | the list | |
| | | | | |

So, after testing all the functions we can report that all the functions or options of our web application are working accurately. since all the options are working accurately so we hope our web application will help the poor seller.

CHAPTER 6

CONCLUSION AND FUTURE SCOPE

We start this web application to make something helpful for the seller.

6.1 Discussion and Conclusion

"Farmestic" is very user-friendly and helpful for poor sellers. This project may help the hopeless sellers. It is very easy to use this web application. Now, all of the sellers can sell their product at a fair price and the bidders can get the fresh product through this web application.

Technical Feasibility

"Farmestic" web application is developed for any kind of device so that sellers and bidders can easily use this web application. For using this service seller and bidder doesn't need to connect internet always. When they need to sell products or bid on any products only then their devices must be connected to the internet.

Economic Feasibility

- Developer can earn from using Google Adsense.
- For removing the ad and verified profile there may be premium service.

Conduct-able Feasibility

Who has a phone which supports browsers can access this web application easily.
 No need to buy any desktop

 User can search easily and get ordered their desired products which can save their time.

6.2 Scope for Further Developments

This web application is modified continuously. There could add some more interesting features in the future. We believe that the world would be more advanced technologically in the future. This web application can bring justice to poor sellers. It will help the buyer also. They can get fresh produce from the seller directly.

Already some interesting features are in our mind. We will try to implement those features early.

- ➤ Live Chat
- ➤ Live tracking
- > GPS
- > Upgrade into a mobile application
- ➤ Video call option to see the product condition
- ➤ Vehicle management etc.

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