

Software Requirements Specification

for

Khedut Mitra (ખેડુત મિત્ર)

Version 1.0 approved

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Revision History

Name	Date	Reason For Changes	Version
-	-	-	-

➤ 1. Introduction

1.1 Purpose

The main purpose of the App (Khedut Mitra) is to help farmers by providing the information about the Government Schemes for farmers, weather conditions, farming news, Crop protection from diseases and farming related videos at one place. It also provides the information about success stories of other farmers.

1.2 Document Conventions

The main heading for software requirement specification Application name, version number of the application, name of the author, organization and date are written in right-handed alignment.

- Apart from this, entire document of software requirement specification is justified.

Main Title

- Font Name: Times New Roman
- Font Size: 18
- Font Style: Bold

Subtitle

- Font Name: Times New Roman
- Font Size: 14
- Font Style: Bold

Content

- Font Name: Times New Roman
- Font Size: 12
- Font Style: Regular

1.3 Intended Audience and Reading Suggestions

The document is intended for all the stakeholder customer and the developer (designers, testers, maintainers). The reader is assumed to have basic knowledge of Mobile operating systems, database, and user account. Knowledge and understanding of UML, ER and DFD diagrams.

Developers who want to extend the program with new features.

- Testers who are interested in discovering possible flaws of the program and want to report them for improvement.

- All users of the program, who are interested in being informed about the capabilities, which Khedut Mitra, gives to them.

This App is a prototype for the farmer welfare application. This has been implemented under the guidance of college professors. This application is useful for the farmer.

1.4 Project Scope

We had done the survey for the problems of the farmers.

Some of the problems are:

- Some farmers don't know about government schemes.
- At farms, they don't have TV to watch News.
- They must go to yard for enquiries related crop selling.
- Some farmers don't know the new crop protection techniques.

We together list out the problems and we come up with the solution as mobile application in Gujarati language.

Farmer can get success stories of other farmer who have success to do farming in new method that will be helpful for another farmer. Application will provide the correct information from trusted sources like Junagadh Agriculture University website, AAU website etc. This Application will be providing the information about the crop protection from diseases, and it is very helpful for farmer.

1.5 References

- <https://ikhedut.gujarat.gov.in/>
- <http://www.jau.in/>
- <http://sdau.edu.in/>
- <http://www.aau.in/>
- <https://nau.in/index>

2. Overall Description

2.1 Product Perspective

Khedut Mitra App is in Gujarati language, so it is quite easy to use the for our Gujarat farmers. Khedut Mitra is a free and open -source application that will be suitable for all users who will interested to get information related to farming and crops. Khedut Mitra application is used for farmers to know new crop protection techniques, farmers can get the information on weather , News and videos related to the farming . App will also contain the panel for success stories of farmers as India have been added to empower farmers in the best possible manner.

2.2 Product Features

This Application provides accurate information related to the farmer in one place. This Application gives information about the government schemes related to the farming. It Provides weather related information like that day weather conditions and next 5-day weather conditions. It gives the information about success stories that will encourage other farmers. It provides major required information about farming like weather, Crop protection, News etc.

- App Language: Gujarati (ગુજરાતી)
- Govt. Schemes (સરકારી યોજનાઓ)
- crop protection from diseases (પાક અને રોગો સામે રક્ષણ)
- News (સમાચાર)
- Weather (હવામાન)
- Success stories (સફલ ગાથા)
- Farming Videos (ખેતી સંબંધિત વિડીયો)
- Market Yard (માકેટયાડ)

2.3 User Classes and Characteristics

These users are the main beneficiaries of Khedut Mitra and are not required to have a specialized instructional and academic background. In addition, users can be of any age. What is needed is these users have some basic knowledge of computer use without requiring special technical skills and experience. These users can be of any age but must have enough specific knowledge of computer usage.

User Functions:

- View Government Schemes (સરકારી યોજનાઓ) related to the farmers.
- View weather (હવામાન) information of that day and next 5 days.
- View farming related news (સમાચાર).
- View crop protection from diseases (પાક અને રોગો સામે રક્ષણ).
- View Success stories (સફલ ગાથા).
- View Farming Videos (ખેતી સંબંધિત વિડીયો).
- Send, View and Update posts created by users (Farmers).

Administrative Functions:

- Manage Users
 - Add Users
 - Update Users
 - Delete Users
- Manage Posts created by Users
 - Delete Posts
 - Update Posts

2.4 Operating Environment

Operating environment for the Khedut Mitra is as listed below.

- Operating system: Android
- database: MySQL
- platform: Android Studio/Java/XML

2.5 Design and Implementation Constraints

- Khedut Mitra will be accessible 24 x 7.
- Internet connection is necessary.
- Users must have their correct username and password to enter their profile and do actions.
- MySQL Server will be used as SQL engine and database.
- The information of all users, posts and videos must be stored in a database that is accessible by the Application.

2.6 User Documentation

The User documentation will include:

- Users will be able to download User Manual from help section.
- Video tutorials will be available for further guidance.

2.7 Assumptions and Dependencies

The App needs the following third-party products.

- Microsoft SQL server to store the database.
- Android Studio + SDK + Java JRE to develop the Application.

3. System Features

In this Section system features are described analytically. Features that have been already implemented that are described as follows.

3.1 Registration

3.1.1 Description and Priority

This Feature is used for user Authentication purposes.

3.1.2 Stimulus/Response Sequences

After Completion of Registration user can login and user can use all features of application.

3.1.3 Functional Requirements

At the time of registration user will have to give their personal details like name, age, city etc. along with this details user will have to set username and password for the account.

3.2 Login

3.2.1 Description and Priority

This Feature is used for user Authentication purpose.

3.2.2 Stimulus/Response Sequences

After successfully completion of login process user will be redirected to the Dashboard panel.

3.2.3 Functional Requirements

After registration, user can login through their mobile number as we have implemented OTP verification process. As well as user can also login through user ID and Password.

3.3 Dashboard

In the Dashboard, User can access following features of the Khedut Mitra application.

3.3.1 Profile

3.3.1.1 Description and Priority

Through this feature user can create, update, and delete their personal details except username.

3.3.1.2 Stimulus/Response Sequences

After Clicking profile, user will redirect from dashboard to profile panel.

3.3.1.3 Functional Requirements

In the Profile module the users can see their details and users can add, edit, delete they details. Also, they can see they have uploaded Posts.

3.3.2 Schemes (યોજનાઓ)

3.3.2.1 Description and Priority

Through this feature user will have notification latest government schemes related to farmer welfare.

3.3.2.2 Stimulus/Response Sequences

After clicking schemes, user will redirect from dashboard to schemes panel.

3.3.2.3 Functional Requirements

In the Schemes Module, the users can see the Government schemes for the farmers. This will be helpful for the farmer to take an advantage of schemes which will be provided by the government.

3.3.3 News (સમાચાર)

3.3.3.1 Description and Priority

Through this feature user will get notified about current farming related news.

3.3.3.2 Stimulus/Response Sequences

After clicking News, user will redirect from dashboard to news panel.

3.3.3.3 Functional Requirements

In this News Module, the users can see the news related to the farming. That news will be very helpful for the farmers.

3.3.4 Weather (હવામાન)

3.3.4.1 Description and Priority

Through this feature user can check the weather of current day and next five days weather information.

3.3.4.2 Stimulus/Response Sequences

After clicking on the weather, user will redirect from dashboard to weather panel.

3.3.4.3 Functional Requirements

In this weather Module, the users can see the weather of today and next 5 days. That will be helpful for crop growth.

3.3.5 Crop protection from diseases (પાક અને રોગો સામે રક્ષણ)

3.3.5.1 Description and Priority

Through this feature user can access the details of crop and their disease protection method.

3.3.5.2 Stimulus/Response Sequences

After clicking crop protection techniques, user will redirect from dashboard to commodity details panel.

3.3.5.3 Functional Requirements

Crop protection module provides the list of different techniques which will be helpful to prevent from diseases of the commodity.

3.3.6 Success stories (સફલ ગાથા)

3.3.6.1 Description and Priority

Through this feature user can see the success stories that will encourage the user.

3.3.6.2 Stimulus/Response Sequences

After clicking on the Success stories, user will redirect from dashboard to success story panel.

3.3.6.3 Functional Requirements

In this Success stories module, the users can see the posts of other farmers. That will be helpful to encourage the farmers.

3.3.7 Post

3.3.7.1 Description and Priority

Through this feature user can share the review, photos and videos related to the farming so other can see their posts.

3.3.7.2 Stimulus/Response Sequences

After clicking on the post, user will redirect from dashboard to post panel.

3.4.7.3 Functional Requirements

In this Post Module users can add, edit, and delete the posts. And users can view the Posts.

3.3.8 Market Yard

3.3.8.1 Description and Priority

Through this feature users can check the daily rates of the commodities in a particular region.

3.3.8.2 Stimulus/Response Sequences

After clicking Market Yard, user will redirect from Dashboard to Market Yard panel.

3.3.8.3 Functional Requirements

This Functionality allow users to check commodity rates of different regions.

3.3.9 Logout

3.3.9.1 Description and Priority

Through this feature user can logout from application so other user can't access their data without compilation successfully login process.

3.3.9.2 Stimulus/Response Sequences

After clicking logout, user will redirect from Dashboard to login panel.

3.3.9.3 Functional Requirements

This Functionality allows the user to logout from the Account.

4. External Interface Requirements

4.1 User Interfaces

The software provides good graphical interface for the user and the administrator can operate on the system, performing the required task such as create, update, viewing the posts and videos.

It allows user to view quick reports like updated government schemes and weather-related information and updated news.

The user interface must be customizable by the administrator.

All the modules provided with the software, must fit into this graphical user interface, and accomplish to the standard defined.

The design should be simple, and all the different interfaces should follow a standard template. The user interface should be able to interact with the user management module and a part of the interface must be dedicated to the login/logout module.

Login Interface:

In case the user is not registered yet, he/she can enter the detail and register. Which asks the user to type his/her username and password. If the user entered either his/her username or password incorrectly then an error message occurs.

View:

Users can view the government schemes, news, weather, farming videos, succussed stories and crop protection from diseases.

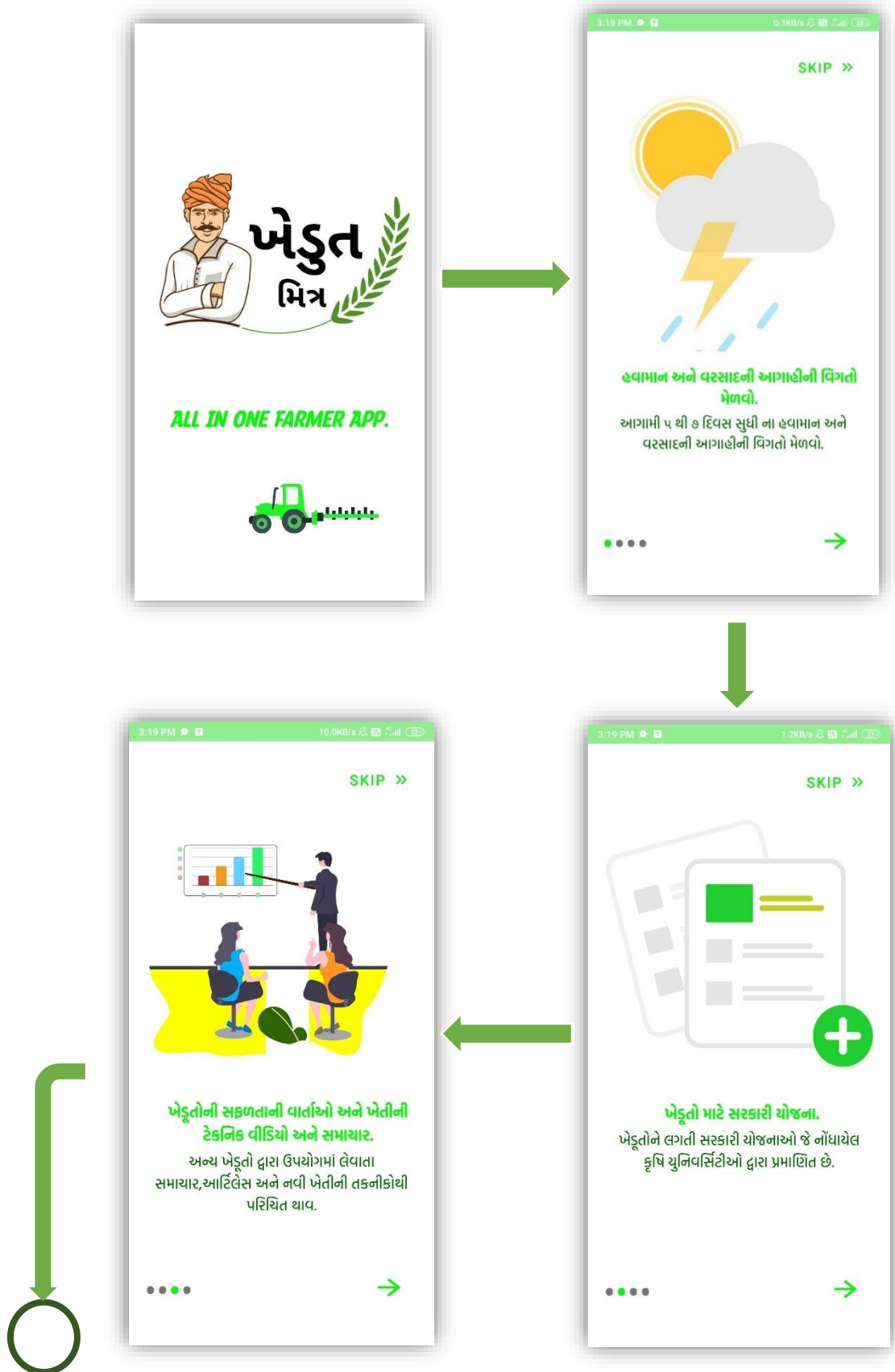
Post:

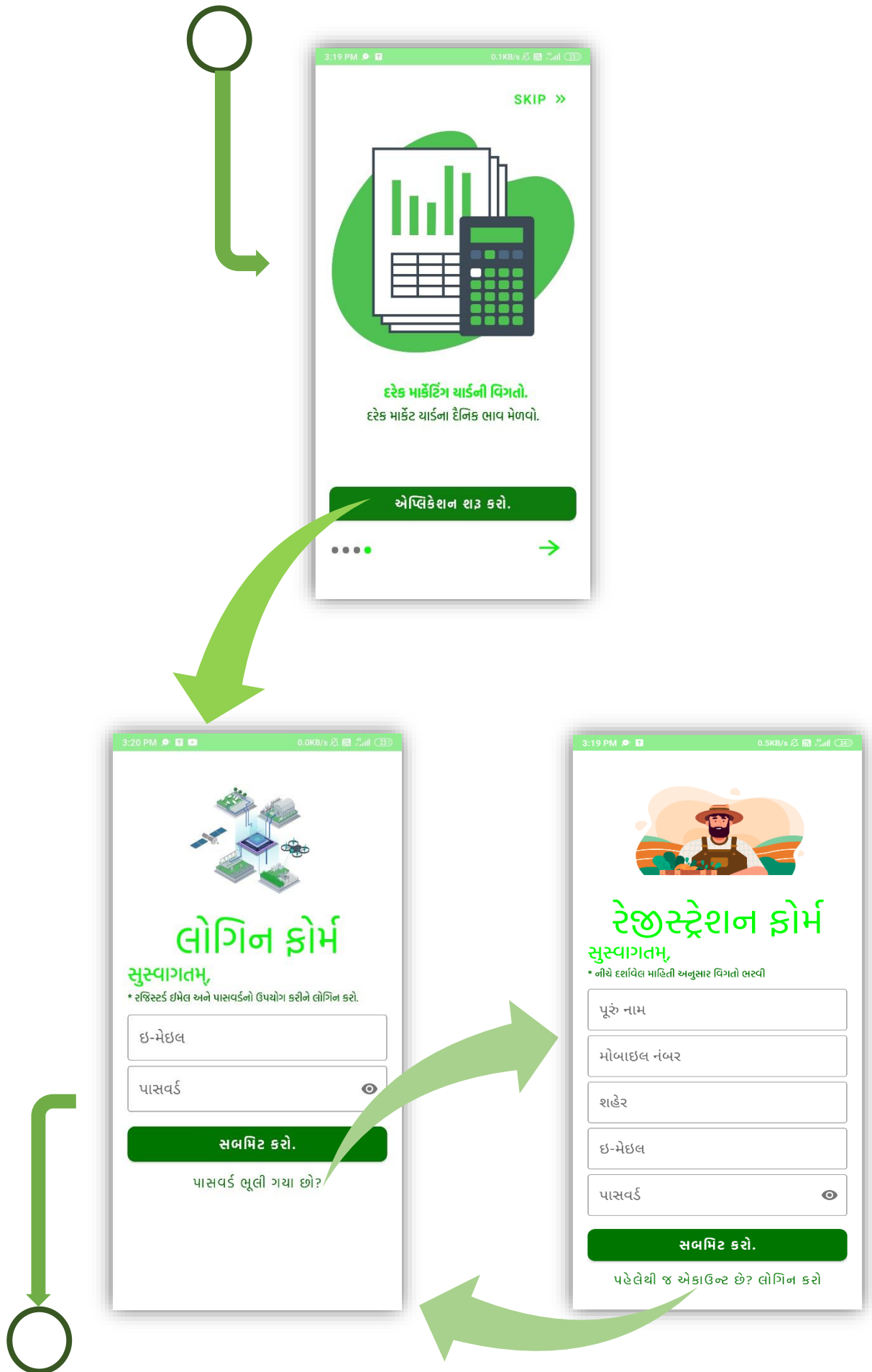
User can ability to add / edit or delete post from their profile.

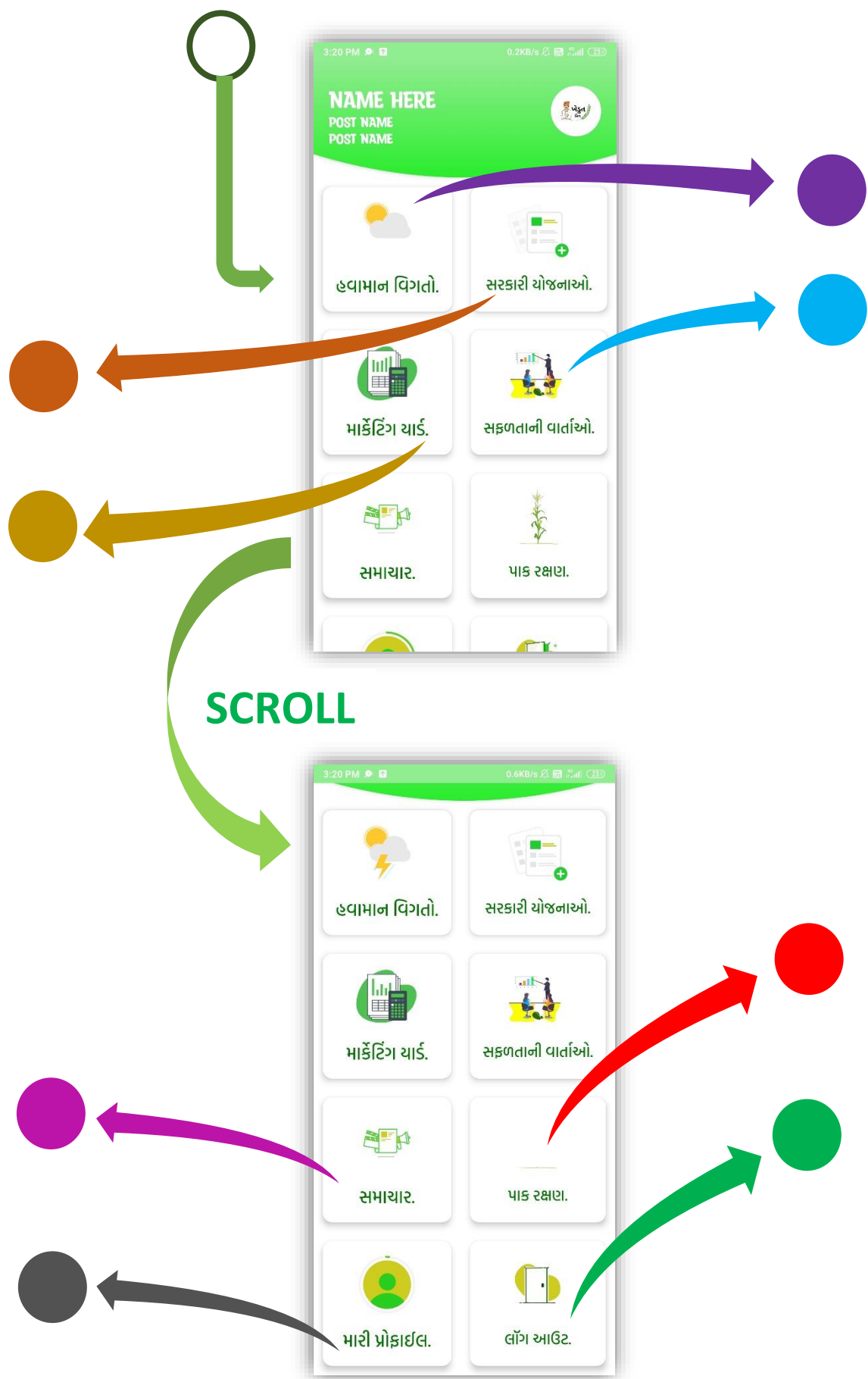
Admin Control Panel:

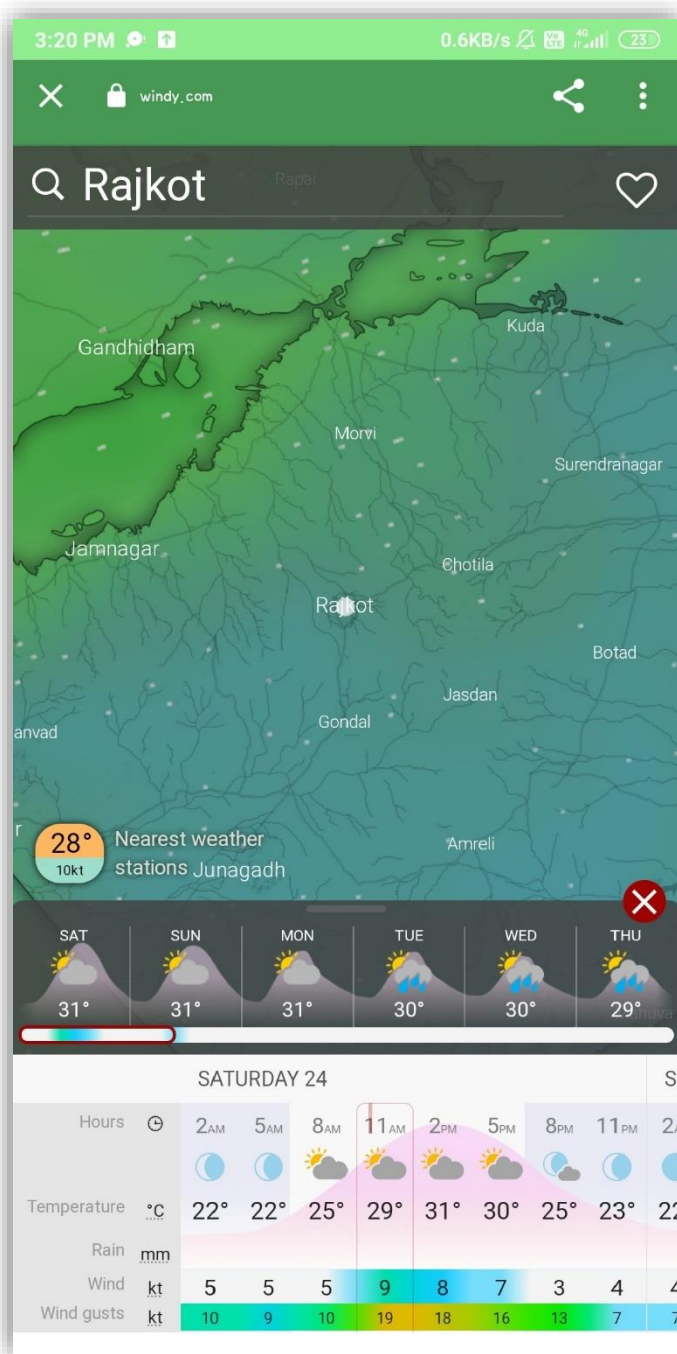
This Control panel will allow admin to add, confirm or remove users and manage the post and other things.

WIREFRAMES

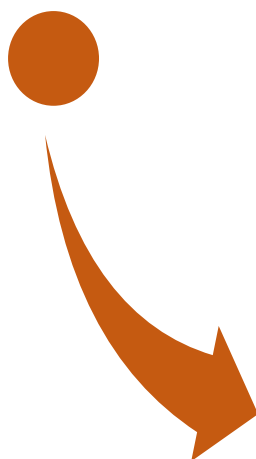




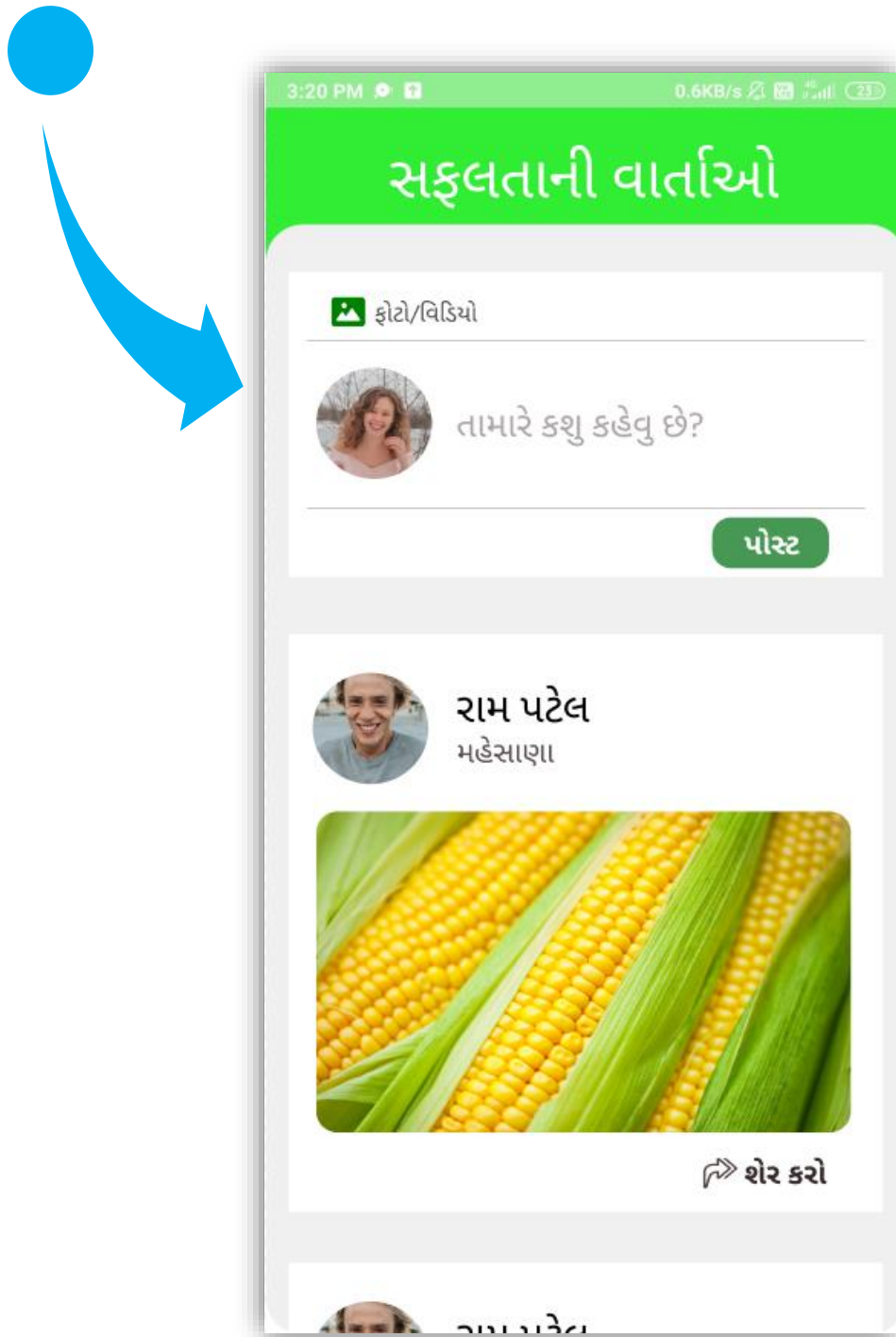




In this weather Module, the users can see the weather of today and next 5 days. that will be helpful for crop growth.



In the Schemes Module, the users can see the Government schemes for the farmers. This will be helpful for the farmer to take an advantage of schemes which will be provided by the government.



In this Success stories module, the users can see the posts of other farmers. That will be helpful for encouragement.



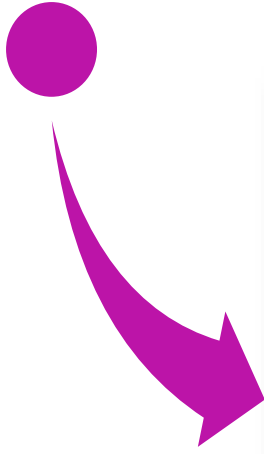
3:20 PM 0.6KB/s 4G 23

માર્કેટિંગ યાર્ડ

રાજકોટ [તારીખ : 23-09-2022]

નામ	ન્યુનતમ	મહત્તમ
સીંગ દાણા	1520	1650
જીરૂ	4144	4468
રાયડો	940	1080
એરંડા	1396	1440
ચણા	735	865
રજકાબીજ	3850	4870
સુવા	1225	1465
મેથી	900	1079
અડદ	1110	1580
મગ	1070	1411
તુવેર	1050	1410

In the Market Yard module, users can check the daily market rates for the commodities in a particular region.



3:20 PM

0.6KB/s

4G

23

સમાચાર



VIDEO / મહાદેવની જળ સમાધિ!
અરવલ્લીનું રક્ષેશ્વર મંદિર ભારે વરસાદના
કારણે વાત્રકમાં ગરકાવ, ભક્તોમાં દુઃખની
લાગણી

23/09/2022



Navratri 2022 / માનો ગરબો રે રમે
રાજને દરબાર! 2 વર્ષ બાદ GMDC
મેદાનમાં રમાશે ગરબા, તડામાર તૈયારીઓ

23/09/2022



અરવલ્લી / જિંદગીની છેલ્લી પિકનિક:
અમદાવાદના 2 યુવકોનું ઝાંઝરી ધોધમાં
ડૂબતાં મોત, મેઘાણીનગરના હતા રહેવાસી

23/09/2022



માઠી દશા / ગીર સોમનાથમાં વરસાદ
બન્યો વેરી, કૃષિ વિજ્ઞાનિકોએ સ્વીકાર્યું
40 ઈંચ વરસાદથી 20 ટકા પાક ઉત્પાદન
ઘટવાના અંધાણ

23/09/2022



સુરેન્દ્રનગર / નવાગામ નજીક ટેમ્પોમાં
ગેસ સિલિન્ડર બ્લાસ્ટ થતા પિતા-પુત્રના
ઘટનાસ્થળે મૃત્યુ, તંત્ર દોડતું થયું



સુરેન્દ્રનગર / નવાગામ નજીક ટેમ્પામાં
ગેસ સિલિન્ડર બ્લાસ્ટ થતા પિતા-પુત્રના

In this News Module, the users can see the news related to the farming. That news will be very helpful for the farmers



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0.6KB/s

એરંડા

પાક સંરક્ષણ :
 દિવેલાના પાકને રોગ અને જીવાતથી મુક્ત રાખવા નીચે મુજબના પાક સંરક્ષણના પગલા સમયસર લેવા.

(૧) જીવાત :

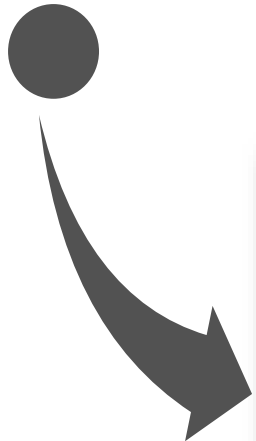
(અ) ઘોડીયા ઈંચળ :
 દિવેલાનો પાક લીધેલ ખેતરમાં ઉનાળામાં ઉંડી ખેડ કરવી જેથી કોશેટાનો નાશ થાય. શક્ય હોય તો એકલ દોકલ દેખાતી ઈંચળ વીણાવી નાશ કરવો. છોડ દીઠ ૪ ઈંચળોજોવા મળે ત્યારે કવીનાલફોસ (૦.૦૫%) ૨૦ મિ.લી. અથવા કલોરપાયરીફોસ(૦.૦૪%) ૨૦ મી.લી. દવા ૧૦ લીટર પાણીમાં ભેળવી છંટકાવ કરવો.

(બ) લશ્કરી ઈંચળ (પ્રોડેનીયા) :
 આ જીવાતના નિયંત્રણ માટે હેક્ટર દીઠ ૫-૬ ફેરામેન ટ્રેપ ગોઠવી તેમાં પકડાતા નર કુદાનો નાશ કરવો જેથી કુદા ફરા મુકાતા ઈંડામાંથી ઈંચળો ઓછી પેદા થાય. પાન ઉપર મુકેલા ઈંડા કે ઈંચળોનાં સમૂહવાળા પાન તોડીને નાશ કરવો. નાની ઈંચળોનાં સમૂહ ૨૦ છોડ દીઠ ૧૦ જેટલા મળે ત્યારે કલોરપાયરીફોસ ૨૫ મી.લી. દવા અથવા ડી.ડી.વી.પી. ૫ મિ.લી. દવા ૧૦ લીટર પાણીમાં ભેળવી છંટકાવ કરવો. મોટી ઈંચળો માટે કલોરપાયરીફોસ ૨૦ મિ.લી. દવા સાથે ડી.ડી.વી.પી. ૫ મિ.લી. દવા ભેળવી ૧૦ લીટર પાણીમાં ઉમેરી છંટકાવ કરવો.

(ક) ડોડવા કોરી ખાનાર ઈંચળ :
 આ જીવાતનાં નિયંત્રણ માટે મિથાઈલ પેરાથીઓન ૨ ટકા અથવા કવીનાલફોસ ૧.૫ ટકા ભુકી હેક્ટરે ૨૫ કિ.ગ્રા. પ્રમાણે છાંટવાથી પણ સારું નિયંત્રણ મેળવી શકાય છે.

(ડ) તડતડીયા (જેસીડ), સફેદમાખી અને થીપ્સ :
 આ જીવાતનાં નિયંત્રણ માટે ડાયમિથોએટ(૦.૦૩%) ૧૫ મિલી દવા ૧૦ લીટર પાણીમાં નાખી છંટકાવ કરવો. સફેદમાખીના નિયંત્રણ માટે એસીફેટ ૧૫ ગ્રામ અથવા મીથાઇલ પેરાથીઓન (૦.૦૫%) ૨૦મિલી અથવા લીબોળીનું તેલ ૫૦ મિલી ડીટજન્ટ પાવડર ૧૦ ગ્રામ ૧૦ લીટર પાણીમાં નાખી છંટકાવ કરવો.

Crop protection module provides the list of different techniques which will be helpful to prevent from diseases of the commodity.



In the Profile module the users can see their details and users can add, edit, delete their details. Also, they can see they have uploaded Posts.



This Functionality allows the user to logout from the Account.

4.2 Hardware Interfaces

Only the basic requirements of an android, no other specific hardware is required to run the software.

- Android smart phone
- Version 5.0+
- Ram: 4Gb

4.3 Software Interfaces

This software package is developed using java as front end which is supported by sun micro system. MYSQL Server as the back end to store the database.

- Operating System: Android, Versions 5.0 or more.
- Language: Java Runtime Environment (frontend).
- Database: MYSQL Server (backend).

4.4 Communications Interfaces

The Communication Standards that will be used as Ui Application. Users Username and Password will be Private.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

The system shall accommodate high number of users without any fault.

5.2 Safety Requirements

System use shall not cause any harm to human users.

If there is extensive damage to a wide portion of the database due to catastrophic failure, such as a disk crash, the recovery method restores a past copy of the database that was backed up to archival storage (typically tape) and reconstructs a more current state by reapplying or redoing the operations of committed transactions from the backed-up log, up to the time of failure.

5.3 Security Requirements

- System will use secured database
- Normal users can just read information, but they cannot edit or modify anything except their personal and some other information.
- System will have different types of users and every user has access constraints.

5.4 Software Quality Attributes

- **AVAILABILITY:**
The government schemes and news updates should be available easily.
- **CORRECTNESS:**
The details of government schemes and news and weather details are provided by trusted source like Junagadh Agriculture university and i-khedut website.
- **MAINTAINABILITY:**
The admin should maintain correct details about the schemes, news and Weather, crop protection from diseases.
- **USABILITY:**
The Details should satisfy a maximum number of farmer's needs.

6. Other Requirements

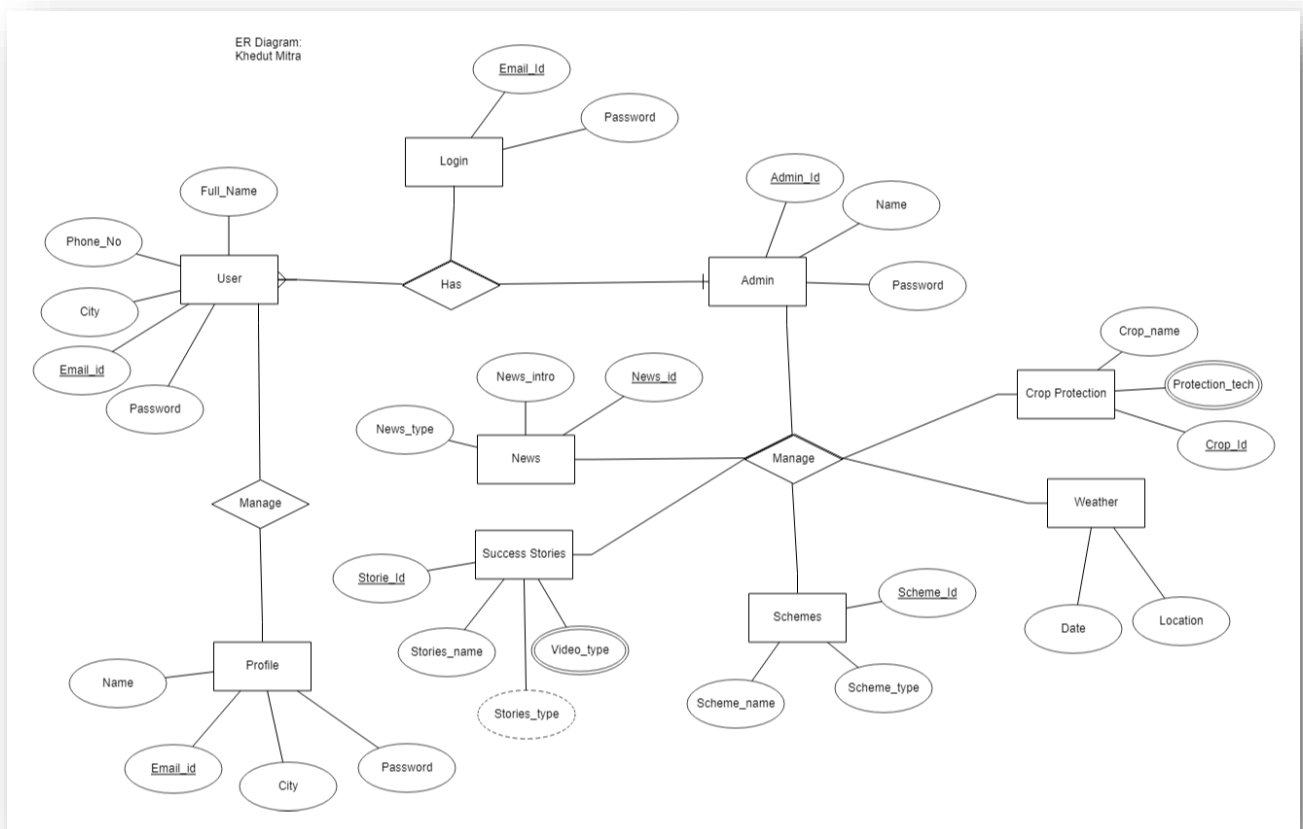
Appendix A: Glossary

- ERD - Entity Relationship Diagram
- DFD - Data Flow Diagram
- UML - Undefined Modeling Language
- NPK - Nitrogen, Phosphorus, and Potassium

Appendix B: Analysis Models

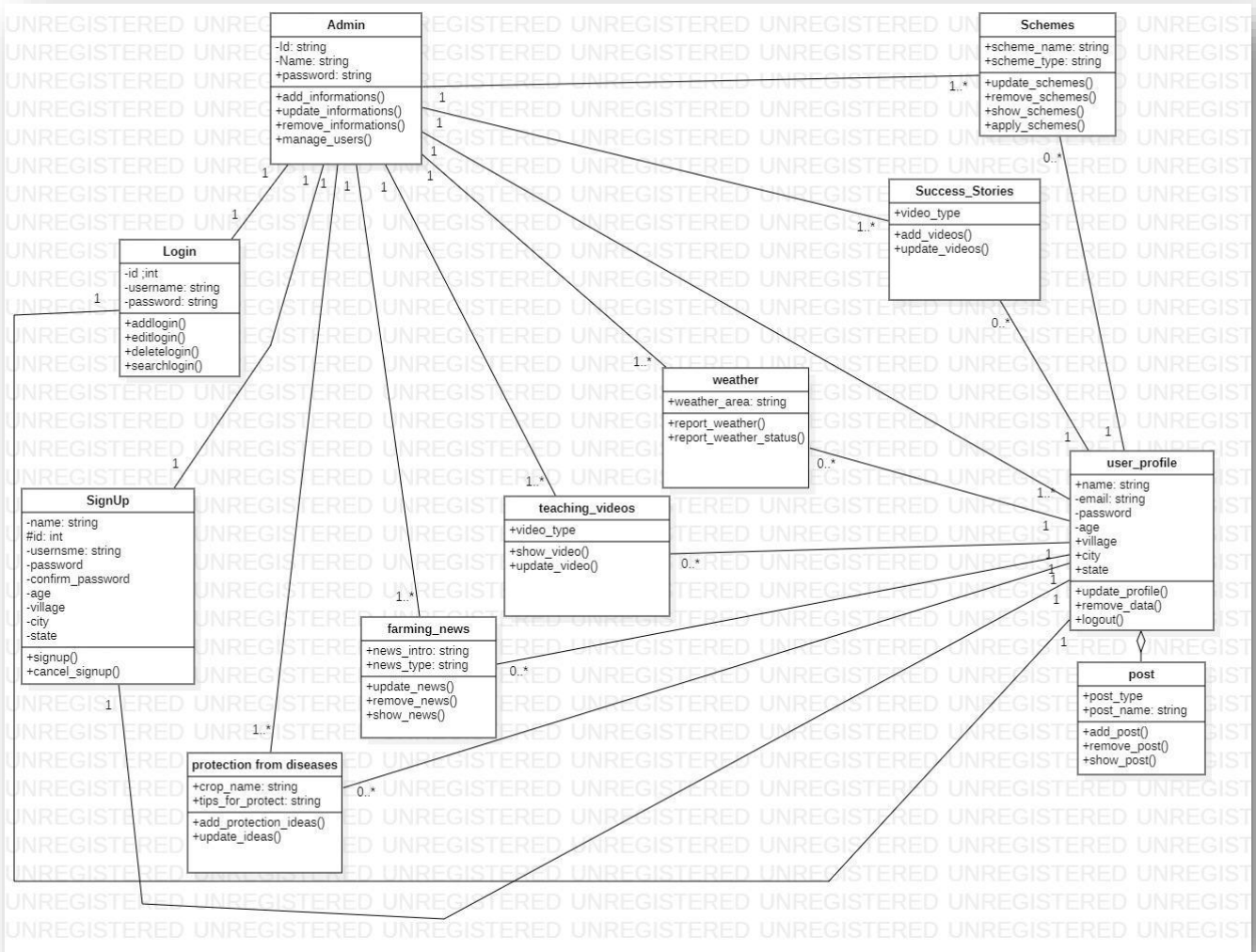
- ER diagram of Khedut Mitra App

ER diagram describes the structure of database with the help of diagram.



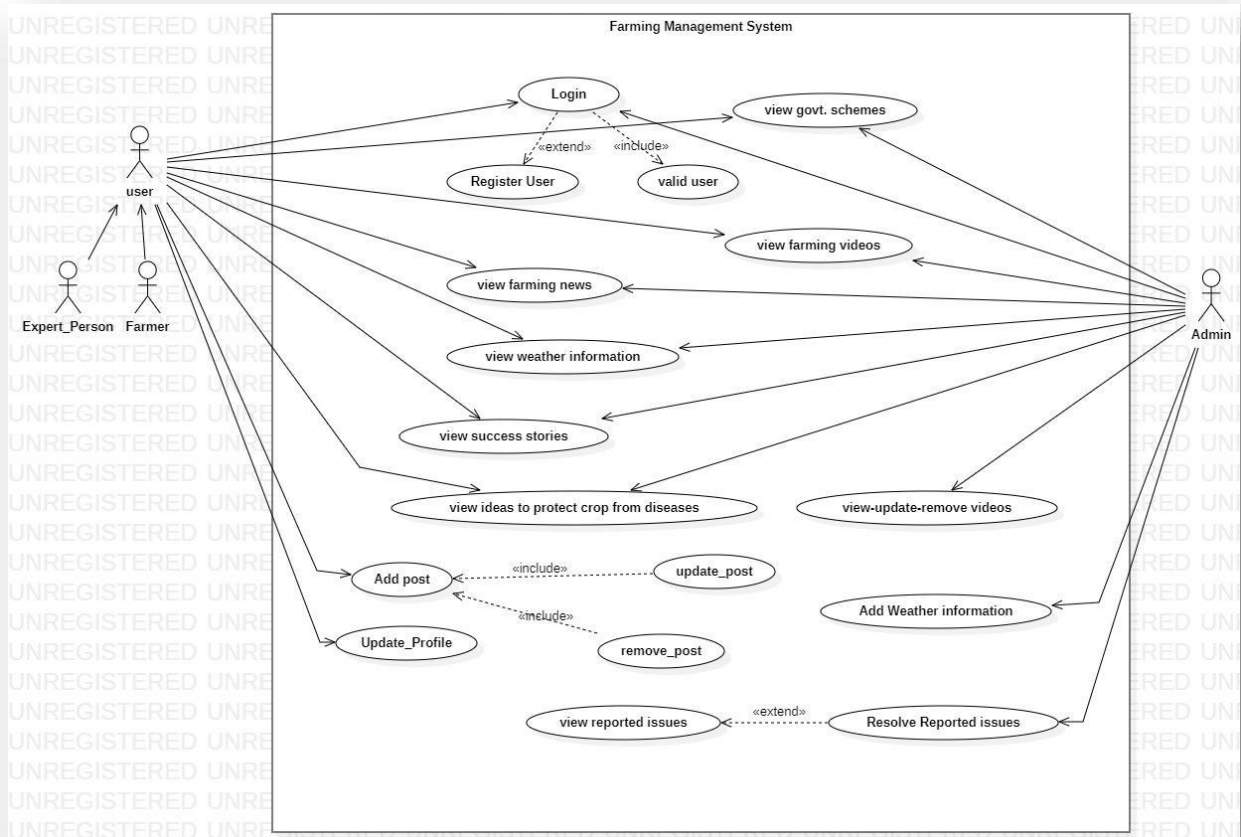
- **Class Diagram of Khedut Mitra App**

Class diagram is a static structure diagram that describes the structure of Application by showing the Application classes, their attributes, operations, and relationship among objects.



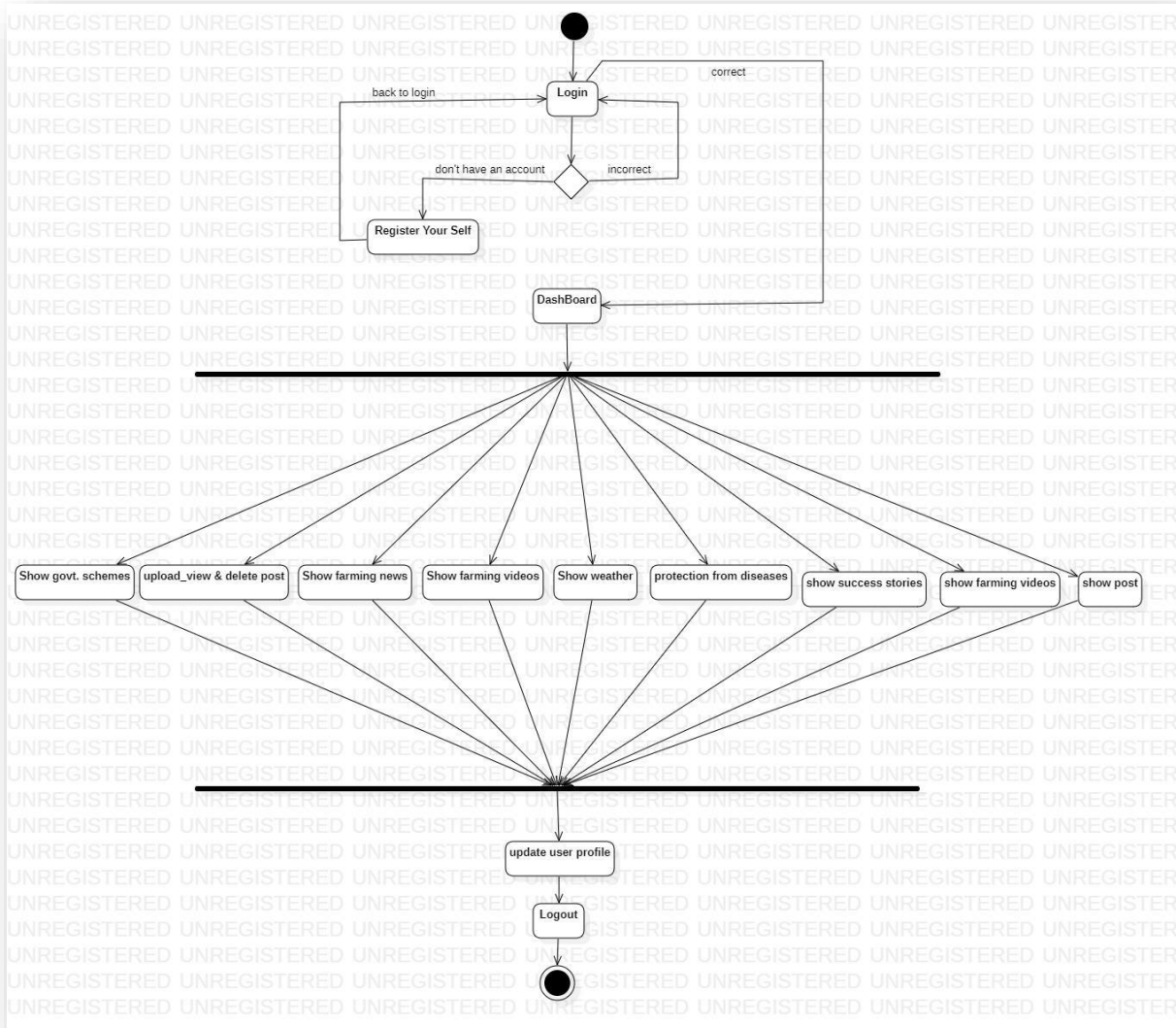
● Use-Case Diagram of Khedut Mitra App

Use-Case diagram describes the relation and interaction between the user and admin .It describes different actions that a system performs in collaboration to achieve something with one or more users of the application.



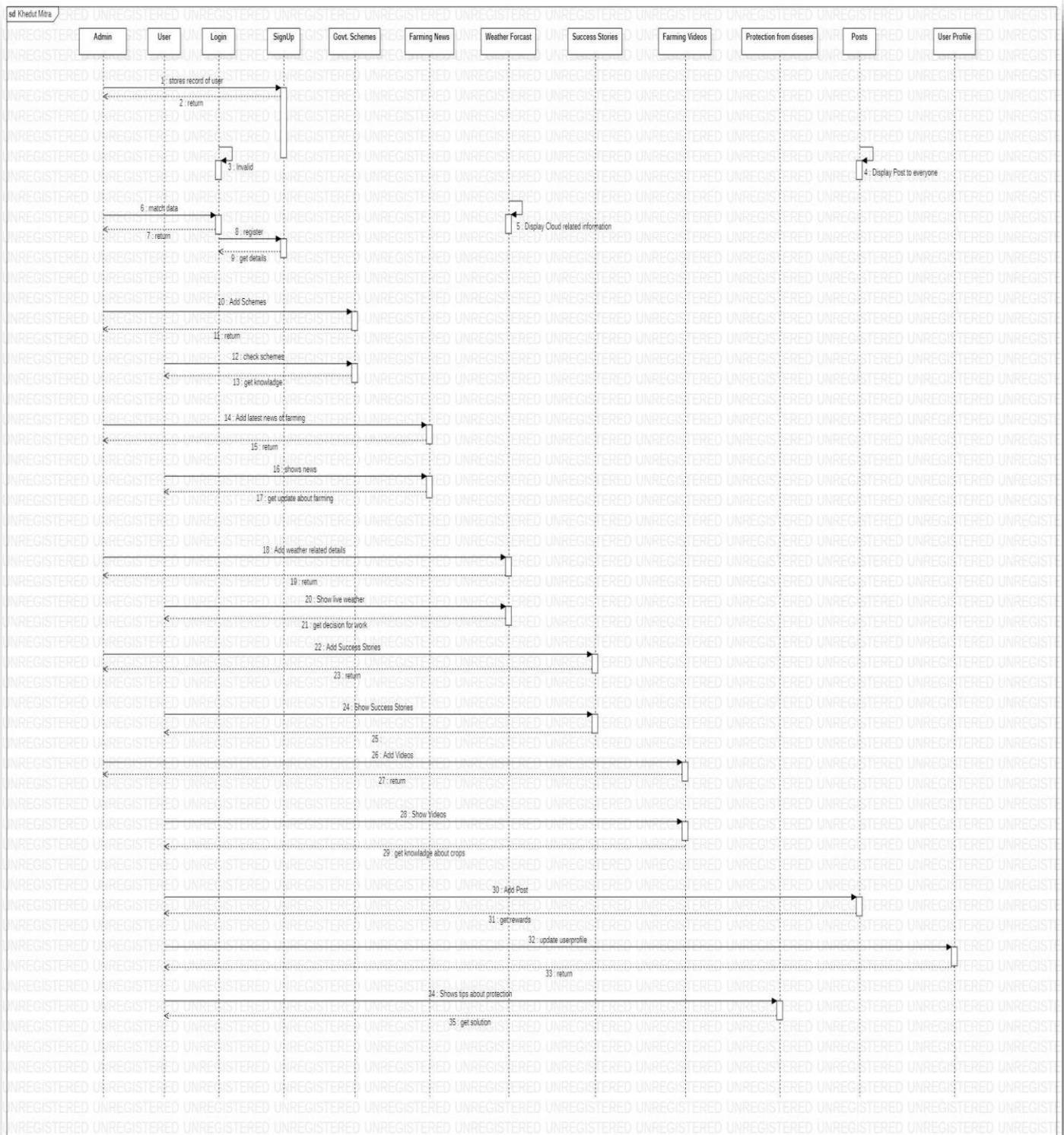
● Activity Diagram of Khedut Mitra App

Activity Diagram is describe the flow from one activity to another activity.and it also describe how activities are coordinated to provide a service which can be at different levels of abstraction.



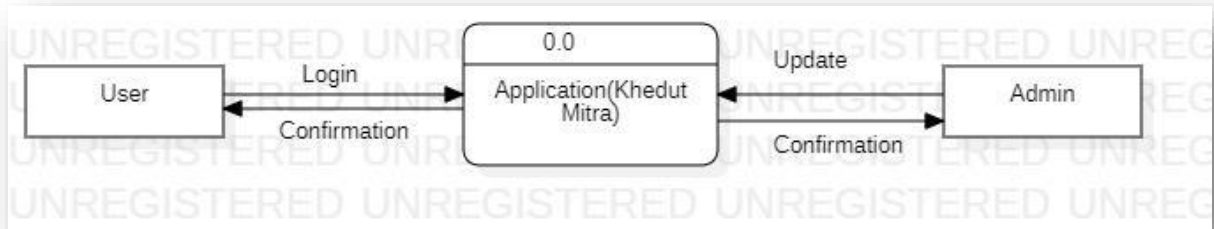
● Sequence Diagram of Khedut Mitara App

Sequence Diagrams are interaction diagrams that detail how operations are carried out. They capture the interaction between objects in the context of a collaboration.



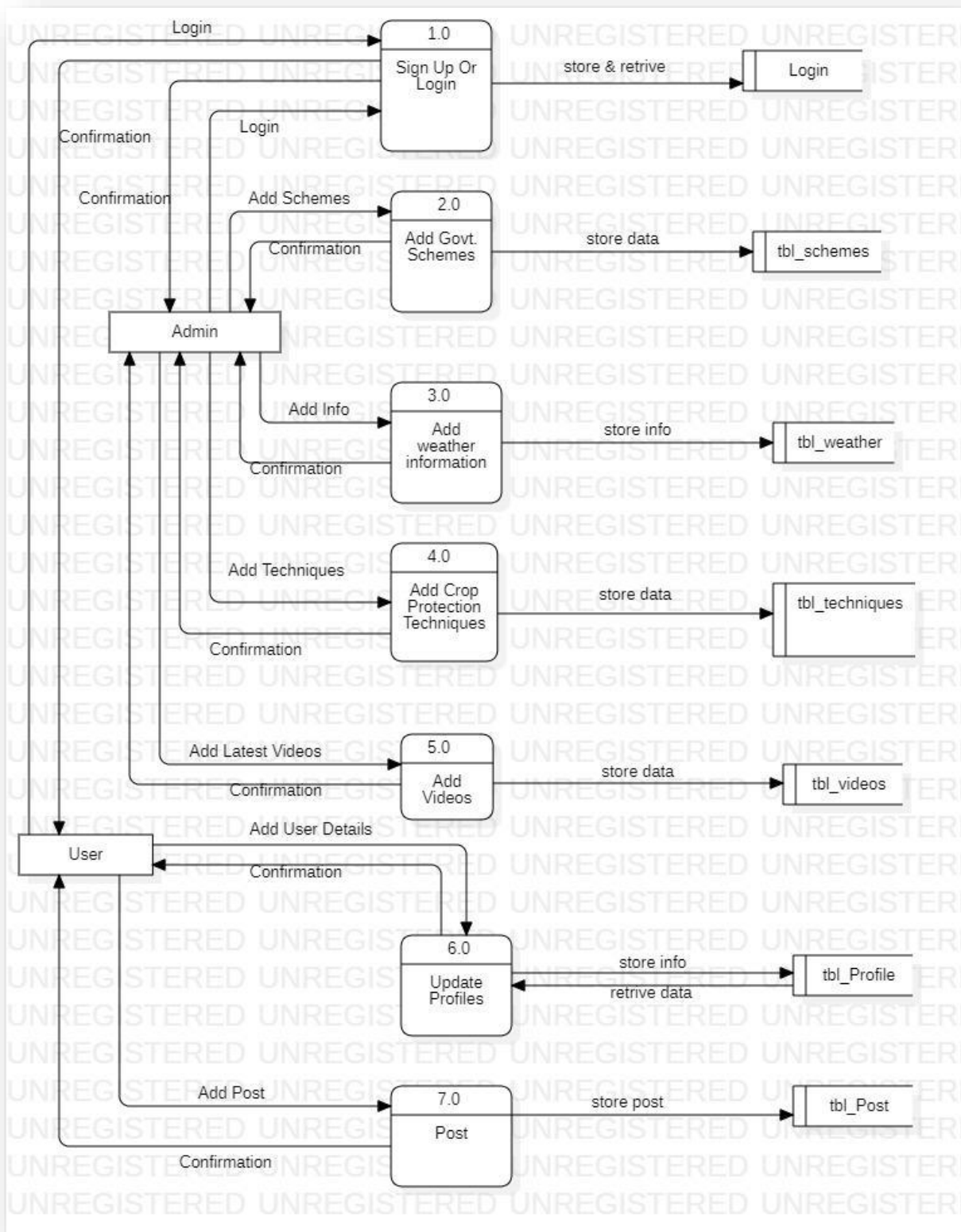
- **DFD Level -0 of Khedut Mitra App**

DFD Level 0 depicts the entire information system as one diagram concealing all the underlying details.



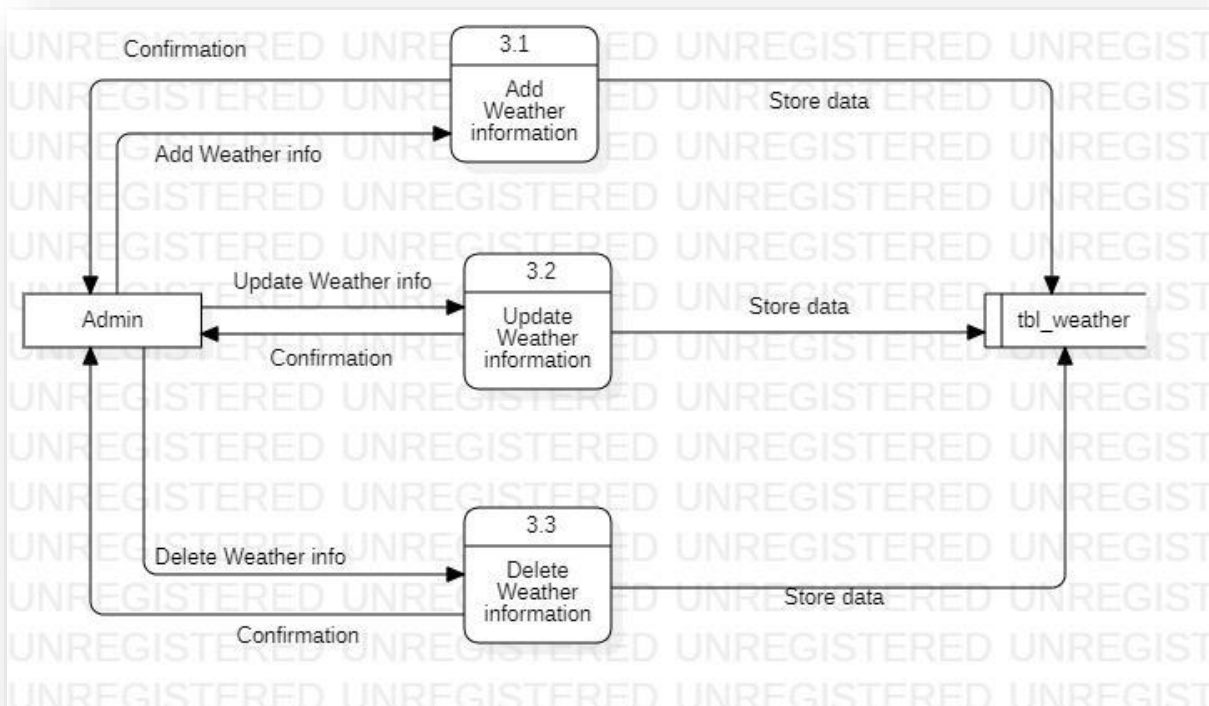
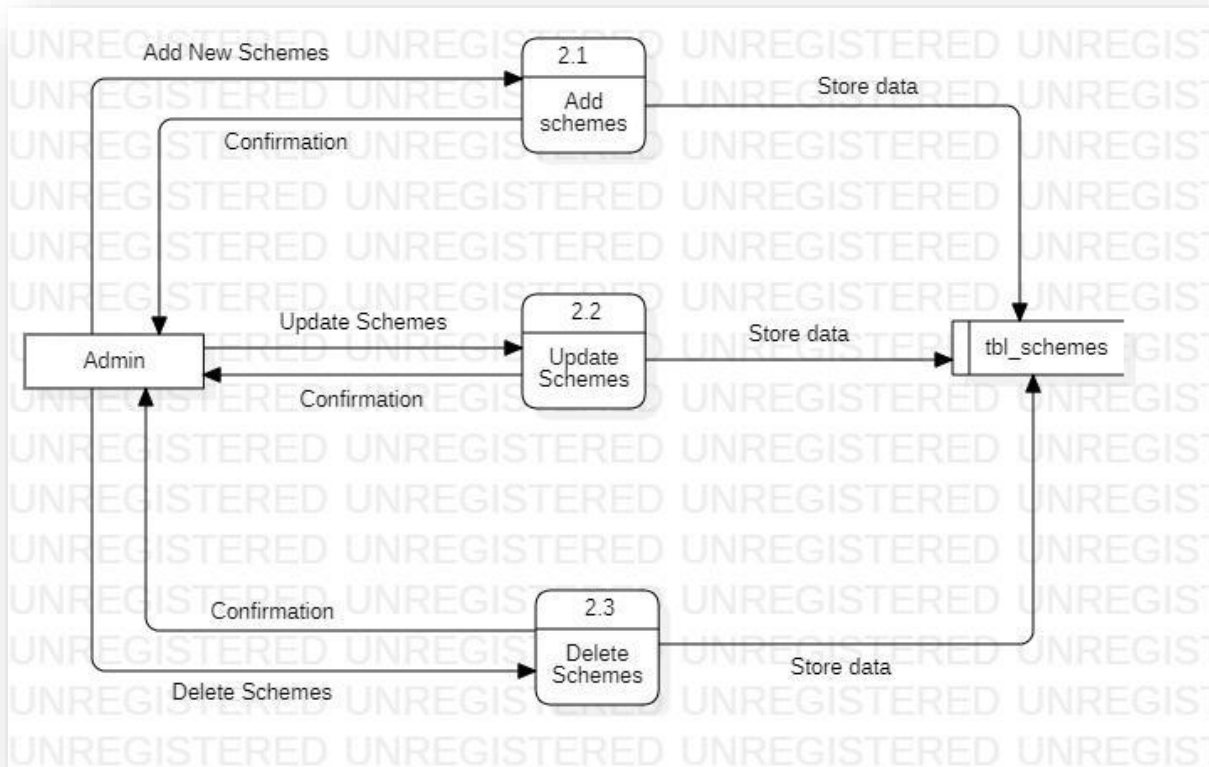
- **DFD Level-1 of Khedut Mitra App**

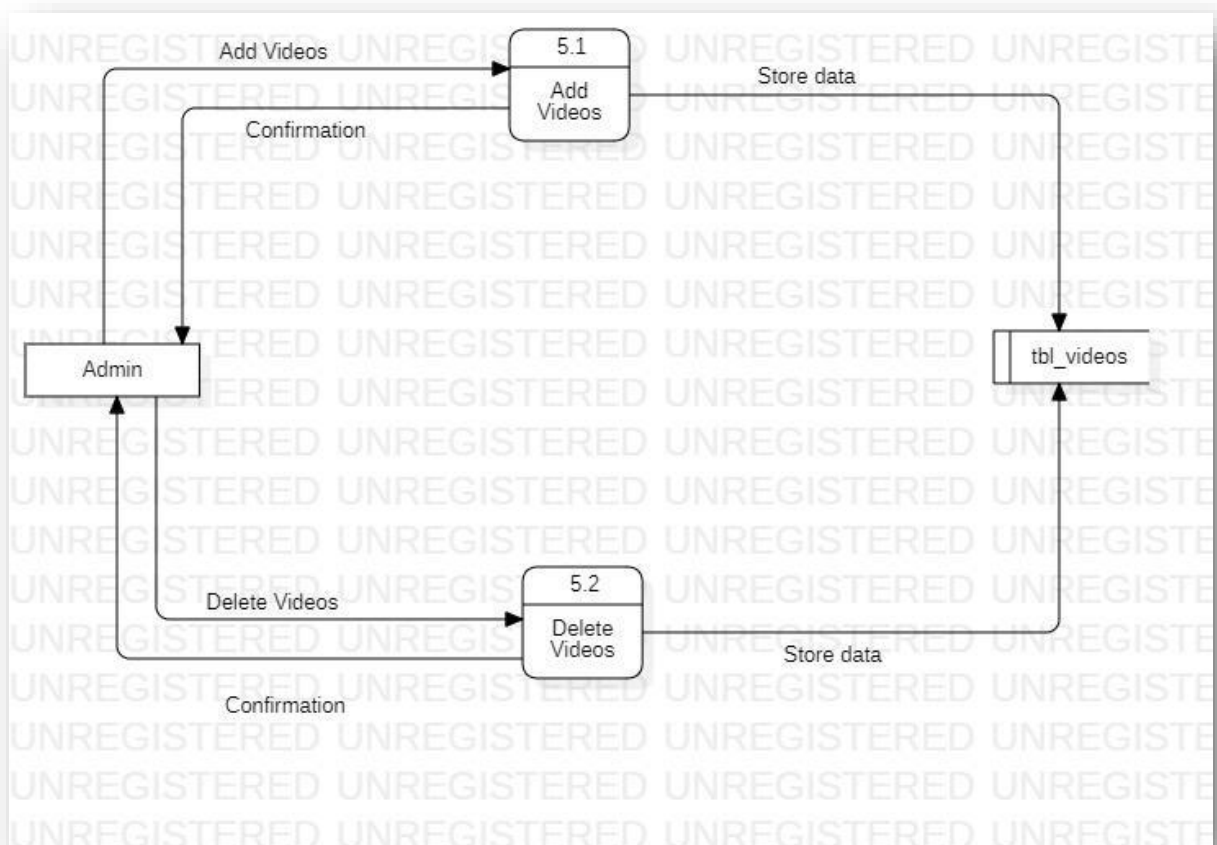
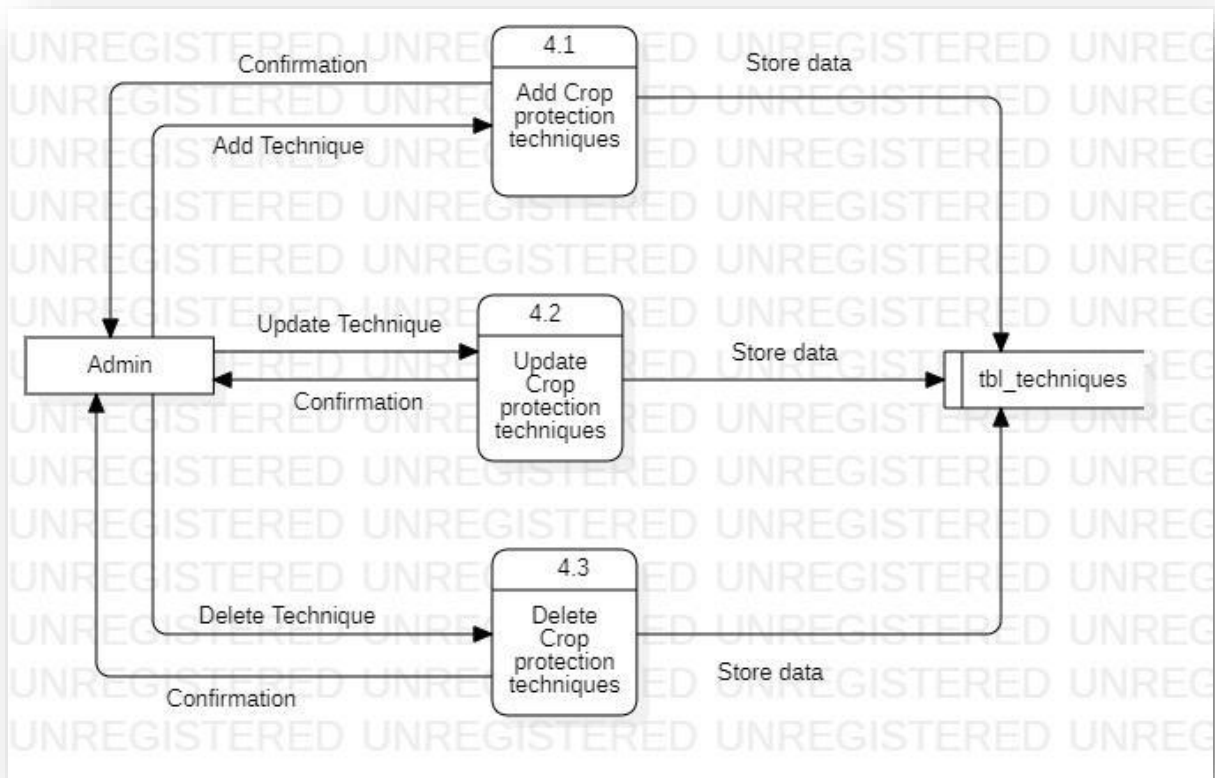
DFD Level -1 depicts basic modules in the system and flow of data among various modules.

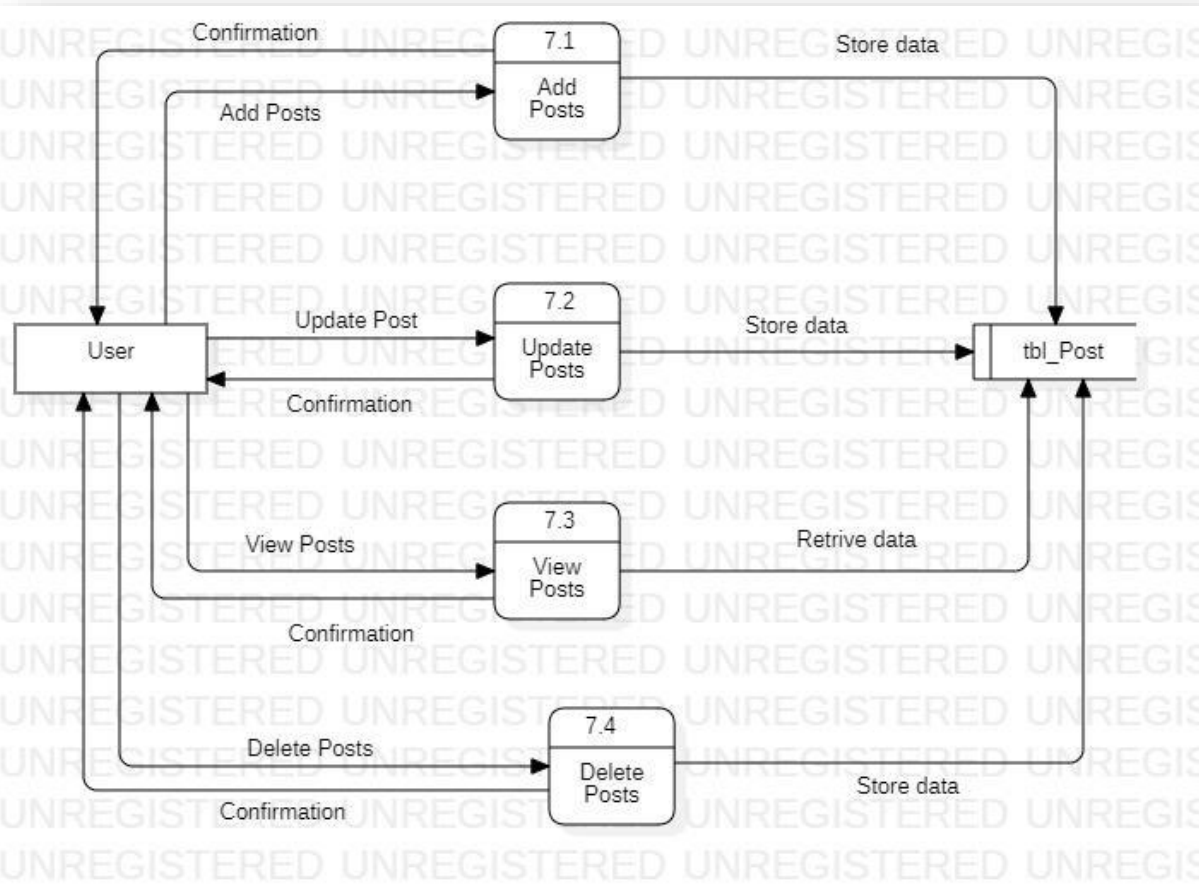
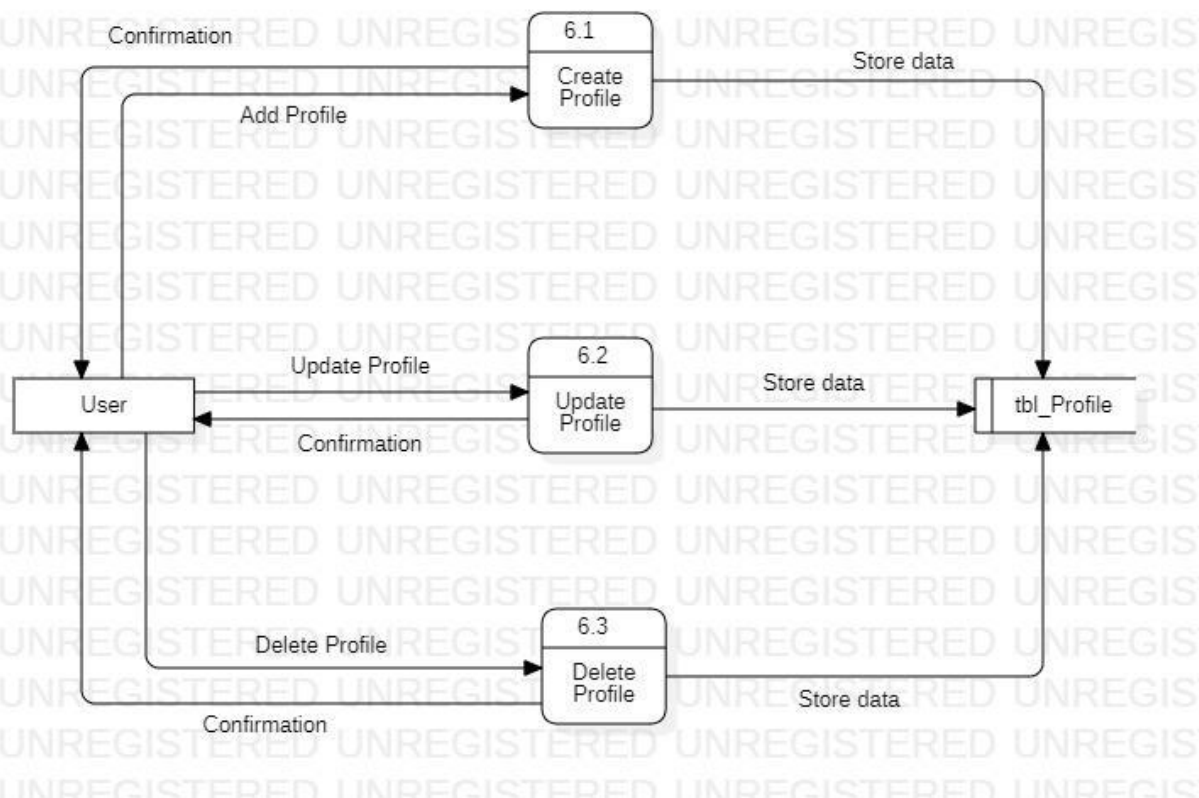


- **DFD Level-2 of Khedut Mitra App**

DFD Level-2 shows how data flows inside the modules mentioned in Level 1.

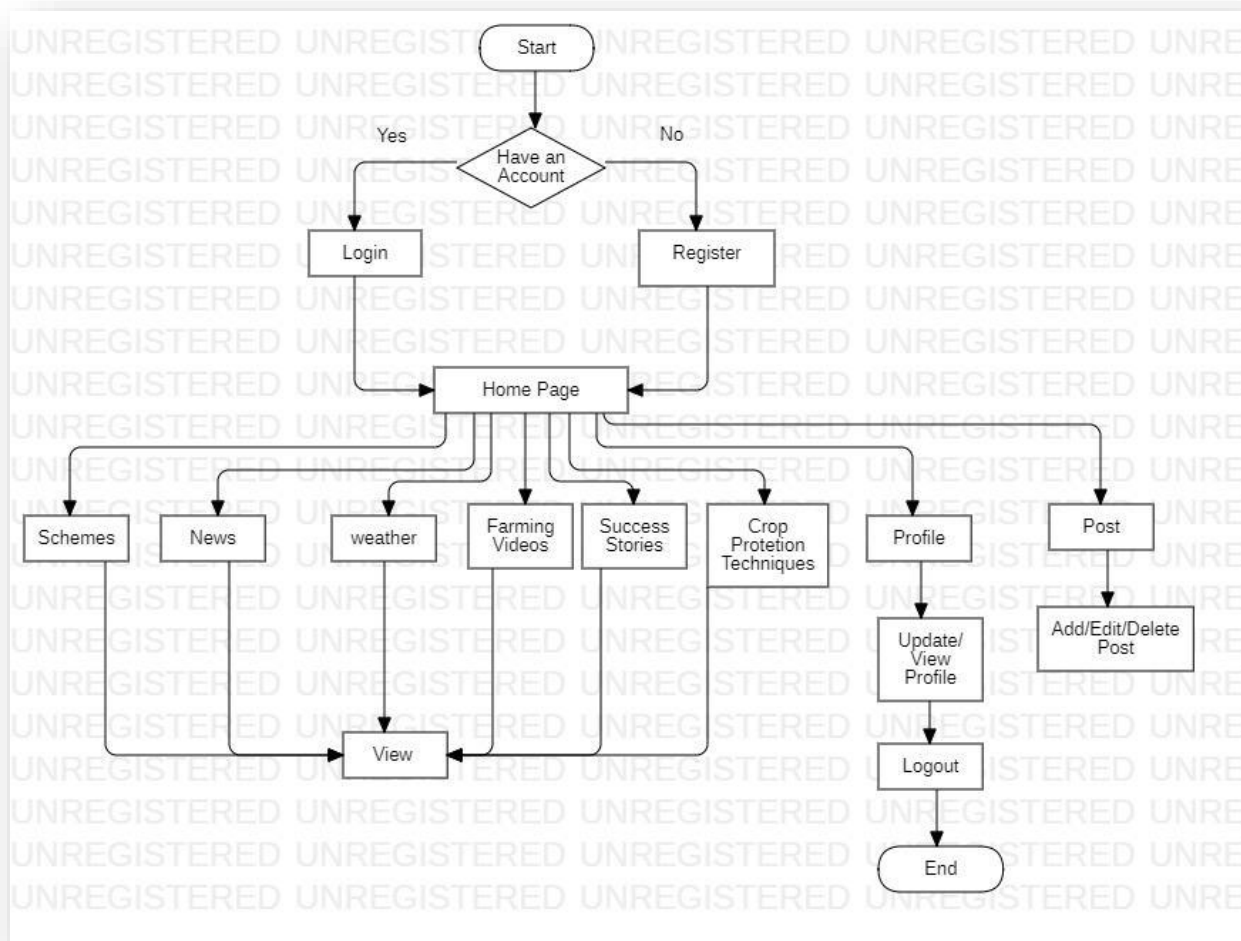






- **Flow Chart**

Flowchart describes the flow of the application.



Appendix C: Issues List

- NPK Proportion calculator for the mixing of fertilizers.
- panel for feedback.
- other rural language support.