HEALTHY FARM CROPS

Diploma in Software Engineering

Final Project Documentation

2020.1F

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<u>Acknowledgments</u>

Declaration

We certify that this project does not incorporate, without acknowledgment, any material previously submitted for a diploma in any institution, and that it does not contain, to the best of our knowledge and belief, any material previously published or written by another person, except where due reference is made in the text. We also hereby give consent for our project report, if accepted, to be made available for photocopying and for interlibrary loans, and for the title and summary to be made available to outside organizations.

- Project Title: HEALTHY FARM CROPS
- Group members

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Abstract

33.7% of the population of Sri Lanka engages in agricultural activities. Because of some environmental changes and animal attacks, a lot of farmers are unable to sell their products. To make matters worse, they are unable to find direct buyers without brokers when they expect to. When they go to economic centers to sell their products, they have to waste a lot of time and resources. When buyers get their hands on the products, their freshness has already begun to wither away. And in these pandemic times, they are unable to sell their product because of the curfew, they can not go to economic centers. So, the product goes to waste without ever being used.

So, our Genoxia organization created an online platform (Healthy Farm Crops) to sell fresh farm products to genuine buyers without difficulty. Our idea is to implement a website for both computers and phones. We are developing an all-in-one website for this. which makes this website more user-friendly and saves more time and resources for farmers and buyers.

We can support farmers by featuring them on our website. So, buyers can find them at the tip of the search through our website and many more services.

Table of Contents

List of Keywords

GUI   -   Graphical User Interface

SDLC   -   Software Development Life Cycle

UML   -   Unified Modeling Language

List of Acronyms and Abbreviations

SQL -> Structured Query Language

ERD -> Entity Relationship Diagram

UML-> Unified Modeling Language

SRS -> Software Requirements Specification

SDLC ->Software Development Life Cycle

DFD -> Data Flow Diagram

1. Introduction

1.1. Introduction of the Organization

Genoxia Technologies was established in the year 2021 and is currently providing our services in various fields**.**

In our latest project, "Healthy Farm Crops", we are providing services to increase the sales of agricultural products in our country and reduce the production wastage of our farmers. It is also committed as an organization to provide technical as well as advisory services through various channels to boost the economy of the country.

1.2. Problem Definition

Farmers have to go to an economical center to sell their products**.**

We observed that there is no local online platform for this need. Because of this, farmers have to wait in line for hours to sell their products. It is a waste of time and a lot of resources.

And in these pandemic times, they can't sell their product because of the curfew they can't go to economic centers. So, the product goes to waste without ever being used.

1.3. Project Objectives.

- Be able to get the products the buyers want quickly and simply.
- Accelerate the marketing of their products to sellers and prevent large-scale wastage of their products.
- Make a user-friendly platform for the users with an attractive UI.
- Update the website frequently.
- Building the web platform.

1.4. Proposed Solution

According to the difficulties and problems that have occurred in selling farming products, our idea is to implement a website for both computers and phones.

Selling farm products in economic centers can be very difficult. So, we are developing an all-in-one website for this task. which makes this website more user-friendly and saves more time and resources for farmers and buyers.

We can support farmers by featuring them on our website. So, buyers can find them at the tip of the search through our website.

2. Methodology

2.1. Introduction

Supplying quality farm products for the largest population is not an easy task. The Sri Lanka government has been supporting the agriculture industry with a number of policies, trying to stabilize the output and seeking ways to ensure the sector is growing healthily and sustainably.

The developing island of Sri Lanka (33.7%) employs about a third of its citizens working in the farm industry. Many farmers in Sri Lanka are unable to sell their products due to environmental change, and they are unable to find direct buyers without the use of brokers when they expect.

To give great value to our farmers, sell their products to genuine buyers without losing their revenue, and to get fresh farm product customers, Genoxia started this website. Furthermore, this website allows the buyers to find their buying products and many more services.

2.2. Data Collection Methods

- Questionnaires and surveys

  I.   What type of farming products do you sell or buy?
  II.   What is the process of buying and selling farming products?
  III. How was the product price determined?
  IV.   What parts of the country do the products come from mostly?
  V.   How many products go to waste daily?
  VI.   How do you transport the products?
  VII. How did the COVID-19 pandemic affect the agriculture sector?
  VIII. What do you think about doing this process online?

- Documents and records

  We gathered some information from this website.

  https://www.agrimin.gov.lk/web/

- Oral histories

2.3. Software Process Model

Spiral Model

1. Objectives determination and identify alternative solutions
2. Identify and resolve Risks
3. Develop next version of the Product
4. Review and plan for the next Phase
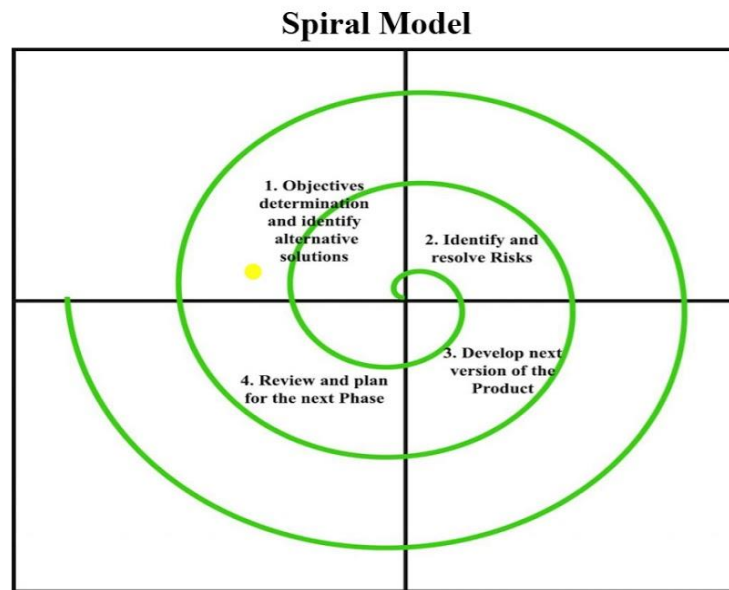
Spiral Model Phases

- o Step – 1: Planning

  It includes estimating the cost, schedule, and resources for the iteration. It also involves understanding the system requirements for continuous communication between the system analyst and the customer.

- o Step – 2: Risk Analysis

  Identification of potential risk is done while risk mitigation strategy is planned and finalized.

- o Step – 3: Engineering

  It includes testing, coding and deploying software at the customer site.

- o Step – 4: Evaluation

  Evaluation of software by the customer. Also, includes identifying and monitoring risks such as schedule slippage and cost overrun.

We are using spiral model as software processing model.
Because,

- In Our project releases are required to be frequent.
  (Changes may require at any time.)
- We can create prototypes.
- Requirements are complex. (There is always a space for customer feedback.)
- Risk and costs evaluation is important. (Continuous or repeated development helps in risk management).
- Cost estimation becomes easy as the prototype building is done in small fragments.
- Development is fast and features are added in a systematic way in Spiral development.
- Additional functionality or changes can be done at a later stage.

2.4. Software Development Tools

- Front end: HTML, CSS, Bootstrap

  Bootstrap is the most popular CSS Framework for developing responsive and mobile-first websites. We used Bootstrap 4 version.

- Client side: Validation -> JavaScript, jQuery

  JavaScript is a client scripting language which is used for creating webpages.
  It is used when a webpage is to be made dynamic and add special effects on pages.

- Server Side: Validation -> Ajax, PHP

  PHP is a popular server-side scripting language for the web.

- Business Logic: PHP Database -> MySQL

  MySQL is most popular open-source database used for web development.
  It supports multiple storage engines which greatly improve the server
  performance tuning and flexibility.

- Web server: XAMPP Server

2.5. Testing Strategies

- Unit Testing
- Integration Testing
- System Testing
- Performance Testing

2.6. Implementation Plan

We have planned to increase the sales of these agricultural products and gradually reduce the wastage of agricultural produce.

This can be achieved by increasing the market opportunities for farmers and by making it easier for buyers to find farmers' produce very quickly and in quantities.

Buyers and sellers can be connected without interfering many brokers to get maximum revenue for the sellers.

There are stakeholders in our project.
- Buyers
- Sellers
- Admin

In our ongoing project, buyers can place their wholesale and retail orders directly with registered agricultural producers of our healthy farm crops official website. Furthermore, the administrator of our website can manage all the buyers' and sellers' details, available products, and the orders placed.

The first step in designing our website involves buyers and sellers. When the order is confirmed, sellers can get that order with buyers' details from our website, and sellers can directly deliver related orders.

3. Analysis

3.1. UML Diagram

- **Use Case Diagram of current System**

  This represents the Use case diagram of the current system (manual system). It shows how the external users engage with the system.
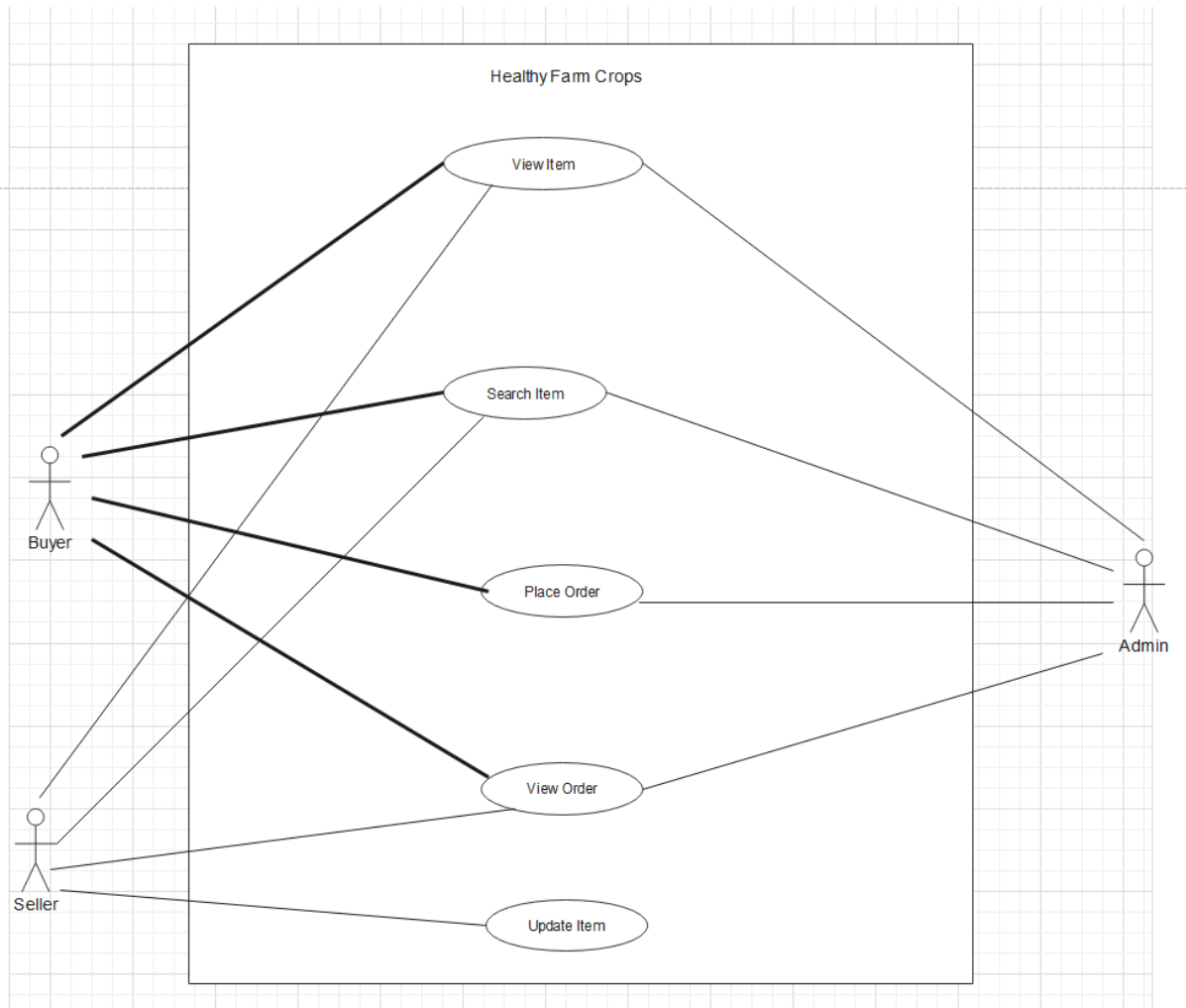
- **Use Case Diagram of proposed System**

This represents the Use case diagram of the proposed system. It shows how the external users engage with the system.
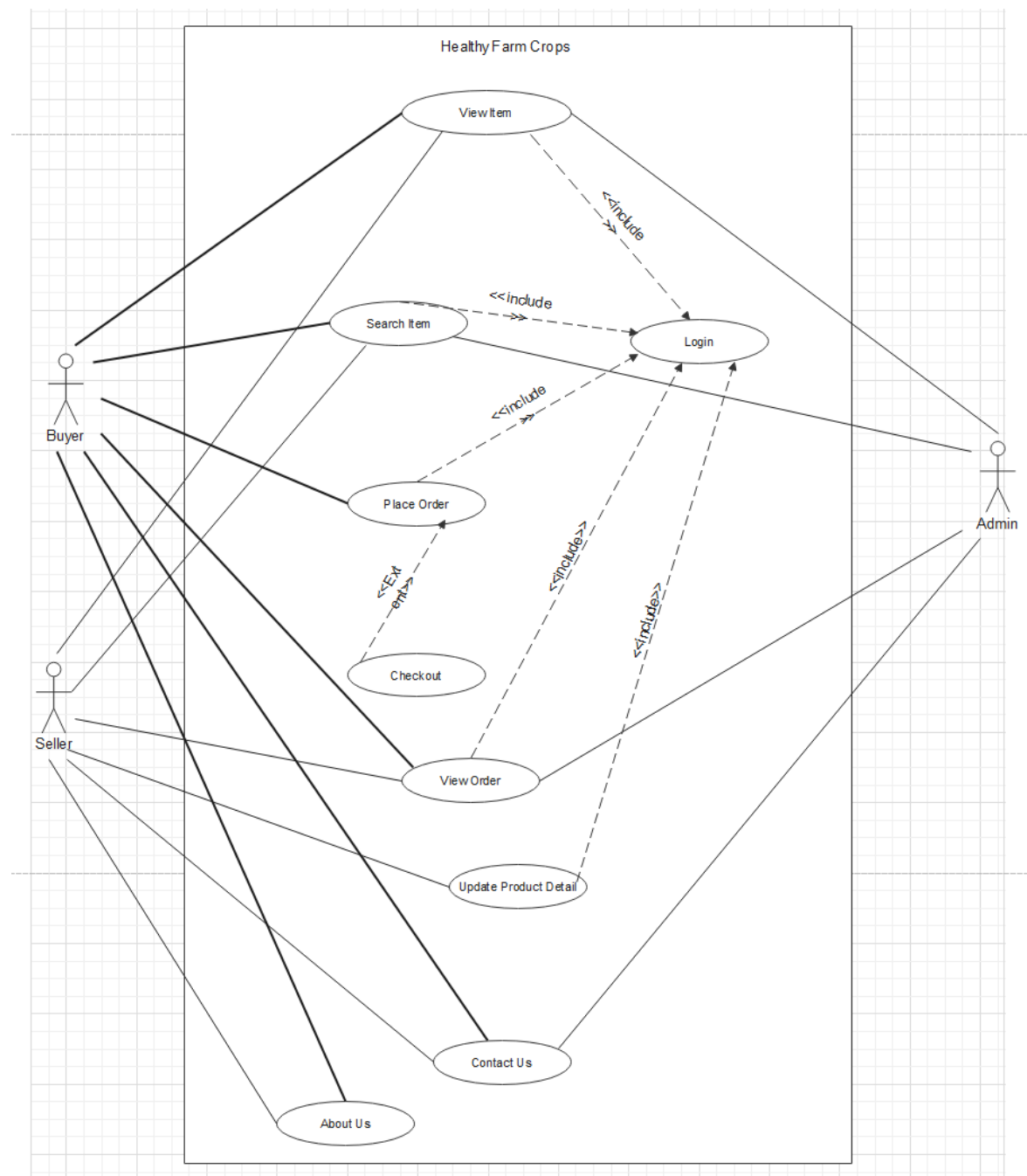
- **Class Diagram**

This diagram shows the classes and the attributes of the whole system
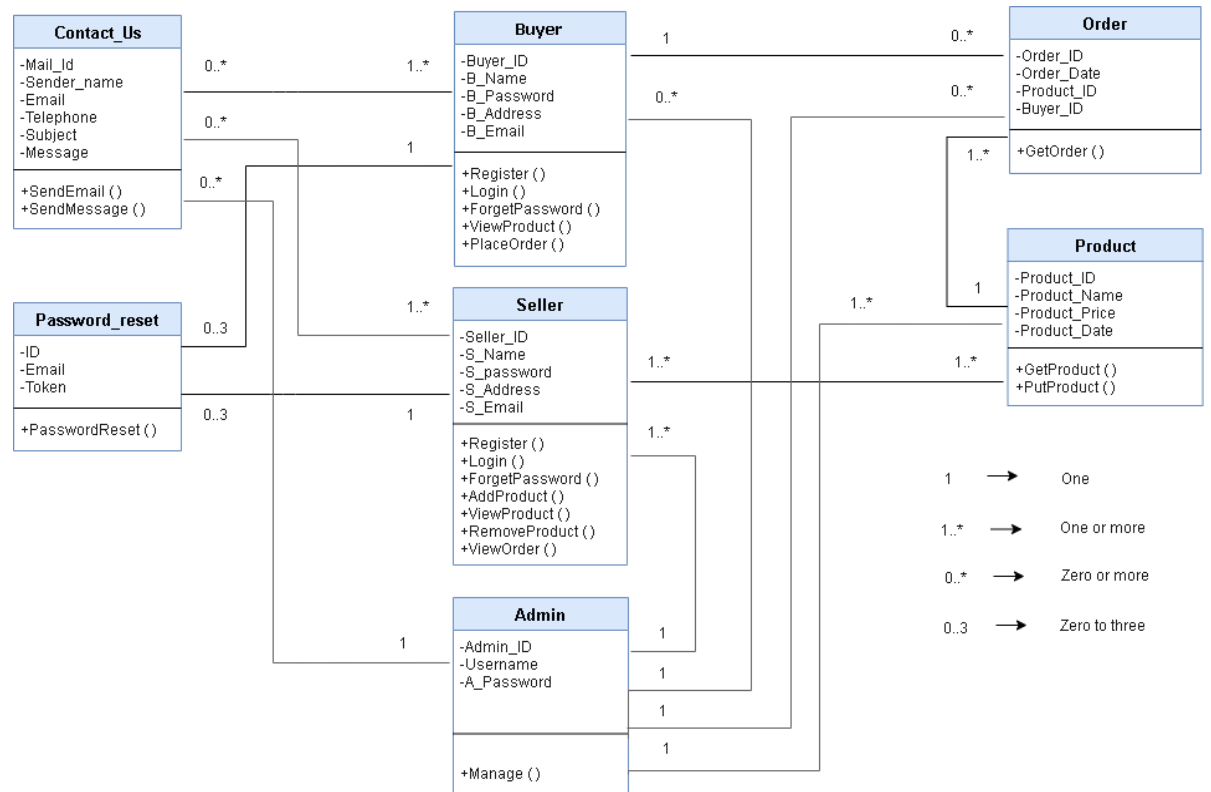
- **Sequence Diagram**

This diagram shows the login and search part of the whole system.
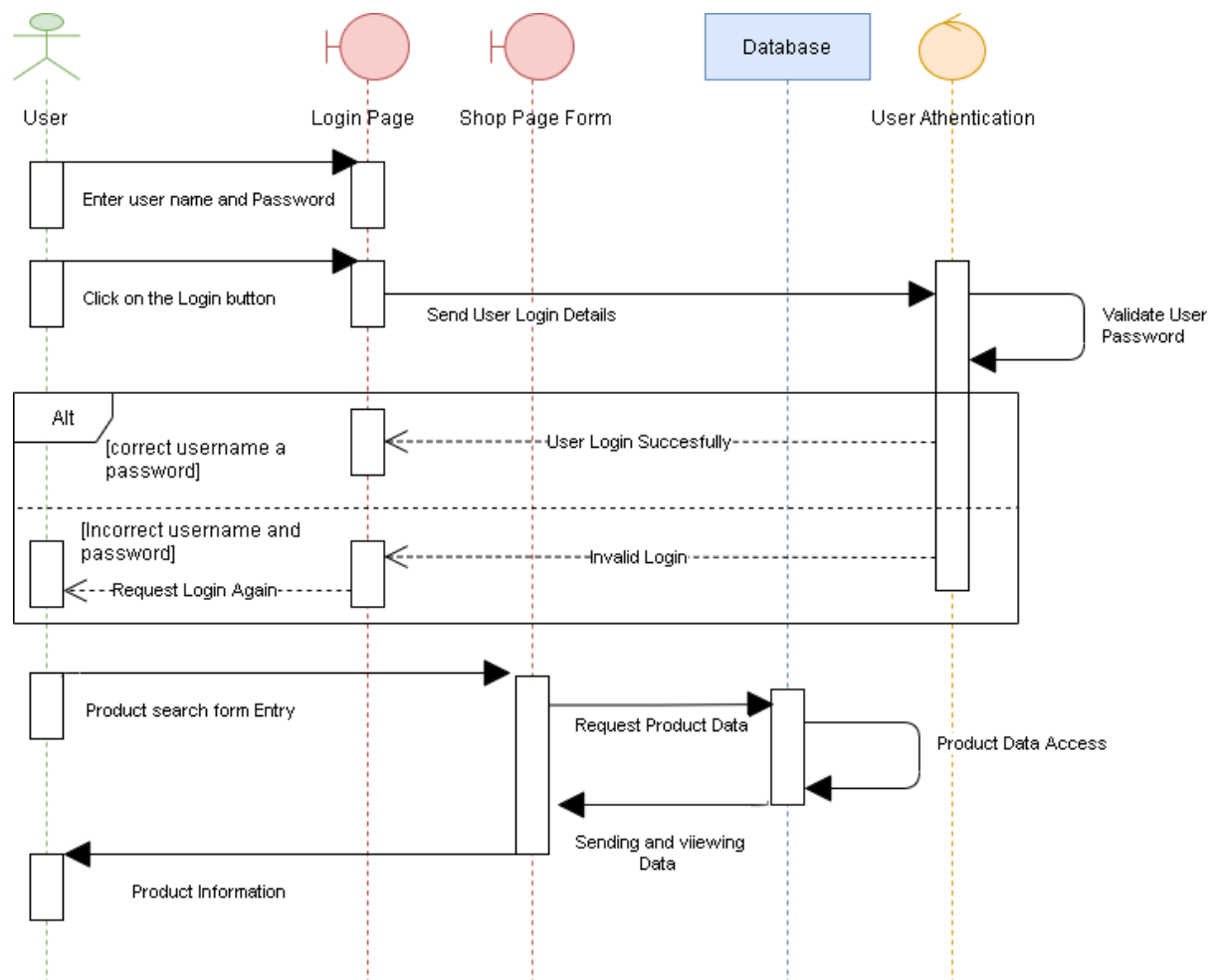
3.2. ER Diagram

This diagram shows the Entity Relationship diagram of the whole system.
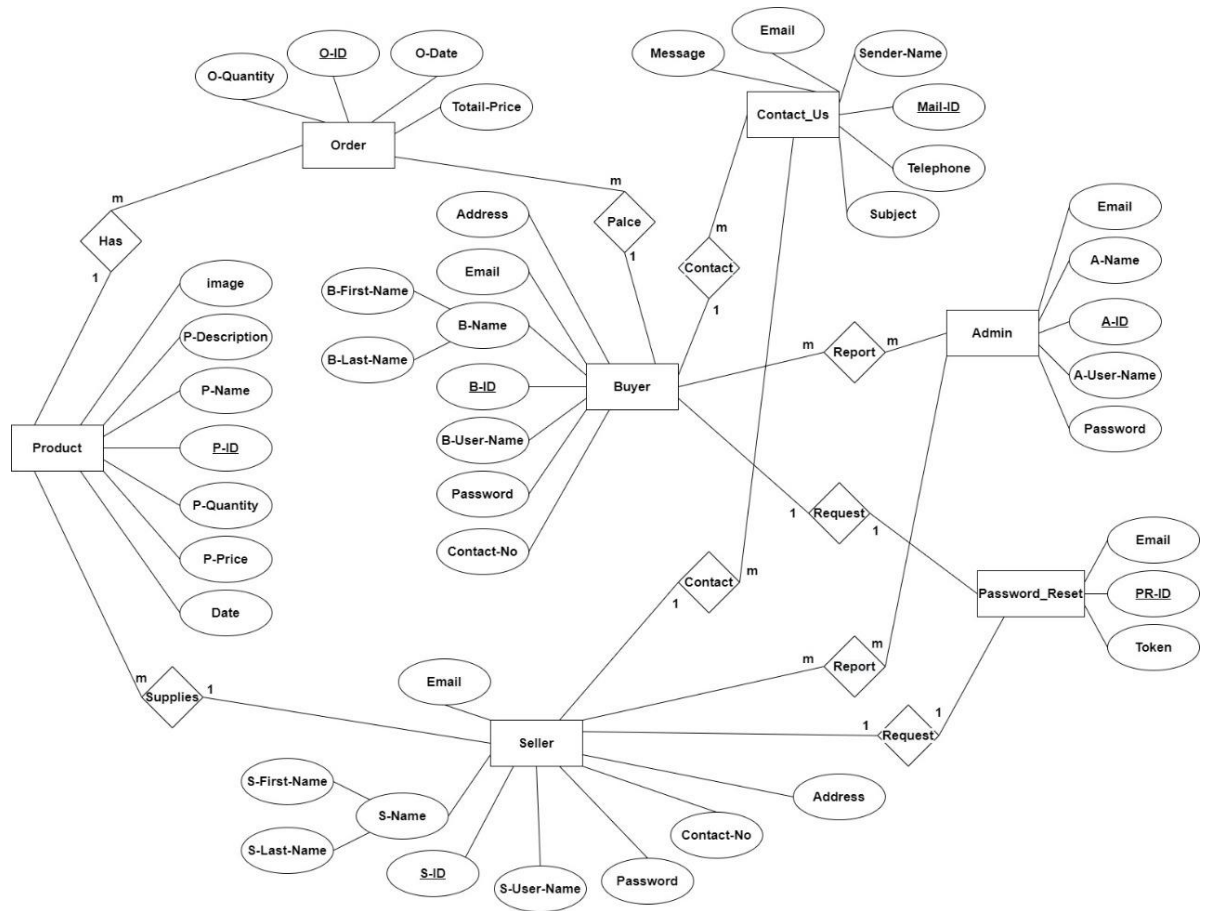
- **Schema Diagram**

This diagram shows the Schema diagram of the whole system.
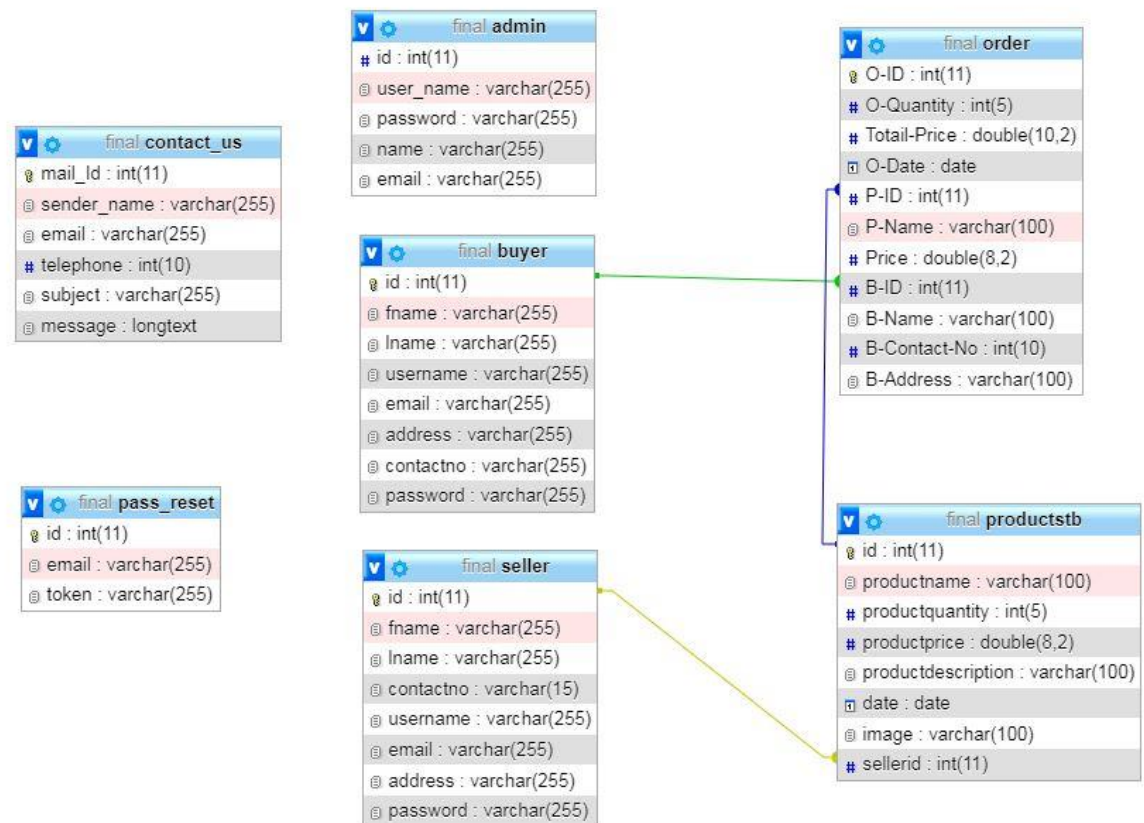
4. Solution Design

4.1. Interface Design

I. Home page

This is the home section of the website. This page loads first. You can easily navigate throughout the website to other sections. We used some animations for the home sections.
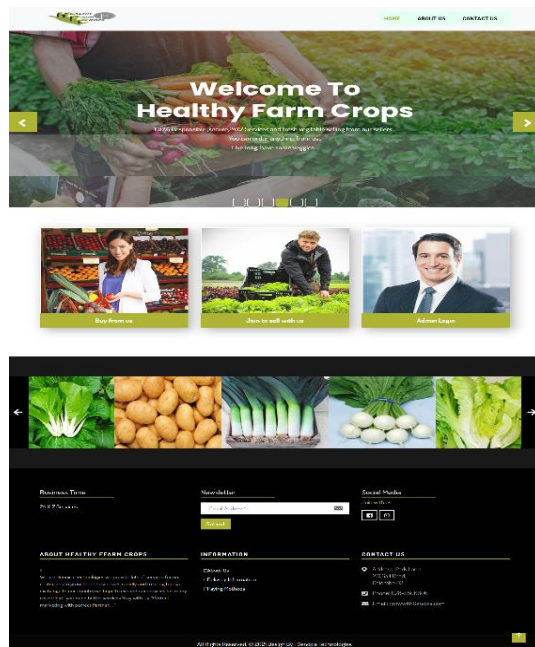
Start

    Display to navigation bar items (home, aboutUs, contact Us)

    Display middle button set to login and register (Buy from us, join

    Sell with us, admin Login)

While (user is on screen)

    Load animation

End while

End

II.   Login Page

This is the Login page. After registration can login with site to access all the details.
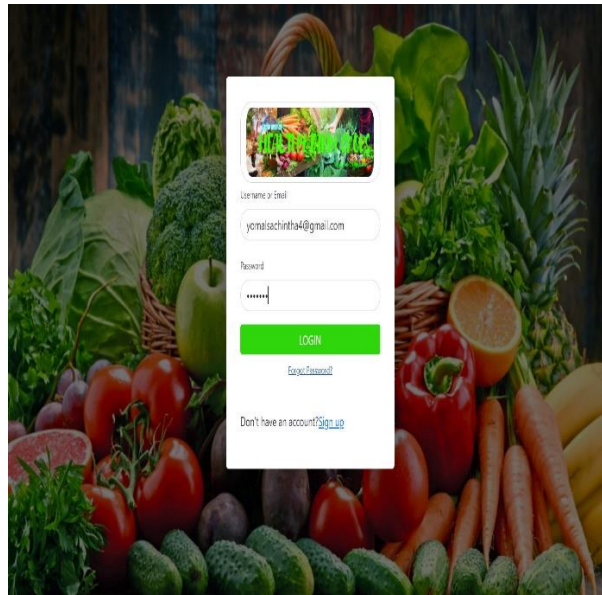
Start

        Get username or email

        Get Password

    If (username == entered username or

    Email == entered Email AND

    Password == entered Password) then

        Open connection for MySQL

        Open user accounts
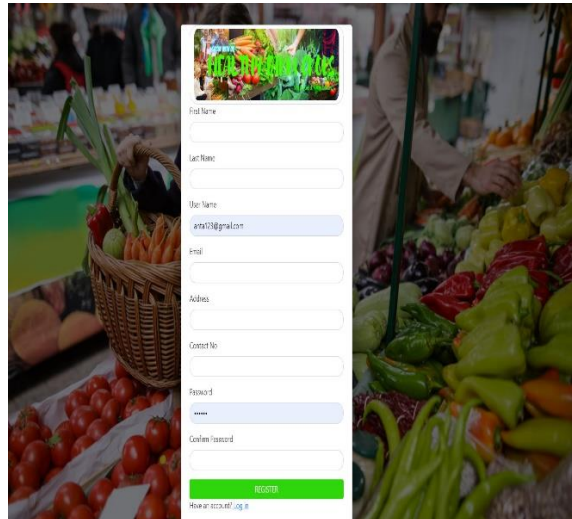
    Printline ("Username | Email or Password incorrect")

    End if

End.

III.   Register Page

This is the register page. Any users can register filling following details. If users have an account, they can access all relevant details of this site.

Start

        Get first name

        Get Last name

        Get username

        Get Email

        Get Address

        Get Contact No

        Get Password

        Confirm Password

    If (user fill the above details) then

        Open connection for MySQL

        Open Screen home

    End if

End.

IV.   About Us Page

This page shows our site and developers details, furthermore this page simply describes how works delivery process and paying process.
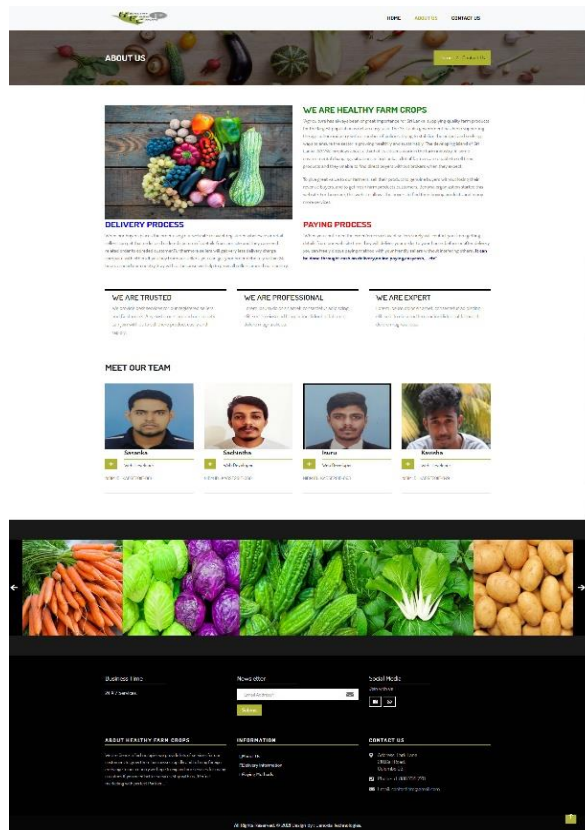
Start

    Display top navigation bar

    Display Title Box

    Display about Us

    Display footer

End.

V.   Contact Us Page

Start

    Display top navigation bar

    Display Title Box

    If (user want to send message/feedback to management) then

        Fill name

        Fill Email

        Fill Subject

        Fill massage

    If (user click the message button) then

        Printline ("Your message was sent successfully")

    Else

        Printline ("Something went wrong. Please try again")

    End if

End.

VI.   Add Product Page

Register sellers of website can add their product to find whole seller customers.

Start

   Display top navigation bar
   Display Title Box

   Get Product ID
   Get Product Name
   Get Product Quantity
   Get Product Price
   Get Date

Get Product Image

If (user entered Product ID && ProductName && ProductQuantity && ProductPrice && Productimage) then

Enter Product ID Product Name Product Quantity Product Price Date Product Image in Database

Get search Name

If (search Name == ProductName) then

      Display Search Products

Display Products

Display footer

End.

VII.   Products Details Page
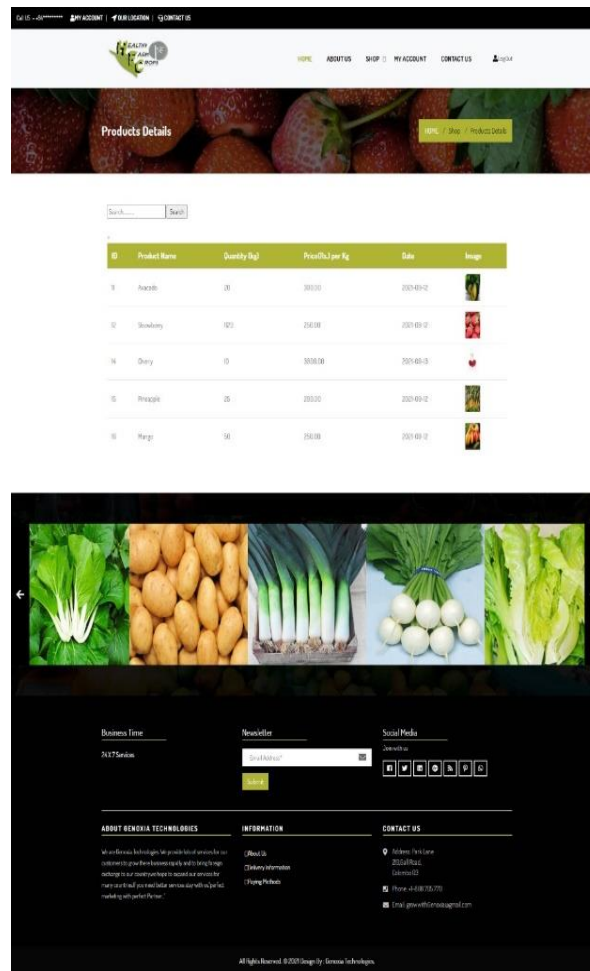
Start

    Display top navigation bar

    Display Title Box

    Get search Name

    If (Search Name == ProductName) then

        Display Search Products

    Display Products

    Display footer

End.

VIII.   Shop page
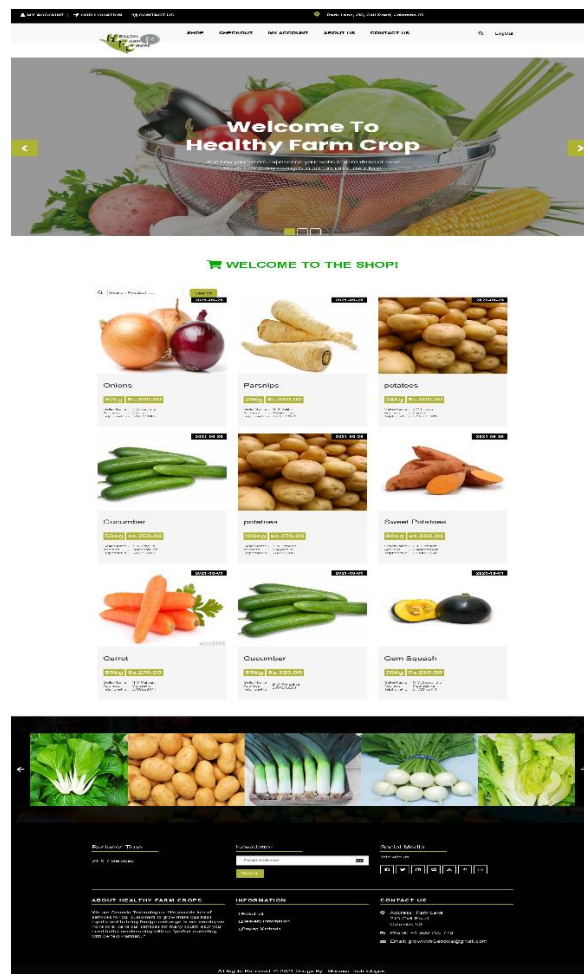
Start

  Display top navigation bar

  Display Slider

  Printline ("welcome to shop")

  Display all the available products

  If (buyer want to View the product) then

      Click View button

  End if

  Display footer

End

IX. Item Order Page
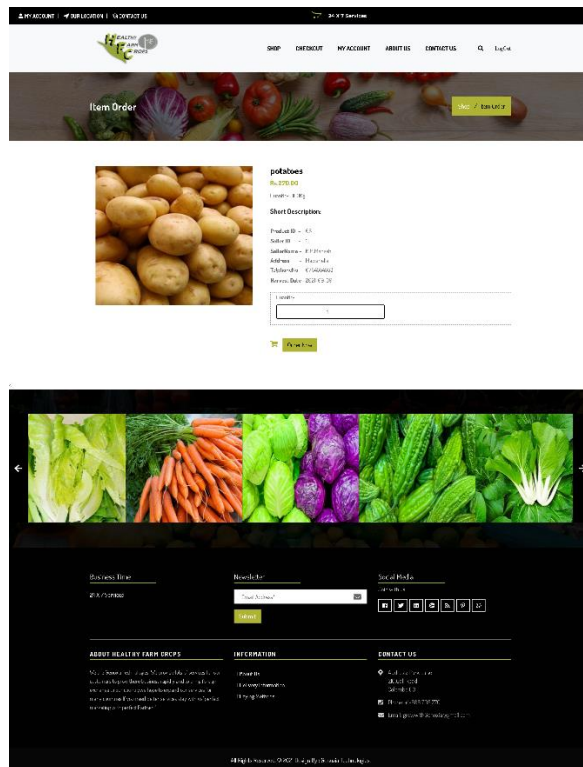
Start

    Display top navigation bar

    Display Title Box

    Display Choosed Item details

    If (Buyer want to order the choosed product) then

        Select you want quantity

        Click Order Now button

        Printline ("Order is added")

    End if

    Display footer

End.

X.   Checkout Page
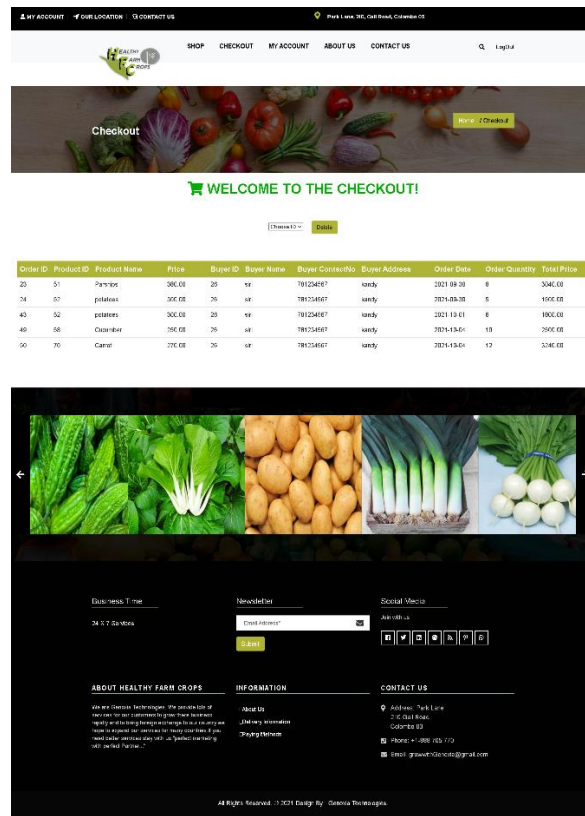
Start

    Display top navigation bar

    Display Title Box

    Printline ("welcome to checkout")

    Display ordered items

    If (buyer Click Remove button) then

        Alert ("Item removed")

    If (buyer Click the Place Order button) then

        Order placed database

        Alert ("Order placed successfully")

    End if

    Display footer

End.

XI.   Search by Product Name
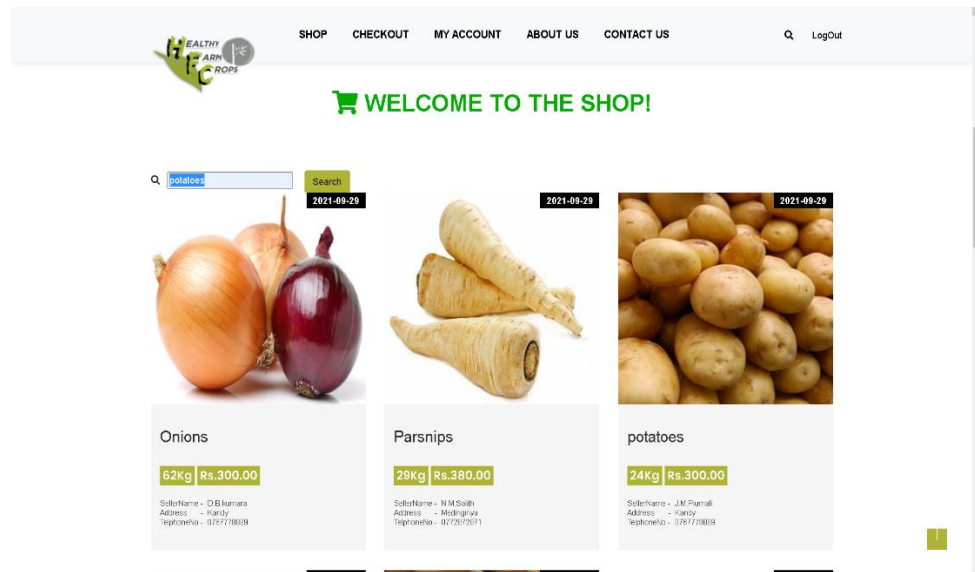
Start

Display top navigation bar

Display shop page

Display search bar icon

If (Search product by Name) then

Enter the product name

Click search button

Display available relevant product details

End if

End.

XII. Admin Page – Details of Buyers.

Start

      Display top navigation bar

      Display Title Box

      Display details of buyers

      Display footer

End.

XIII.   Forget Password
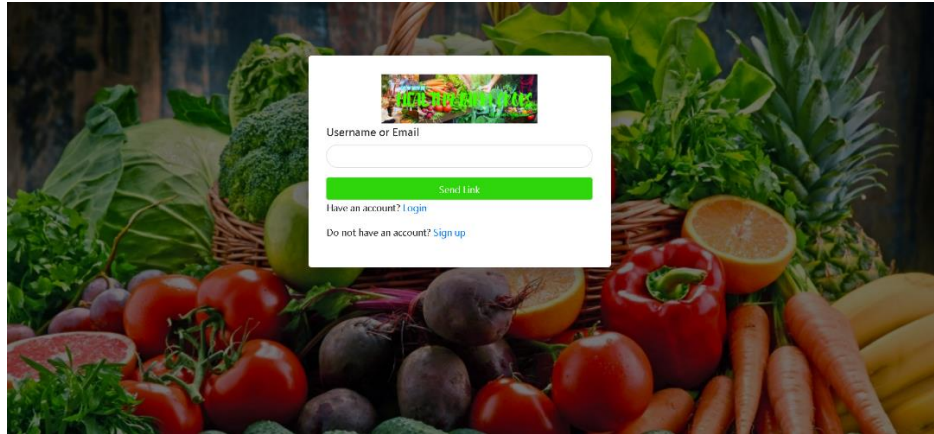
Start

If (user want to reset the password, click forget password) then

User will be directed to forget password page

Enter username or email

If (user enter username or email && click the Send Link button) then

user will get an email

If (user click the link) then

User will be directed to password reset page

If (user enter the new password) then

Printline ("Password reset successfully")

Else ("Something went wrong, check and please try again")

End if

End.

XIV. Admin Page – Details of Sellers

Start

    Display top navigation bar

    Display Title Box

    Display Details of Sellers

    Display footer

End.

XV. Admin Page – Details of Orders
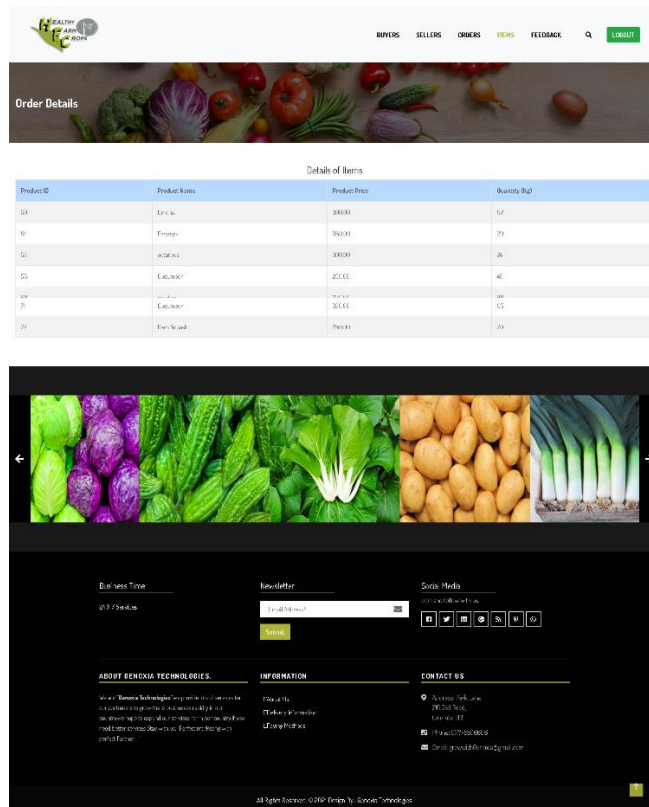

Start

    Display top navigation bar

    Display Title Box

    Display Details of Orders

    Display footer

End.

XVI. Admin Page – Details of Items

Start

    Display top navigation bar

    Display Title Box

    Display Details of Items

    Display footer

End.

XVII. Admin Page – Feedback
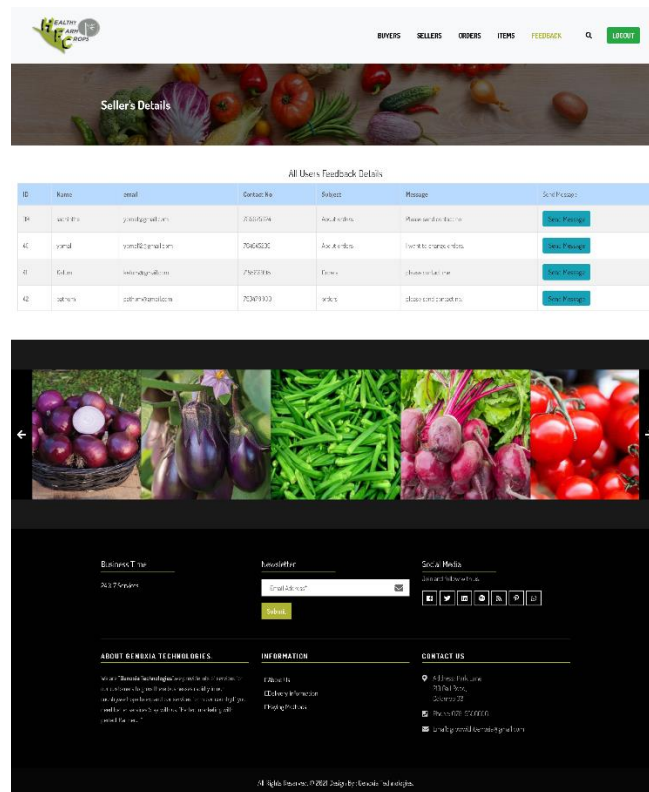
Start

    Display top navigation bar

    Display Title Box

    Display Feedback

        If (Admin click the send message button) then

        Admin will be directed to Admin_send page

        Get Email

        Get Subject

        Get Message

        If (Admin enter the email, subject and message && click the send button) then

        Printline ("Email sent")

    Display footer

End.

XVIII. Auto Generate Order Email

This is an auto generate order email. When the buyer places an order, this auto generated email will be sent to seller.
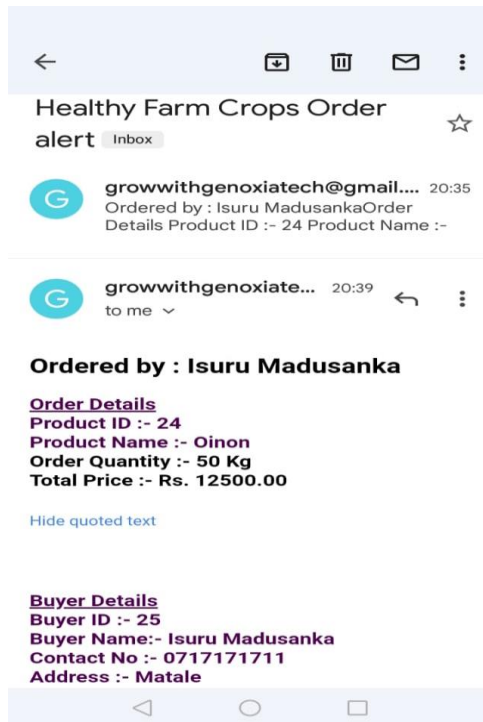
4.2. Database Design

I. Admin table.

```
CREATE TABLE `admin` (
 `id` int(11) NOT NULL,
 `user_name` varchar(255) NOT NULL,
 `password` varchar(255) NOT NULL,
 `name` varchar(255) NOT NULL,
 `email` varchar(255) NOT NULL,
 PRIMARY KEY (`id`)
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

II. Buyer table.

```
CREATE TABLE `buyer` (
 `id` int(11) NOT NULL,
 `fname` varchar(255) NOT NULL,
 `lname` varchar(255) NOT NULL,
 `username` varchar(255) NOT NULL,
 `email` varchar(255) NOT NULL,
 `address` varchar(255) NOT NULL,
 `contactno` varchar(255) NOT NULL,
 `password` varchar(255) NOT NULL,
 PRIMARY KEY (`id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

III. Seller table

```
CREATE TABLE `seller` (
 `id` int(11) NOT NULL,
 `fname` varchar(255) NOT NULL,
 `lname` varchar(255) NOT NULL,
 `contactno` varchar(15) NOT NULL,
 `username` varchar(255) NOT NULL,
 `email` varchar(255) NOT NULL,
 `address` varchar(255) NOT NULL,
 `password` varchar(255) NOT NULL,
 PRIMARY KEY (`id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

IV. Product table

```
CREATE TABLE `productstb` (
 `id` int(11) NOT NULL,
 `productname` varchar(100) NOT NULL,
 `productquantity` int(5) NOT NULL,
 `productprice` double(8,2) NOT NULL,
 `productdescription` varchar(100) NOT NULL,
 `date` date NOT NULL,
 `image` varchar(100) NOT NULL,
 `sellerid` int(11) NOT NULL,
 PRIMARY KEY (`id`),
 FOREIGN KEY (`sellerid`) REFERENCES `seller` (`id`)
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

V. Password Reset table

```
CREATE TABLE `pass_reset` (
 `id` int(11) NOT NULL,
 `email` varchar(255) NOT NULL,
 `token` varchar(255) NOT NULL,
 PRIMARY KEY (`id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

VI. Order table

```
CREATE TABLE `order` (
 `O-ID` int(11) NOT NULL,
 `O-Quantity` int(5) NOT NULL,
 `Totail-Price` double(10,2) NOT NULL,
 `O-Date` date NOT NULL,
 `P-ID` int(11) NOT NULL,
 `P-Name` varchar(100) NOT NULL,
 `Price` double(8,2) NOT NULL,
 `B-ID` int(11) NOT NULL,
 `B-Name` varchar(100) NOT NULL,
 `B-Contact-No` int(10) NOT NULL,
 `B-Address` varchar(100) NOT NULL,
 PRIMARY KEY (`O-ID`),
 FOREIGN KEY (`B-ID`) REFERENCES `buyer` (`id`),
 FOREIGN KEY (`P-ID`) REFERENCES `productstb` (`id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

VII. Contact Us table

```
CREATE TABLE `contact_us` (
 `mail_Id` int(11) NOT NULL,
 `sender_name` varchar(255) NOT NULL,
 `email` varchar(255) NOT NULL,
 `telephone` int(10) NOT NULL,
 `subject` varchar(255) NOT NULL,
 `message` longtext NOT NULL,
 PRIMARY KEY (`mail_Id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
```

5. Conclusion

Our Genoxia group created this website in order to help farmers by showcasing them on our site. As a result, customers may locate them at the top of the search results on our website. Hopefully, we can work together to make this project a success by providing an easy-to-use platform for farmers and customers to sell and acquire agricultural products.

6. References

- www.w3school.com
- www.google.lk
- www.youtube.com
- www.udemy.com
- www.stackoverflow.com
- www.lucid.app.com

7. Future development

- Map Location
- Payment System
- Delivery System