American International University-Bangladesh (AIUB)
Department of Computer Science
Faculty of Science & Technology (FST)

Chashi – Smart Farming

A Software Engineering Project Submitted
By

Semester: Summer_21_22		**Section: F**	**Group Number: 04**	
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Submitted To
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1. PROJECT PROPOSAL

1.1 Background to the Problem

The agricultural system has developed rapidly over this century. As Bangladesh is an agricultural country, the agriculture sector plays an important role in overall economic development in our country. The agricultural system in our country has also developed over the years but it is not a digitalized system as an effect our farmers are not getting smarts services for their problems in fields and growing the crops. Farmers are not getting help If they face any problems in their fields. They are unaware of the problems which they face during harvestings like plant diseases, soil erosion, and biodiversity loss, and they can't cope with climate change. When they face any financial issues, they are not getting loans easily. To solve these problems, we developed an artificial intelligence-based mobile application. This will help them harvest by a Morden approach and meet the rising demand for more food of higher quality.

1.2 Solution to the Problem

Our project is about to develop an artificial intelligence-based mobile application where farmers can get every possible solution smartly for better farming. From our mobile application, a farmer can know the basic crop information while farming after completing their registration. Our first key feature is the farming calculator. In this feature, by putting land area and crop information one farmer can easily get the proper idea of the fertilizer and insecticides for that specific crop. Our second key feature is scanning. By scanning a farmer can identify the crop diseases and get further help from our application to get rid of these diseases. There also developed smart voice assistance to help the farmer. A farmer can apply for a loan before starting cultivation they can repay after cultivation. They can also get any instrument if they need to use our software. In this app, a farmer can hire instruments for cultivation. Weather update services are also available in our application. Farmer can use these smart features easily using any language.

This problem is a real-life problem that is facing our farmers. These projects will significantly help growers and farmers in several ways as we mentioned. It includes precise forecasting, data-driven decision-making, taking the load, and more. It will improve productivity. Overall, this project will help in every way of a farmer, and it can solve problems. Also, it will help farmers to meet the rising demand for more food.

2. SYSTEM FEATURES

1. System Login

Functional Requirements:

1. The system will allow all existing users to login into their account with email/mobile number and password.
2. To complete the step user has to verify ‘his/herself is accessing as human, not a script or bot’.
3. If the username or password is incorrect then the system will show an error message “Invalid username or password” and ask to insert those again.
4. If the user forgets his/her account password, then he can request to reset his/her account password through email /phone number (used to create an account). And a temporary password will be sent to that email/ phone number for accessing/ resetting the password.
5. For 3 times the wrong login attempts the user account will be blocked for 15 minutes.
6. There is a ‘remember me’ option. By clicking this icon users mail/phone no and password will be saved in the system.
7. If the user's credential is correct, then the user will be redirected to his/her account dashboard.
8. There is a language switching feature for a user who want to switch language (Bangla/English).

Priority Level: High
Precondition: user has to be a valid user, and the username and password should be correct.

2. Register

Functional Requirements:

9. The software will allow every new user to create an account with his/her email/phone number, username, password, and NID.
10. The username will contain only letters and numbers. And password would be more than 6 characters long that contain capital and small letters, numbers, and special symbols.
11. There is a ‘I agree to the terms and condition’ option. User must need to fill this icon for completing their registration.
12. After providing all the valid information, user need to click the ‘sign in’ button to complete their registration.

Priority Level: High
Precondition: The user must have a valid email/phone number to fulfill the username and password.

3. Crops Information

Functional Requirements:

User: Farmers

1. Here is an 'Icon and Name' for each crop.
2. By clicking the icon, a user can know the useful information about crops, how to grow and what kind of diseases they may have.

User: Admin

1. Admin can edit, update and delete crops information.

Priority Level: High
Precondition: User have valid user name & password.

4. Calculator

Fields- Type of crops, Land size, Fertilizer/Insecticides, add cart, Confirm
Functional requirement: Database, Algorithms

User: Farmer

i. Crops name, land area, units, fertilizer and insecticides-based information are needed for this feature.
ii. If all the fields information is selected, this software will display the amount of fertilizer or insecticide are required automatically.
iii. If any the above fields are unfilled, there will be a pop-up message regarding that 'Please Fill the Information'.
iv. If all the fields are filled, then pressing 'confirm button' will show the required fertilizer or insecticides.
v. There is a 'add cart' button for the user to add the required fertilizer or insecticide for payment.
vi. A 'Reset' button is placed here to reset the information's.

User: Admin

i. Admin will take care the database.

Priority Level: High
Precondition: User have valid land size information

5. Shop

Fields- Search, Filter, Add to Cart, Measurement
Functional requirement: Device, database.

User: Farmer

I. Here is a search option. User fill this to find the requirement.
II. Here is also a filter option for the user to find the requirement easily.
III. Here are four options- seeds, fertilizer, insecticides for the uses.
IV. After selecting any option, there is a measurement option where a user can increase or decrease the quantity of the product.
V. Here also a add to cart option.
VI. If the item is not available, a sorry pop-up massage shows in the screen.

User: Admin

I. Here admin take the farmers order list and confirm the service.
ii. The database is also updated.

Priority Level: High
Precondition: User valid information

6. Loan

Fields- Select Loan, Apply for loan
Functional requirement: Device, Loaning Form

User: Farmer

I. Here is a 'Select Loan' option where a user can choose between four list.
II. After choosing, a user can apply for loan.
III. This software will provide the user a form for the application.
IV. If the bank agent approved the loan request, the user can take loan from this bank.

User: Admin

1. Here admin take care the service.
1. The database is also updated.

Priority Level: High
Precondition: User valid information

7. Loan Form

Fields- Loan information
Functional requirement: Device

User: Farmer

I. Users need to fill ‘Name, Date of Birth, Address, Phone, Email, NID, Loan Category ‘fields with valid data.
II. There is a ‘I agree to the terms and condition’ option. User must need to fill this icon for completing this process.
III. A ‘Submit’ button is also placed here to fulfill this process.

User: Admin

2. Here admin take care the service.
1. The database is also updated.

Priority Level: High
Precondition: User valid information

8. Scan

Functional requirement: Device camera, Database.

User: Farmer

I. This software needs to permission to allow the device camera.
II. Then a user can take picture by clicking ‘Scan’ button.
III. Then this software shows the problem and gives the solution in details from the database.
IV. If the software does not find it from database, it shows a sorry massage. But this picture saves for solution in diseases database record for solution.

User: Admin

- Admin take care the database.

Priority Level: High
Precondition: User valid information.

9. Instrument

Functional requirement: Device, database.

User: Farmer

1. Here is a search option. User fill this and find the needed.
1. Then the software shows its related post and price from instrument database.
1. Here also a add to cart option. Then user get this service within three days.

1. If the user is not available, a sorry massage shows in the screen.

User: Admin

1. Here admin take the farmers order and confirm the service.
1. The database also updates for farmers.

Priority Level: Medium
Precondition: User valid information

10. Weather

Functional requirement: Internet service.

User: Farmer, Admin.

- This software needs internet connection to display 'Location, Time, Date and Daily Forecast'.

Priority Level: High
Precondition: User valid information

11. Helpline

Functional requirement: Device

User: Farmer

- When users click on helpline for disease and treatment, users have to give some of questions which will be related to diseases.
- After analyzing all the answer, software will give some advice or treatment among the problem.
- There can be a communication gap between software and users, that's why there will be a help center or number so that users can contract directly.
- Here is a hotline number and message box for the users.

User: Admin

- Admin take care the service.

Priority Level: High
Precondition: User valid information

12. Manu bar

User: Farmer, Admin

Functional requirement: Device, Database

1. There will be some information of this software and app into the about section.
2. In history, all the buying information will be stored.
3. When users try to buy from the shop, there will be an ‘Add to Cart’ option. By click on that button all the selected thing will be store into the cart with total amount of price & quantity.
4. There will also a complain button, which appears users a message box, so that users can white down the issues and problem about the software.

Priority Level: High
Precondition: User valid information

13. Settings

User: Farmer, Admin

Functional requirement: Device, Phone Number

- Users can change information like name, address, phone number etc.
- For changing password, there a pre-requisite that ‘User have to give the recent password’, then they can able to give new password.
- By any chance, user forgot the password, there will be a system of OTP (one time password) which will gone into user’s phone number. By that, users can change their password.

Priority Level: High
Precondition: User valid information

14. My Farm

User: Farmer, Admin

Functional requirement: Device

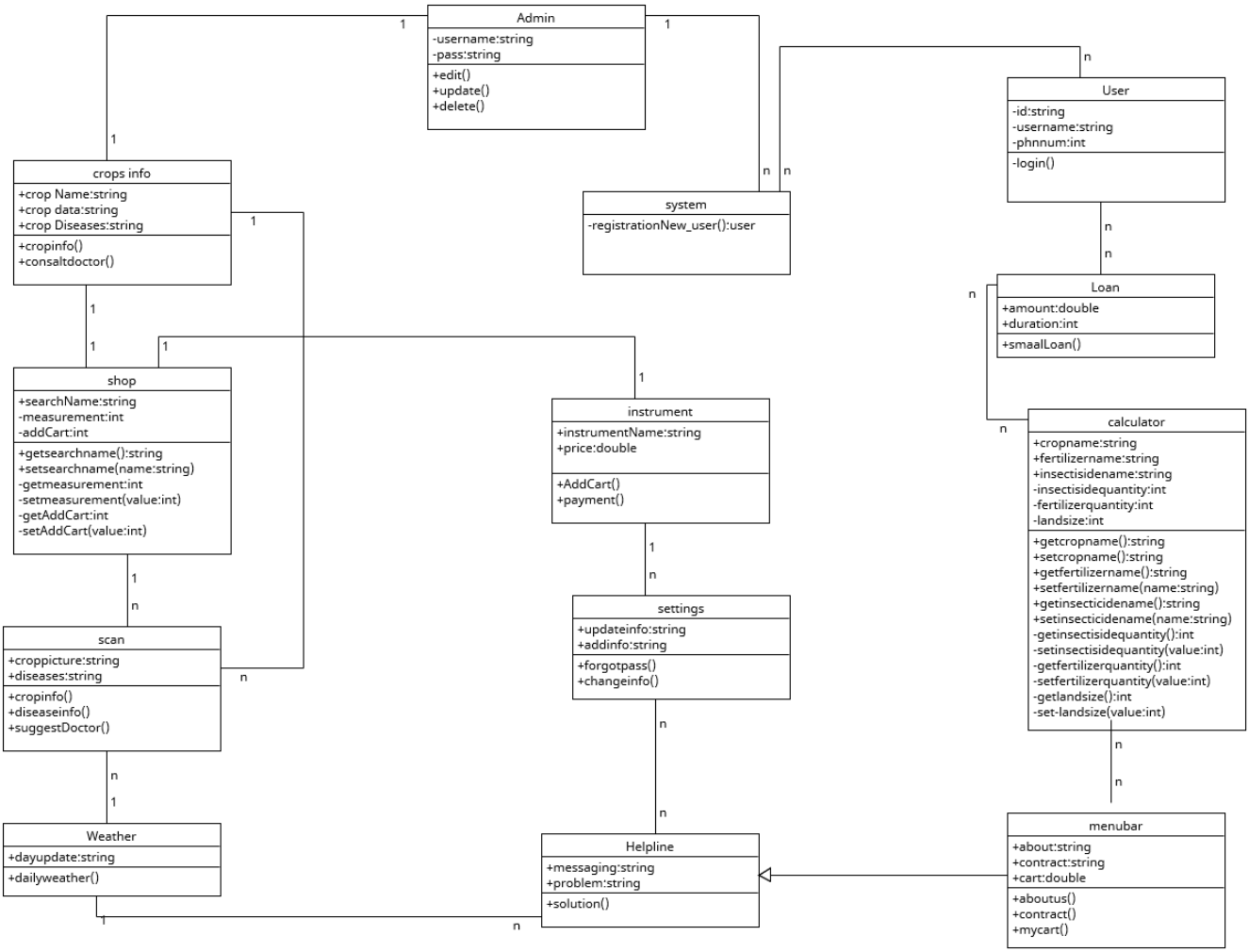
- Users can access three option like- My Cart, My Profile, Loan Details.
- In the ‘My Cart’ field there is a description box.
- User can also find his Profile and Loan Details in this feature.

Priority Level: Medium
Precondition: Need to log in.

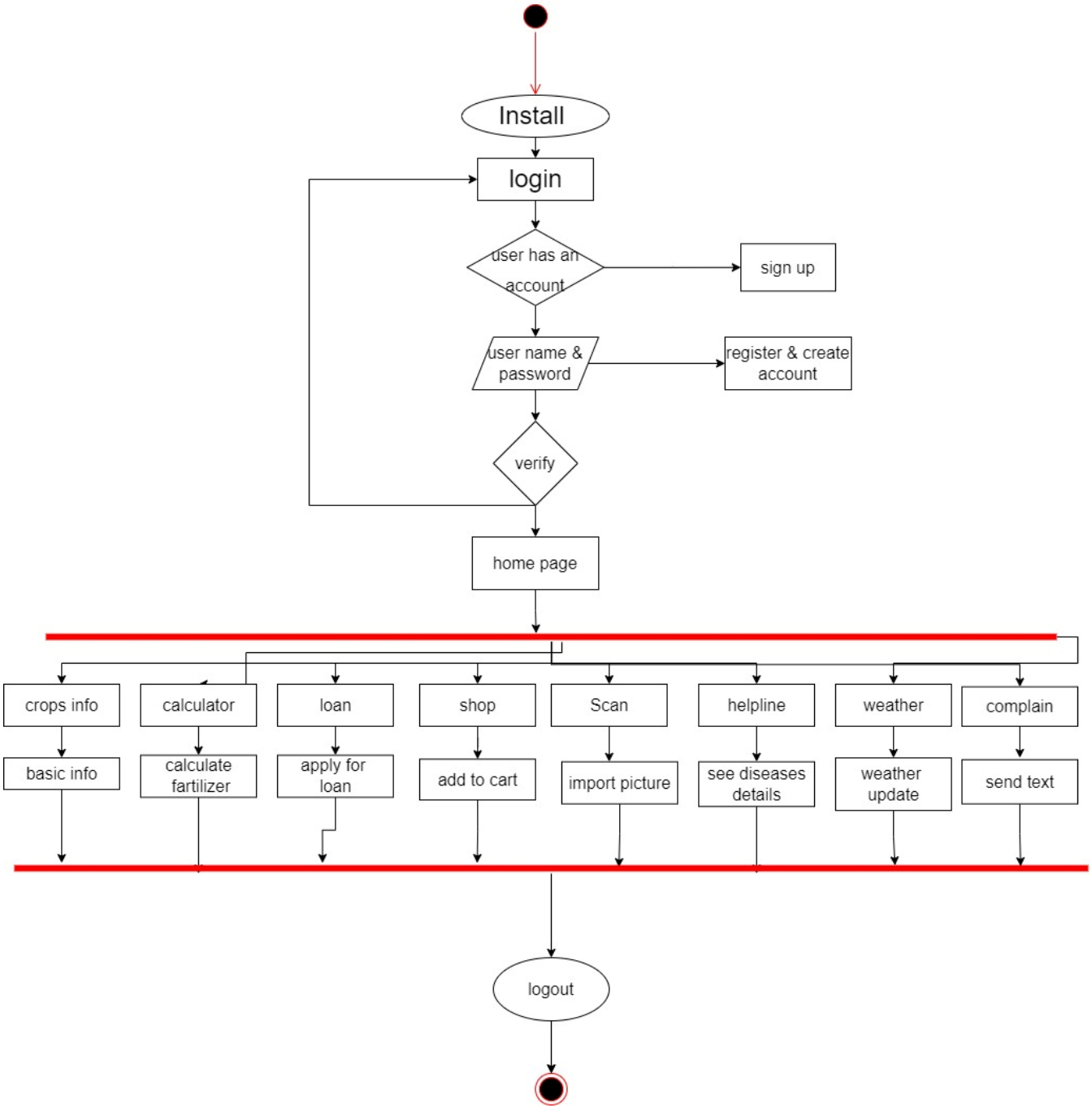
3. SYSTEM DESIGN SPECIFICATION

USE CASE DIAGRAM:

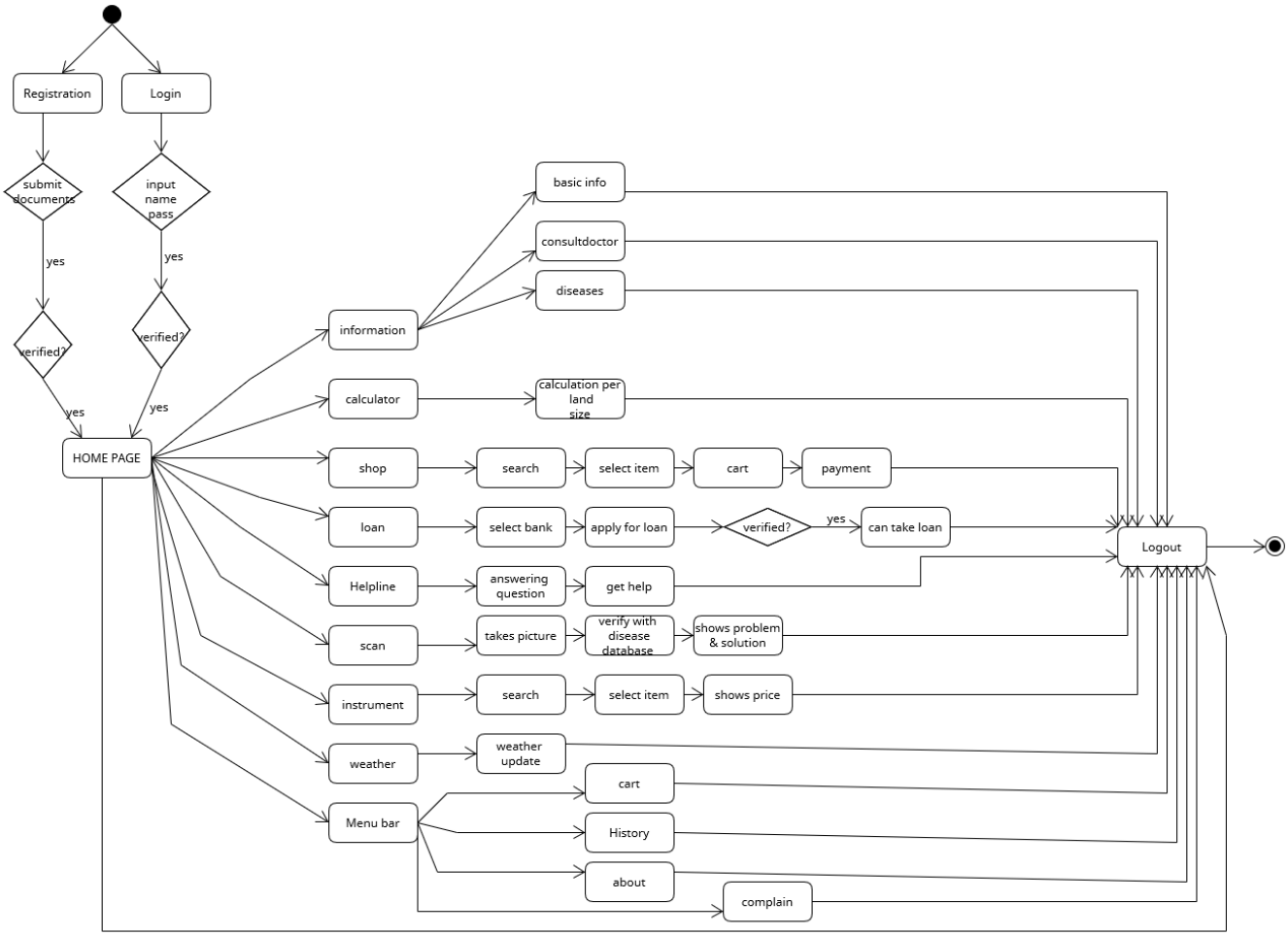
CLASS DIAGRAM:



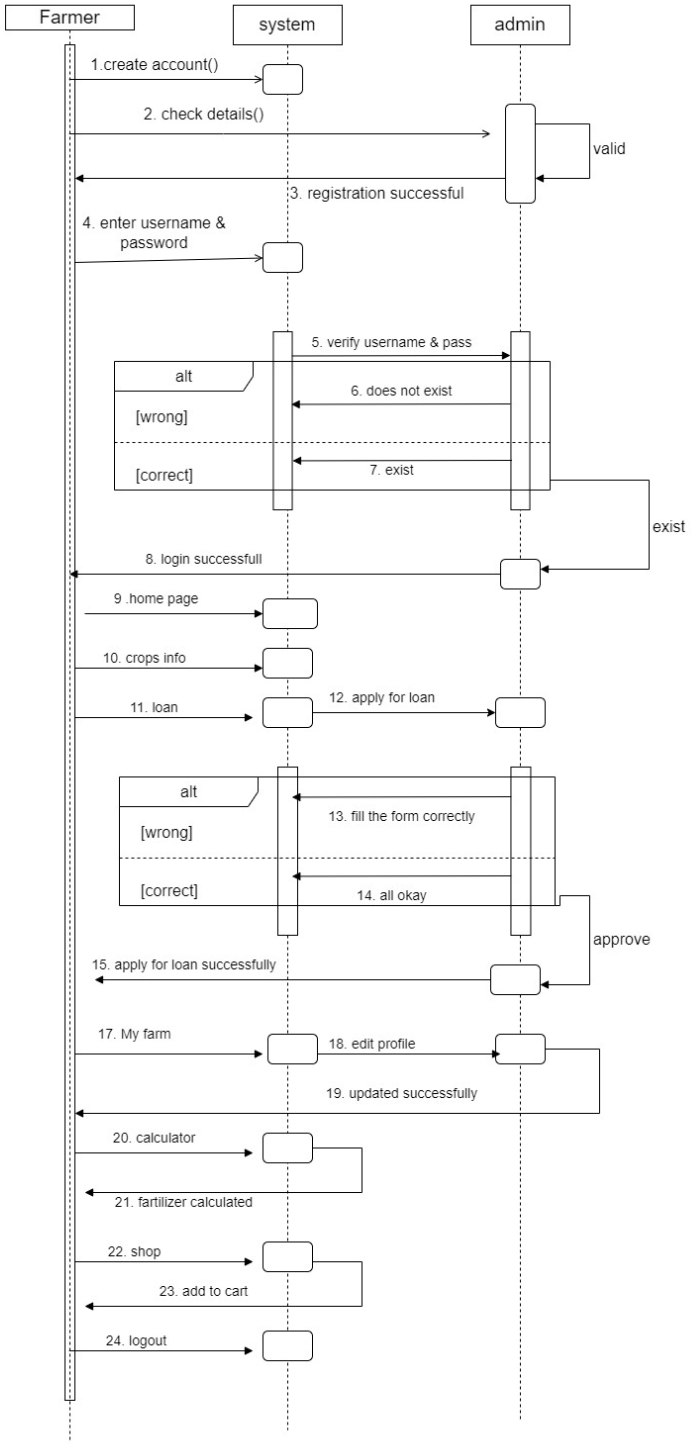
ACTIVITY DIAGRAM:



STATE DIAGRAM:



SEQUENCE DIAGRAM:



4. SOFTWARE DEVELOPMENT LIFE CYCLE

I. Selection of Process Model

i. Provide analysis regarding the nature and environment of the software that you are going to develop and select the best suitable method(s) to develop the software.

ii. Present your arguments based on your analysis of why your selected method(s) is the best choice among all other methods to develop your proposed software.

iii. Presents a sufficient amount of evidence to support the argument for your model selection in developing your proposed solution.

DESCRIPTION:

i. Our project environment is adaptive. Because we need to change all the features and requirements at any moment. Both features and requirements can be changed at any time if the customer wants. There is also a possibility to add more features in the future or delete some features. That is why for our project Scrum Method is the best method. In our project, we are going to use the Scrum Method based on agile which is an adaptive model. As our project's environment is adaptive, using a linear sequential method is irrelevant for our project. Linear sequential models are used to develop predictive environment-based projects. Where all things are already clearly defined, stable projects, safety-critical products, etc. But our project environment is almost the opposite, that is why for our project Linear sequential models are not suitable. This is one of the main reasons for choosing the Scrum Method. Our project might need sudden changes, sudden feature addition, or any type of change in plan as throughout the project life cycle we must take feedback from the client. This leads to change in planning, as a result having a small iteration is a major plus point because in every iteration we can find out and solve the problems at a very beginning level. Which is a hundred times better than finding a problem after release or at the last moment before release. Small iterations also help to add the changes in the next iteration and make the change. Daily meetings make the work more productive.

ii. We have selected the Scrum process for the development of our proposed software. We have selected this model as other models like XP always need on-site customers.

Also, XP does not offer practices to define the architectural design of the software. Instead, this design emerges in response to changing requirements and refactoring, using the system metaphor as a guide. This approach would produce working software early, but it might involve more rework than if some efforts were spent to plan the architecture. But our proposed software has a defined Architecture design. Then in DSDM model requires significant user involvement. Requires a skilled development team in both the business and technical areas and needs full commitment to the DSDM process. The FDD model, this model is not ideal for smaller projects and does not work for projects where there is only one developer because it is hard for one or very few people to take on the various roles without help. FDD model Emphasizes individual code ownership instead of shared team ownership. And this model needs a large team for developing software. Therefore, we have selected Scrum for this proposed software. As Scrum is an Agile Methodology consisting of lightweight management practices that have relatively little overhead. And Scrum uses both iterative and incremental approaches. If our proposed software is a small and low budget, Scrum can help teams complete project deliverables quickly and efficiently, it ensures effective use of time and money. The team gets clear visibility through scrum meetings and the individual effort of each team member is visible during daily scrum meetings. Scrum can help teams complete project deliverables quickly and efficiently. Therefore, Scrum this the best choice among all methods for developing this software.

iii. We have chosen the Scrum process model which is one kind of Agile model to implement our project. As it is known, a Scrum Master plays an important role in this process. Scrum Master interacts with the project team as well as with the customer and the management during the project. Now it is about the Scrum Team. The scrum team takes part in work estimating, the creation of the Sprint Backlog, the review of the Product Backlog list, and the suggestion of project bottlenecks that need to be removed. Then comes the Products Owner who is officially responsible for the project, managing, controlling, and main visible the product backlog list. Our next two roles for this agile method are Customer (Here Farmer) and Management (Here Admin). Customers only participate in the task related to product backlog for system development. On the other hand, management is also participating in the setting of goals and requirements.

II. Project Role Identification and Responsibilities

- **Scrum Master:**

  First, we have scrum masters in this process. Scrum Master interacts with the project team as well as the customer and the management during the project. Finding strategies to manage the backlog is one of the Scrum Master's obligations

to the Product Owner. Assisting the scrum team in comprehending the importance of a clear and concise backlog. Ascertaining that the product owner understands how to prioritize the backlog to meet deadlines. The highest possible value Facilitating scrum events is also a part of the job.

- **Scrum Team:**
  Now it is about the scrum team. These development teams are small in numbers; they are larger than three and lower than 9. So, our scrum master has fixed 7 members for the scrum team. We have no sub-teams here. For example, the scrum team is involved in work estimating, the creation of the Sprint Backlog, the review of the Product Backlog list, and the suggestion of project bottlenecks that need to be removed.

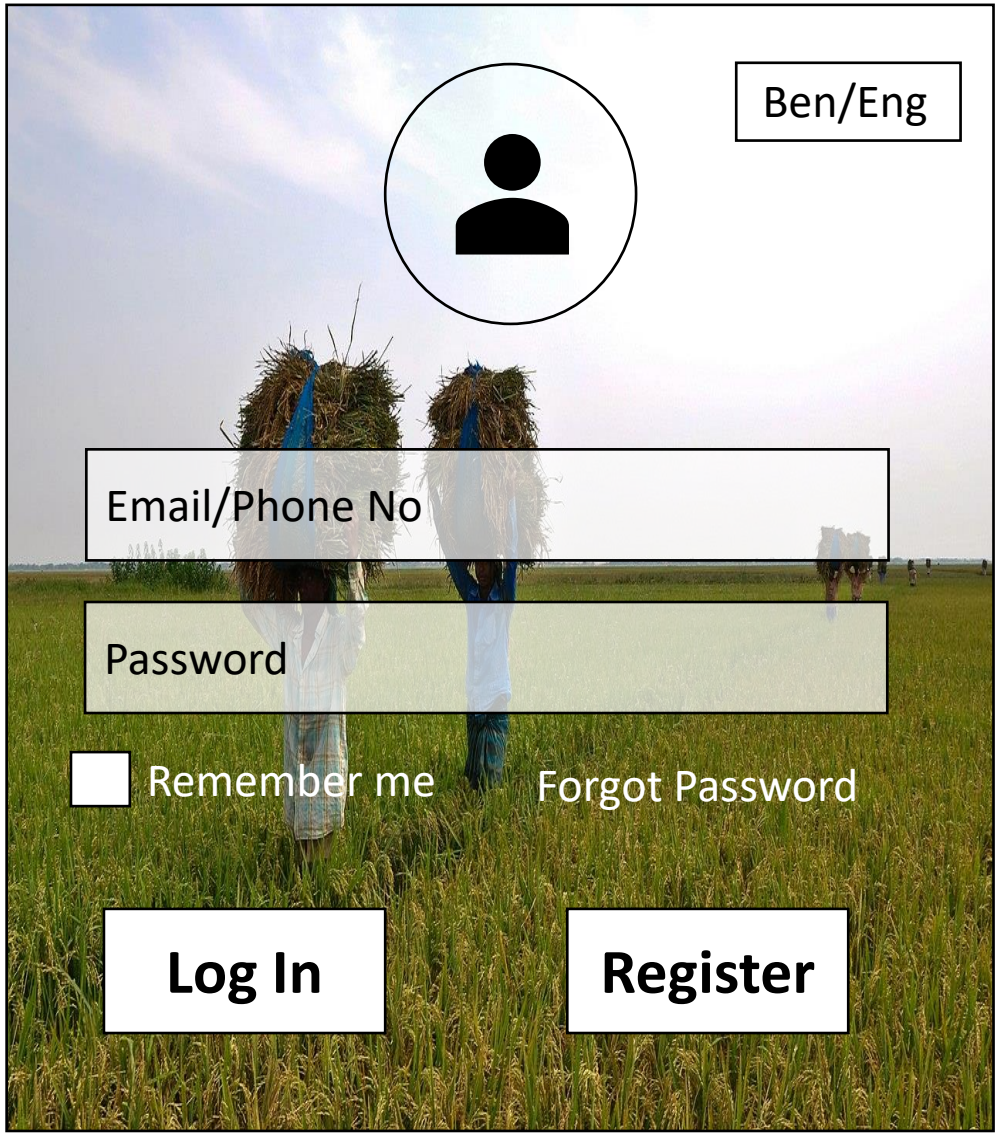
- **Product Owner:**
  The responsibility of the product owner is to do all things to visible product backlogs. Our product owner has selected the scrum master, Customer, and management, and only he has the power to make changes to the requirements and product backlogs.

- **Customer (Here Farmer):**
  Our customers will participate in tasks that are related to product backlog items and which will help our system to be enhanced or developed.

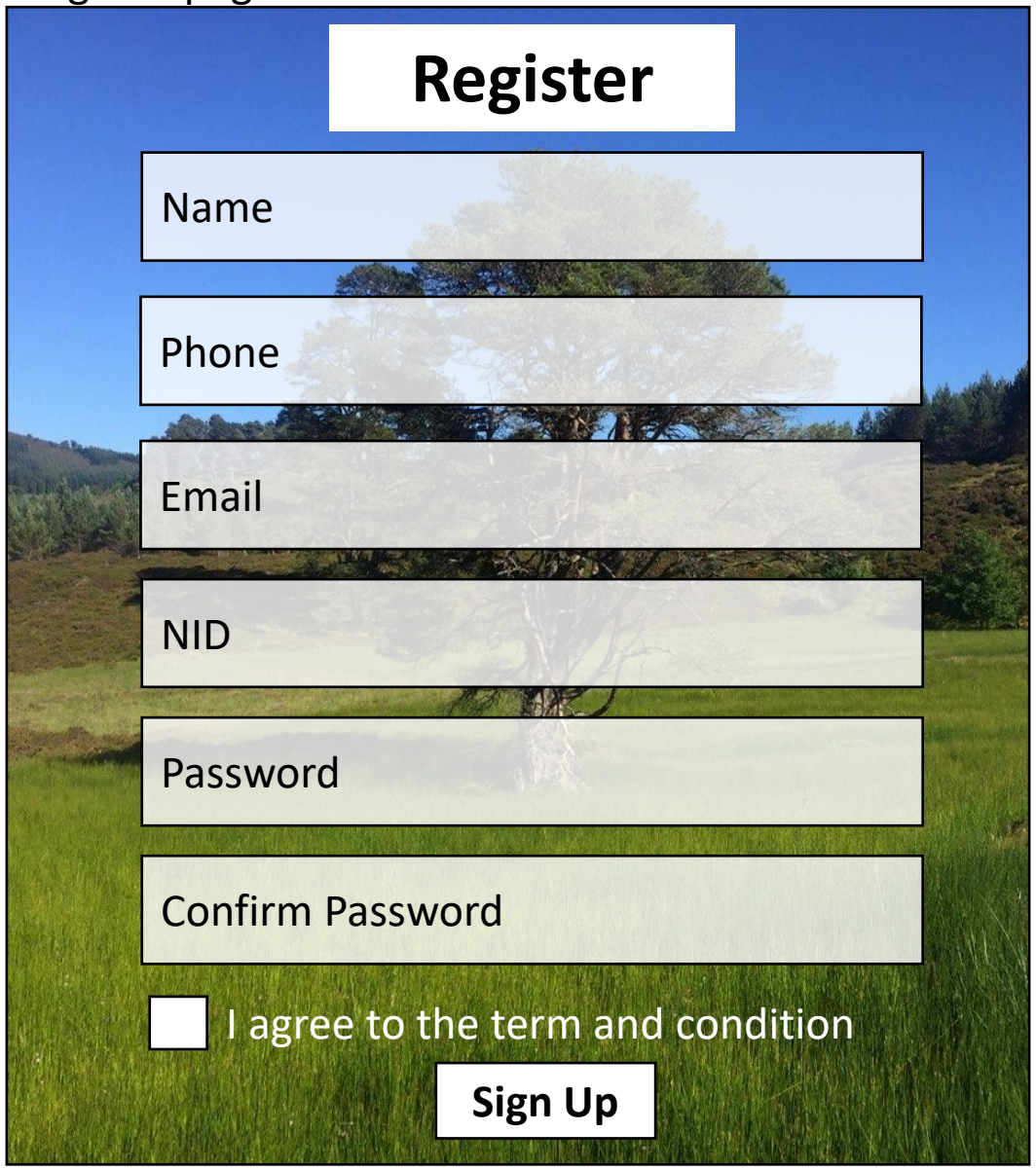
- **Management (Here Admin):**
  In the end, we will discuss management responsibilities which are bound between final decision making, along with the arguments, standers, and conventions to be followed in the projects. This role also takes part in setting goals and requirements. These are the roles in the project management activities for our software development.

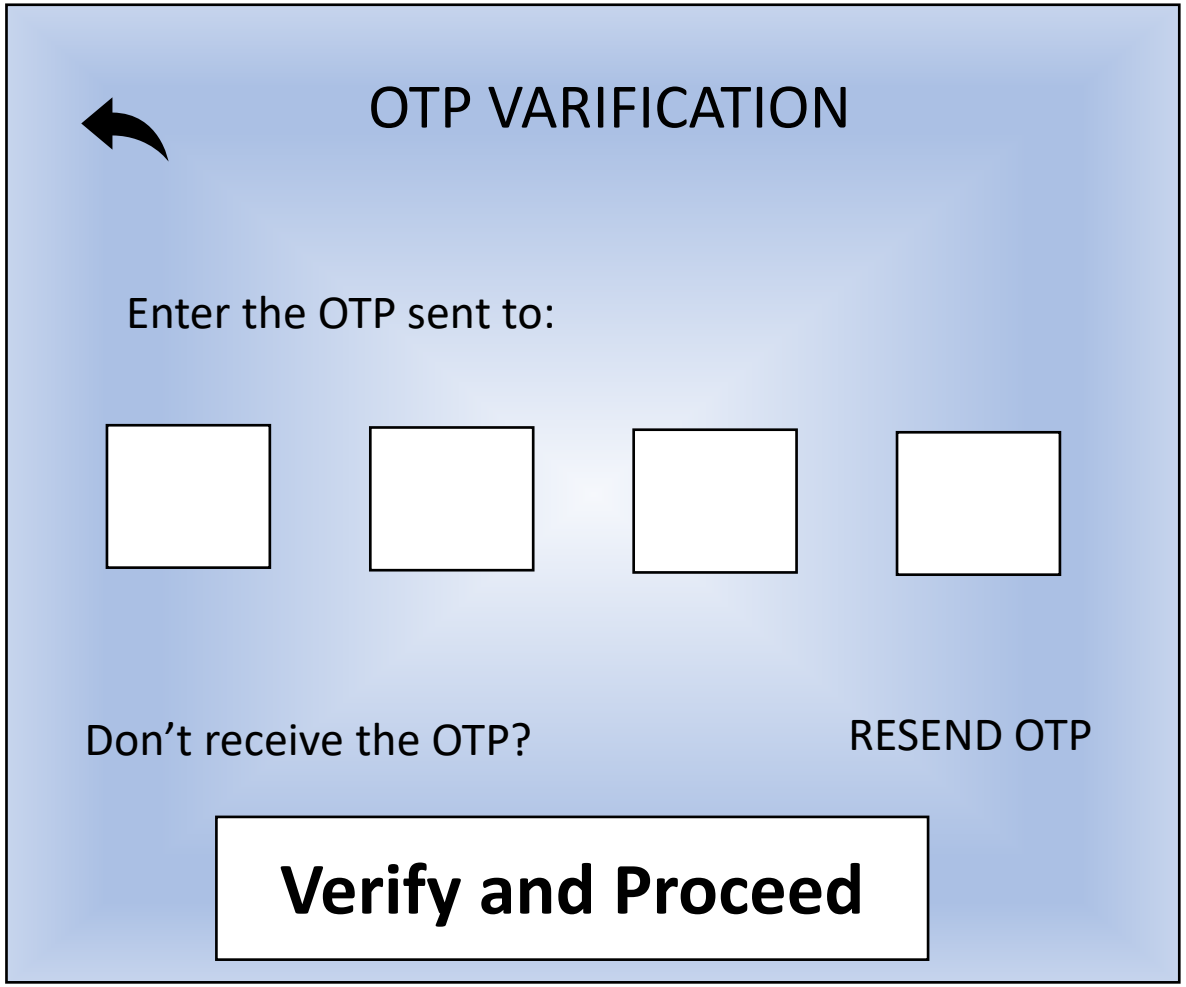
5. Prototype

Login page

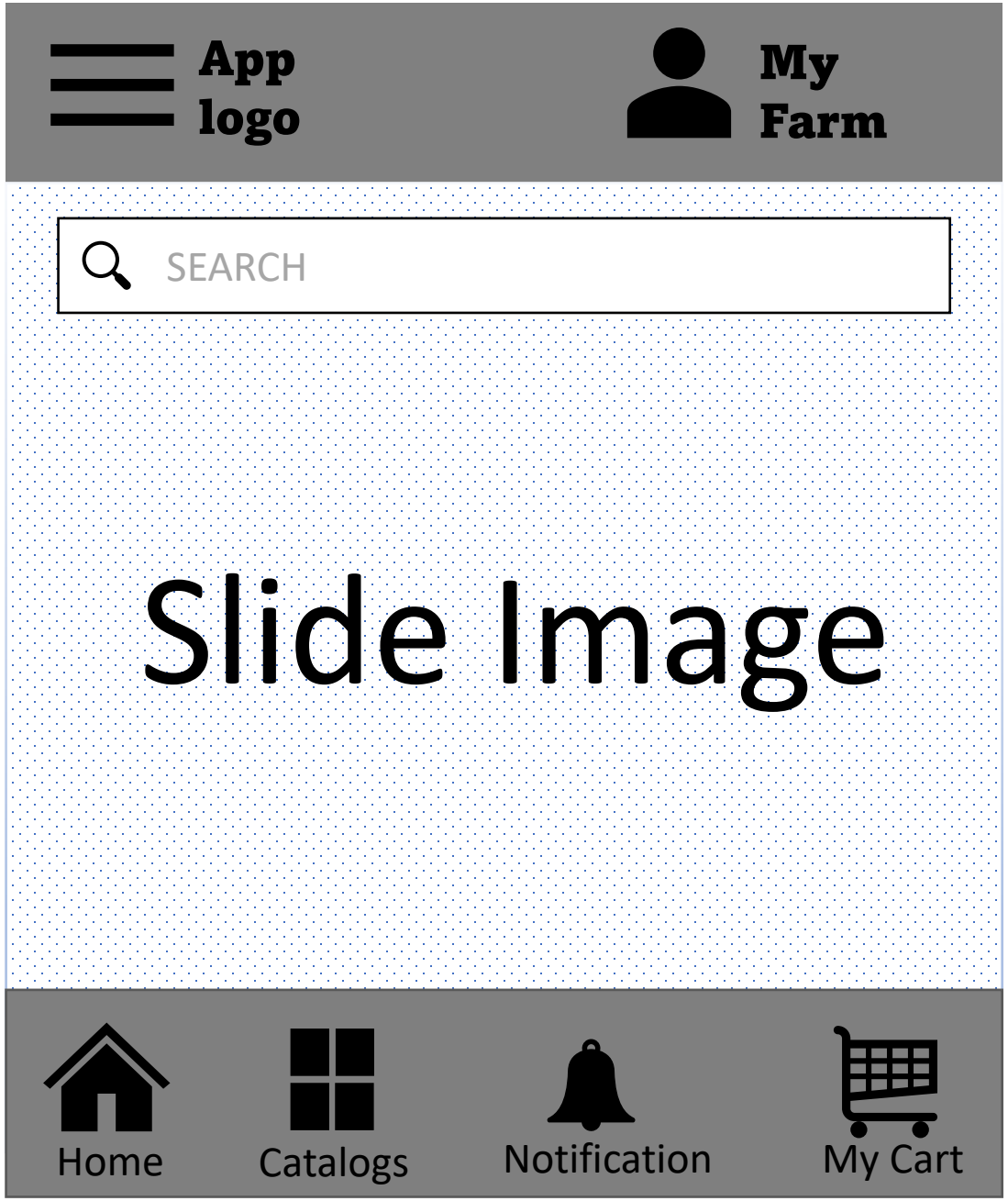


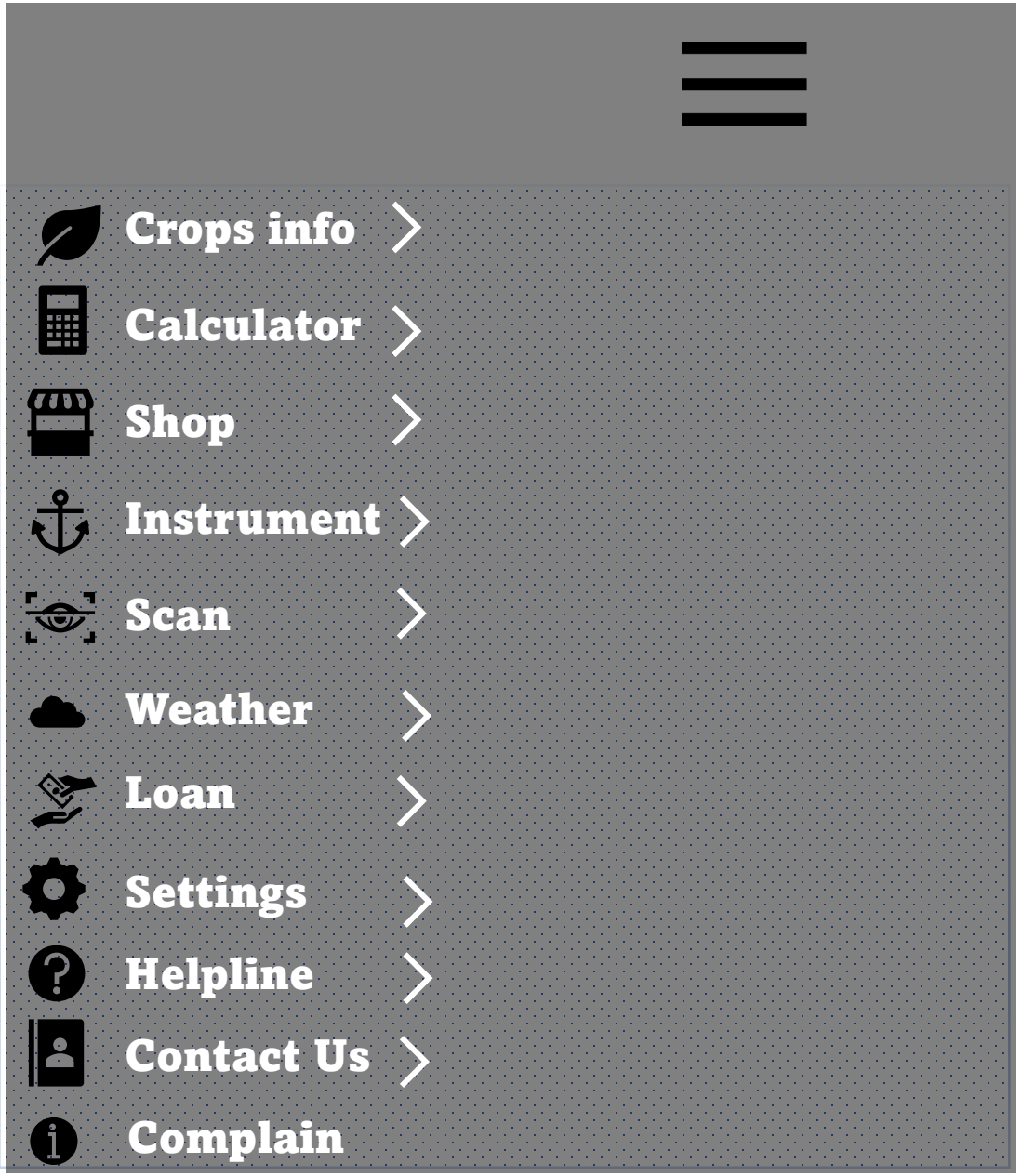
Register page




OTP VARIFICATION
Enter the OTP sent to:
Don’t receive the OTP?
RESEND OTP
Verify and Proceed

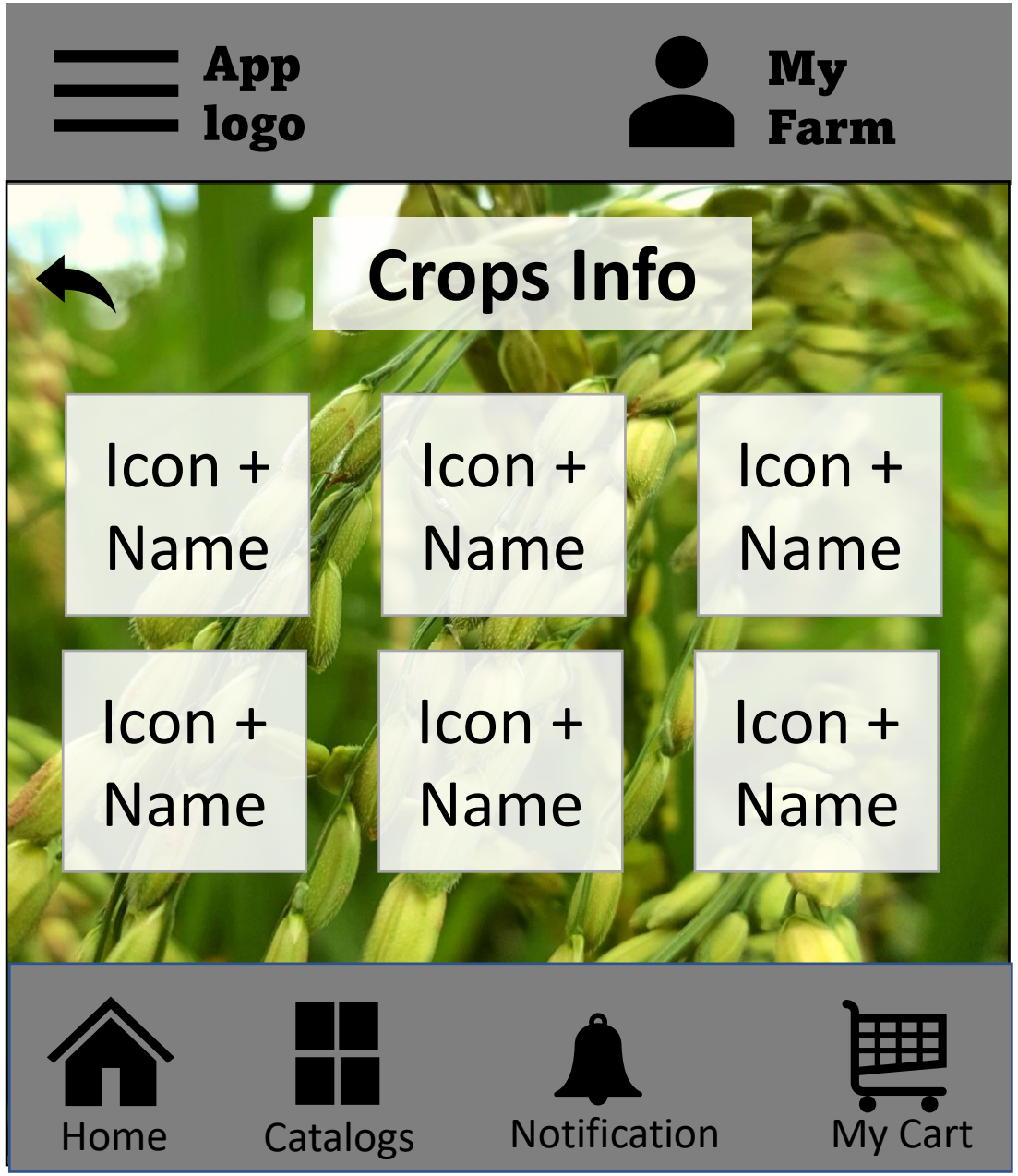
Home


App logo
My Farm
SEARCH
Slide Image
Home
Catalogs
Notification
My Cart


Crops info
Calculator
Shop
Instrument
Scan
Weather
Loan
Settings
Helpline
Contact Us
Complain

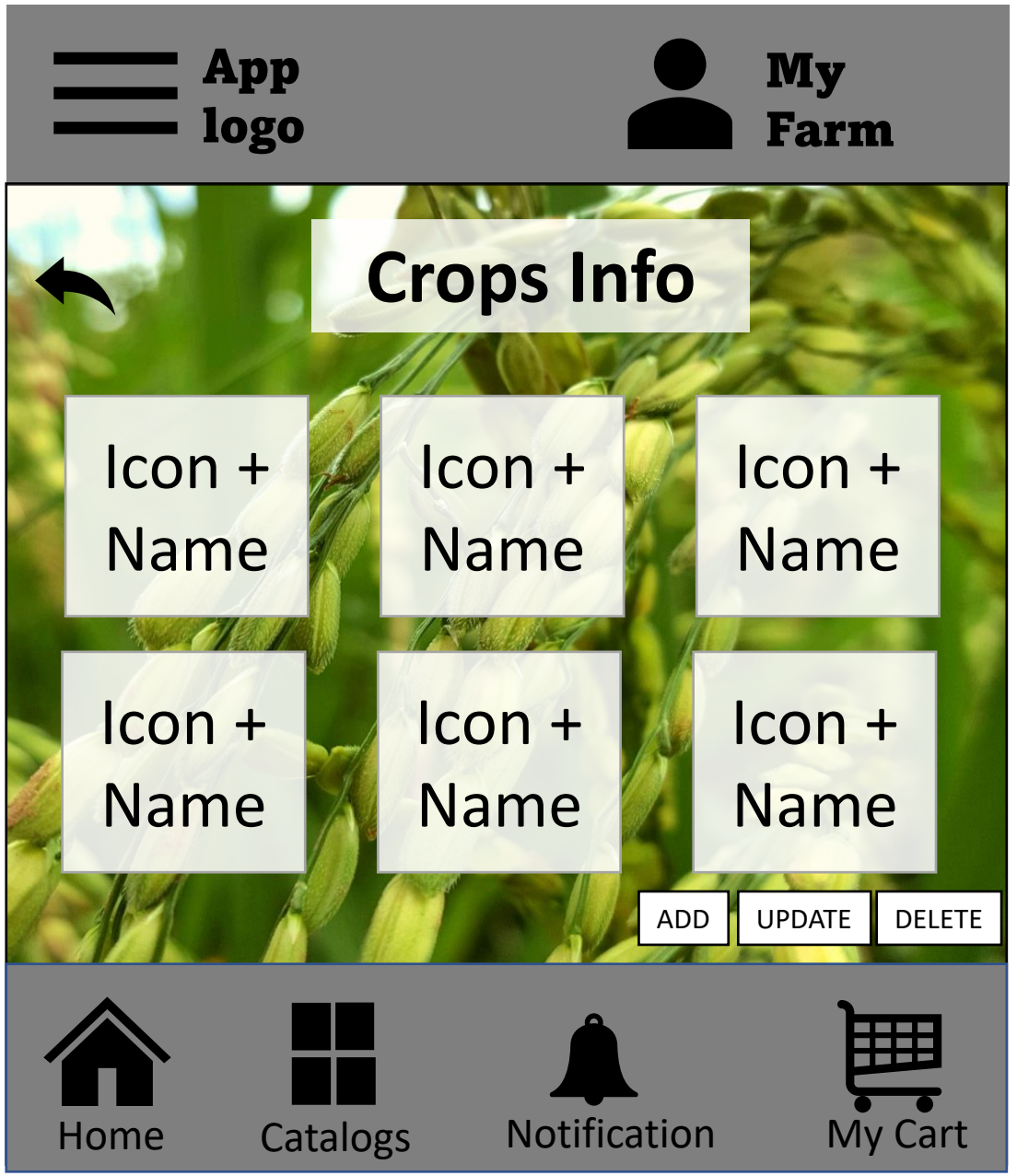
Home>Crops Info

Farmer



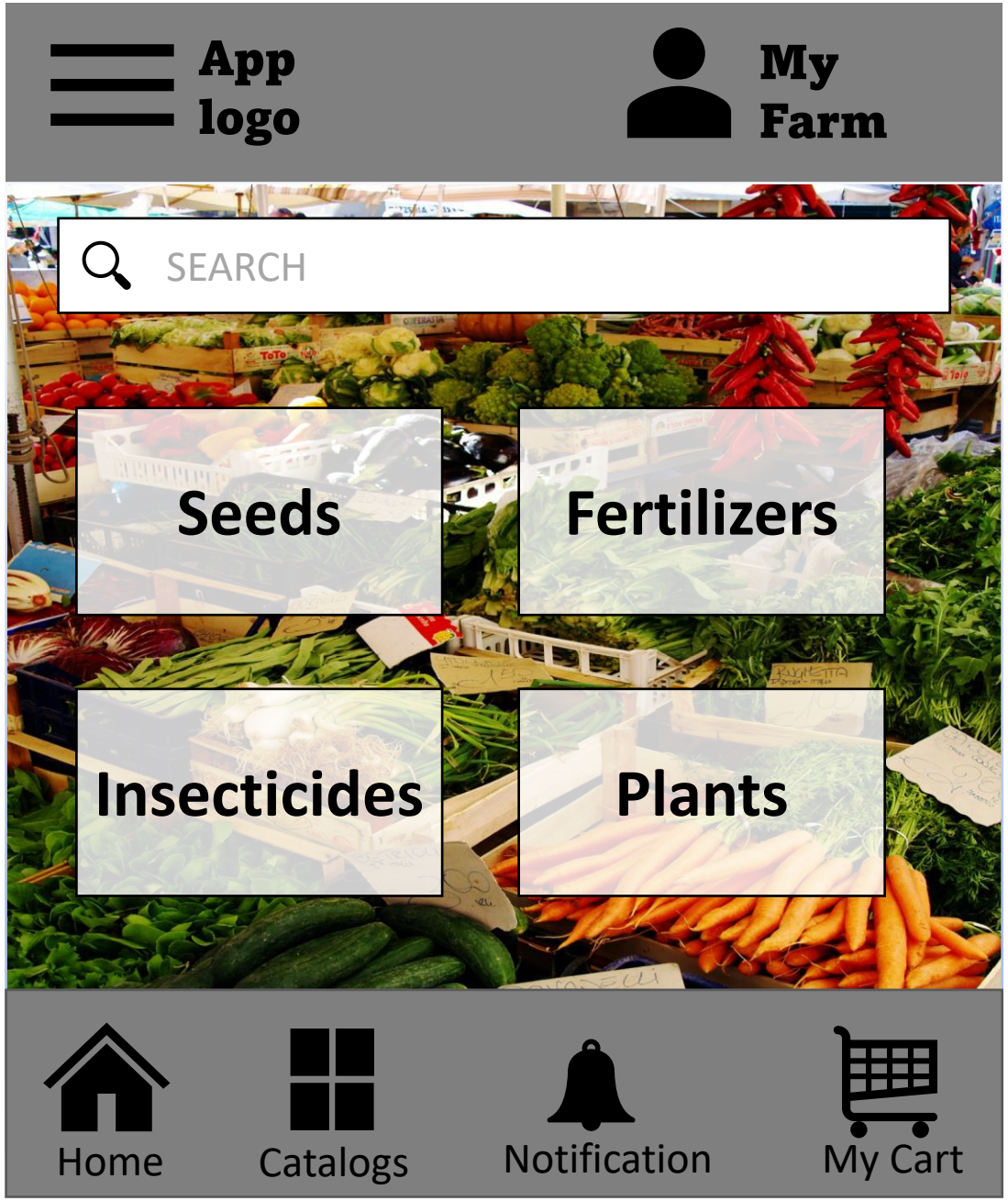
Home>Crops Info

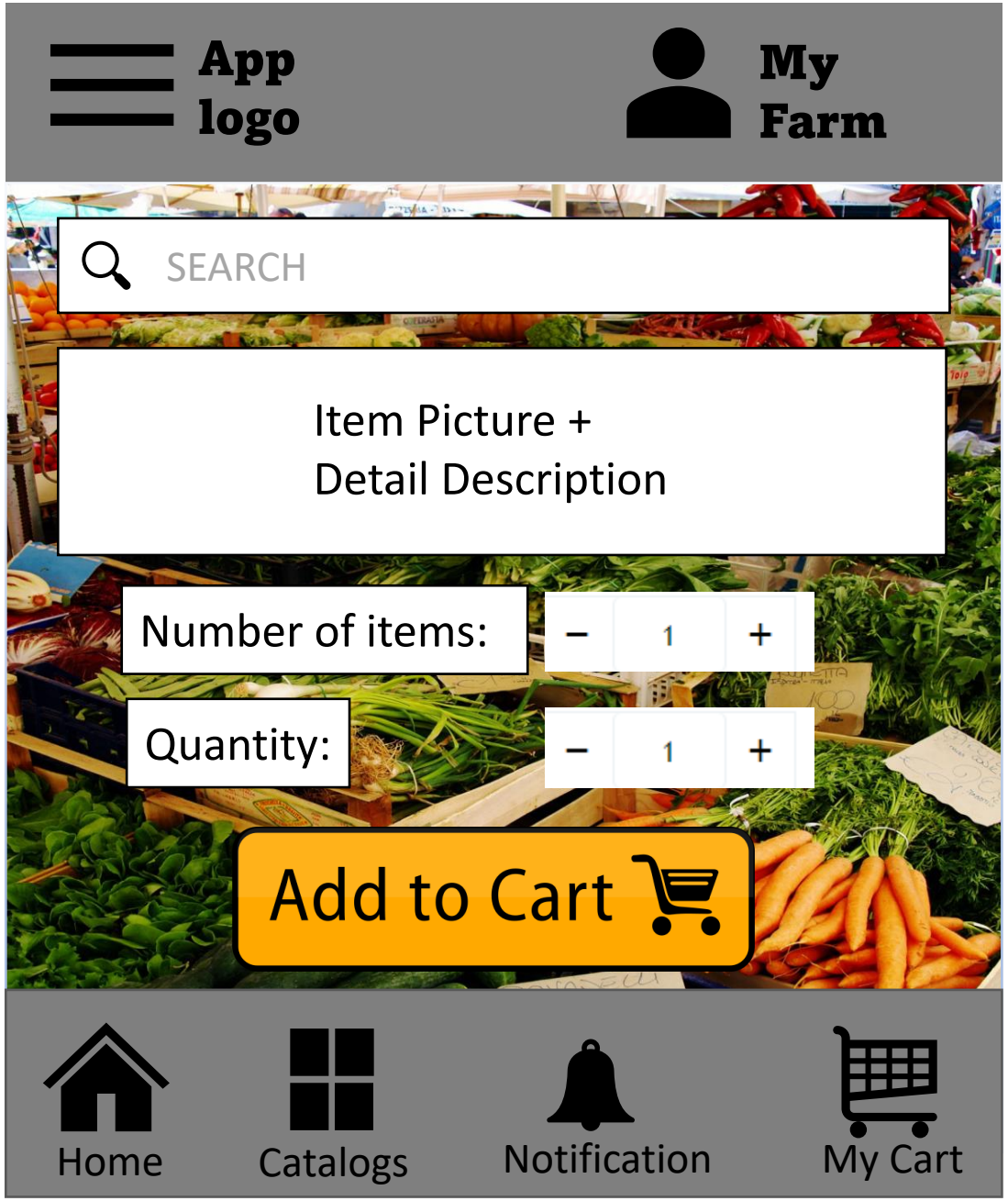
Admin



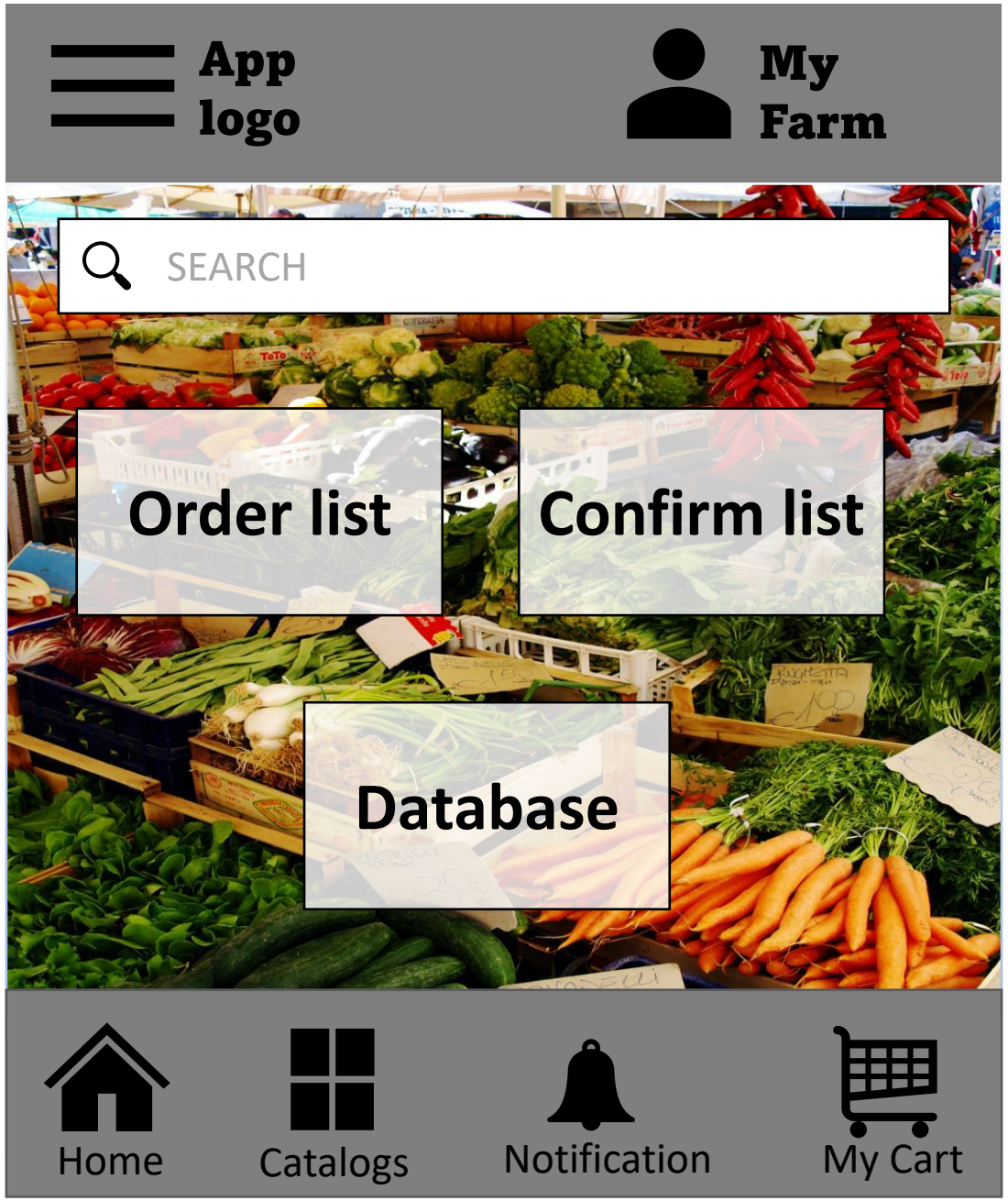
Home> Shop

Farmer



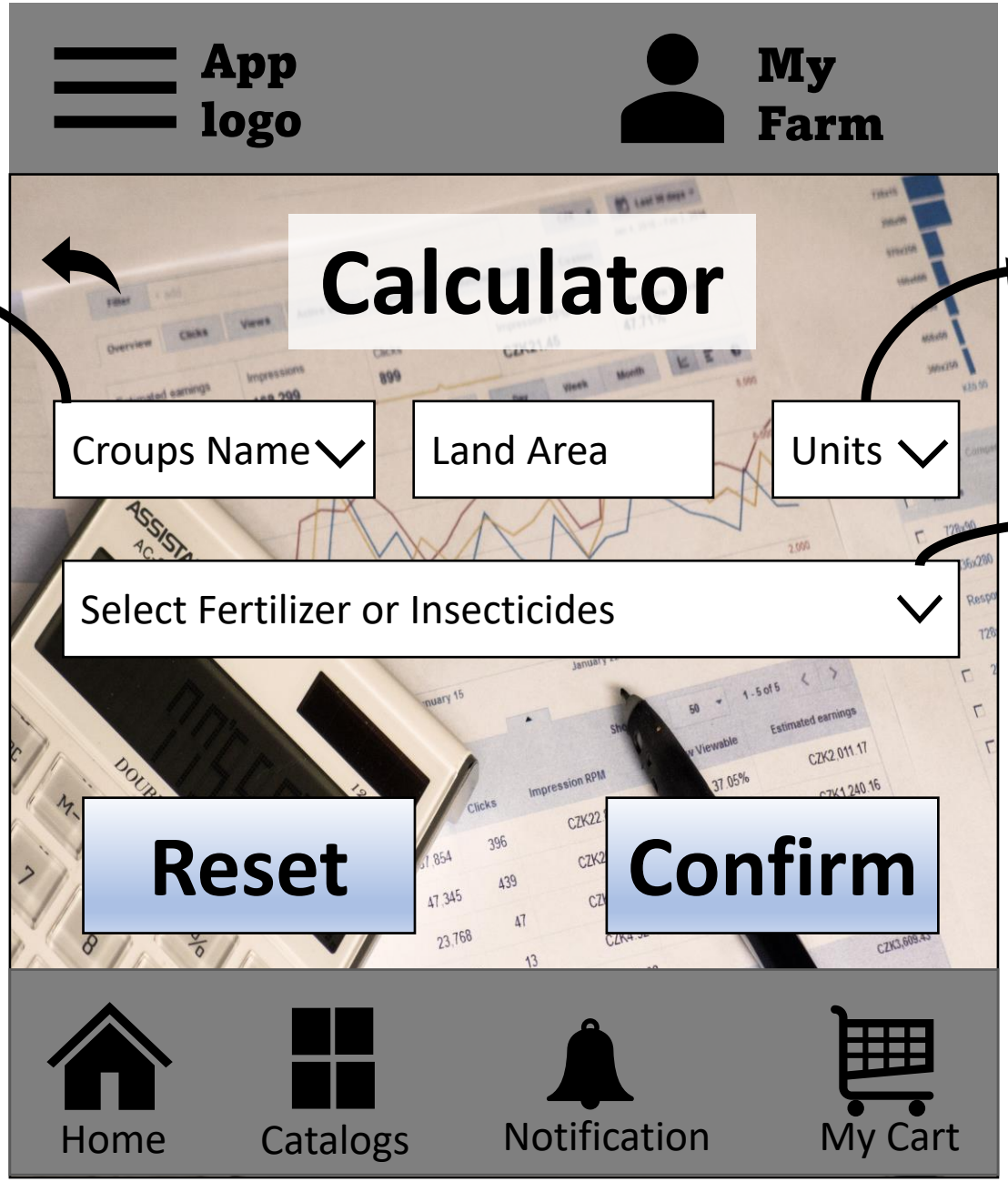


Admin


App logo
My Farm
SEARCH
Order list
Confirm list
Database
Home
Catalogs
Notification
My Cart

Home> Calculator

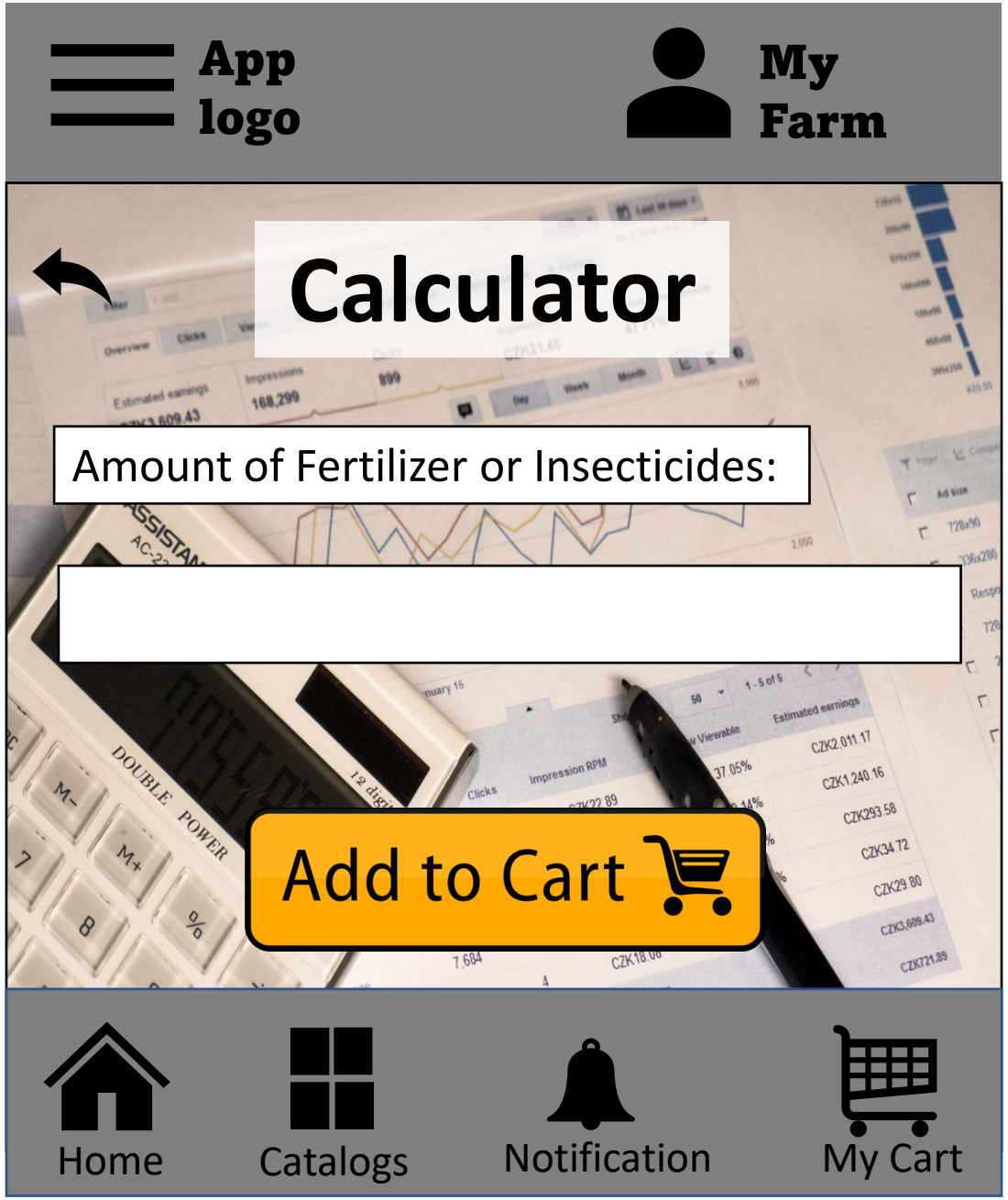
Farmer



Rice
Wheat
Sugar
Tomato
Cucumber
Corn
Cotton

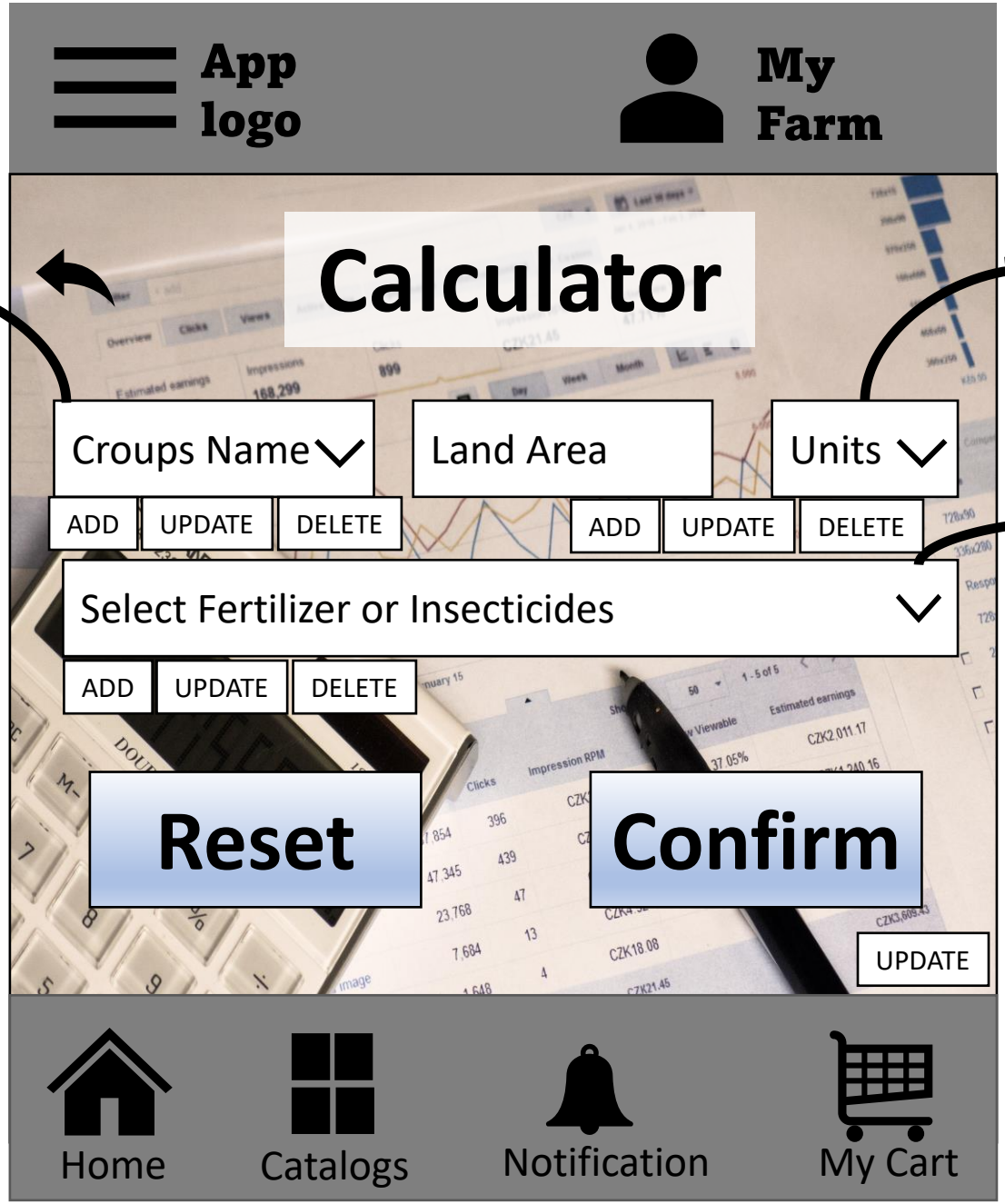
Sq ft
Sq Yard
Sq m
Acre
Hectare

Ammonium
Sulphate
Uria
TSP
DDT
Aldrin


App logo
My Farm
Calculator
Amount of Fertilizer or Insecticides:
Add to Cart
Home
Catalogs
Notification
My Cart

Home> Calculator

Admin

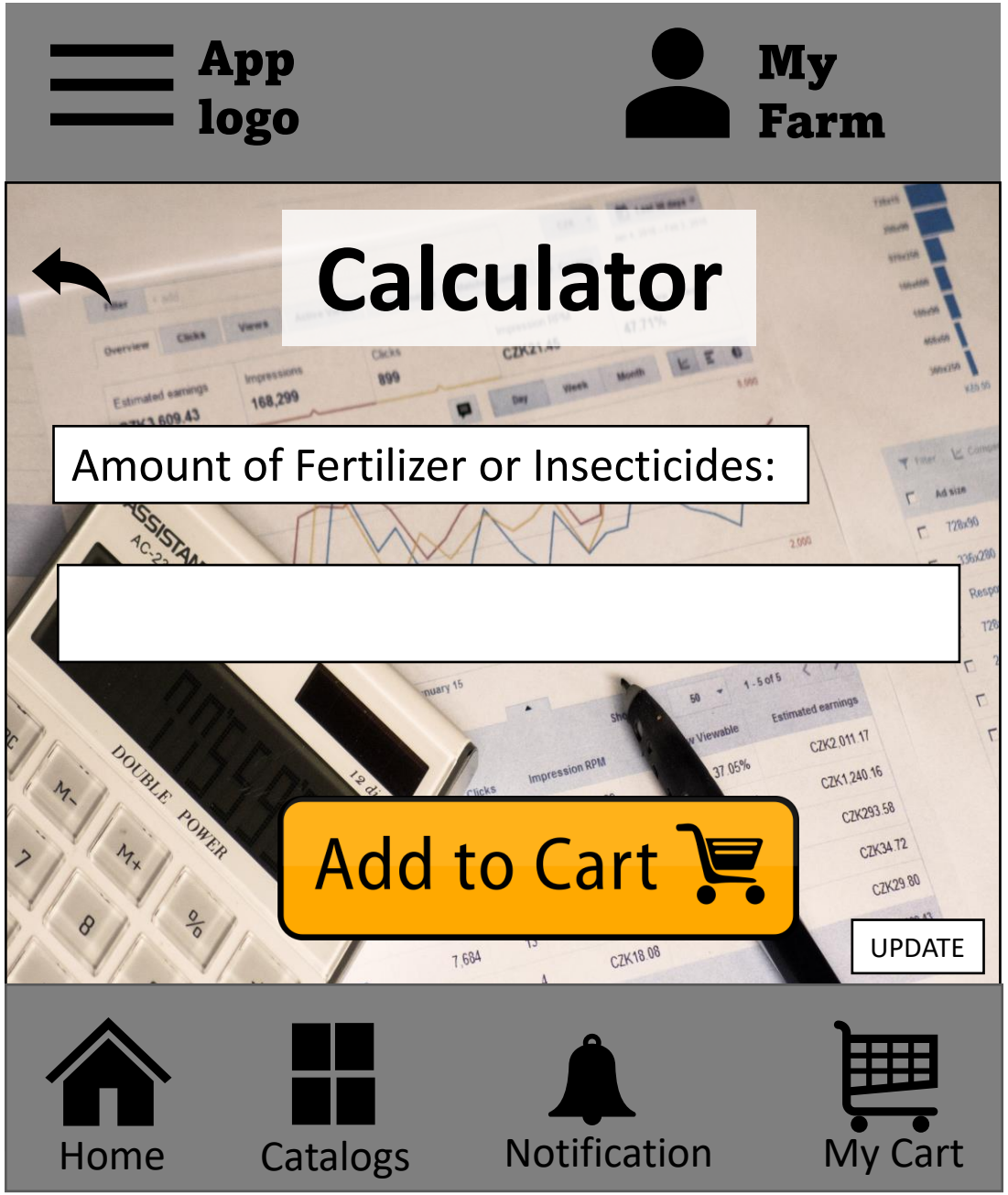


Rice
Wheat
Sugar
Tomato
Cucumber
Corn
Cotton

Sq ft
Sq Yard
Sq m
Acre
Hectare

Ammonium Sulphate
Uria
TSP
DDT
Aldrin

Admin

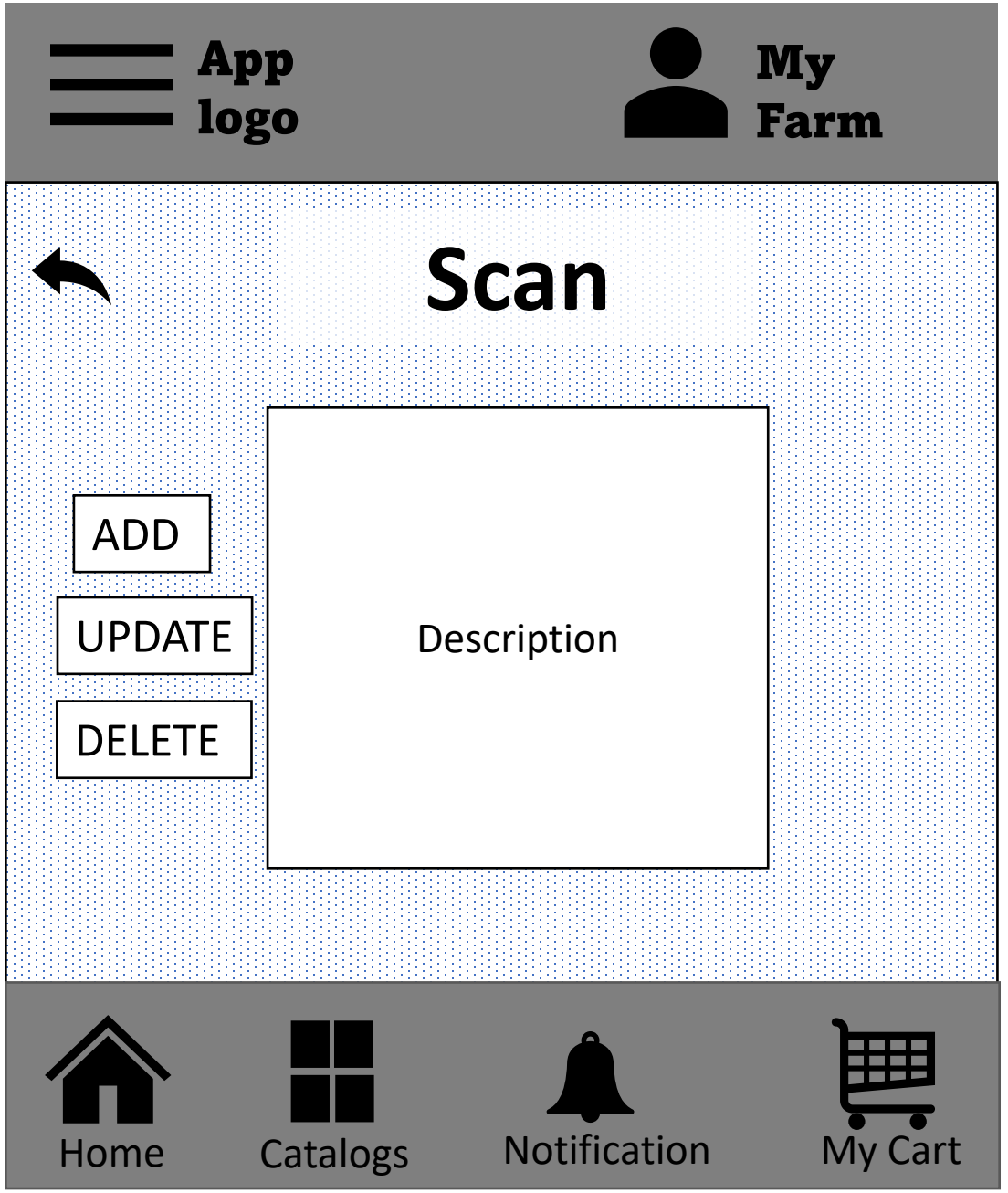

App logo
My Farm
Calculator
Amount of Fertilizer or Insecticides:
Add to Cart
UPDATE
Home
Catalogs
Notification
My Cart

Home> Scan

Farmer

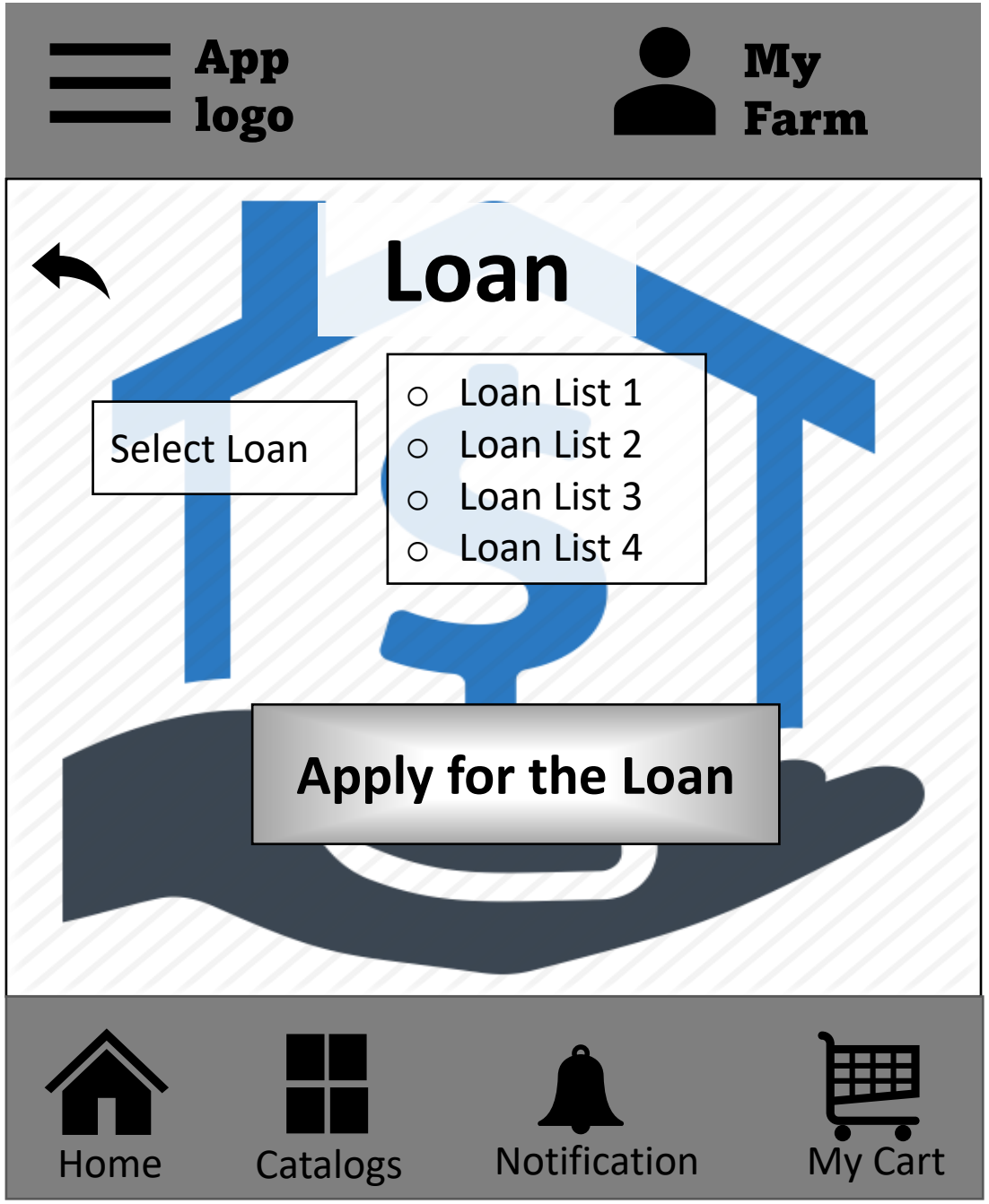
Home> Scan

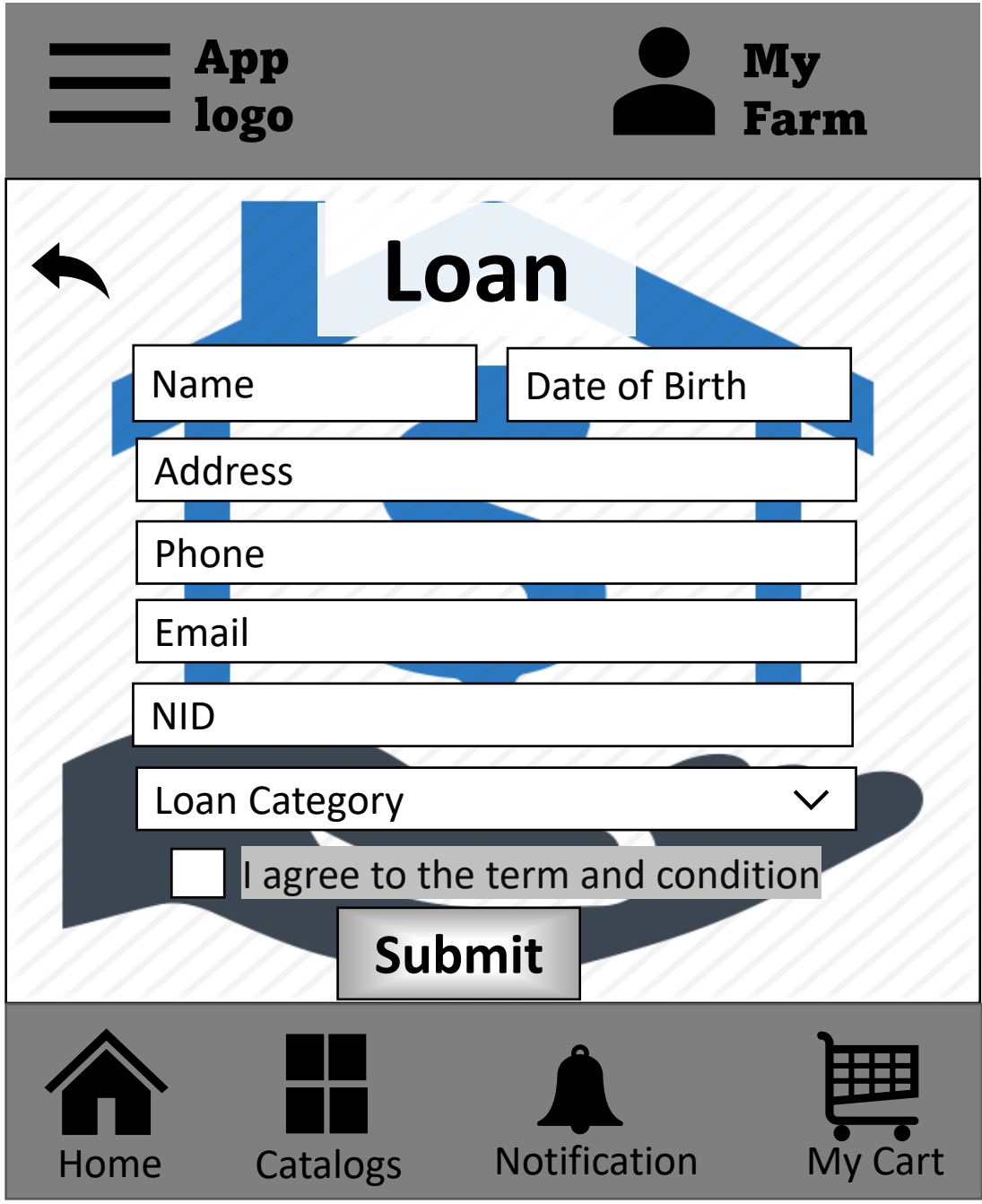
Admin

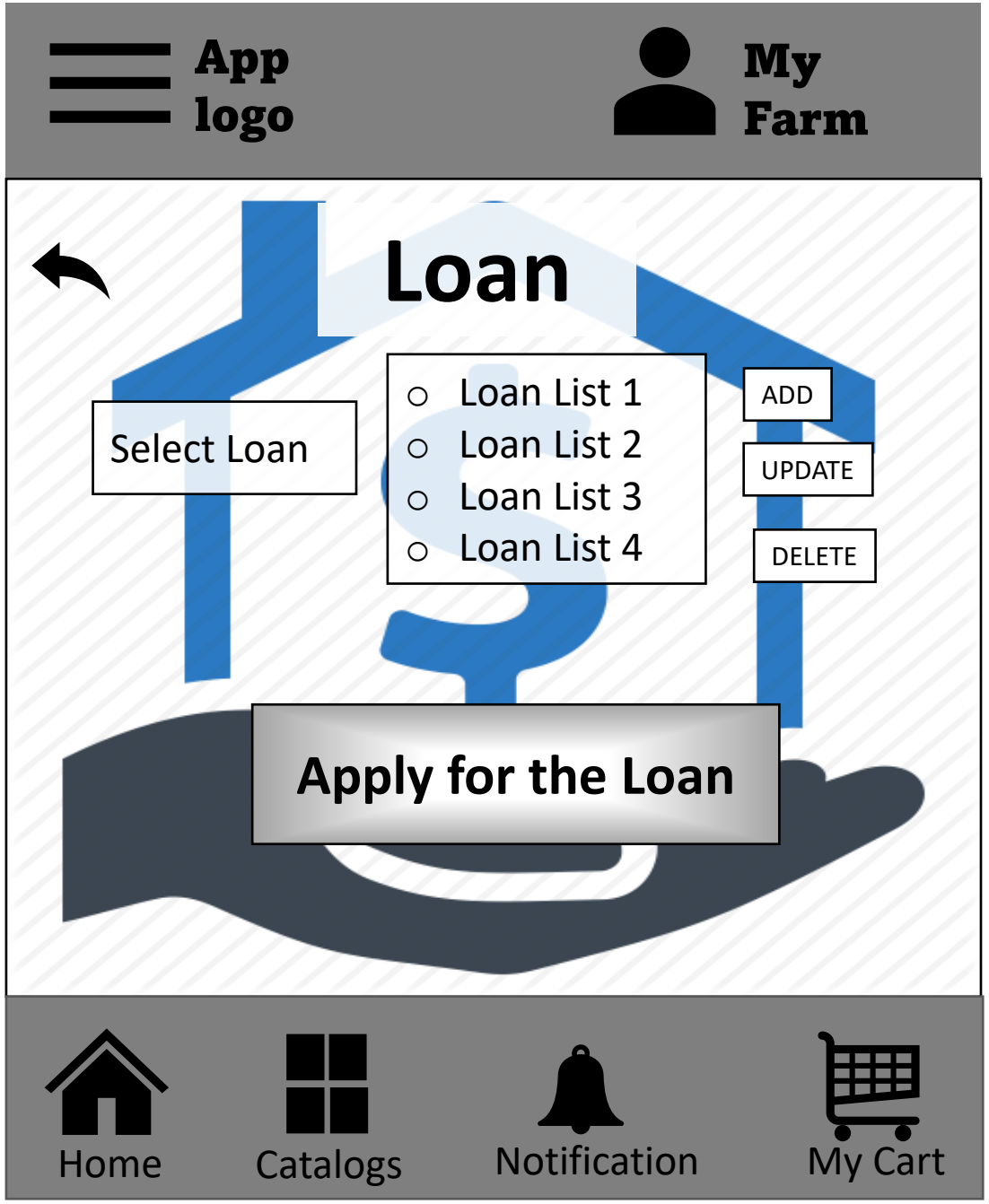


Home> Weather

Home> Loan

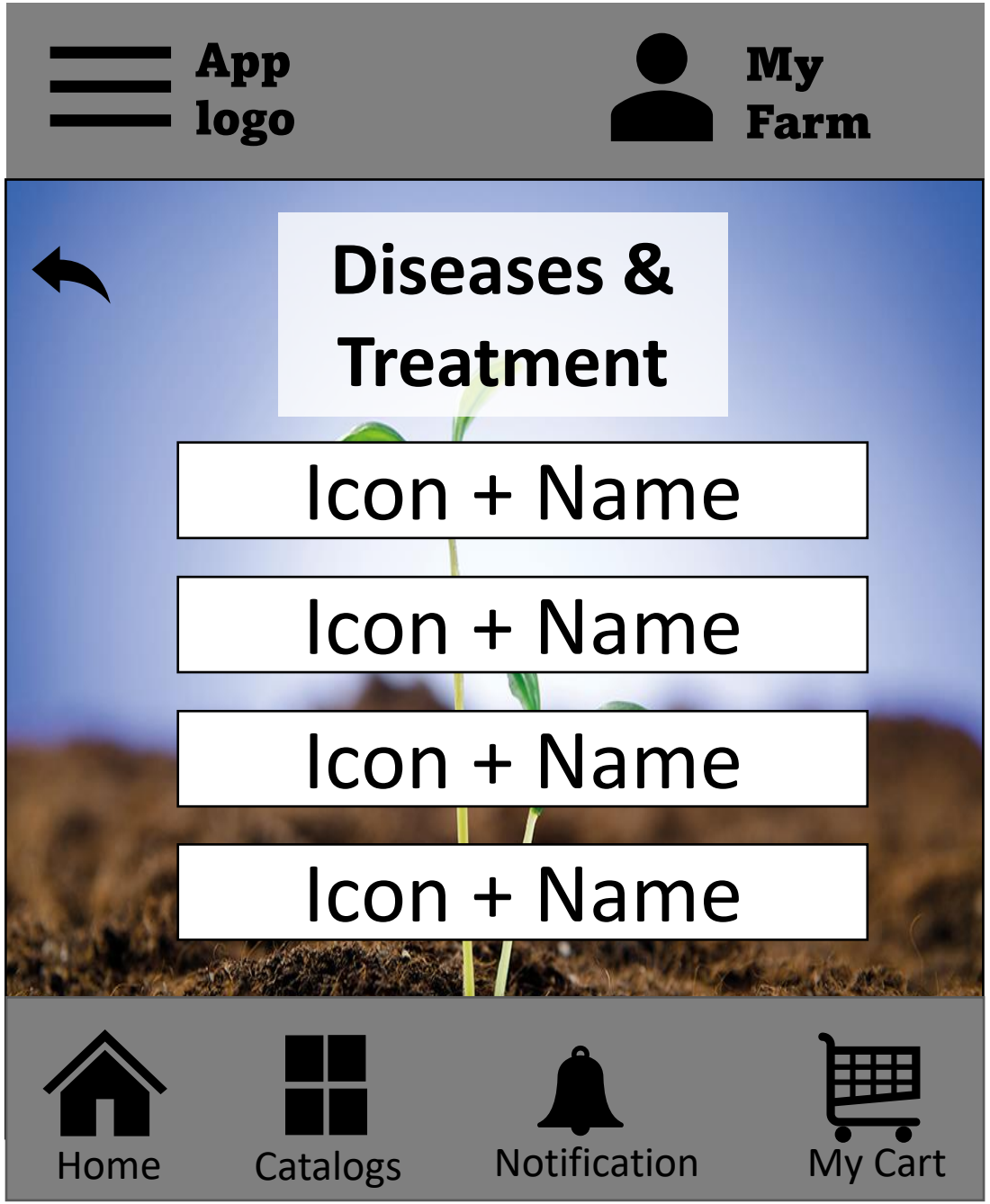

App logo
My Farm
Loan
Select Loan
Loan List 1
Loan List 2
Loan List 3
Loan List 4
Apply for the Loan
Home
Catalogs
Notification
My Cart


App logo
My Farm
Loan
Name
Date of Birth
Address
Phone
Email
NID
Loan Category
I agree to the term and condition
Submit
Home
Catalogs
Notification
My Cart


App logo
My Farm
Loan
Select Loan
Loan List 1
Loan List 2
Loan List 3
Loan List 4
ADD
UPDATE
DELETE
Apply for the Loan
Home
Catalogs
Notification
My Cart

Home>Helpline

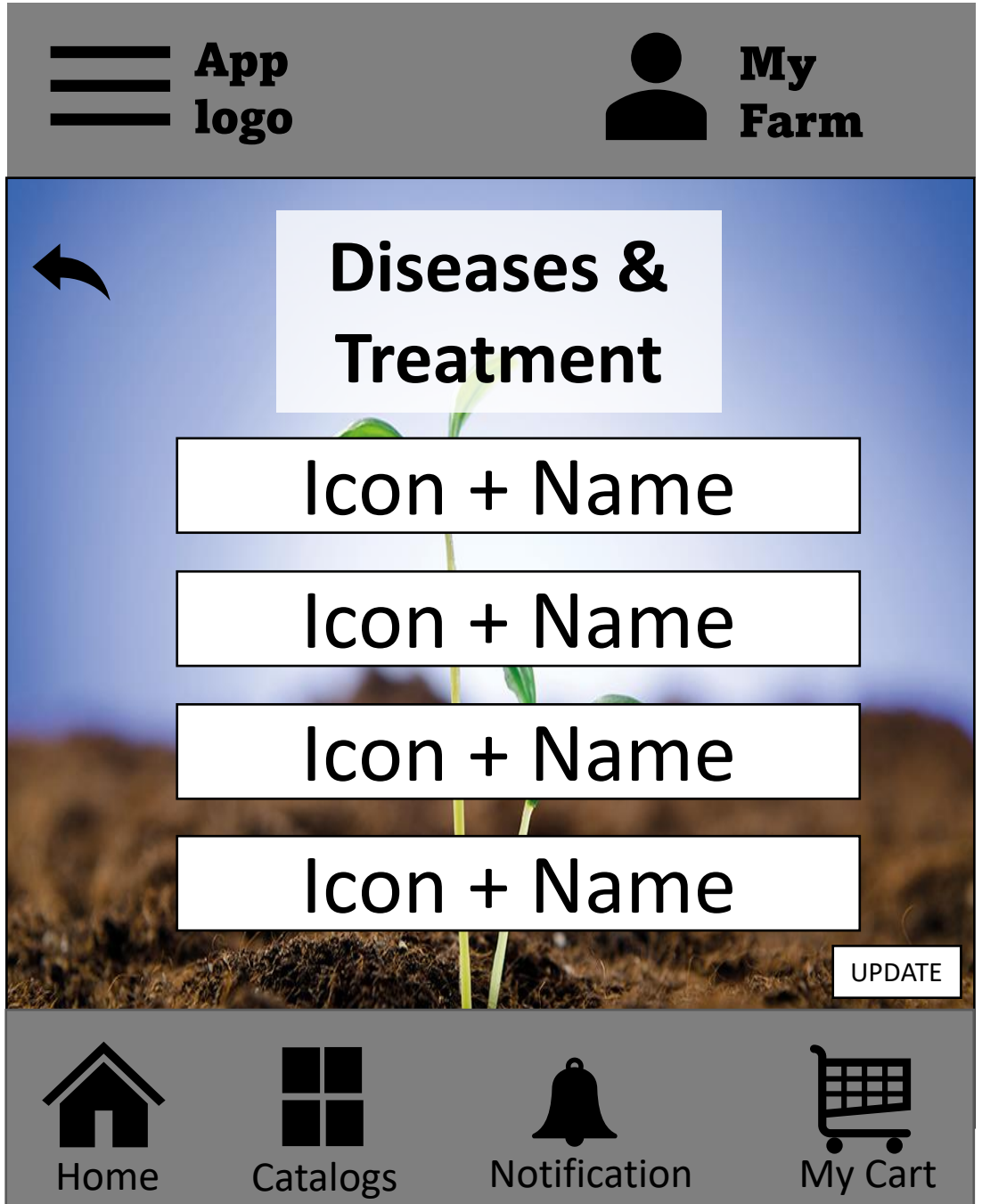
Home>Helpline>Diseases & Treatment



Admin

Home>Helpline

Home>Helpline>Diseases & Treatment

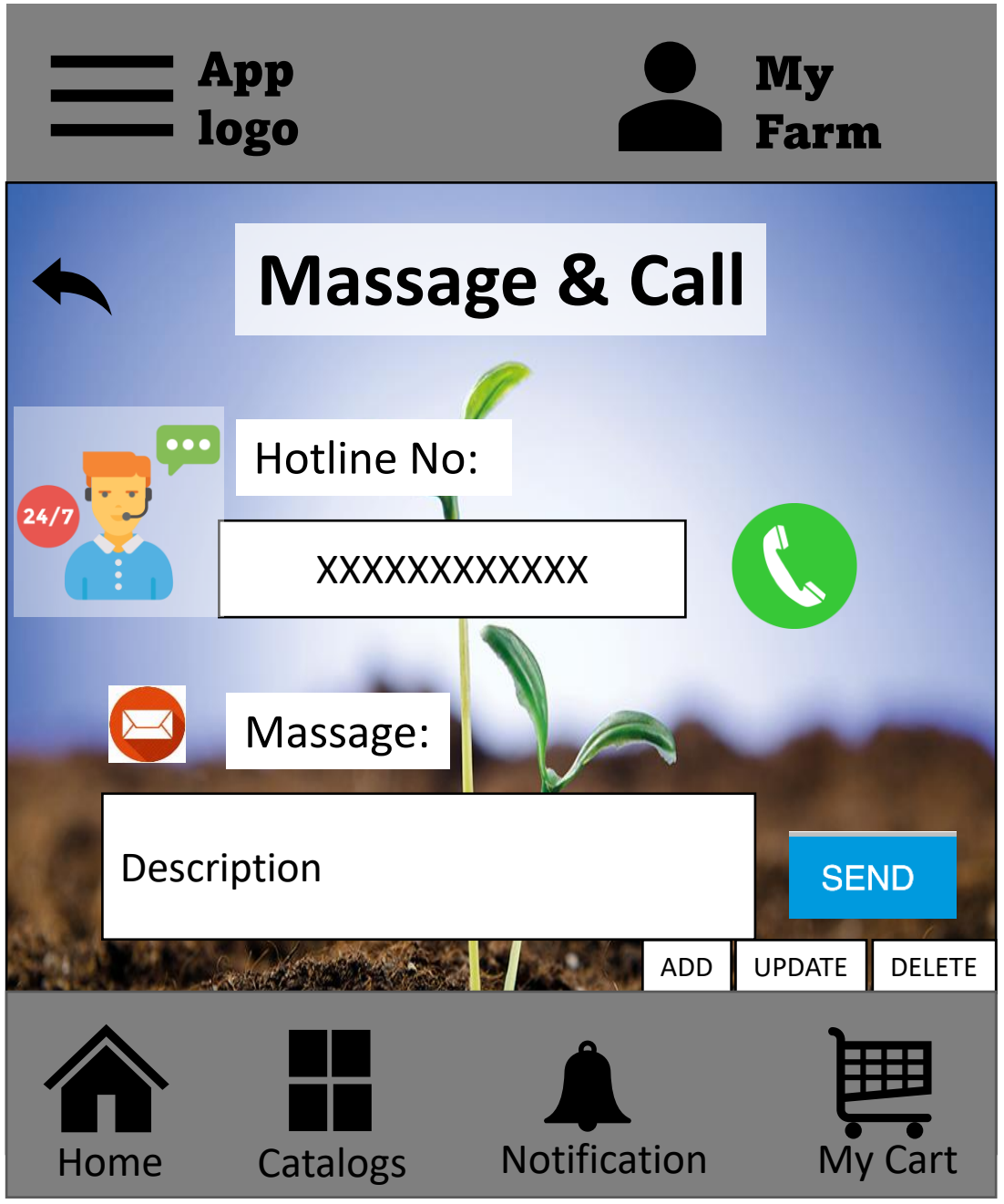


Home>Helpline>Massage & Call

Farmer

Admin

Home>Helpline>Massage & Call



Home> Settings

Farmer

App logo

My Farm

Settings

Change Password

Edit Profile

Home

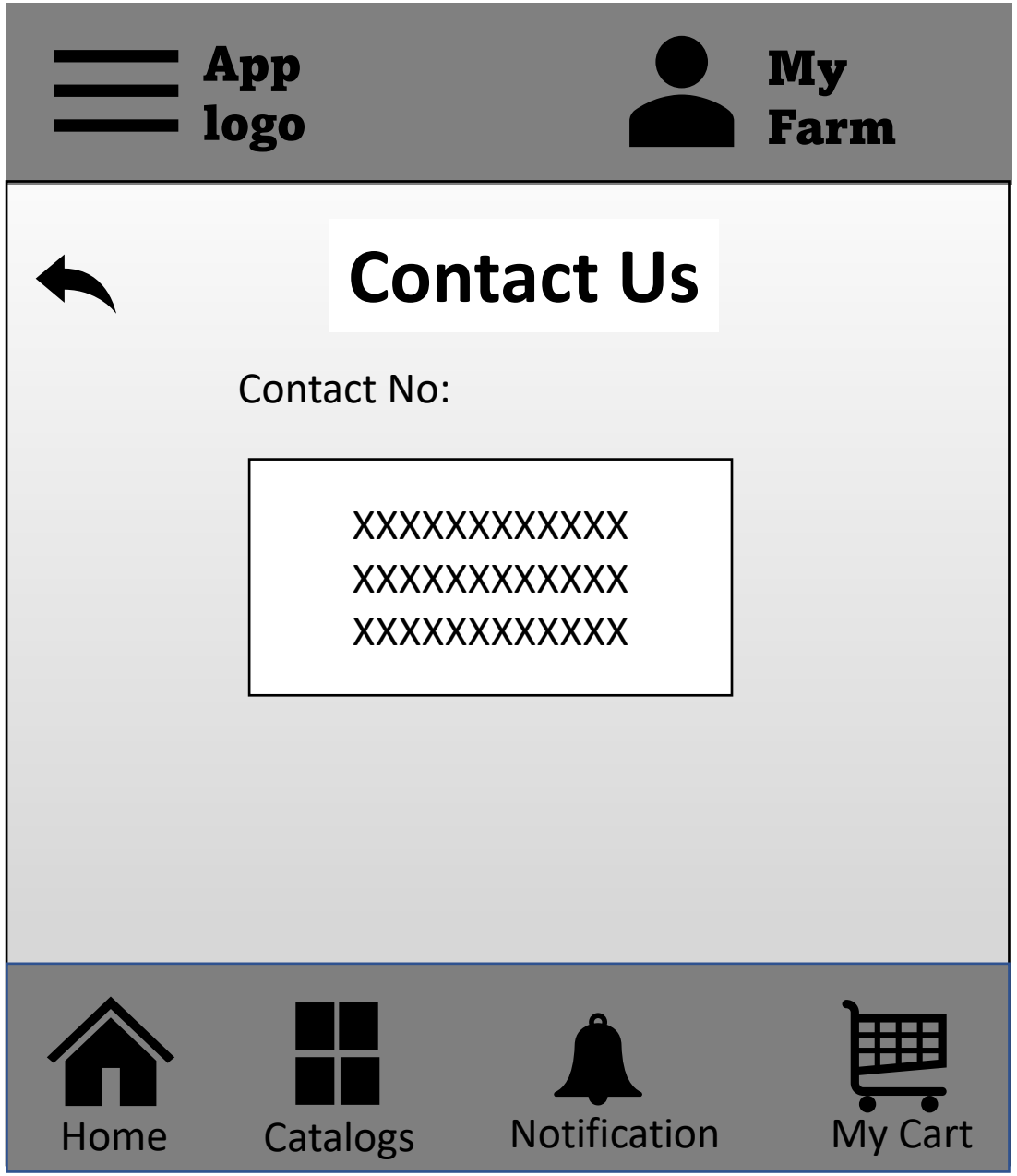
Catalogs

Notification

My Cart

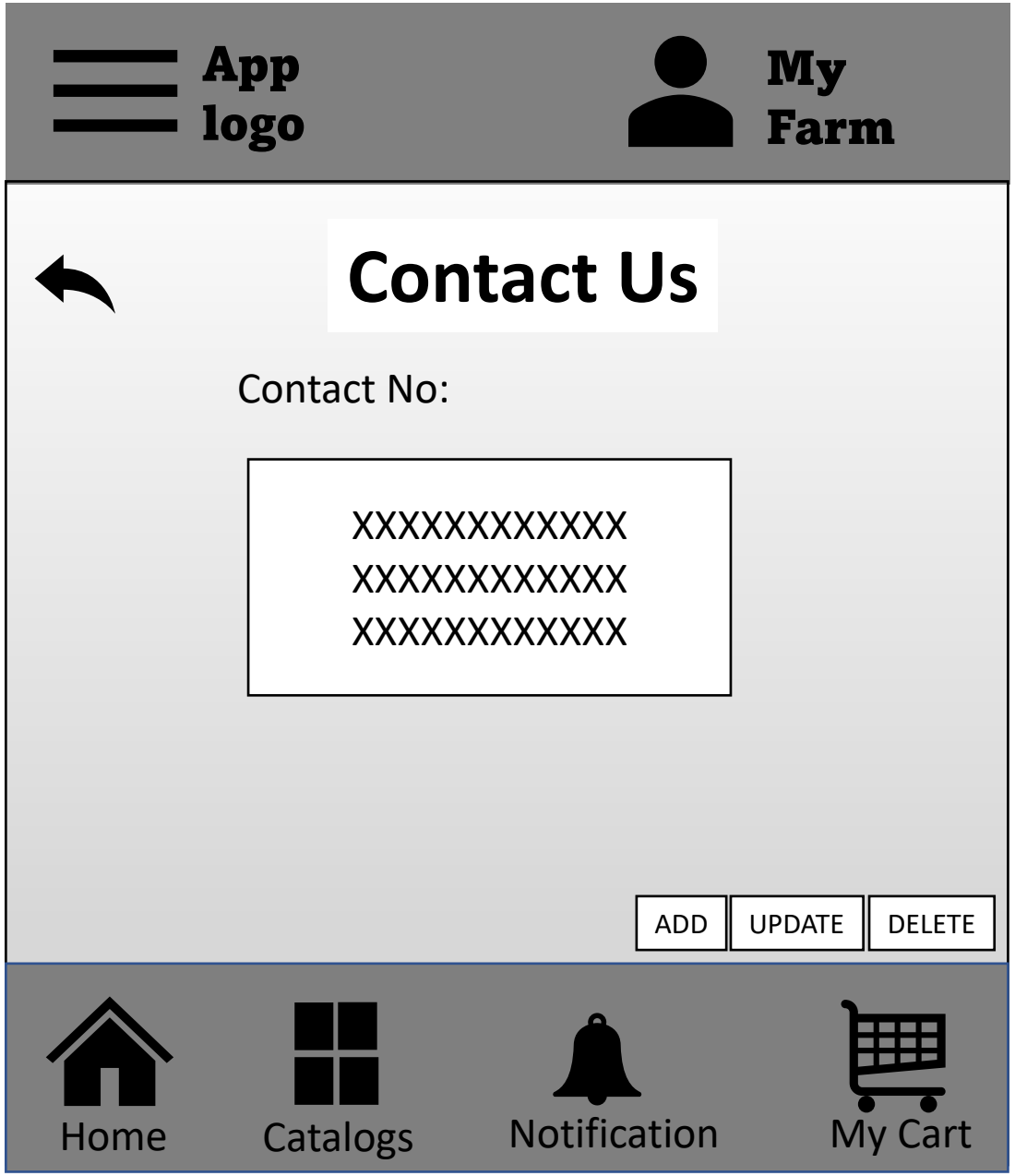
Home> Contact us

Farmer



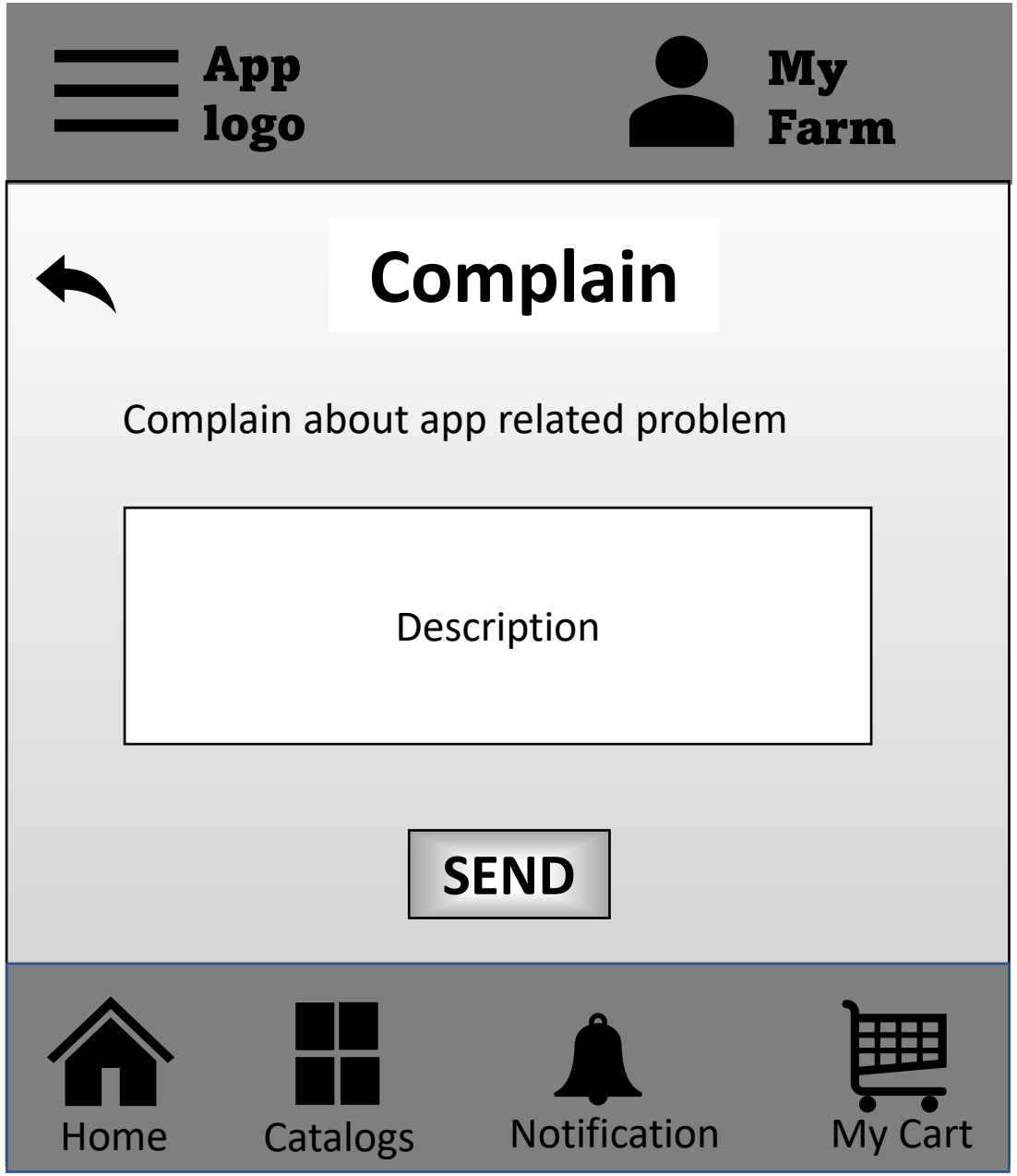
Home> Contact us

Admin



Home> Contact us

Farmer

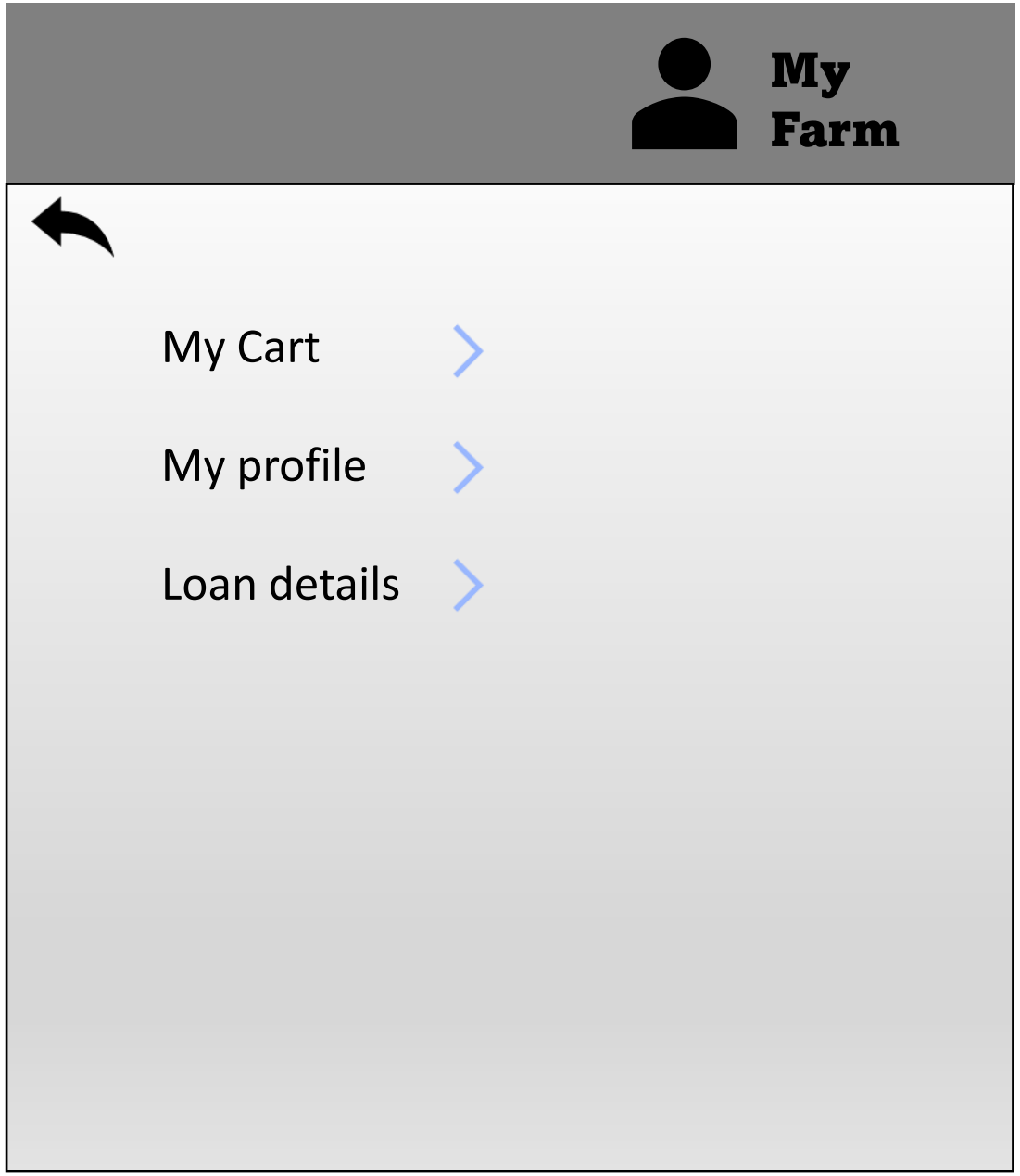


Home> Contact us

Farmer

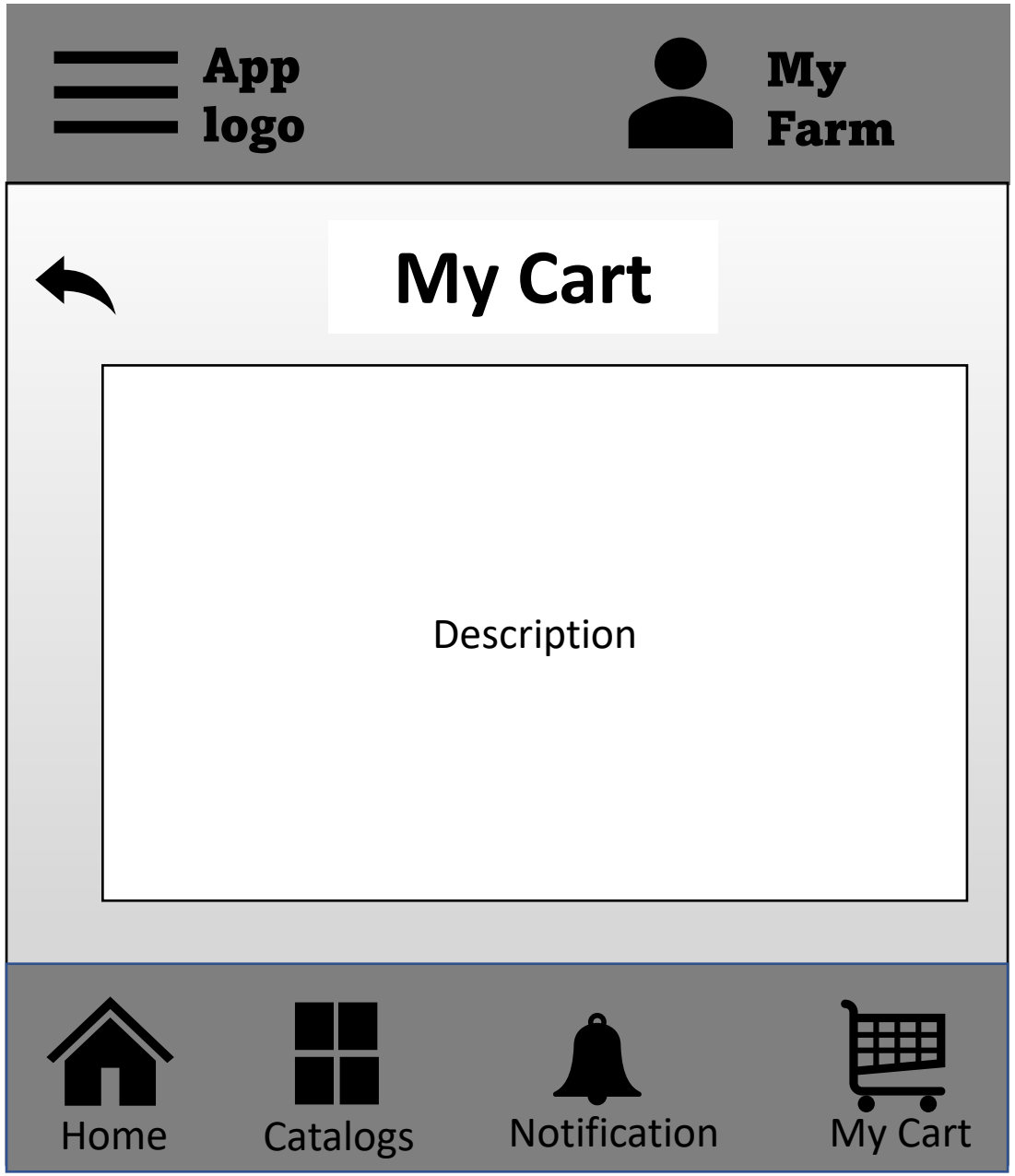
Home> My farm

Farmer



Home> My cart

Farmer



Home>Notification

Farmer

6. System Testing

1. Web, desktop and mobile.
2. Modules of the system are :

    - Login page
    - Register page
    - Crops Info
    - Calculator
    - Shop
    - Instrument
    - Settings
    - My Farm
    - Helpline
    - Loan
    - Scan
    - Weather
    - Logout page

Project Name: Chashi-Smart Farming			Test Designed by: Sadia	
Test Case ID: T1			Test Designed date: 23-07-2022	
Test Priority (Low, Medium, High): High			Test Executed by: Sadia	
Module Name: Login Test Session			Test Execution date: 25-07-2022	
Test Title: Verify Login Functionality				
Description: Test login page				
Precondition (If any): User must login the application with proper Name and Password				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Enter the user name 2. Enter phone no / email 3. Enter the password 4. Click login. 5. Click sign up 6. Click forget password	Logged in successfully Signed up successfully	1.User should be able to login. 2. User should be able to sign up. 3. User should be able to reset password.	As expected,	Pass

Project Name: Chashi-Smart Farming			Test Designed by: Sadia	
Test Case ID: T2			Test Designed date: 23-07-2022	
Test Priority (Low, Medium, High): Medium			Test Executed by: Sadia.	
Module Name: Crops Info Test Session			Test Execution date: 25-07-2022	
Test Title: : Crops Info Functionality				
Description: Crops Info Functionality Test				
The precondition (If any): User must log in the application with the proper Name and Password				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to the Crops info application 2. Select crops info 3. Refresh 4. Checkout different type of crops update.	Crops basic info, tips, diseases. Consult doctor.	Users can get basic info, know about their crops, and how to grow them. What kind of diseases they can have	As expected,	Pass

Project Name: Chashi-Smart Farming			Test Designed by: Sadia	
Test Case ID: T3			Test Designed date: 23-07-2022	
Test Priority (Low, Medium, High): High			Test Executed by: Sadia	
Module Name: Calculator Test Session			Test Execution date: 25-07-2022	
Test Title: Verify calculator Functionality				
Description: Test calculator page				
Precondition (If any): User must login the application with proper Name and Password				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to the Calculator application 2. Select calculator 3. Select crops, land size, and unit. 4. Refresh 5. Checkout the calculations.	Calculate fertilizer/insecticide amount. Add to cart.	1.User should be able to select type of crops, land size, fertilizer/insecticide and units. 2. User should get the amount of fertilizer/insecticide he need. 3. User should be able to add to cart.	As expected,	Pass

Project Name: Chashi-Smart Farming			Test Designed by: Sadia	
Test Case ID: T4			Test Designed date: 23-07-2022	
Test Priority (Low, Medium, High): High			Test Executed by: Sadia.	
Module Name: Shop Test Session			Test Execution date: 25-07-2022	
Test Title: : Shop Functionality				
Description: Shop Functionality Test				
The precondition (If any): User must log in the application with the proper Name and Password				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
5. Go to the shop application 6. Select any seeds , fertilizer or plants 7. Refresh 8. Add to cart	Seeds,fertilizers,insecticides,plants Add to cart	Users can get Seeds,fertilizers,insecticides,plants	As expected,	Pass

Project Name: Chashi-Smart Farming			Test Designed by: Sujoy	
Test Case ID: T5			Test Designed date: 23-07-2022	
Test Priority (Low, Medium, High): High			Test Executed by: Sujoy	
Module Name: Helpline Test Session			Test Execution date: 25-07-2022	
Test Title: Verify Helpline Functionality				
Description: Test Helpline page				
Precondition (If any): User must login the application with proper Name and Password				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to the helpline option 2. Go to the diseases and treatment. 3. Checkout in description	D&T	User can get description of the picture specific disease.	As expected,	Pass

Project Name: Chashi-Smart Farming			Test Designed by: Sujoy	
Test Case ID: T6			Test Designed date: 23-07-2022	
Test Priority (Low, Medium, High): High			Test Executed by: Sujoy	
Module Name: Helpline Test Session			Test Execution date: 25-07-2022	
Test Title: Verify Helpline Functionality				
Description: Test Helpline page				
Precondition (If any): User must login the application with proper Name and Password				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to the helpline option 2. Go to the Massage & Call. 3. Click on call button to make call. 4. Write description and send.	M&C	User can call and massage for agriculture related help	As expected,	Pass

Project Name: Chashi-Smart Farming			Test Designed by: Sujoy	
Test Case ID: T7			Test Designed date: 15-07-2022	
Test Priority (Low, Medium, High): Medium			Test Executed by: Sujoy	
Module Name: Loan application season			Test Execution date: 19-07-2022	
Test Title: Verify Loan Application Functionality				
Description: Loan Application Functionality Test				
Precondition (If any): User must login the application with proper Name and Password				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to the Loan option. 2. Select Loan type. 3. Then fill up the form. 4. Click submit.	Name, DOB, phone, email, NID.	User can apply for loan with that information.	As expected,	Pass

Project Name: Chashi-Smart Farming			Test Designed by: Sujoy	
Test Case ID: T8			Test Designed date: 15-07-2022	
Test Priority (Low, Medium, High): High.			Test Executed by: Sujoy	
Module Name: Instrument			Test Execution date: 19-07-2022	
Test Title: Verify Instrument Functionality				
Description: Instrument Application Functionality Test.				
Precondition (If any): User must login the application with proper Name and Password				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to the Instrument option. 2. Select Instrument with price and duration. 3. Then apply for the Instrument.	Instrument	User can apply for instrument.	As expected,	Pass

Project Name: Chashi-Smart Farming			Test Designed by: Tahmid	
Test Case ID: T10			Test Designed date: 23-07-2022	
Test Priority (Low, Medium, High): High			Test Executed by: Tahmid	
Module Name: Scanning Test Session			Test Execution date: 25-07-2022	
Test Title: Verify Scan Functionality				
Description: Test Scan page				
Precondition (If any): User must login the application with proper Name and Passward				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
7. Go to the scan option 8. Allow camera access 9. Scan the picture 10. Checkout in description.	Scan PIC-1 Scan PIC-2	User can get description of the picture specific disease.	As expected,	Pass

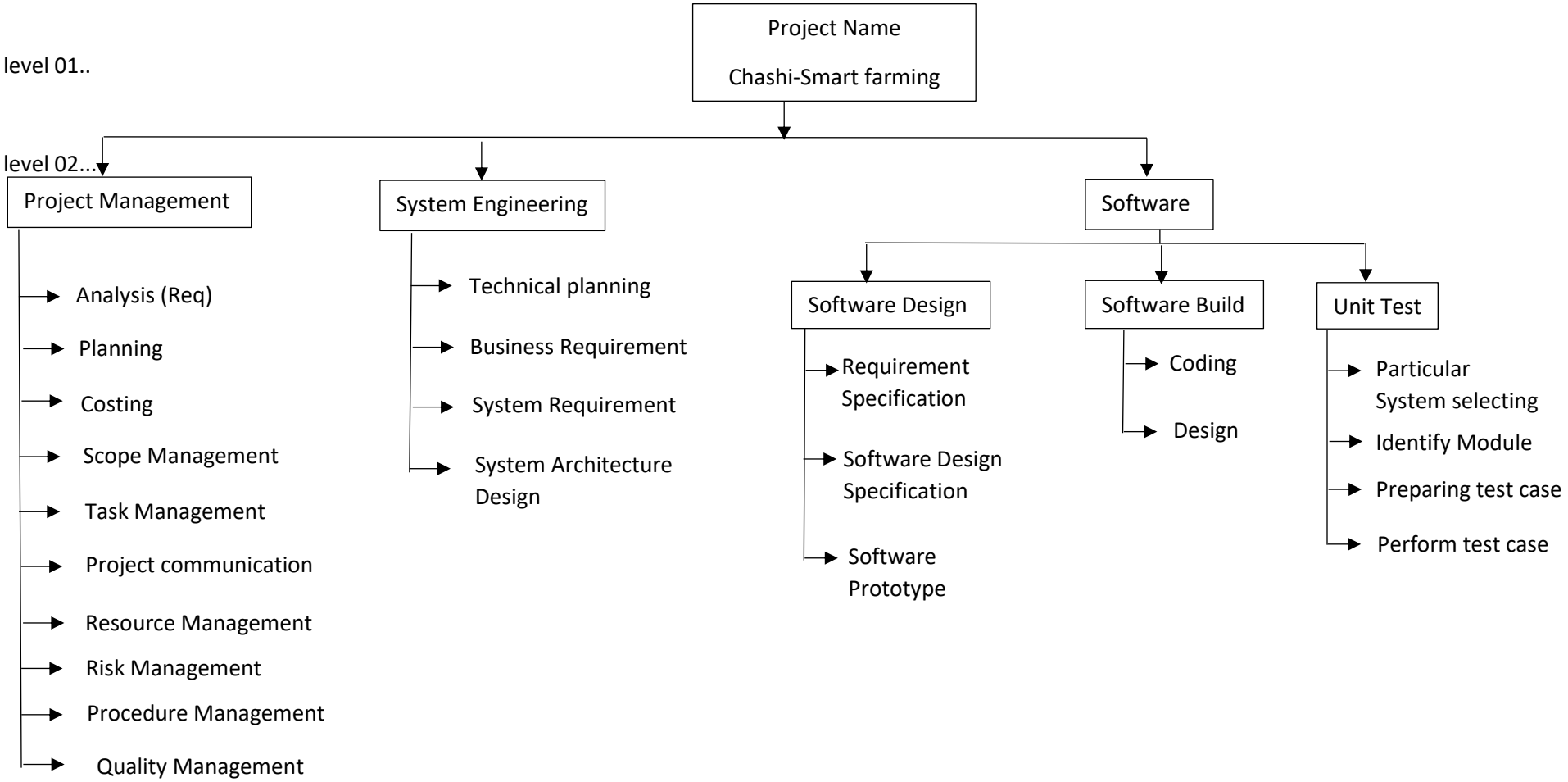
Project Name: Chashi-Smart Farming			Test Designed by: Tahmid	
Test Case ID: T11			Test Designed date: 15-07-2022	
Test Priority (Low, Medium, High): Medium			Test Executed by: Tahmid	
Module Name: Weather Test Session			Test Execution date: 19-07-2022	
Test Title: Verify Weather Functionality				
Description: Weather Functionality Test				
Precondition (If any): User must login the application with proper Name and Password				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
9. Go to the weather application 10. Select Weather 11. Refresh 12. Checkout Daily Forecast	Location, Temperature, Daily Forecast	User can get location, temperature, daily forecast information	As expected,	Pass

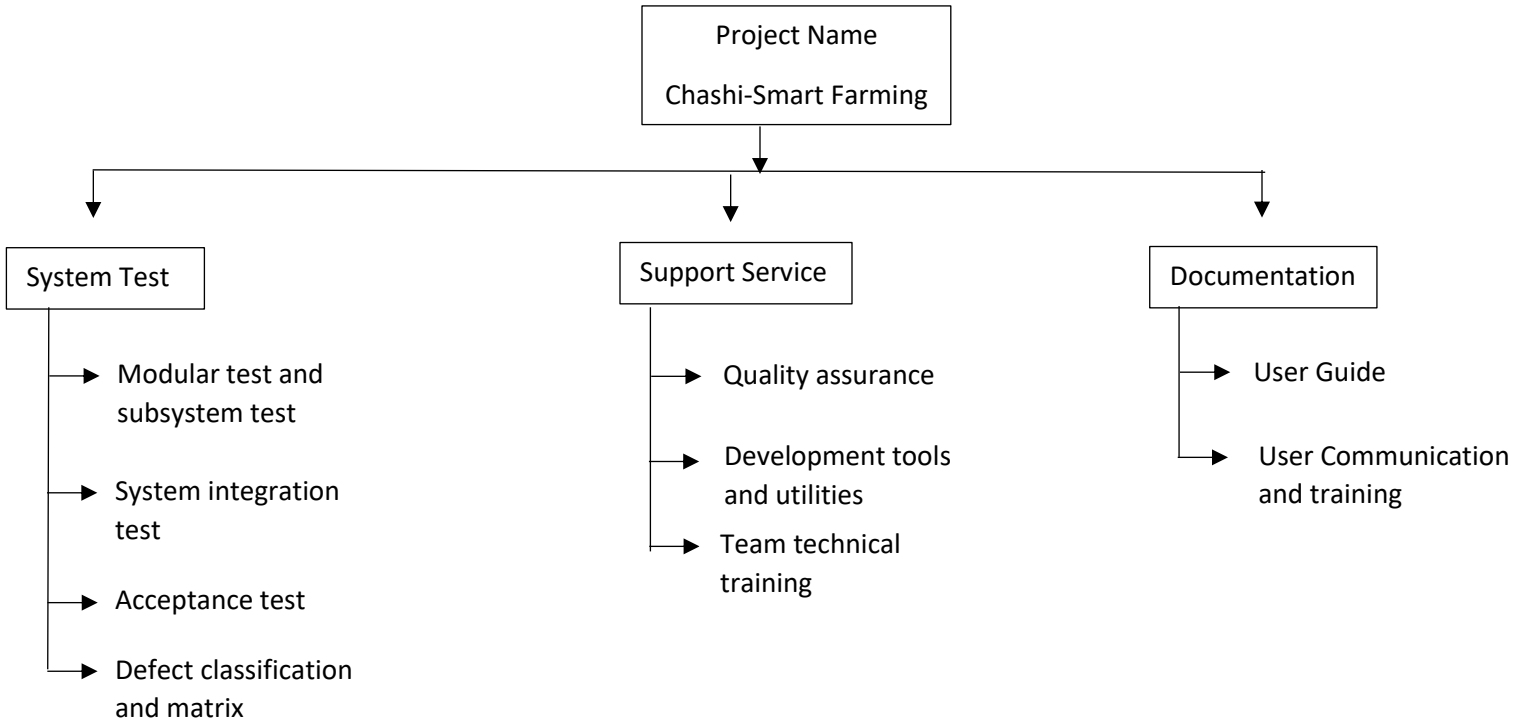
Project Name: Chashi-Smart Farming			Test Designed by: Sadia	
Test Case ID: T12			Test Designed date: 15-07-2022	
Test Priority (Low, Medium, High): Medium			Test Executed by: Sadia	
Module Name: My Farm Test Session			Test Execution date: 19-07-2022	
Test Title: Verify My Farm Functionality				
Description: My Farm Functionality Test				
Precondition (If any): User must login the application with proper Name and Password				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to the my farm application 2. See loan details 3. Edit profile 4. Refresh 5. Checkout my cart	Loan details,edit profile, my cart	User can get loan details, edit profile also cart details	As expected,	Pass

Project Name: Chashi-Smart Farming			Test Designed by: Sadia	
Test Case ID: T13			Test Designed date: 15-07-2022	
Test Priority (Low, Medium, High): High			Test Executed by: Sadia	
Module Name: Registration Test Session			Test Execution date: 19-07-2022	
Test Title: Verify Registration Functionality				
Description: Registration Functionality Test				
Precondition (If any): User must login the application with proper Name and Password				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to the application 2. Provide all information 3. Verify phone number 4. Click submit button 5. Refresh 6. Checkout the profile	User should be able to register a new profile. Should be able to verify phone number Should be able to fill up basic information.	• Users can register properly • Users can verify properly • Users profile creation successful • Users can fill-up basic information form • Users can see their profile with all informatio n	As expected,	Pass

Project Name: Chashi-Smart Farming			Test Designed by: Sadia	
Test Case ID: T14			Test Designed date: 15-07-2022	
Test Priority (Low, Medium, High): High			Test Executed by: Sadia	
Module Name: Log out Test Session			Test Execution date: 19-07-2022	
Test Title: Verify log out Functionality				
Description: log out Functionality Test				
Precondition (If any): User must login the application with proper Name and Password				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Click logout button	User should be able to logout anytime from home page	Users can logout properly	As expected,	Pass

7. WBS


level 01..
Project Name
Chashi-Smart farming
level 02...
Project Management
System Engineering
Software
Analysis (Req)
Planning
Costing
Scope Management
Task Management
Project communication
Resource Management
Risk Management
Procedure Management
Quality Management
Technical planning
Business Requirement
System Requirement
System Architecture Design
Software Design
Software Build
Unit Test
Requirement Specification
Software Design Specification
Software Prototype
Coding
Design
Particular System selecting
Identify Module
Preparing test case
Perform test case


Project Name
Chashi-Smart Farming
System Test
Modular test and subsystem test
System integration test
Acceptance test
Defect classification and matrix
Support Service
Quality assurance
Development tools and utilities
Team technical training
Documentation
User Guide
User Communication and training

9. Project Estimation

Effort = PM = Co-efficient$_{<\text{effort factor}>}$*(sloc/1000)^{P}

Organic <ef> = 2.4

P = 1.05

T = 0.38

PM = 2.4 × (6000/1000)$^{1.05}$

= 15.75 ~ 16

Development Time (DM) = 2.50 × 16 $^{0.38}$

= 7.13 months

Requirement number of people (ST) = PM/DM

= 16/7.13

= 2.25 ~ 3 people

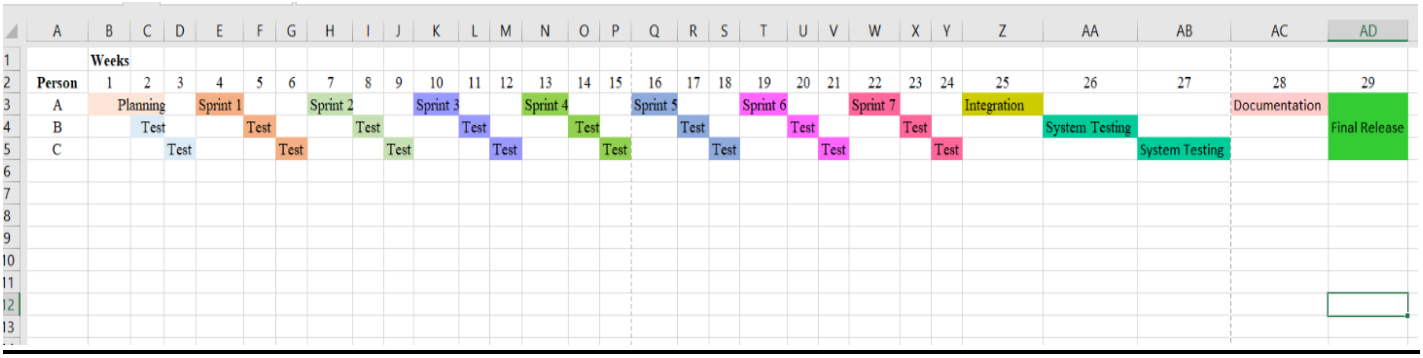
Timeline weeks = DM × 4

= 7.13 × 4

= 28.52 ~ 29 weeks

- Development Time = 7.13 months.
- Requirement number of people = 3 people.
- Timeline weeks = 28 weeks.

Timeline Chart 1:



	Weeks																												
Person	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
A	Planning			Sprint 1			Sprint 2			Sprint 3			Sprint 4			Sprint 5			Sprint 6			Sprint 7			Integration			Documentation	Final Release
B		Test			Test			Test			Test			Test			Test			Test			Test			System Testing			
C			Test			Test			Test			Test			Test			Test			Test			Test			System Testing		

Activity key:

Pre-game:

A: Planning

B: Testing

C: Testing

In-Game: (Development phase):

Sprint backlog list

Sprint phase:

Module 01:

A: Sprint 1

B: Testing

C: Testing

Module 02:

A: Sprint 2

B: Testing

C: Testing

Module 03:

A: Sprint 3

B: Testing

C: Testing

Module 04:

A: Sprint 4

B: Testing

C: Testing

Module 05:

A: Sprint 5

B: Testing

C: Testing

Module 06:

A: Sprint 6

B: Testing

C: Testing

Module 07:

A: Sprint 7

B: Testing

C: Testing

Post-Game:

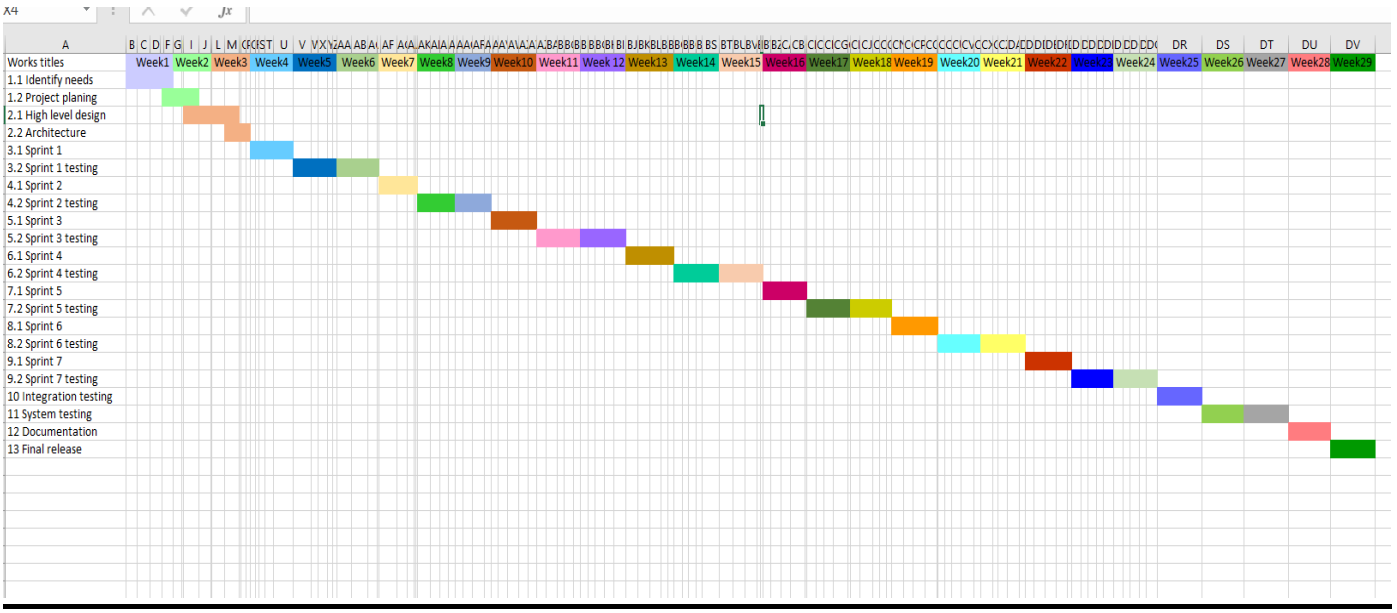
A: System Integration

B,C: System testing

A: Documentation

A,B,C: Final release

Timeline Chart 2:



10. Earned Value Analysis

Schedule weeks = 29

Effort estimated = 29 X 5

= 145-person day

Total task = 20

10 tasks have been completed but the project schedule indicates that 15 tasks should have been completed in that time.

Task	Planned effort		Actual effort	
1	12.0		12.5	
2	15.0		11.0	
3	13.0		17.0	
4	8.0		9.5	
5	9.5	BCWP	9.0	ACWP
6	18.0		19.0	
7	10.0		10.0	
8	4.0	BCWS	4.5	
9	12.0		10.0	
10	6.0		6.5	
11	5.0		4.0	
12	14.0		14.5	
13	16.0		-	
14	6.0		-	
15	8.0		-	

BAC = 145

BCWP = 107.5

BCWS = 156.5

ACWP = 109

SPI = BCWP/BCWS = 107.5/156.5 = 0.68690

SV = BCWP – BCWS = 107.5 – 156.5 = - 49-person day

CPI = BCWP/ACWP = 107.5/109 = 0.98624

CV = BCWP – ACWP = 107.5 – 109 = - 1.5-person day

% Schedule for completion = BCWS/BAC

= 156.5/145

= 1.07%

[% of work schedule to be done at this time]

% Complete = BCWP/BAC

= 107.5/145

= 0.74%

[% of work completed at this time]

10. RISK TABLE ANALYSIS

Risks	**Category**	**Probability**	**Impact**
I. Size estimate maybe significantly low	PS	60%	2
II. Larger number of users than planned	PS	35%	3
III. Less reuse than planned	PS	65%	2
IV. End users resist system	BU	30%	3
V. Delivery deadline will be tightened	BU	40%	2
VI. Funding will be lost	CU	80%	1
VII. Customer will change requirements	PS	70%	2
VIII. Technology will not meet expectations	TE	40%	1
IX. Lack of training on tools	DE	60%	3
X. Staff experienced	ST	40%	2
XI. Staff turnover will be high	ST	60%	2
XII. Fails to meet the requirements	DE	40%	1
XIII. Scheduling problem	DE	30%	2
XIV. Developing the wrong software function	DE	40%	1
XV. Miscommunications	CU	70%	2