“VIRTUAL TREE HEALTH ASSISTANT”

BY

MD. RIDOY ISLAM
ID: 181-15-10973

AND

MD BOCKTHIER HASAN BANNA
ID: 181-15-11347

This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Computer Science and Engineering

Supervised By

MR. MD. RIAZUR RAHMAN
Assistant Professor
Department of CSE
Daffodil International University

Co-Supervised By

MR. MD. SADEKUR RAHMAN
Assistant Professor
Department of CSE
Daffodil International University

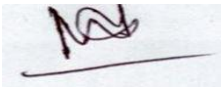
DAFFODIL INTERNATIONAL UNIVERSITY
DHAKA, BANGLADESH

©Daffodil International University

APPROVAL

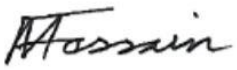
This Project/internship titled **"Virtual Tree Health Assistant"**, submitted by Md Bockthier Hasan Banna, ID No: 181-15-11347 and Md. Ridoy Islam, ID No: 181-15-10973 to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 2nd January, 2022.

BOARD OF EXAMINERS



Chairman

Dr. Md. Ismail Jabiullah
Professor
Department of Computer Science and Engineering
Faculty of Science & Information Technology
Daffodil International University



Internal Examiner

Dr. Md. Fokhray Hossain
Professor
Department of Computer Science and Engineering
Faculty of Science & Information Technology
Daffodil International University

Internal Examiner

Md. Reduanul Haque
Assistant Professor
Department of Computer Science and Engineering
Faculty of Science & Information Technology
Daffodil International University

©Daffodil International University

External Examiner

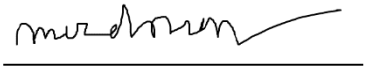
Dr. Mohammad Shorif Uddin
Professor
Department of Computer Science and Engineering
Jahangirnagar University

©Daffodil International University

DECLARATION

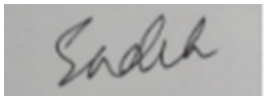
This project has been done by us under the supervision of **MR. MD. Riazur Rahman, Assistant Professor**, Department of CSE Daffodil International University. Furthermore, we declare that this project has neither been submitted elsewhere for the award of any degree or diploma.

Supervised by:

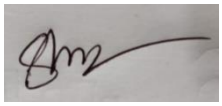


MR. MD. RIAZUR RAHMAN
Assistant Professor
Department of CSE
Daffodil International University

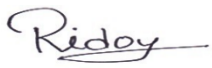
Co Supervised by:



MR. MD. SADEKUR RAHMAN
Assistant Professor
Department of CSE
Daffodil International University



MD BOCKTHEIR HASAN BANNA
ID: 181-15-11347
Department of Computer Science & Engineering
Daffodil International University



MD. RIDOY ISLAM
ID: 181-15-10973
Department of Computer Science & Engineering
Daffodil International University

©Daffodil International University

TABLE OF CONTENTS

CONTENTS	PAGE
Board of examiners	ii
Declaration	iv
List of Figure	vii-viii
Acknowledgments	ix
Abstract	x
CHAPTER	
CHAPTER 1: INTRODUCTION	**1-2**
1.1 Introduction	1
1.2 Motivation	1
1.3 Objectives	1
1.4 Organization of the Report	2
1.5 Expected Outcome	2
CHAPTER 2: Background	**3-6**
2.1 Introduction	3
2.2 System Development Life cycle	3-4
2.3 Phases of software development life cycle	5
2.4 System study/initial idea	5-6

©Daffodil International University

2.5 Feasibility study 6

CHAPTER 3: Requirements Analysis & Methodology **7-14**

3.1 Introduction 7

3.2 Permission requirement 7

3.3 Flow Charts (For User) 8

3.4 Flow Charts (For admin) 9

3.5 Functional Structure 10

3.6 Use Case Diagram 11

3.7 ER Diagram 12

3.8 DFD Diagram 13

3.7 Technology Used 14

CHAPTER 4: Implementation & Testing **15-35**

4.1 How it works 15

4.2 Virtual Tree Health Assistant Test Case 16-17

4.3 Virtual Tree Health Assistant Admin Panel Test Case 18-19

4.4 Screenshots of Application & Firebase 20-35

CHAPTER 6: Conclusion & Feature Work **35**

6.1 Conclusion 35

6.2 Feature Implement 35

REFERENCES **36-37**

Plagiarism Report **38-39**

©Daffodil International University

LIST OF FIGURES

Figure: 2.1: Process of System Development Life Cycle 4

Figure: 2.2: Different Phase of Software Development Life Cycle 5

Figure: 3.1: Flow chart (For Users) 8

Figure: 3.2: Flow chart (For Admin) 9

Figure: 3.3: Functional Structure 10

Figure: 3.4: Use Case Diagram 11

Figure: 3.5: ER Diagram 12

Figure: 3.6: DFD Diagram 13

Figure: 4.1.1: Login (Virtual Tree Health Assistant) 16

Figure: 4.1.2: Change Password (Virtual Tree Health Assistant) 16

Figure: 4.1.3: Others Action 17

Figure 4.1.4: Log in as Admin Role 18

Figure 4.1.5: Other Actions 19

Figure 4.2: Splash Screen 20

Figure 4.3: Login page 20

Figure 4.4: Registration Page 21

Figure 4.5: Home page 21

Figure 4.6: Slide Navigation Menu 22

Figure 4.7: User Profile Update Page 22

Figure 4.8: Reset Password 23

Figure 4.9: Cultivation 23

Figure 4.10: Contact Us 24

©Daffodil International University

Figure 4.11: User Feedback 24

Figure 4.12: FAQ 25

Figure: 4.13: Sub-Category of Crops 25

Figure: 4.14: Name of Different Disease of One Crop 26

Figure: 4.15: Symptoms of Disease with Prevention 26

Figure: 4.16: Search Page 27

Figure: 4.17: Log out 27

Figure: 4.18: Splash Screen (Admin) 28

Figure: 4.19: Dashboard 28

Figure: 4.20: Crop Categories 29

Figure: 4.21: Add Crops to Subcategory 29

Figure: 4.22: Edit Crops 30

Figure: 4.23: Search Disease 30

Figure: 4.24: User Feedback Check 31

Figure: 4.25: Firebase Dashboard 32

Figure: 4.26: Firebase Authentication 33

Figure: 4.27: Sign-in method 34

Figure: 4.28: User app Database (Firebase) 35

©Daffodil International University

ACKNOWLEDGEMENT

In any case, we truly thank and offer thanks to Almighty Allah for gift us with divine direction that empowered us to effectively finish the last year project.

We are really grateful and wish our profound indebtedness to Mr. **Md. Riazur Rahman**, Assistant Professor, Department of CSE Daffodil International University, Dhaka. Deep Knowledge & keen interest of our supervisor in the field of ***"Android development"*** to carry out this project. We were able to complete this project thanks to his endless patience, scholarly guidance, continuous encouragement, constant energetic supervision, constructive criticism, valuable advice, reading many inferior drafts, and correcting them at all stages.

Our heartfelt thanks go out to Professor **Dr. Touhid Bhuiyan**, Head of Department of Computer Science, for his kind assistance and support in completion of this project, as well as other faculty and staff in the CSE Department.

We might want to thank our whole course mate in Daffodil International University, who participated in this conversation while finishing the course work.

At last, we should recognize with due regard the steady help and patients of our parents.

©Daffodil International University

ABSTRACT

"Virtual Tree health Assistant" is an android application that will perform some specific operations. Mainly it's designed for our agricultural sector to boost production. It is focused on diseases and how to prevent them using modern agriculture technology. It has a user-friendly interface that is a plus point as the user of this application is our farmers. This application will also perform image processing which is the main concern of this application. We know in our country there's the internet has brought a huge change to every sector of our daily hood. So, keeping it in mind we have made this avail the instant facility for our farmers through this app. Well, this application comes with different sections of Field crops, Flowers, Fruits, and Vegetables. This app can be accessed by both admin & user. Although this application is a call-in action for our farmers at the primary stage.

©Daffodil International University

CHAPTER 1

INTRODUCTION

1.1 Introduction

Since our govt. has played a major role in the Digital Bangladesh program extending the internet door to door and for its vast use we are getting the benefits in the agriculture sector. In earlier days when the internet was limited, there were specific guidelines for cultivation, disease prevention, etc. But these guidelines were in limited hands and all the farmers didn't take advantage of all of them. Besides people whose new to the agriculture sector had faced a big loss in cultivation. As it is an android application, Virtual Tree health Assistant will be handy. In our country, the majority of smartphone users have android-based phones. So they need not worry about using it. Also, new technology in the application will be added soon named Image Scanning. Using this technology, users will be able to detect diseases of the tree by taking images. We believe this will ease the life of our farmers and the person who wants to start cultivation.

1.2 Motivations

As there is no application currently availing such features in our Agriculture Sector, where the farmers can have the call-in action at the earliest time. Besides they can get to know about the detection and prevention of the diseases at the same place. As it is an android based application, so any of us with an internet connection will be able to use it regardless of whatever platform they are using. We integrated our app with the log-in log-out feature where users can create accounts and access every feature securely.

1.3 Objectives

Our main objective is to make applications where a person can have information's agricultural sector starting from cultivation to preventing diseases with the facility of image scanning. On the other hand, we will be building a controllable and secured admin panel inside which will be used to manage the database of both user & admin. Our project is capable of handling a lot of users in real-time and giving an excellent performance to the users. Also, our project is platform-dependent, so everyone with an Android smartphone can use it at ease.

©Daffodil International University

1.4 Organization of the report

The report contains 5 chapters. In chapter 1 the intro, methodology, and project objective has described. In chapter 2 we have described the background of the system. How the whole system is actually gone through in this chapter we have described. Chapter 3 contains the requirement analysis and methodology. It also contains the feature of firebase and the admin panel web sites information. This chapter also describes the web landing page of our project. In chapter 4 the whole project structure and the final output has been described. Chapter 5 contains the Conclusion and Future work.

1.5 Expected outcome

The expected outcome of our project is straight and forward. It helps to access everything related to agriculture from the application. For farmers, its language is Bangla which is more user-friendly. It also overcomes the limitation of the similar existing project of agriculture.

- Our farmers will get their solutions regarding all agricultural issues they usually face through using this application.
- Farmers and the startups sitting in their homes can get to know everything related to agriculture solutions.
- The production rate in the agricultural section will be more than before.
- People of all age using smartphone can use this application at ease.

©Daffodil International University

CHAPTER 2

BACKGROUND

2.1 Introduction

Our app UI has some functionality. We have 6 categories in the dashboard. These six categories cover all the crops. We also added other activities, via the slide bar menu. Some features are listed below:

I. Profile
II. Searching
III. Weather
IV. Agriculture Technology portal
V. Cultivation
VI. Communicate with an expert via app
VII. Sending feedback

2.2 System Development life cycle

System life cycles are organizational practices that guide the development and maintenance of systems. It helps in setting up a framework project plan since it gives a general rundown of cycles and sub-processes needed for fostering a framework. A successful System Development Life Cycle should bring about a top-notch framework that meets client assumptions, arrives at culmination inside time and cost assessments, and works adequately and proficiently in the current and arranged Information Technology foundation.

System Development Life Cycle (SDLC) implies a mix of different exercises for fostering a framework. All in all, we can say that different exercises set up to foster a framework are alluded to as a framework advancement life cycle. In the System Analysis and Design phrasing, the framework improvement life cycle implies Software Development.

©Daffodil International University

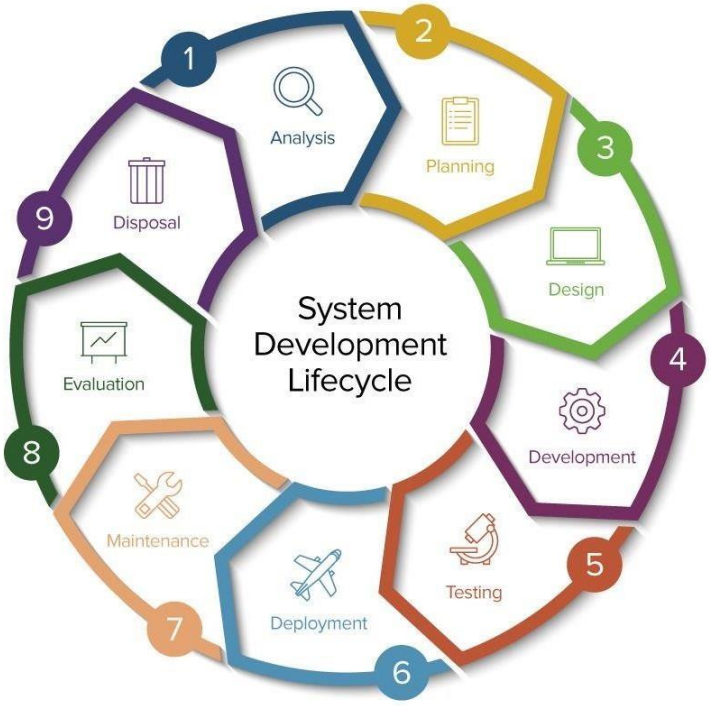


Figure 2.1: Process of System Development Life Cycle

Following are the various periods of the product improvement cycle:

I. Preliminary study
II. Feasibility study
III. Detailed system study
IV. System analysis
V. System design
VI. Coding
VII. Testing
VIII. Implementation
IX. Maintenance
X. Review

©Daffodil International University

2.3 Phases of Software Development Life Cycle

This section describes the different phases and related activities of the system development life cycle in detail. Here the figure 2.3 will show the system development life cycle process

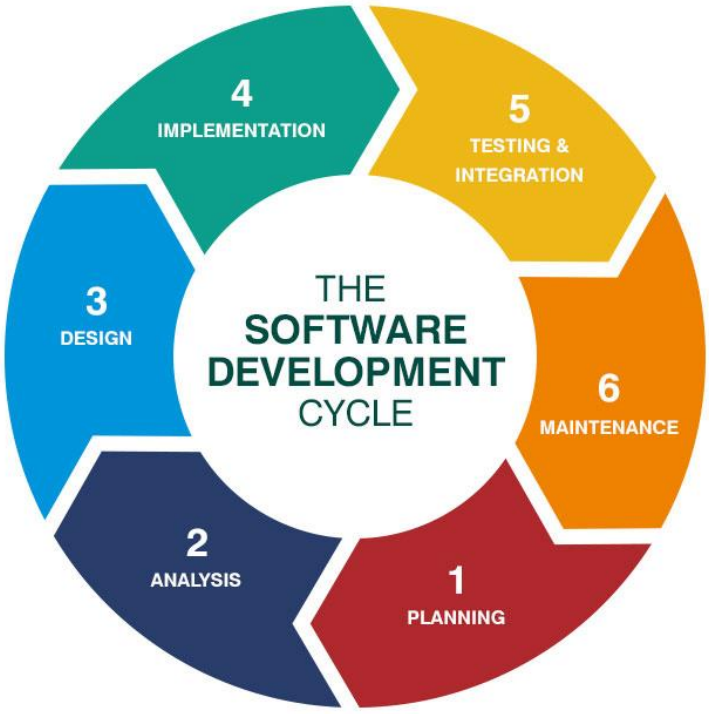


Figure 2.2: Different phase of Software Development Process

2.4 System Study/Initial Idea

This review is the principal phase of the System Development Life Cycle. Does this stage give an unmistakable image of what really the actual framework is? Subsequent to finishing the framework study, a framework proposition is ready by the framework examiner (who concentrates on the framework) and set before the client. All ventures should begin with an underlying thought. Generally, this comprises of a short meaning of what is the undertaking all.

©Daffodil International University

about, what is its purpose and what the project aims to accomplish? How will the success of the project be measured?

To describe the system study phases more analytically, we would say that system study phases through the following steps:

I. Problem identification & project initiation
II. Background analysis
III. Interface of findings

2.5 Feasibility Study

Developing the Initial Idea, the Feasibility Study includes drawing up the terms of reference, which express the destinations and extent of the task, how long it should require, and how the outcomes ought to be introduced. The terms of reference are generally drawn up by senior administration. The attainability study should decide whether the advancement of the undertaking is advocated as far as monetary and authoritative terms.

The principal job of the examiner in the plausibility study is to investigate the current framework at a significant level. Data Flow Diagrams (DFD) are utilized to portray how the current framework performs and to show known issues.

The system I was trying to build a lot of potentials. The application system for helping the user is called “Virtual Tree Health Assistant” helping a person who wants to start with farming or startup. The platforms I have chosen are Android Studio, Java programming language, and Firebase to store data.

©Daffodil International University

CHAPTER 3

REQUIREMENTS ANALYSIS &

METHODOLOGY

3.1 Introduction

Every software system must need some requirements. Our app has also some requirement specifications. Our app must need an android to run. It only works in android OS. Not yet developed for iPhone operating system. We need permission to use the firebase database. Initially, firebase is provided 1 GB storage and 30 GB of data transfer limit free. If the limitation cross then it will be paid. But as the testing phase, is enough but later if the user increases then the paid version can be used.

3.2 Permission Requirement

To use any android application, the user must need to provide some permission. One thing is very important here and that is, Android has launched a total of 16 versions. Android (A-P). From Android M (Marshmallow) there is a new option was added which is called android runtime permission. But the lower version from android 'M' this option was not available. When any user installs an app the all permission was automatically granted. In our app we will need only one permission for now that is "Internet Permission"

©Daffodil International University

3.3 Flow chart (for Users)

Here is the flow chart for users in application. It is well defined and each operation works fine in the application

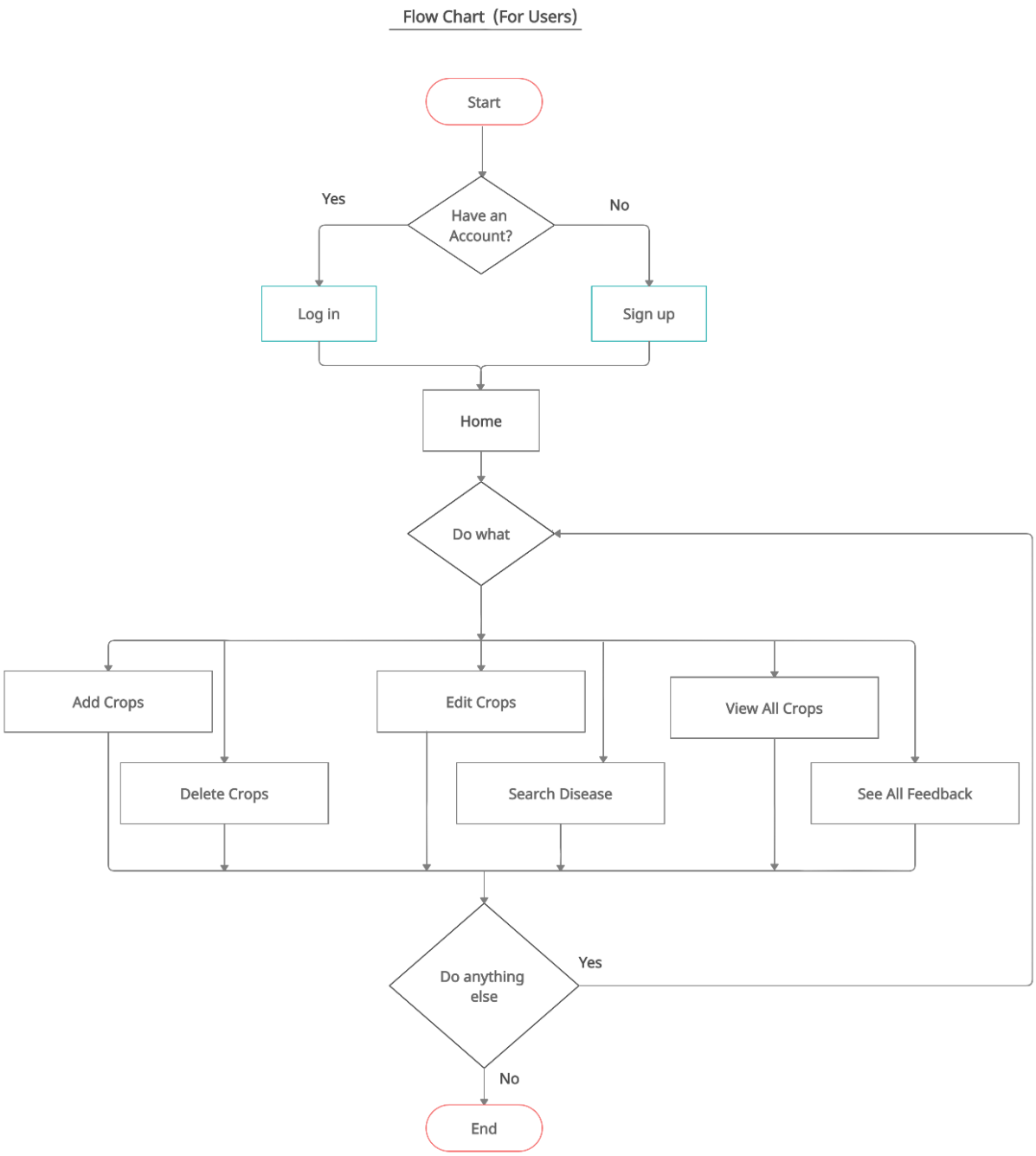


Figure 3.1: Flow chart (For Users)

©Daffodil International University

3.4 Flow chart (for Admin)

Here is the flow chart of admin panel. It is well defined and each operation works fine in the application.

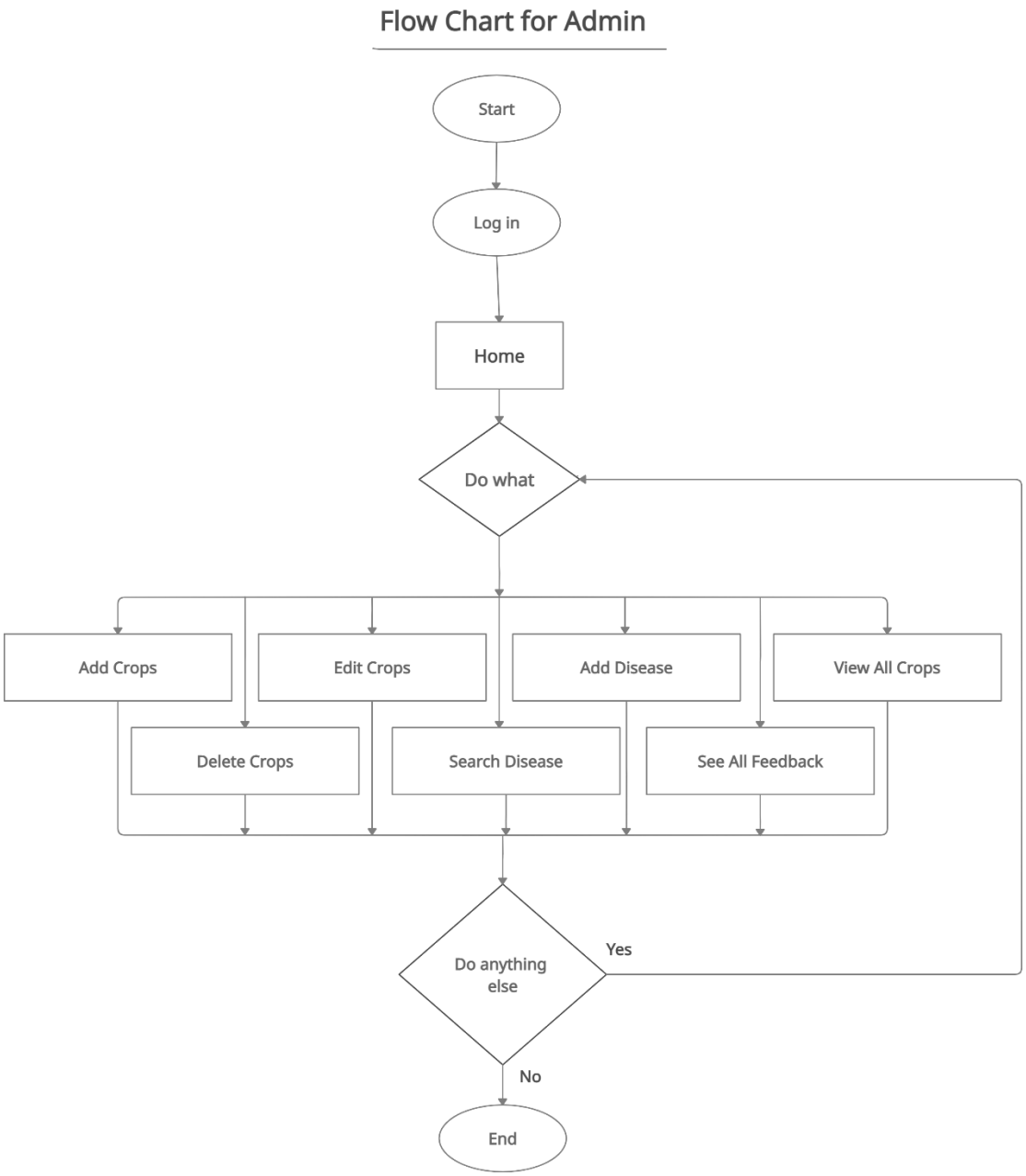


Figure 3.2: Flow chart (For Admin)

©Daffodil International University

3.5 Functional Structure

In every application, the Functional structure model is a very important phase. The design concept is important as the most user-friendly interface can be more efficient and reliable for the users. A good functional structure model can have good feedback and user experience. Besides prototyping can provide an advantage to the developer that how much improvement and designing is actually needed.

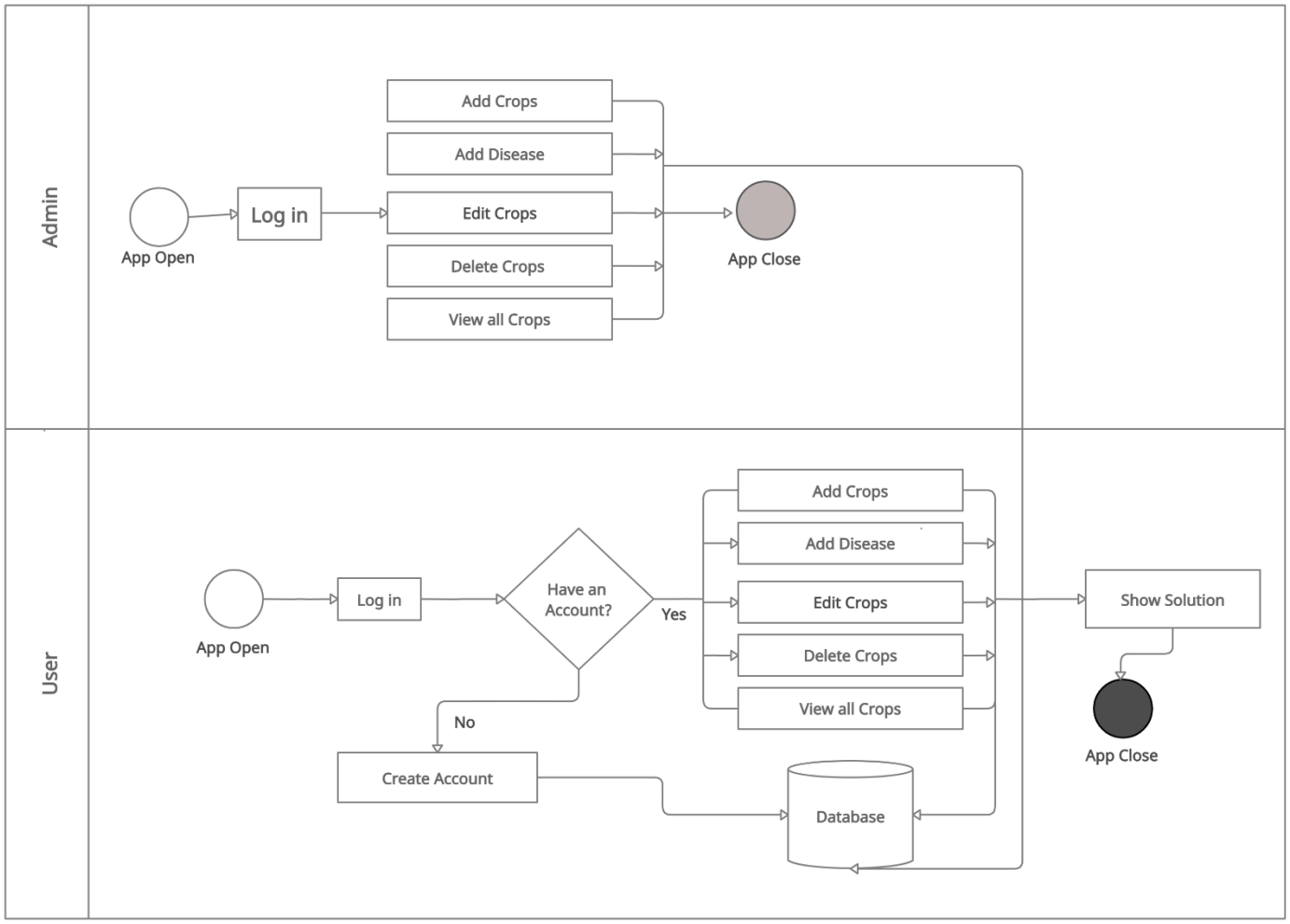


Figure: 3.3: Functional Structure

©Daffodil International University

3.6 Use case Diagram

A utilization case chart at its most straightforward is a portrayal of a client's communication with the framework that shows the connection between the client and the diverse use cases in which the client is involved. A utilization case graph can distinguish the few sorts of clients of a framework and the distinctive use cases and will frequently be joined by different kinds of charts also. Use case chart that distinguish and clarify the highlights in our application is depicted in figure.

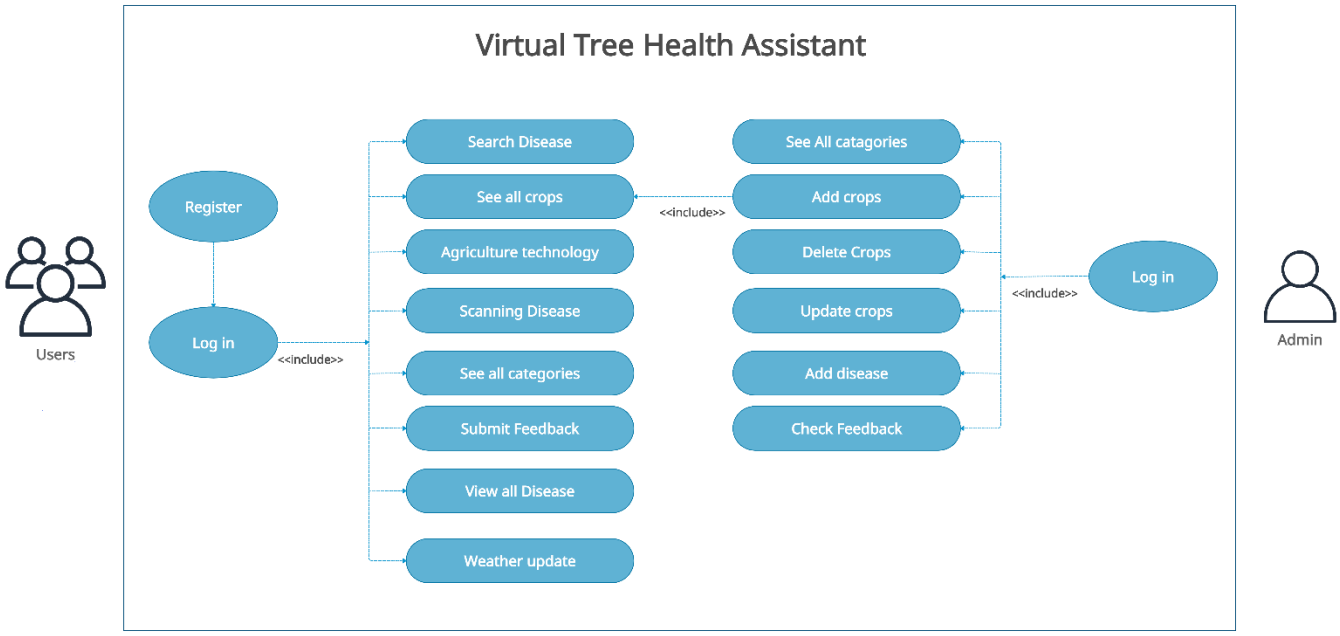


Figure 3.4: Use Case Diagram

©Daffodil International University

3.7 ER Diagram

Here is the ER diagram of our Database. For checking authentication user must need to provide an email and password in the database. User can post their problem in the database to show in the works field. The user needs to provide an alive state in the database to make themselves visible in the search field.

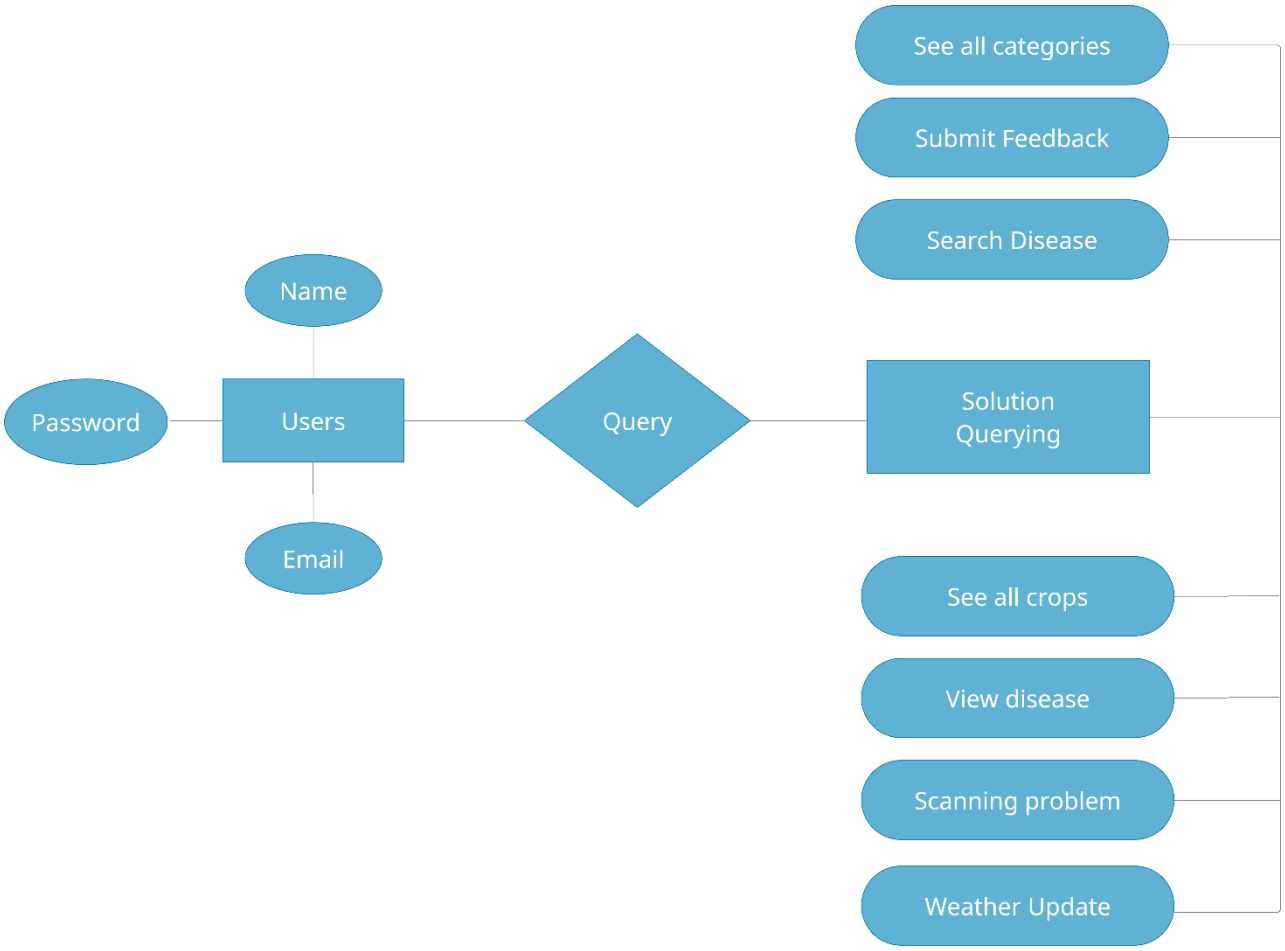


Figure 3.5: ER Diagram

©Daffodil International University

3.8 DFD Diagram

Here is the DFD diagram of our project. Our system initially requests authentication. After authentication user can access post, search, and skills data. Post data is responsible for posting. Skill data is to determine a useful skill that he can perform. Profile data is used to provide information about the user.

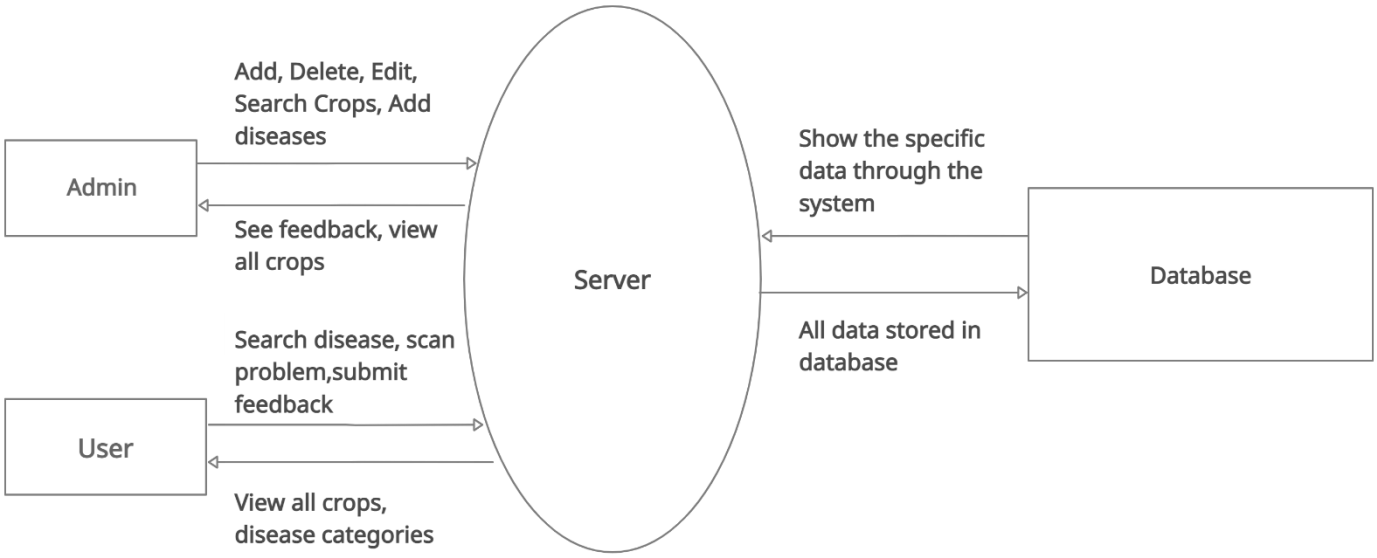


Figure 3.6: DFD Diagram

©Daffodil International University

3.9 Technology Used

In this app, we have used android studio, android virtual device, and java programming language.

Android Studio: Android studio is an IDE for fostering an android application. It is a result of google. It has a few offices like investigating and testing. Those offices are free. Android studio contains planning devices with review. We can see our plan in review or can run in the virtual gadget. It likewise can involve various libraries for updates and adjustments. We likewise can create the marked apk with a tick and furthermore help to transfer the application to the play store.

Android Studio contains SDK instruments. It is stage free. SDK gives assemble apparatuses, troubleshooting instruments, etc. Android studio has an android SDK chief. It gives parts, devices, assets, and stages expected to foster a total android application.

ADV Manager: ADV director is a trying gadget that sudden spikes in demand for an android emulator. Here we can introduce an apk record for testing. It runs on an emulator and gives a virtual climate. The virtual gadget can be arranged by the client given the particular.

Java: The entire task is created in a java programming language. Java is a solid programming language that can be run in various stages. Java program changed over into byte code which isn't human and machine-lucid. The code is changed over by DVM then it very well may be discernible by a machine. It is gotten and can run in various OS like Windows, Linux, and Mac OS. So java is a more solid and quick programming language. Java needs a product improvement unit which is really a mediator that requirements to make a total application.

Firebase: Firebase is a web-based data set framework. It is a result of Google. It gives a constant information the board framework which is vital. It makes the application the board framework simple and productive. We can coordinate numerous ventures in our firebase console. At first, in a given reach, it is allowed to utilize. It is giving offices of Database, Analytics, Storage, Authentication, Hosting, crash report, and Ad Mob and so on.

©Daffodil International University

CHAPTER 4

IMPLEMENTATION AND TESTING

4.1 How it works

After completing the implementation, the testing period will start. During the period of development, any systems need to be tested. For HIRE ME when we came to develop any feature, I have tested the feature in the initial phase. Usually, I have tested till the amusement output didn't come. Although it wasted much time for me since doing this accurately today, I have developed the system. In generally testing and implementation is vice versa. If any case the testing period is failed then further implementation is started. Many times, when I didn't get my expected output. Then I start thinking and researching this issue, I start gathering information about this issue and then try to solve this on my own. But if any time I fail to resolve any problem I went to my eldest, or Google, or any type of android group. When the testing rate is 100% then it would accept.

©Daffodil International University

4.2 Virtual Tree Health Assistant Test Case

4.1.1 Login:

Table 4.1.1: Login (Virtual Tree Health Assistant)

Conditions	User email	F	T	F	T
	Password	F	F	T	T
Actions	Result	Error: Please enter valid mobile number and password	Error: Please enter valid mobile number and password	Error: Please enter valid mobile number and password	Logged in
	Expected Result	Error: Please enter valid mobile number and password	Error: Please enter valid mobile number and password	Error: Please enter valid mobile number and password	Logged in

4.1.2 Change Password:

Table 4.1.2: Change Password (Virtual Tree Health Assistant)

Conditions	Old Password	F	T	F	T
	New Password	F	F	T	T
Actions	Result	Error: Please enter valid password	Error: Please enter valid password	Error: Please enter valid password	Password Changed
	Expected Result	Error: Please enter valid password	Error: Please enter valid password	Error: Please enter valid password	Password Changed

©Daffodil International University

4.1.3 Others Actions

Table 4.1.3: Others Actions (Virtual Tree Health Assistant)

Actions	**Result**	**Expected Result**
Signup	Signup Successfully	Signup successfully
View All crops	All Crops Viewed Successfully	All Crops Viewed Successfully
Forget Password	Successfully password recover	Successfully password recover
Search Crop	Find desire database's stored crops	Find desire database's stored Crops-
Profile name change	Changed successfully	Changed successfully
Agriculture Technology	Opened Successfully	Opened Successfully
Open Disease	Opened Successfully	Opened Successfully
Search Disease	Found Successfully	Opened Successfully
Weather update	Worked successfully	Worked successfully
Contact us	Opened successfully	Opened successfully
Logout	Logout successfully	Logout successfully

©Daffodil International University

4.3 Virtual Tree Health Assistant Admin Panel Test Case

4.1.4 Login as admin (Role):

Table 4.1.5: Login as admin role (Virtual Tree Health Assistant)

Conditions	Username	F	T	F	T
	Password	F	F	T	T
Actions	Expected Result	Error: Please enter valid username and password	Error: Please enter valid username and password	Error: Please enter valid username and password	Logged in
	Result	Error: Please enter valid username and password	Error: Please enter valid username and password	Error: Please enter valid username and password	Logged in

©Daffodil International University

4.1.5 Others Actions

Table 4.1.5: Others Actions (Virtual Tree Health Assistant)

Actions	**Result**	**Expected Result**
Add Crops	Added Successfully	Added successfully
Edit crops	Successfully Edited	Successfully Edited
Search Crop Disease	Find desire database's stored crops	Find desire database's stored crops
Delete Crops	Deleted successfully	Deleted successfully
	Opened Successfully	Opened Successfully
Edit Disease	Edited Successfully	Edited Successfully
Search Disease	Found Successfully	Found Successfully
Logout	Logout successfully	Logout successfully

©Daffodil International University

4.4 Screenshots of Application & Firebase (Virtual Tree Health Assistant)

Figure 4.2: Splash Screen

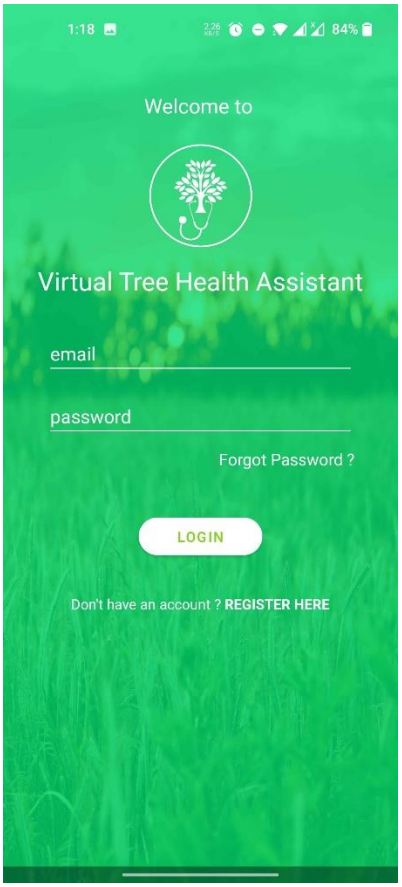


Figure 4.3: Log in

©Daffodil International University

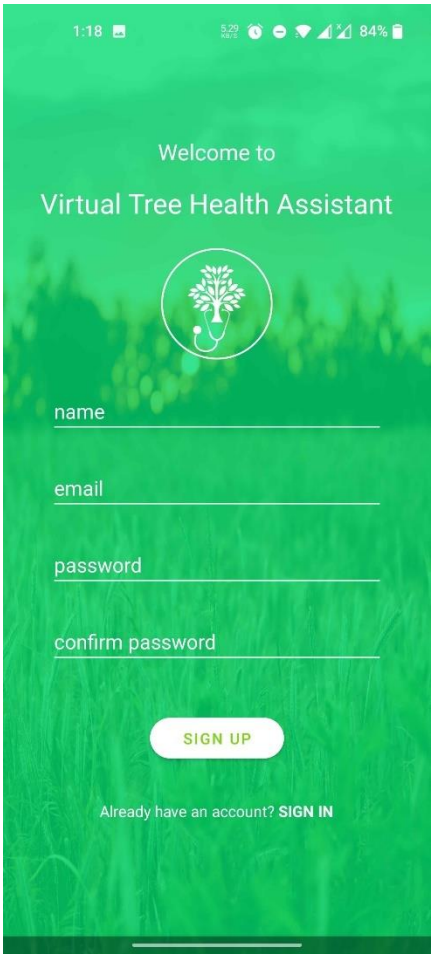


Figure 4.4: Registration page

Figure 4.5: Home page

©Daffodil International University

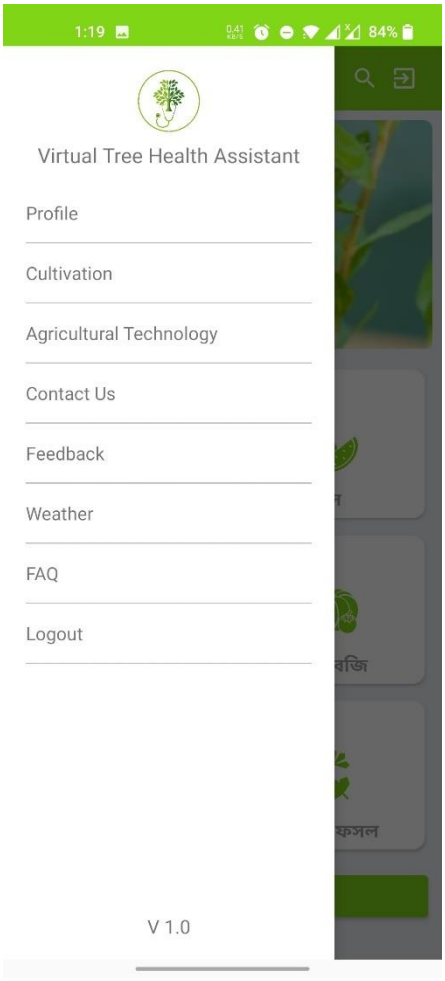


Figure 4.6: Slide Navigation Menu

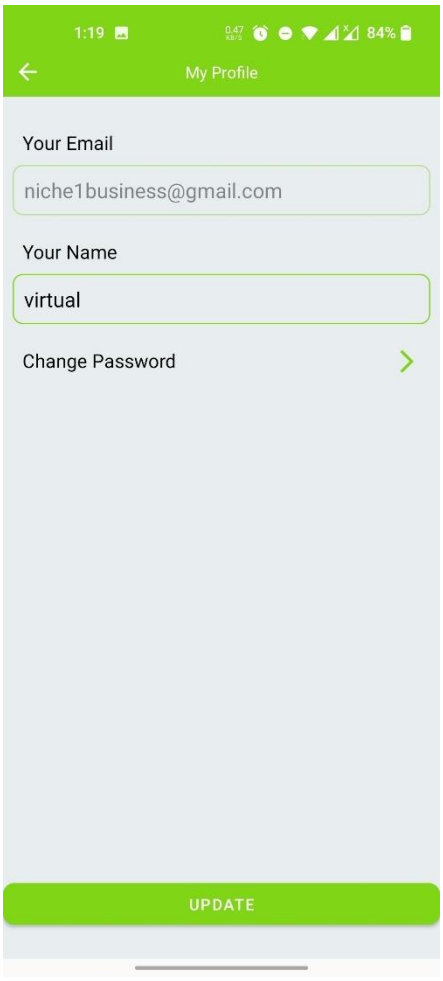


Figure 4.7: Update Profile Page

©Daffodil International University

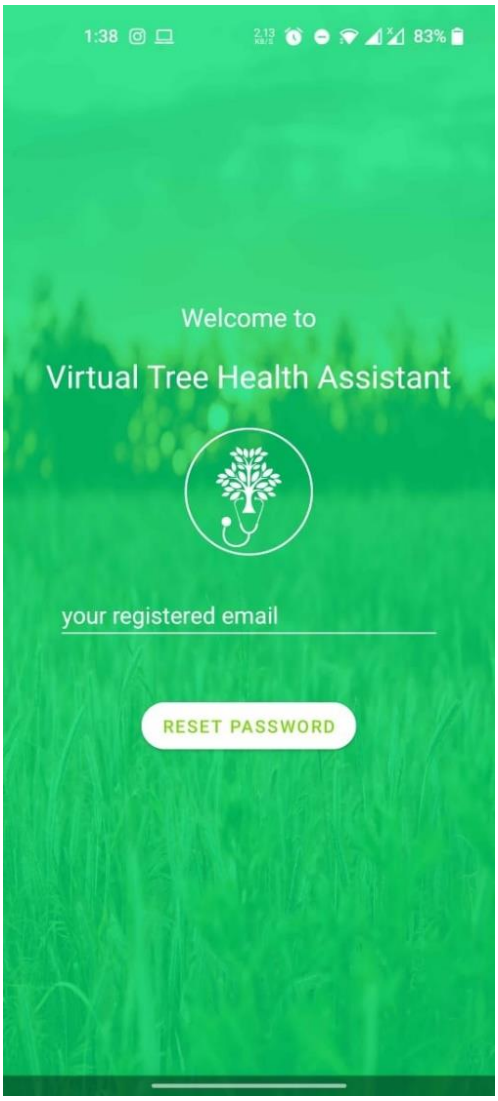


Figure 4.8: Reset Password

Figure 4.9: Cultivation

©Daffodil International University

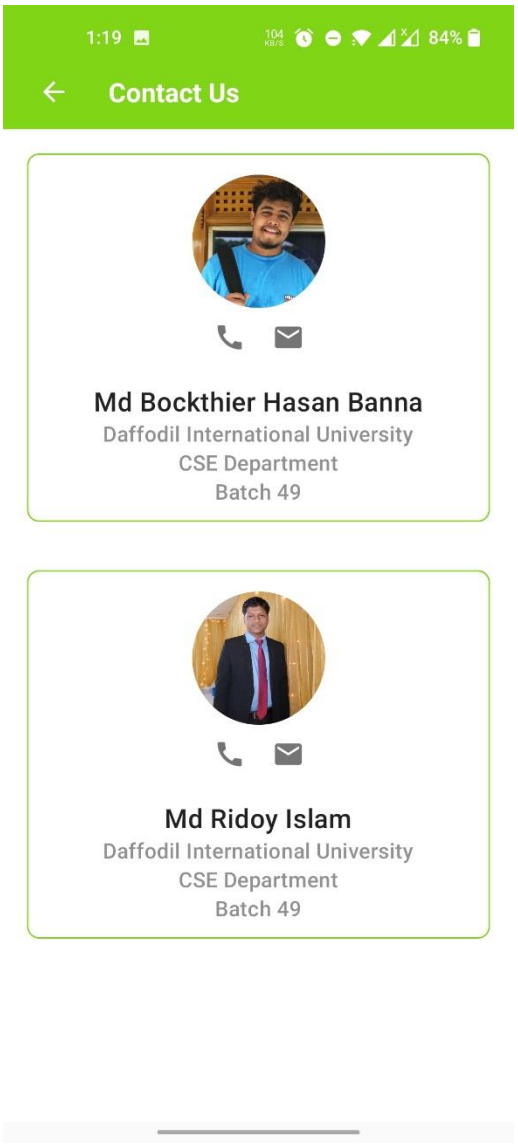


Figure 4.10: Contact Us

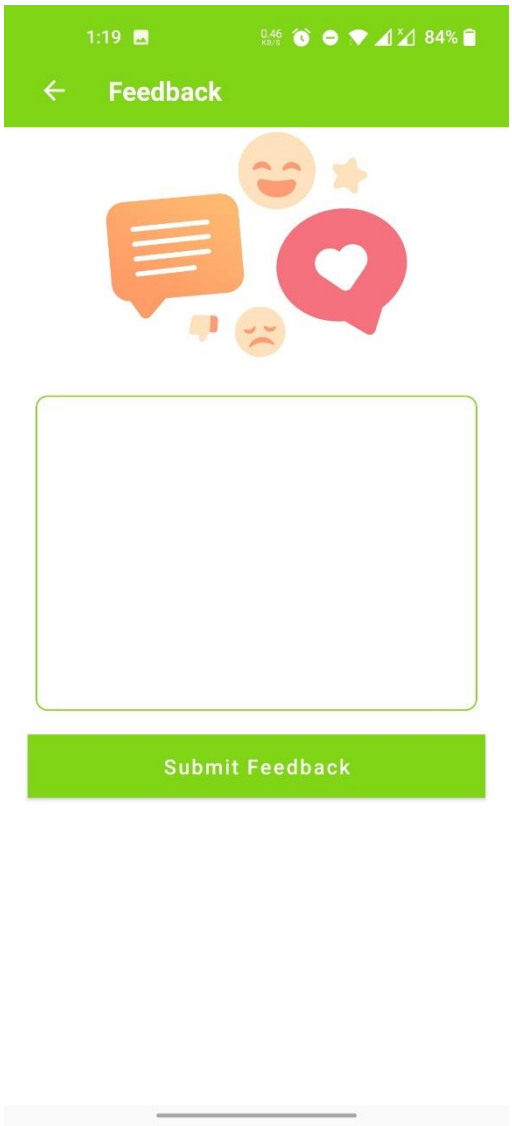


Figure 4.11: User Feedback

©Daffodil International University

Figure 4.12: FAQ

Figure 4.13: Sub-Category of crops

©Daffodil International University

Figure 4.14: Name of Different Disease of One Crop

Figure 4.15: Details of Disease with Prevention

©Daffodil International University

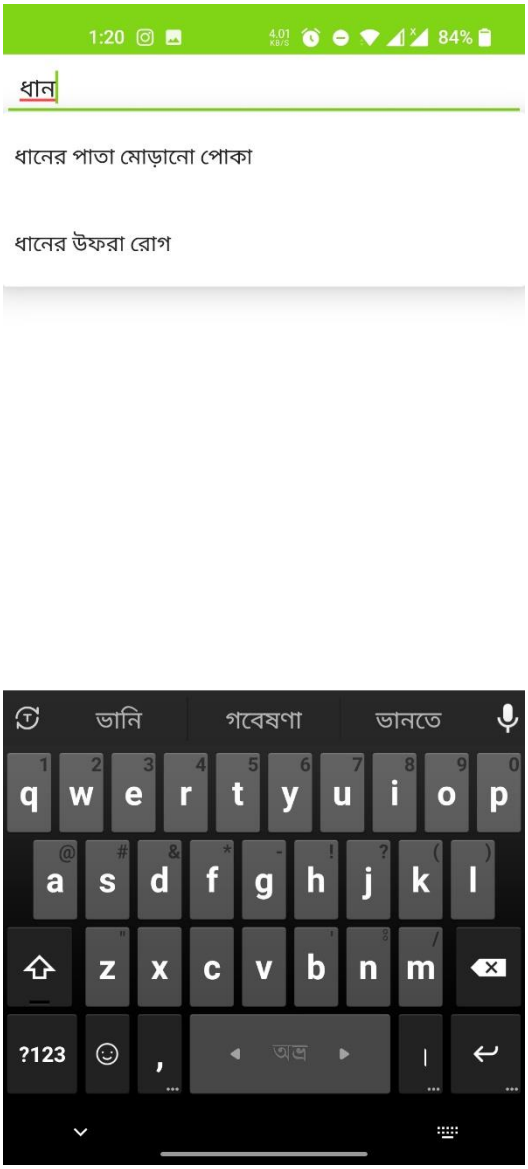


Figure 4.16: Search Page

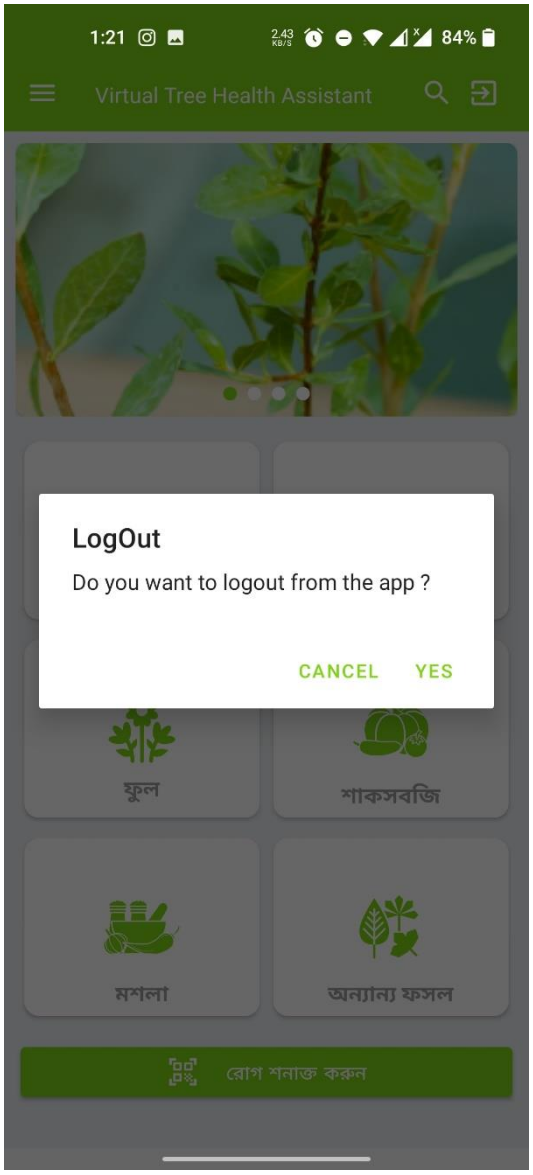


Figure 4.17: Log Out

©Daffodil International University

Admin Application Screenshots

Figure 4.18: Splash Screen

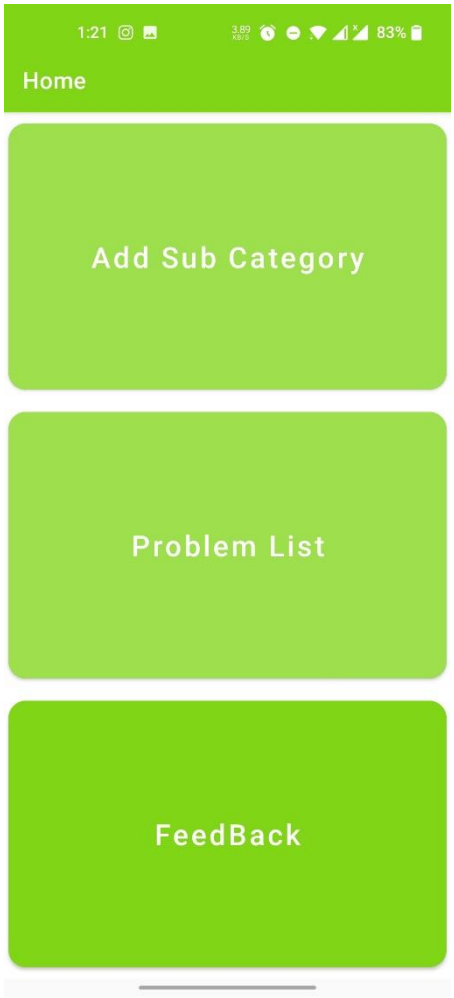


Figure 4.19: Dashboard

©Daffodil International University

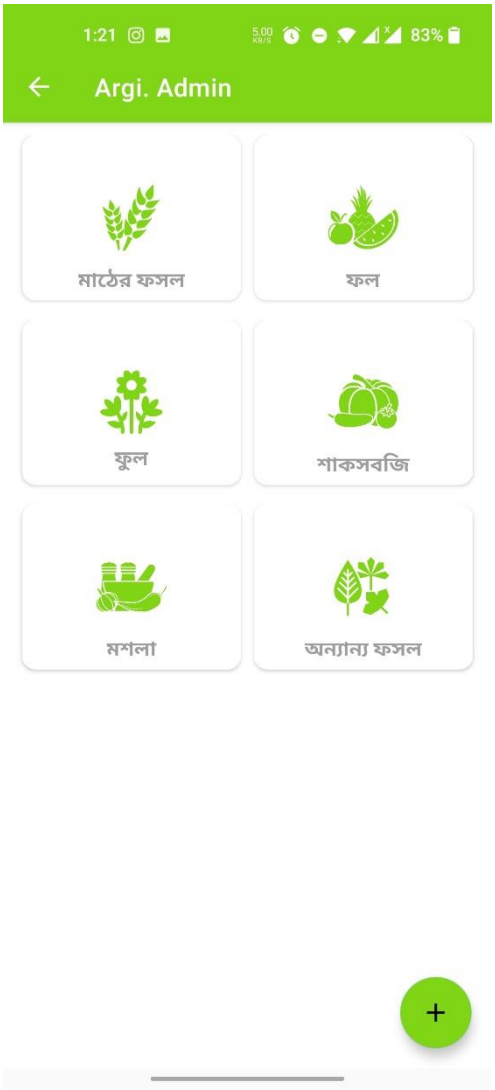


Figure 4.20: Crop Categories

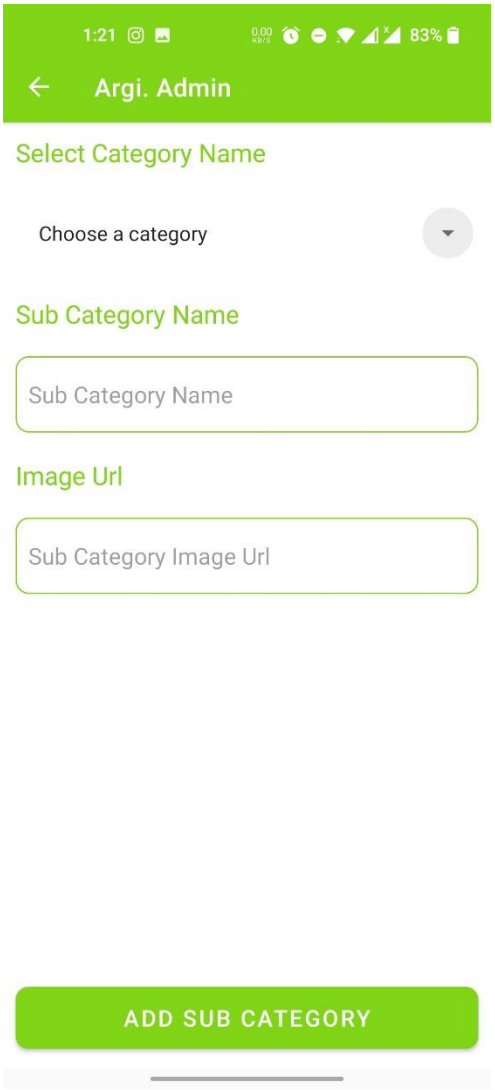


Figure 4.21: Add Crops To sub category

©Daffodil International University

Figure 4.22: Edit Crops

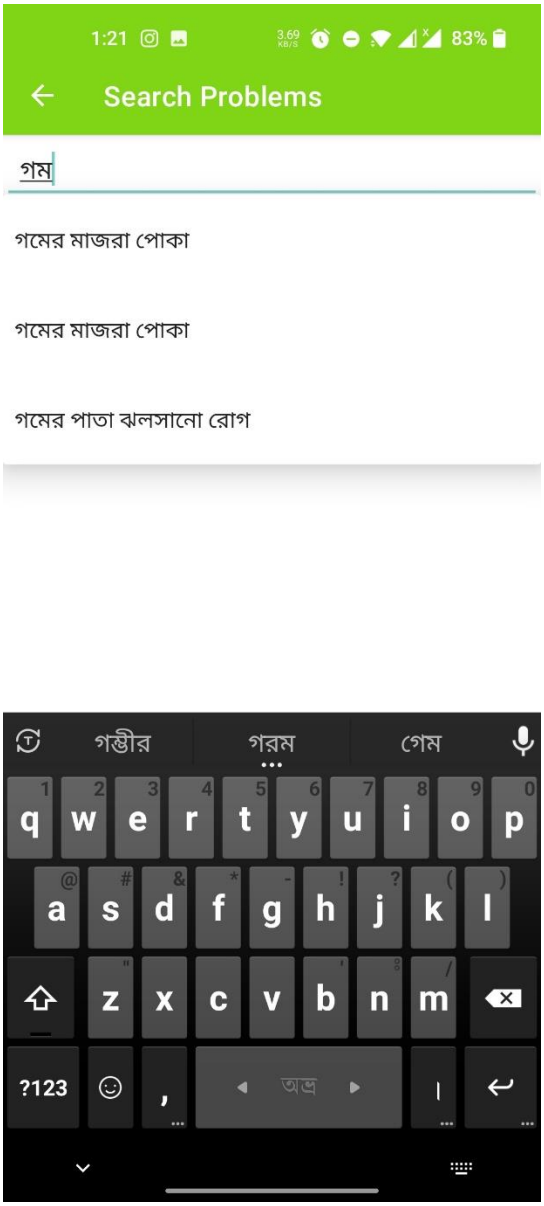


Figure 4.23: Search Disease

©Daffodil International University

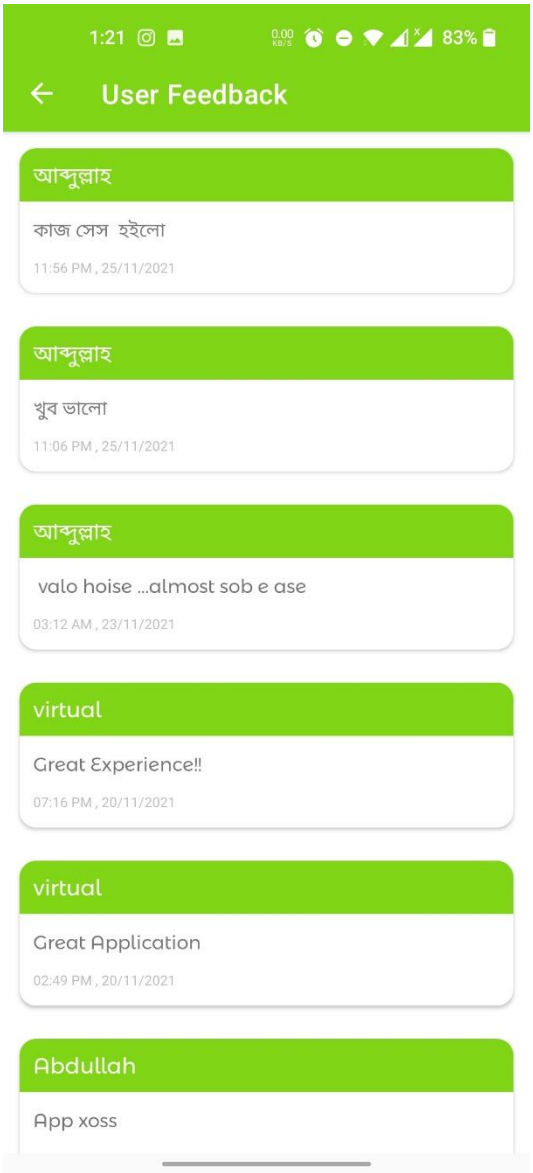


Figure 4.24: Check User Feedback

©Daffodil International University

Screenshots of Fire Base

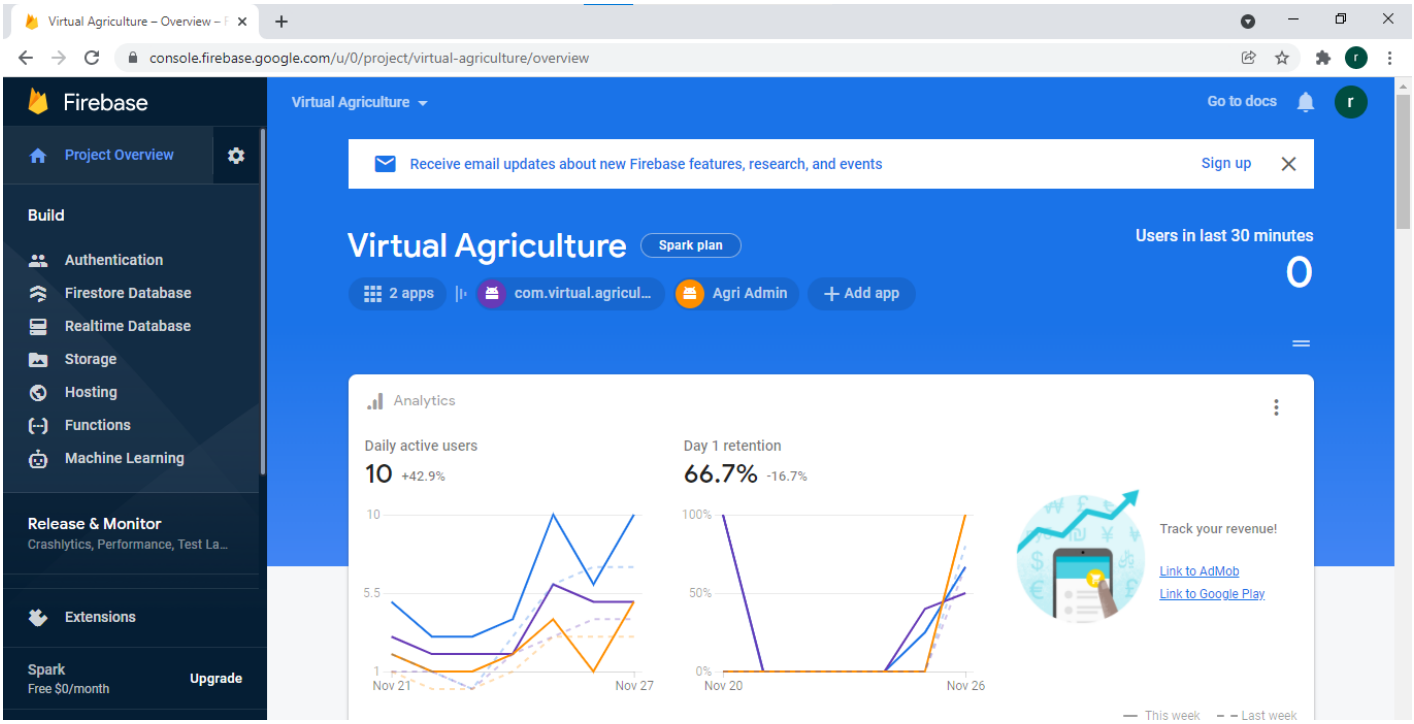


Figure 4.25: Firebase Dashboard

©Daffodil International University

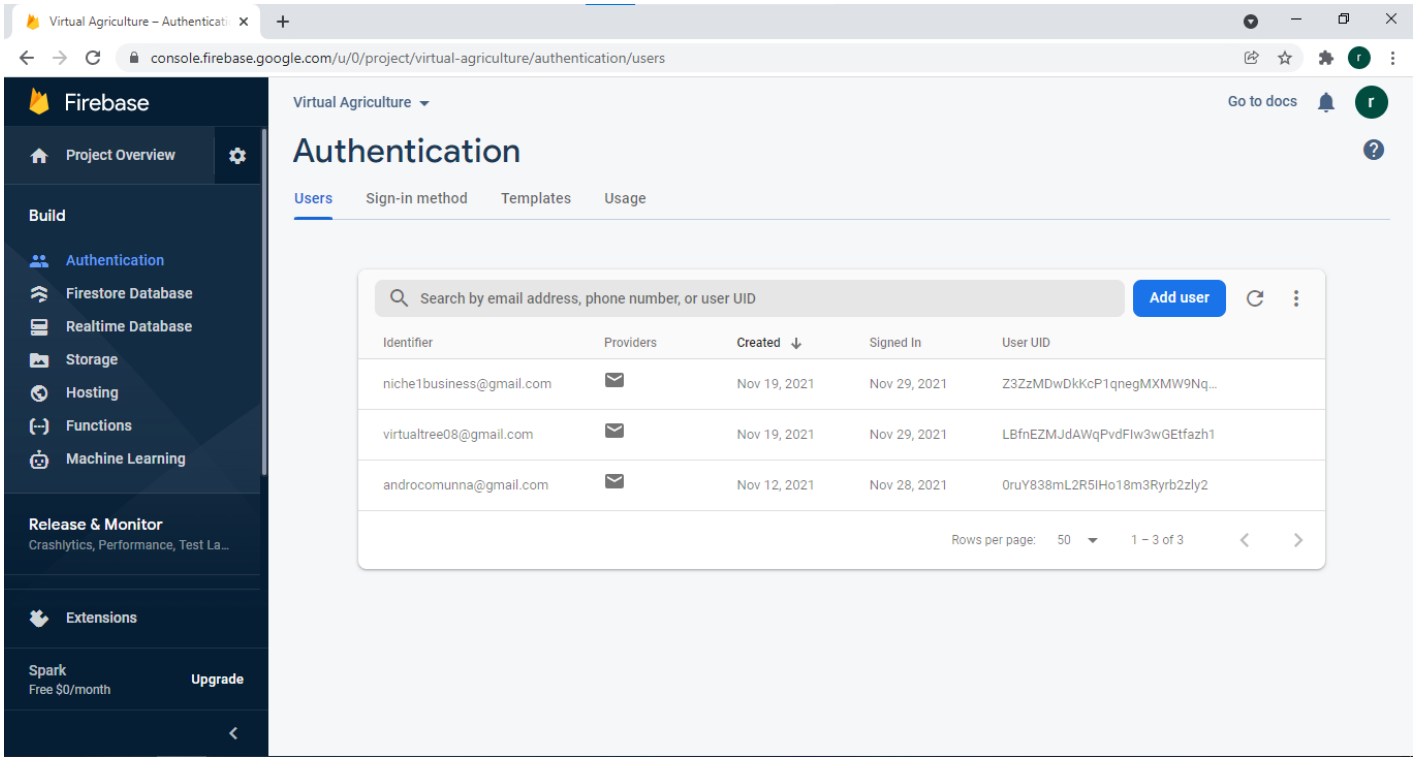


Figure 4.26: Firebase Authentication

©Daffodil International University

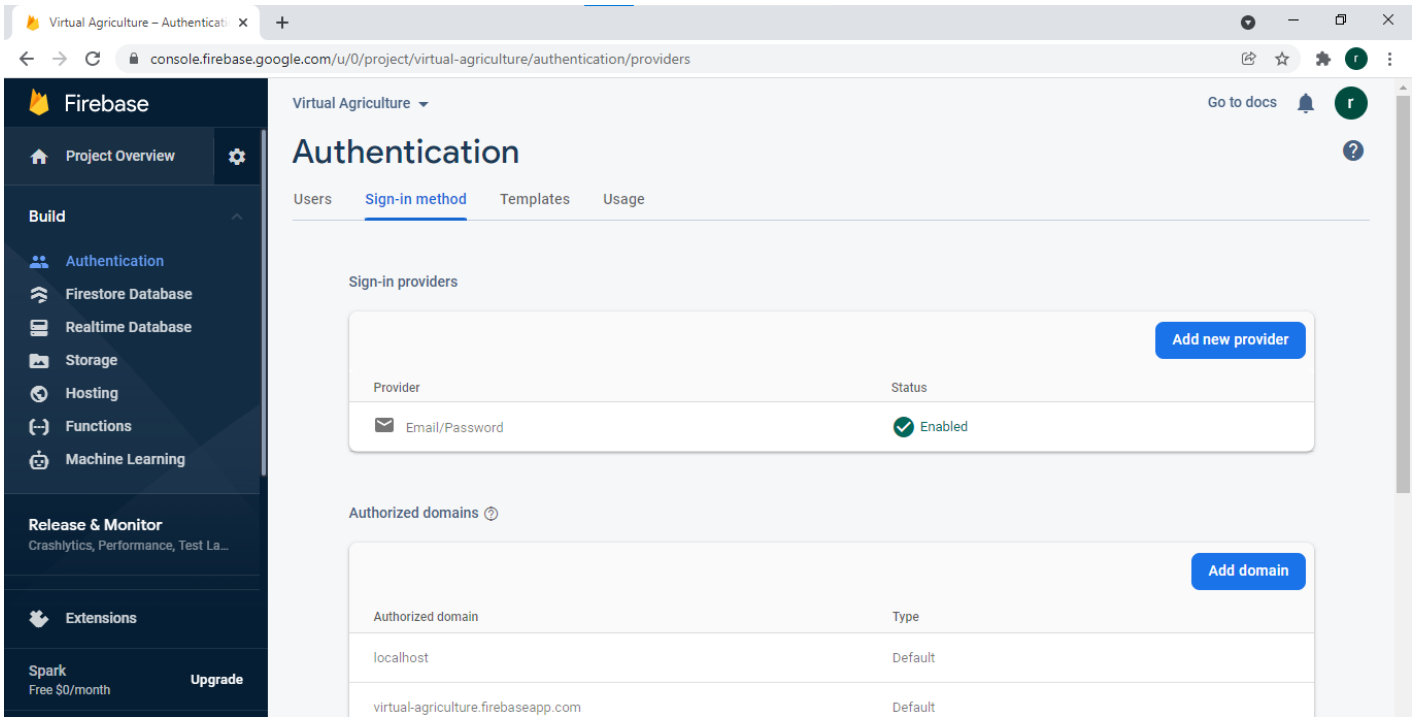


Figure 4.27: Sign-in Method

©Daffodil International University

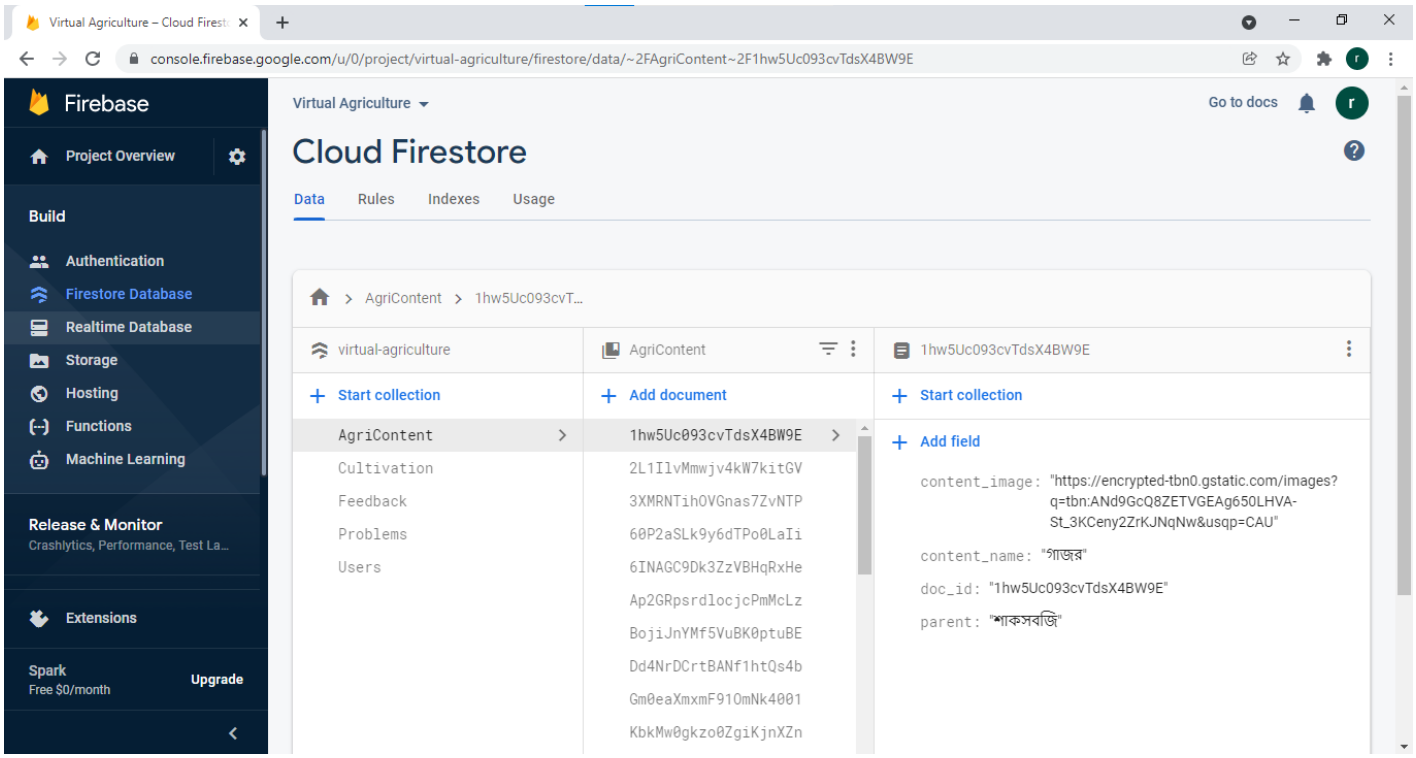


Figure 4.28: User app Database (Firebase)

©Daffodil International University

CHAPTER 5

CONCLUSION AND FUTURE WORK

6.1 Conclusion

Virtual Tree Health Assistant is such a kind of app that actually makes a solution to the problems regarding the agriculture sector. This app gives an opportunity to all kinds of people who are a startup in the agriculture sector or already into this. We are in an agricultural country. A person having zero knowledge about growing crops can make himself skilled in this particular area. Then the user can easily see the result using this application. This app makes a particular problem solved and also helps to guide a person a lot about diseases. Here users can post their problems as feedback and that helps us fix those issues and make a development ahead. This application is not difficult to utilize. The UI of this application is planned in such a manner with the goal that the client can undoubtedly control the application.

6.2 Future Implementation

The app is now in the primary stage. There needs a lot of implementations to make it a business standard app. Some future plans are given below:

I. Image Scanning with AI technology to detect disease.
II. Making a more user-friendly Interface.
III. Will be available also for IOS users.

©Daffodil International University

REFERENCE

[1] App idea from Kisan Suvidha, Agri App etc.

<< https://www.devteam.space/blog/how-to-build-an-agriculture-app/>>

[2] Agriculture problem Analysis

<<https://www.banglajol.info/index.php/BJAR/article/view/5886>>

[3] Crop Disease Identification System

<< https://www.hindawi.com/journals/ddns/2020/2479172/>>

[4] Phases of Software Development Life Cycle

<<https://www.am7s.com/7-stages-of-system-development-life-cycle/>>

[5] Requirement specification

<<https://www.softwaretestingclass.com/software-requirement-specification-srs/>>,

[6] Firebase Real-time Database

<<https://firebase.google.com/docs/database/?authuser=6>>

[7] Design & Prototyping

<<https://creately.com/>>

[8] How to start android app

<<https://www.thedroidsonroids.com/blog/how-to-start-your-android-development-journey-5-basic-steps>>

[9] Android SDK

https://developer.android.com/studio/command-line/sdkmanager>>

[10] AVD Manager

<<https://developer.android.com/studio/run/managing-avds>

©Daffodil International University

VIRTUAL TREE HEALTH ASSISTANT

ORIGINALITY REPORT

23%	23%	6%	%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	dspace.daffodilvarsity.edu.bd:8080 Internet Source	15%
2	myassignmenthelp.com Internet Source	1%
3	docplayer.net Internet Source	1%
4	www.assignmentpoint.com Internet Source	1%
5	nou.edu.ng Internet Source	1%
6	etd.astu.edu.et Internet Source	1%
7	www.toysrusmena.com Internet Source	1%
8	etd.uum.edu.my Internet Source	<1%
9	utpedia.utp.edu.my Internet Source	<1%

©Daffodil International University

10	collegeresearchpaper667.blogspot.com Internet Source	<1%
11	www.anneloehr.com Internet Source	<1%
12	ethesis.nitrkl.ac.in Internet Source	<1%

Exclude quotes	Off	Exclude matches	Off
Exclude bibliography	On		

©Daffodil International University