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Noaa

{إِنَّ اللَّهَ فَالِقُ الْحَبِّ وَالنَّوَى}

Automated plant system

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Team Members:		
Name	ID	Email
Asma Saleh		



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Phase1: Project Description

1.1 Introduction:

Have you ever asked yourself what will happen if the world does not come together and try to reduce water use and save it? Think about it while I tell you about the importance of water.

In Quran, Allah said (وَجَعَلْنَا مِنَ الْمَاءِ كُلَّ شَيْءٍ حَيٍّ) which means Allah made every living thing from water. As we know all plants, animals, and humans need water. We can say that our life depends on water in everything we do. An interesting fact about water is that around 60-70% of your body is made up of water and 75% of the earth's surface is covered with water. Moreover, water played an essential role in the emergence of life on Earth; without water, Earth would be a dead planet.

Traditional agriculture is costly in wasting water when irrigation and long waiting for the harvest season, while Hydroponics agriculture saves water by 95% and is an effective method capable of producing large quantities of various crops for a shorter period. Hydroponics enjoys ideal conditions in which it grows better. Through our project, individuals who live in Oxagon city will be able to purchase hydroponics products, own and control green spaces with their specific crops, and provide weekly reports on the status of their crops.

1.2 Stakeholders:

Stakeholders include everyone who is affected by this project, and they are users, customers, administrators and developers, plant pathologists, agriculture specialists, and quality control inspectors.

1.2 Problem Description:

The world is suffering from water scarcity. As a brief definition, it is a lack of water or a lack of safe water supplies. The first water shortages appear in historical records in the 1800s. Now there are 785 million people who lack access to clean drinking water. 800 children die every single day from dirty water. The world is trying to serve 50 million people with clean water by 2030. *Global Water Crisis: Water Scarcity*. (2022)

There are many reasons for water scarcity and increased human consumption is one of the reasons. Also overuse and wastage of water. Now you know the consequences of not rationalizing water consumption. With one project, we can combine water conservation and reduce human consumption. Our project supports the idea of hydroponics.

As traditional farming consumes a lot of water, in our project, we will use hydroponic farming systems. When we compare traditional farming with hydroponic farming systems, the hydroponic farming system can produce 240 times more crops in one year and that is while using 98% less water and 99% less land. The way of farming crops and other plants is by stacking them vertically in layers. It is grown in a solution of water and various nutrients.

1.3 Project Objectives:

The automated plant system application can provide a variety of services, including:

- Users can purchase and manage agricultural lands.
- Users can track crops as the application provides weekly reports on crop status as well as images of the crops taken with cameras.
- The application can detect plant diseases and provide the user with a report that identifies and treats plant diseases using the treatment guide.
- Customers and users who have their own area can order crops of various varieties and have them delivered by automated delivery vehicles.
- Users who have an area can also choose whether they want to order their crops or sell them through the application and the cost of the sold crops will be added to their digital wallet.
- The application notifies the user when it is the ideal time to harvest.

1.4 Goals and Scopes:

1.4.1. Project Goals:

Increase the production output and reduce the use of water since with 95% less use of water than traditional farming we can produce capable of producing large quantities of various crops for a shorter period with a smaller environmental footprint. We want to achieve our goal by providing areas for non-farmers to own green space for farming what they want, to engage the owners in the making industry of growing their crops. By using automated cells typically, perform the manufacturing process more consistently than human workers. This results in improved product quality control and consistency.

1.4.2. Scope of the Project:

The Noaa app is available for both iOS and Android devices. It provides agricultural lands for Oxagon residents with the goal of conserving water, reducing water loss, and regenerating nature to protect resources and the environment. The application has an interactive user-friendly interface that provides the users with many features to manage their agricultural lands for farming what they want, give them a weekly report of the condition of their crops, and in the event of harvesting the crops, we give them the option of choosing to sell their harvest or want their crops. The system also sells the harvest to the customers. There are different interfaces depending on whether the user is a customer, owner, renter, or guest. This project is expected to be completed by the end of 2023.

1.5 Sources of Domain Analysis Information:

Due to the interest of the city of Oxagon in redefining the world's orientation towards industrial development in the future with its contribution to protecting the environment and reducing wastage of resource use.

We also know that the food sector plays a key role in every economy, and one of the most important sectors that Oxagon will embrace is the sustainable production of food like hydroponics. Therefore, we aim to build an integrated automated system that seeks to achieve food self-sufficiency in a desert environment.

The source of domain analysis was those who were helpful to collect information to develop this system. They are agronomists, nutritionists, innovative research scientists in agricultural biotechnology, food quality inspectors, and digital infrastructure specialists. In addition, the articles: such as (Hydroponics reservoirs – Is it a solution for desert areas?) (Farr, 2022), (The environmental benefits of hydroponic systems like sustainability) (Okafor, 2022).

1.6 Include and Exclude Features:

1.6.1. Include Features:

The main features of the Auto plant system included:

- Buy crops from other users.
- Getting the land ownership
- Transfer of land ownership.
- Weekly report on the plant's status.
- Sell harvest or take them.
- Notify the owner if there are any diseases in the plant to take action.
- Automated delivery of agricultural crops to customers and users.

1.6.2. Exclude Features:

The main features of the Auto plant system excluded:

- There are no farmers.
- Cannot receive or deal with cash.
- The buying and selling transactions are limited to the citizens of Oxagon city who are either owners of green space or users of the Noaa app.
- Using it without the internet.

Phase 2: Business Requirements Specifications

2.1 Domain Analysis:

To develop our system, we are collecting many resources from people like:

- Agronomists.
- Nutritionists.
- Innovative research scientists in agricultural biotechnology.
- Food quality inspectors.
- Digital infrastructure specialists.

In addition, by the articles:

- Hydroponics reservoirs – Is it a solution for desert areas? (Farr, 2022).
- The environmental benefits of hydroponic systems like sustainability (Okafor, 2022).

2.2 Techniques for Gathering Data:

After conducting the survey with 3 multiple-choice questions and one open-ended question, we gathered the collected information and discovered that 88.37% would like to rent/buy an agricultural land from Noaa system, 67.44% want to get and sell the crops, and 100.00% want a weekly report to display the status of their agricultural land. For more detailed information about the survey, check [Appendix A](#).

2.3 Requirements:

2.3.1 Functional Requirements:

R1: The system must allow the users to create an account with their email or phone number:

R1.1: The system must check the location whether the user lives inside Oxagon city or not, if not the user cannot create an account.

R1.2: The user's account must be verified.

R1.3: The system must create a profile for the user.

R2: The system must ask users/admin and admin to (login/log out) in the system:

R2.1: If the user signs in with their phone number, the system will send a message with a code, and they cannot log in if they enter the wrong code. (The system must verify the code).

R3: The system must allow the users potential customers to inquire information about what the system sells by various combinations of search criteria including:

R3.1: View the menu of the available product types (fruits, vegetables) with their defined costs and amount.

R3.2: View available areas with cost and different sizes.

R3.3: The customer can view all offers and choose whether to contact the seller or not.

R4: The system must allow the users to add crops to digital cart:

R4.1: The system allows user to make order:

R4.1.1: To complete the order should be define pay method and delivery the order.

R4.2: The system allows the user to cancel orders.

R5: The system must allow the agricultural landowners to inquire information about the status of their area and crops using a variety of search criteria, such as:

R5.1: View the average harvest.

R5.2: Track the process of the plant's growth throw the application.

R5.3: Share a report with detailed updates about their area, including whether there is a disease affecting their crops or not.

R6: The system allows the users to control the harvests

R6.1: Sell the crops.

R6.2: Order the crops.

R7: The system must display to the owner the ownership contract for the agricultural land.

R8: The system must allow the owner to sell the land.

R9: The system must allow the users to buy land:

R9.1: The system must display available areas to buy.

R9.2: The system must allow the user to specify the kind of fruits or vegetables they want to farm.

R9.3: The system must display the purchase invoice.

R10: The system must allow the user to pay by using Apple Pay, Visa, and PayPal.

R10.1: The system must check if sufficient funds are available to accept the payment.

R11: The system must allow the users to display the sales history to the user. Each sale contains the order id, the date of the order, and the details of each product with the cost.

R12: The system allows the administrator to add areas, update the state of area, and add crops.

R13: The system must allow users to update their information.

2.3.2 Non-Functional Requirements:

R1: Noaa system will be run on all operating system (e.g. iOS, android).

R2: Noaa system will be available in English and Arabic.

R3: Noaa system must be preserver of the privacy of the users.

R4: Noaa system is usable, the users can easily navigate its interface.

R5: Noaa system must be available for the user 24/7.

R6: Noaa system must deal with currency in Riyals.

R7: Noaa system must be able to service 300 users at the same time.

R8: Noaa system contains an automated response to frequently asked questions.

R9: Noaa system provides a box to receive suggestions and problems from the users.

2.4 Utilize Use Case Model:

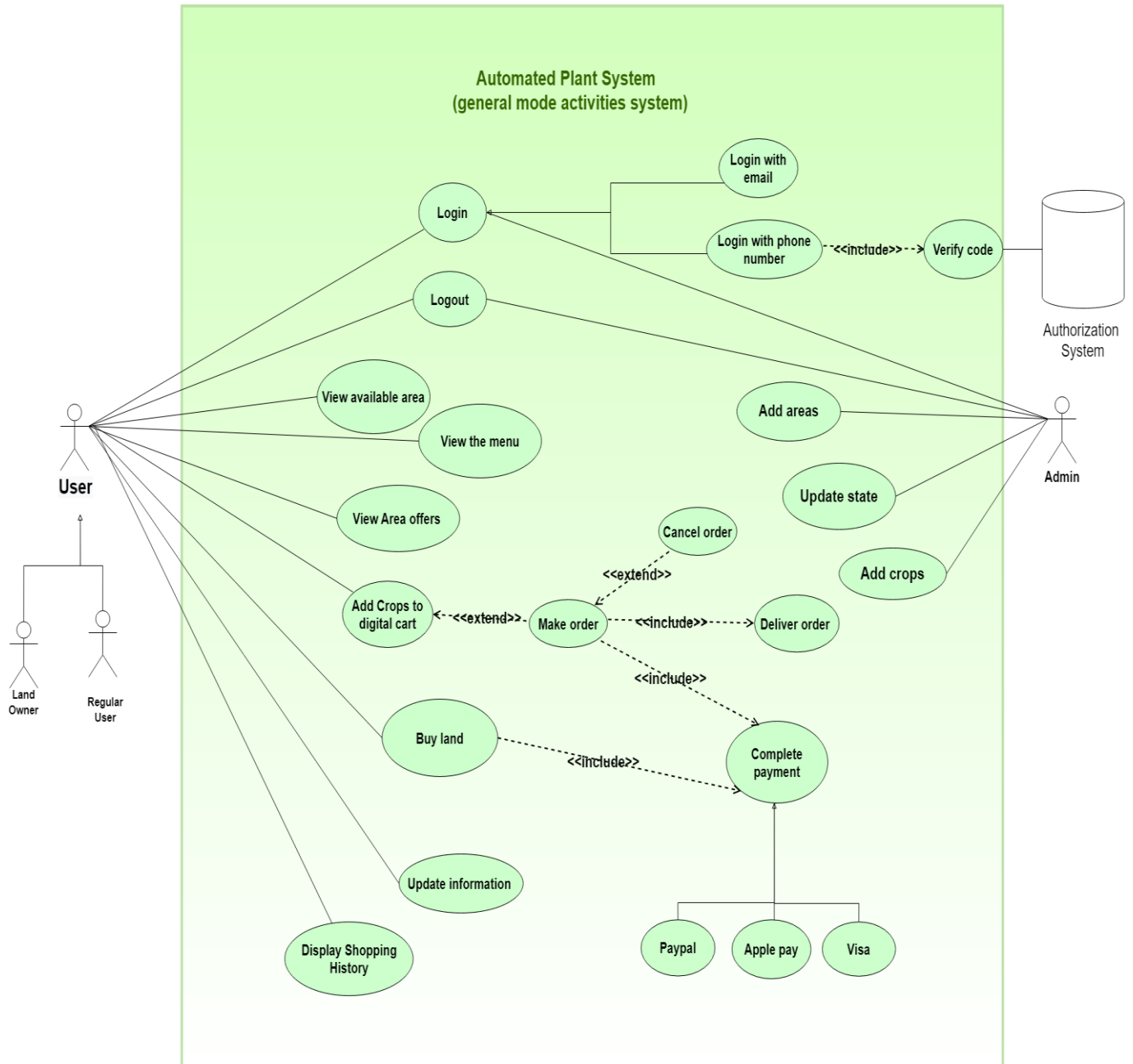


Figure 1: Noaa's System Use Case General Mode Activates

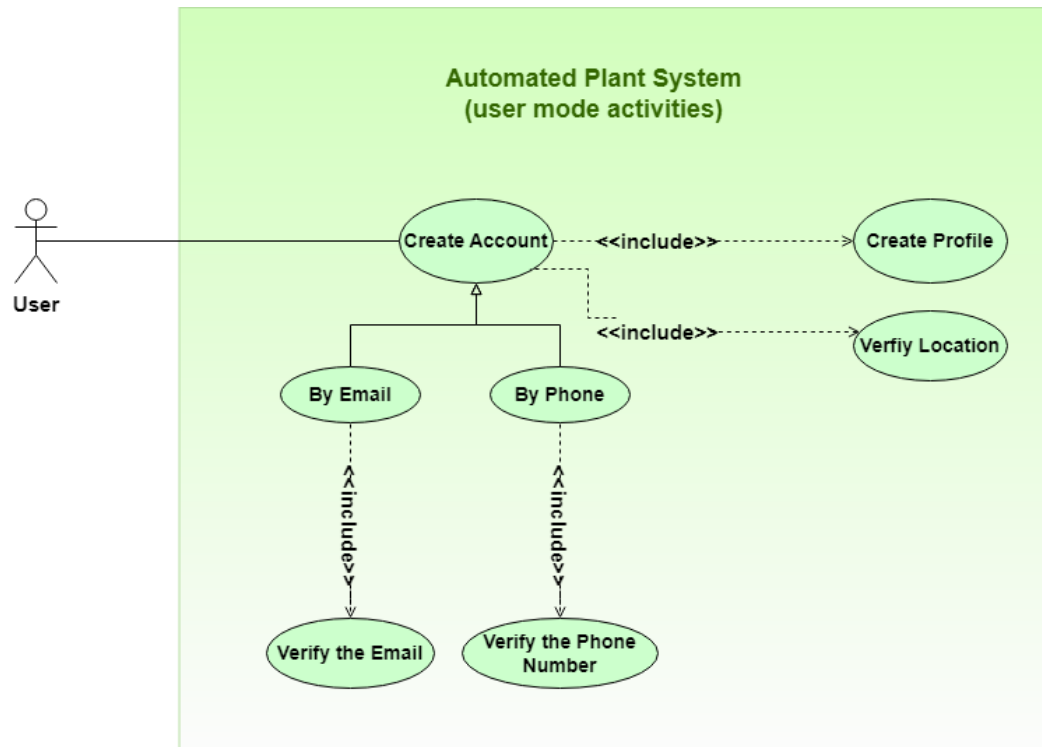


Figure 2: Noaa's System Use Case Guset Mode

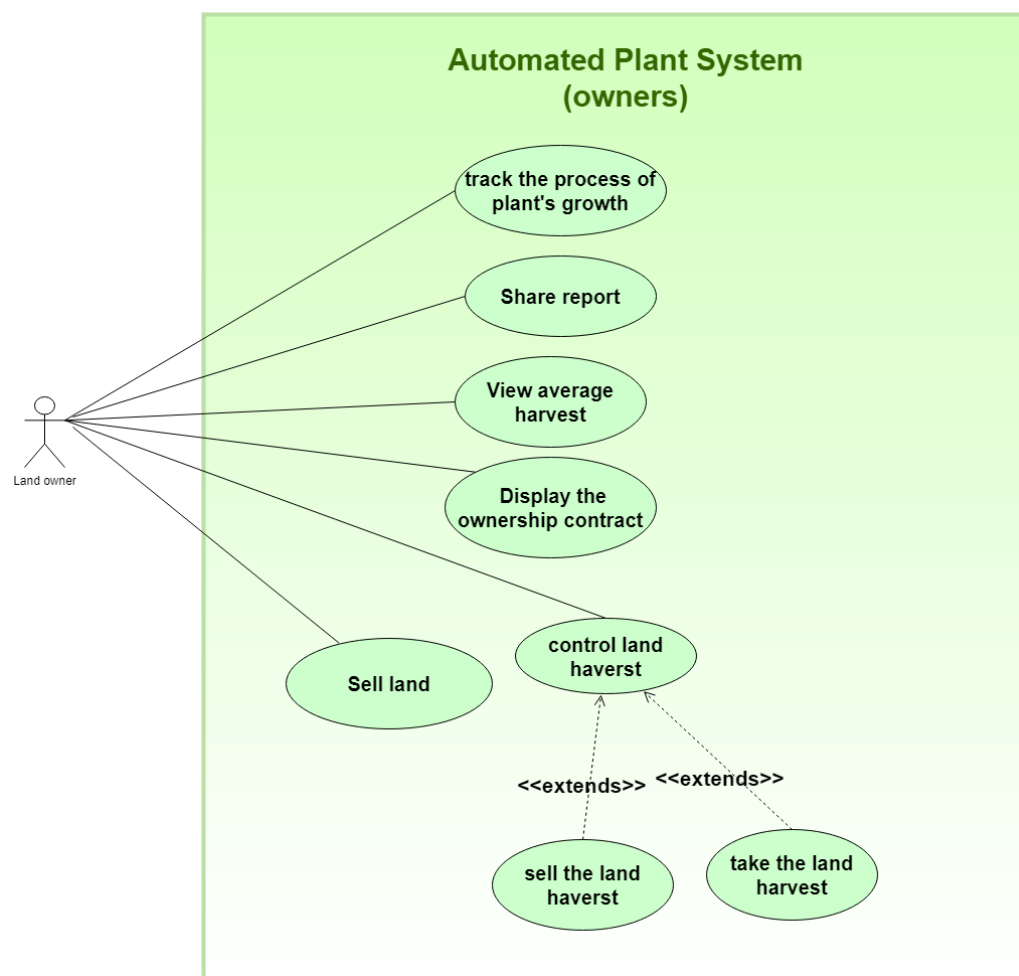


Figure 3: Noaa's System Use Case Owners

2.5 Use Case Description:

2.5.1 Main Use Case 1: Make an order

Make an order
Brief description: The registered user can order crops offered from the system.
Actors: Any registered user.
Pre-condition: The user must have an account in the system.
Basic flow of events: 1-The user must log in to the system. 2-The user must select items and add them to the digital cart. 3-The system must show the total price for all items on the cart. 4-The user must press “order crops” button. 5-The user must enter the location for delivering crops. 6-The user must complete his/her payment.
Extension: 5a. if the user did not fill in the information for delivering the crops. 6a. if payment is not accepted.
Post-condition: The user must get the crops delivered.
Special requirement: <ul style="list-style-type: none">▪ The user must be connected to the Internet.▪ The user must be logged into the system.

Table 1 : Make order Use Case Description

2.5.2 Main Use Case 2: Control Harvest

Control Harvest
Brief description: The users have full right to control their agricultural harvest.
Actors: landowners
Pre-condition: The owners must have a harvest
Basic flow of events: <ol style="list-style-type: none">1. The actor clicks his/her profile page from the main interface.2. The actor clicks on "my harvest" button.3. The actor must select one of the choices from the menu (Sell crops, order crops).4. If the actor selects to sell crops the system will ask the actor to choose the amount of harvest, that the actor wants to sell, and if the selects actor order crops the system will ask the user to enter the amount of harvest, that the actor wants to order it.
Extension: <ol style="list-style-type: none">3a. The actor does not have harvest to sell or order, the owner areas on the specified date. The system alerts the user with "No harvest available" Message.4a. The actor does not specify the amount of harvest to sell or order. The system alerts the user with "you should specify the amount of harvest to sell and order, please!" Message.
Post-condition: <p>If the actor selects to sell all crops, all his harvest will sales and the cost will add to his/her digital wallet</p> <ol style="list-style-type: none">3.a If the actor selects order crops his/her harvest will be delivered.3.a The cost of selling harvest will add to her/his digital cart and the ordered harvest will be delivered.
Special requirement: <ul style="list-style-type: none">▪ The actor must be connected to the internet.▪ The actor must have harvested crops.

Table 2: Control Harvest Use Case Description

2.5.3 Main Use Case 3: Sell land

Sell land
Brief description: The user can sell his/her land
Actors: The registered user who has land.
Pre-condition: the user must have an account and own land.
Basic flow of events: 1-user must log in to the system. 2-the user click on his/her profile page. 3-The user press “My Land” button. 4-The system must show all the lands owned by the user. 5-The user must select the desired land to be sold. 6-The user must press “sell land” button. 7-The system lets the user enter the required price for selling the land. 8-The system must show a message for the user “Are you sure!” and the user must select complete selling. 8-The system must change the status of land to “offered for selling”. 9-The system must add the land to the menu of lands. 10-When another user buys the land, the system must change the owner ID for the new owner and the land status for “sold”. 11-System must send notification to inform the user. 12-System must add the price of the deal in the former user wallet.
Extension: 4a. If the user does not own any land. 7a. If the user did not enter the price for selling, the system must show a message: “Please, enter price to complete selling the land.” 8a. If the user chooses to cancel after showing “Are you sure!” Message.
Post-condition: The user successfully offers the land for selling; and if another user buys the land the former user will successfully sell the land and take the money in his/her wallet.
Special requirement: <ul style="list-style-type: none">▪ The actor must be connected to the internet.▪ The actor must have land to sell it.

Table 3: Sell Land Use Case Description

2.5.4 Main Use Case 4: Buy Land

Buy Land
Brief description: The registered user accesses to Noaa System can be view the available lands with different sizes. Then the user can choose their land to be purchased.
Actors: The registered user (e.g. owner land, regular user).
Pre-condition: The user must have a verified account in the Noaa System.
Basic flow of events: <ol style="list-style-type: none"> 1. The actor logs into the Noaa system as user. 2. The actor presses the "Buy Land" button. 3. The system will display available areas with their cost and different sizes. 4. The system asks the actor to choose the appropriate area. 5. The system displays a menu of their common crops for the actor and allows the actor to write other types that are not from the menu. 6. The system asks the actor to specify the kinds of crops they want to farm with a specific quantity. 7. The system displays to the actor the purchase invoice that contains the invoice number, the name of the owner, the ID number of the area, the date of purchase, the types of crops with quantities, and the total cost. 8. The system asks the actor to pay the purchase invoice through the payment methods available in Noaa system. 9. The system sends a message to the actor confirming the purchase of the land.
Extension: <ol style="list-style-type: none"> 3a. No areas are available for the actor: <ol style="list-style-type: none"> 3a1. The system displays an error message saying no areas available with providing a reason. 6a. If the actor does not specify the quantity of crops: <ol style="list-style-type: none"> 6a1. The system displays a message saying, "you should determine the quantity of your crops, please!". 8a. If there is a failure to confirm payment within a minute, the system displays a two-minute delay for the order and the purchase process will boil over.
Post-condition: The actor successfully bought the land and changed the actor's status to the owner#landID in the profile.
Special requirement: <ul style="list-style-type: none"> ▪ The actor needs to be connected to the Internet. ▪ The actor should have the mobile phone application. ▪ The actor needs to be a resident of Oxagon city.

Table 4: Buy Land Use Case Description

2.6. Difficulties & Risk Analysis in the Domain:

The difficulties that we encounter are:

- Lack of knowledge by the public in the farming field.
- The idea of Noaa system is innovative and needs collaboration from botanist and farmers to gather what the system needs.
- Difficulty dealing with the domain of the system without a domain expert.
- Difficult to obtain accurate survey results, since Oxagon is not built yet.
- The risk that we can face is that the system needs complex hardware pieces and sensors to track all the farming activities and that needs many budgets.

Phase3: Software Design and Structuring

3.1. Domain Model:

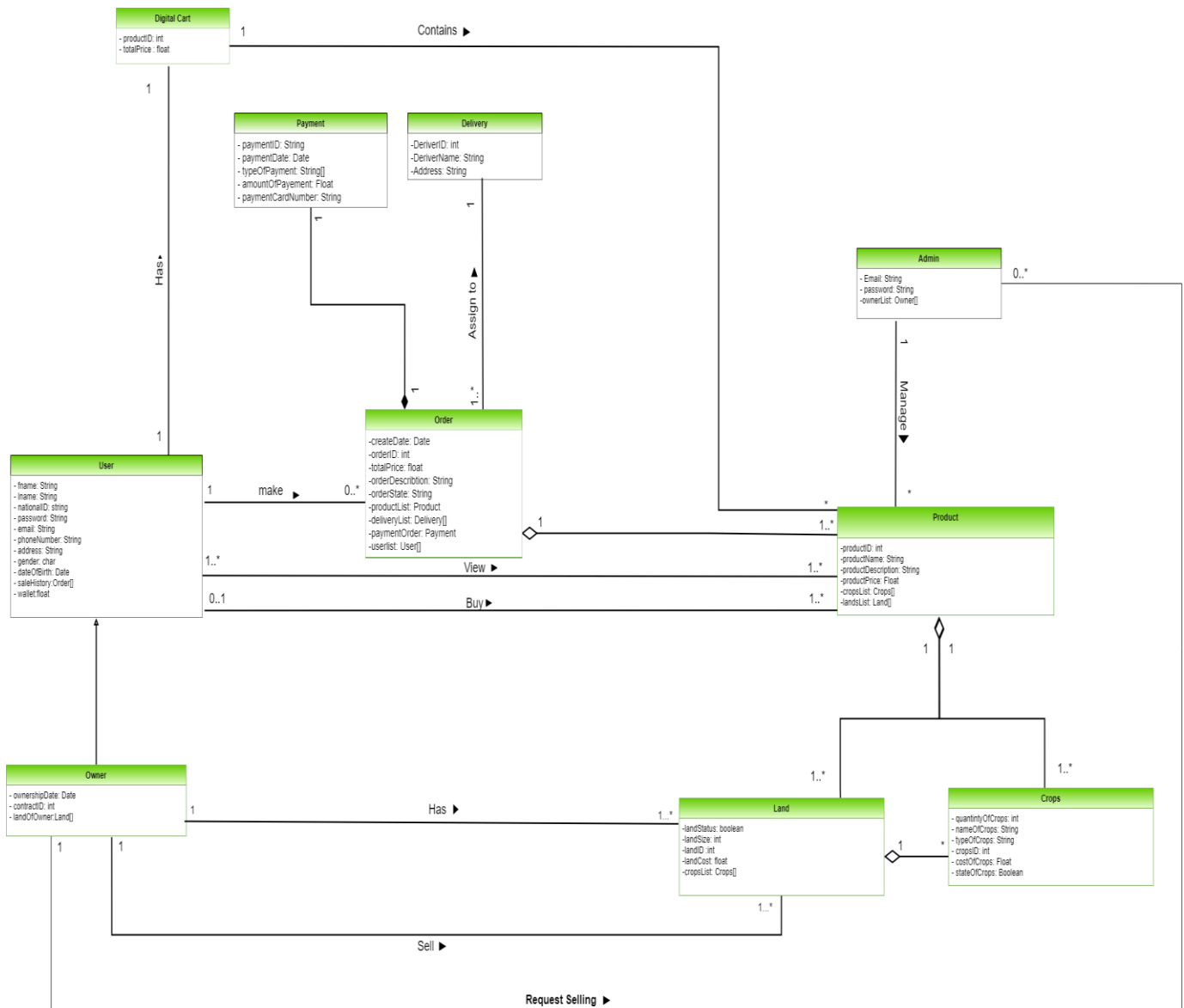


Figure 4: Domain Model

3.2. UML Class Diagram:

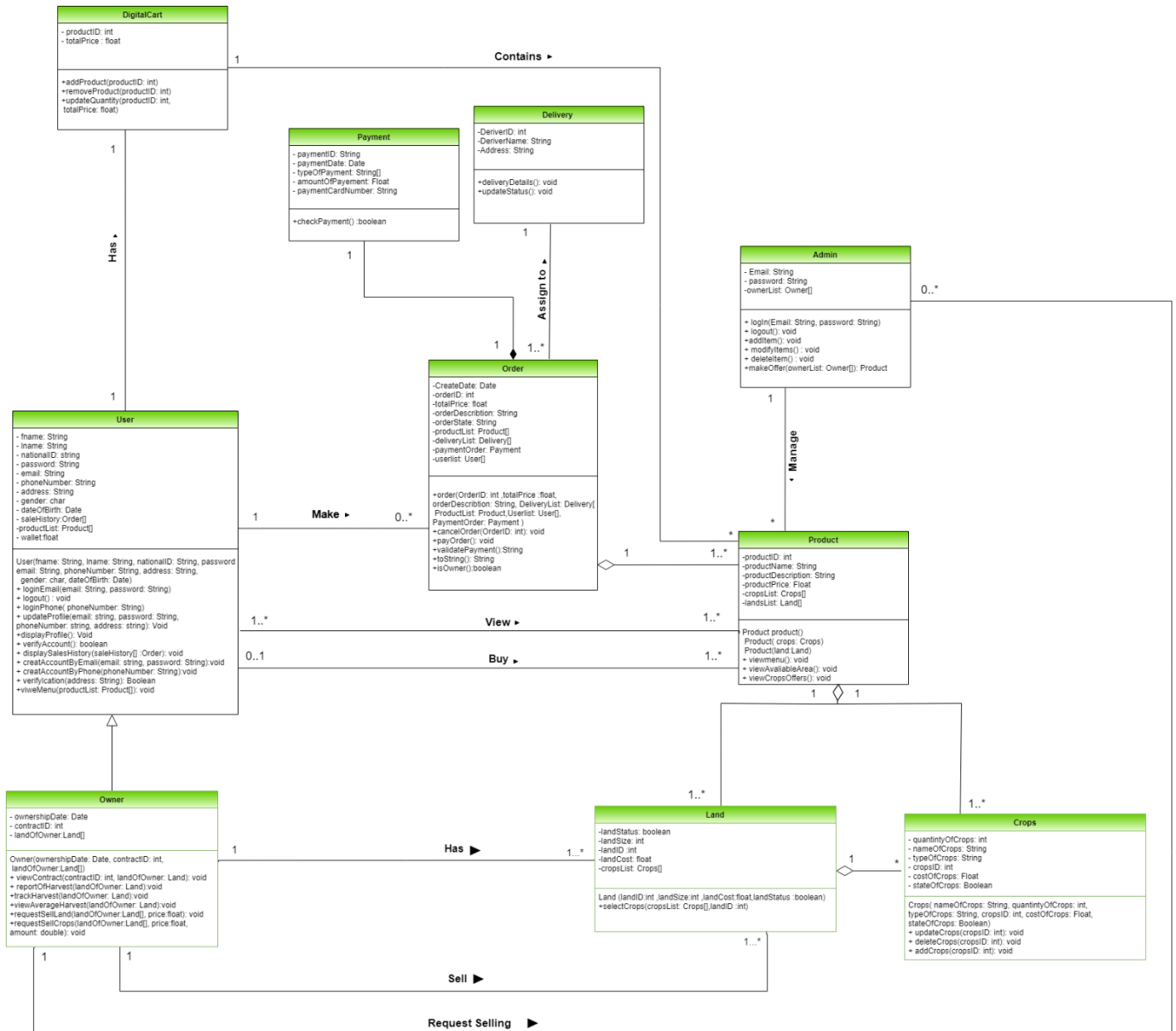


Figure 5: UML Class Diagram

3.2.1. Association Relationships and Their Multiplicity:

1. Between Digital Cart and User:
 - Each user has one digital cart.
 - Each Digital Cart has one user.
2. Between User and Order:
 - Each user can make many orders.
 - Each order made by one user.
3. Between Digital Cart and Product:
 - Each digital cart can contain many products.
 - Each product can be contained in one digital cart.
4. Between User and Product:
 - A user can view one or more product.
 - A product can be viewed by one or more user.
 - Each user can buy one or more product.
 - Each product can be bought by different Users.
5. Between Admin and Product:
 - The admin manages more than one Product.
 - All products are managed by an Admin.
6. Between Owner and Land:
 - Each owner has one or more lands.
 - Each land can be taken by one owner.
 - Each owner can sell one or more lands.
 - One or more Lands can be sold by one Owner.
7. Between Order and Delivery:
 - Each order assign to one delivery.
 - A delivery can be assigned to one or more order.
8. Between Owner and Admin:
 - Each owner can have many requests to sell to the admin.
 - An admin can have many requests to sell by the owner.

3.2.2. Generalization Relationships:

Owner class inherits user class and share all the User class functions.

3.2.3. Composition Relationships and Their Multiplicity:

1. Between payment and order:
 - If there is no order, there will be no payment.
 - Each order has a payment.
 - Each payment is for one order.

3.2.4. Aggregation Relationships and Their Multiplicity:

1. Between Product class and Crops class:
 - The crops are a part of the product class.
 - The product class have a list of crops from the crops class.
2. Between Product class and Land class:
 - The lands are a part of the product class.
 - The product class have a list of the available lands from the land class.
3. Between Lands and Crops:
 - The crops are a part of the land class since the lands can have different variety of crops to be planted.
 - Each land can have many crops.
 - Many crops can be in one land.
4. Between Order and Product:
 - Products are part of orders since the order can have a list of all the ordered products.
 - Each order can have one or more products
 - One or more products can be in one order.

3.3. System Architecture:

3.3.1. Type of the System:

The Noaa application responds to requests from users, regular users, owners, and administrators to request new orders, add new products, sell, and buy lands or crops. As a result, it implements an interactive system between the owners and users because it operates by responding to requests from its users.

3.3.2. Architectural Design

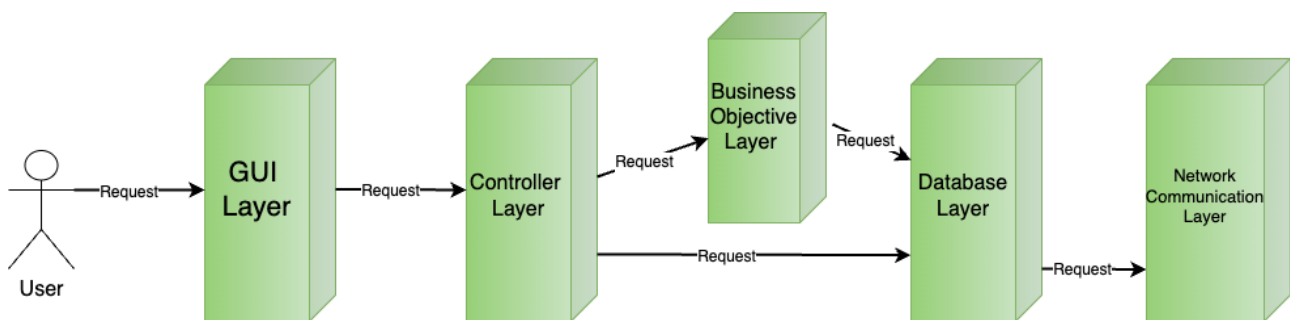


Figure 6: Architectural Design

Phase 4: Modelling, Interaction & Behavior:

4.1 Interaction Diagram:

4.1.1 Sequence Diagram:

4.1.1.1 Sequence Diagram 1: Create Account

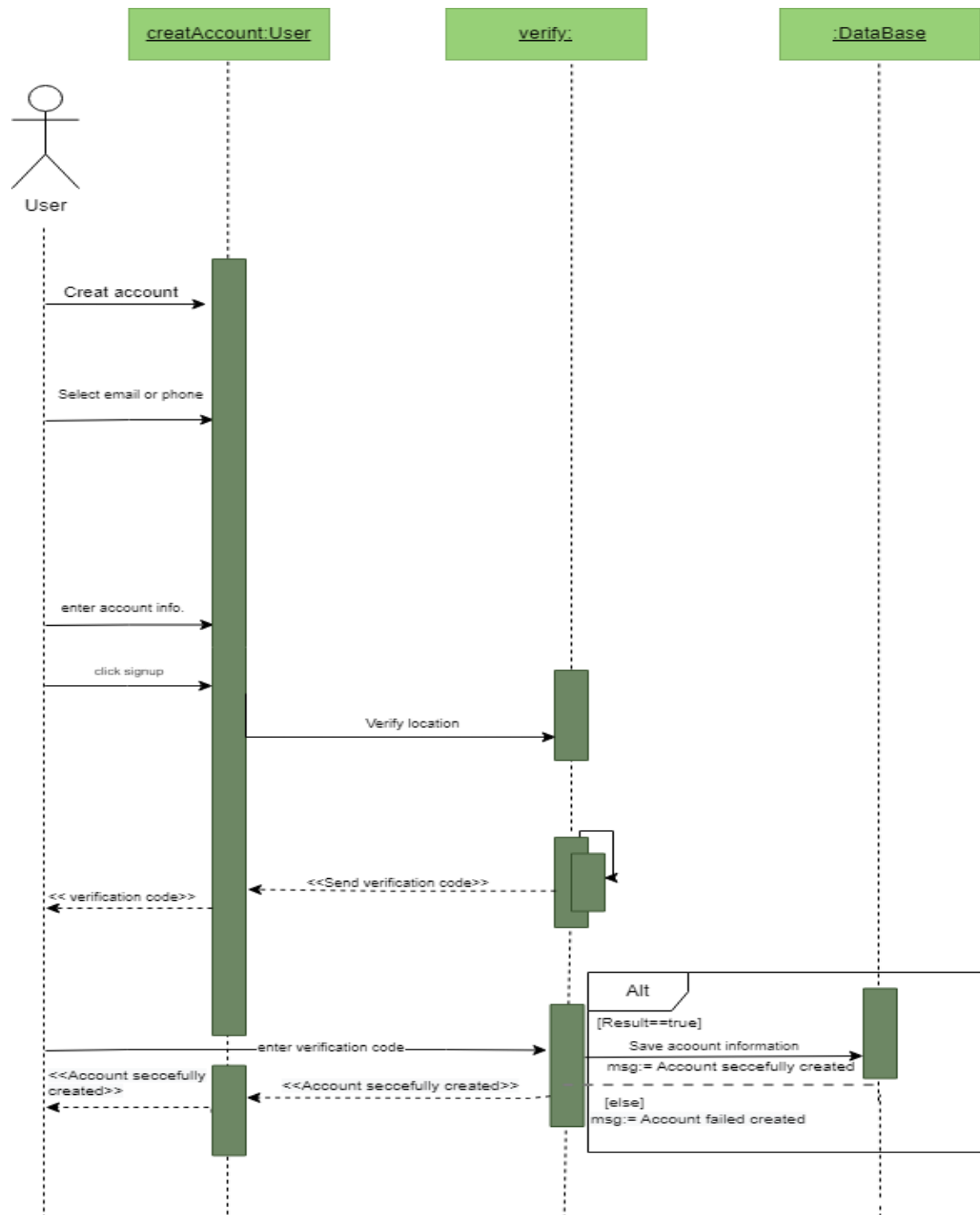


Figure 7: create account sequence diagram

4.1.1.2 Sequence Diagram 2: Buy Crops

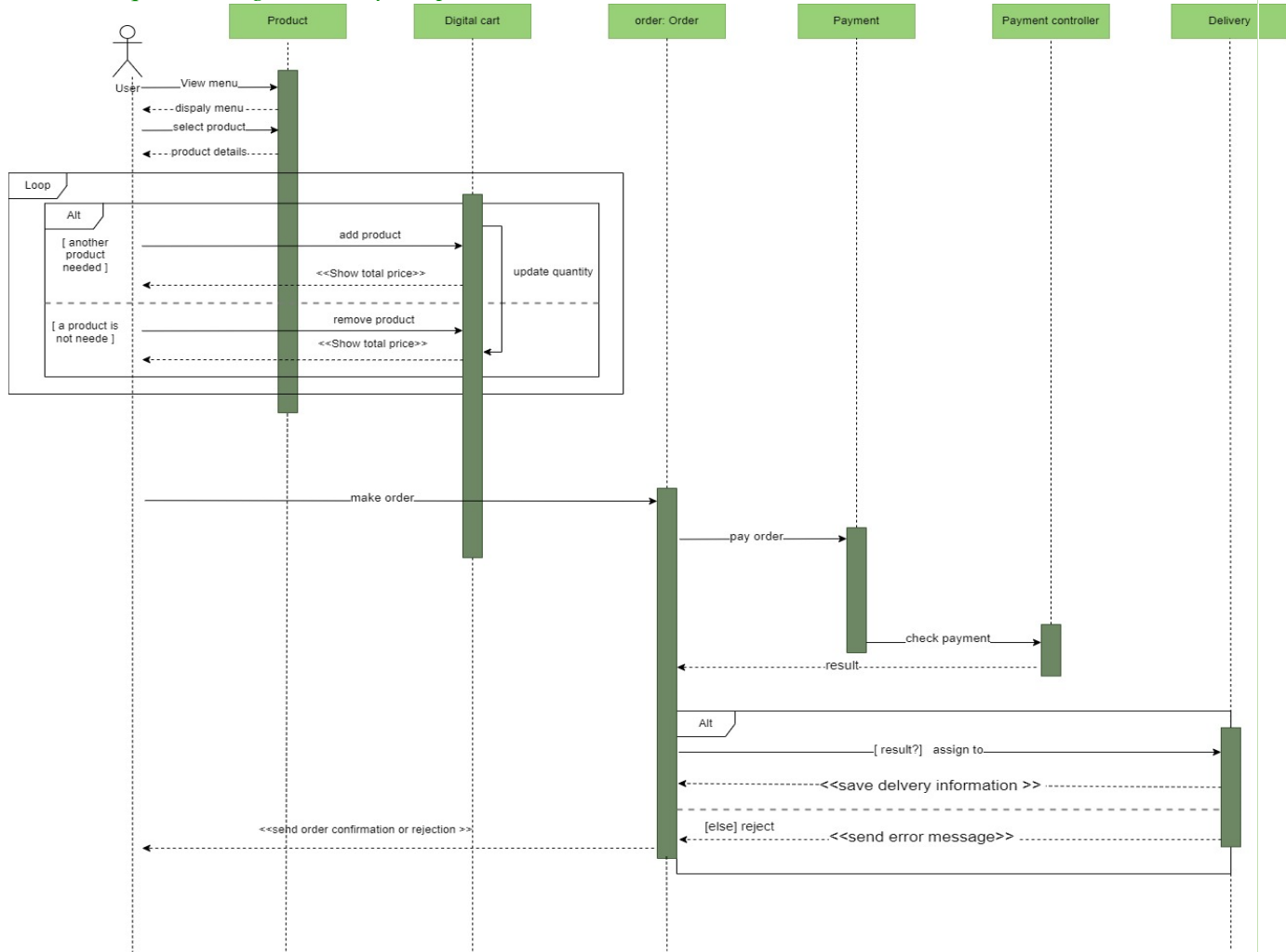


Figure 8.buy crops sequence diagram

4.1.2 State Diagram:

4.1.2.1 State Diagram 1: Land Stat Diagram

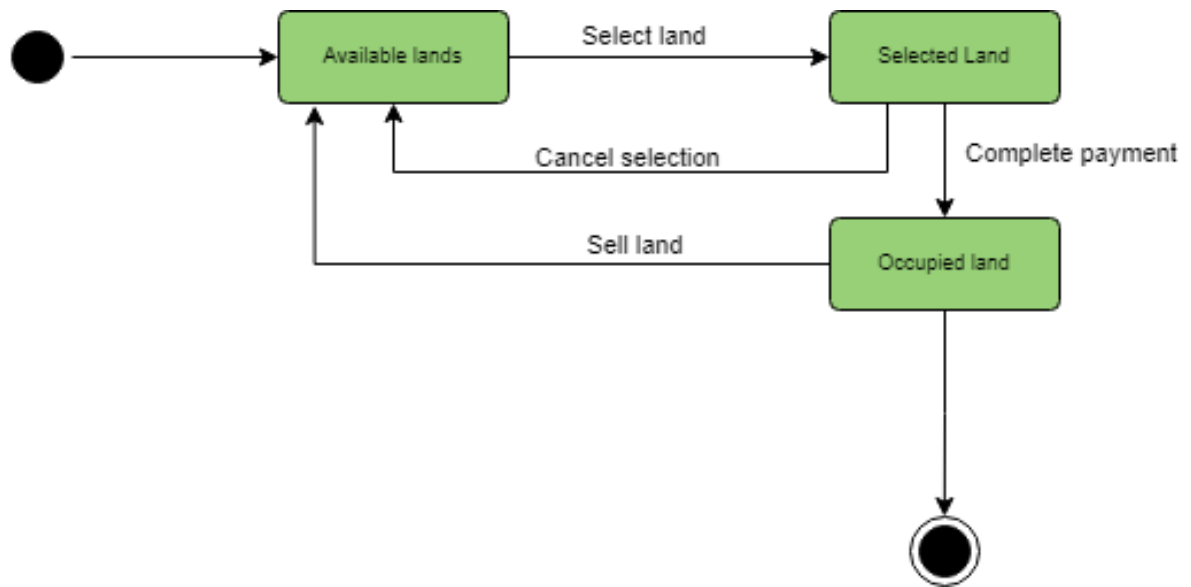


Figure 9: Land state diagram

4.1.2.2 State Diagram 2: Order State Diagram

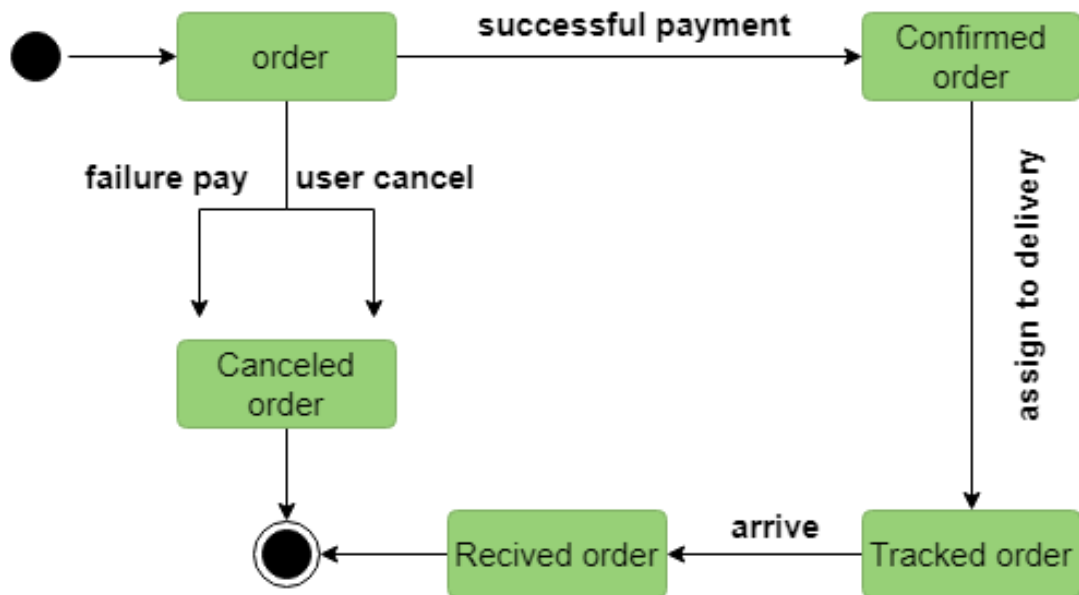


Figure 10: Order state diagram

4.1.3 Activity Diagram:

4.1.3.1 Activity Diagram 1: Buy Land

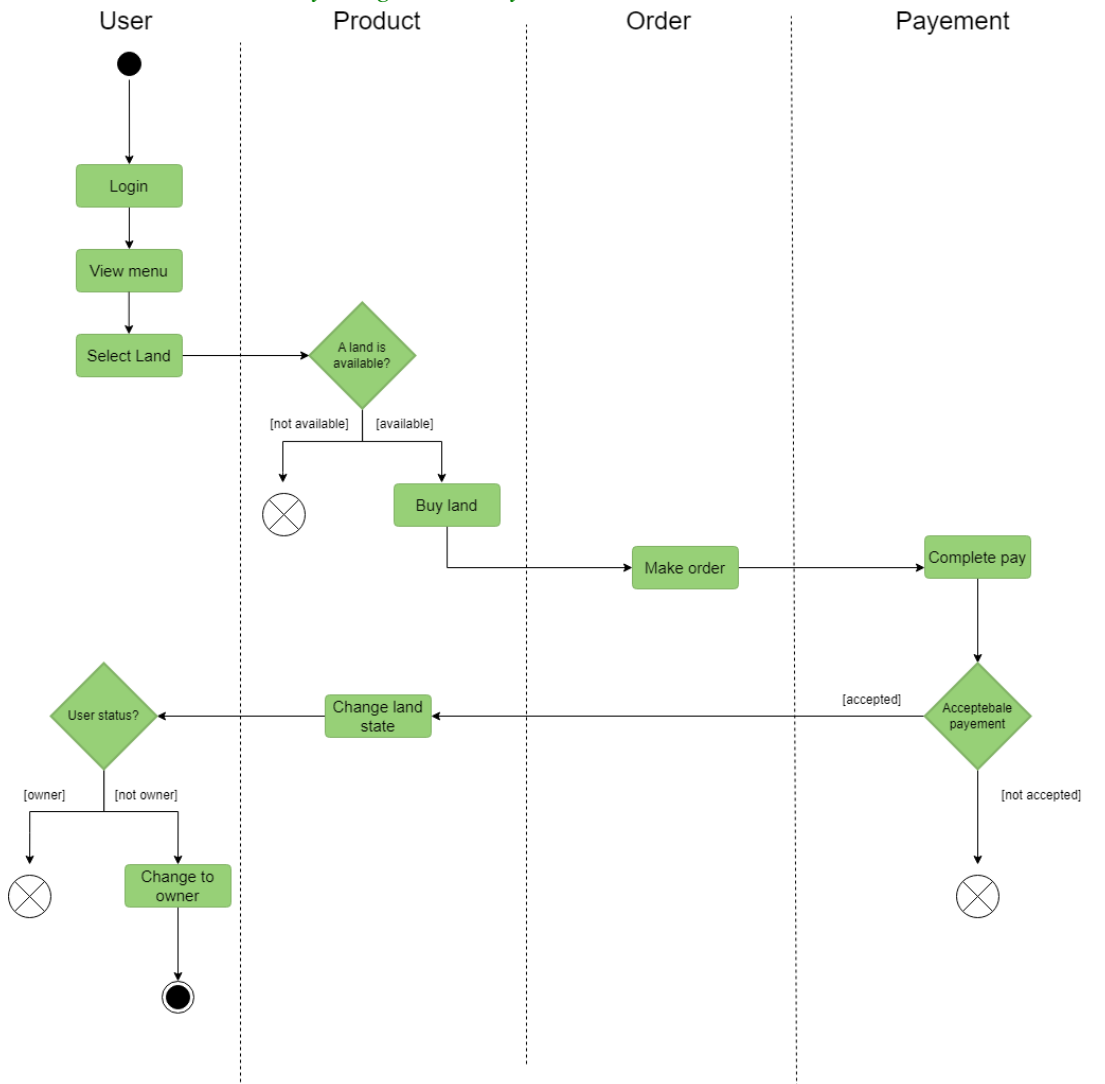


Figure 11: Buy land activity diagram

4.1.3.2 Activity Diagram 2: Control harvest of Land

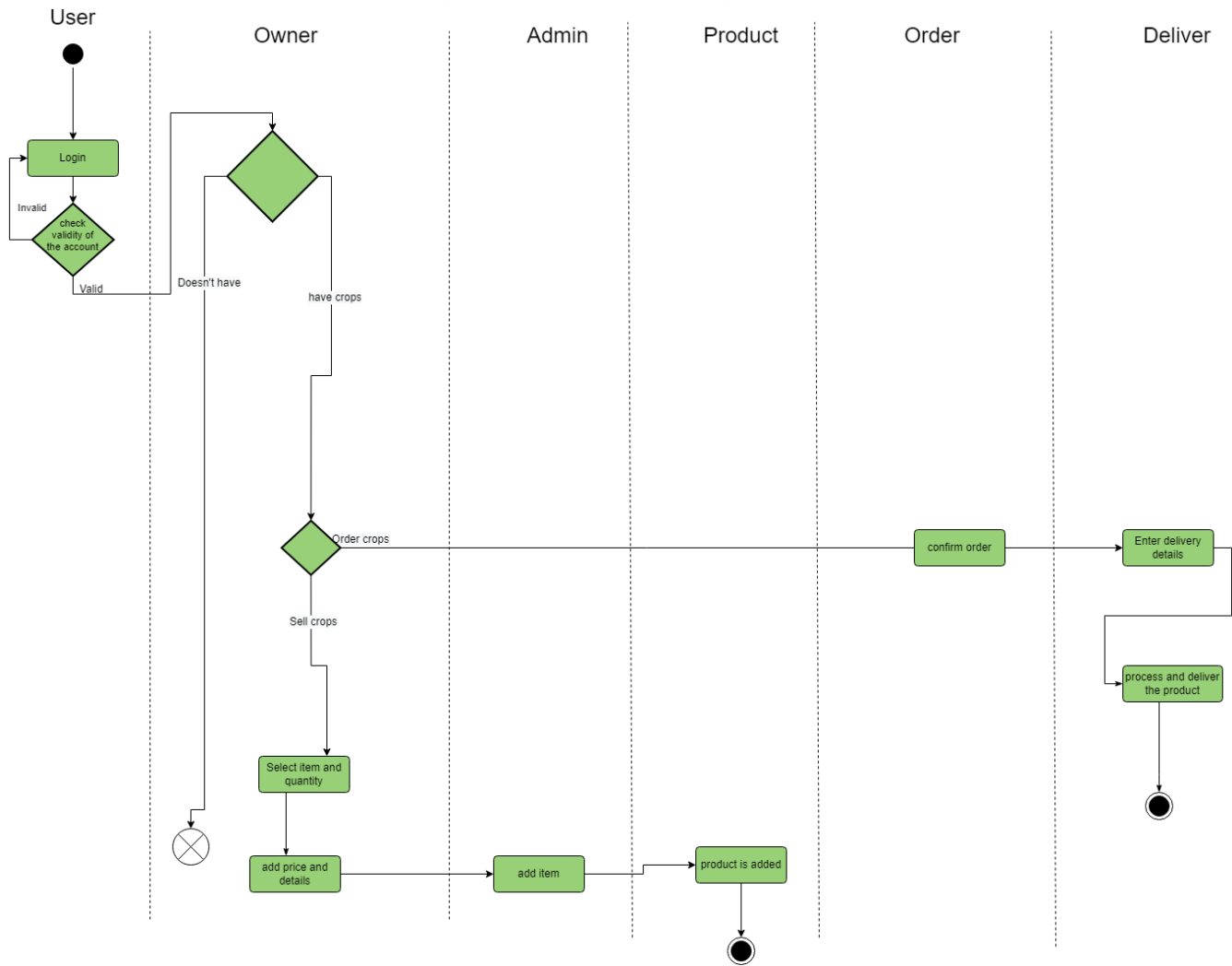


Figure 12: control land activity diagram

4.2 Testing:

4.2.1 Testing Objectives:

To make sure, verify that it meets our basic system requirements, and that the final product satisfies the demands of the user and the business. In addition, finding defects that may affect the quality of the system and correcting them. Test the performance and mechanism of the system, in general, to improve its quality and reduce the risk.

4.2.2 Testing Strategy:

Ensuring that the system meets the requirements and detects errors and invalidity of input. Also, ensure the security of the system by covering the authentication aspect. In the report, we assess the success criteria of the system based on the expected output or not and we choose some functionality requirements to be tested:

- Create an account.
- Login to the system.
- Share report to owner.
- Update information:
 - Update phone number.
 - Update password.

4.2.3 Testing Approach:

The testing approach that is used in our project is the black box to focus on the testing of communication between our system and the user. In addition, it evaluates the operation of software without looking at its coding or underlying structure. We used three techniques, which are decision table, equivalence partitioning, and boundary value techniques as follow:

4.2.3.1 Test Plan 1: Create account

System: Noaa App

Test case name: Create account.

Description: The testing admin can create the account successfully.

Test Scenario: Check the system's response when the user asks to create an account.

Precondition:

- Install the application.
- Press the sign-up button.

Postcondition: User creates his account successfully.

Test by valid data:

Test Case Id	Test Scenario	Test Steps	Test Data	Expected result	Actual Result	Pass/Fails
1	Check the system behavior when the user wants to create an account with an email.	1- Open the system. 2 – Click on sign up. 3- Enter valid email and password. 4 – Enter the location.	Email: AhmedKhalid@gmail.com Password: Ahmed1999 Location: Oxagon City	Account created Successfully	As expected.	pass
2	Check the system behavior when the user wants to create an account with a phone number.	1- Open the system. 2 – Click on sign up. 3- Enter the valid phone number and correct received code. 4 – Enter the location.	Phone number : 0567493850 Enter received code Location: Oxagon City	Account created Successfully	As expected.	pass

Table 5:test create account valid data

Test by invalid data:

Test Case Id	Test Scenario	Test Steps	Test Data	Expected result	Actual Result	Pass/Fails
1	Check the system behavior when the user wants to create an account with an invalid email.	1- Open the system. 2 – Click on sign up. 3- Enter the invalid email and correct password. 4 – Enter the location.	Email: AhmedKhalid@gmail.com Password: Ahmed1999 Location: Oxagon City	Display an error message	As expected.	pass
2	Check the system behavior when the user wants to create an account with an invalid phone number.	1- Open the system. 2 – Click on sign up. 3- Enter an incorrect phone number and correct received code. 4 – Enter the location.	Phone number : 05693850 Correct receiving code Location: Oxagon City	Display an error message	As expected.	pass
3	Check the system behavior when the user wants to create an account but enter wrong receiving code.	1- Open the system. 2 – Click on sign up. 3- Enter the correct phone number and incorrect received code. 4 – Enter the location.	Phone number : 0567493850 Code: 0 Location: Oxagon City.	Display an error message	As expected.	pass
4	Check the system behavior when the user wants to create an account with an invalid location.	1- Open the system. 2 – Click on sign up. 3- Enter valid email and password 4 – Enter invalid location.	Email: AhmedKhalid@gmail.com Password: Ahmed1999 Location: Jeddah	Display an error message	As expected.	pass

Table 6: test create account invalid data

4.2.3.2 Test Plan 2: Login

System: Noaa App

Test case name: Login

Description: The testing admin login to the account successfully.

Test Scenario: Check the system's response when the user login.

Preconditions:

- Install the application.
- Account is already created.
- Press the login button.

Postcondition: User can login into his account either by using his email or phone number successfully.

1 – Login by email:

Email	T	T	F	F
Password	T	F	T	F
Expected Result	Login processed	Wrong password message	Wrong Email Message	Wrong Email Message

Table 7: decision table testing login by email

2- Login by phone number:

Phone number	T	T	F	F
Code	T	F	T	F
Expected Result	Login processed	Wrong code message	Unregistered phone message	Unregistered phone message

Table 8: decision table testing login by phone

4.2.3.3 Test Plan 3: Share report

System: Noaa App

Test case name: Share report

Description: The testing admin can receive the weekly report correctly.

Test Scenario: Check the system's response when the user asks to view the weekly report.

Precondition:

- Install the Noaa app.
- Account is already created and user logged in.
- The user owns a land.

Postcondition: The user (owner) successfully receives a weekly report.

Test Case Id	Test Scenario	Test Steps	Test Data	Expected result	Actual Result	Pass/Fails
1	Check system's behavior when the actor wants to view weekly reports with valid information.	1- Open the system. 2-Login into the system. 3-Click on 'display reports' button. 4-Enter a valid date. 5-Access and view the land's weekly report.	Email: sidraRe@gmail.com Password: Siii#6913 Date: 11/2/2030	View weekly reports successfully	As expected	Pass
2	Check system's behavior when the actor wants to view weekly reports with invalid information.	1- Open the system. 2-Login into the system. 3-Click on 'display reports' button. 4-Enter a valid date. 5-Access and view the land's weekly report.	Email: sidraRe@gmail.com Password: Siii#6913 Date: 11/2/2002	an error message occurs "Date is invalid"	As expected	Pass

Table 9: Share report testing table

4.2.3. *Test Plan 4: Update information*

System: Noaa App

Test case name: Update information

Description: The testing admin can update his information successfully.

Test Scenario: Check the system's response when the user asks to update information.

Precondition:

- Install the Noaa app.
- Account is already created and user logged in.

Postcondition: The user can update his information successfully.

1- Test if the user wants to update his password:

- User Password (8 number and characters)

Invalid	Valid	Invalid
0	8	15
1	9	16
2	10	17
3	11	18
4	12	.
5	13	.
6	14	.
7	15	

Table 10: Equivalence partition of user password

2- Test if the user wants to update his phone number:

- Phone number consist of 10 numbers

Invalid partition – valid partition Lower boundary		Invalid partition – valid partition Upper boundary	
Boundary value just below the boundary	Boundary value just above the boundary	Boundary value just below the boundary	Boundary value just above the boundary
9	10		11

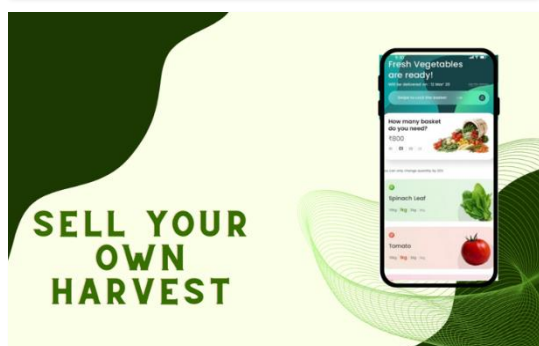
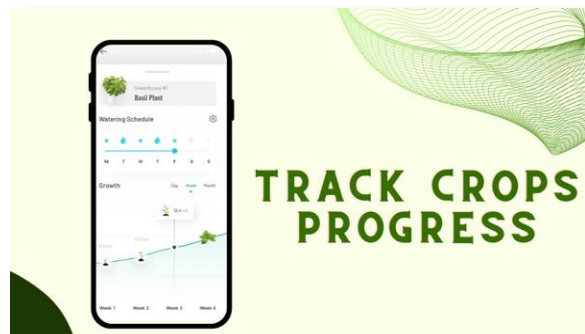
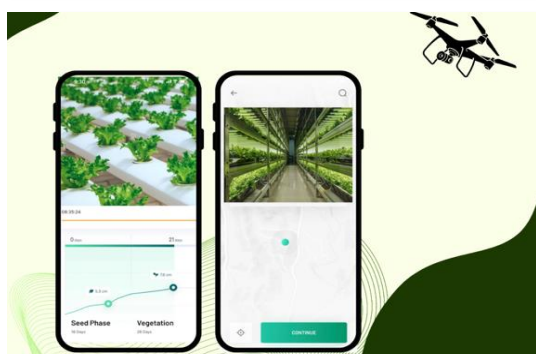
Table 11: Boundary value analysis of phone number

4.2.3.4 Testing Non-Functional requirement:

Test Case ID	Test Case	Domain	Explanation
1	The Noaa system will be protect all user's privacy and should not permit unauthorized users.	Security Testing	It's a software testing process involves testing that finds flaws, risks, and threats in software applications and protects against unauthorized intrusions.
2	Noaa system must be able to service 300 users at the same time.	Load Testing	the software testing process is carried out to find out how a system behaves under normal and peak situations.

Table 12: testing non functional req.

4.3 Prototype:



4.4 Conclusion:

To sum up, our project discusses the most critical environmental and nutrition problems, which are the waste of water in agriculture and the failure to achieve sustainability in food.

The solution is to create a Noaa system that supports hydroponics, which contributes to reducing water usage in agriculture and achieving sustainability in food. The system provides services to our customers in Oxagon city such as purchasing agricultural products and allowing them to own and control agricultural land through the system with flexibility and high efficiency.

References:

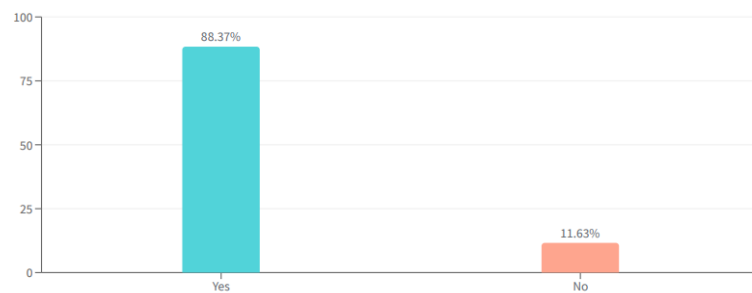
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Appendix A: Survey results

QUESTION 01 | YES OR NO

If you find an application that sells or rents agricultural land and they are responsible for farming the land and controlling it automatically in the best available ways and all of its crops are yours, are you thinking of buying or renting land from their lands?
إذا وجدت تطبيقًا يبيع أو يؤجر أراضٍ زراعية وهم مسؤولون عن زراعة أراضك والتحكم بها آليًا بأفضل الطرق المتاحة، وجميع محاصيل أراضك ملكك، فهل تفكر في شراء أو استئجار أرض من أراضيهم؟

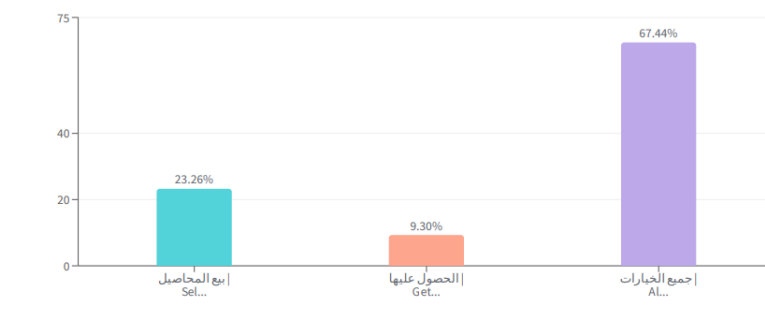
Answered: 86 Skipped: 0



QUESTION 02 | DROPDOWN

Do you want the application to give you the option to sell your agricultural crops if you buy or rent land from it? Or do you simply want to get it?
إذا اشتريت أو استأجرت أرض من التطبيق هل تريد أن يتيح لك خدمة بيع محاصيلك الزراعية؟ أو تريد الحصول عليها فقط؟

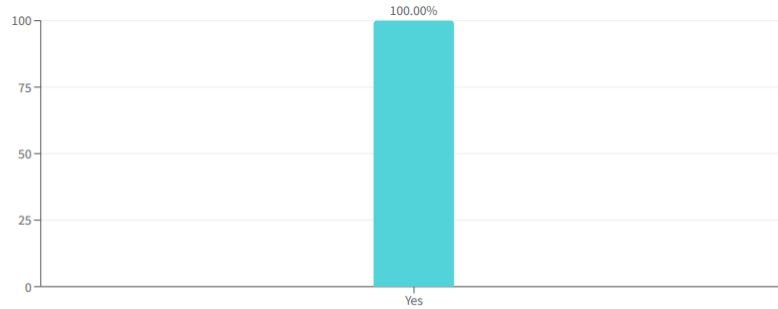
Answered: 86 Skipped: 0



QUESTION 03 | YES OR NO

Do you want a weekly report on the status of your agricultural lands or not?
إذا كانت لديك أرض أو عدة أراضٍ هل تريد تقريراً
إسبوعي عن حالتها؟

Answered: 85 Skipped: 1



Anonymous	2d ago
إنتاج أكثر بمعايير صحية و ممتازة	
Anonymous	2d ago
القدرة على زيارة الأرض ورؤيتها في الواقع	
Anonymous	2d ago
تحديث دوري بحالة النبات و أيضاً احصائيات عن البيع	
Anonymous	2d ago
تقارير عن الجودة والوضع العام، اتصال مباشر بالسوق للبيع، جولات لمشاهدة المحاصيل الزراعية	
Anonymous	2d ago
الاهتمام بالأرض الزراعية من كل النواحي	
Anonymous	2d ago
معدل استهلاك المياه ، مؤشر يوضح المناطق التي تحتاج إلى إحصاء المحاصيل فيها	
Anonymous	2d ago
الاحتياجات التي تحتاجها أرضي و استشارة الخبراء	
Anonymous	2d ago
الإشراف عليها	

Anonymous	2d ago
توفير شخص مسؤول عن هذي الارض واحصاءات للتقدم زراعه المنتجات الموجوده	
Anonymous	2d ago
Maintenance and report weekly the status of the land	
Anonymous	2d ago
Caring ,watering ,Accounting,rentin or selling the land and providing professional customer services	
Anonymous	2d ago
كمية المحاصيل المتوقعة لهذا الموسم- حل المشاكل التي تواجه النباتات، توفير احتياجات مثل السماد وغيره	
Anonymous	2d ago
تقارير شهرية عن حالة الارض ،وتوقعات لحالتها في المستقبل	
Anonymous	2d ago
بيع	
Anonymous	2d ago
الاهتمام،الدقة في العمل ،تقرير عن حالتها اسبوعيا	
Anonymous	2d ago
Sell	
نوع المحصول ومتى يتم الحصاد. افضل وقت لزراعة محصول لنوع معين. الجو المناسب في منطقة الارض لاي محصول	
Anonymous	2d ago
.الإهتمام بنظافة ورعاية النباتات، حصد المحاصيل باستمرار، تجنب استخدام المبيدات	
Anonymous	2d ago
الإهتمام والإشراف الكامل بالأرض ومحاصيلها - يقدم خطط استراتيجيه، حلول ،اقتراحات وأفكار إبداعية لبيع المنتجات - يوضح نسبة استهلاك الماء وعدد المحاصيل وأنواعها المختلفة - ينظم البيانات	
Anonymous	2d ago
لعم	
Anonymous	2d ago
الالات الزراعيه	
Anonymous	2d ago
الإشراف عليها	
Anonymous	2d ago
توفير خدمة توصيل للمحاصيل	
Anonymous	3d ago
I would like the land to look clean and organized with labels and signs everywhere to let me where am i going	

حالة المحاصيل الاسبوعيه

Anonymous

3d ago

توفير ادوات الزراعية

Anonymous

3d ago

خدمة التنظيف وخدمة المراقبة وخدمة التنظيم

Anonymous

3d ago

تصوير الحالة اليوميه للارض المتنوع في المحاصيل

Anonymous

3d ago

الانتاجية والدقة بالعمل والحداية بالمحاصيل

Anonymous

3d ago

بيع المحصول-المعرفة عند نضج المحاصيل الزراعيه-شقية المحاصيل تلقائياً-عرض مباشر للمزارع

Anonymous

3d ago

الحصول على إقتراحات عن أفضل النباتات لأرضي

Anonymous

3d ago

جودة المنتج والآلات المستعملة للزراعة وتكلفة الآلات والمعدات التي نحتاجها في زراعه المنتج والاهم مواعيد مواسم كل نوع من الفاكهة او الخضار او اين يكن المنتج ، لكي اعرف متى يتم بيع المنتج للزبائن بأفضل جودة وافضل سعر

Anonymous

2d ago

تواصل مع خبير وعند البيع والشراء اظهار افضل العروض او لا

Anonymous

2d ago

تقرير يومي واسبوعي

Anonymous

2d ago

معلومات مستمره عن الاراضي الزراعيه واحتياجي

Anonymous

2d ago

معلومات عن النباتات والزراعة

Anonymous

2d ago

نصائح لأي نوع أزرع

Anonymous

2d ago

نوع المحصول ومتى يتم الحصاد. افضل وقت لزراعة محصول لنوع معين. الجو المناسب في منطقة الارض لاي محصول

Anonymous

2d ago

الإهتمام بنظافة ورعاية النباتات، حصد المحاصيل باستمرار، تجنب استخدام المبيدات

Anonymous

2d ago

الاهتمام والإشراف الكامل بالأرض ومحاصيلها - يقدم خطط استراتيجيه، حلول ، إقتراحات وأفكار إبداعيه لبيع المنتجات - يوضح نسبة استهلاك الماء وعدد المحاصيل وأنواعها المختلفة - ينظم البيانات