

ADHUNIK KRISHI: A Smart Farming Application

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

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APPROVAL

This Project titled “**ADHUNIK KHISHI: A Smart Farming Application**”, submitted by **Shafiqul Islam Rasel** and **Al-Amin Sarkar Dolon** 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 **13-01-2022**.

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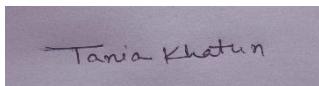
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DECLARATION

We hereby declare that this project has been done by us under the supervision of **Tania Khatun Sr Lecturer, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

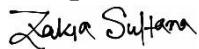
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ABSTRACT

Our project is ADHUNIK KRISHI the name of our application is A Smart Farming. A Farmer will get help from our app from sowing seeds to selling. Information Technology and Agriculture the current world is the world of information technology. Information technology services are essential to improve lives and build a sustainable world. The economy of Bangladesh is dependent on agriculture. That is why information technology-based ADHUNIK KRISHI can bring new possibilities in improving the livelihood of rural people. Providing timely, up-to-date, and up-to-date information, marketing, storage technology through the internet, mobile will play an important role in ends using food security and improving the fortunes of the farmers. That mobile phone can be a helpline for agriculture. Interactive messages, expert advice, and what to do in adverse weather can bring instant speed and success in agriculture. The successful implementation of ADHUNIK KRISHI will go a long way in building a digital Bangladesh by ensuring food security and improving a lot of agriculture and farmers. The farmer will revolutionize agriculture by using this application. An illiterate person can also easily operate the system.

TABLE OF CONTENTS

CONTENTS	PAGE
Board of Examiners.....	Error! Bookmark not defined.
DECLARATION.....	ii
ACKNOWLEDGEMENT.....	iv
ABSTRACT	Error! Bookmark not defined.
CHAPTER 1.....	1
INTRODUCTION	Error! Bookmark not defined.
1.1 Introduction	Error! Bookmark not defined.
1.2 Motivation	1
1.3 Objectives.....	2
1.4 Expected Outcome	2
1.5 Report layout	Error! Bookmark not defined.
CHAPTER 2.....	2
BACKGROUND.....	4
2.1 Introduction	4
2.2 Related Works	4
2.2.1 Krishi Tottho	4
2.2.2 Krishi Doctor	5
2.2.3 Krishoker Janala	5
2.3 Comparative Studies.....	Error! Bookmark not defined.
2.4 Scope of the problem.....	6
2.5 Challenges	7
CHAPTER 3.....	8
Requirement Specification	8
3.1 Business Process Modeling	8
3.2 Requirement Collection and Analysis	8

3.2.1 Software.....	Error! Bookmark not defined.
3.2.2 Hardware	9
3.3 Use Case Modeling and Description	10
3.4 Logical Data Model.....	11
3.5 Design Requirements.....	11
Chapter 4	Error! Bookmark not defined.
Design Specification.....	Error! Bookmark not defined.
4.1 Frontend Design	12
4.2 Back-end design	12
4.3 Interaction Design and UX	Error! Bookmark not defined.
4.4 Implementation Requirements.....	Error! Bookmark not defined.
Chapter 5	15
Implementation and Testing	15
5.1 Implementation of Database.....	15
5.2 Implementation of front-end Design	17
5.2.1 Login Page.....	18
5.2.2 Registration Page	19
5.2.3 View Temperature	20
5.2.4 Crop Cultivation Process	21
5.2.5 Buy & Sell.....	22
5.2.6 Agriculture Instruments.....	23
5.2.7 Question & Answer	24
5.2.8 User profile	26
5.2.9 Sign Out	27
5.3 Implementation of interactions.....	27
5.4 Testing Implementation.....	27
5.5 Test Results and Reports	27

CHAPTER 6	28
6.1 Impact on Society	29
6.2 Ethical Aspects	29
6.3 Sustainability Plan	30
CHAPTER 7	31
Conclusion and Future Scope	31
7.1 Discussion and Conclusion.....	31
7.2 Scope for Further Developments.....	31
References:	32

TABLE OF FIGURE

Figure 1 : Business process modeling	8
Figure 2 : Use case diagram	10
Figure 3 : Logical data model	11
Figure 4 : Database.....	16
Figure 5 : Home page.....	17
Figure 6 : Log in page	18
Figure 7 : Registration page	19
Figure 8 : View temperature	20
Figure 9 : Crop cultivation process	21
Figure 10: Update market Price.....	22
Figure 11: Buy & Sell.....	23
Figure 12: Agricultural Instruments	24
Figure 13: Question and answer	25
Figure 14: User Profile	26
Figure 15: SDK Version.....	27

CHAPTER 1

1.1 Introduction

Bangladesh is mostly an agricultural country. Villages are home to 95% of the inhabitants of this nation. In Bangladesh, 58.8 percent of the population lives in rural areas, while 10.11 percent lives in cities. Agriculture contributes 19.1% of GDP and employs 47.1 percent of the workforce. The Ministry of Agriculture and the related departments' operations include the production of paddy, jute, cotton, sugarcane, flowers, and silk, fish farming, vegetables, animal development, enhancing soil fertility, orchard growth, and seed development and distribution. The farmers of this country usually cultivate in the traditional way. If a person wants to start farming, this application will help him. Farmers will be able to solve their problems and solve each other's problems. The app will teach him how to start farming and how to cultivate and when they will cultivate. There are many types of crop diseases in agriculture. Farmers do not know what steps to take to get rid of these diseases. As a result, the quality of our crops decreases. Through this app, we will be able to know these remedies. We don't know the exact price of the crop and we don't get the right price for our crop because we don't get buyers and sellers at the right time. The farmers are not getting their fair price. They sell their products by app and get actual price and save their time.

1.2 Motivation

There are fewer agricultural officers or agricultural workers than the people of veterinarians in the vicinity. Due to which when diseases and insects attack our crops, we do not get that amount of advice or remedy.

The loss is incurred and we sell it through the brokers at a lower price as we do not know the day by day the market price of it and do not sell crops to the proper buyer. We have the solution to these problems in this app.

This app will not only benefit the farmers but also the buyers, by using this app, those who want to engage in this work will also benefit.

1.3 Objectives

There are many people who want to be involved in this profession in their spare time but are not able to engage themselves in this profession due to a lack of proper direction. We are creating this app, through which anyone who has no knowledge about agriculture will be able to manage his work as a skilled farmer.

For example, if someone wants to cultivate paddy, then how to cultivate paddy, what are the diseases of paddy, when to give any medicine, by looking at the color of the leaves of the rice plant, the symptoms of the disease will be determined through this app. So anyone can use this app to cultivate their cropland like a skilled farmer.

The amount of fertilizer to be applied to the land can also be known through this app. Now that the person has worked so hard to produce his crop, it is important to get the right price. This app will provide daily weather updates, which will enable farmers to take action by understanding natural disasters and weather forecasts. It will be very easy to protect the crop from unforeseen natural calamities.

We provide daily crop price updates within this app. No one can deprive him of his rightful market value.

1.4 Expected Outcome

This app for those who have Android mobile, they can easily download it by going to Google Play Store by typing ADHUNIK KRISHI to search.

The app will not only work if the mobile data is on, but can also be used without mobile data.

In this case, if the phone data is not on, the price of the day's crop, and crop buyer and sell about may not get this information but other information will be available.

While offline, it will be able as much information as the Fish Cultivation. Crop Cultivation and the cure for the disease.

This app is using two types of services Online and Offline. Those who will use this app will benefit the most.

1.5 Report Layout

In the primary section of this project report, we have examined our motivation, objective, and what we anticipate from this application. The subsequent part will second in on the foundation of this venture and we have enrolled numerous different investigations of this field and we discussed the difficulties that accompany this application.

Following that, we have sections three and four where we talk about requirement specifications and design specifications of the application. Then, at that point, in part five, we are looking at implementing and testing the application.

After that section six is about Discussion and Conclusion and Scope for Further Developments of our application. Also, toward the end, we talk about the future extent of the application and examine further regions that we can enhance and sum up our venture.

CHAPTER 2

BACKGROUND

We used the Android platform and Android Studio to create the ADHUNIK KRISHI App'.

Android Studio is the authority Integrated Development Environment (IDE) for Android application advancement. It is a Java integrated development environment for software, based on IntelliJ IDEA and includes its code editing and developer tools.

2.1 Introduction

Currently, mobile phones are used worldwide. As the price of smartphones is decreasing day by day, their popularity is increasing. Moreover, android is the mobile operating system used in smartphones, most of its applications are freely available. The use of smartphones is increasing in every sector of business, education, etc., so this research paper has introduced a “modern farming” method using the concept of farming and Android which will provide detailed information of the crop. This system does not use the Internet. The problem of any crop disease can be cured and how to cultivate the crop through modernity. It will be an advantage for the farmers of Bangladesh because it is made in the Bengali language. Uses Android smartphones anytime from anywhere for free. A Bengali person can easily manage the system. To build our app we used the android studio. The advantage of using the android studio is that it provides native support for Android applications. And for our database, we used the firebase real-time database. Firebase's real-time database gives you secure access to the database. It gives a responsive experience to the end-users.

2.2 Related Works

We have downloaded many apps from the Google play store. Here are some examples.

2.2.1 KRISHI TOTTHO:

In this app, we can see agricultural information. There are 6 options on the home page. They are MATH FOSOL, MACE CHASH, FULL CHASH, FOL CHASH, and

SHAKSOBJI CHASH. Each option will give information about their respective field. Also on the home page, we can see the current temperature.

2.2.2 KRISHI DOCTOR:

In this app, we can see agricultural disease information. There are 12 options on the home page. They are paddy, tomato, gourd, eggplant, etc. Each option will show disease information about their respective field.

2.2.3 KRISHOKER JANALA:

Like KRISHI DOCTOR, in this app, we can see agricultural disease information. There are 6 main options on the home page. They are field crops, fruit, flower, vegetable, spices, and other crops. Each option will show disease information about their respective field. There is an additional option on the home page "Add Problem". Users can add new crops related problems by this option. The names of the apps we have mentioned above show that 90% of these apps do not have weather updates. But our app will provide weather forecasts. A maximum of those apps has been created with only some common information (such as what to do in a crop, when to apply fertilizer). That's why this app will be an exception to all other apps

2.3 Comparative Studies

App Name	Temperature	Crop Cultivation process	Fish Cultivation process	Buy and Sell	Agricultural instruments	Question and answer
KRISHI TOTTHO	✓	✓		✗	✗	✗
KRISHI DOCTOR	✗	✓	✗	✗	✗	✗
KRISHOKER JANALA	✗	✓	✗	✗	✗	✓
Agriculture Information Service	✗	✓	✓	✗	✓	✗
ADHUNIK KRISHI	✓	✓	✓		✓	✓

From the comparative study, we can see that there are apps similar to ours but they are not complete. None of the apps have full features. We have provided all the functions from those apps into one app.

2.4 Scope of the problem

There are numerous perspectives that we have seen that are preventing the development of the Internet, business space in Bangladesh. An Absence of consumer loyalty, terrible standing with Crops quality, hard to explore portable applications, and considerably more. We felt that on the off chance that we address these issues, we can make an application that will be alluring to many individuals in Bangladesh who need to take part in agribusiness and that is the reason we made the application.

Google dispatches another adaptation of Android consistently with a totally different arrangement of provisions and enhancements. In any case, the speed at which the recently delivered form of Android has been taken on is an outrageous snag.

We've had a lot of problems with weather forecasting and daily weather updates.

While creating this app, when I do the work of Weather, I have to implement the new version of Weather, I have faced many problems to implementing this code.

2.5 Challenges

Those who use this app may intentionally misrepresent the crop or order, the purchase of the crop for harassment with malicious intent.

Deliberately cheating can mislead the buyer with crop misinformation, thereby ruining the buyer's trust.

Seeing the quality of the crop, if you don't get what you ordered, it will become unreliable. Also since there is an opportunity to ask questions, not giving the right advice in the case can lead to irreparable loss to the person who got the solution.

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 Business Process Modeling

At first, users can log in to our app. after login, they can purchase and sell items. Assuming they need to sell items their items will be put away in our information base. What's more, assuming they need to purchase items they will actually want to see every one of the items in our data set. From there they can either add the products in the cart or see product details and then add them in the cart. After that, the seller and buyer can communicate with each other to continue the transaction.

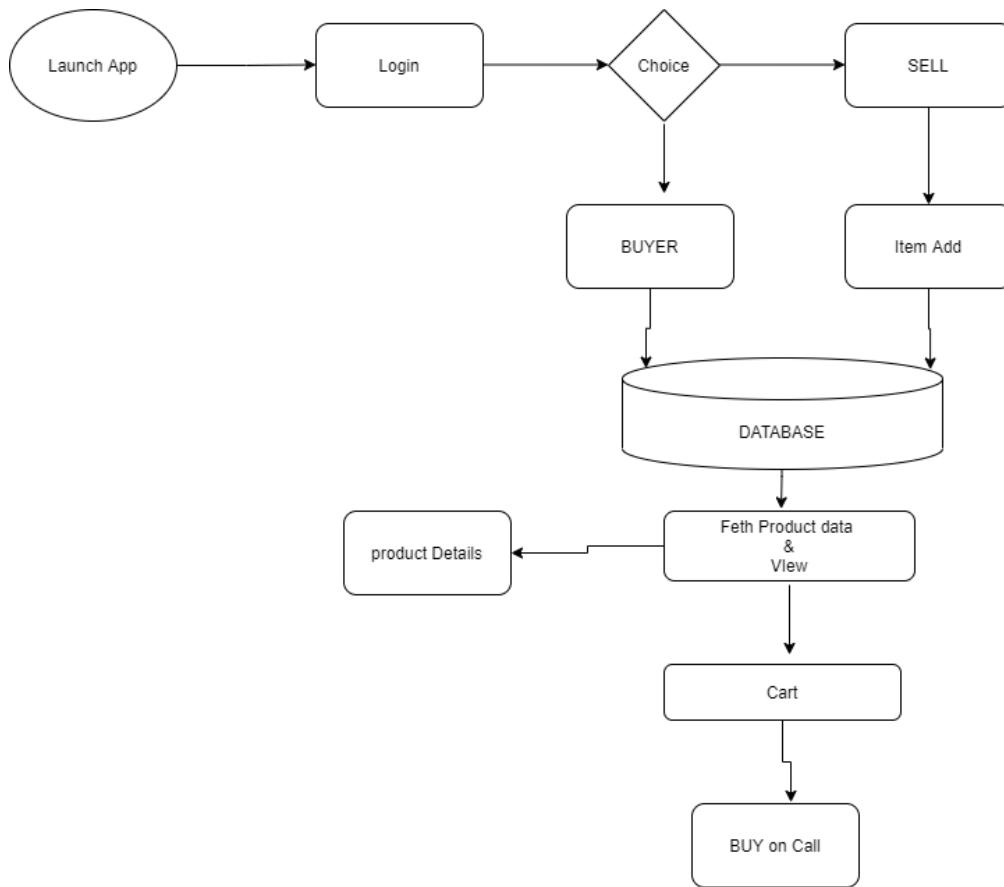


Figure 1 : Business process modeling

3.2 Requirement Collection and Analysis

Our project is designed so that the farmers of our country can easily cultivate with modern methods. In our app, they can buy and sell their goods, they can ask agriculture-related questions, and get answered and they can see the modern method of Crops cultivation and all the disease related to crops and their cures.

In order to build our project, we have some requirements. We categorize our requirements into two parts, software, and hardware.

3.2.1 Software

We designed our app for the farmer of our country. We made sure that they can understand and operate the app easily. We also made sure that our app can run even on the latest android devices, so we used the latest API level for our project.

Here android API 30 is chosen for building the project and we also require all the software given below.

- ❖ Operating System: Windows 8, Windows 7, Windows 10
- ❖ Language: Java, Android XML.
- ❖ Tools: Android Studio
- ❖ Technologies utilized: Android, Java

3.2.2 Hardware

For building our project, we need the accompanying Hardware Requirements:

Processor: 2nd generation Intel Core or AMD CPU with support for a Windows Hypervisor

- ❖ RAM: minimum 4 GB
- ❖ Space on a plate (disk): least 8GB
- ❖ For running the application:
- ❖ Device: Android adaptation 3.3.2 and higher
- ❖ Minimum space to execute: 20MB
- ❖ An advanced cell

3.3 Use Case Modeling and Description

The use case is used to visualize the interaction between the user and the system. In our app, there are two users, buyer, and seller. Both buyer and seller can view the cultivation process, crops disease, the cure for the disease, and agriculture instruments. In addition, buyers can ask questions, and browse products from the database. The buyer must be logged in to the system to perform these two tasks. When browsing buyers can view details of particular products. Buyers can add a product to the cart, with or without seeing the details of that product. The seller can sell products after he/she is logged in to the system. After the seller sold the product, he/she can also view details of the product in the database. Both buyer and seller can communicate with each other after the buyer has decided to buy the product.

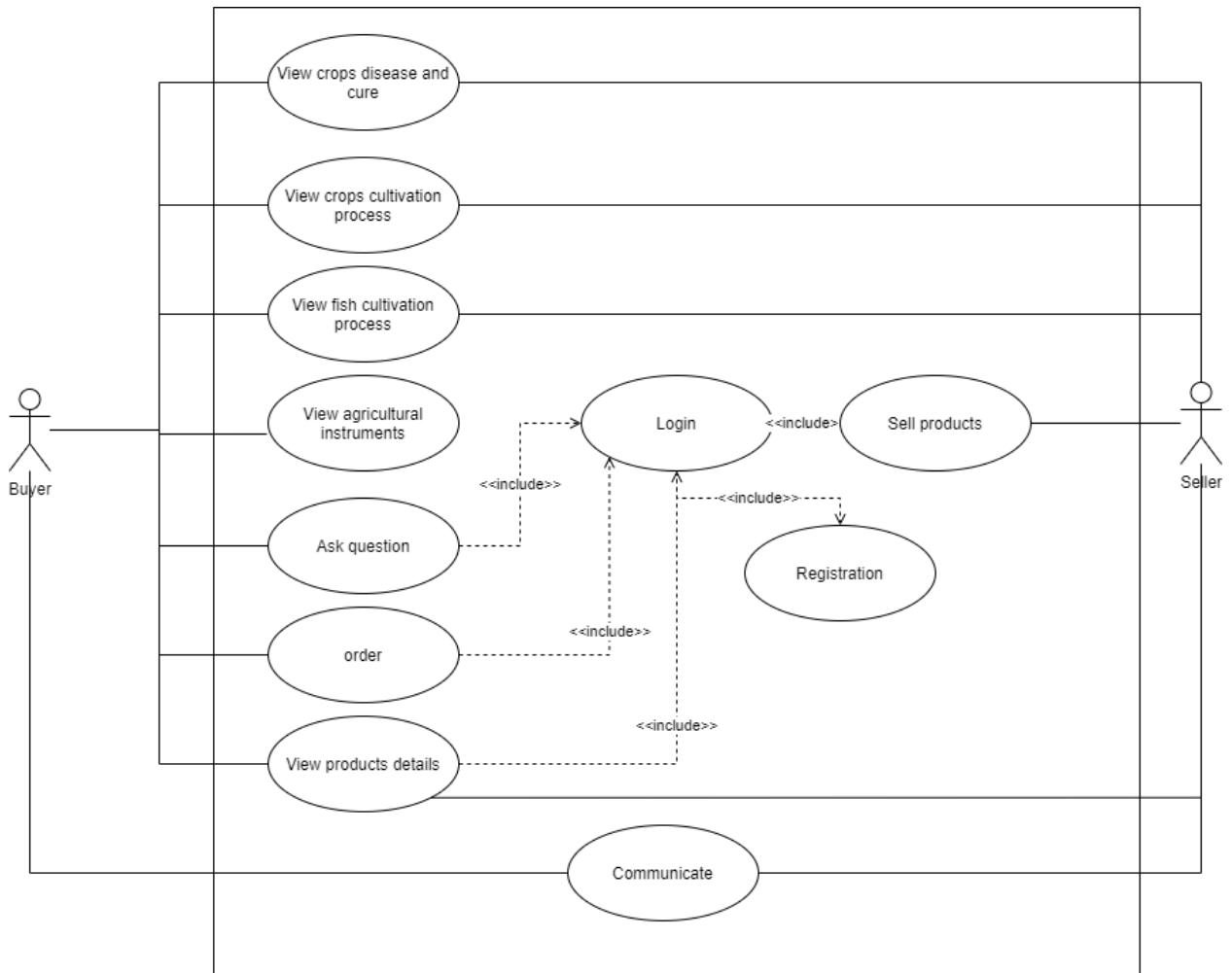


Figure 2 : Use case diagram

3.4 Logical Data Model

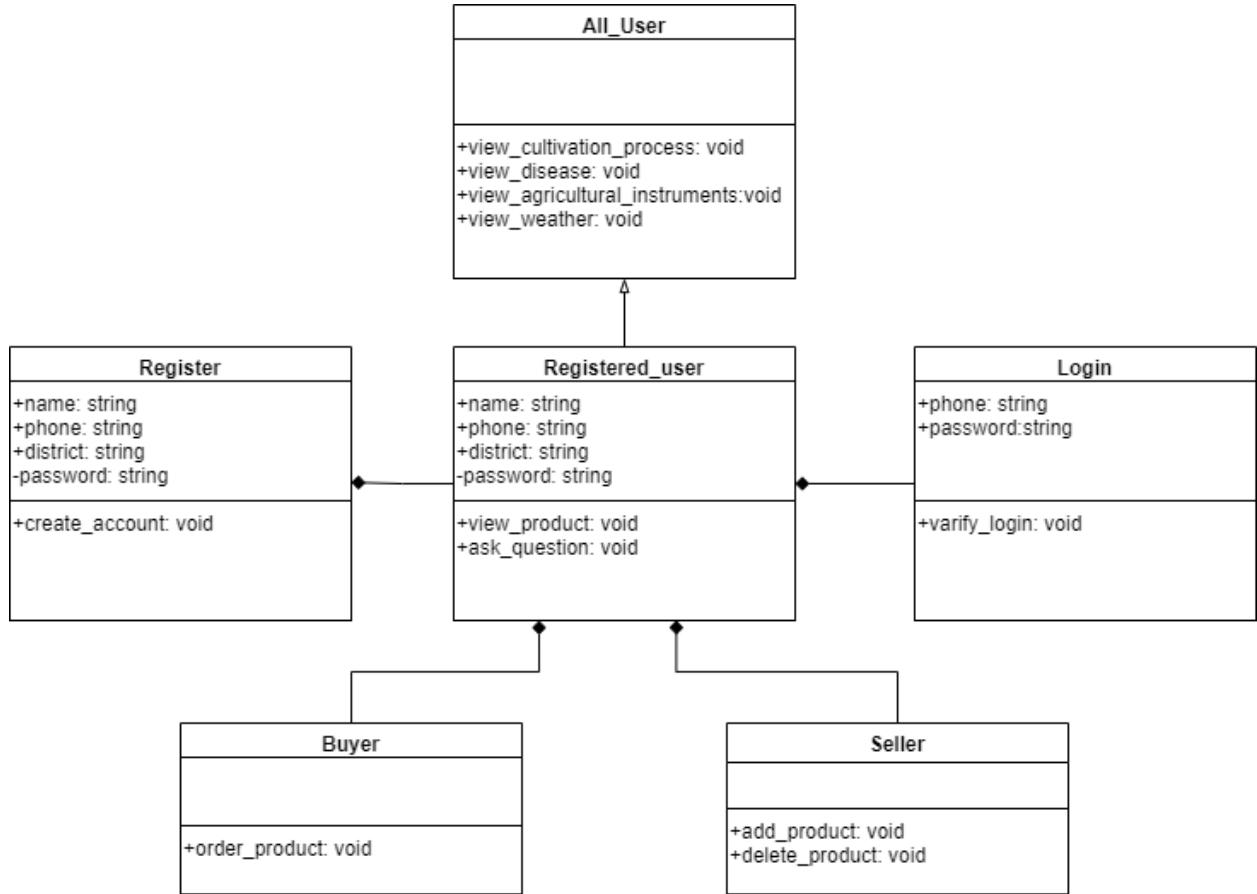


Figure 3 : Logical data model

3.5 Design Requirements

Design is one of the important parts of an app. A good app with a bad design cannot be successful. We designed our app in a way so that anyone in our country can easily use them. Our design needs to be simple and efficient. Some feature is needed in our design

like button, text field, edit text, cart view, etc. Also, we had designed our app in the Bangla language so every farmer in our country can use them.

CHAPTER 4

DESIGN SPECIFICATION

4.1 Frontend Design

To develop this task, we utilized Android Studio. We utilized the XML record for the front-end plan of the design of this application. XML's full meaning is "Extensible Markup Language", an information record that contains the fundamental making a plan or front-end plan of an application. It is nearly arranged like Hypertext Markup Language (HTML). When we uses .xml file need tag like "<tag name>..... </tag name>". This tag has a starting tag and an ending tag. Each article has a beginning tag and an end tag. The primary reason for the .xml record is to make the application easy to use and underscore genuine, ease of use across the Internet across various gadgets. Nonetheless, the XML record isn't caring for Java which is really the foundation of an application that behaves like a mind. On the other hand .xml records assist a designer with planning an application: outlook of components like buttons, displaying photos, scroll view, text view, background color, Rating bar, margin and padding, checkbox, radio button, edit text, android switch, seek bar, in-app icon size, etc.

In any case, the fundamental motivation behind the .xml record isn't just to plan an application yet collection to assist the engineer with dissecting information from a data set or server into an Android portable application.

4.2 Back-end design

Basically, for Android application backend design two types of programming language one is Java and another is Kotlin. In our project, we used the Java programming language for backend design. Because Java is easier than Katlin and very user-friendly. For user-friendly and comfortable working in java, we use it for our project backend design.java is a very strong platform which is supported various types of operating systems like Windows,

Linux, Mac, Raspberry Pi, etc. it is very easy to use. It is open-source and free for users .it is a fast, secure and very power full programming language. Java is an object-oriented language that gives users or programmers a clear structure of programs. Java is close to C# and C++.

We are developing the ADHUNIK KRISHI application by using a java programming language for the backend. In backend design at first, there is a log-in page for user login which is designed by java programming language. when the user login application with the help of registration then the user will see a new activity which includes Card View. In Card View there are some buttons. when the user clicks the individual button at that time the user goes to the new individual activity for each individual button. When someone buys or sells anything related to agriculture which is stored in a database named firebase database.

4.3Interaction design & UX

The UX design means User Experience. This is mainly used to design any application interface to look amazing and better looking to the user.

When we go to the market to buy anything at that time, we are looking for attractive things or products because the attractive things or products are very noticeable for both buyer and seller. which things and products are very attractive those are very demandable for the buyer? For this, we want to make more attractive of our project interface as the users are using the application comfortably and attractively.

An extremely fundamental mobile application can't be famous if the client of that application can't be comfortable to use to utilize that application.

The easier to use and simpler famous UI application can snatch more user-friendly and easier icons as designers of this task we had an expectation to make this application simpler and more proficient to a client. All things considered, we have utilized an exceptionally basic interface and front-end plan.

A light UI can be upheld by the majority of the device.

A developer should target the vast majority of the client of the market and plan that kind of utilization which can be run-on low-end devices.

4.4 Implementation requirement

- ❖ The following is what is needed for the purpose of implementation
- ❖ Microsoft Windows 7 to latest (32-bit or 64bit), Mac OS 10.10(Yosemite) or higher, GNOME or KDE desktop Ubuntu 14.04 LTS, Trusty Tahir (64-bit distribution capable of running 32-bit applications).
- ❖ An Integrated Development Environment (IDE) is an official Android Studio.
- ❖ Desktop or laptop with minimum 4 GB RAM, 8 GB consults (plus 1GB for the Android Emulator).
- ❖ Screen resolution minimum 1280 x 800.
- ❖ Light and simpler XML plans for easy-to-use graphical interface.
- ❖ Back-end program language (KOTLIN, JAVA)
- ❖ Efficient condition to handle the application
- ❖ The Firebase Real-time Database is a cloud-facilitated MySQL data set that allows you to store and match up information between your clients in real-time.

CHAPTER 5

Implementation and Testing

5.1: Implementation of database

There are two databases we could have chosen. SQLite database and firebase database. We have chosen firebase because we wanted to use the real-time database for our app.

The screenshot shows the Firebase Realtime Database console. On the left, the navigation sidebar includes 'Project Overview', 'Build' (with 'Authentication', 'Firestore Database', 'Realtime Database' selected), 'Storage', 'Hosting', 'Functions', 'Machine Learning', 'Release and monitor', 'Extensions', and 'Spark' (Free \$0/month). The main area is titled 'Realtime Database' with tabs for 'Data', 'Rules', 'Backups', and 'Usage'. It displays a hierarchical database structure under 'news':

```
news
  products
    0f6ad9cb-14e2-4afb-85d4-9c22bf44639d
      pAmount: "৬ টাকা / পিস্ত"
      pDetails: "ফুলকপি শীতকালীন সবজি। এটি রান্না বা কাচা যে কোন..."
      pID: "0f6ad9cb-14e2-4afb-85d4-9c22bf44639d"
      pImage: "https://firebasestorage.googleapis.com/v0/b/adh... "
      pName: "ফুলকপি"
      pPhone: "01621893919"
      pQuantity: "৫০০ টি"
    1954c6ab-f1ac-4e15-bc94-7d7970f68758
    6fffc079-21fb-4807-9018-4630fc2ff4ce
    9900d72d-e978-4160-8aba-c226a33f6f80
```

The screenshot shows the Firebase Realtime Database console. The left sidebar is identical to the previous one. The main area is titled 'Realtime Database' with tabs for 'Data', 'Rules', 'Backups', and 'Usage'. It displays a hierarchical database structure under 'news':

```
news
  + X
  ID1
    nDetails: "This is Details"
    nImage: "https://firebasestorage.googleapis.com/v0/b/adh... "
    nTitle: "This is Titile"
  ID2
    nDetails: "This is a details"
    nImage: "This is a image"
    nTitle: "This is a Titile"
```

A red warning bar at the top states: 'Your security rules are defined as public, so anyone can steal, modify or delete data in your database'. Buttons for 'Learn more' and 'Dismiss' are available.

The screenshot shows the Firebase Realtime Database interface. On the left, the navigation sidebar includes 'Project Overview', 'Build' (with 'Authentication', 'Firestore Database', 'Realtime Database' selected), 'Storage', 'Hosting', 'Functions', and 'Machine Learning'. Below these are 'Release and monitor' and 'Extensions' sections. At the bottom, it shows 'Spark Free \$0/month' and 'Upgrade' options. The main area is titled 'Realtime Database' with tabs for 'Data', 'Rules', 'Backups', and 'Usage'. The 'Data' tab is active, displaying a hierarchical tree view of the database structure. The root node is 'adhnunik-krishi-default-rtdb.firebaseio.com'. Under it, there are three main nodes: 'news', 'products', and 'questions'. The 'questions' node is expanded, showing several child nodes with unique IDs (e.g., '08191086-f400-4926-9ca7-148fb0584203', '1fb...'). Each child node contains fields like 'qDate', 'qDetails', 'qID', 'qImage', 'qPhone', and 'qTitle'. A URL at the bottom of the screen is <https://console.firebaseio.google.com/u/6/project/adhnunik-krishi/database/.../questions>.

This screenshot is similar to the one above, showing the Realtime Database interface. The navigation sidebar and main structure are identical. However, the 'Data' tab now displays a warning message: 'Your security rules are defined as public, so anyone can steal, modify or delete data in your database'. This message is highlighted in red and has 'Learn more' and 'Dismiss' buttons. The database structure below the warning shows the same 'news', 'products', 'questions', and 'users' nodes as in the first screenshot.

Figure 4 : Database

5.2 Implementation of front-end design

After successful login user will enter into our main activity. Here they can view the date and time. And they can use the following functions.

- ❖ View temperature
- ❖ Crop Cultivation process
- ❖ Fish Cultivation process
- ❖ Buy and Sell
- ❖ Agricultural instruments
- ❖ Question and answer
- ❖ Daily Update Market Price



Figure 5 : Home page

5.2.1 Log in Page



Figure 6 : Log in page

It's the principal action of the application where User needs to compose his Phone Number and password to access in this application. The "Sign in" button is the button for getting to in the application. On the off chance that he doesn't have a record, he needs to press the text "Not have an account? Click here to sign up".

5.2.2 Registration Page



Figure 7 : Registration page

The User needs to compose his Name, Phone Number, Division, another Password for his record, his own Phone number, and in conclusion he needs to do. There is a security note accessible for him "Note: Please embed the phone number cautiously and accurately. The number ought to be embedded like this organization 0171*****1. On the off chance that number and Password as of now exists, you will not have the option to move to next page". There is an approval venture for each addition. Assuming he gives off-base info that isn't legitimate, it will show blunder texts to compose the means accurately. At this moment here we can see an approval text – “please insert valid Number”.

5.2.3 View temperature:

The view temperature option will take the user to a different activity where the user can see the current temperature of his/her location. Here user will also see his/her location. The maximum and minimum temperature is also shown here. Also, users can see the humidity, how the weather is actually felt, wind speed, wind pressure, and weather state.



Figure 8 : View temperature

5.2.4 Crop cultivation process:

When the crop cultivation method is chosen users will be taken to another activity where they can see different options for different crop cultivation methods.

When they chose any of these options they will be taken to another activity where they can see the cultivation method of selected crops. There are options on that page where they can see the known diseases and their cure for that particular crop. Also, they can click the text "view more information" which will take them to a website where they will find more information on that crop.

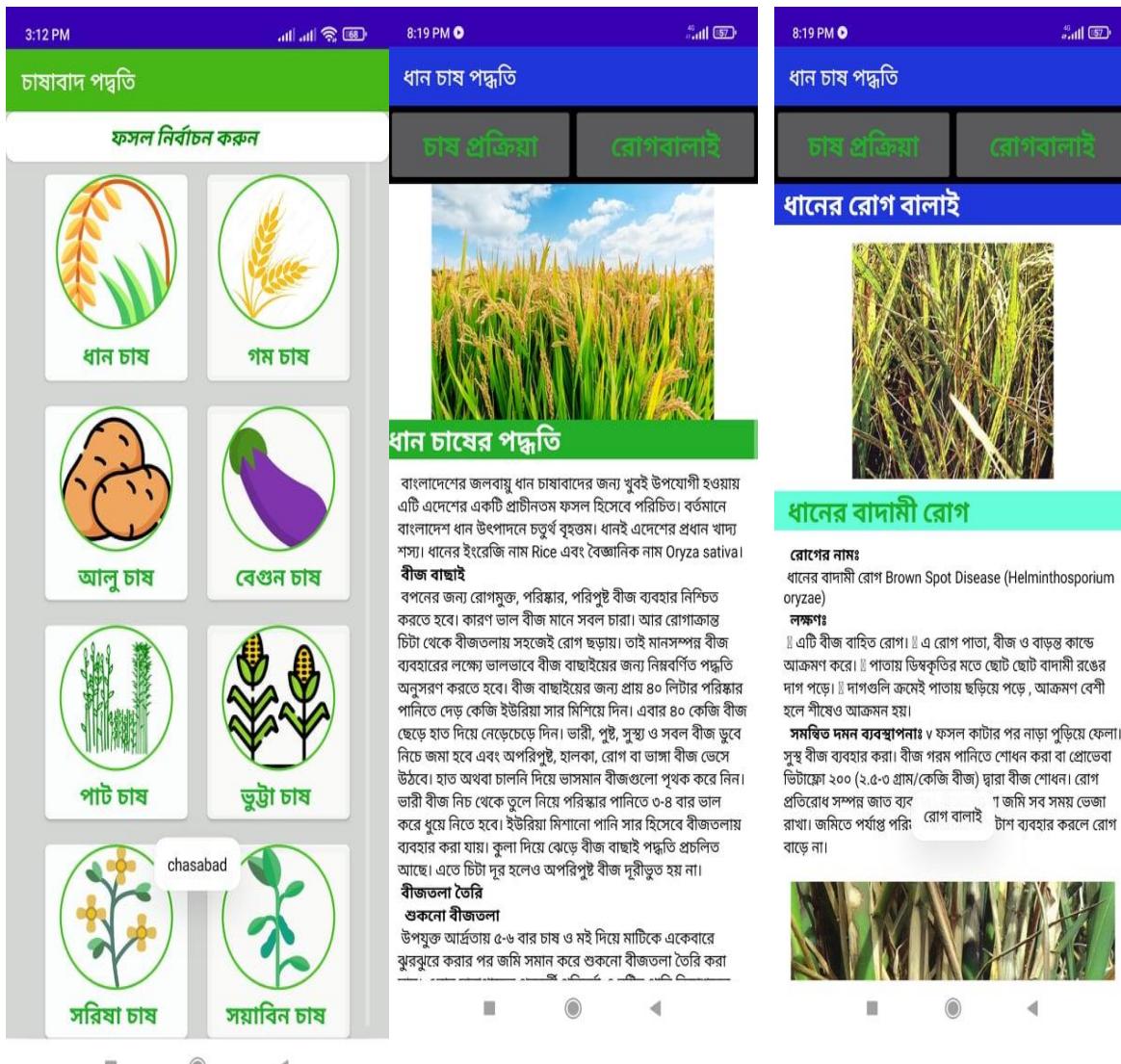


Figure 9 : Crop cultivation process

5.2.5 Update market Price

Farmers will be able to know about their daily market updates. According to this, they will sell in their market, and accordingly, they will get their fair price.



The screenshot shows a mobile application interface for market price updates. The top bar displays the time as 3:19 PM and signal strength. The main title is "আজকের বাজার দর" (Today's Market Price). Below the title is a table with the following data:

	মূল্য প্রকার	পরিমাণ	ঢাকা	চট্টগ্রাম	খুলনা	রাজশাহী	রংপুর	সিলেট	বরিশাল
রসুন - দেশী	খুচরা	কিলোগ্রাম	৫৮	৫৭	৫৫	৬২	৫৯	৫৮	৫০
	পাইকারী	কুইন্টাল	৮৬০৯	৮৬৫৭	৮৬০১	৮০৭১	৮৮২২	৮৫১৭	৮১৬৫
আদা - আমদানিকৃত	খুচরা	কিলোগ্রাম	১০৮	১২০	১০৬	৯৪	৯২	১১৭	১৩৩
	পাইকারী	কুইন্টাল	৮৫৯৭	১০২০৭	৮৭১২	৭৭৯২	৭৪২২	৯২৫০	১১৪৭৫
আদা - দেশী	খুচরা	কিলোগ্রাম	৯৯	৯৬	৯৯	৯০	১০০	০	০
	পাইকারী	কুইন্টাল	৭৯৩০	৭৯৩০	৮১৩৩	৭৭৬৩	৮৪১৭	০	০

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Figure 10: Update market Price

5.2.5 Buy and Sell:

When this option is chosen the user will be taken to a new activity where they can view all the products that are ready to be sold. Here they have two options buy or sell. For both of these options, the user must be logged in to the app.

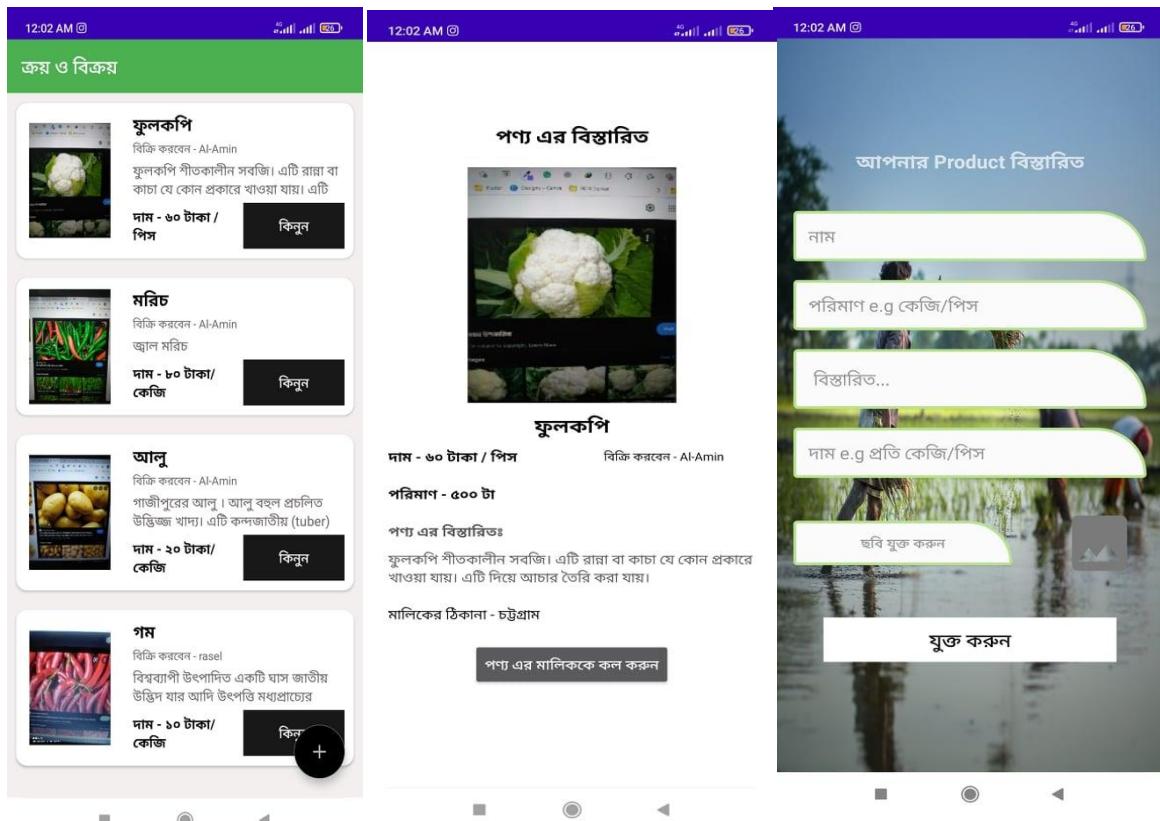


Figure 11: Buy & Sell

Buy:

If they want to buy something they can press the "buy" button and they will be taken to a new activity where they will see the buyer's information of that product. If they want to contact the buyer they can press the button "call the buyer" and the app will call the buyer.

Sell:

To sell something user must press the '+' button. If the user is logged in to the app then he/she will be taken to a new activity where they can add the product name, amount, price, and add a photo of their products. if they want to add a photo, they will see two options one for uploading a picture from the gallery and another is for opening the phone camera. After that, they can press the add button to add the product for sale.

5.2.6 Agricultural Instruments:

If users choose the "agricultural instruments" option, they will be taken to a new activity where they can view all the latest instruments that are used in modern agriculture.



Figure 12: Agricultural Instruments

5.2.7 Question and answer:

If the user chooses the "Question and answer" option they will be taken to a new activity where they can view all the questions asked previously. They can comment on a particular question. For comments, they must be logged in to the application. Users can create a question by pressing the '+' button. For that, they must be logged in to the application. When they press the '+' button they will be taken to a new activity where they must add their question and description. They can add photos if they want. If they want to add a photo, they will see two options one for uploading a picture from the gallery and another is for opening the camera of the phone. After that, they must press the "add question" button to add their question.

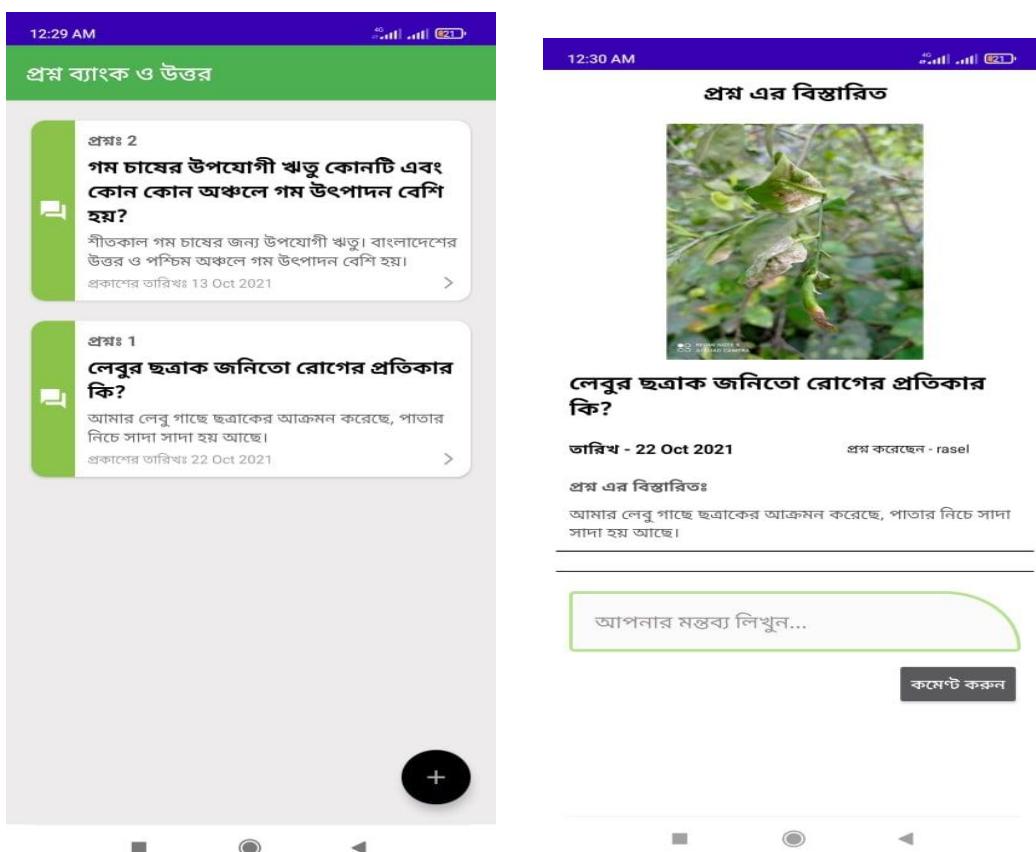


Figure 13: Question and answer

5.2.8 User Profile

Users can view their information as registered users. If needed they can delete their sales posts and comments. And also they can edit their sales past and comments.

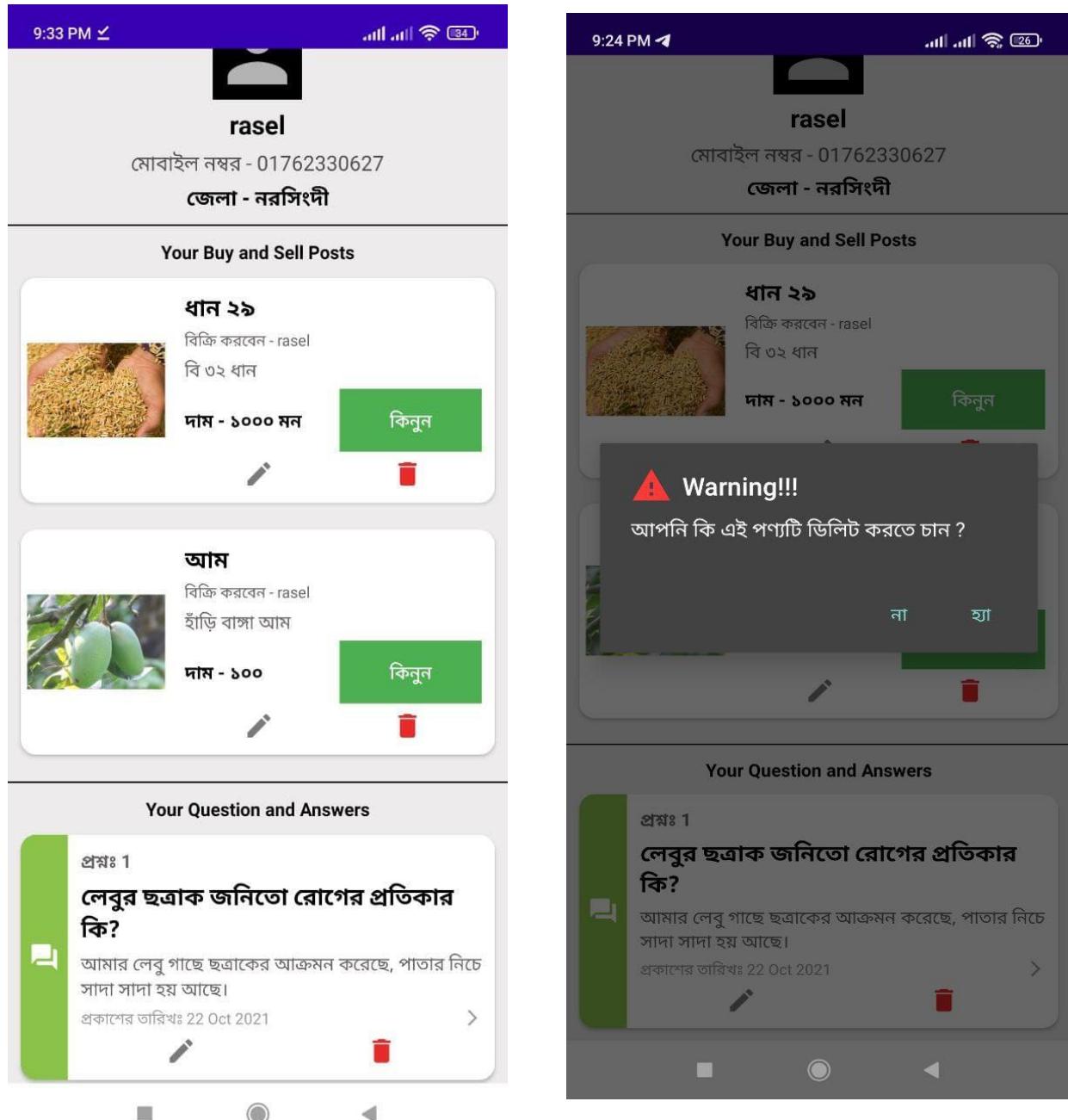


Figure 14: User Profile

5.2.9 Sign Out:

This is the sign-out Button. When this button will click sign out then will go back from the application online system.

5.3 Implementation of interactions

We tried to represent this application in a more user-friendly way so that users can use it and interact with it more easily, and it's a lightweight app that can run on most devices. It supports a wide range of devices, from Android 4.4 to the most recent versions [3].

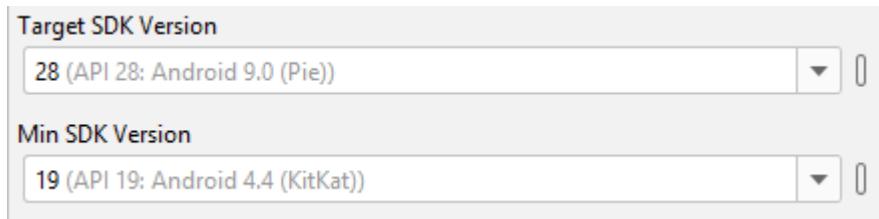


Figure 15: SDK Version

5.4 Testing Implementation

Device Name	Login	Temperatur e	Crop Cultivatio n process	Fish Cultivatio n process	Buy	Sell	Agricultura l instruments	Question and answer
Xiaomi (user)	yes	yes	yes	yes	yes	No	yes	yes
Xiaomi (Vendor)	yes	yes	yes	yes	No	yes	yes	yes
Samsung (User)	yes	yes	yes	yes	yes	No	yes	yes
Samsung (Vendor)	yes	yes	yes	yes	No	yes	yes	yes
Oppo (User)	yes	yes	yes	yes	yes	No	yes	yes
Oppo (vendor)	yes	yes	yes	yes	No	yes	yes	yes

5.5 Test results and reports

The test report of the application is very positive and we're the happy reason we discovered 0% mistake's the point at which we test it on such countless gadgets like Samsung, Huawei, Xiaomi, Oppo, etc. This application runs smoothly on these gadgets.

CHAPTER 6

IMPACT ON SOCIETY, ENVIRONMENT AND SUSTAINABILITY

6.1 Impact on Society

It is our e-commerce and information-based app. Here farmers can easily buy and sell their products. They will face no loss by using this app. They can provide the information of their product and get the proper value of it. Normally, people go to the market to purchase the products they require. People, on the other hand, no longer need to go to the market thanks to e-commerce. Purchasing commodities is the most basic economic transaction. Generally, the number of consumers purchasing online has increased, which is increasing internet usage. People may be extra efficient. People get more time for e-commerce to paint products productively. Which is vital for the improvement of society. Those who have disabilities, whether or not they are physically, and mentally challenged or vintage age human beings need to warfare to visit markets. This hassle could be extra for those who are residing a more distance from the metropolis. E-commerce systems are mainly based totally on online connectivity. So, it's going to want an internet site or cell application.

By using this app everything will be easy for both buyer and seller. Day by day everything is modernized. So, it also needs to modernized our farming sight also

6.2 Ethical Aspects

We made this app to update our agriculture sectors also. As everything moves on to online marketing so this app helps the best. Every one of us now, just as easily as we want to buy the right quality product, a seller wants to get the right price for his product. And this is possible only when the product is presented to the buyer with the correct information with ethics. The app will be built in such a way that buyers and sellers do not suffer any losses. If the right product information is given with ethics, then trust will be created. And once trust is built, people come to this online site again and again to make transactions. So, we must put the moral aspect first. No one will be misled by wrong information and no one will be harmed.

6.3 Sustainability Plan

Sustainability is doing something that does not dissipate natural assets and gives assistance to lengthy-term or international ecological balance. So, sustainability is the most vital for organizations. That is motivated by means of actual challenge by way of stakeholders who function more sustainably, and ethically.

CHAPTER 7

CONCLUSION AND FUTURE SCOPE

7.1 Discussion and Conclusion

The modern agricultural application will be very helpful for a farmer. They do not get a fair price for the crop and if the crop is affected, they do not get the right remedy. There will be 2 means of this application, 1. Offline 2. Online. Farmers will be able to know about crop cultivation methods, remedies, and fish farming methods offline. The farmer will be able to buy and sell and today's temperature crops online. And if he wants to know something about crops and crop cultivation, he can ask and answer questions. We have used Firebase Database to store data in this app. Firebase provides free service. Our farmers are not so educated. So, they do not feel comfortable in English. Thinking about them, we have made this application in the Bengali version. Through this application, farmers will be able to sell and buy their crops and know today's market. We will add more features to this application in the future. We hope that sellers and customers will have a good relationship through this application.

7.2 Scope for Further Developments

In the future, we will upgrade all our features and add some new features. We want to make these apps easy to use. We want to add Google Maps to this application. If we add this feature, customers will be able to easily find the address of the nearest farmer. If the seller finds the nearest customer, it will be easier to buy and sell the crop. Here we take pictures of the affected leaves with the camera. We will add more so that the land can examine the soil and can walk around the land to actually tell what the size of this land is. The Upcoming, we will conduct a survey on sellers and customers to find out their needs about buying and selling online. Once we know their claims, we will update this application with ease of use. For this, we will make these apps according to their needs. In the future, we will think about location trackers for their convenience. This will help us to build these apps as their feedback.

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