SCS 3214 / IS 3113: Group Project II - 2021

Interim Report

Project Title: GreenNest

Project Group Details

1. Group number: G46

2. Group members:

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Details of Project Supervisor, Co-supervisor, Advisors and Clients

Project Supervisor (Academic Staff of UCSC):

Name of the supervisor: Mrs. Sanduni Thrimahavithana

Signature of the supervisor: Sanduni S.T.

Date: 2021/07/12

Project Co-Supervisor (Assigned by Course Coordinator):

Name of the co-supervisor: Miss. Yashodha Vimukthi

Signature of the co-supervisor:

Date: 2021/07/12

The client of the Project (If applicable, otherwise supervisor will be considered as the client)

Name of the client: Mr. I.M.Jayasiri

Address of the client: Sewwandi Plant Nursery,

Koongahagedara, Kuliyapitiya

Contact person at client: Mr. I.M.Jayasiri

Contact number of the contact person: 0767340845

Table of Content

Details of Supe	rvis	sor, Co-supervisor and Client	. 3
Table of Conte	nt .		4
Project Details			. 5
	1.	Project Title	. 5
	2.	The Goal and Objective	. 5
3	3.	Problem Definition and Motivation	. 5
4	4.	The Scope of the Project	. 6
		In-Scope	. 6
		Out-Scope	8
	5.	Feasibility Study	. 8
		5.1 Social Feasibility	.8
		5.2 Technical Feasibility	. 9
		5.3 Operational Feasibility	. 9
		5.4 Economic Feasibility	10
		5.5 Schedule Feasibility	10
		5.2 Legal and Ethical Feasibility	11
(6.	System Architecture	11
,	7.	Requirement Specification	11
		7.1 Non-Functional Requirements	11
		7.2 Diagrams	13
		Use Case Diagram	13
		Class Diagram	14
		Component Diagram	15
		ER Diagram	16
		Activity Diagrams	17
8	8.	User Interfaces	27
Ģ	9.	Main deliverables of the system	40
	10.	The Project plan	40
	11.	References	40
	12.	Declaration	41

Project Details:

1. Project Title: GreenNest

GreenNest is a plant nursery management system with a web application and a mobile app. This system is designed according to the client requirements.

2. The Goal and Objectives:

The main goal of this project is to provide a hassle free service for the customers by giving a platform to place their order and get them to their doorstep and manage both the store and the customers.

GOALS:

- Reduce the time consuming procedures in traditional shopping, customer relationship management, finance management, inventory and invoicing.
- Enhance the efficient delivery of service on time.
- Giving a user friendly service and maintaining proper customer history, service history.

OBJECTIVES:

- Automate the current working flow.
- Enhance customer reliability towards the company by providing better service on time.

3. Problem Definition and Motivation

After the discussion with the client, he said that he has to face lots of problems in this pandemic situation.

- During the COVID 19 period, the company couldn't sell their products like other days and their sales went down.
- By today, people used to do online shopping instead of traditional shopping as it saves their time.
- As a side effect of this pandemic situation lots of people lost their jobs. And they started planting for selling purposes. But unfortunately, they couldn't find a customer base. So the client said that he can help them to sell their products.

In addition to that, the client asked for a system to manage the company details like stock, suppliers, customer history. Because he does these things manually.

He mentioned a problem that he faced in every reordering process. Before
ordering some products, he has to check each and every stock. The client
handles bulk orders also and at the end of the month he wants to get an order
history.

So the prevailing document- based process persists many inefficiencies in maintenance and also management.

To overcome the above mentioned problems we proposed a web-based system and a mobile app for users. Admin, Staff and Customer can use the web application and Customer and the delivery person can use the mobile app. Then the customers can select the product through the system, they can place their orders, and the company delivers that order to their doorstep. And the customer receives an SMS about order details. When the stock reaches the reorder level, the admin receives a notification. So we add the following features to our system.

- Stock management module.

 Inventory system to maintain information regarding stock.
- Payment module

 Here we provide both cash on delivery and online payment methods.
- Sales module
 Report generation regarding sales.
- Finance and Invoicing module Billing and invoice
- Staff module

 To maintain information and handle salaries.

This proposed system is designed according to the customer requirements.

4. The scope of the project

IN-SCOPE:

Following features are expected to be developed in the system.

Users (actors) of the system

• Admin

- Customer
- Staff
 - Moderator
 - Accountant
 - Delivery person

Main functionalities of the system:

1. Staff

- Login/Logout
- Reset password
- Request leave
- View Salary
- View leave statistics

1.1 Moderator

- Receive order notification
- View Orders
- Order confirmation
- Contact customer (using the chat)
- View order request
- View complaints

1.2 Accountant

- Generate sales reports
- Send invoice to the customer
- View invoice history
- View staff salary details
- View cash on delivery details and update order status

1.3 Delivery person

- View order details
- Update order status

2. Admin

- Manage staff
- Manage Stock
- Receive notification when product categories pass the reorder level.
- Manage suppliers
- Admin dashboard(View sales reports, view order history)

3. Customer

- View, Select product categories add to cart
- Place an order
- Make a complaint
- Give feedback
- Contact Moderator (using the chat)
- Receive an SMS about order details
- Request order

OUT-SCOPE: We handle employees salaries by considering their leaves. We do not mark their attendance.

5. Feasibility Study

5.1 Social feasibility

The main requirements of the system were obtained through the discussions with the client and also through the business proposal produced by the client. And he mentioned that he got lots of requests from his clients to develop an online method to buy products.

5.2 Technical Feasibility

- The system mainly consists of a web application for customers, admin, moderator and the accountant, a mobile app for the customers, delivery person and the database system.
- We hope to use modern technology to develop the product. So the end-users can easily use our system and get a real experience.
- We can learn these technologies and develop the system with 5 group members.
- Technologies are:
 - Frontend (Web)

ReactJS

Frontend (Mobile)

Flutter

Database

MySQL

Backend

Spring Boot

Drawing Tool

Draw.io

LucidChart

Version Control

Git

O UI Design Tool

Figma

• Technologies that we are going to use are freely available.

5.3 Operational feasibility

The system has an admin, moderator, customer, delivery person and accountant. This feasibility study puts focus on how the proposed system is able to fulfill the system requirements and user needs.

- Any user who has a basic IT knowledge can access the system as the system provides simple and user-friendly UIs..
- Customers can put up an order online and do not need to waste their time from using traditional shopping.
- For a general user, the system does not require any other hardware components other than an electronic device with an internet connection.
- Existing knowledge of the users will be sufficient to work with the system.
 There will be no need to put an extra effort into training the users for the system.
- Sri Lankans are familiar with the use of online platforms for ordering like "www.daraz.lk", so this system will not be a completely new experience and will likely be used.

5.4 Economic Feasibility

- For our project we are going to use open source software and freely available tools. Therefore development cost will be zero.
- The cost for the domain name and hosting is approximately Rs.
 5000. We plan to share this cost between group members and it is bearable.
- According to these, our proposed system is economically feasible.

5.5 Scheduled Feasibility

Estimated man-hours for project completion will be as follows. The project is expected to be completed in 15 weeks. We use agile methodology to develop the system.

```
Number of members = 5

Man-hours per week = 10

Estimated number of weeks = 15

Estimated total of man-hours = (10*15)*5 = 750
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Project will consume approximately 450 man hours to complete.

5.6 Legal and Ethical Feasibility

In legal terms, the data processing system is made to agree with the local data protection regulations and whether the proposed venture is acceptable according to the laws of the country. The system asks its users to agree to the terms and conditions when registering to ensure data protection.

The system is overseen by the admin of the plant nursery. Therefore, any action can be taken against a user who violates the rules and regulations in the system. In the system, there are roles for users, and the system contains different permissions for users accordingly. Therefore, only authorized parties can alter the data in the system. All of the sensitive user data (card details) will be encrypted using MD5 hashing before storing it in the database to prevent the data from being exposed to a cyber attack.

6. Systems Architecture

High Level Architecture

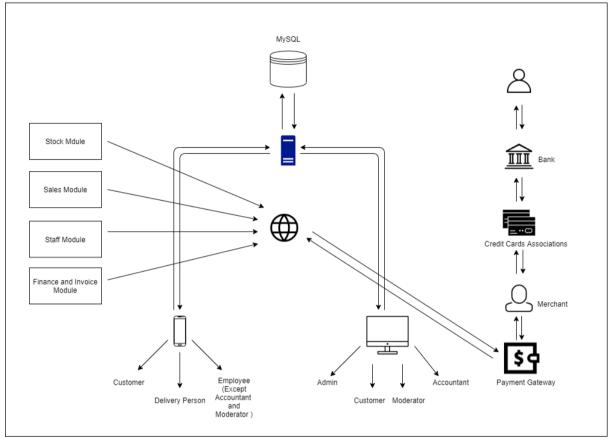


Figure 6.1: High Level Architecture

7. Requirements Specification

7.1 Non-functional Requirements

• User Friendliness

We design user interfaces according to the UX/UI principles. For the understanding and the use of users we give some tool tips for their help.

The website will be responsive and fit into the size of the browser and also different mobile screen sizes.

We also create a mobile application. So customers who cannot login through the website can use it.

The web application will have simple and understandable user interfaces so that interaction between user and system will be successful.

The web application will adapt familiar interfaces (e.g. payment interface will look like the payment interface of eBay), so the users will not be confused.

Accuracy and Reliability

The system's reliability and 100% uptime will be guaranteed by using dedicated private servers. There will be two backup servers to ensure the system stays online if one system fails to operate. All of the system data will be synchronized among the main server and backup servers every 30 minutes.

For the data accuracy, admin register employees, moderators and accountants with the system and they should provide real data. Before adding a delivery person to the system we validate his license details.

In our system customers have a complaint and review option. So customers can use this option to rate products.

Availability

The system guarantees its availability for customers for 24 hours every day. If a customer needs to order products he can make an order any time by using the web application or mobile app and it will be delivered within a week.

• Security

Each user would have different user privileges and different dashboards for their user accounts. The system will prompt users to enter a strong password for their accounts; otherwise, they will not be able to sign up into the system. For user authentication and authorization we are going to use spring security. We encrypt all the payment details of users and then store them in the database.

Diagrams

1. Use Case diagram

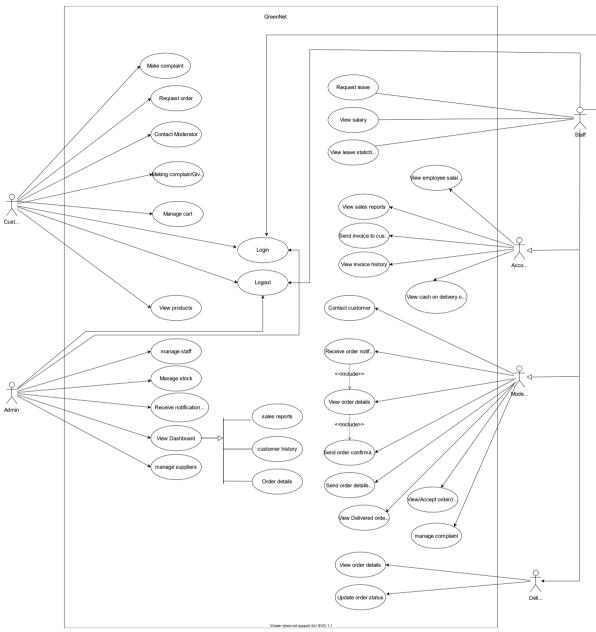
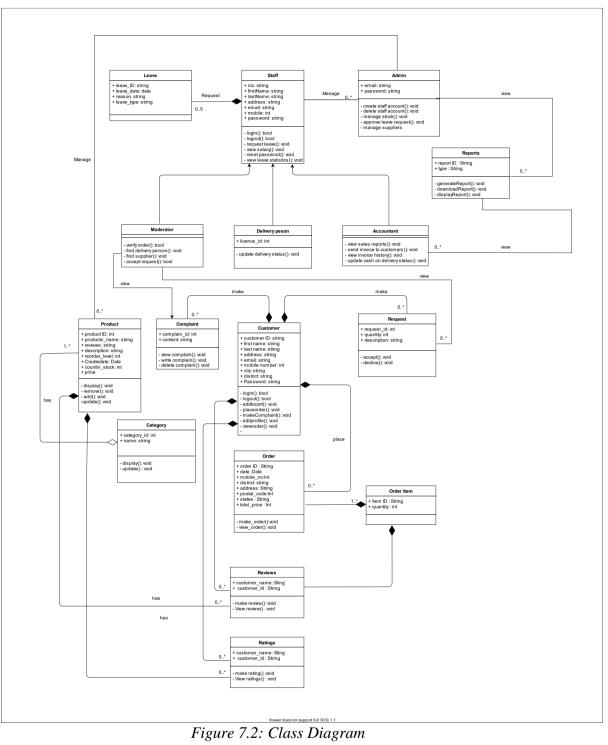


Figure 7.1: Use Case Diagram

2. Class diagram



3. Component diagram

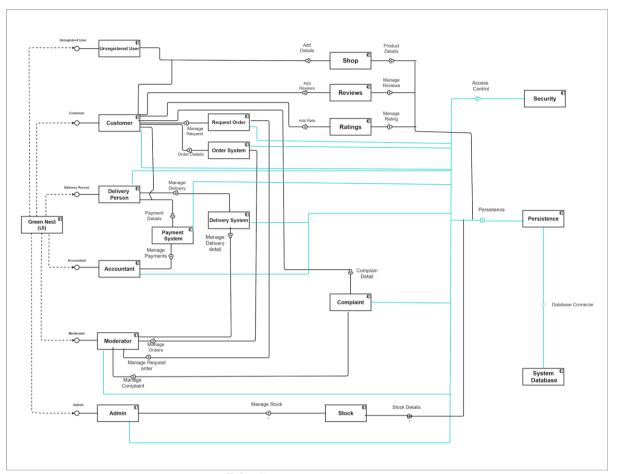


Figure 7.3: Component Diagram

4. ER diagram

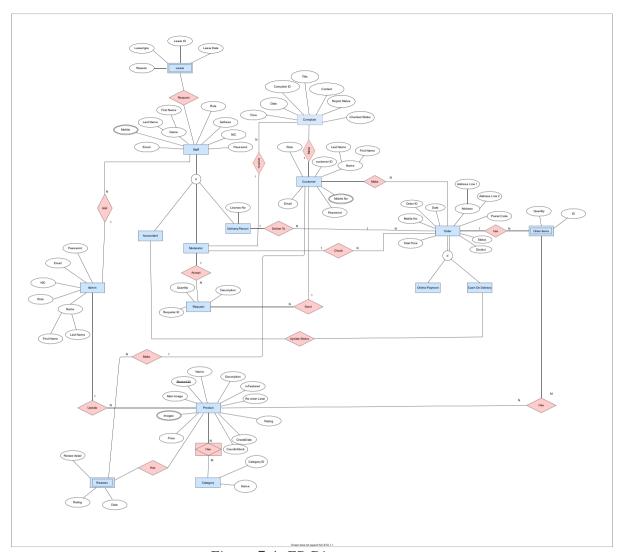


Figure 7.4: ER Diagram

5. Activity diagrams

Admin

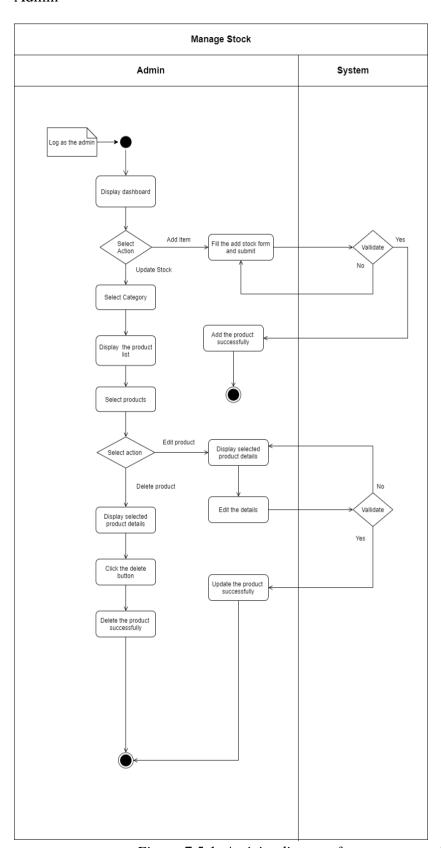


Figure 7.5.1: Activity diagram for manage stock

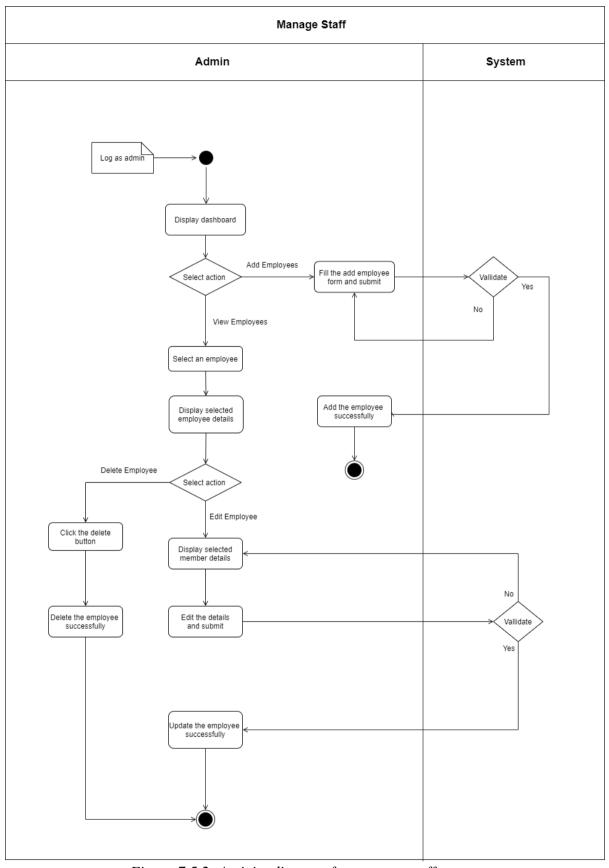


Figure 7.5.2: Activity diagram for manage staff

Customer

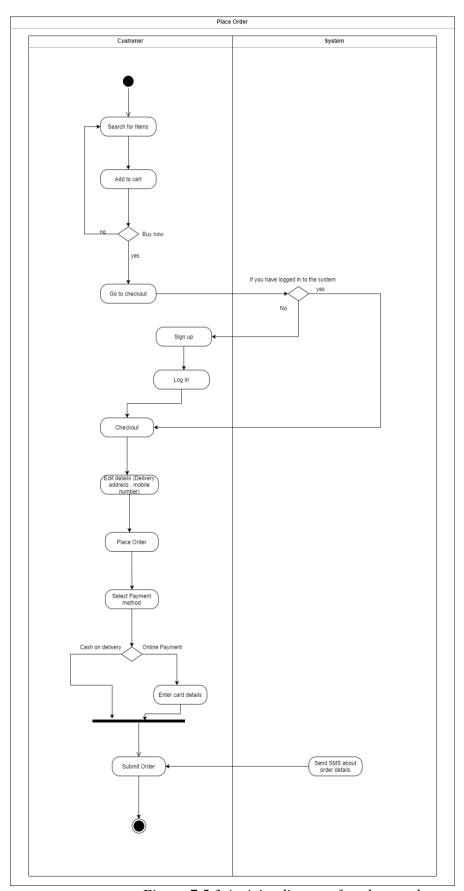


Figure 7.5.3 Activity diagram for place order

Employee

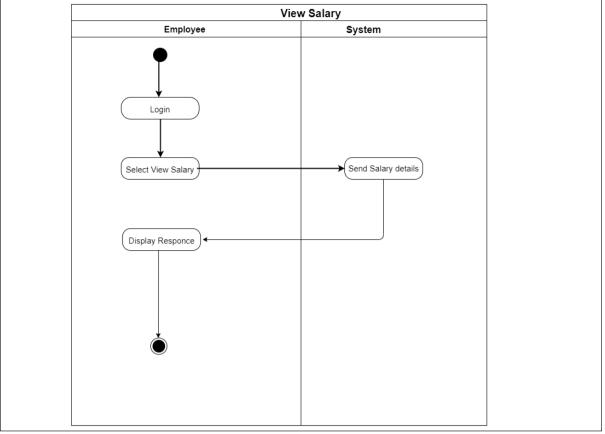


Figure 7.5.4: Activity for view salary

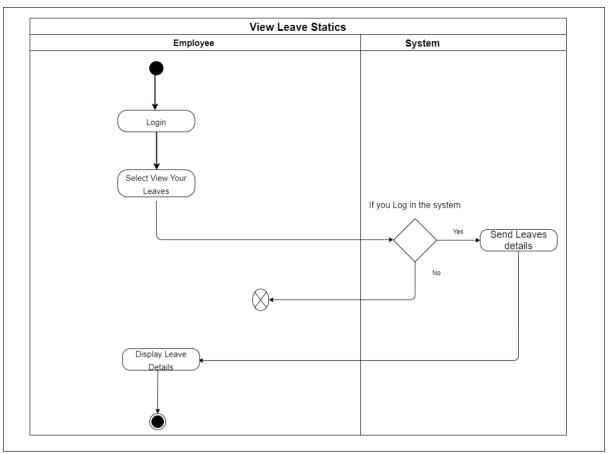


Figure 7.5.5: Activity diagram for view salary statistics

Moderator

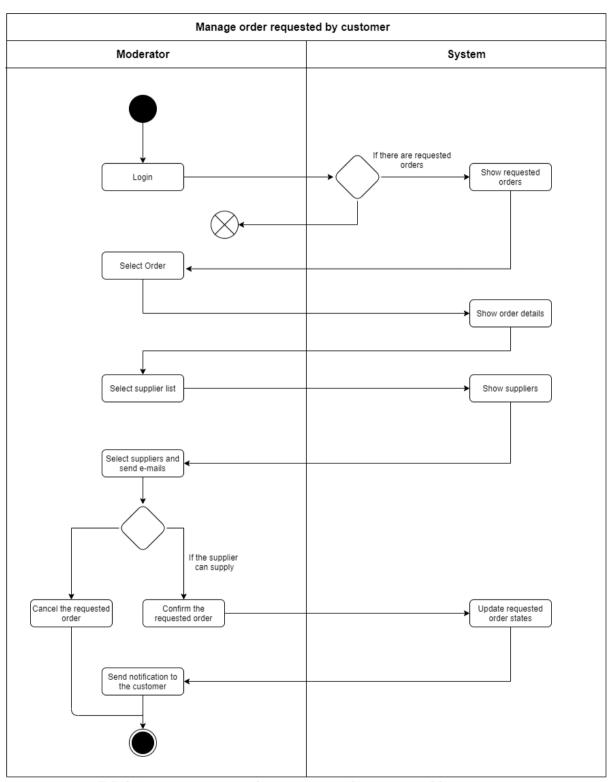


Figure 7.5.6: Activity Diagram for Manage order requested by customer

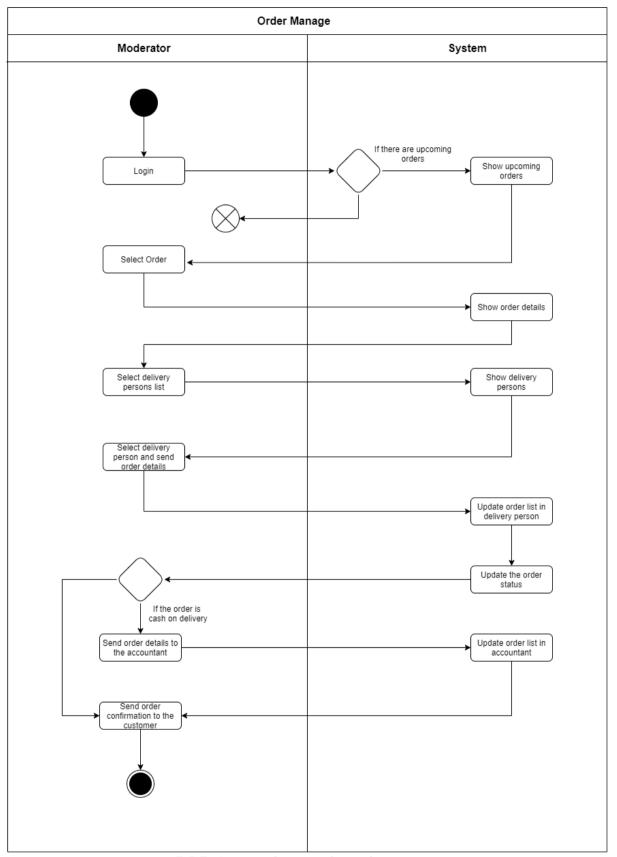


Figure 7.5.7: Activity diagram for order manage

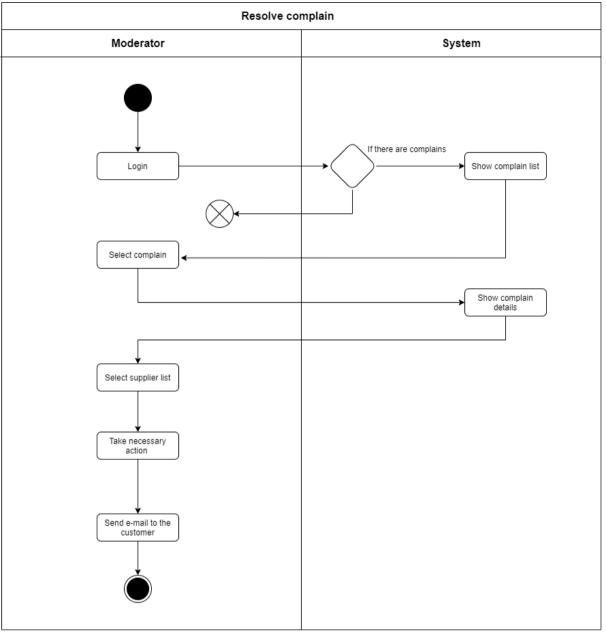


Figure 7.5.8: Activity diagram for resolve complain

Delivery person

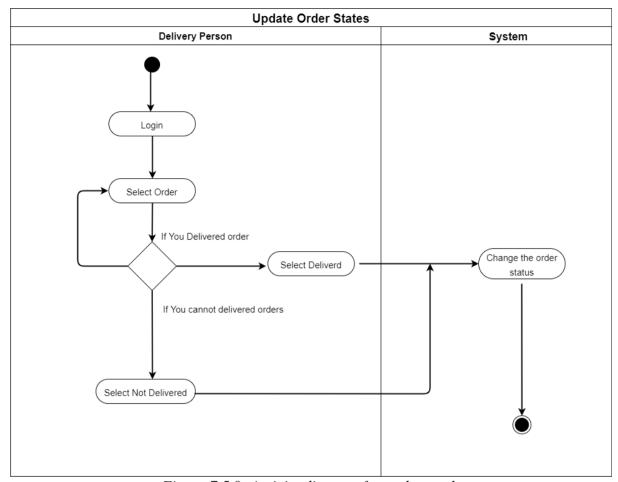


Figure 7.5.9: Activity diagram for update order status

Accountant

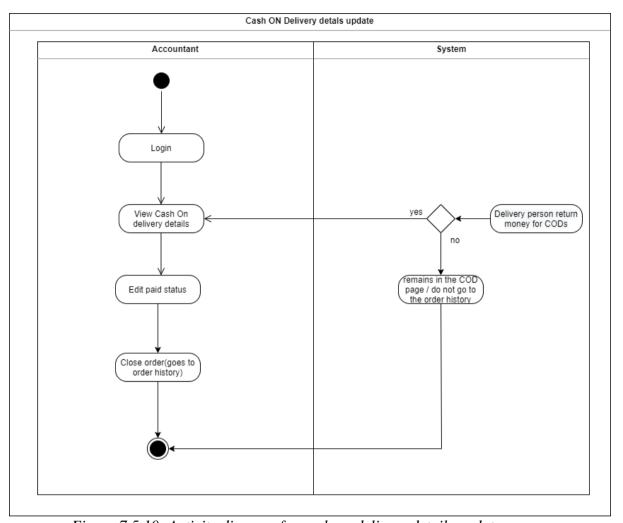


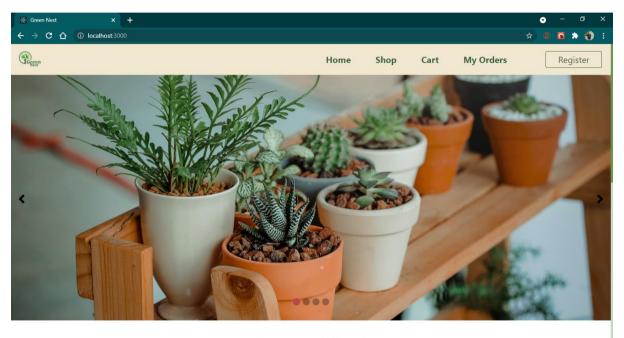
Figure 7.5.10: Activity diagram for cash on delivery details update

8. User Interfaces

In our system, we develop both web and mobile applications. Therefore we create simple user interfaces for the customer and the company side.

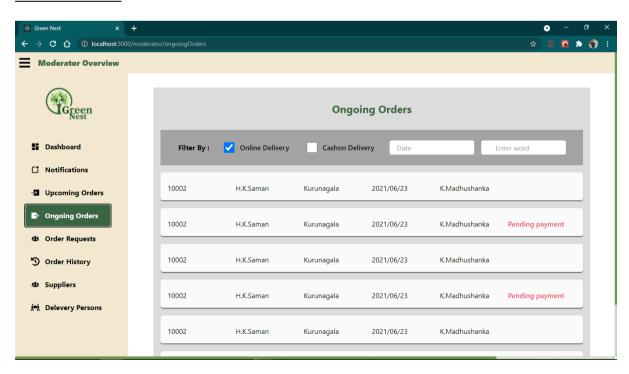
Web application

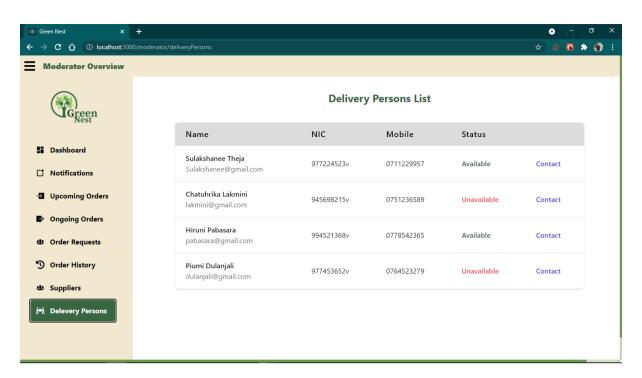
Home Page

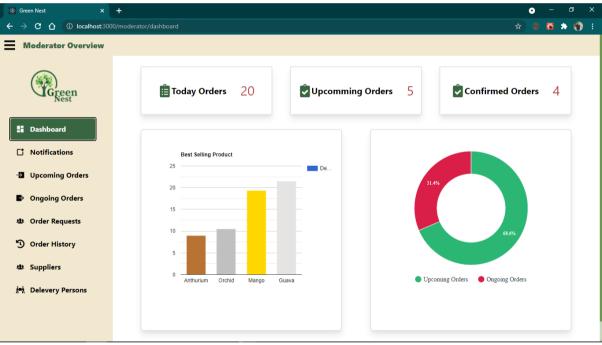


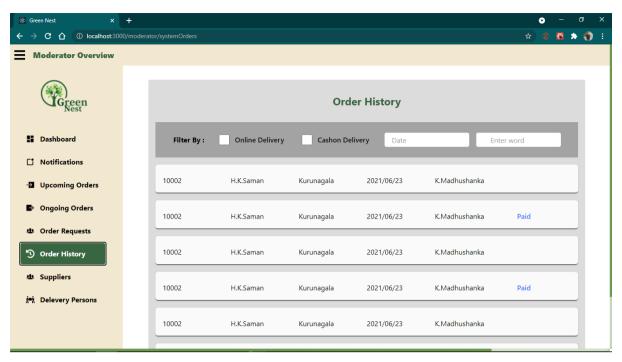
Green Nect

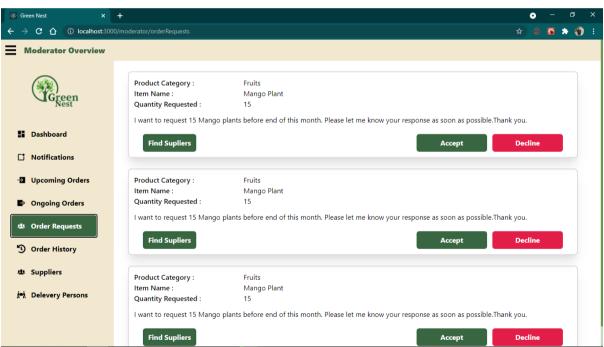
Moderator's UIs

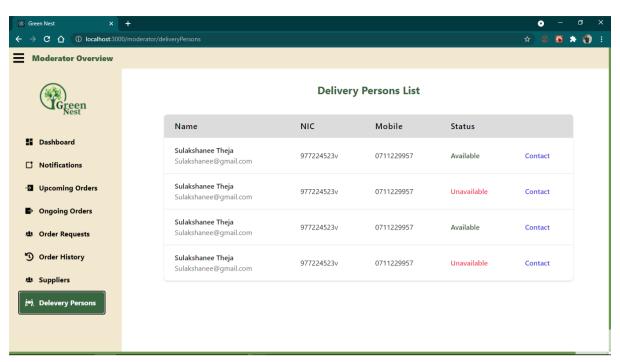


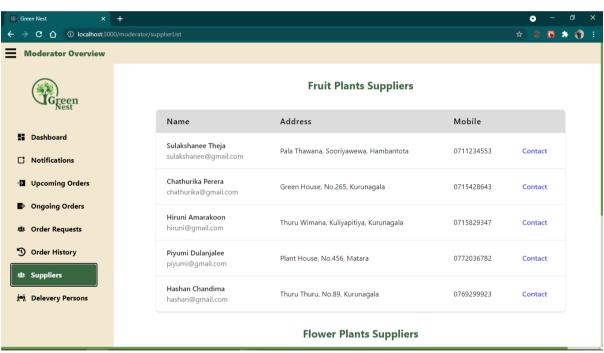




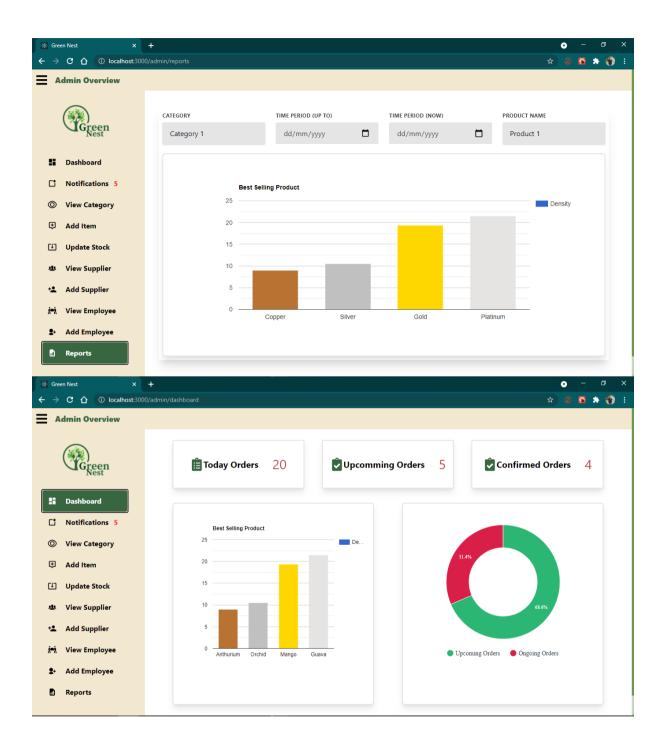


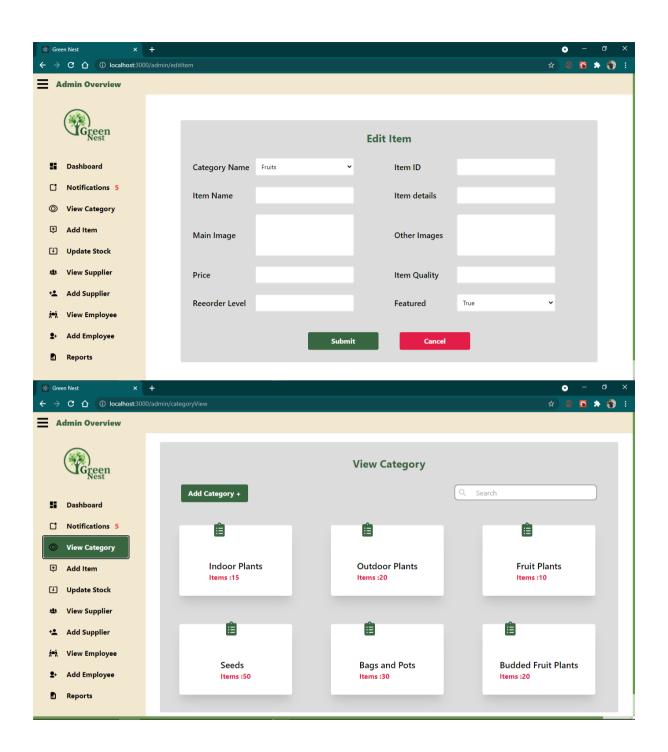


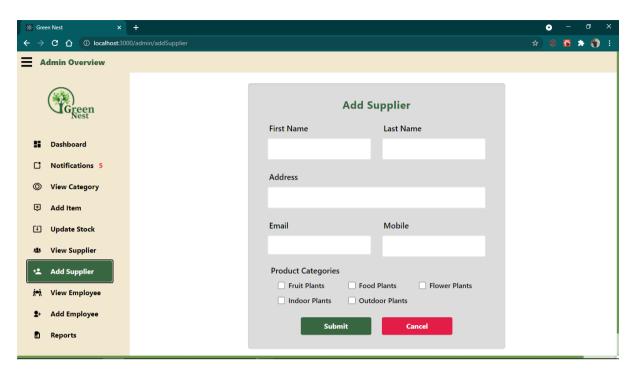


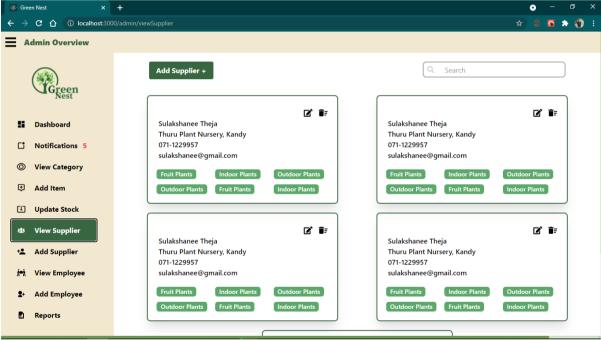


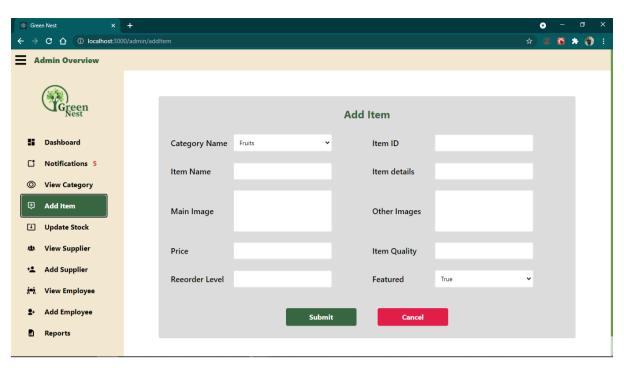
Admin's UIs

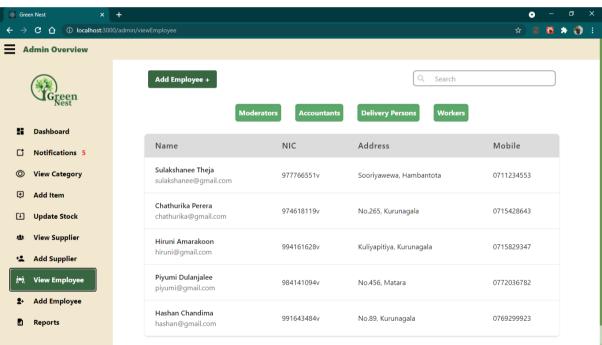


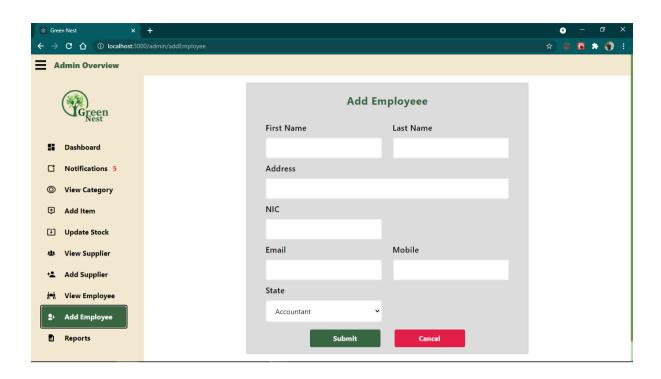




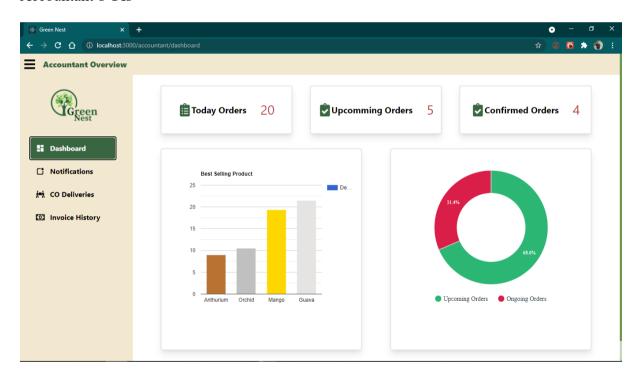


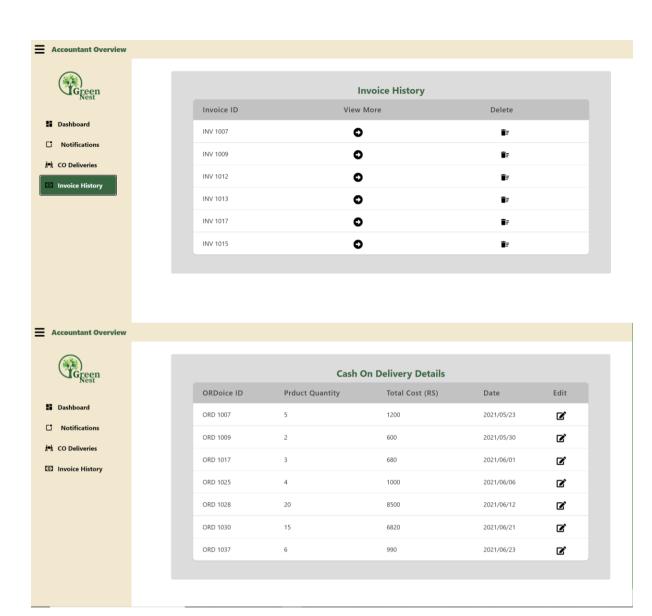




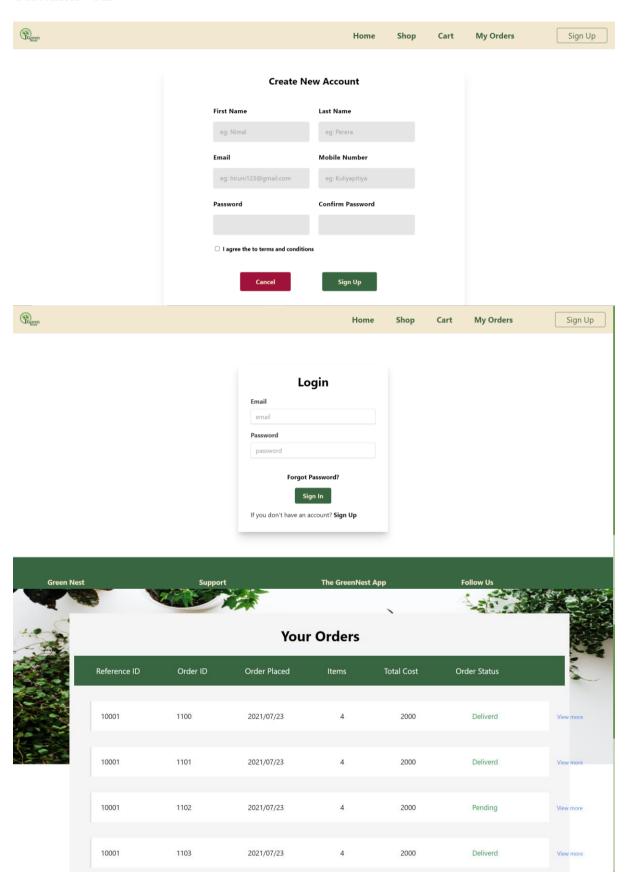


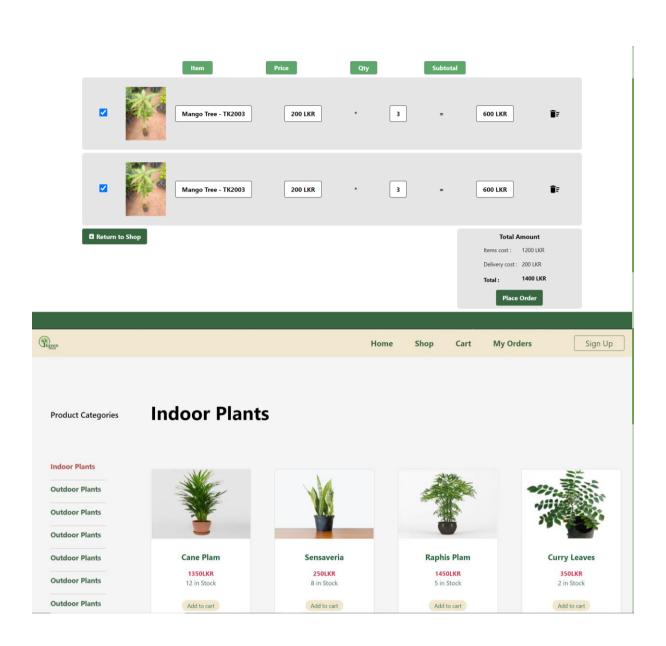
Accountant's UIs





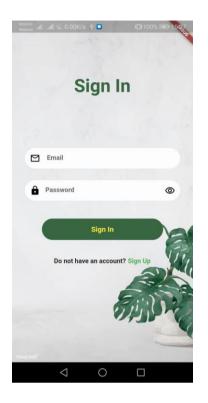
Customers' UIs



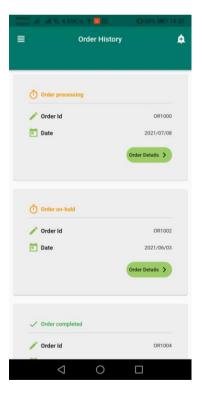


Mobile Application









9. Main deliverables of the system

- 1. Complete working software and source code
- 2. Complete Software Requirement Specification
- 3. User manual
- 4. Administrators manual together with deployment instructions

10. The Project Plan

The project is expected to be completed in 15 weeks. But the system will be deployed within 12 or 13 weeks solving the functional requirement. If any cases come, the development team has the time to resolve the problem. We use agile methodology for the system development.

		, and the second			May		June				July				August						
Task Name	Start	End	Duration	Workers	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
Select Project	2021-05-10	2021-05-17	1	5																	
Gathering Requirements	2021-05-17	2021-05-31	2	5																	
Feasibility Study	2021-05-13	2021-05-20	1	5																	
Create Project Proposal	2021-05-10	2021-05-24	2	5																	
Proposal		2021-05-25		5																	
Learning Technologies	2021-06-01	2021-08-03	9	5																	
System Design (Use Case/ ER/ Class/ Activity Diagrams)	2021-06-01	2021-06-015	2	5																	
UI design (For web application)	2021-06-15	2021-07- 06	3	5																	
UI design (For Mobile application)	2021-06-15	2021-06-29	2	5																	
Implementation (User Signup/ Login)	2021-06-22	2021-07-06	2	2																	
Testing (User Sinup / Login)	2021-07-06	2021-07-13	1	2																	
Interim		2021-07-14		5																	
Implementation (Stock Module/ Employee Module)	2021-07-14	2021-07-21	1	3																	
Testing (Stock Module / Employee Module)	2021-07-21	2021-07-29	1	2																	
Implementation (Sales Module)	2021-07-21	2021-07-29	1	3																	
Testing (Sales Module)	2021-07-30	2021-08-07	1	2																	
Implementation (Payment Module / Finance and Invoice Modu	2021-07-30	2021-08-07	1	3																	
Testing (Payment Module / Finance and Invoice Module)	2021-08-07	2021-08-15	1	2																	
System Testing, Bu Fixing, Final Feedback and Reciews	2021-08-07	2021-08-15	1	5																	
User Manual	2021-08-15	2021-08-22	1	5																	
Deployment and Maintenance	2021-08-22	2021-08-29	1	5																	
Final Presentation	2021-08-30			5																	
Final Project Report	2021-08-30			5																	

11.References

Technology References

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12.Declaration

The project proposal is a contract between students who will undertake the project and teachers who will supervise and coordinate this course module. Hence, all members of the project team should declare their willingness and readiness to carry out the project in their best within the rules, regulations and code of ethics for this course.

We as members of the project titled GreenNest, certify that we will carry out this project according to guidelines provided by the coordinators and supervisors of the course as well as we will not incorporate, without acknowledgement, any material previously submitted for a degree or diploma in any university. To the best of our knowledge and belief, the project work will not contain any material previously published or written by another person or ourselves except where due reference is made in the text of appropriate places.

Name	Signature						
(i) L.L.C.L.Perera	Chathrika						
(ii) B.V.S.T.Kumari	edist.						
(iii) L.H.P.Amarakoon	Andre.						
(iv) G.W.P.Dulanjali	Jezuni .						
(v) K.A.H.C.Kumarasinghe	dashan.						