



Project: Agronomist Appointment System

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APPROVAL

This project titled on "AgroDoctor", submitted by Al Imran Akash (ID: 192-35-2855) to the Department of Software Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Bachelor of Science in Software Engineering and approval as to its style and contents.

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DECLARATION

I now declare that I have taken this project under the supervision of **Ms. Nadira Islam, Lecturer (Senior Scale), Department of Software Engineering Daffodil International University**. I also declare that I have submitted neither this project nor any part of it for the award of any degree.

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Acknowledgement

I would like to express my special thanks to my supervisor “**Ms. Nadira Islam**”, mam. She gave me more help and opportunity to do this wonderful project (“AgroDoctor”). She helps me to understand and work on it nicely, When I face any problem with my project, she provides the right solution that is needed.

Finally, I would also like to thank my parents and friends who helped me a lot.

Executive Summery

I have this system that will have a separate dashboard for each. Admin, agronomist, and farmer using different dashboards. Admin can add agronomist by registering them and admin can also make sessions for the appointment. And admin can also see how many doctors and farmers using this application and can see the appointment list with all details. Farmer can book appointment the available sessions and they can not booking multiple booking at the same sessions for different kinds of disease. They can cancel their booked appointment as they wish. When they make any appointment, they select their agronomist. And finally, agronomists can see all the appointments those have under their under and they arrange proper treatment, if they want, they can cancel any appointment. All The users have a search option, they can search doctor, farmers who are registered. Admin can see all history under 7days.After spending this time history automatically remover. I think this application is a complete helper for farmers and they gain more benefit and recovery from their problem.

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Chapter 1 - Introduction

1.1 Overview

1.1.1 Background

We all know that Bangladesh is an agricultural country, and we all are dependent of their corps and other things that they produce. Every year they produce an extensive number of harvests from their lands such as paddy, wheat, maize, vegetables etc. But often they are facing some problem due to many types of disease. As a result, they are not able to make profit every time they want. Besides they need to go to the Medicine store and doctors to take suggestions for the corps disease. So, they must be alerted every time they cultivate different crops in their land. Also, it's a kind of hassle to always go to the agronomist to make suggestions.

1.1.2 Objectives

This will be a web application named “AgroDoctor” where diverse types of users will be present, and they can do different types of operation through this web application.

1. Admin.
2. Farmer
3. Agronomist

The list of operations that the system will provide are-

1. Providing a feasible option to mitigate farmers' loss due to the corps disease.
2. Farmers can create their profile and ask different types of questions with information.
3. Farmers can make appointments at different times for different types of disease.
4. They also can see their appointment history.
5. Agronomist can see farmers post and help they by providing proper solution
6. Agronomist can also post about different types of disease and proper medicine for them.

1.1.3 Scope

This web application will be a complete helper for farmers who want to grow their production more and gain more profit per year. Previously they could get suggestions from the doctor by using the system and share their post among all the agronomist's. So, they will easily get benefited without going anywhere from home.

1.1.4 Assumptions and Constraints

Users are assumed to have a basic level of training and closeness with this web application. Ample training resources may be provided to confirm users can maximize the system's potential. The system assumes a compatible and reliable internet connection for real-time data exchange and updates. Limited or intermittent connectivity may impact the system's performance. The system assumes that different crops have varying requirements and that it can cater to a varied range of crops and farming practices.

The development and maintenance of this website may be subject to budget Constraints, affecting the extent of features, scalability, and support. The system's performance may be limited by the existing technology infrastructure in the territory, especially in faraway or rural areas where access to advanced technology may be limited. The system must operate within the constraints of data security and privacy enactment. Security measures may constrain certain functionalities to ensure the defense of sensitive information.

1.1.5 Dependencies and Risks

The risk of developing this web application is related to the information security that will be provided by the agronomist and others user. So, it's also will be a matter of concern and security of this app to ensure user integrity and benefit.

1.2 Project Purpose

As they will be benefited who have used this system. To meet the needs of all. Let them understand their actions better and can solve them. As farmers can create their profile and ask different type of question with information, doctor can see farmers post and help they by providing proper solution and Doctor can also post about different types of disease and proper medicine for them.

1.2.1 Proposed System

This proposed website is designed to be malleable, salable, and user-eccentric, considering the diverse needs and challenges of modern agriculture. It is essential to involve stakeholders, including farmers, agronomists, and technology experts, in the development process to ensure the system meets real-world requirements practically. The system can enhance communication and collaboration between agronomists and farmers, ultimately improving the efficiency of agricultural consultations and services. It's essential to involve users in the development process to ensure that the system meets their specific needs and preferences.

Chapter 2 - System Analysis

2.1 Feasibility Analysis, Technical Feasibility, Operational Feasibility

Conducting a feasibility analysis is a very important step in determining performance and potential success of this web application. The feasibility analysis usually assesses technical and operational factors.

2.1.1 Technical Feasibility:

Hardware Requirements:

Evaluate the hardware needed for the system, such as computer, laptop, router, and mobile devices. Assure that the required technology is available and suitable.

Software Requirements:

Assess the presence of necessary software tools and technologies. Check for congruence and integration capabilities with other systems. Users can easily search for available appointments, filter by provider or time slot, and book appointments safely. And should existing calendars to avoid scheduling conflicts.

Data Security:

Assess the practicability of implementing strong security measures to protect sensitive agricultural and user data.

2.1.2 Operational Feasibility:

User Acceptance:

Assess the compliance and ability of end-users, including farmers and agronomists, to adjust to and use the system successfully.

Training Needs:

Identify training requirements for users to ensure they can make the utmost of the system's features.

Operational Impact: Analyze how the system will combine with existing agricultural contemplation and workflows. Minimize breakdown and ensure a smooth transfer.

2.2 Functional Requirements

The things come under functional requirements, that is how my system works. This means its working and its operations all come under the functional requirements. I go to describe all the requirements that my project need-

| FR-1 | Member Information |
|--------------|--|
| Description | Admin can add a new admin. And through agronomist and farmers information in this site. He maintains the website properly. |
| Stakeholders | Admin |

Table 2.2.1 Functional Requirement -01

| FR-2 | Update Farmer Details |
|--------------|--|
| Description | Admin set up this system and add any farmer. He maintains all the operation and invites farmers. Farmer can see all the post and get information |
| Stakeholders | Admin, Farmer |

Table 2.2.2 Functional Requirement-02

| FR-3 | Update Agronomist Details |
|--------------|---|
| Description | Agronomists can see the questions that farmer asks and answer through the app. Admin share doctor's post and medicine name. They can also post about different types of disease and proper medicine for them. |
| Stakeholders | Admin, Agronomist |

Table 2.2. 3 Functional Requirement -03

| FR-4 | Unregistered farmer and Agronomist |
|-------------|--|
| Description | Admin can delete the details of the farmers and agronomist and it also deletes these |

| | |
|--------------|----------------------|
| | details in database. |
| Stakeholders | Admin |

Table 2.2.4 Functional Requirement -04

| | |
|--------------|--|
| FR-5 | View farmer and agronomist Details |
| Description | Admin and agronomist can view the entire details of the agronomist and farmer who are registered |
| Stakeholders | Admin, Agronomist |

Table 2.2.5 Functional Requirement -05

| | |
|--------------|--|
| FR-6 | Post Crops diseases and Medicine details |
| Description | Agronomists can post any type of information notice that is related to farmers. Farmer can post about crops diseases, medicine, and soil. Admin also can post that related to farmer and agronomist. |
| Stakeholders | Admin, Farmer, Agronomist |

Table 2.2.6 Functional Requirement -06

| | |
|--------------|---|
| FR-7 | Agronomist suggestion |
| Description | Agronomists post some tutorials to farmers. From this post farmers can learn about farming, take some knowledge of their field, crops, and soil. For crops diseases agronomist give suggest good medicine for individual crops. |
| Stakeholders | Admin, Agronomist, Farmer |

Table 2.2.7 Functional Requirement -07

| | |
|--------------|---|
| FR-8 | Messaging |
| Description | All the registered AgroDoctor's members can message to each other through this system |
| Stakeholders | Admin, Doctor, Farmer |

Table 2.2.8 Functional Requirement -08

2.3 System Requirements

The system requirements for my system can vary based on the earmarked features and functionalities wished for, as well as the scale of all including appointment booking operations it is intended to support. Here are some general system requirements that are considered for this system:

2.3.1 Hardware Requirements:

The hardware requirements, such as server specifications and client device compatibility, are essential for ensuring the system has the necessary reckon resources to handle all data and user interactions.

Server:

- Multi-core processor **_Core i5**
- Sufficient RAM for handling concurrent user requests and data processing.
- Use SSD for ample storage space for storing data.

Network: Router for online booking and data transfer.

Client Devices: Use laptop, computer, tablet, mobile accessing the system interface.

2.3.2 Software Requirements:

Operating System:

- **For servers:** Linux (Ubuntu-Zorin Os) or Windows Server.
- For client devices:** Windows, mac OS, Android, and Linux.

Database Management System (DBMS): MySQL

Web Server: Apache

Programming Language:

Back end: PHP

Front end: HTML, CSS, JavaScript

2.4 Non-Functional Requirements

2.4.1 Performance -

-Data processing speed: Processing huge amounts of agricultural data, particularly real-time sensor data, should be efficient and not cause delays in analysis or decision-making.

-System responsiveness: The system should respond quickly to user actions and data query, reduce impediment and defeat.

2.4.2 Security:

- Data security: impressionable data, including financial information and records, needs jolly security metering to obstruct unauthorized access, violation, or loss data.
- Data backup and recovery: ordinary backups and disaster recovery plans are necessary to protect against data loss owing to technical miscarriage or cyber-attacks.
- Authentication and authorization: Various user roles should have congenial access levels to system sensitive data and assure integrity.

2.4.3 Scalability and Maintainability:

- Software maintenance and updates: Receive regular updates to address bugs, add new features, and ascertain accordance with enlarge technologies.
- Scalability: The project should be able to compromise growth in data volume, doctor, farmer, and functionality as the farm amplifies or its needs evolve.
- Openness and interoperability: It's able to integrate with other agricultural software and hardware to leverage attend data and resources successfully.

2.4.4 Compatibility:

- Device Compatibility: PC, laptops, tablets, smartphones, and tablets.
- Browser Compatibility: Google Chrome, Mozilla Firefox, Microsoft, and Apple Safari.

2.5 Performance

2.5.1 Speed and Latency Requirements

| | |
|---------------------|---|
| PR-1 | The Landing page will response within a second |
| Description | While the user's browsing the system the landing page will show within a second. It also depends on user's internet connection. |
| Stakeholders | Admin, Farmer, Agronomist |

Table 2.5.1 Speed and Latency Requirements

2.5.2 Precision and Accuracy Requirements:

There are no specific precision and accuracy requirements.

2.5.3 Capacity Requirements

| | |
|---------------------|--|
| PR-01 | Initially the system will store 40,000 doctors and farmers information |
| Description | The information of farmers and doctors will be stored in database |
| Stakeholders | Admin, Farmer, Agronomist |

Table 2.5.3 Capacity Requirements

Chapter 3 - System Design

3.1 Development Model

3.1.1 Use Case Diagram

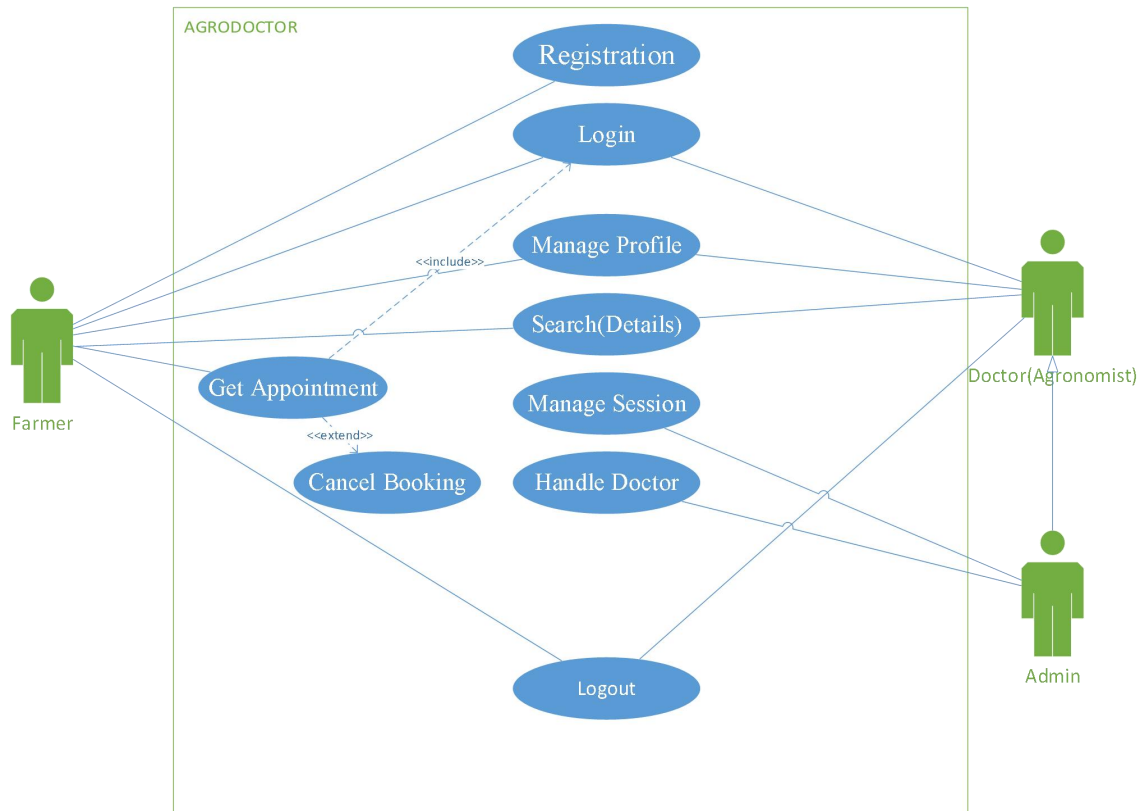


Figure 3.1.1 Use Case Diagram

3.1.2 Use case description

Login:

| Use Case | Login | |
|-----------------------|---|--------|
| Goal | User will move to dashboard by username and password. | |
| Preconditions | Must registered | |
| Success End Condition | User will be redirected to dashboard | |
| Failed End Condition | Redirected back to login page. | |
| Primary Actors: | Farmer, doctor (Agronomist) and admin | |
| Trigger | | |
| Description | Step | Action |

| | | |
|----------------------|--|---|
| | 1 | User come to login page |
| | 2 | Username and password given. Check username and password |
| | 3 | Move to user dashboard. |
| Alternative Flows | Invalid username or password. Wrong username or password message shown. | |
| Quality Requirements | Requirement: Login within 20 sec | |

Table 3.1.2.1 Login

Registration:

| Use Case | Registration. | |
|-----------------------|---|--|
| Goal | Give information and successfully registration | |
| Preconditions | | |
| Success End Condition | System will notify user of registration successfully message. | |
| Failed End Condition | Invalid data provided. | |
| Actors: | Farmer. | |
| Trigger | System will rise a data registration request to the server. | |
| Description | Step | Action |
| | 1 | User come to registration form. |
| | 2 | User will provide all required data. |
| | 3 | After providing all required data they will click registration button. |
| Alternative Flows | Invalid requirement. Too weak password | |
| Quality Requirements | Requirement: Registration should be done within 7 min. | |

Table 3.1.2.2 Registration

Manage Profile:

| Use Case | Manage Profile |
|-----------------------|--------------------------------|
| Goal | Edit details, add feathers. |
| Preconditions | User must login first. |
| Success End Condition | User data will be updated. |
| Failed End Condition | User data will not be updated. |

| | | |
|----------------------|---|---------------------------------------|
| Actors: | Farmer, doctor (Agronomist), Admin | |
| Trigger | Profile update and information update request will be sent to the server. | |
| Description | Step | Action |
| | 1 | Select profile edit option. |
| | 2 | Provided data that need to be updated |
| | 3 | Select update option. |
| Alternative Flows | Invalid updated data submitted. Existing username provided. | |
| Quality Requirements | Requirement: Confirm update within 2 min. | |

Table 3.1.2.3 Manage Profile

Search (Details):

| Use Case | Search | |
|-----------------------|---|-----------------------------|
| Goal | Show details about doctors or farmers. | |
| Preconditions | User must login first. | |
| Success End Condition | Search with valid name or email. | |
| Failed End Condition | Input any invalid name or email. Like unregistered user | |
| Actors: | Farmer, doctor (Agronomist), Admin | |
| Trigger | Find any doctor or farmers details. | |
| Description | Step | Action |
| | 1 | Admin search doctors. |
| | 2 | Doctors can search farmers. |
| | 3 | Farmer can search doctor. |
| Alternative Flows | Unregistered username or email. | |
| Quality Requirements | Requirement: Get details within 30s. | |

Table 3.1.2.4 Search

Manage Session:

| Use Case | Manage Session |
|-----------------------|---|
| Goal | Create or remove session. And view details. |
| Preconditions | Admin must be login first. |
| Success End Condition | Given valid data. |
| Failed End Condition | Invalid data provided. |

| | | |
|----------------------|--|--------------------------------|
| Actors: | Admin | |
| Trigger | Information update request will be sent to the server. | |
| Description | Step | Action |
| | 1 | Add New Session and reset it. |
| | 2 | Events can be view and remove. |
| | 3 | Shown call created session. |
| Alternative Flows | Mistake any kind of information or selected unregistered doctor. | |
| Quality Requirements | Requirement: Add a new session within 2min. | |

Table 3.1.2.5 Manage Session

Handle Doctor:

| Use Case | Handle Doctor | |
|-----------------------|---|-----------------------------|
| Goal | Remove unregistered from the system and selecting a competent agronomist. | |
| Preconditions | Admin must be login first. | |
| Success End Condition | Doctor data will be updated. | |
| Failed End Condition | Doctor data will not be updated. | |
| Actors: | Admin | |
| Trigger | Information update request will be sent to the server. | |
| Description | Step | Action |
| | 1 | Add new doctor. |
| | 2 | View their details. |
| | 3 | Can edit and delete doctor. |
| Alternative Flows | Mistake any kind of information or provided invalid data. | |
| Quality Requirements | Requirement: Add a new doctor within 2min.And it should take 30s to delete doctor. | |

Table 3.1.2.6 Handle Doctor

Get Appointment:

| Use Case | Get Appointment | |
|-----------------------|--|-----------------------------------|
| Goal | Booking an appointment by the schedule time. | |
| Preconditions | Farmer must login first. | |
| Success End Condition | See session details and booking appointment. | |
| Failed End Condition | Can not successfully provide message. | |
| Actors: | Farmers | |
| Trigger | Appointment number is update and request will be sent to the server. | |
| Description | Step | Action |
| | 1 | Go to schedule session. |
| | 2 | View all appointment session. |
| | 3 | Farmers can book with their wish. |
| Alternative Flows | Not get booking number. | |
| Quality Requirements | Requirement: Booking appointment with 10s. | |

Table 3.1.2.7 Get Appointment

Cancel Booking:

| Use Case | Cancel Booking | |
|-----------------------|---|---|
| Goal | Farmers can cancel their booking if they want. | |
| Preconditions | Farmer must be getting appointment first. | |
| Success End Condition | See their booking history and can cancel booking. | |
| Failed End Condition | Date over of the appointment session. | |
| Actors: | Farmers | |
| Trigger | Get cancel message request will send to the server. | |
| Description | Step | Action |
| | 1 | Go to booking history. |
| | 2 | View all booking. |
| | 3 | cancel booking by click the yes button. |
| Alternative Flows | Empty booking history. | |
| Quality Requirements | Requirement: Cancel booking within 10s. | |

Table 3.1.2.8 Cancel Booking

Logout:

| Use Case | Logout | |
|-----------------------|---|--------------------------------|
| 1 Goal | Exit the web application. | |
| Preconditions | Must login first. | |
| Success End Condition | Click the logout option. | |
| Failed End Condition | Not click the logout button. | |
| Actors: | Admin, doctor, farmer | |
| Trigger | Logout requests will be sent to the server. | |
| Description | Step | Action |
| | 1. | Go to logout button and click. |
| Alternative Flows | Any mistake of click the button. | |
| Quality Requirements | Requirement: Logout within 5s. | |

Table 3.1.2.9 Logout

3.2 Activity Diagram

Registration

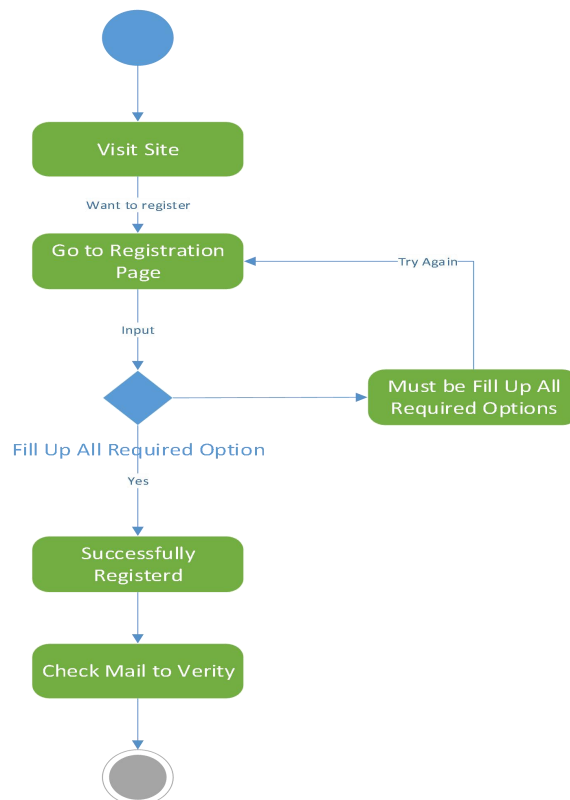


Figure 3.2.1 Registration

Login

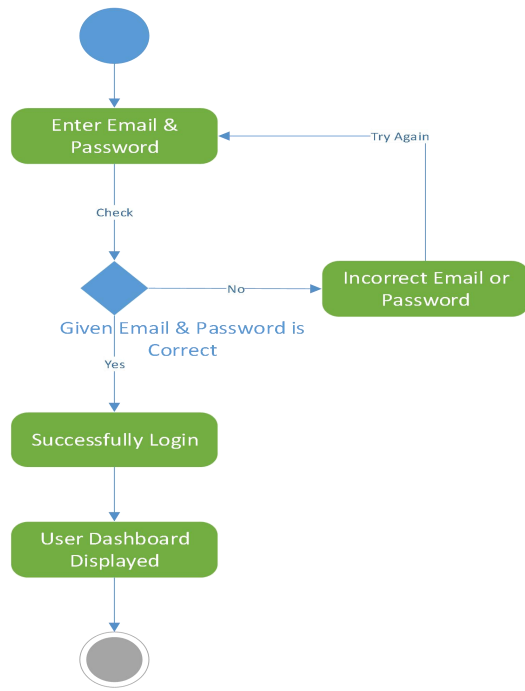


Figure 3.2.2 Login

Manage Profile:

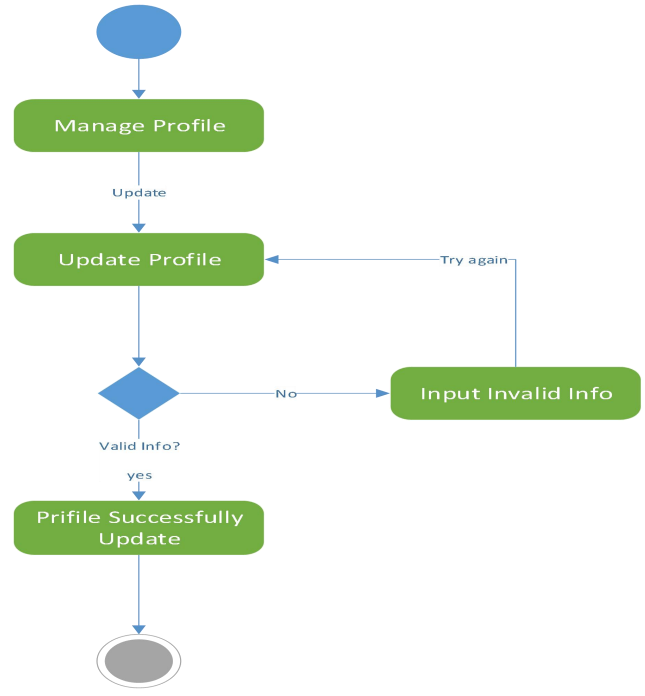


Figure 3.2.3 Manage Profile

Manage Session:

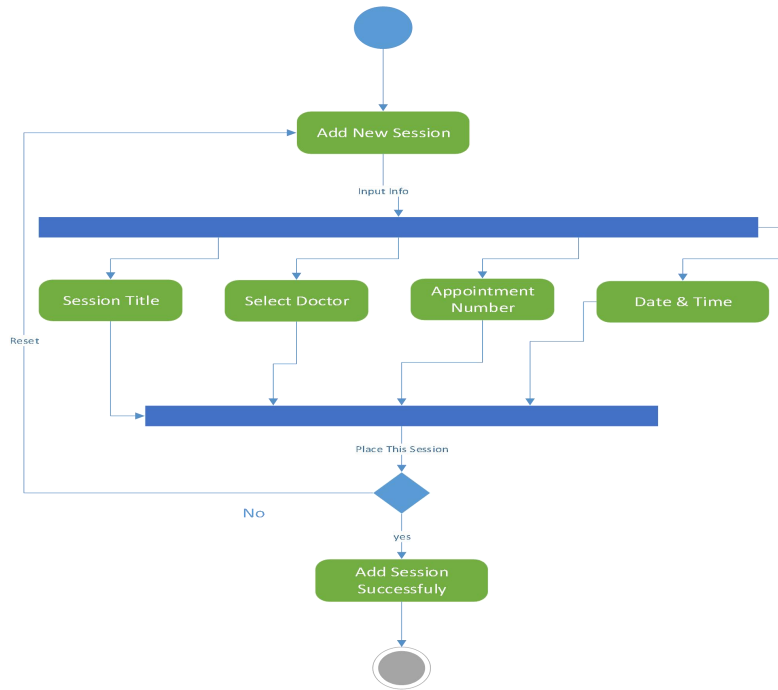


Figure 3.2.4 Manage Session

Handle Doctor:

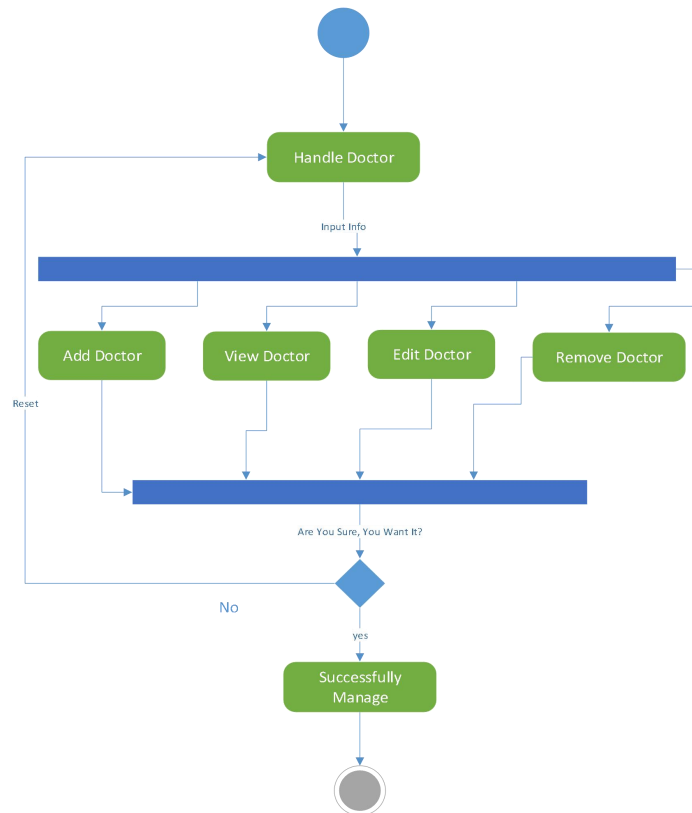


Figure 3.2.5 Handle Doctor

Get Appointment:



Figure 3.2.6 Get Appointment

Manage Booking:

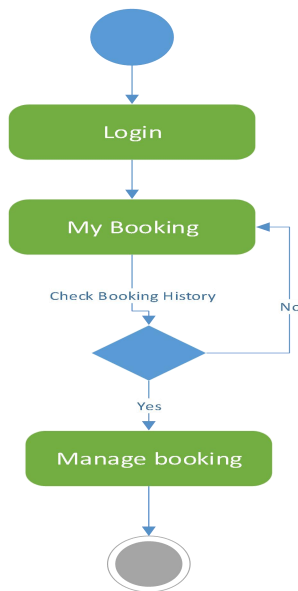


Figure 3.2.7 Manage Booking

Logout:

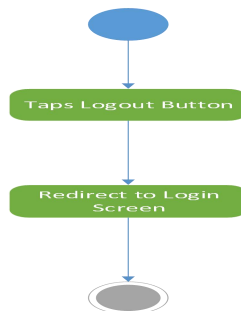


Figure 3.2.8 Logout

Search:

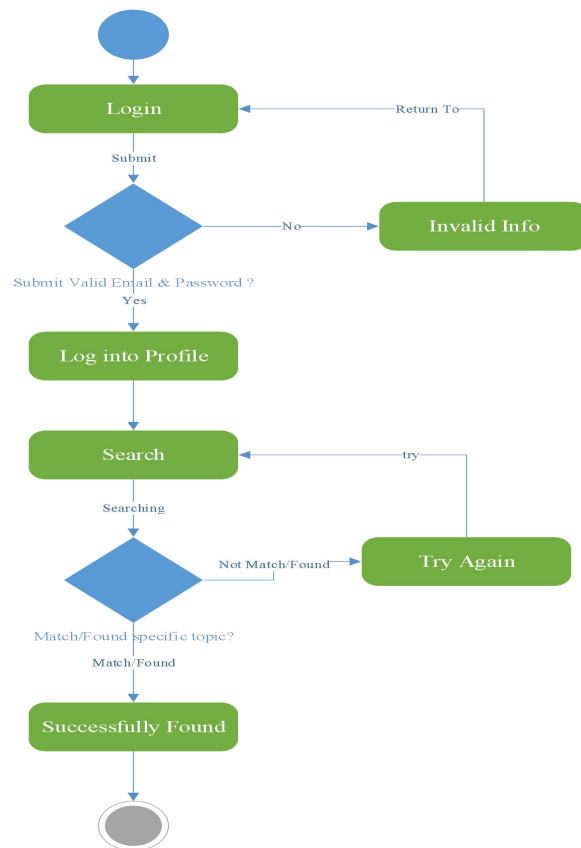


Figure 3.2.9 Search

3.3 Sequence Diagram

Registration:

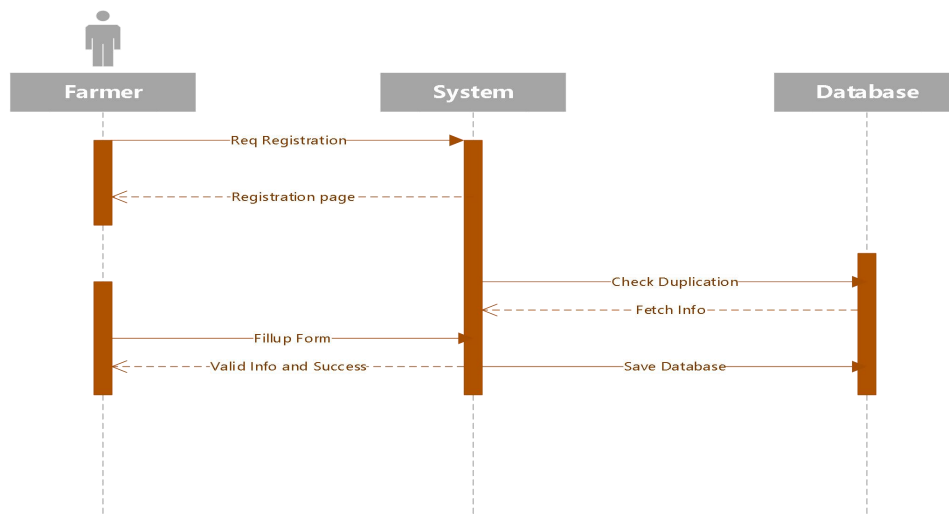


Figure 3.3.1 Registration

Login:

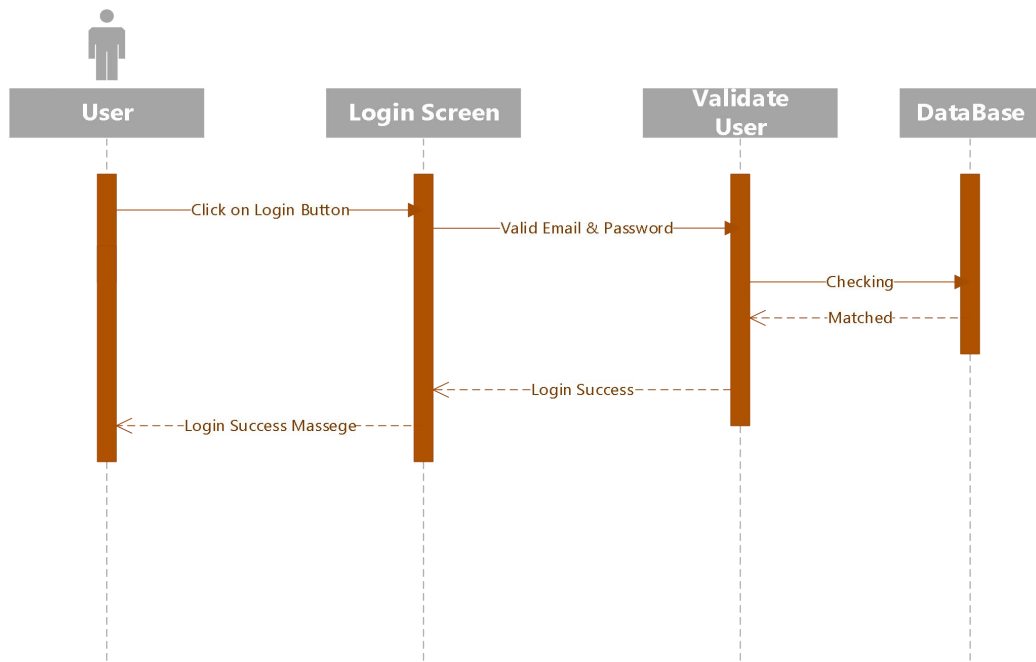


Figure 3.3 .2 Login

Manage Profile:

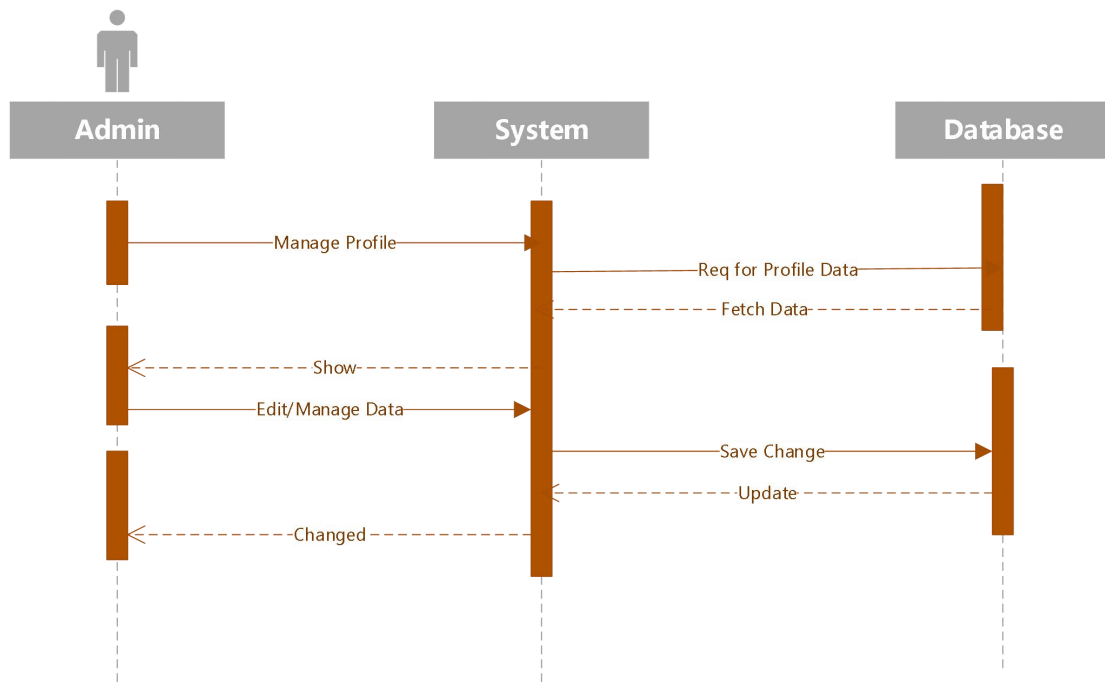


Figure 3.3.3 Manage Profile

Manage Session:

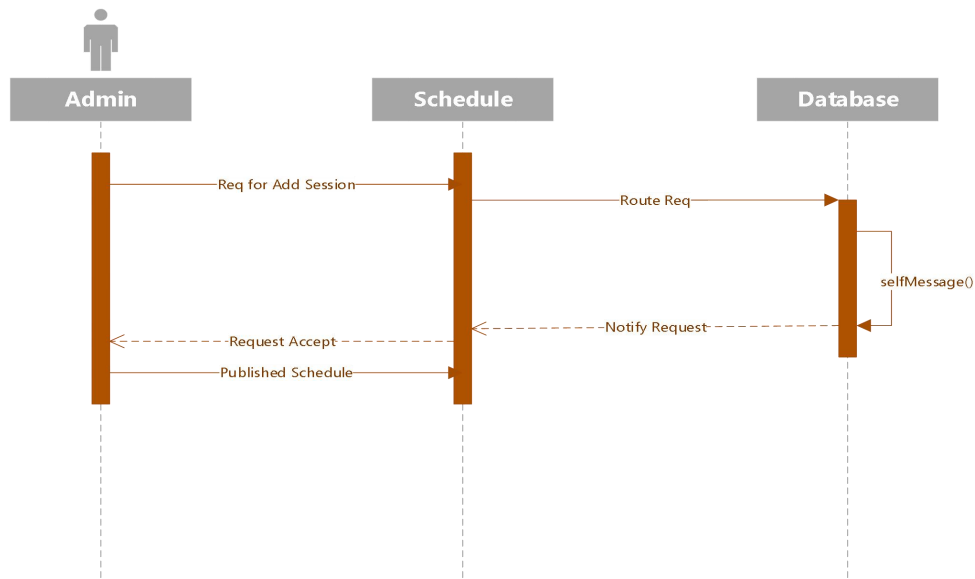


Figure 3.3.4 Manage Session

Handle Doctor:

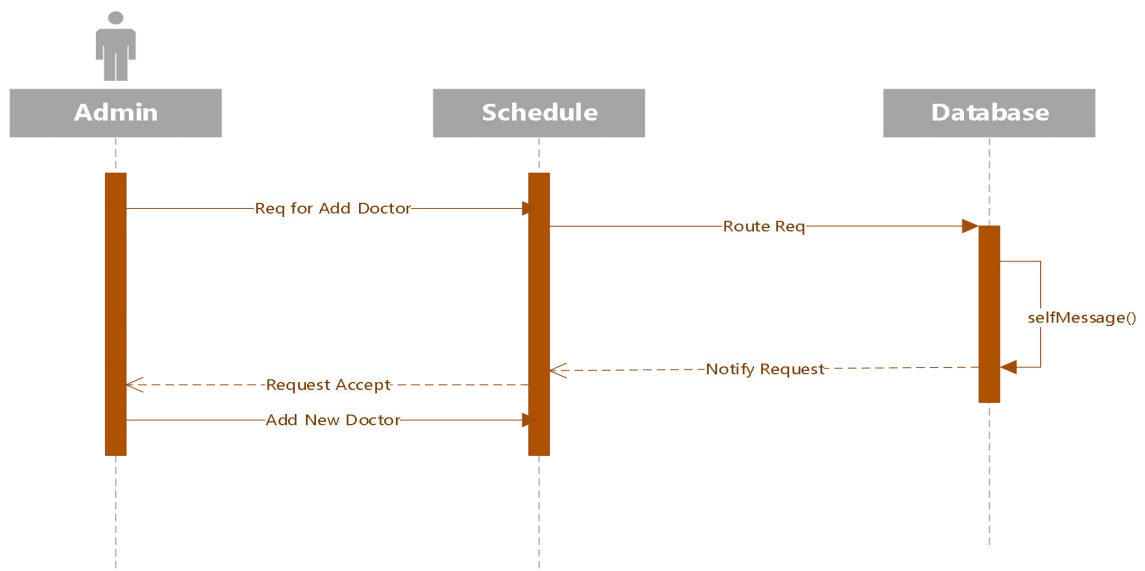


Figure 3.3.5 Handle Doctor

Get Appointment:

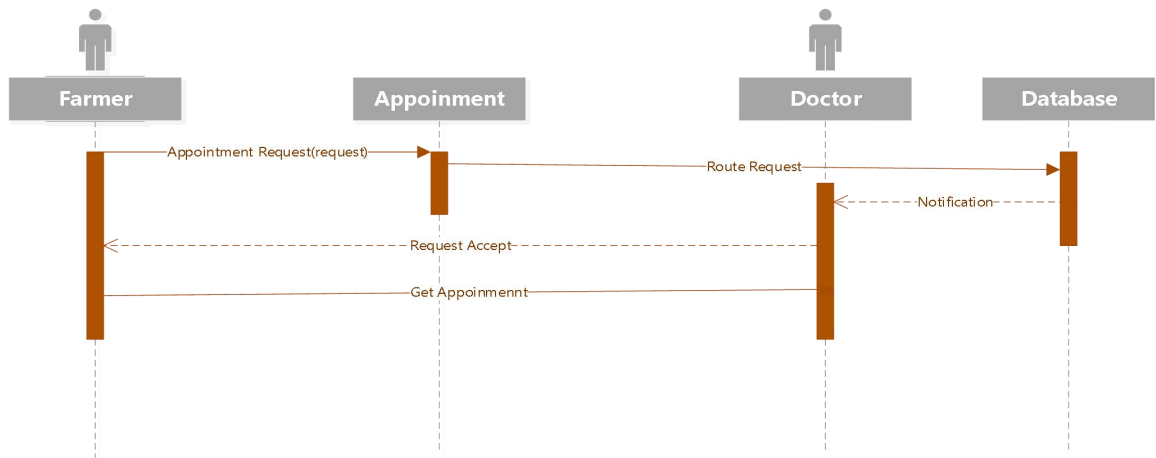


Figure 3.3.6 Get Appointment

Search:

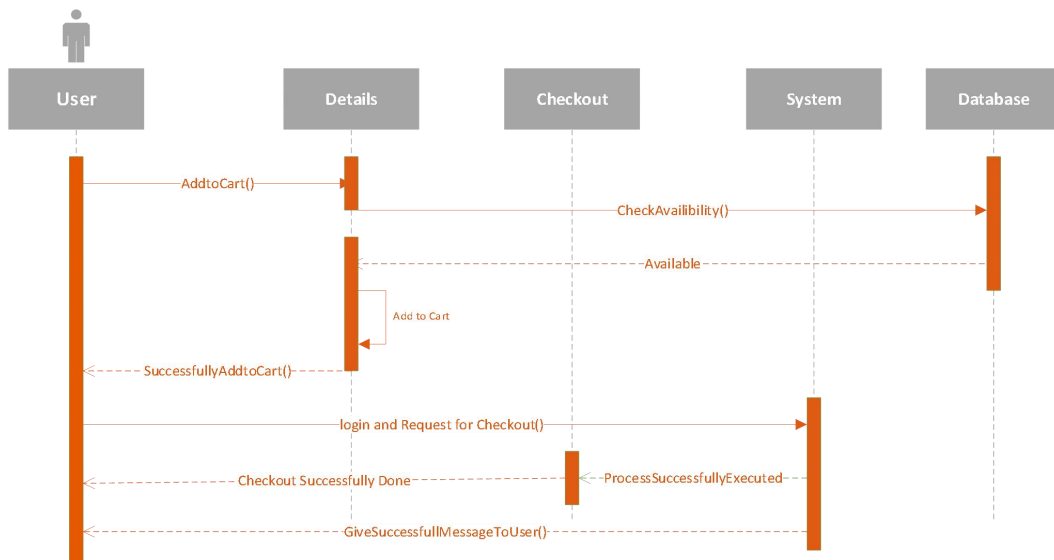


Figure 3.3.7 Search

Logout:

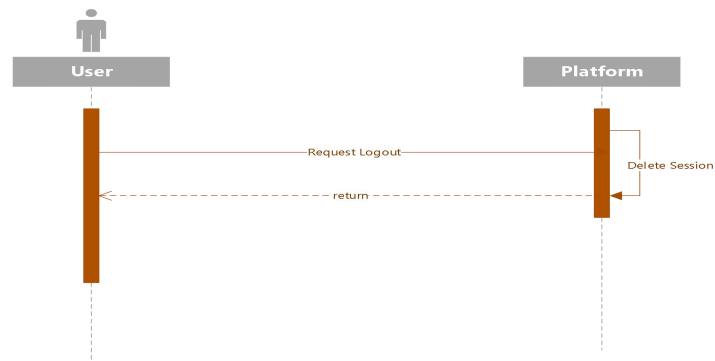


Figure 3.3.8 Logout

3.4 Entity Relationship Diagram



Figure 3.4 ERD

Chapter 4 - Development Tools & Technology

4.1 IDE:

Visual Studio Code Editor (vs code)

4.2 Programming Language:

For developing my website, I use a programming language called php.

4.3 User interface Design:

- i) Using HTML to create user interface.
- ii) Using CSS for design.
- iii) JavaScript
- iv) Using a CSS framework and it is Bootstrap.

4.4 Database:

I have used MySQL database management system as database.

Chapter 5 – System Testing

5.1 Testing Features

5.1.1 Feature to be Tested.

Booking Process:

-Calendar Availability:

- Verify agronomist schedules are accurate and displayed correctly.
- Test filtering by agronomist specialties and locations.
- Check for real-time booking availability updates.
- Test options for different duration.

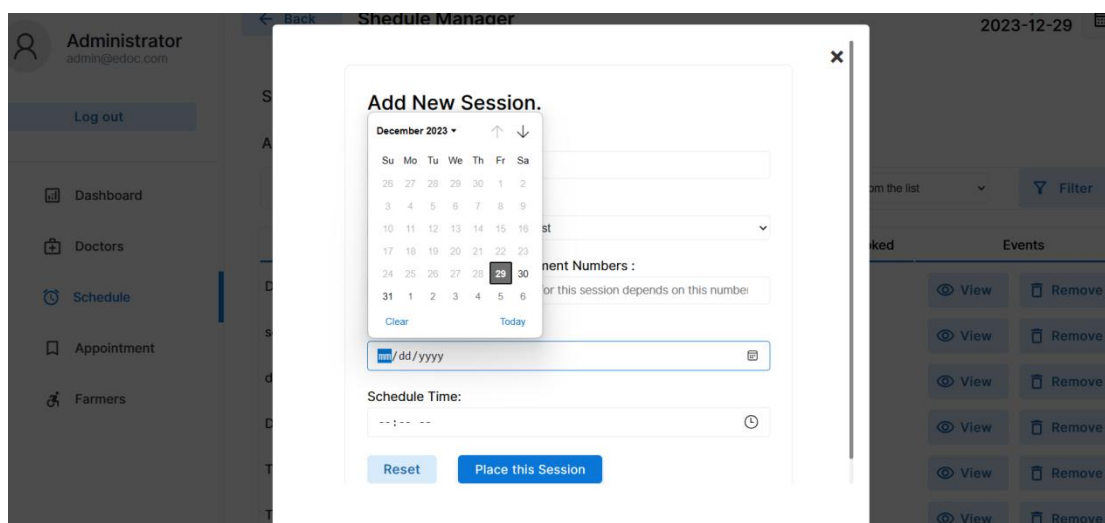


Figure 5.1.1.1 Calendar Availability

-User Input Validation:

- Ensure proper validation of farmer information (name, email, telephone, farm details).
- Verify appointment details validation (date, time, type, specialist)
- Check for per-consultation document validation.

Let's Get Started

It's Okey, Now Create User Account.

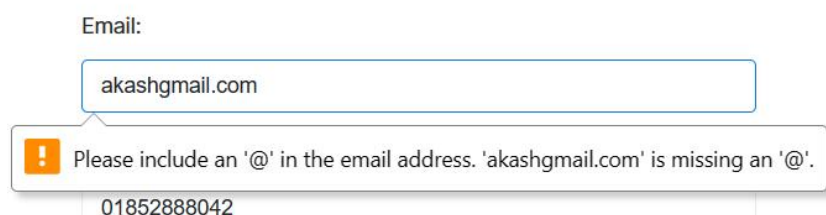


Figure 5.1.1. 2 User Input Validation

-Confirmation & Reminders:

- Test automated confirmation messages with appointment details in farmer's schedule session.
- Send appointment reminders via message before the scheduled time.

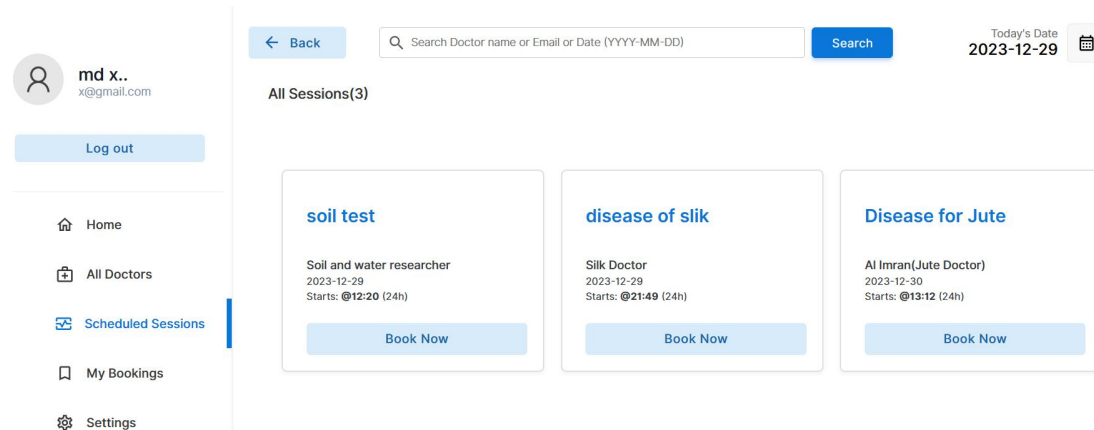


Figure 5.1.1.3 Available Sessions

User Interface:

-Easy to use:

- Design a user-friendly interface with clear navigation and labels.
- Account for varying technical skills of farmers.

-Responsiveness:

- Ensure optimal booking experience on both desktop and mobile devices.
- Adjust layout and elements for smaller screens.
- Test functionality across android, Linux, mac and some others.

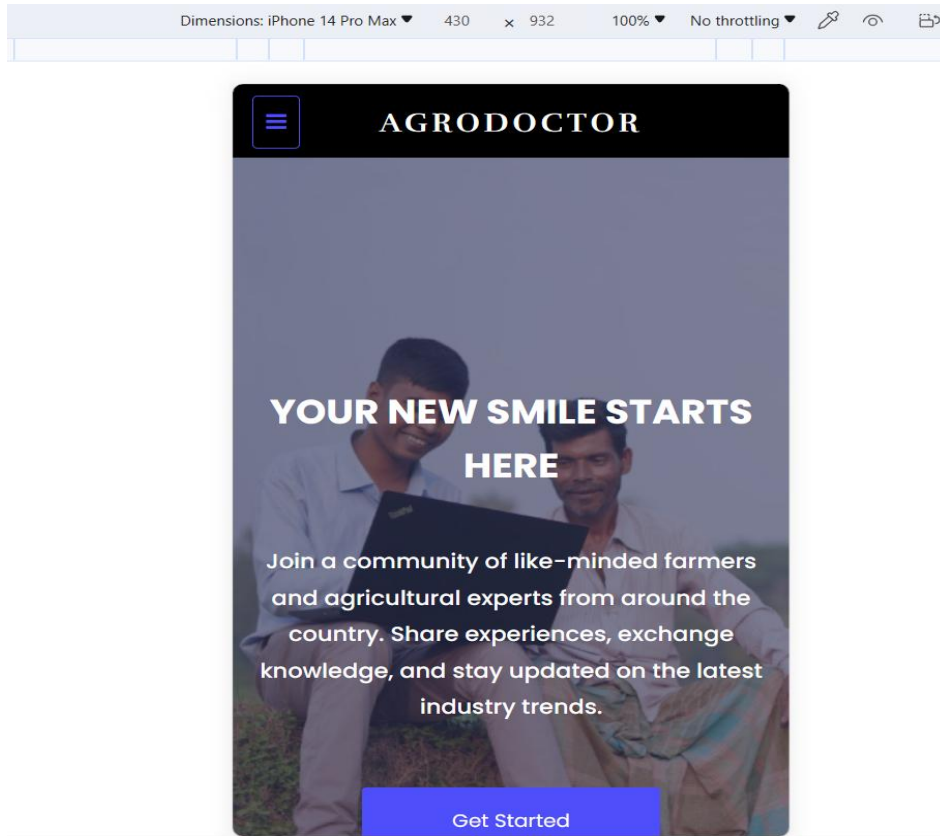


Figure 5.1.1.4 Responsiveness Check

-Accessibility Features:

- Make the interface compatible with assistive technologies for users with disabilities.
- Implement keyboard navigation and screen reader compatibility.
- Offer alternative text descriptions for images and elements.

Security and Privacy:

-Data Encryption:

- Ensure all farmer data and appointment details are securely encrypted at rest and in transit.
- Implement data security draft and willingness with relevant rule.

-Authentication and Authorization:

- Secure user logins with verified email.

- Implement role-based access controls to restrict unauthorized access.
- Securely store agronomist profiles and credentials.

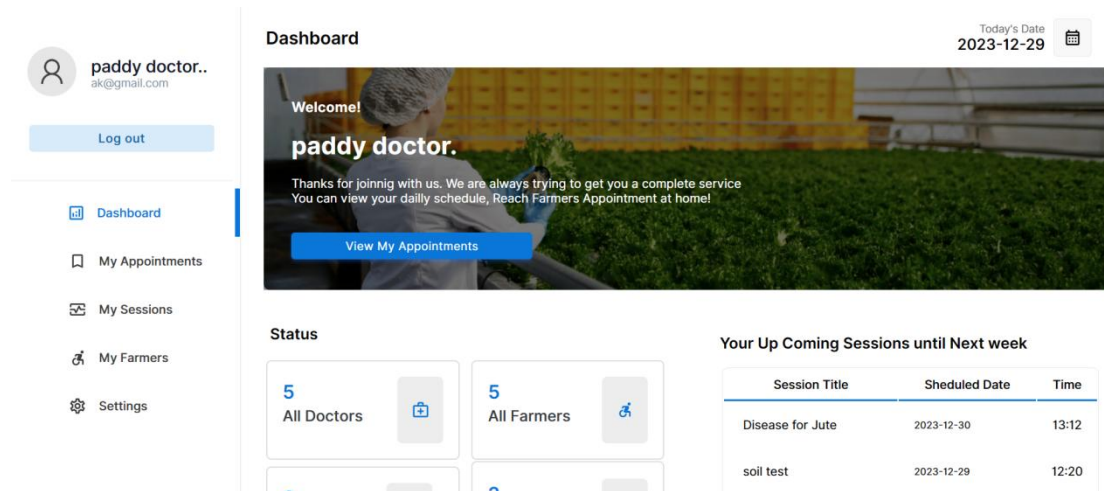


Figure 5.1.1.5 Valid Doctor Dashboard

-Appointment History and Management:

- Provide farmers access to their appointment history for easy reference.
- Allow farmers to reschedule or cancel appointments with sufficient notice.

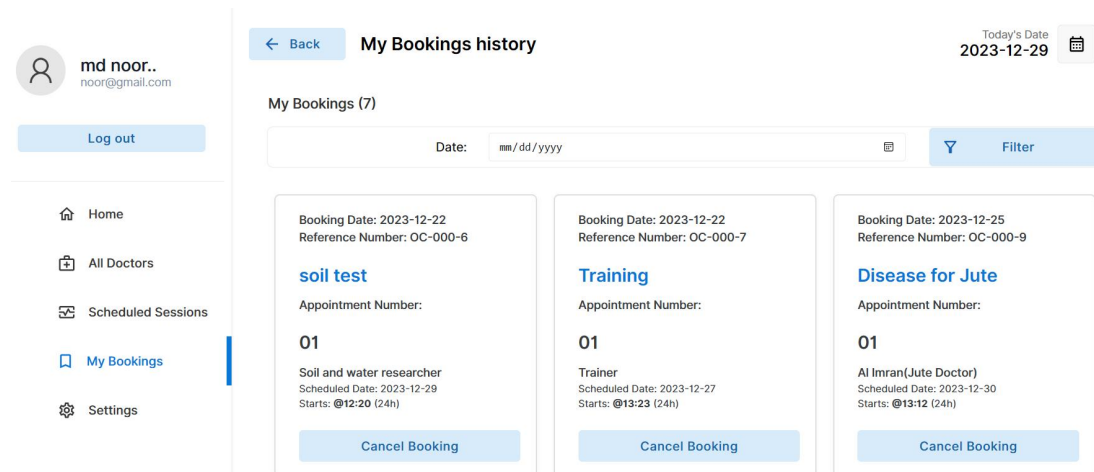


Figure 5.1.1.6 Booking History

-Integration with Agricultural Data:

- Explore potential integration with farm data platforms to provide context for consultations.

- Allow agronomists to access relevant farm data before and during appointments.

5.2 Testing Strategies

5.2.1 Test Approaches:

White-box testing: Experiment with internal code structure and logic.

Black-box testing: Focuses on external attitude without knowledge of internal code structure.

Manual testing: Performed by testers who interact with the software directly.

Automated testing: Improve tools to fulfill test cases without manual intervention.

Agile testing: Integrated into the development process with running testing and feedback cycles.

5. Pass/Fail Criteria

Pass:

- Users can successfully book appointments with agronomists at any time during available slots.
- Date figure availability reflects accurate and real-time updates.
- User input validation ensures correct information for farmers and agronomists.
- Confirmation emails and SMS messages are sent and received successfully.
- All functionalities are clearly labeled and accessible.
- The interface is responsive and adjusts well to different device sizes and screens.
- Appointment details are securely encrypted, and controls restrict unauthorized access.
- Appointment history and management functionality work effectively.
- Integration with agricultural data platforms provides valuable context for consultations.

Fail:

- Users encounter errors or are unable to book appointments within available slots.
- Calendar displays inaccurate or outdated availability.
- User input validation allows incorrect or incomplete information.
- Confirmation messages are not sent or received or contain errors.
- Functionalities are poorly labeled or hidden, hindering user discovery.
- The interface is not responsive or functions poorly on some devices or browsers.
- Evidence of data breaches or vulnerabilities in the system's security.
- Weak user authentication allows unauthorized access or account compromise.
- Inappropriate access controls expose sensitive information to unauthorized users.
- Review system malfunctions or technical issues.
- Appointment history is inaccurate, incomplete, or inaccessible.
- Integration with agricultural data platforms leads to errors or inaccurate information.

5.2.3 Testing Schedule**Unit Testing:**

Duration: 2-3 weeks

Focus: Test individual modules and functionalities in separation.

Activities:

- Booking flow, user management, data validation.
- Take advantage of automated testing tools for skill and repeatability.
- Identify and fix bugs as they arise in individual modules.

Integration Testing:

Duration: 2-4 weeks

Focus: Test how different modules and functionalities interact with each other.

Activities:

- Develop test cases for scenarios containing multiple modules, like booking an appointment and sending confirmation.
- Manually copy user actions and observe system behavior.
- Identify and address integration issues and data irrelevance.

System Testing:

Duration: 2-3 weeks

Focus: Test the entire system as a whole for functionality, performance, and security.

Activities:

- Execute widespread test cases covering all system features and functionalities.
- Utilize performance testing tools to assess system responsiveness under different load conditions.
- Conduct infiltration testing to identify potential security vulnerabilities.
- Fix any critical bugs or performance issues discovered during testing.

User Acceptance Testing:

Duration: 2-3 weeks

Focus: Evaluate the system usability and user experience from the perspective of real users.

Activities:

- Recruit farmers and doctors to participate in user testing sessions.

- Observe users interacting with the system and gather feedback on ease of use

5.3 Test Cases

5.3.1 Unit Testing

Unit test-01

| Test Case Name | Unit Test-01 | | |
|------------------|--|--|--|
| Test Class | Doctor registration by admin | | |
| Test Description | Doctor name, telephone number, email validation for doctor registration | | |
| Data Source | Test Step | Expected Result | Actual Result |
| User Entry | 1. Filling all required fields except the doctor's name field. 2. Submit the form | An error message should return that doctor name/telephone/email must not be empty. | A message is showing that doctor name, telephone, email are required for getting registered. |

Table 5.3.1.1 Unit Test-01

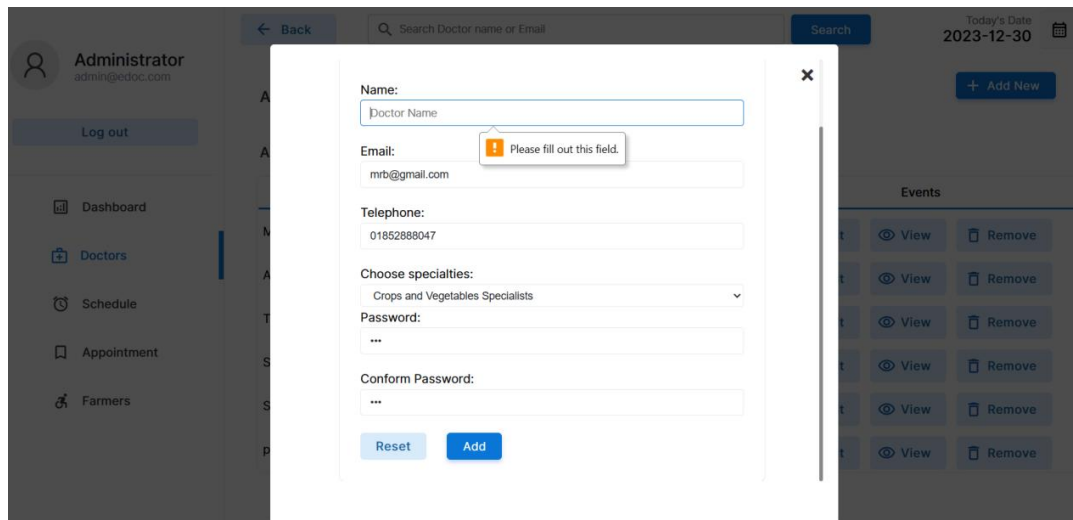


Figure Result of unit test 1

Unit test-02

Unit test-02

| Test Case Name | Unit Test-02 | | |
|------------------|--|--|---|
| Test Class | Show appointment list | | |
| Test Description | Check appointment list. | | |
| Data Source | Test Step | Expected Result | Actual Result |
| System | 1. login as admin 2. check the current farmer appointment request page. | Pending appointment requests should displayed. | The result is as expected and showing pending booking requests. |


Table 5.3.1.2 Unit Test 02

Figure 5.3.2 All Appointment

Unit test-03

| Test Case Name | Unit Test-03 | | |
|------------------------|---|--|---|
| Test Class | Appointment List | | |
| Test Description | Show farmers appointment list with details | | |
| Data Source | Test Step | Expected Result | Actual Result |
| Appointment controller | 1. login admin 2. click on the Appointment option. | Whenever press a key the list should be shown. | The result is as expected. The appointment list show. |

Table 5.3.1.3 Unit Test-03



Administrator
admin@edoc.com

Log out

- Dashboard
- Doctors
- Schedule
- Appointment
- Farmers

← Back **Appointment Manager**

Today's Date
2023-12-30

All Appointments (9)

Date: Doctor: Filter

| Farmer's name | Appointment number | Doctor | Session Title | Session Date & Time | Appointment Date | Events |
|---------------|--------------------|---------------------------|-----------------|---------------------|------------------|--------|
| md noor | 1 | Al Imran(Jute Doctor) | Disease for Jut | 2023-12-30 13:12 | 2023-12-25 | Cancel |
| md noor | 1 | Soil and water researcher | soil test | 2023-12-29 12:20 | 2023-12-22 | Cancel |
| md noor | 2 | Soil and water researcher | soil test | 2023-12-29 12:20 | 2023-12-27 | Cancel |
| md noor | 3 | Soil and water researcher | soil test | 2023-12-29 12:20 | 2023-12-27 | Cancel |
| md noor | 4 | Soil and water researcher | soil test | 2023-12-29 12:20 | 2023-12-27 | Cancel |
| md noor | 5 | Soil and water researcher | soil test | 2023-12-29 12:20 | 2023-12-28 | Cancel |
| md noor | 1 | Trainer | Training | 2023-12-27 13:23 | 2023-12-22 | Cancel |
| Al Ak | 1 | paddy doctor | Test 2 | 2023-12-20 11:56 | 2023-12-18 | Cancel |

5.3.2 Module Testing

Module Test-01

| Test Case Name | Module Test-01 | | |
|------------------|---|--|--|
| Test Class | Admin\Farmer Controller | | |
| Test Description | Farmer registration attempt without input. | | |
| Data Source | Test Step | Expected Result | Actual Result |
| Admin | 1. login as admin 2. click on add new farmer. 3. press on save button without giving any value to the form. | Error message should be displayed for all required fields. | The actual result displaying that the Agronomist name, email, and phone must not be empty. |

Table 5.3.2.1 Module Test -01

Let's Get Started

It's Okey, Now Create User Account.

Email:

Mobile Number: ! Please fill out this field.

Create New Password:

Conform Password:

Reset
Sign Up

Already have an account? [Login](#)

Figure 5.3.2.1 Registration Attempt Without Input

Module test -02

| Test Case Name | Module Test-02 | | |
|------------------|---|--|---|
| Test Class | Farmer Controller | | |
| Test Description | Farmer registration test by the medical officer with invalid data format. | | |
| Data Source | Test Step | Expected Result | Actual Result |
| Admin | 1. login 2. give an invalid email address. | A message should display that the input field contains invalid data. | It shows that email address is invalid. |

Table 5.3.2.2 Module Test -02

Let's Get Started

It's Okey, Now Create User Account.

Email:

jim@gmail.com

Mob



A part following '@' should not contain the symbol ' '.

01852888046

Create New Password:

...

Conform Password:

...

Reset

Sign Up

Already have an account? [Login](#)

Figure 5.3.2.2 Registration with Invalid Data

5.3.3 Integration Testing

| Test Case Name | Integration Test-0 | | |
|------------------|--|---|---|
| Test Class | 1. Login Controller. 2. Redirect If Authenticated Middleware. | | |
| Test Description | Successful login attempt and dashboard redirect. | | |
| Data Source | Test Step | Expected Result | Actual Result |
| Farmer | 1. go to login page. 2. provide valid | The farmer should be authenticated, and login should successful and | It shows that email address is invalid. |

| | | | |
|--|--|-----------------------------------|--|
| | credentials. 3. press on login | redirected to the farmer home. | |
|--|--|-----------------------------------|--|

Table 5.3.3 Integration Testing

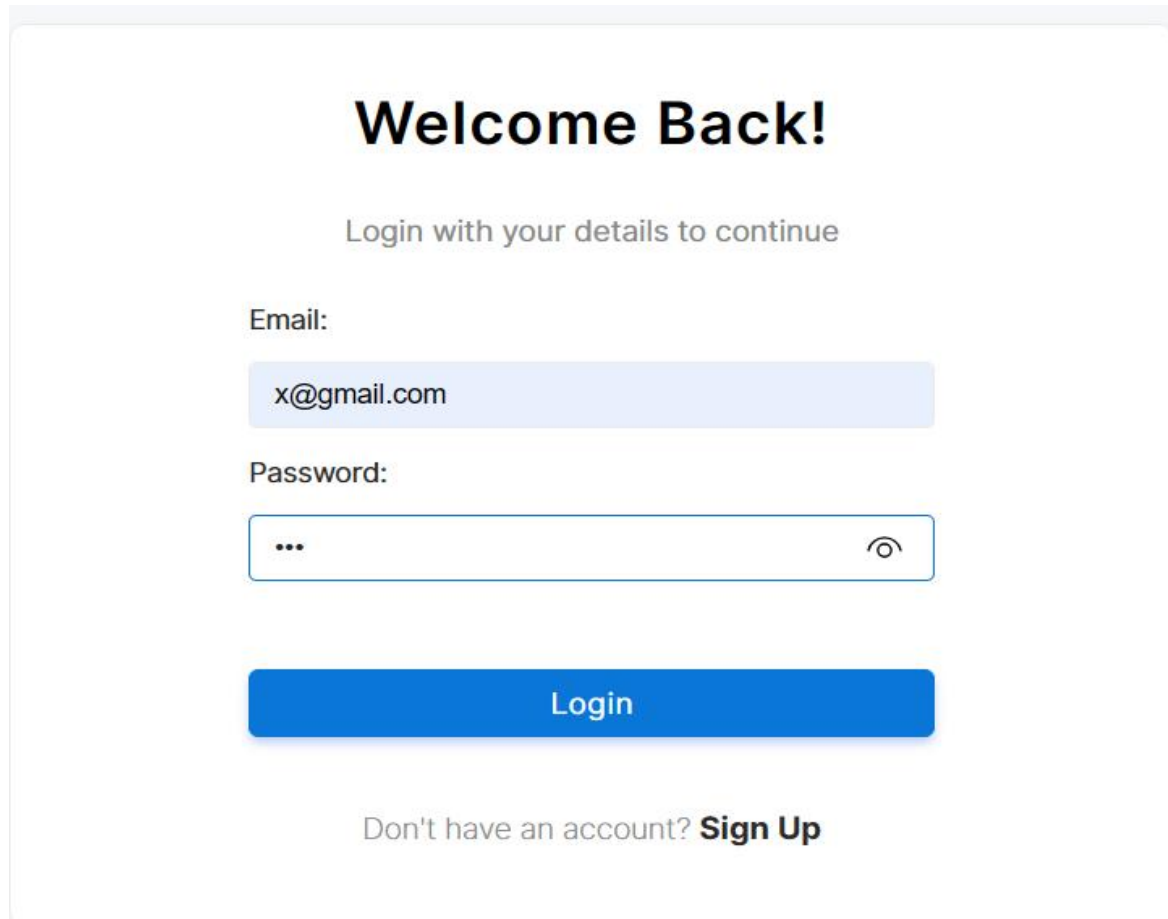


Figure 5.3.3 .1 Successfully Login

5.3.4 Acceptance Testing

login | Accept Request | Show profile with details

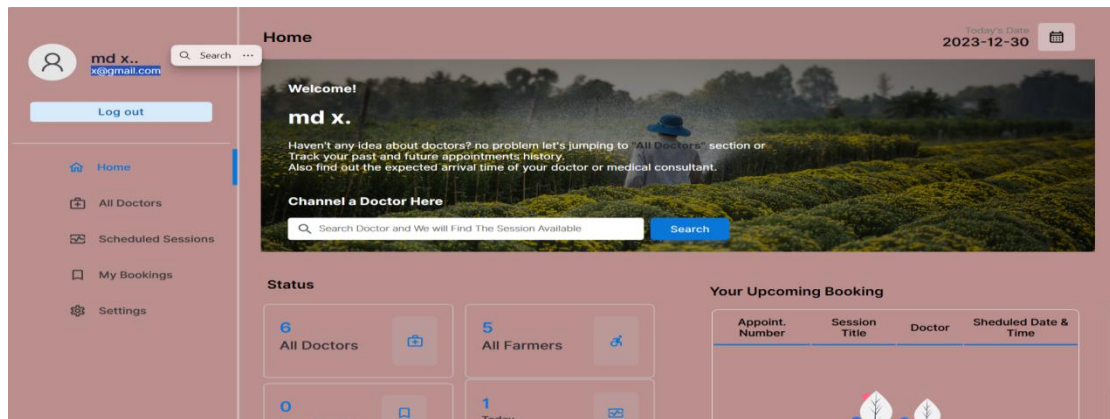


Figure 5.3.4 Acceptance Testing

5.3.5 Security Testing

5.3.5 Security Testing

| Test Case Name | Security Test | | |
|------------------|---|---|----------------------------|
| Test Class | Login Controller. | | |
| Test Description | Invalid login attempt security testing | | |
| Data Source | Test Step | Expected Result | Actual Result |
| Admin | 1. Go to the login page. 2. Provide invalid credential and try to login. | Should not logged in and a message should show. | The result is as expected. |

Table 5.3.5 Security Testing

Welcome Back!

Login with your details to continue

Email:

Password:

We cant found any account for this email.

Don't have an account? [Sign Up](#)

Figure 5.3.5 Invalid Login Attempt

5.3.6 Accessibility Test

| Test Case Name | Accessibility Test | | |
|------------------|----------------------------------|------------------------------|----------------------------|
| Test Class | Admin Controller. | | |
| Test Description | User friendliness testing | | |
| Data Source | Test Step | Expected Result | Actual Result |
| Admin | Giving a admin to use the system | The system is user friendly. | The result is as expected. |

Table 5.3.6 Accessibility Test

Chapter 6 - User Manual

6.1 Farmers

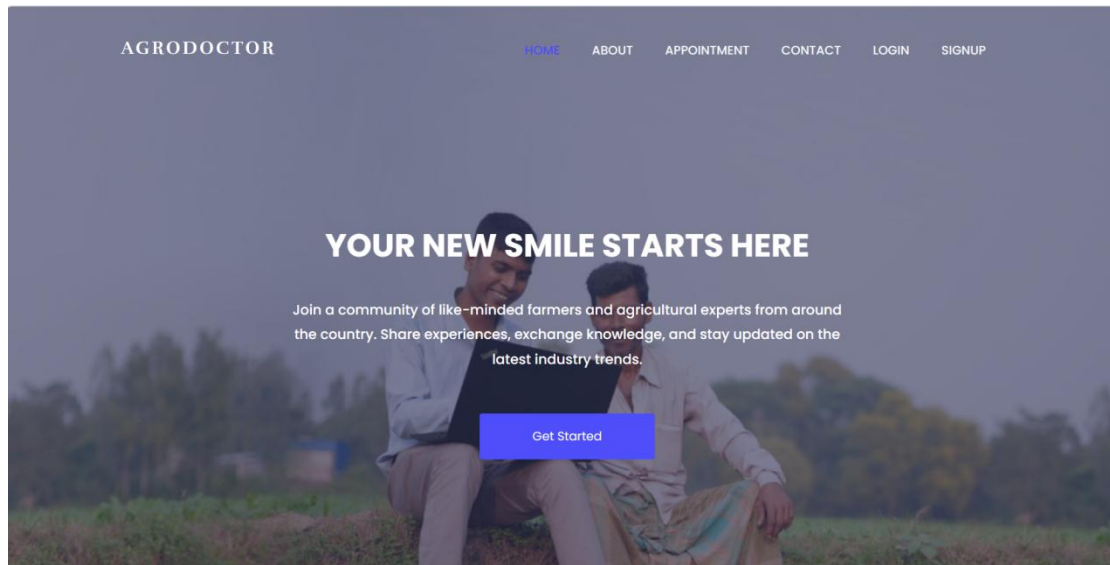


Figure 6.1.1 Home

Let's Get Started

Add Your Personal Details to Continue

Name:

First Name Last Name

Address:

Address

Date of Birth:

mm/dd/yyyy

Reset Next

Already have an account? [Login](#)

Figure 6.1.2 Registration Farmer

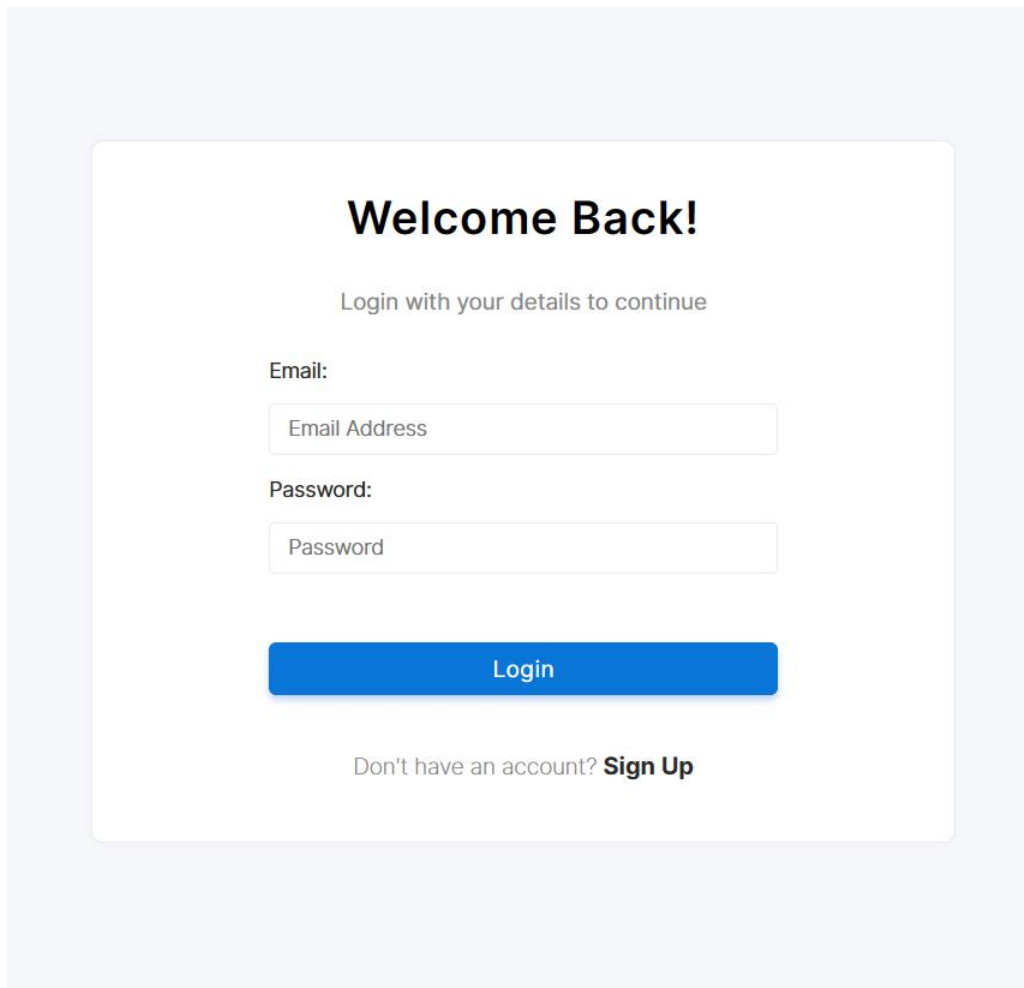


Figure 6.1.3 Login

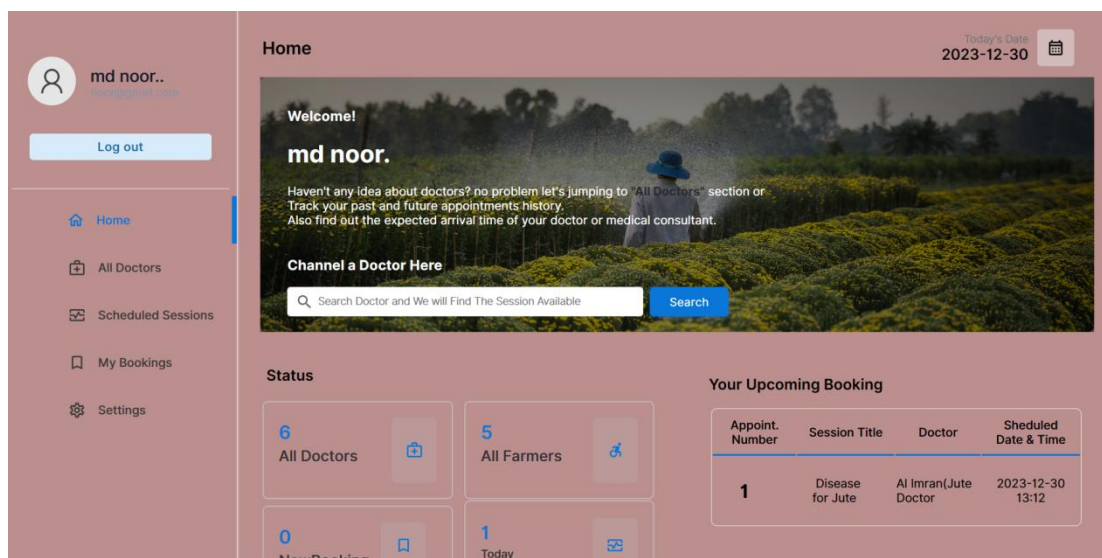


Figure 6.1.4 Farmer Dashboard

md noor..
noor@gmail.com

Log out

- Home
- All Doctors
- Scheduled Sessions
- My Bookings
- Settings

← Back Search Doctor name or Email Search Today's Date 2023-12-30

All Doctors (6)

| Doctor Name | Email | Specialties | Events |
|---------------------------|-----------------|----------------------|---|
| Mr. A | mr@gmail.com | Crops and Vegetables | View Sessions |
| Al Imran(Jute Doctor) | imran@gmail.com | Jute Specialist | View Sessions |
| Trainer | train@gmail.com | Jute Specialist | View Sessions |
| Soil and water researcher | soil@gmail.com | Jute Specialist | View Sessions |
| Silk Doctor | sd@gmail.com | Crops and Vegetables | View Sessions |
| paddy doctor | ak@gmail.com | Paddy Specialist | View Sessions |

Figure 6.1.5 Available Doctors

md noor..
noor@gmail.com

Log out

- Home
- All Doctors
- Scheduled Sessions
- My Bookings
- Settings

← Back Search Doctor name or Email or Date (YYYY-MM-DD) Search Today's Date 2023-12-30

All Sessions(1)

Disease for Jute

Al Imran(Jute Doctor)
2023-12-30
Starts: @13:12 (24h)

[Book Now](#)

Figure 6.1.6 Scheduled Sessions

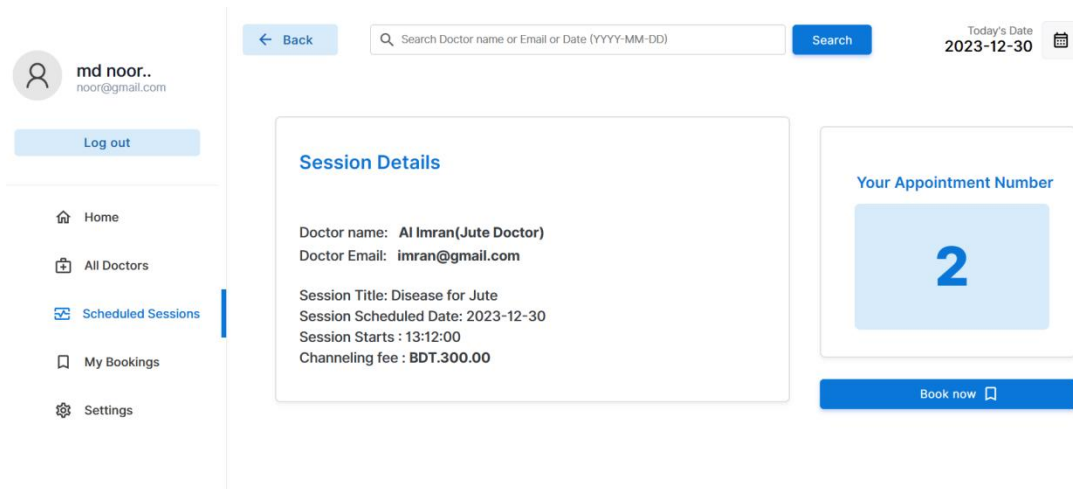


Figure 6.1.7 Booking Process

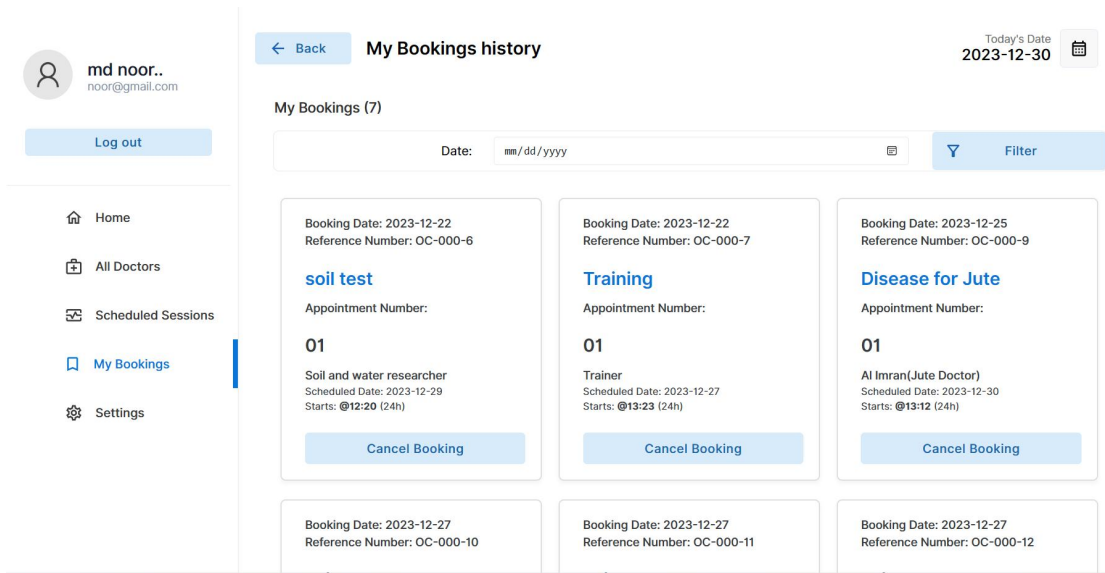


Figure 6.1.8 Cancel Booking

6.2 User Manual for Agronomist

Dashboard Today's Date
2023-12-30

Welcome!
AI Imran(Jute Doctor).
Thanks for joining with us. We are always trying to get you a complete service
You can view your daily schedule, Reach Farmers Appointment at home!

[View My Appointments](#)

Status

- 6 All Doctors
- 5 All Farmers
- 0 NewBooking
- 1 Today Sessions

Your Up Coming Sessions until Next week

| Session Title | Sheduled Date | Time |
|------------------|---------------|-------|
| Disease for Jute | 2023-12-30 | 13:12 |

Figure 6.2.1 Agronomist Dashboard

Appointment Manager Today's Date
2023-12-30

My Appointments (1)

Date: [Filter](#)

| Farmer name | Appointment number | Session Title | Session Date & Time | Appointment Date | Events |
|-------------|--------------------|-----------------|---------------------|------------------|------------------------|
| md noor | 1 | Disease for Jut | 2023-12-30 @13:12 | 2023-12-25 | Cancel |

Figure 6.2.2 Appointments List

AI Imran(Jute..
imran@gmail.com)

Log out

- Dashboard
- My Appointments
- My Sessions**
- My Farmers
- Settings

← Back **My Sessions** Today's Date 2023-12-30

My Sessions (2)

Date: mm/dd/yyyy Filter

| Session Title | Scheduled Date & Time | Max num that can be booked | Events | |
|------------------|-----------------------|----------------------------|----------------------|--------------------------------|
| Disease for Jute | 2023-12-30 13:12 | 10 | View | Cancel Session |
| Disease for Jute | 2023-12-28 19:00 | 1 | View | Cancel Session |

Figure 6.2. 3 Available Sessions

AI Imran(Jute..
imran@gmail.com)

Log out

- Dashboard
- My Appointments
- My Sessions
- My Farmers**
- Settings

← Back Search Farmer name or Email Search Today's Date 2023-12-30

My Farmers (1)

Show Details About : My Farmers Only Filter

| Name | Telephone | Email | Date of Birth | Events |
|---------|------------|----------------|---------------|----------------------|
| md noor | 0170606139 | noor@gmail.com | 2023-12-21 | View |

Figure 6.2.4 Available Farmers List

6.3 Admin Panel

The Admin Dashboard features a sidebar with navigation options: Dashboard, Doctors, Schedule, Appointment, and Farmers. The main content area includes a search bar for doctors, a status overview, and two sections for upcoming appointments and sessions.

Status

- 6 Doctors
- 5 Farmers
- 0 NewBooking
- 1 Today Sessions

Upcoming Appointments until Next Saturday

Here's Quick access to Upcoming Appointments until 7 days
More details available in @Appointment section.

| Appointment number | Farmer name | Doctor | Session |
|--------------------|-------------|-----------------------|------------------|
| 1 | md noor | Al Imran(Jute Doctor) | Disease for Jute |

[Show all Appointments](#)

Upcoming Sessions until Next Saturday

Here's Quick access to Upcoming Sessions that Scheduled until 7 days
Add,Remove and Many features available in @Schedule section.

| Session Title | Doctor | Scheduled Date & Time |
|------------------|-----------------------|-----------------------|
| Disease for Jute | Al Imran(Jute Doctor) | 2023-12-30 13:12 |

[Show all Sessions](#)

Figure 6.3.1 Admin Dashboard

The Add New Doctor page includes a search bar, a back button, and an add new button. It displays a table of all doctors with their names, emails, specialties, and action buttons for edit, view, and remove.

Add New Doctor

[+ Add New](#)

All Doctors (6)

| Doctor Name | Email | Specialties | Events | | |
|---------------------------|-----------------|----------------------|----------------------|----------------------|------------------------|
| Mr. A | mr@gmail.com | Crops and Vegetables | Edit | View | Remove |
| Al Imran(Jute Doctor) | imran@gmail.com | Jute Specialist | Edit | View | Remove |
| Trainer | train@gmail.com | Jute Specialist | Edit | View | Remove |
| Soil and water researcher | soil@gmail.com | Jute Specialist | Edit | View | Remove |
| Silk Doctor | sd@gmail.com | Crops and Vegetables | Edit | View | Remove |
| paddy doctor | ak@gmail.com | Paddy Specialist | Edit | View | Remove |

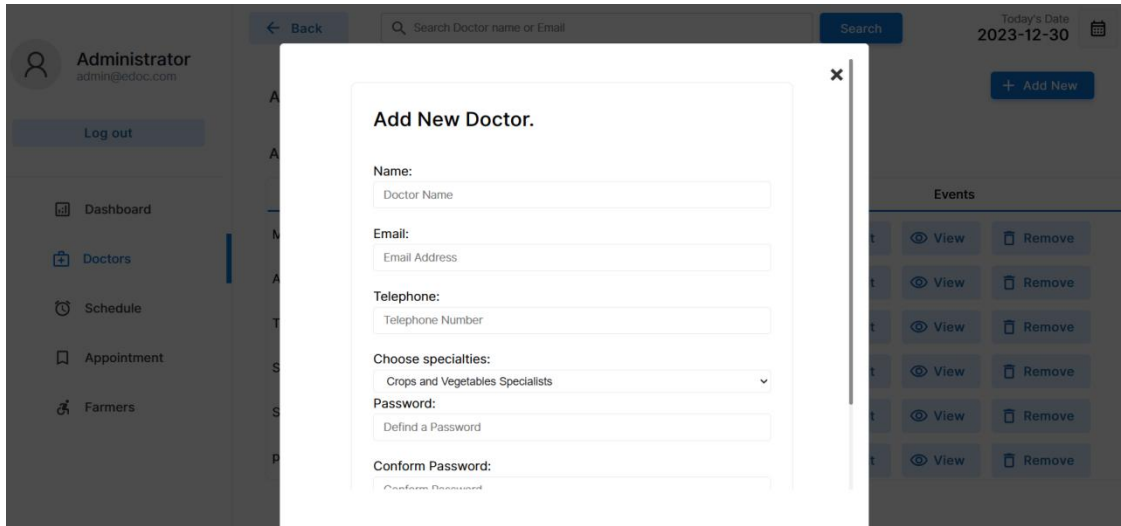
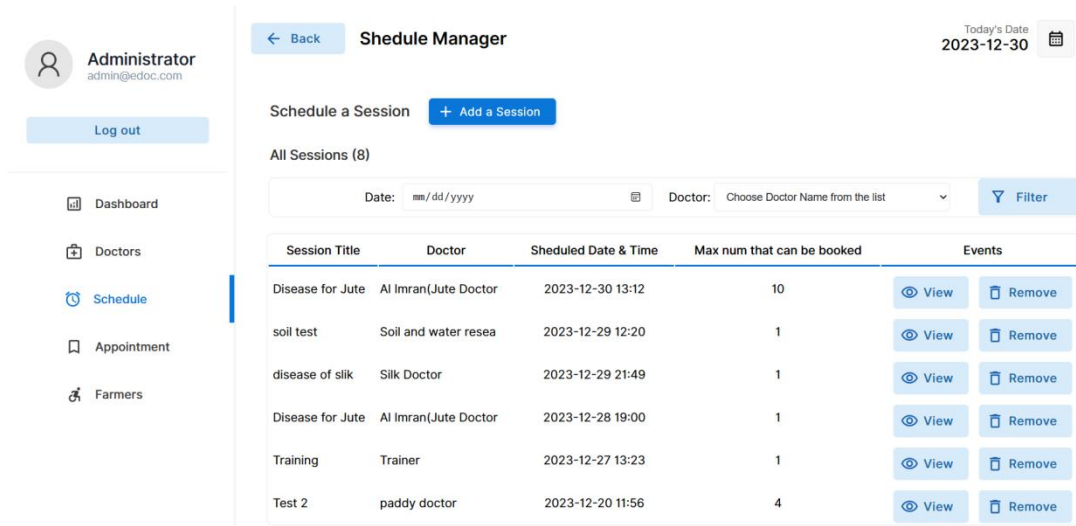


Figure 6.3.2 Add Doctors



✕

Add New Session.

Session Title :


Select Doctor:

Number of Farmers/Appointment Numbers :

Session Date:

Schedule Time:

Figure 6 .3.3 Add Sessions



Administrator
admin@edoc.com

[Log out](#)

← Back **Appointment Manager**

2023-12-30

All Appointments (9)

Date:

Doctor:

[Filter](#)

| Farmer's name | Appointment number | Doctor | Session Title | Session Date & Time | Appointment Date | Events |
|---------------|--------------------|---------------------------|-----------------|---------------------|------------------|------------------------|
| md noor | 1 | Al Imran(Jute Doctor) | Disease for Jut | 2023-12-30 13:12 | 2023-12-25 | Cancel |
| md noor | 1 | Soil and water researcher | soil test | 2023-12-29 12:20 | 2023-12-22 | Cancel |
| md noor | 2 | Soil and water researcher | soil test | 2023-12-29 12:20 | 2023-12-27 | Cancel |
| md noor | 3 | Soil and water researcher | soil test | 2023-12-29 12:20 | 2023-12-27 | Cancel |
| md noor | 4 | Soil and water researcher | soil test | 2023-12-29 12:20 | 2023-12-27 | Cancel |
| md noor | 5 | Soil and water researcher | soil test | 2023-12-29 12:20 | 2023-12-28 | Cancel |
| md noor | 1 | Trainer | Training | 2023-12-27 13:23 | 2023-12-22 | Cancel |
| Al Ak | 1 | paddy doctor | Test 2 | 2023-12-20 11:56 | 2023-12-18 | Cancel |

Figure 6.3.4 Appointment List

Administrator
admin@edoc.com

Log out

- Dashboard
- Doctors
- Schedule
- Appointment
- Farmers

← Back

Search Farmer name or Email

Search

Today's Date
2023-12-30

All Farmers (5)

| Name | Telephone | Email | Date of Birth | Events |
|----------|------------|-----------------|---------------|----------------------|
| md x | 0170606139 | x@gmail.com | 2001-01-02 | View |
| Md Riaz | 0123456786 | riaz@gmail.com | 2000-01-02 | View |
| Md Tomal | 0170061380 | tomal@gmail.com | 2005-12-10 | View |
| md noor | 0170606139 | noor@gmail.com | 2023-12-21 | View |
| Al Ak | | im@gmail.com | 1999-05-06 | View |

Figure 6.3.5 Registered Farmers List

Chapter 7 - Conclusion

7.1 Project Link

<https://github.com/Imranakash/Agronomist-Appointment-System-Agro-Doctor->

7.2 Limitation

The development and maintenance of this web application may be subject to budget limitation, affecting the extent of features, scalability, and support. The system's performance may be limited by the existing technology infrastructure in the territory, especially in faraway or rural areas where access to advanced technology may be limited. The system must operate within the constraints of data security and privacy enactment. Security measures may constrain certain functionalities to ensure the defense of sensitive information.

7.3 Future Scope

In future I want to work of this project. I want to add many features and narrow limitation. I add some industry or shop who sell their product, like farmer can buy many kinds of agricultural instruments or machinery. Farmer can also buy fertilizers and pesticides those agronomists provided for disease. They can buy those products in online or certain shop. Farmer can see many nearest locations and chose any shop. Shops can provide their updated product advertisement in this web application.

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