Agriculture Advisor

Software Requirement Specification and Analysis
SE-505

IIT
University of Dhaka

Date: 13-04-2016

Agriculture Advisor

Software Requirements Specification and Analysis
SE-505

Submitted by

Submitted to

Lecturer
IIT ,University of Dhaka

Supervised by

Md. Nurul Ahad Tawhid
Assistant Professor
IIT ,University of Dhaka

LETTER OF TRANSMITTAL

13th April, 2016

Lecturer
IIT, University of Dhaka

Sir,

I have prepared the enclosed report on Software Requirements Specification of **'Agriculture Advisor'** for your approval. This report details the requirements I gathered for the project.

The primary purpose of this report is to summarize our findings from the work that I completed as my Software Requirements Specification and Analysis course project. This report includes the details of each step I followed to collect the requirements.

Sincerely Yours,

Enclosure: SRS Report

Executive Summary

The purpose of Agriculture Advisor, which is a web app, is to bring agriculture related information in one place so that users can get their information from this application. This application will help the agriculture community of our country and will help by giving useful information.

Acknowledgement

I express my heartiest gratitude to Almighty ALLAH to complete my designated SRS report in time and without hassles. I am grateful to my honorable sir Md. Nurul Ahad Tawhid sir for his supervision throughout the working time. He helped me a lot by sharing his knowledge and guiding me to the right direction.

Contents

Chapter 1

Introduction

1.1 Purpose:

This document is the Software Requirements Specification (SRS) for the Agriculture Advisor web application. It contains detailed functional, non-functional, and support requirements and establishes a requirements baseline for development of the web application. The requirements contained in the SRS are independent, uniquely numbered, and organized by topic. The SRS serves as the official means of communicating user requirements to the developer and provides a common reference point for both the developer team and stakeholder community. The SRS will evolve over time as users and developers work together to validate, clarify and expand its contents.

1.2 Intended Audience:

This SRS is intended for several audiences, including the users, as well as the project managers, designers, developers, and testers.

- The users will use this SRS to verify that the developer team has created a product that is acceptable to the user.
- The project managers of the developer team will use this SRS to plan milestones and a delivery date, and ensure that the developing team is on track during development of the system.
- The designers will use this SRS as a basis for creating the system's design. The designers will continually refer back to this SRS to ensure that the system they are designing will fulfill the customer's needs.
- The developers will use this SRS as a basis for developing the system's functionality. The developers will link the requirements defined in this SRS to the software they create to ensure that they have created software that will fulfill all of the customer's documented requirements.

- The testers will use this SRS to derive test plans and test cases for each documented requirement. When portions of the software are complete, the testers will run their tests on that software to ensure that the software fulfills the requirements documented in this SRS. The testers will again run their tests on the entire system when it is complete and ensure that all requirements documented in this SRS have been fulfilled.

1.3 Definitions and Acronyms:

IIT- Institute of Information Technology

SRS-Software Requirement Specification

DFD-Data Flow Diagram

ER-Entity Relationship

1.4 Conclusion:

In the above discussion a short and primary introduction about SRS of Agriculture advisor is given. It also clarified the usefulness of this document to different readers of it. For better understanding of this document, illustrated the short forms for words used are given.

The next chapter is inception and it describes the overall vision or plan for the project. It will also define the stakeholders' view of the product to be developed, specified in terms of the stakeholders' key needs and features.

Chapter 2

Inception

In this chapter, the Inception part of the SRS will be discussed briefly.

2.1 Introduction:

Inception is the beginning phase of requirements engineering. It defines how does a software project get started and what is the scope and nature of the problem to be solved. The goal of the inception phase is to identify concurrence needs and conflict requirements among the stakeholders of a software project. To establish the groundwork we have worked with the following factors related to the inception phases:

- Identifying Stakeholders
- Recognizing multiple viewpoints
- Working towards collaboration
- Asking the First Questions

2.2.1 Planning:

At an early stage in the project, several stakeholders and subject matter experts should be convened to discuss the project and make the product plan. We should choose stakeholders based on the nature and complexity of the project and its product deliverable. Depending on the size of the project and its complexity, the meeting may take several days or weeks.

To make the project successful, I have made several plans as well meeting with our supervisor.

1. Date : February 18,2016
   Place: IIT
   Subject: Overall project
   Work: Discussing with supervisor about scope of this project

2. Date : February 29,2016
   Place: IIT
   Subject: Identifying Stakeholders
   Work: Searching in internet for stakeholders and users of this project.

3. Date : March 5,2016
   Place: IIT
   Subject: Identifying Stakeholders

4. Date : March 12,2016
   Place: IIT
   Subject: Use Case Scenario and Scenario Based Modeling
   Work: Detail of Use Case Scenario and Scenario Based Modeling.

5. Date : March 17,2016
   Place: IIT
   Subject: Data based Modeling.
   Work: Identifying data objects and Data based modeling.

6. Date : March 23,2016
   Place: IIT
   Subject: Class based Modeling and Data Flow Diagram.
   Work: Identifying noun and class selection and making data flow diagram.

2.2.2 Identifying Stakeholders:

Identification of stake holder is the process of selecting person or group who will be affected by the system directly or indirectly. Stakeholders include end-users who interact with the system and everyone else in an organization that may be affected by its installation. It is important to understand that different stakeholder will have different influence and they won't be affected in the same way. To identify the stakeholders I consulted with project supervisor and searched similar web applications as well as consulted users with following questions:

- Who is paying for the project?

- Who will be using the project outcomes?
- Who gets to make the decisions about the project (if this is different from the money source)?
- Who has resources I need to get the project done?
- Whose work will my project affect? (During the project and also once the project is completed).

By analyzing the outcome of the questions I identified following stakeholders for my Agriculture Advisor web application:

1) Farmer: Farmers (if have knowledge of English and can browse internet) can interact with the system. They can get latest agricultural news and weather information as well as can post their problems in discussion forum.
2) Landowners (who employ farmers in cultivation): Landowners can interact with the system for latest agricultural news and weather information as well as can post their problems in discussion forum. They can also advise the farmers with cultivation procedure.
3) Researcher: Researcher can interact with the system for latest agricultural news and weather information as well as can post their ideas for the problems in discussion forum. Researchers can also get their valuable research data from problem discussion forum.
4) Agricultural Officer: Agriculture Officer may be able to share their ideas of cultivation process and disease prevention through this system. They can also be informed of the latest agricultural news and forum problems of their areas.
5) Market User: They can inform their address to the people through this application.
6) Developers: We selected developers as stakeholder because they develop this system and Work for further development. If occurs any system interruption, they will find the problem and try to solve it.

2.2.3 Asking Question First:

I set my first set of context-free questions focuses on the stakeholders, about the overall project goals and benefits. The questions are mentioned below.

- Who will be using the project outcomes?
- Who gets to make the decisions about the project?
- Whose work will our project affect?
- What will be the economic benefit of a successful solution?
- Is there another source of the solution?

The following questions helped me to identify all stakeholders, measurable benefit of the successful implementation and possible alternatives to app development.

- What would be generated by a successful solution?
- What problems will the solution address?
- What is the environment in which the solution will be used?
- Will special performance issues or constraints affect the way the solution is approached?

Next set of questions helped me to gain a better understanding of problem and allows the customer to voice his or her perception about the solution.

- Are you the right person to answer these questions?
- Are my questions relevant to the problem you have?
- Am I asking too many questions?
- Can anyone provide additional information?
- Should I be asking you anything else?

The final set of question focused on the effectiveness of the communication activity itself.

2.2.4 Recognizing Multiple Viewpoints:

We collect different viewpoints by discussing with the stakeholders. These are as follows:

1) Farmer:
    - To know cultivation procedure information
    - To know diseases and precautions
    - To know Weather condition
    - To know local Market dealers and crop storages
    - To inform about problems and get advise
2) Landowner:
    - To know better cultivation procedure information

- To know diseases and precautions
- To know Weather condition
- To know local Market dealers and crop storages
- To inform about problems and get advise

3) Researcher:

- To know better cultivation procedure information
- To know diseases and precautions
- To know Weather condition
- To know local Market dealers and crop storages
- To give advice to agriculture problems

4) Agriculture officer:

- To know better cultivation procedure information
- To know diseases and precautions
- To know Weather condition
- To know local Market dealers and crop storages
- To give advice to agriculture problems, cultivation and in diseases.

5) Market User:

- To make people know the address to contact them.
- To become reputed by earning trust of users

2.3 Conclusion:

The Inception phase helped us to establish basic understanding about the post examination system for IIT, DU; identify the people who will be benefited if post examination system becomes automated, define the nature of the post exam system software and establish a preliminary communication with our stakeholders.

Chapter 3

Elicitation

3.1 Introduction:

Elicitation helps the user to define what is required and what is not. And through it we can understand the needs of the user and project sponsor with an ultimate aim of communicating these needs to the system developers. While in elicitation step we face things like problems of scope, problems of volatility and problems of understanding. However, this is not an easy task. In order to overcome these problems, I have worked with the Eliciting requirements activity in an organized and systematic way.

3.2 Eliciting requirements:

Unlike inception where Q&A (Question and Answer) approach is used, elicitation makes use of a requirements elicitation format that combines the elements of problem solving, elaboration, negotiation, and specification. It requires the cooperation of a group of end-users and developers to elicit requirements .To elicit requirements we completed following four works.

1. Collaborative Requirements Gathering
2. Quality Function Deployment
3. Usage Scenarios
4. Elicitation work products

3.3 Collaborative requirement gathering:

Many different approaches to collaborative requirements gathering have been proposed. Each makes use of a slightly different scenario .I have completed following steps to do it.

- I have searched for information in the internet about how to bring information related agriculture in a single website.

- I have visited similar websites and reviewed what agricultural information they display.

3.4 Qualitative Function Deployment:

Quality Function Deployment (QFD) is a technique that translates the needs of the customer into technical requirements for software .It concentrates on maximizing customer satisfaction from the Software engineering process .With respect to our project the following requirements are identified by a QFD.

3.4.1 Normal Requirements:

Normal requirements consist of objectives and goals that are stated during the meeting with the customers. Normal requirements of my project are:

- Allow users to register, log in and log out to the system
- Restrict access to functionality of the system based upon user roles.
- Allow user to search and view cultivation procedure and disease precaution of crops
- Allow registered user to post their problems and advice in the discussion forum.
- Allow user to view news and weather information

3.4.2Expected Requirements:

These requirements are implicit to the system and may be so fundamental that the customer does not explicitly state them. Their absence will be a cause for dissatisfaction.

- Allow users to view cultivation process and disease treatment through video.
- Allow users to get notification of disease outbreak and disasters through email.
- Allow users to have news from their desired websites.
- Allow user selected information to be sent to their mail.

3.4.3 Exciting Requirements:

These requirements are for features that go beyond the user's expectations and prove to be very satisfying when present.

- Allow researchers to get data statistically
- Allow Video or photo upload of crop diseases and necessary precautions
- Security and validation will be provided so that the application is not vulnerable to attacks.

3.5 Usage Scenario:

Agriculture Advisor System will gather information related with agriculture from different websites. Using this information in agriculture sector will play important role in the economic field of our country.

In this web application users are people related with Agriculture like farmers, landowners who employ farmers to cultivate lands, researchers and experts, agriculture officer, will be common users and dealers and storage owners will be market users. Users can freely browse information they need. However in order to post their problems or solutions they need to register. Registration requires following

- User Email Address,
- User name
- User Type and
- Password.

After registration, user can update his account with

- Designation
- Area
- Contact number.

Here in this web application user will get information about cultivation procedure, diseases, and precautions of a particular crop. All these information will be obtained by html parsing of some particular websites like https://www.plantvillage.org, http://www.thompson-morgan.com. Again common users can share their cultivation procedure as well as disease precautions they followed during their successful crop cultivation.

During cultivation if any user faces problem, then that problem can be mentioned through discussion forum this system .Response can be obtained from anyone whether it's agriculture officer, researcher or any user who faced similar problem.

Through this web application storage owners and dealers may register and fill up their market information they want to inform to users, so that users can get easily contact them. Trusted information can be known through common users marking them trusted or not trusted. In this application dealers and storage owners will be treated as market users.

For different things happening in agriculture sector of our country, this web application will update agriculture news from some news websites like http://en.prothom-alo.com, http://www.thedailystar.net by getting information through html parser. Weather information will also be obtained from this web application.

So this web application will try to contribute in the agriculture sector of our country through use of agriculture information in an efficient way.

3.6 Elicitation Work product:

Output of the elicitation task may vary depending on size of the system or product to be built. My elicitation work product includes:

- To make a statement of my requirements for Agriculture Advisor.
- To make a bounded statement of scope for our system.
- To make a list of users and other stakeholder who participated in requirements elicitations.
- To make set of usage scenarios.
- To describe the system's technical environment.

Chapter 4

Scenario Based Model

4.1 Introduction:

In this model the system is described from the user's point of view. As this is the first model, it serves as input for creation of other modeling elements.

4.2 Use Case Scenario:

As requirements are gathered, an overall vision of system functions and features begins to materialize. To understand how these functions and features will be used by different classes of end users, developers and users create a set of scenarios, called use case scenario, that identify a thread of usage for the system to be constructed.

Use Case Scenario			
Level 0	Level 1	Level 2	Actors
Agriculture Advisor	Authentication Subsystem	Sign up	Common user, Market user
		Log in	Common user, Market user
		Log out	Common user, Market user
		Modify Information	Common user, Market user
	Cultivation and Disease Prevention Information Subsystem	Cultivation Procedure Information	Common user
		Disease and Prevention Information	Common user

	Marketing Information Subsystem	Storage Owner and Dealers Information	Common user, Market user
		Trusted Information	
	Agricultural News Subsystem	Recent Agricultural News	Common user, Market user
		Weather News	
	Agricultural Problem Discussion Forum Subsystem	Problem And Solution posting	Common user, Market User
		Searching Problem	

4.3 Use Case Description:

In this section use case scenarios are described elaborately. It contains the use case diagrams and their description. Here is the use case diagram of level 0 for Post Exam System:

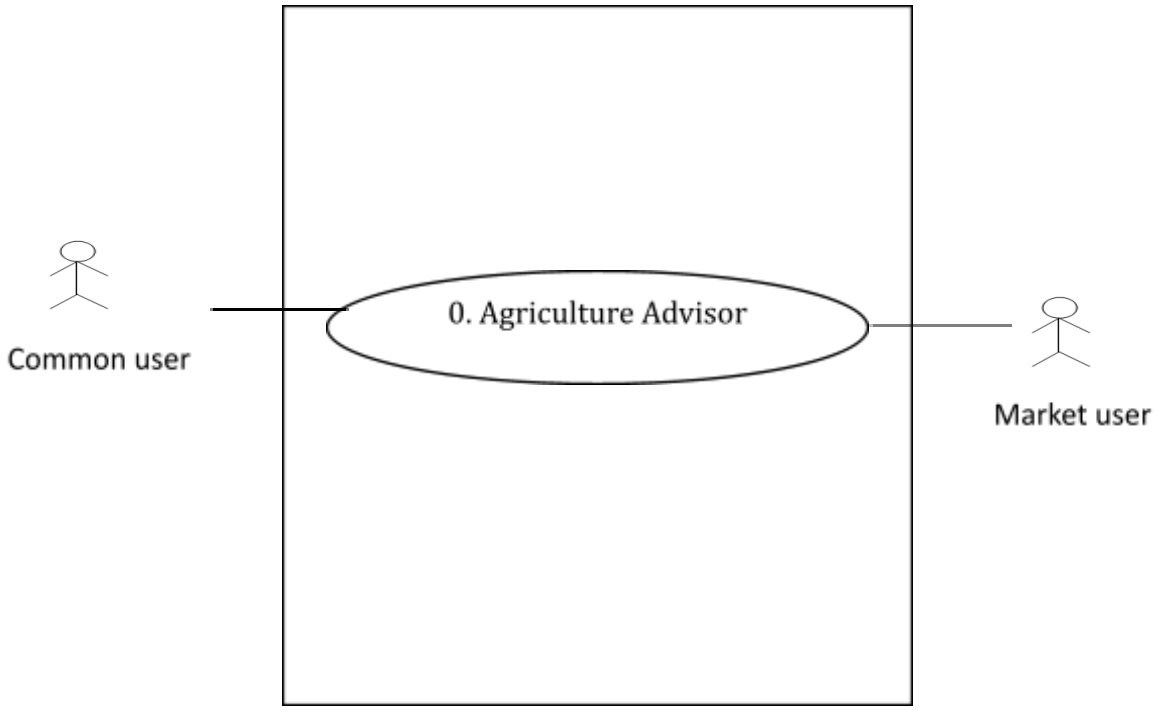


Figure 4.1: Use Case Diagram (Level 0)

Use Case: Agriculture Advisor Use Case ID: 0	
Primary Actor	Common User, Market User
Goal in Context	To provide Agriculture news, Market Information, weather information, cultivation procedure as well as disease and precaution information and posting of problems and their solution.
Precondition	None
Trigger	● User decides to see news, weather information, cultivation procedure, Diseases and precautions and Market Information. ● User decides to post agricultural problems or solution of posted problem, cultivation procedure, Diseases and precautions or market user their market information.
Scenario	● Any User : View agricultural news ● Any User :Searches and View cultivation procedures ● Any User : Searches and View diseases and precautions ● Any User: searches and views problems and solutions in discussion forum. ● Any User: searches and views market users' information. ● Common users, market user: signs up

	• Registered Common users, market user: logs in, logs out. • Registered Common users, market user: change profile information • Registered market user: Sets information to display. • Registered Common users, market user: posts problems and solutions in discussion forum. • Registered users: gets email for problems posted from people in his area • Registered common user: Marks Trusted dealers • Common users: share their Cultivation procedure and diseases and precaution ideas.
Exception	• Invalid data • Incorrect Hash Code • Invalid password
Priority	Essential, must be implemented
Frequency of use	Moderate Frequency
Channel to Primary Actor	Via internet and web application

4.3.1 Agriculture Advisor:

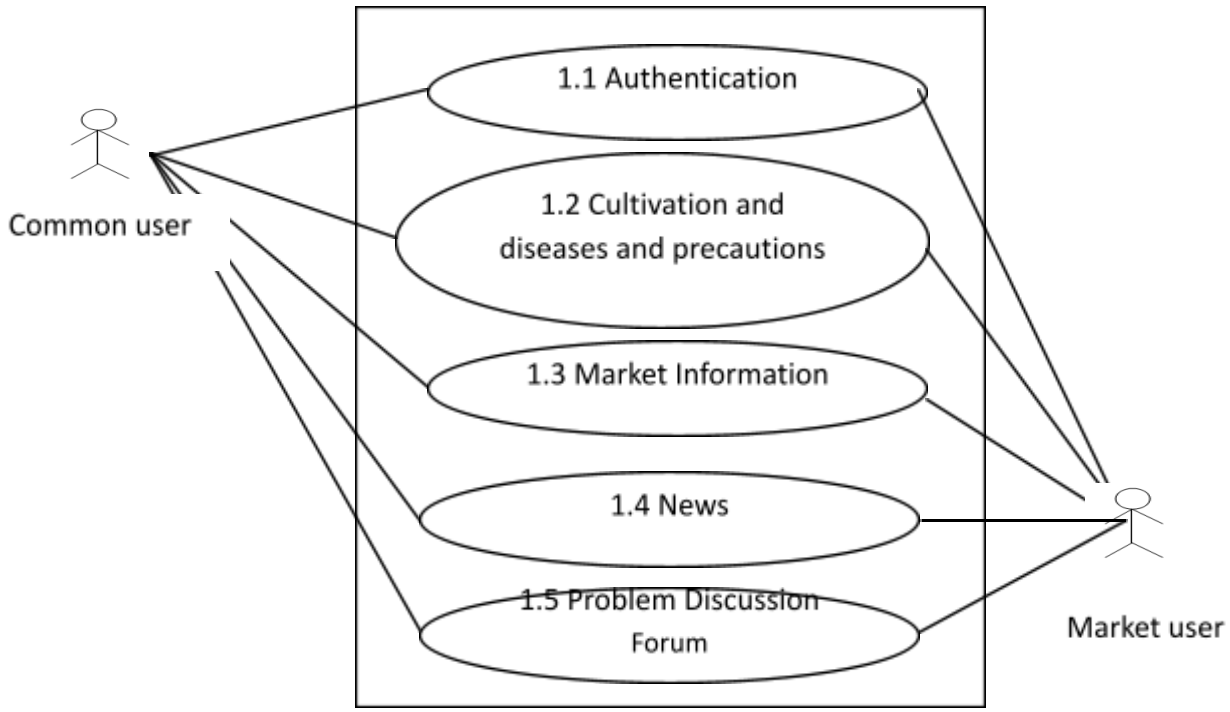


Figure 4.2: Use Case Diagram (Level 1)

System Description from Level -1 Use Case Diagram:

The actors of Agriculture advisor have different roles to play and system will reply according to the actions.

Common user:

1) Action: Clicks on register

Reply: Please fill up the required information.

Action: Enters the information

Reply: Registration Successful.

2) Action: Click on Login

Reply: please enter email address and password.

Action: email address and password

Reply: Login Successful

3) Action: Click on Logout

Reply: Logged out.

4) Action: Click on Share Cultivation procedure

Reply: Enter Details

Action: Entered Cultivation procedure and click on upload.

Reply: Entered Cultivation procedure uploaded and shared.

5) Action: Click on Share diseases and precautions

Reply: Enter Details.

Action: Entered diseases and precautions and click on upload.

Reply: Entered Cultivation procedure uploaded and shared.

6) Action: Click on news.

Reply: View news

7) Action: Click on Cultivation Procedure

Reply: Enter name of Crop.

Action: Entered Crops name

Reply: Display information.

8) Action: Click on Diseases and Precautions.

Reply: Enter name of Crop.

Action: Entered Crops name

Reply: Display information.

9) Action: Click on Market information

Reply: Display Information.

10) Action: Click trusted.

Reply: Market users trusted people increases.

11) Action: Click not trusted.

Reply: Market users not trusted people increases.

11) Action: Click on Forum.

Reply: Display Forum.

Action: click on post.

Reply: Display Forum post.

Action: Enter problem or solution and click on post.

Reply: problem or solution or comment posted.

Market User:

1) Action: Clicks on register

Reply: Please fill up the required information.

Action: Enters the information

Reply: Registration Successful.

2) Action: Click on Login

Reply: please enter email address and password.

Action: email address and password

Reply: Login Successful

3) Action: Click on Logout

Reply: Logged out.

4) Action: Click on display information for market.

Reply: prompt for entering Information.

Action: Enter information and click on upload.

Reply: Information uploaded and displayed.

4.3.1.1Authentication:

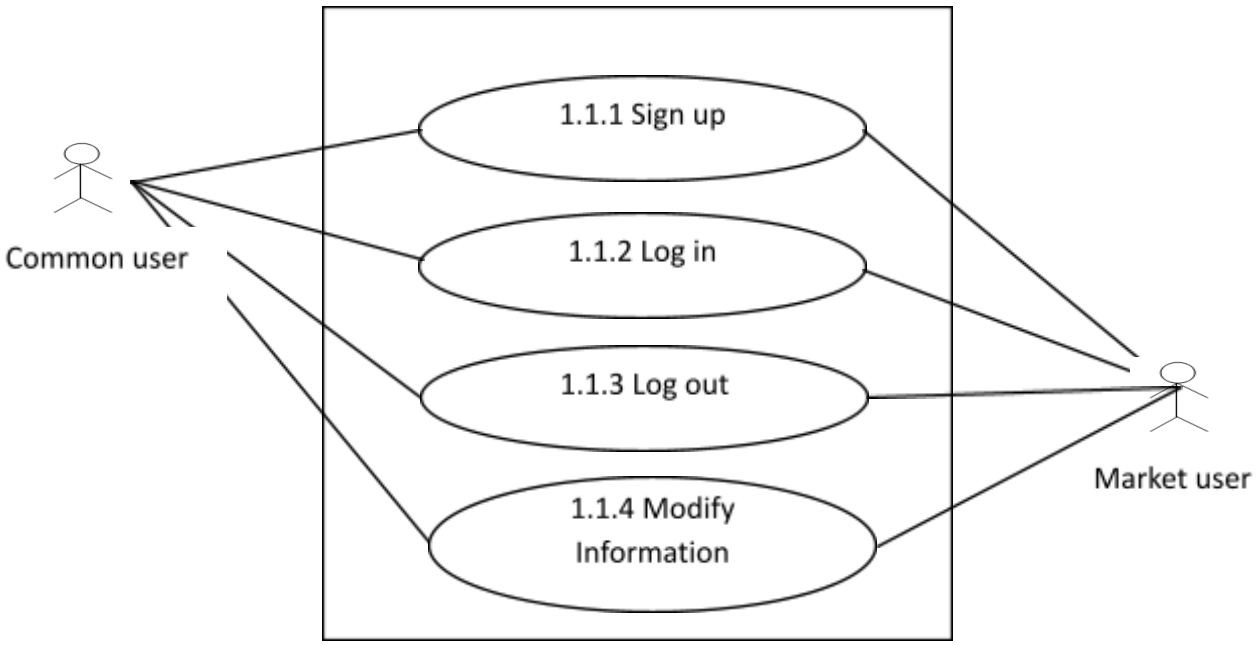


Figure 4.3: Use Case Diagram (Level 1.1)

Use Case Authentication Use Case ID:1.1	
Primary actor	Common User ,Market user
Secondary Actors	none

Goal In Context	To register a user, to log in, to log out, to modify information
Precondition	None
Trigger	User decides to register or log in or log out.
Scenario	• Unregistered user: click sign up. • Unregistered user: enter email address, user type, name and password. • Unregistered user: receive Registration Success message • Registered User: enter email address and password. • Registered user: clicks on log in. • Registered user: log out. • Registered user: Click on Change personal information. • Registered User: Enter modified information. • Registered user: click on update
Exception	• Invalid data • Network error
Priority	Essential, must be done
Frequency of use	Moderate Frequency
Chanel to primary Actor	Through Internet

The authentication System is divided into 3 subsystems:

Use Case Sign up Use Case ID:1.1.1	
Primary actor	Any unregistered user
Secondary Actors	none
Goal In Context	To register a user
Precondition	None

Trigger	User decides to register
Scenario	• Unregistered user: click sign up. • Unregistered user: enter email address, user type, name and password. • Unregistered user: receive Registration Success message.
Exception	• Invalid data • Network error
Priority	Essential, must be done
Frequency of use	Moderate Frequency
Chanel to primary Actor	Through Internet

Use Case Log in Use Case ID:1.1.2	
Primary actor	Any registered user
Secondary Actors	none
Goal In Context	To Log into the system.
Precondition	None
Trigger	Registered user decides to log into the system
Scenario	• Registered User: enter email address and password. • Registered user: clicks on log in.
Exception	• Invalid data • Network error
Priority	Essential, must be done
Frequency of use	Moderate Frequency
Chanel to primary Actor	Through Internet

Use Case Log out

Use Case ID:1.1.3	
Primary actor	Any registered user
Secondary Actors	none
Goal In Context	To Log out of the system.
Precondition	Registered user has logged in.
Trigger	• Registered user decides to log out of the system
Scenario	• Registered User clicks on log out.
Exception	• Invalid data • Network error
Priority	Essential, must be done
Frequency of use	Moderate Frequency
Chanel to primary Actor	Through Internet

Use Case Modify Information Use Case ID:1.1.4	
Primary actor	Any registered user
Secondary Actors	none
Goal In Context	To modify personal information.
Precondition	Registered user has logged in.
Trigger	• Registered user decides to change his information in the system
Scenario	• Registered user: Click on Change personal information. • Registered User: Enter modified information.

	• Registered user: click on update
Exception	• Invalid data • Network error
Priority	Essential, must be done
Frequency of use	Moderate Frequency
Chanel to primary Actor	Through Internet

Activity Diagram of authentication is as follows:

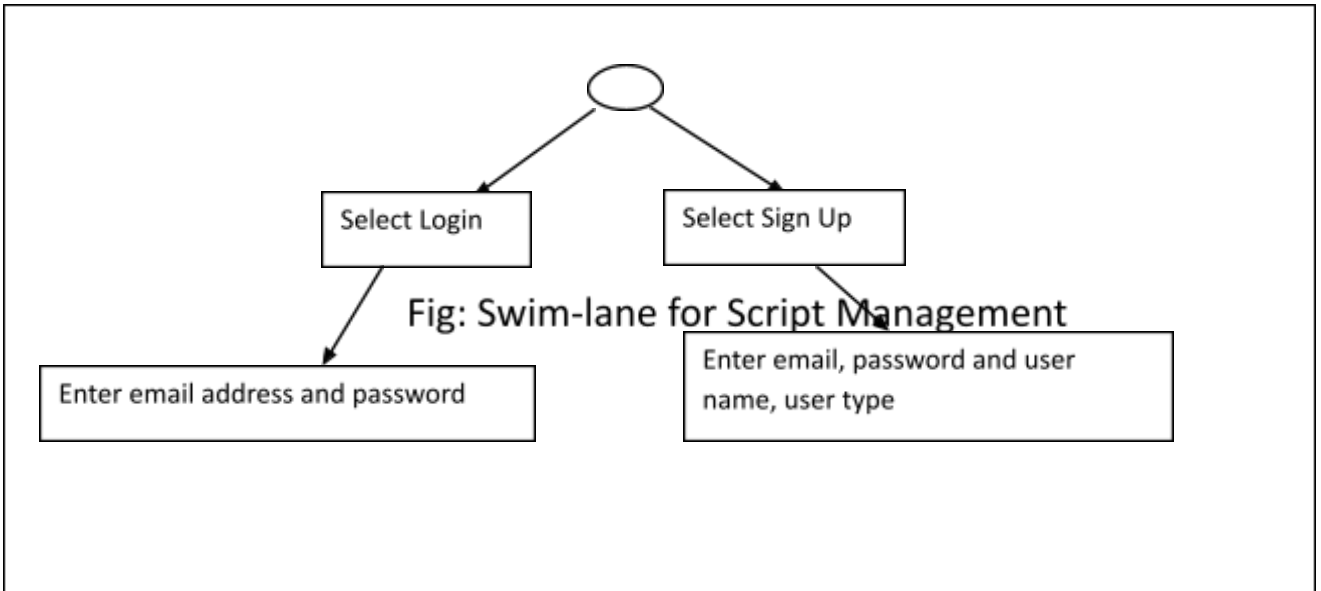


Fig: Swim-lane for Script Management

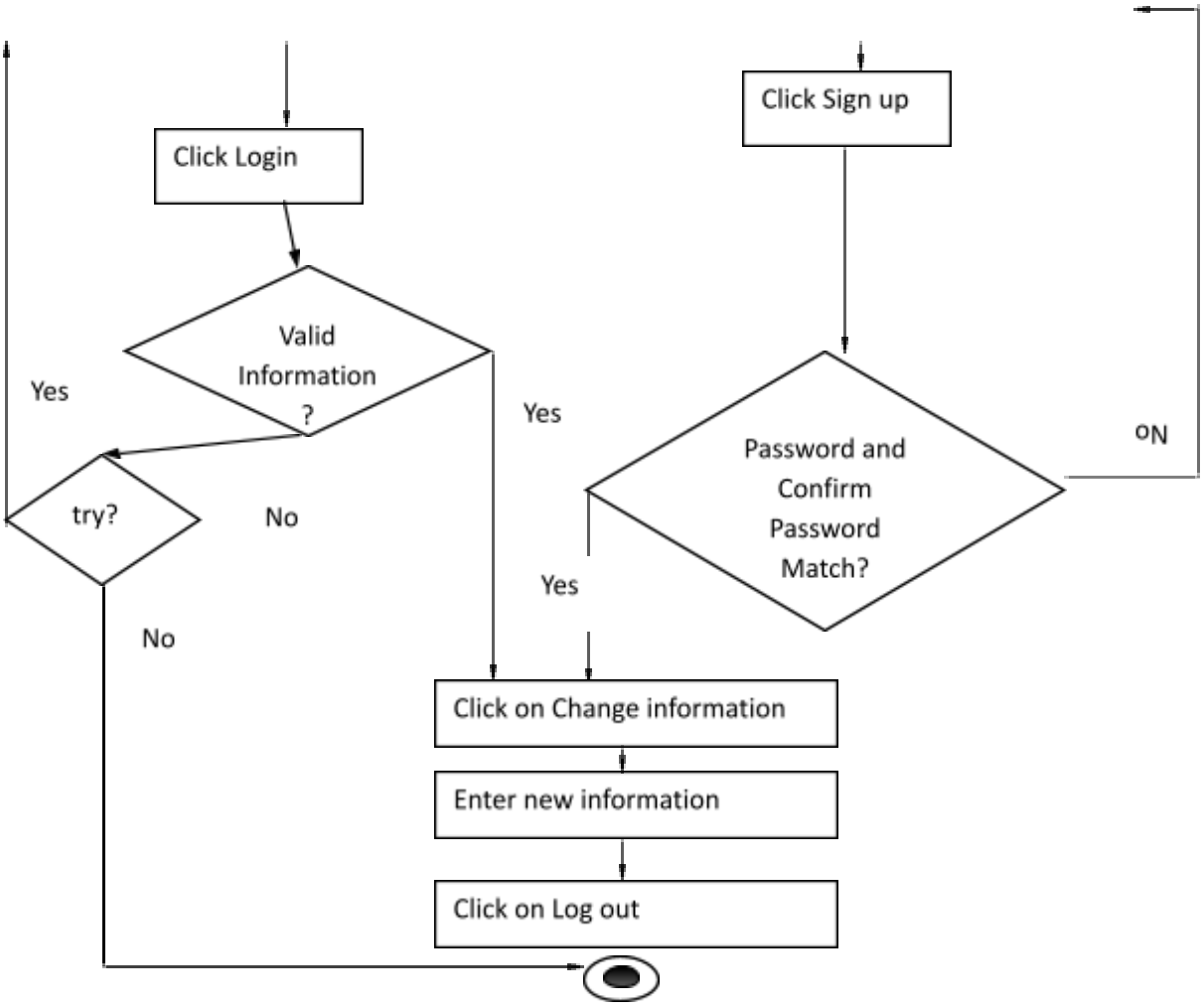
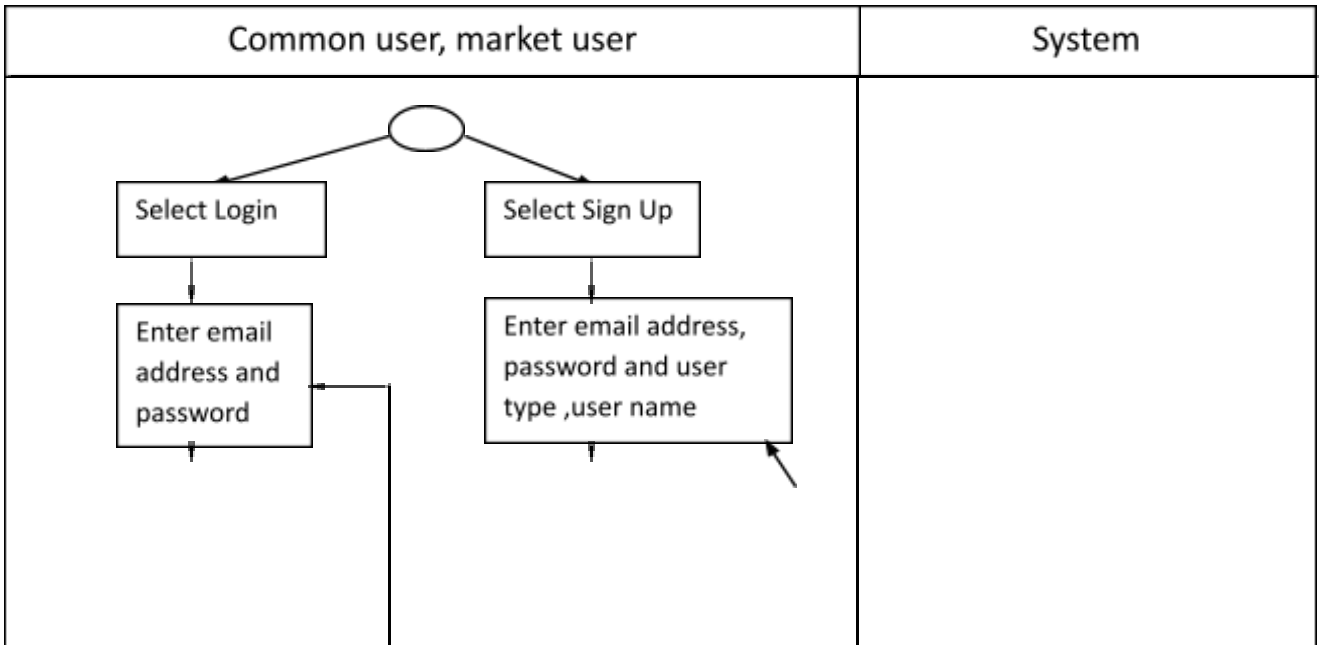
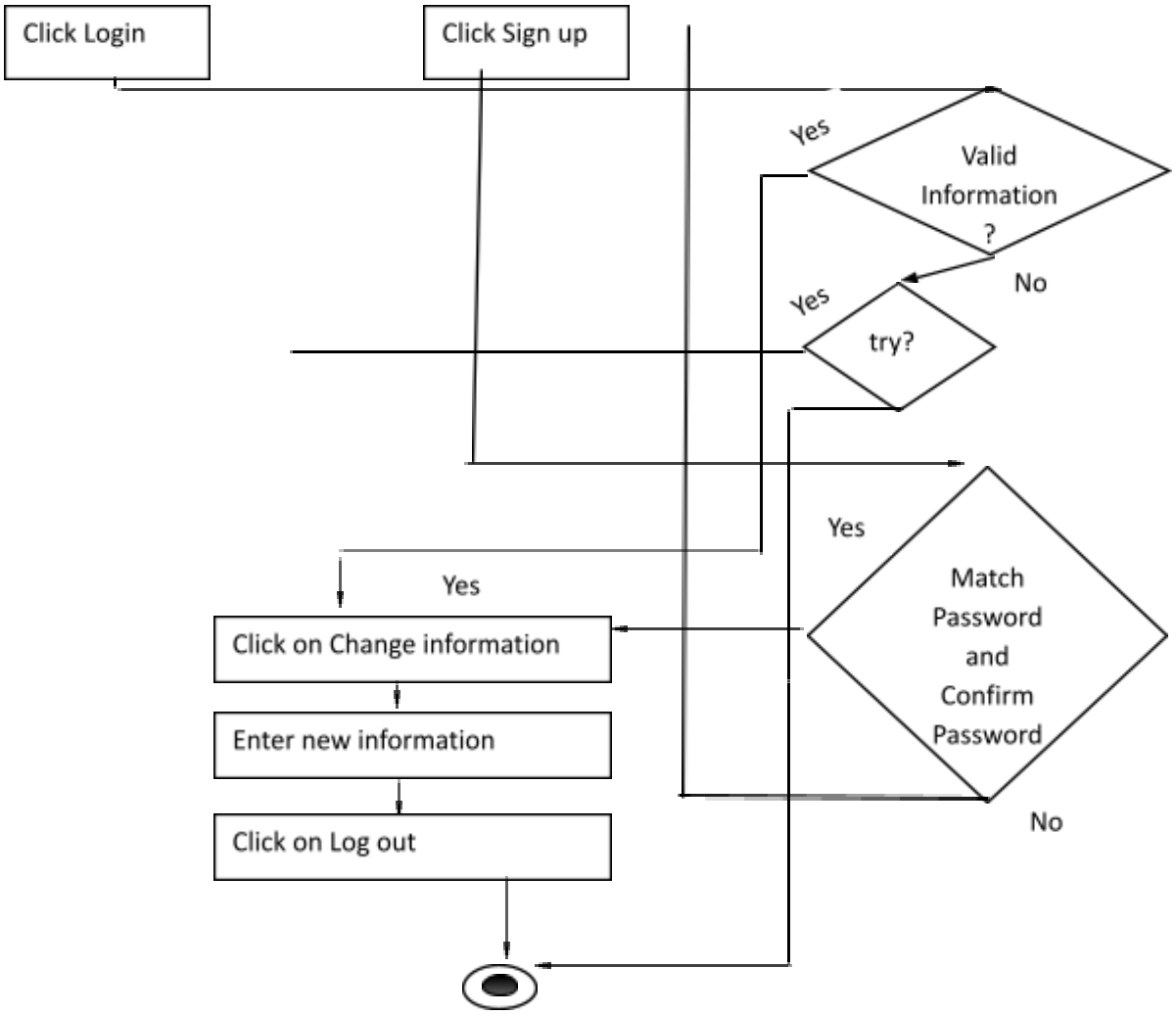


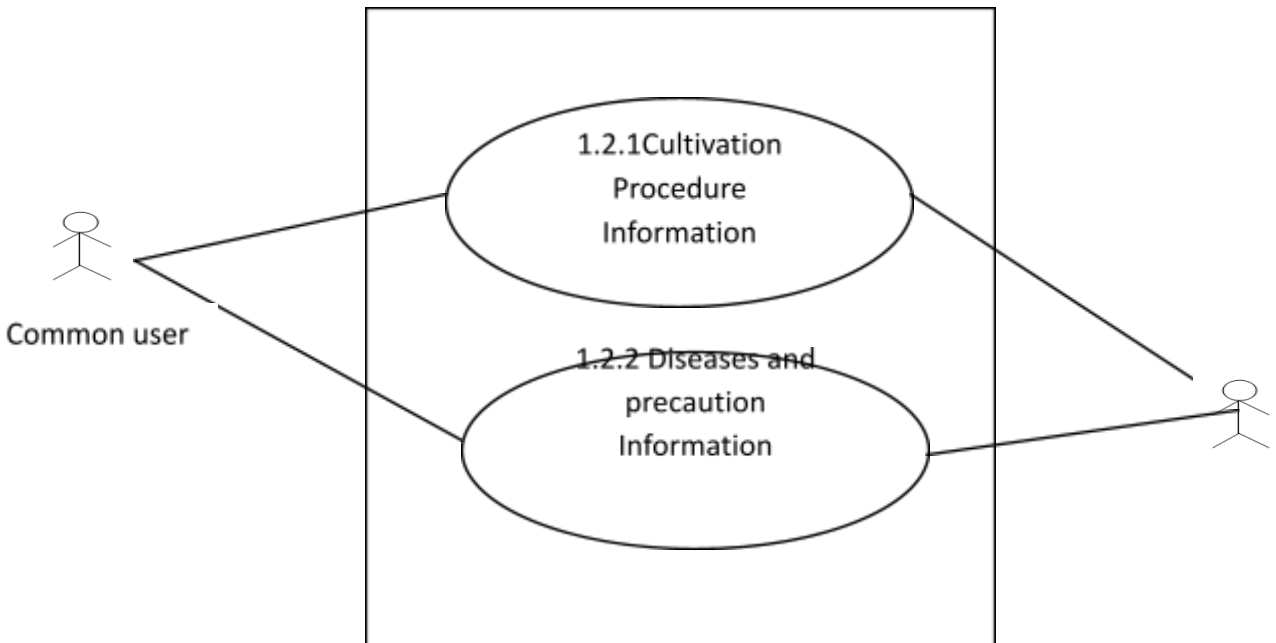
Figure 4.4: Activity Diagram Authentication (Level 1.1)

Swim-Lane Diagram of authentication is as follows:





4.3.1.2 Cultivation procedure, diseases and precaution informa Figure 4.5: Swim-Lane Diagram Authentication (Level 1.1)



Market user

Figure 4.6: Use Case Diagram (Level 1.2)

Use Case Cultivation Procedure, Diseases and Precaution Information Use Case ID:1.2	
Primary actor	Any user for view Common user posting their own ideas.
Secondary Actors	none
Goal In Context	To view information related to cultivation procedure and diseases and precautions.
Precondition	(For posting) Registered common user has logged in.
Trigger	● Any User to view information of cultivation procedure or diseases or precautions ● Registered common user to share information of cultivation procedure or diseases or precautions by posting
Scenario	● Unregistered user or registered user: Click on Cultivation procedure or Diseases and precautions.

	• Unregistered User or registered user: Enter Name of Crops to inquiry information. • Unregistered user or registered user: Click on Search and view information. • Registered common user and agriculture officer: Click on share ideas of Cultivation procedure or share ideas of diseases and precautions • Registered common user and agriculture officer: Enter information about cultivation procedure ideas or diseases and precaution ideas. • Registered common user and agriculture officer: Click on upload.
Exception	• Empty data • Network error
Priority	Essential, must be done
Frequency of use	Moderate Frequency
Chanel to primary Actor	Through Internet

Use Case Cultivation Procedure Information Use Case ID:1.2.1	
Primary actor	Any user for view Common user for posting their own ideas.

Secondary Actors	none
Goal In Context	To view information related to cultivation procedure
Precondition	(For posting) Registered common user has logged in.
Trigger	● Any User to view information of cultivation procedure ● Registered common User to share information of cultivation procedure
Scenario	● Unregistered user or registered user: Click on Cultivation procedure ● Unregistered User or registered user: Enter Name of Crops to inquiry information. ● Unregistered user or registered user: Click on Search and view information. ● Registered common user: Click on share ideas of Cultivation procedure ● Registered common user: Enter information about cultivation procedure ideas. ● Registered common user: Click on upload.
Exception	● Empty data ● Network error
Priority	Essential, must be done
Frequency of use	Moderate Frequency
Chanel to primary Actor	Through Internet

Use Case Diseases and Precaution Information Use Case ID:1.2.2	
Primary actor	Any user for view Common user for posting their own ideas.
Secondary Actors	none
Goal In Context	To view information related to diseases and precautions.
Precondition	(For posting) Registered user has logged in.
Trigger	● Any User to information of diseases or precautions ● Registered User to share information of diseases or precautions by posting
Scenario	● Unregistered user or registered user: Click on Diseases and precautions. ● Unregistered User or registered user: Enter Name of Crops to inquiry information. ● Unregistered user or registered user: Click on Search and view information. ● Registered common user and agriculture officer: Click on share ideas of share ideas of diseases and precautions ● Registered common user and agriculture officer: Enter information about diseases and precaution ideas. ● Registered common user and agriculture officer: Click on upload.
Exception	● Empty data

	• Network error
Priority	Essential, must be done
Frequency of use	Moderate Frequency
Chanel to primary Actor	Through Internet

Activity Diagram of Cultivation procedure and diseases and information is given below:

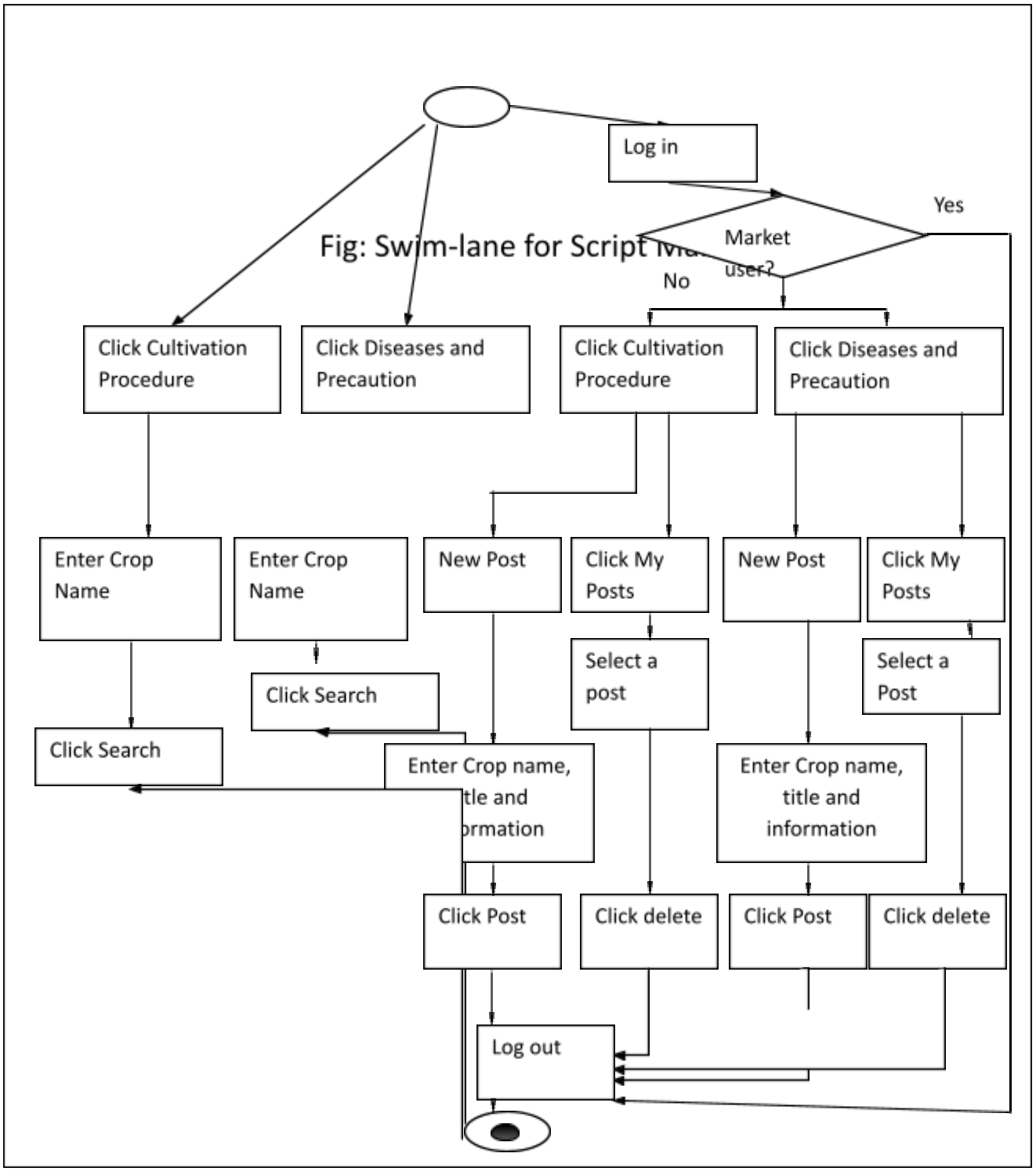


Figure 4.7: Activity Diagram Cultivation procedure and diseases and precautions (Level 1.2)

Swim-Lane of Cultivation procedure and diseases and information is given below:

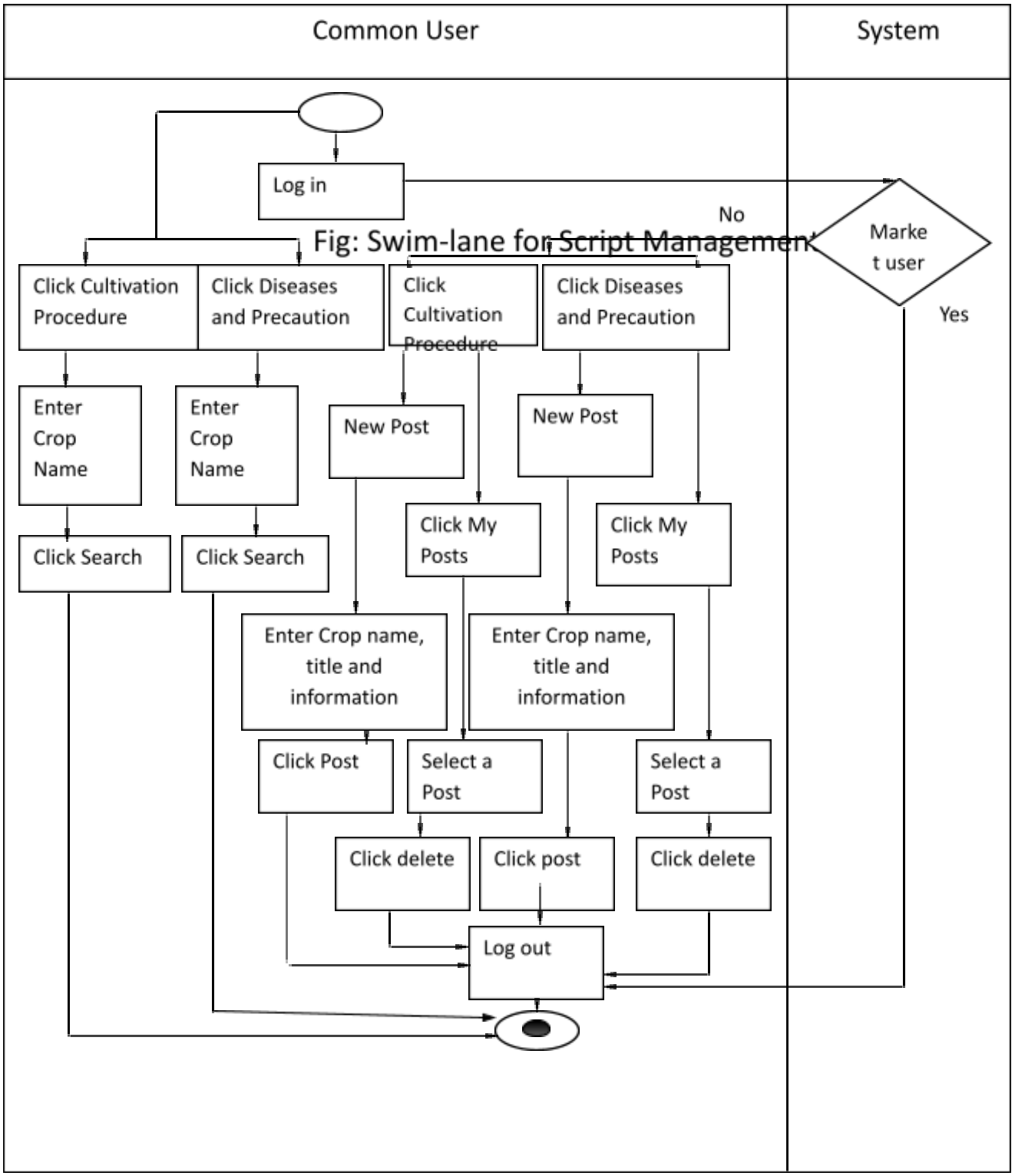


Figure 4.8: Swim-Lane Diagram Cultivation procedure and diseases and precautions (Level 1.2)

4.3.1.3Market Information:

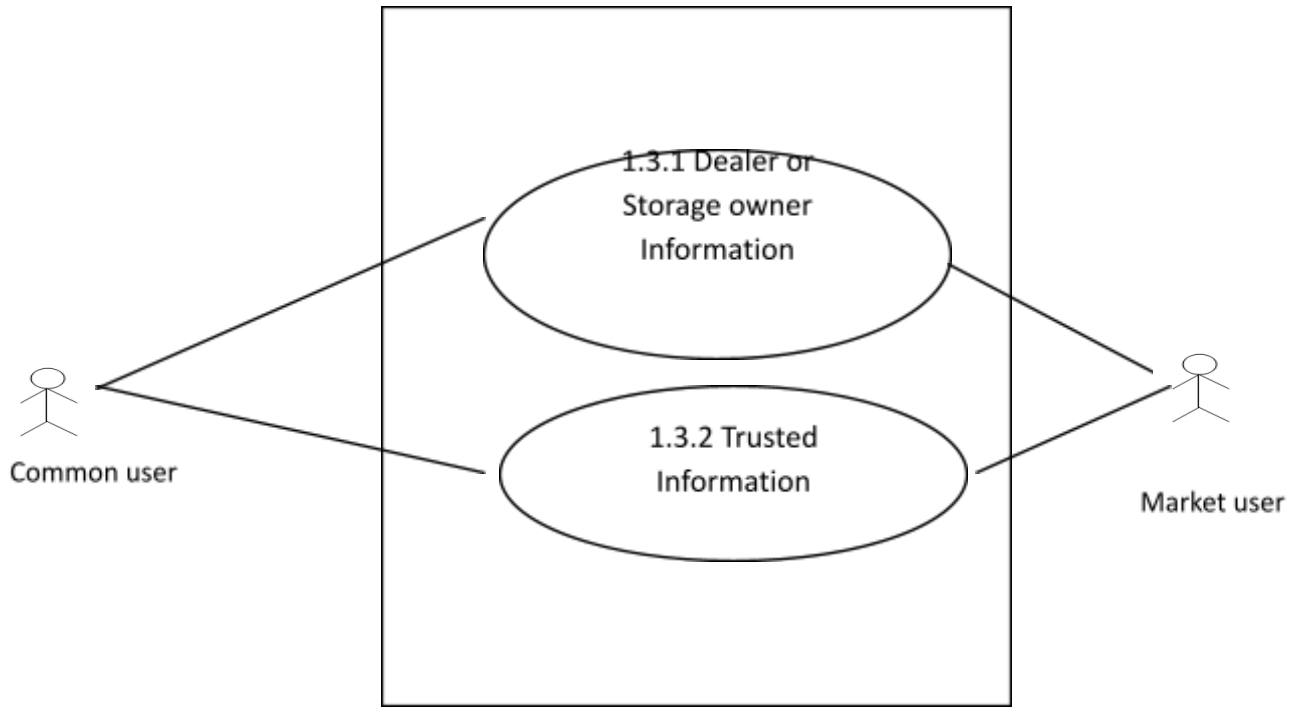


Figure 4.9: Use Case Diagram (Level 1.3)

Use Case Market Information Use Case ID:1.3	
Primary actor	Any user for view Market user for uploading information. Common users for marking trustworthy dealer.
Secondary Actors	none

Goal In Context	To view information related to crop market and market user to get marked as trustworthy.
Precondition	(For uploading information) Registered market user has logged in. (For marking trusted market user) Registered common user has logged in.
Trigger	● Any user to view information of Market dealers and storage owners. ● Any User to get Crop Market information. ● Registered Common user to mark Registered Agriculture officer to mark market user trustworthy.
Scenario	● Unregistered user or registered user: Click on market information. ● Unregistered user or registered user: Enter area and click search ● Unregistered user or registered user: view dealers and storage owners' information and crop market news ● Common User: Mark market user as trusted or not trusted.
Exception	● Empty data ● Network error

Priority	Essential, must be done
Frequency of use	Moderate Frequency
Chanel to primary Actor	Through Internet

Use Case Dealer or Storage owner Information Use Case ID:1.3.1	
Primary actor	Any user for view
Secondary Actors	none
Goal In Context	To view information related to crop market.
Precondition	None
Trigger	• Any user to view information of Market dealers and storage owners.
Scenario	• Unregistered user or registered user: Click on market information. • Unregistered user or registered user: Enter area and click search • Unregistered user or registered user: view dealers and storage owners' information and crop market news
Exception	• Empty data • Network error
Priority	Essential, must be done
Frequency of use	Moderate Frequency
Chanel to primary Actor	Through Internet

Use Case Trusted Information Use Case ID:1.3.2	
Primary actor	Common user
Secondary Actors	none
Goal In Context	Market user to get marked as trusted or not trusted.
Precondition	Registered common user has logged in.
Trigger	● Registered common wishes to mark his trusted dealer or storage owner
Scenario	● Registered Common user: Mark trusted dealer or storage owner.
Exception	● Empty data ● Network error
Priority	Essential, must be done
Frequency of use	Moderate Frequency
Chanel to primary Actor	Through Internet

Activity Diagram of Market Information is given below

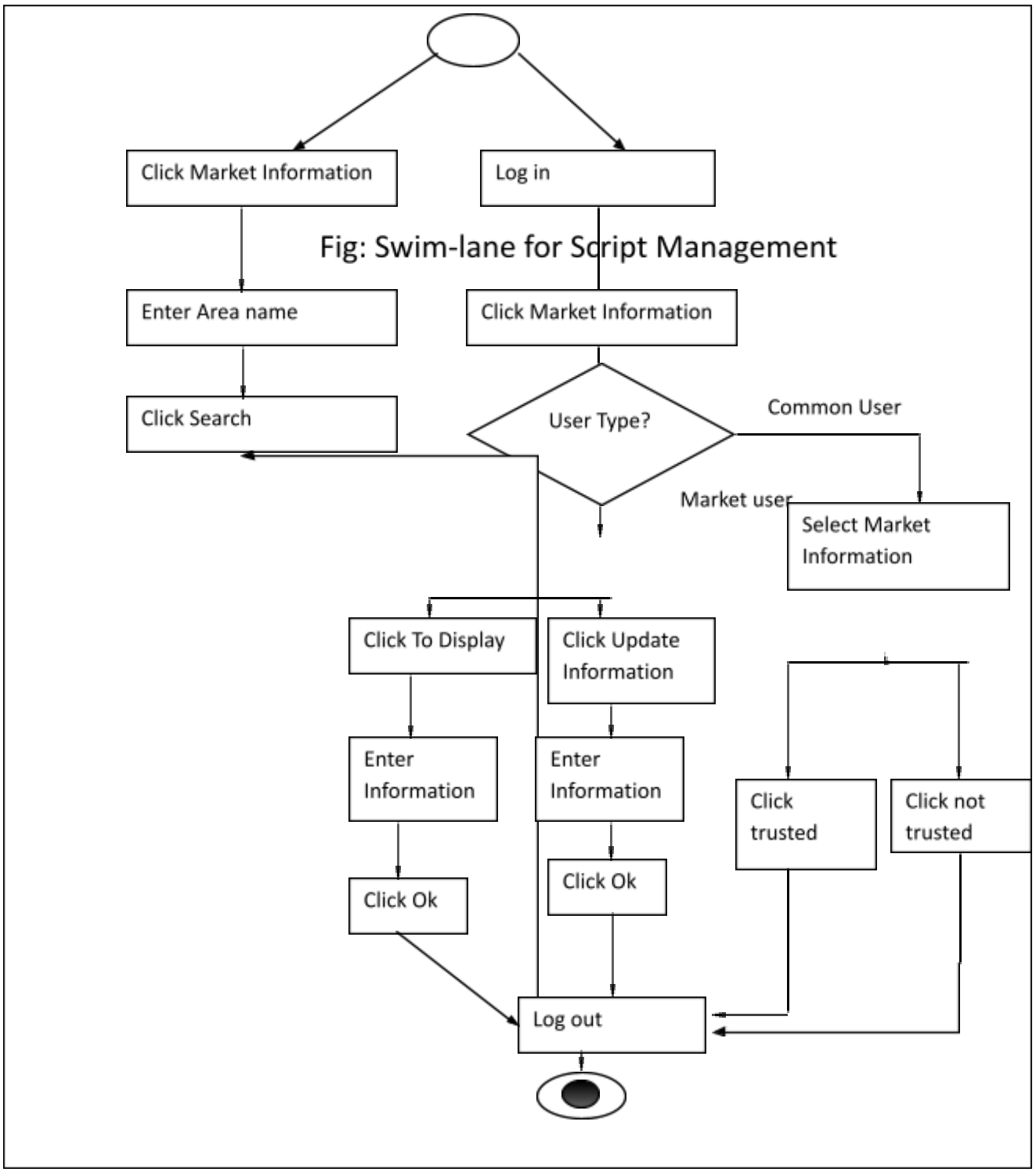


Figure 4.10: Activity Diagram of Market Information (Level 1.3)

Swim –Lane Diagram of Market Information is given below

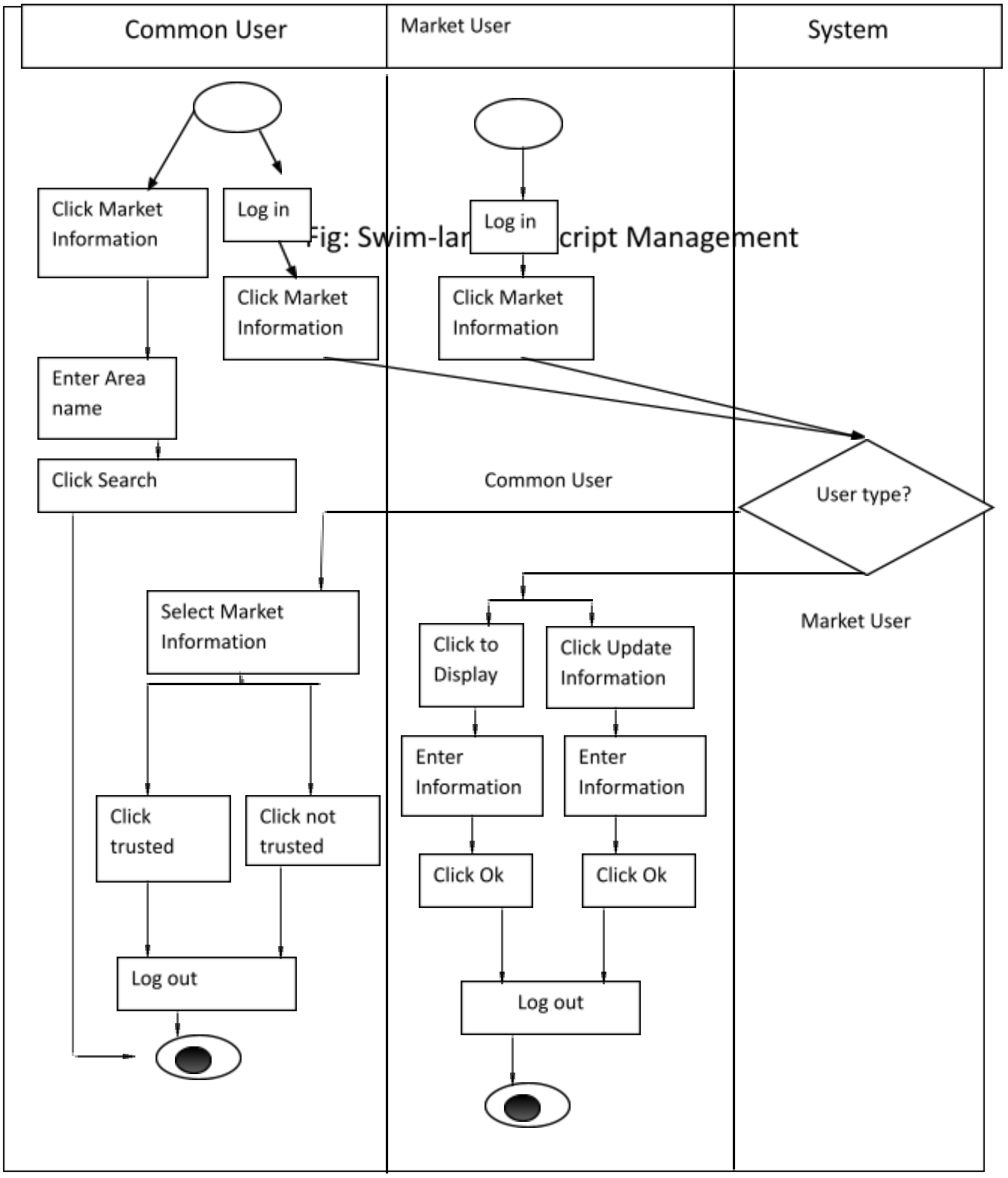


Figure 4.11: Swim-Lane Diagram Market Information (Level 1.3)

4.3.1.4 Agriculture News:

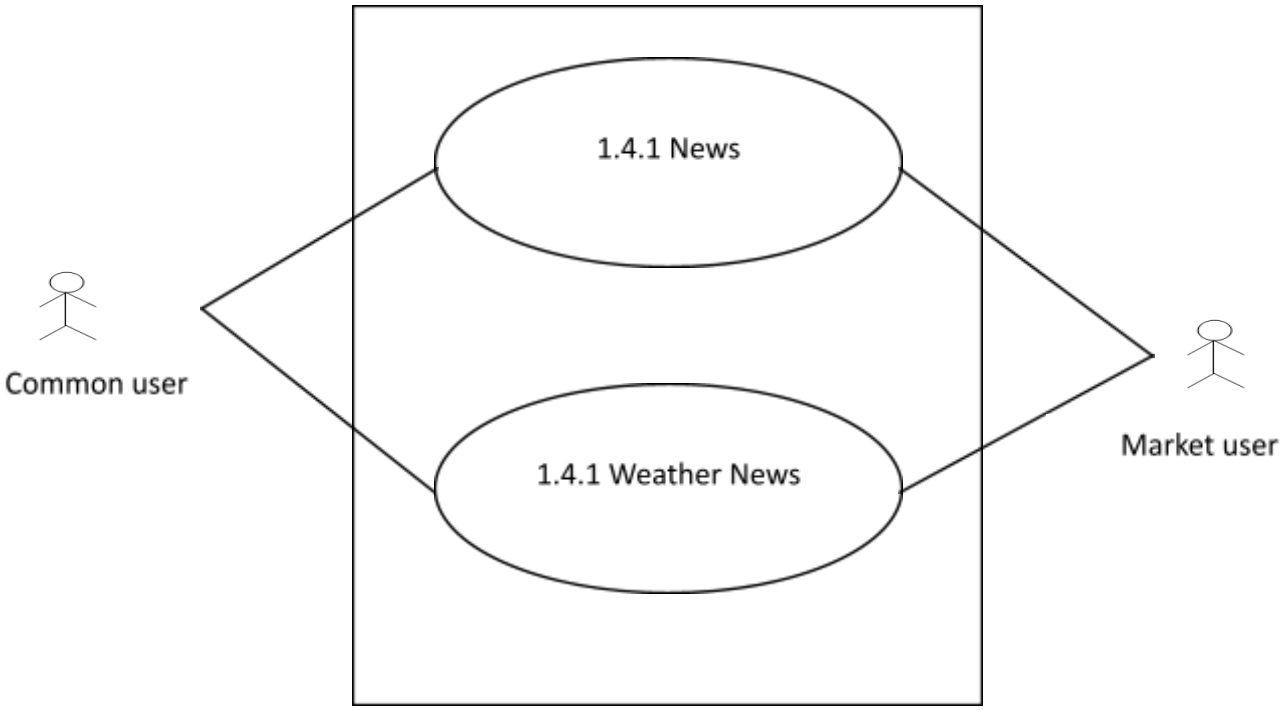


Figure 4.12: Use Case Diagram (Level 1.4)

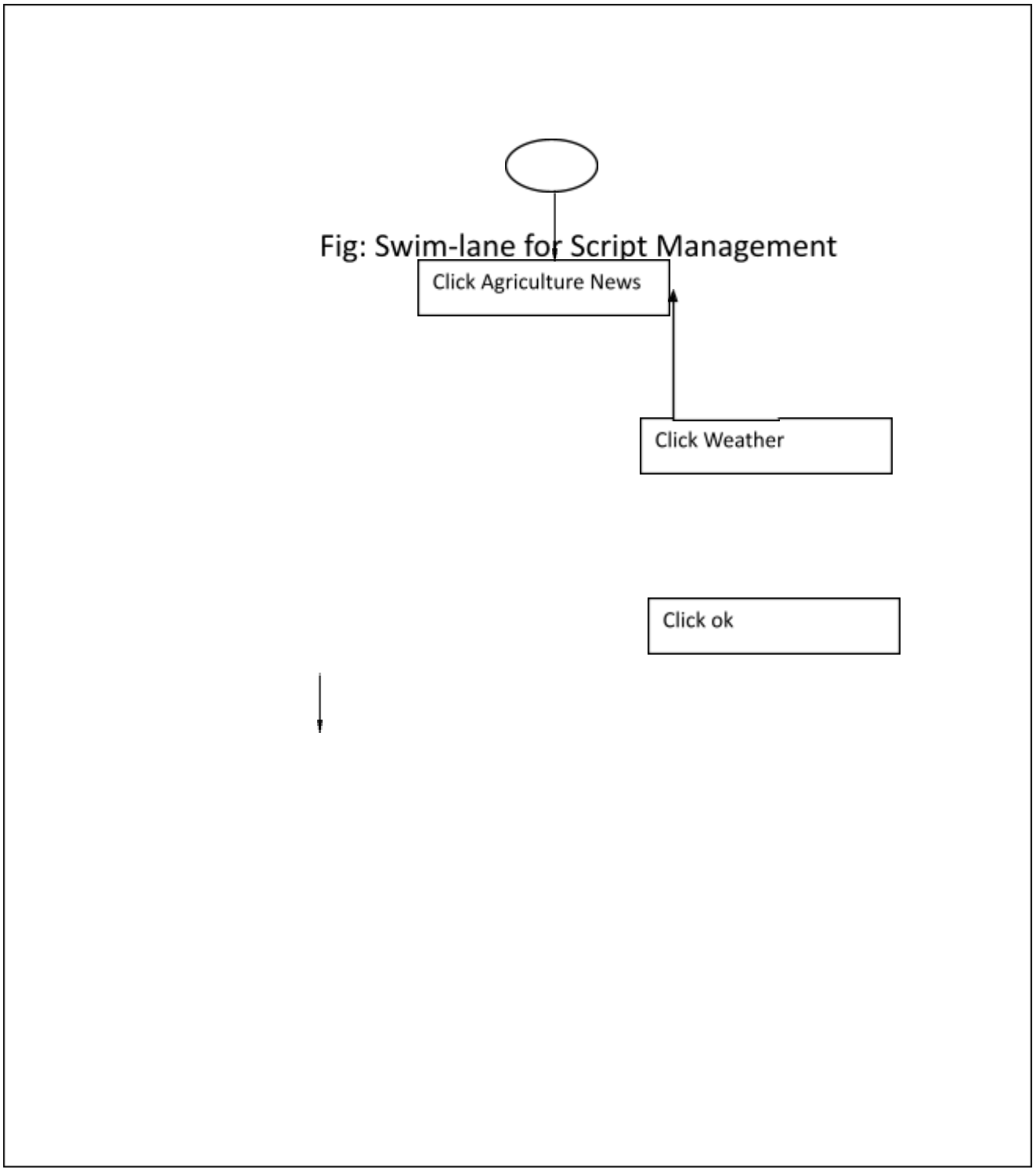
Use Case Agricultural News Use Case ID:1.4	
Primary actor	Any user for view
Secondary Actors	none
Goal In Context	To view agricultural news and weather news.
Precondition	None
Trigger	• Any user decides to view agricultural news or weather news.
Scenario	• Unregistered user or registered user: Click on Agricultural news. • Unregistered user or registered user: Click on news.

	• Unregistered user or registered user: Select website. • Unregistered user or registered user: Click ok. • Unregistered user or registered user: Click on weather. • Unregistered user or registered user: Enter area and date. • Unregistered user or registered user: Click on ok.
Exception	• Network error
Priority	Essential, must be done
Frequency of use	Moderate Frequency
Chanel to primary Actor	Through Internet

Use Case Agricultural News Use Case ID:1.4.1	
Primary actor	Any user for view
Secondary Actors	none
Goal In Context	To view agricultural news.
Precondition	None
Trigger	• Any user decides to view agricultural news.
Scenario	• Unregistered user or registered user: Click on Agricultural news. • Unregistered user or registered user: Click on news. • Unregistered user or registered user: Select website.

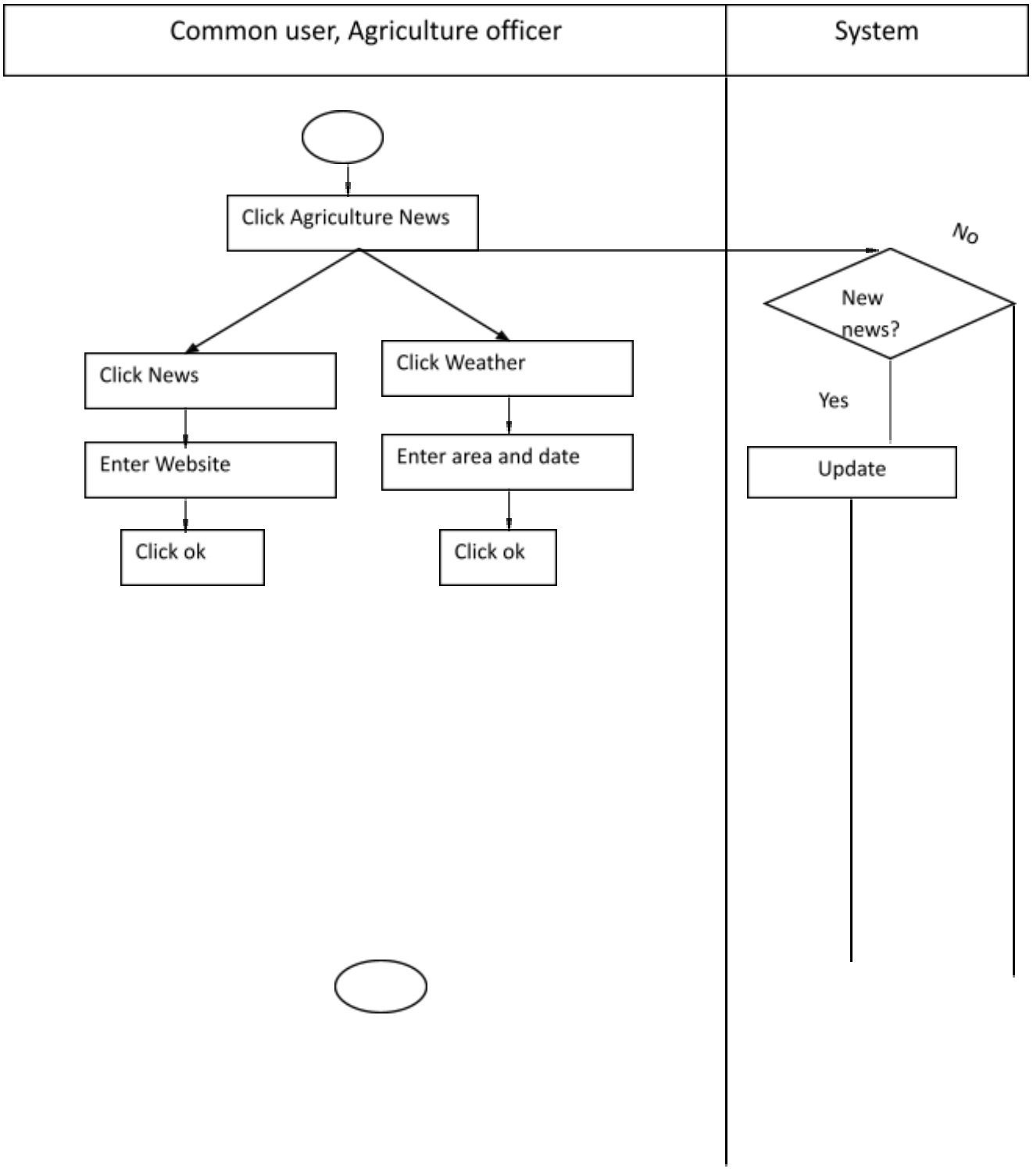
	• Unregistered user or registered user: Click ok. .
Exception	• Network error
Priority	Essential, must be done
Frequency of use	Moderate Frequency
Chanel to primary Actor	Through Internet

Use Case Weather News Use Case ID:1.4.2	
Primary actor	Any user for view
Secondary Actors	none
Goal In Context	To view weather news.
Precondition	None
Trigger	• Any user decides to view weather news.
Scenario	• Unregistered user or registered user: Click on Agricultural news. • Unregistered user or registered user: Click on weather. • Unregistered user or registered user: Enter area and date. • Unregistered user or registered user: Click on ok.
Exception	• Network error
Priority	Essential, must be done
Frequency of use	Moderate Frequency
Chanel to primary Actor	Through Internet



The activity Diagram for Agricultural News is given below:

The Swim-lane Diagram for Agricultural News is given below:



4.3.1.5 Discussion Forum:

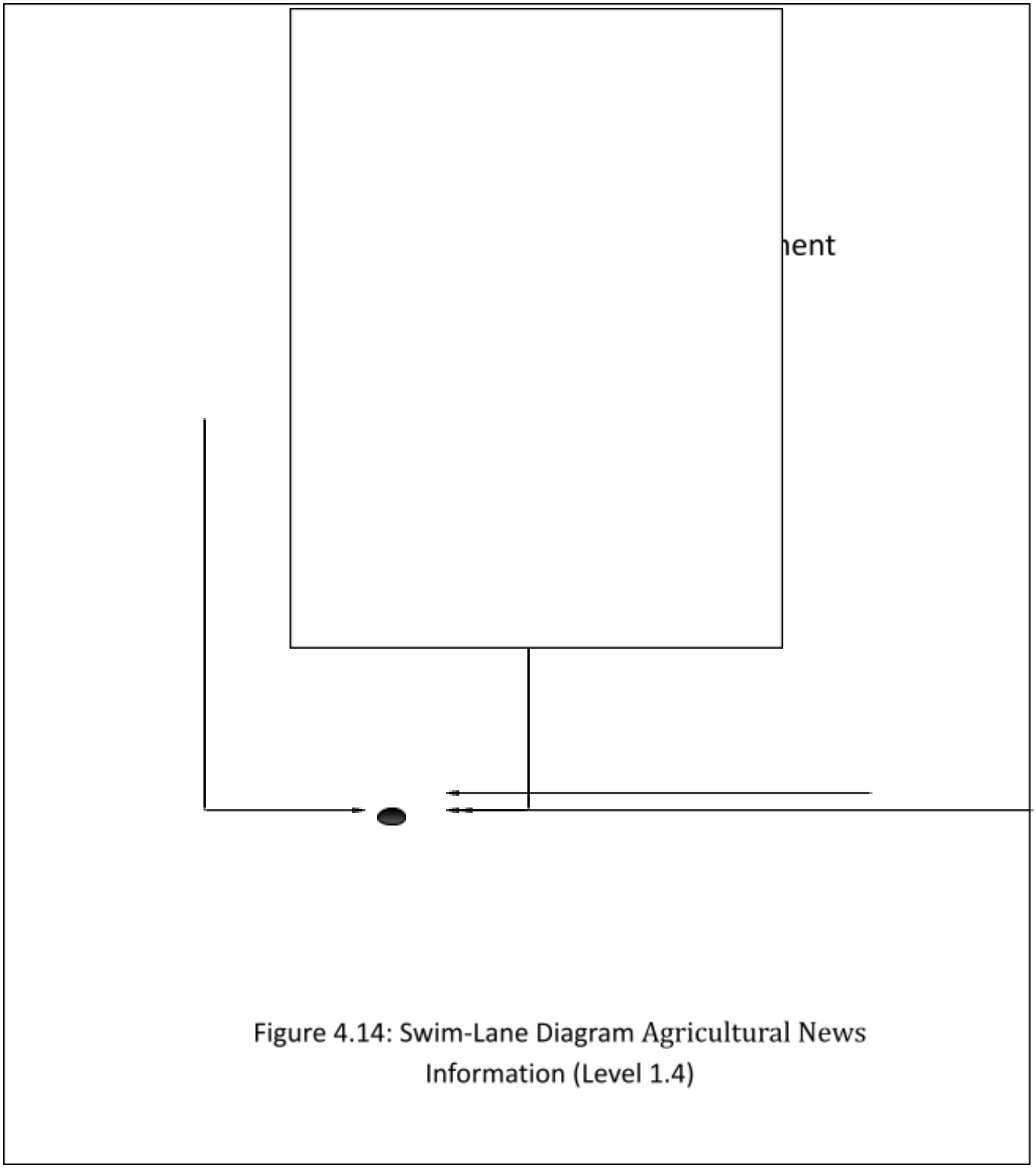


Figure 4.14: Swim-Lane Diagram Agricultural News Information (Level 1.4)

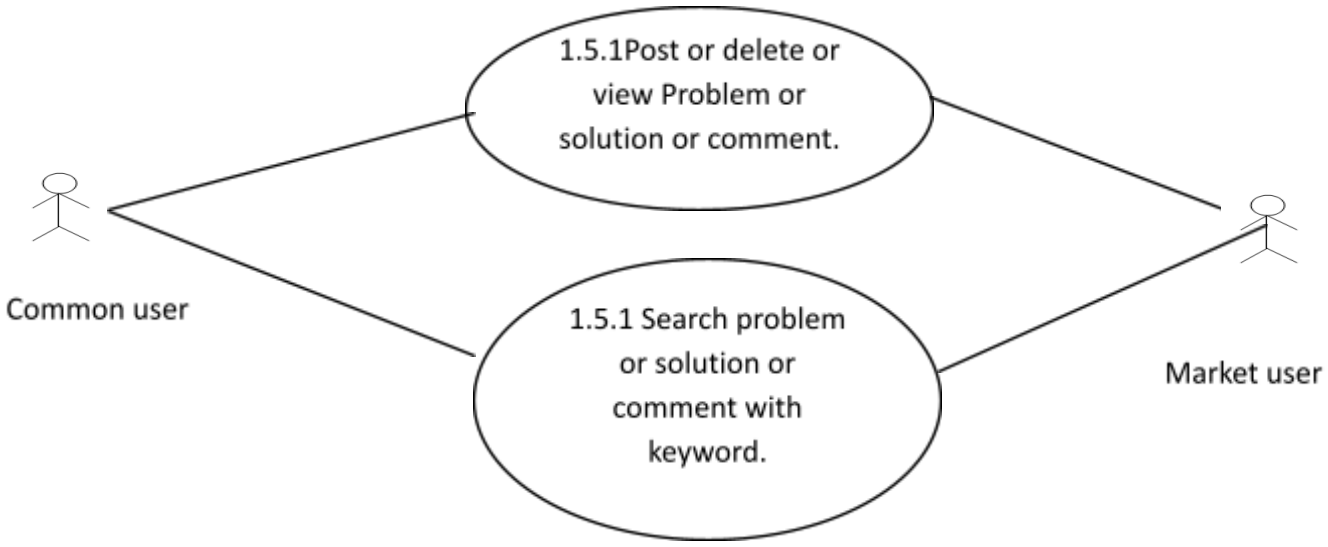


Figure 4.15: Use Case Diagram (Level 1.5)

Use Case Discussion Forum Use Case ID:1.5	
Primary actor	Any user for view and searching. Registered user form posting and commenting.
Secondary Actors	none
Goal In Context	To view or search or post problems and solutions or comments.
Precondition	None
Trigger	• Any user decides to view or search agricultural problems and solutions. • Any registered user decides to post problem or give solution or comment.

	• Any registered user decides to delete his or her comment.
Scenario	• Unregistered user or registered user: Click Forum. • Unregistered user or registered user: Search. • Unregistered user or registered user: Enter keyword. • Unregistered user or registered user: Click on search. • Registered user: Enter problem or solution information or comment. • Registered user: Click post information or reply for comment. • Registered user: Click delete.
Exception	• Network error
Priority	Essential, must be done
Frequency of use	Moderate Frequency
Chanel to primary Actor	Through Internet

Use Case Post or delete or view Problem or solution or comment Use Case ID:1.5.1	
Primary actor	Any user for viewing but any registered user for posting and commenting problems and solutions.
Secondary Actors	none
Goal In Context	To post or delete problems and solutions or comments.
Precondition	None

Trigger	• Any registered user decides to post problem or give solution or comment. • Any registered user decides to delete his or her comment.
Scenario	• Registered user: Click Forum. • Registered user: Enter problem or solution information or comment. • Registered user: Click post information or reply for comment. • Registered user: Click delete.
Exception	• Network error
Priority	Essential, must be done
Frequency of use	Moderate Frequency
Chanel to primary Actor	Through Internet

Use Case Search problem or solution or comment with keyword Use Case ID:1.5.2	
Primary actor	Any user searching.
Secondary Actors	none
Goal In Context	To view or search and solutions or comments.
Precondition	None
Trigger	• Any user decides to view or search agricultural problems and solutions.
Scenario	• Unregistered user or registered user: Click Forum.

	● Unregistered user or registered user: Click Search.

	● Unregistered user or registered user: Enter keyword. ● Unregistered user or registered user: Click on search.
Exception	● Network error
Priority	Essential, must be done
Frequency of use	Moderate Frequency
Chanel to primary Actor	Through Internet

The activity Diagram for Discussion Forum is given below:

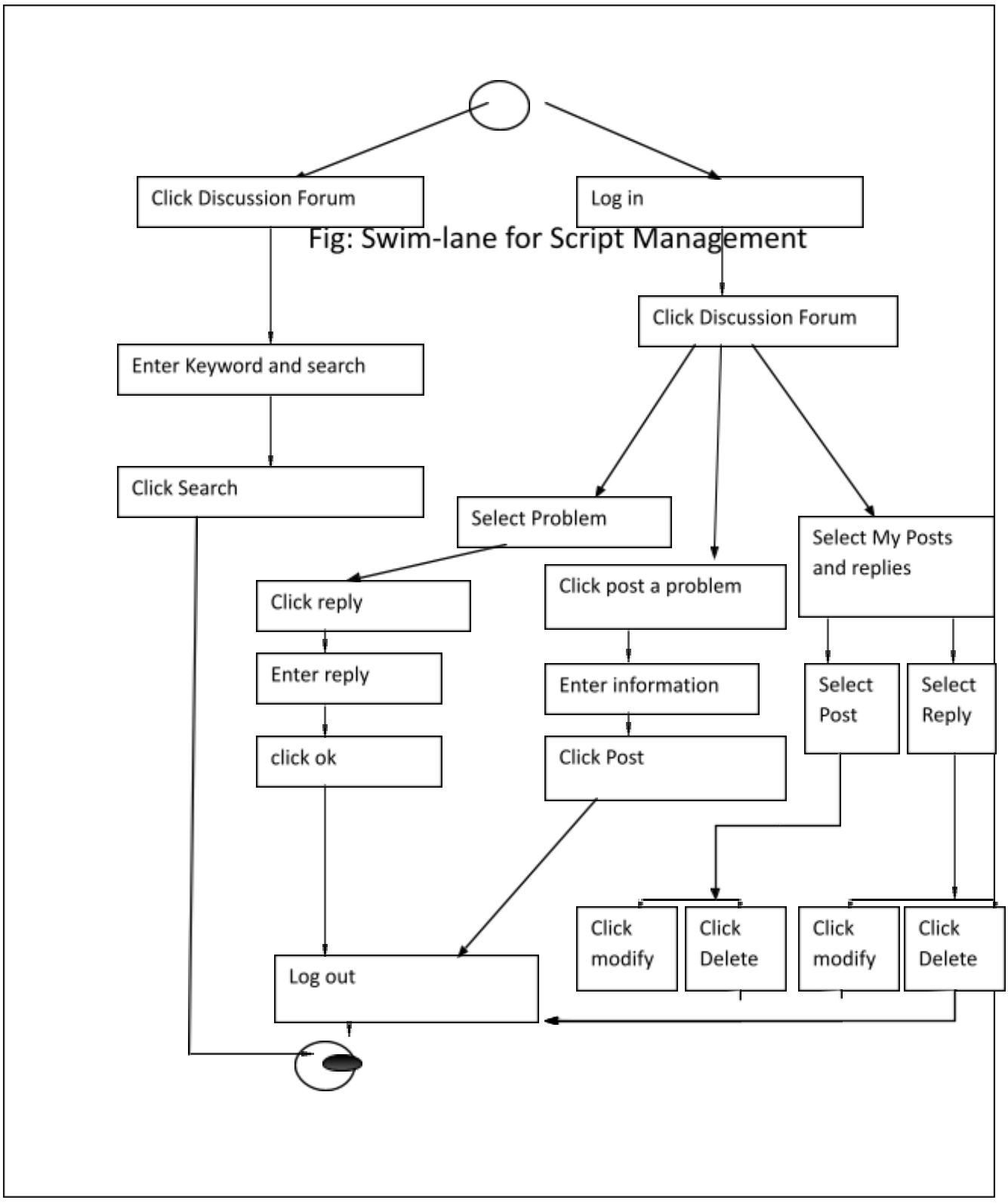


Figure 4.16: Activity Diagram Discussion Forum

The Swim-La Information (Level 1.5)

*

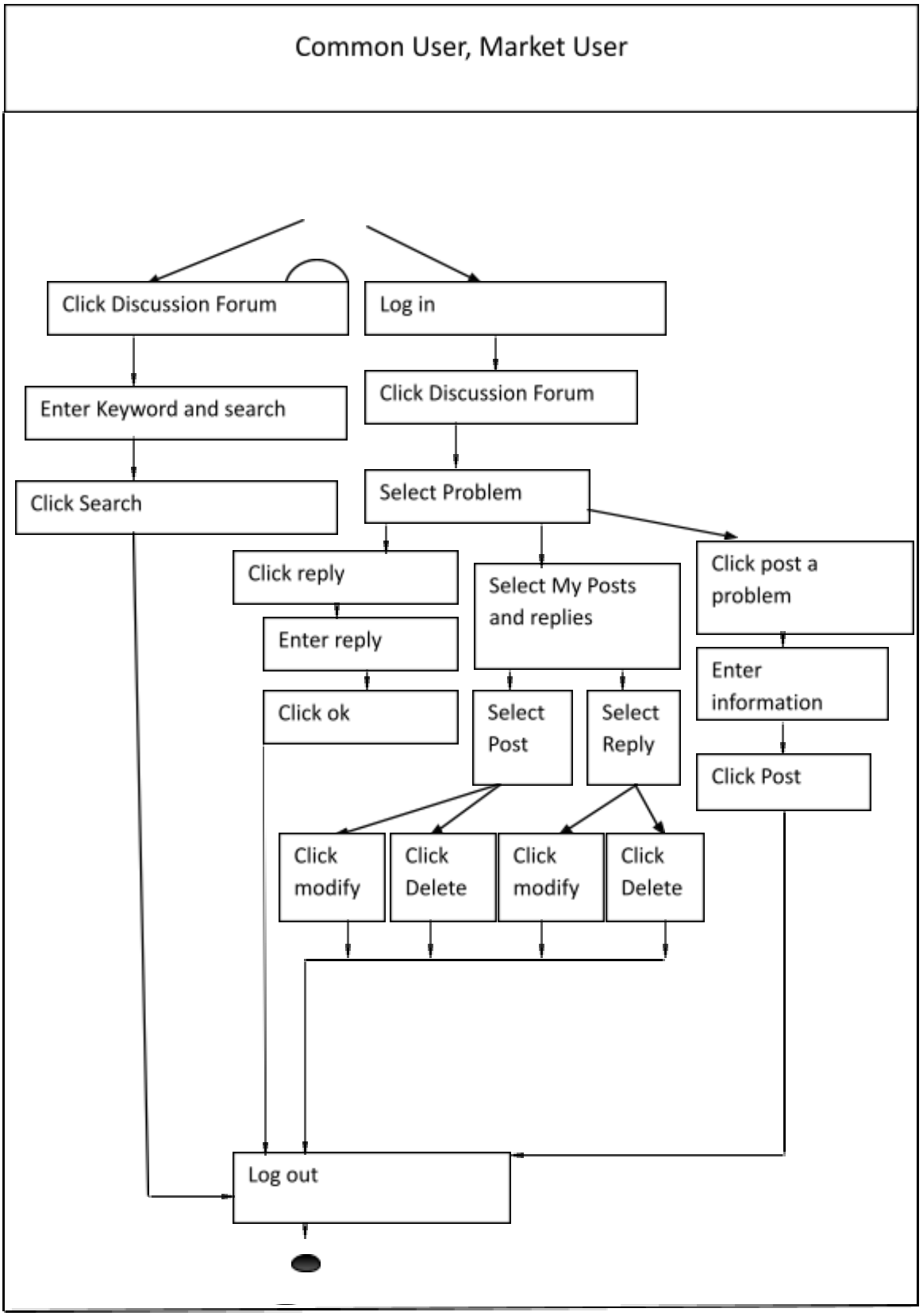


Figure 4.16: Swim-Lane Diagram Discussion Forum Information (Level 1.5)

Chapter 5

Data Model

5.1 Data Modeling Concepts:

If software requirements include the need to create, extend, or interface with a database or if complex data structures must be constructed and manipulated, the software team may choose to create a data model as part of overall requirements modeling.

5.2 Data Objects:

A data object is a representation of information which has different properties or attributes that must be understood by software. We have identified following data objects in our Online Certification System.

No	Potential Data Object	General Classification	Multiple Attribute	Comment
1	Agriculture	Thing	No	Not Accepted
2	Economic Field	Thing	No	Not Accepted
3	Information	Thing	Yes	Not Accepted
4	Agriculture Advisor	Thing	No	Whole system , Not Accepted
5	Web Application	Thing	No	Not Accepted
6	Websites	Thing	Yes	Not Accepted
7	Farmers	Role	Yes	Not Accepted, too much specific
8	Landowners	Role	Yes	Not Accepted, too much specific

No	Potential Data Object	General Classification	Multiple Attribute	Comment
9	Researchers	Role	Yes	Not Accepted, too much specific
10	Experts	Role	Yes	Not Accepted, too much specific
11	Dealers	Role	Yes	Not Accepted, too much specific
12	User	Role	Yes	Accepted
13	Common User	Role	Yes	Rejected, instance of user
14	Storage Owners	Role	Yes	Not Accepted, too much specific
15	Market User	Role	Yes	Rejected, Instance of user
16	Market Information	Thing	Yes	Accepted
17	Registration	Occurrence	No	Not Accepted
18	Email Address	Thing	No	Not Accepted
19	User Type	Thing	No	Not Accepted
20	Password	Thing	No	Not Accepted
21	Name	Thing	No	Not Accepted
22	Contact Number	Thing	No	Not Accepted
23	Designation	Thing	No	Not Accepted
24	Trusted Information	Thing	Yes	Accepted
25	Email	Thing	No	Not Accepted
26	Agriculture Officer	Role	No	Rejected
27	Cultivation procedure	Thing	Yes	Accepted

No	Potential Data Object	General Classification	Multiple Attribute	Comment
28	Disease and Precaution	Thing	Yes	Accepted
29	Crop	Thing	No	Not Accepted
30	Html	Thing	No	Not Accepted
31	Discussion Forum	Organizational unit.	Yes	Not Accepted
32	Problems	Thing	Yes	Accepted
33	Area	Place	No	Not Accepted
34	Solution	Thing	Yes	Accepted
35	News	Thing	Yes	Accepted
36	Parser	Thing	No	Not Accepted

I have selected following data objects:

Data Object: User

Attributes:

- usr_Id
- User Email
- User Type
- Password
- Name
- Area
- Contact Number
- Designation

Data Object: Market Information

Attributes:

- Mkt_info_Id
- Common user Id
- Display Information
- Total trusted
- Total not trusted

Data Object: Cultivation Procedure

Attributes:

- cult_Id
- Common user Id
- Common user Name
- Common user Area
- Crop Name
- title
- Cultivation Procedure Information

Data Object: Diseases and Precaution

Attributes:

- dis_precau_Id
- Common user Id
- Common username
- Common user Area
- Crop Name
- title
- Diseases and Precaution Information

Data Object: Problems

Attributes:

- prob_Id
- Common user Id
- Common user Name
- Common user Area
- title
- Problem Information

Data Object: Solutions

Attributes:

- sol_Id
- Problem Id
- Reply_sol_ id

- Common user Name
- Common user Area
- Information

Data Object: News

Attributes:

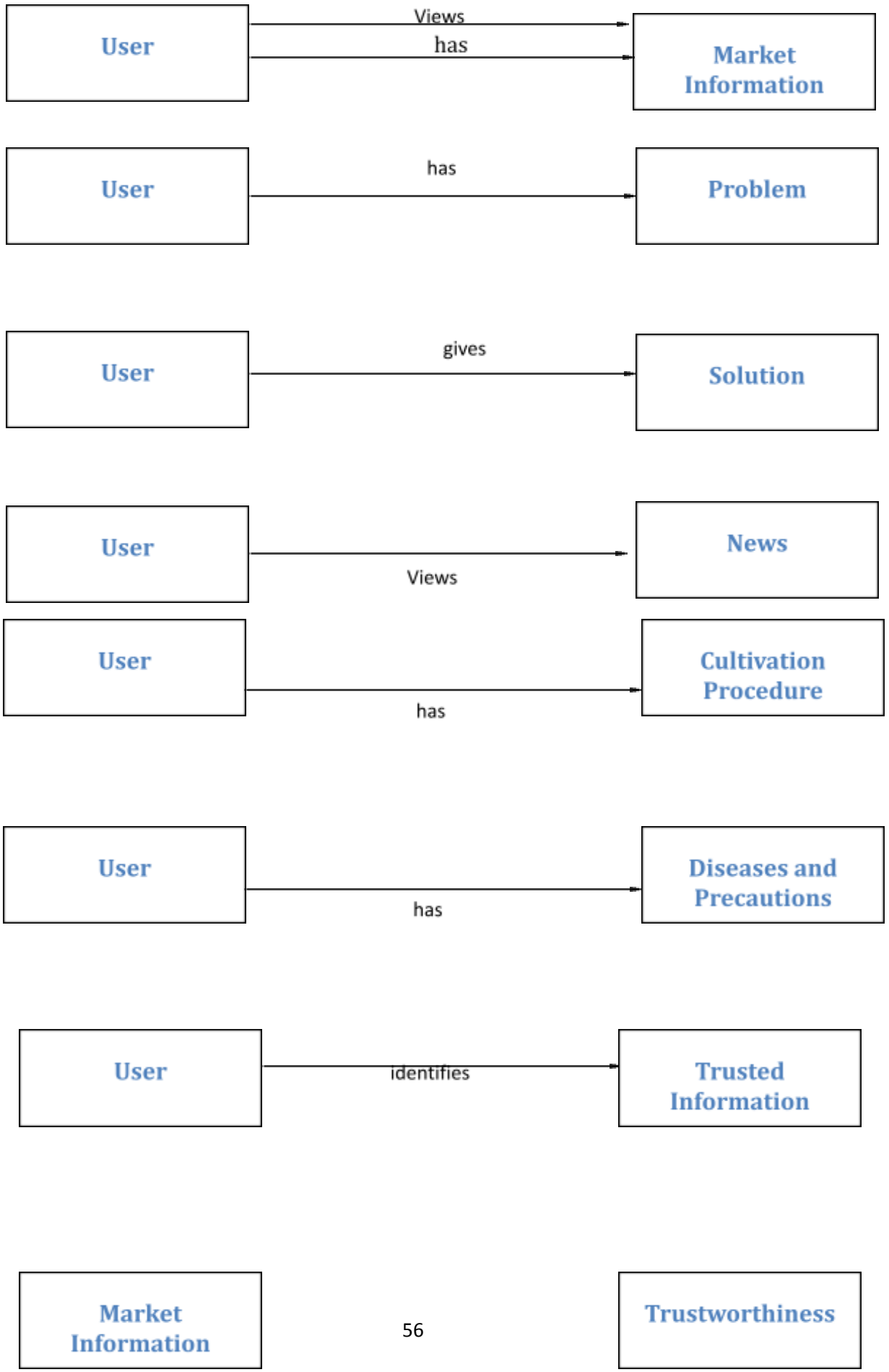
- news_Id
- News source
- News Date
- News Information

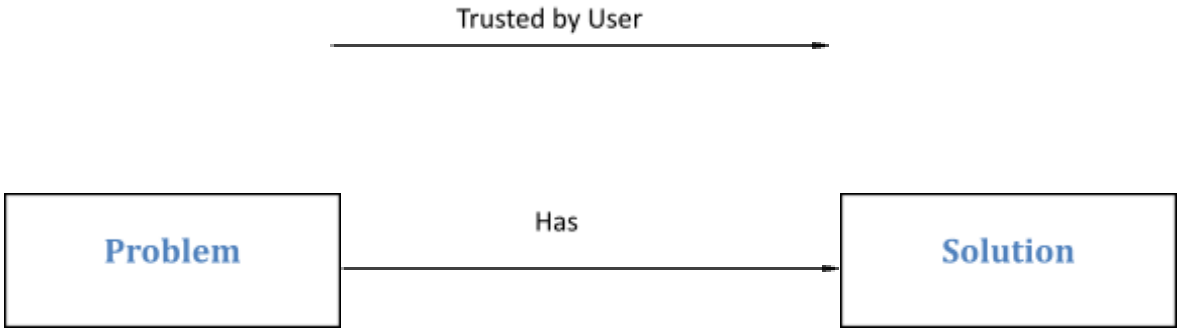
Data Object: Trusted Information

Attributes:

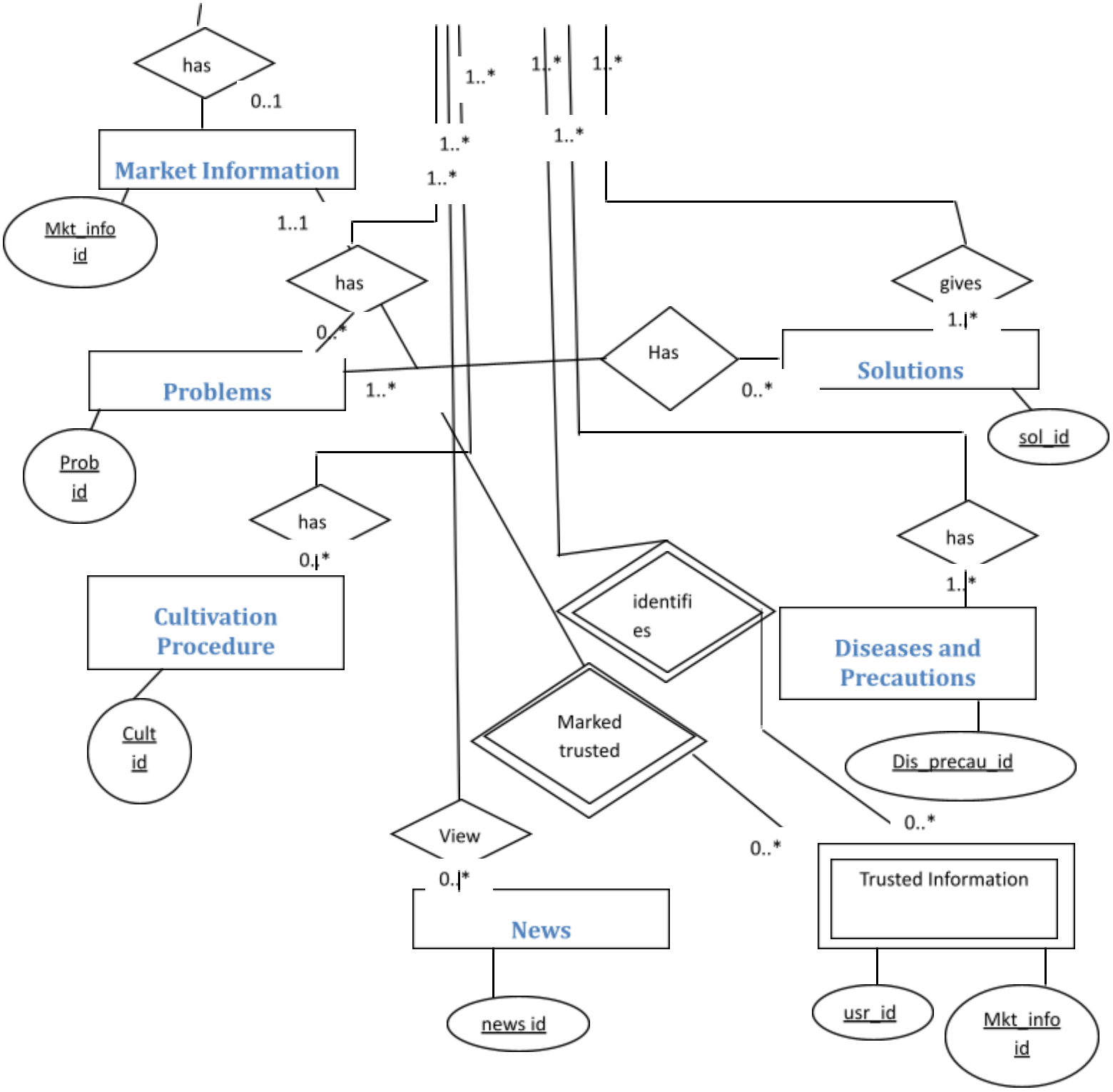
- usr_Id
- user_id
- Status(0 not trust 1 trust)

5.3 Relationship between Data Objects:





5.4 Entity Relationship Diagram:


has
0..1
Market Information
Mkt_info id
1..1
1..*
1..*
1..*
1..*
1..*
has
0..*
Problems
1..*
Prob id
has
0..*
Cultivation Procedure
Cult id
Has
0..*
gives
1..*
Solutions
sol_id
has
1..*
identifi es
Diseases and Precautions
Dis_precau_id
0..*
Marked trusted
0..*
View
0..*
News
news id
Trusted Information
usr_id
Mkt_info id

5.5 Schema:

User	
Attribute	Data Type
usr_id	Int
Password	Varchar(100)
User Type	Varchar(100)
Name	Varchar(100)
Area	Varchar(100)
Contact Number	Varchar(100)
Designation	Varchar(100)
Email	Varchar(100)

Market Information	
Attribute	Data Type
Mkt_info_id	Int
usr_id	Int
Display Information	Varchar(Max)
Total trusted	Int
Total not trusted	Int

Cultivation Procedures	
Attribute	Data Type
Cult_proc_id	Int
usr_id	Int
Common User Name	Varchar(100)
Crop Name	Varchar(100)
Title	Varchar(100)
Description	Varchar(MAX)

Diseases and Precautions	
Attribute	Data Type
Dis_precau_id	Int
Cmn_usr_id	Int

Common User Name	Varchar(100)
Crop Name	Varchar(100)
Title	Varchar(100)
Disease Description	Varchar(MAX)
Disease Precaution	Varchar(MAX)

Problems	
Attribute	Data Type
prob_id	Int
Cmn_usr_id	Int
Cmn_user_name	Varchar(100)
Cmn_user_Area	Varchar(100)
Title	Varchar(100)
Problem Description	Varchar(MAX)

Solutions	
Attribute	Data Type
sol_id	Int
prob_id	Int
Reply_sol_id	Int
Cmn_user_name	Varchar(100)
Cmn_user_area	Varchar(100)
Solution_Detail	Varchar(MAX)

News	
Attribute	Data Type
news_id	Int
news_source	Varchar(100)
news_date	Date
news_information	Varchar(MAX)

Trusted Information	
Attribute	Data Type
Cmn_user_id	Int

Mkt_user_id	Int
Status(0 not trust 1 trust)	Int

Chapter 6

Class-Based Model

6.1 Class Based Modeling Concepts:

Class-based modeling represents the objects that the system will manipulate, the operations that will be applied to the objects, relationships between the objects and the collaborations that occur between the classes that are defined.

6.2General Classification:

During Analysis Classes manifest themselves in following ways:

1. External Entities
2. Things
3. Occurrences/ Events
4. Roles
5. Organizational Units
6. Places
7. Structures

Now, we propose a number of potential classed based on the general classification:

No	Potential class	General Classification
1	Agriculture	Thing
2	Economic Field	Thing
3	Information	Thing
4	Agriculture Advisor	Thing
5	Web Application	Thing

	Potential Class	General Classification
6	Websites	Thing
7	Farmers	Role
8	Landowners	Role
9	Researchers	Role
10	Experts	Role
11	Dealers	Role
12	User	Role
13	Common User	Role
14	Storage Owners	Role
15	Market User	Role
16	Market information	Thing
17	Registration	Occurrence
18	Email Address	Thing
19	User Type	Thing
20	Password	Thing
21	Name	Thing
22	Contact Number	Thing
23	Designation	Thing
24	Trusted Information	Thing
25	Email	Thing
26	Agriculture Officer	Role
27	Cultivation procedure	Thing
28	Disease and Precaution	Thing
29	Crop	Thing
30	Html	Thing
31	Discussion Forum	Organizational unit.
32	Problems	Thing
33	Area	Place
34	Solution	Thing
35	News	Thing
36	Parser	Thing

Table 6.1: General Classification table

6.3 Selection Characteristics:

Coad and Yourdon suggest six selection characteristics that should be used to consider each potential class for inclusion in the analysis model:

1. Retained Information
2. Needed Services
3. Multiple Attributes
4. Common Attributes
5. Common Operation
6. Essential Requirements

No	Potential Class	Problem Space/ Solution Space	Characteristics that apply	Comments
1	Agriculture	Problem Space	----------	----------
2	Economic Field	Problem Space	----------	----------
3	Information	Solution Space	1,2,3 apply	Rejected
4	Agriculture Advisor	Solution Space	1,2,3,4,5 apply	Rejected, whole System
5	Web Application	Solution Space	1,2,3,4,5 apply	Rejected, whole System
6	Websites	Solution Space	1,2,3,4,5,6 apply	Rejected
7	Farmers	Solution Space	1,2,3,4,5 apply	Rejected, instance of common user
8	Landowners	Solution Space	1,2,3,4,5 apply	Rejected, instance of common user

No	Potential Class	Problem Space/ Solution Space	Characteristics that apply	Comments
9	Researchers	Solution Space	1,2,3,4,5 apply	Rejected, instance of common user
10	Experts	Solution Space	1,2,3,4,5 apply	Rejected, instance of common user
11	Dealers	Solution Space	1,2,3,4,5 apply	Rejected, instance of market user
12	User	Solution Space	1,2,3,4,5 apply	Accepted
13	Common User	Solution Space	1,2,3,4,5 apply	Accepted
14	Storage Owners	Solution Space	1,2,3,4,5 apply	Rejected, instance of market user
15	Market User	Solution Space	1,2,3,4,5 apply	Accepted
16	Market Information	Solution Space	1,2,3,4,5 apply	Rejected, attributes of Market user
17	Registration	Solution Space	2,3,4,5 apply	Rejected
18	Email Address	Solution Space	3 fails	Rejected
19	User Type	Solution Space	3 fails	Rejected
20	Password	Solution Space	3 fails	Rejected
21	Name	Solution Space	3 fails	Rejected

No	Potential Class	Problem Space/ Solution Space	Characteristics that apply	Comments
22	Contact Number	Solution Space	3 fails	Rejected
23	Designation	Solution Space	3 fails	Rejected
24	Trusted Information	Solution Space	1,2,3,4,5 apply	Rejected, attribute of market user
25	Email	Solution Space	1,2,3,4,5,6 apply	Rejected
26	Agriculture Officer	Solution Space	1,2,3,4,5 apply	Rejected, instance of common user
27	Cultivation procedure	Solution Space	1,2,3,4,5 apply	Accepted
28	Disease and Precaution	Solution Space	1,2,3,4,5 apply	Accepted
29	Crop	Solution Space	3 fails	Rejected
30	Html	Solution Space	3 fails	Rejected
31	Discussion Forum	Solution Space	1,2,3,4,5 apply	Rejected
32	Problems	Solution Space	1,2,3,4,5 apply	Accepted
33	Area	Solution Space	3 fails	Rejected
34	Solution	Solution Space	1,2,3,4,5 apply	Accepted
35	News	Solution Space	1,2,3,4,5 apply	Accepted
36	Parser	Solution Space	1,2,3,4,5,6 apply	Accepted

Table 6.2: Characteristic Selection table

I also selected database as class as it will interact with database.

6.4 Attribute Selection:

1) User=name +email address +type +password + designation +area +contact number
2) Common User= cultivation procedures+ diseases and precautions.
3) Market user= market information +trusted users+ not trusted users
4) Parser=websites name+ properties for extracting required information(varies with website because of html format used in each website)
5) Cultivation Procedure=title+ Crop name+ content+ Source
6) Diseases and Precautions =title+ Disease content+ precautions content+ Source
7) News= Source + date+ title + news content
8) Problem=problem title+ problem content +problem asker user name +problem asker user email
9) Solution=Problem+ solution content +solution giver user name +solution giver user email
10) Database=(none)

6.5 Defining Methods:

Here we find all the verbs from the usage scenario and select necessary verbs as a list and define methods from these verbs:

Subject	Verb	Object
Users	Browse	information
Users	Register	to post problem/solution
User registration	Requires	User email address, user type ,password
User	Update	Name, designation ,area, contact number

User	Get	Cultivation procedure, diseases and precautions information
Subject	Verb	Object
Common User	Share	Cultivation procedure, diseases and precautions information
User	Faces	Problem
Users	Mention	Problem in discussion forum
User	Response	Solution of problem
Market User	Inform	Market information to people
Market User	Trusted or not trusted	By people marking them trusted or not trusted
Agriculture news	Update	From some news websites
Weather information	Obtain	From agriculture advisor web application.

Table 6.2: Subject, verb and object table

Selected Methods:

1) User=view News(), view Cultivation Procedure() ,view Diseases and Precautions() , view post and its solution (),view Market Information(), login(), logout(), post problem(), post Solution(),update information(), validate Email(), update Problem(), update Solution(), delete Problem Posted(), delete Solution Posted(),search().
2) Common User=post Diseases And Precautions() ,post Cultivation Procedure() ,update Cultivation Procedure() ,update Diseases and

Precautions() ,delete Cultivation Procedure, delete Diseases and precautions(),trust Market user(),not Trust Market user().

3) Market User=get Total Trusted(),get Total Not Trusted(),display Market Information(),set Market Information, get Market Information(),update Market Information().
4) Parser=get News(), update News(), get Cultivation Procedure() , get Disease And Precautions(),set News(), set Cultivation Procedure(), set Disease And Precautions().
5) Cultivation Procedure= get cultivation procedure content(),get cultivation procedure title(),get crop name(), get cultivation procedure Source(),set cultivation procedure title(),set crop name(),set cultivation procedure Content , set cultivation procedure source().
6) Diseases and precautions= get disease content(),get disease title(), get disease Source(),get precautions(),get crop name(), set crop name(),set precautions().set disease title(),set disease Content , set disease, source().
7) News=get news content (),set news content(),set news title(),set news title, get news source(),set news source(), get news date(), set news date();
8) Problem=get problem content(),get problem title(), get problem asker user name(),get problem asker user email(),set problem content(),set problem title(), set problem asker user name(),set problem asker user email(),get solution content()set solution content().
9) Solution= get problem(), set problem(),get solution content()set solution content(),get solution giver user email(),get solution giver name(),set solution giver user email(),set solution giver name()

10) Database= insert() , delete(), update () , select()

6.6 Class Cards:

1) User	
Attributes	**Methods**
• Name • Email • Password • Type • Designation • Area • Contact -Number	• View_News() • View_Cultivation_Procedure() • View_Diseases_and_Precautions() • View_post() • View_Market_Information() • login() • logout() • Post_problem() • Post_Solution() • Update_information() • Validate_Email() • Update_Problem() • Update_Solution() • Delete_Problem_Posted() • Delete_Solution_Posted().
Responsibility	**Collaborator**
• View News • View Cultivation Procedure • View Diseases and precautions • Log in • Log out • Post Problem • Post Solution • Update /delete problem • Update/delete solution	Parser, News Parser ,Cultivation Procedure Parser ,Diseases and precautions database database database database

• Update account information • Search	database Cultivation Procedure, Diseases and precautions, Parser

2) Common User	
Attributes	**Methods**
10) websites name+ properties for extracting required information(varies with website because of html format used in each website)	• post_Diseases_And_Precautions() • post_Cultivation_Procedure() • update_Cultivation_Procedure() • update_Diseases_and_Precautions() • delete_Cultivation_Procedure, • delete_Diseases_and _precautions() • trust_Market_user() • not_Trust_Market_user()
Responsibility	**Collaborator**
• Post Cultivation procedure • Post Diseases and precautions • Update /delete Cultivation procedure • Update/delete Diseases and precautions • Trust market user • Not trust Market User	Cultivation Procedure Diseases and Precautions Cultivation Procedure,database Diseases and Precautions,database Market user,database Market user,database

3) Market User	
Attributes	**Methods**

• Cultivation Procedures • Diseases and precautions	• Get_Total_Trusted() • Get_Total_Not_Trusted() • Display_Market_Information() • Set_Market_Information • get _Market_Information() • Update_Market_Information();
Responsibility	**Collaborator**
• Display market information • Get total trusted common user • Get total not trusted common users	Common user Common user

4) Parser	
Attributes	**Methods**
• websites name • properties for extracting required information(varies with website because of html format used in each website)	• get_News() • update_News() • get_Cultivation_Procedure() • get_Disease And • precautions() • set_News() • set_Cultivation_Procedure(), • set_Disease_And_Precautions()
Responsibility	**Collaborator**
• Parse website Information	Cultivation Procedure, diseases and precautions, news.

5) Cultivation Procedure	
Attributes	**Methods**

• Title • Crop name • Content • Source	• get_cultivation_procedure_content(), • get_cultivation_procedure_title() • get_cultivation_procedure_Source() • get_crop_name(), • set_crop_name(), • set _cultivation_procedure_title() • set_cultivation_procedure_Content • set_cultivation_procedure_source().
Responsibility	**Collaborator**
• Get Cultivation Procedure title, crop name, content ,source • Set Cultivation Procedure title, crop name, content ,source	User ,Parser, database

6) Diseases and precautions	
Attributes	**Methods**
• Title • Crop name • Disease content • precautions content • Source	• get_disease_content() • get_disease_title(), • get_disease_Source() • get_precautions() • get_crop_name() • set_crop_name() • set_precautions() • set _disease_title() • set_disease_Content • set _disease_source().
Responsibility	**Collaborator**
• Get Diseases title, crop name, content ,source, precaution content • Set Diseases title, crop name, content ,source, precaution content	User ,Parser, database

7) News	
Attributes	**Methods**
• Source • Date • title • news	• get_news_content () • set_news_content() • set_news_title() • set_news_title • get_news_source() • set_news_source() • get_news_date() • set_news_date();
Responsibility	**Collaborator**
• Get News, news title, date • Set information	Parser, database

8) Problem	
Attributes	**Methods**
• problem title • problem content • user name • user email	• Get_problem_content() • Get_problem_title() • Get_user_name() • Get_user_email() • Set_problem_content() • Set_problem_title() • Set_user_name() • Set_user_email()
Responsibility	**Collaborator**
Get Problem detail Get user detail Set Problem detail	User, database User, database

Set user detail	User

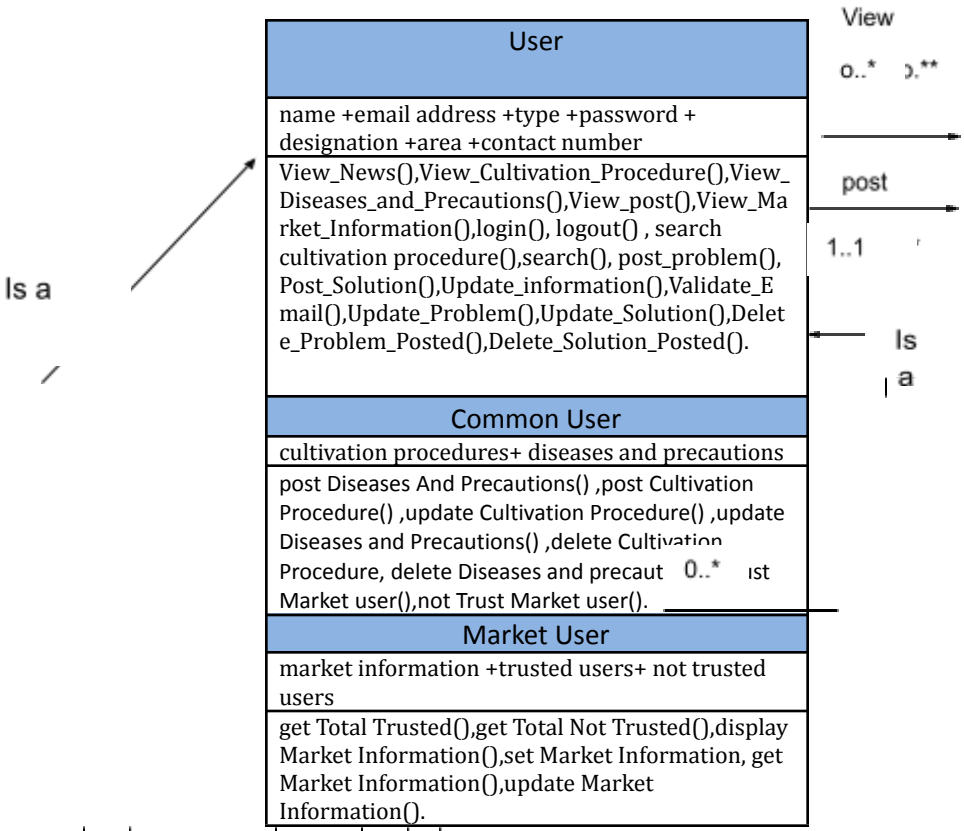
9)Solution	
Attributes	**Methods**
• Problem • solution content • solution giver user name • solution giver user email	• get problem() • set problem() • get solution content() • set solution content() • get solution giver user email() • get solution giver name() • set solution giver user email() • set solution giver name(),
Responsibility	**Collaborator**
Get Problem detail Set Problem detail Get Solution detail Set Solution detail Get user detail Set user detail	User,Problem ,database User,Problem, database User, database User, database

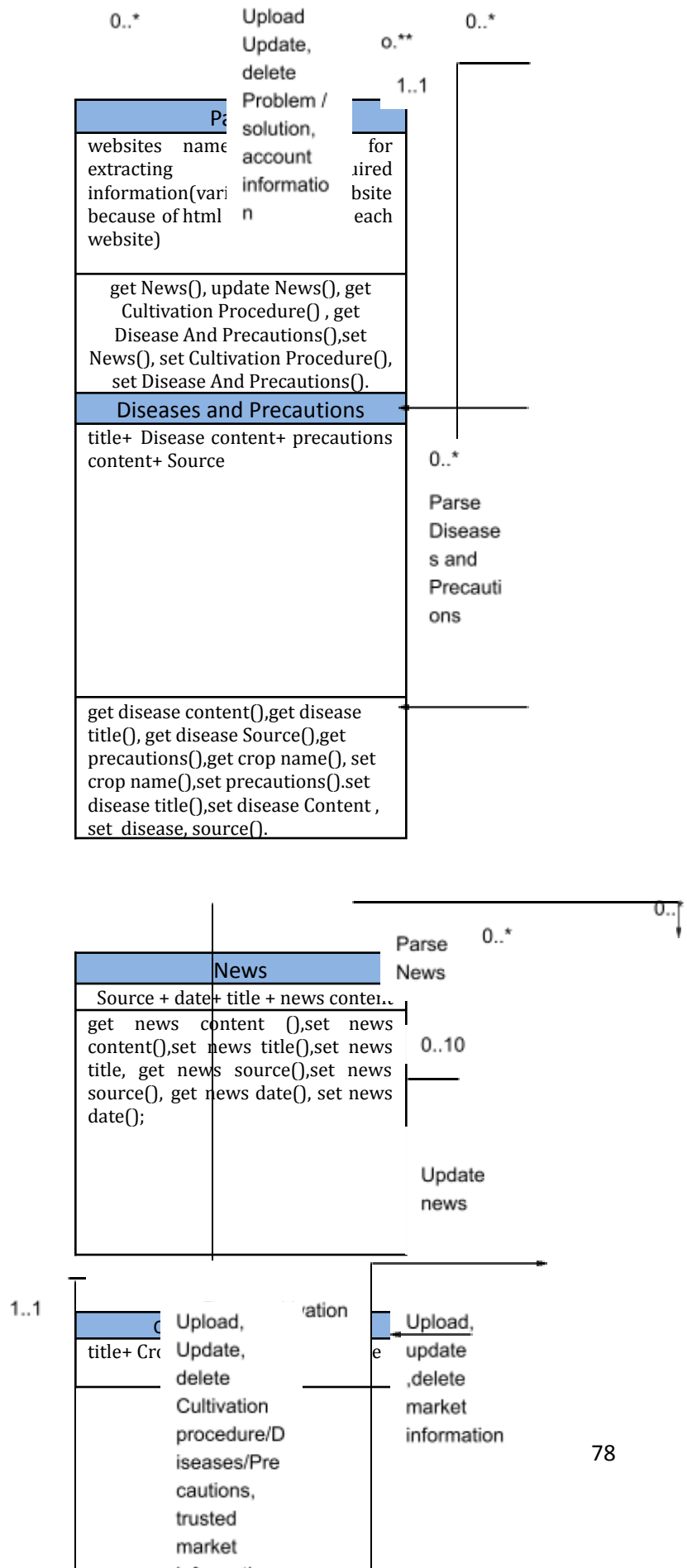
10) Database	
Attributes	**Methods**
	• Insert() • Update() • Delete() • Select()

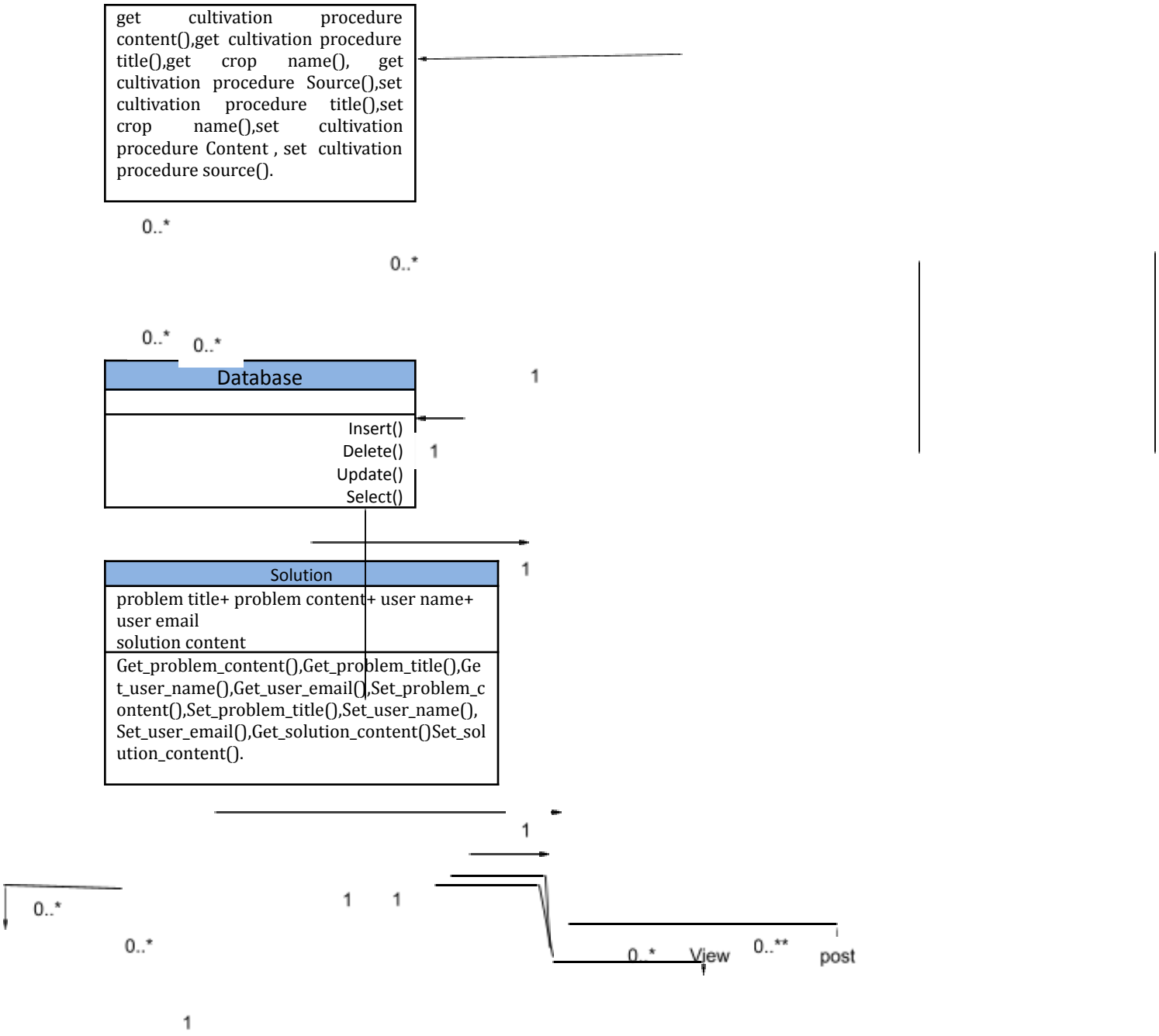
Responsibility	Collaborator
Retrieving Information	Use ,Common user, Market user, news, cultivation procedure, diseases and precaution, Discussion Forum
Updating Information	Use ,Common user, Market user, news, cultivation procedure, diseases and precaution, Discussion Forum
Storing Information	Use ,Common user, Market user, news, cultivation procedure, diseases and precaution, Discussion Forum
Deleting Information	Use ,Common user, Market user, news, cultivation procedure, diseases and precaution, Discussion Forum

Problem
problem title+ problem content+ user name+ user email solution content
Get_problem_content(),Get_problem_title(),Get_user_name(),Get_user_email(),Set_problem_content(),Set_problem_title(),Set_user_name(),Set_user_email(),Get_solution_content()Set_solution_content().

6.7 Class Responsibility Collaborator(CRC) Diagram:




0..*
Upload Update, delete Problem / solution, account informatio n
o.**
0..*
1..1
websites name for extracting uired information(vari bsite because of html each website)
get News(), update News(), get Cultivation Procedure() , get Disease And Precautions(),set News(), set Cultivation Procedure(), set Disease And Precautions().
Diseases and Precautions
title+ Disease content+ precautions content+ Source
0..*
Parse Disease s and Precauti ons
get disease content(),get disease title(), get disease Source(),get precautions(),get crop name(), set crop name(),set precautions().set disease title(),set disease Content , set_disease, source().
0..
0..*
Parse News
News
Source + date+ title + news conte
get news content (),set news content(),set news title(),set news title, get news source(),set news source(), get news date(), set news date();
0..10
Update news
1..1
ation
Upload, Update, delete Cultivation procedure/D iseases/Pre cautions, trusted market
Upload, update ,delete market information


get cultivation procedure content(),get cultivation procedure title(),get crop name(), get cultivation procedure Source(),set cultivation procedure title(),set crop name(),set cultivation procedure Content , set cultivation procedure source().
0..*
0..*
0..*
0..*
Database
Insert()
Delete()
Update()
Select()
1
1
Solution
problem title+ problem content+ user name+ user email
solution content
Get_problem_content(),Get_problem_title(),Get_user_name(),Get_user_email(),Set_problem_content(),Set_problem_title(),Set_user_name(),Set_user_email(),Get_solution_content()Set_solution_content().
1
1
0..*
1
1
0..*
0..*
View
0..**
post
1

Chapter 7

Flow Oriented Model

7.1 Introduction:

Although data flow-oriented modeling is perceived as an outdated technique by some software engineers, it continues to be one of the most widely used requirements analysis notations in use today. It provides additional insight into system requirements and flow.

7.2 Data Flow Diagram:

A DFD shows what kinds of information will be input to and output from the system, where the data will come from and go to, and where the data will be stored. In the figures, data objects are represented by labeled arrows and transformations are represented by circles.

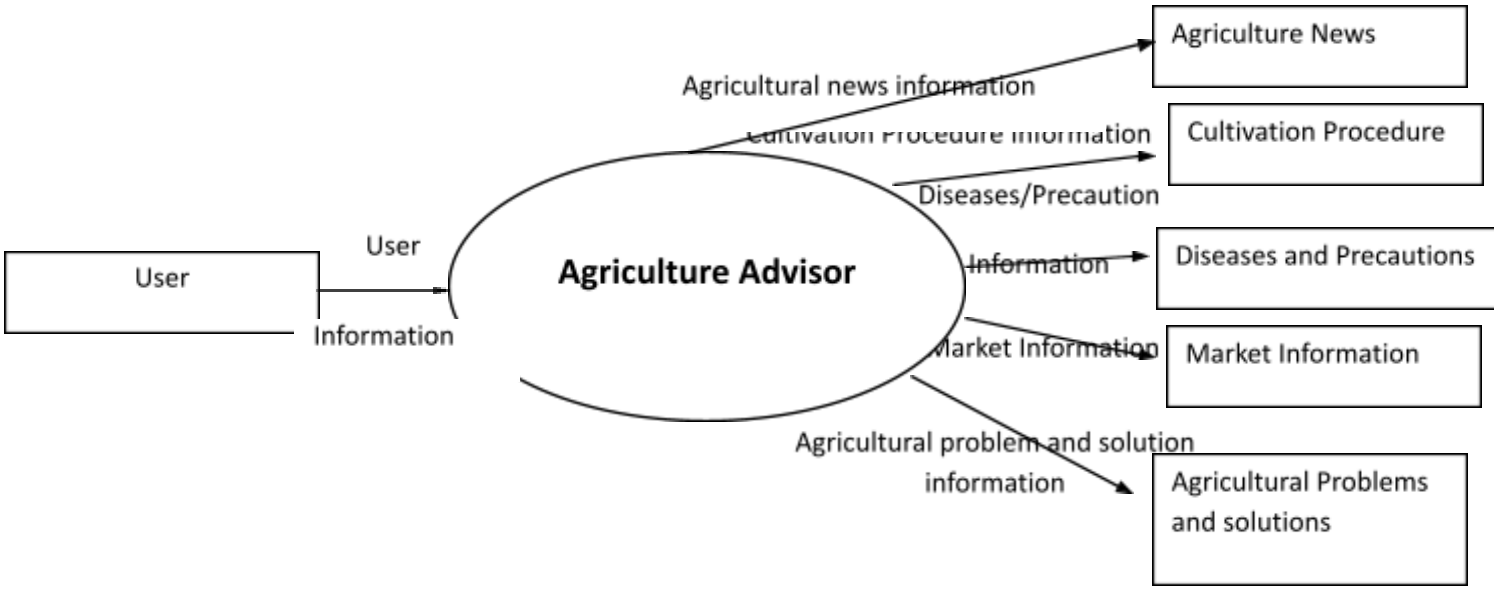


Figure 7.1:Level 0 DFD

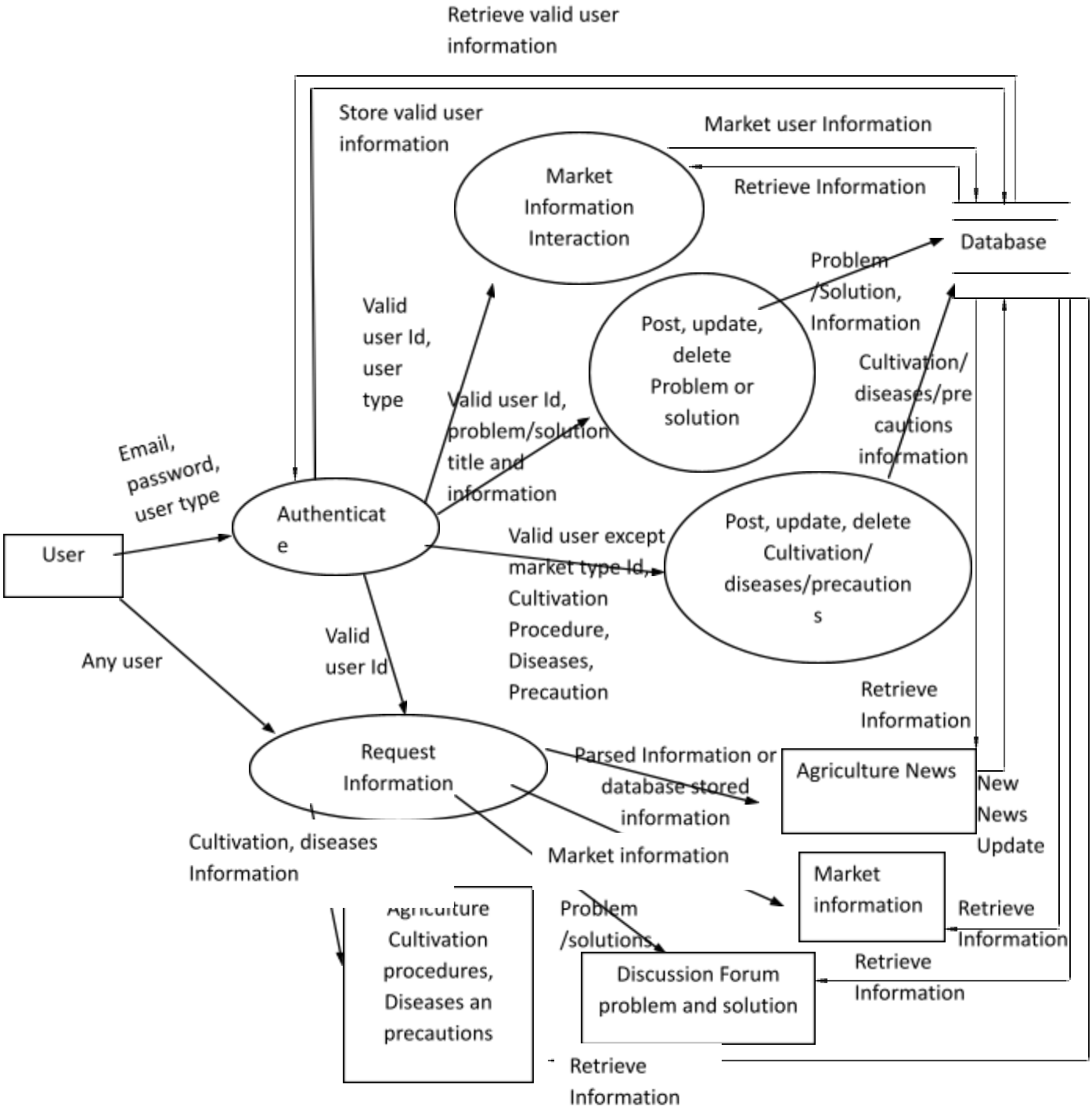


Figure 7.2: Level 1 DFD

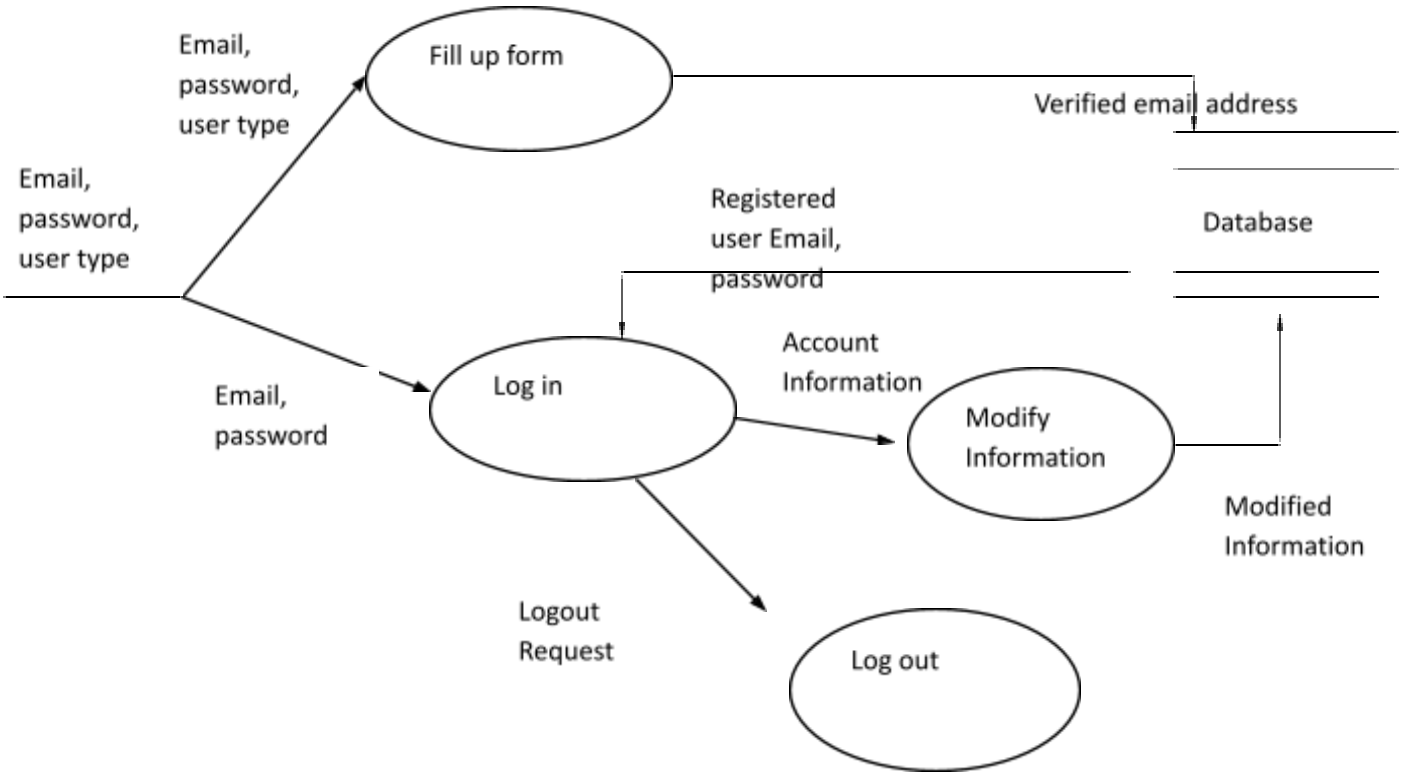


Figure 7.3: Level 2 DFD for authentication

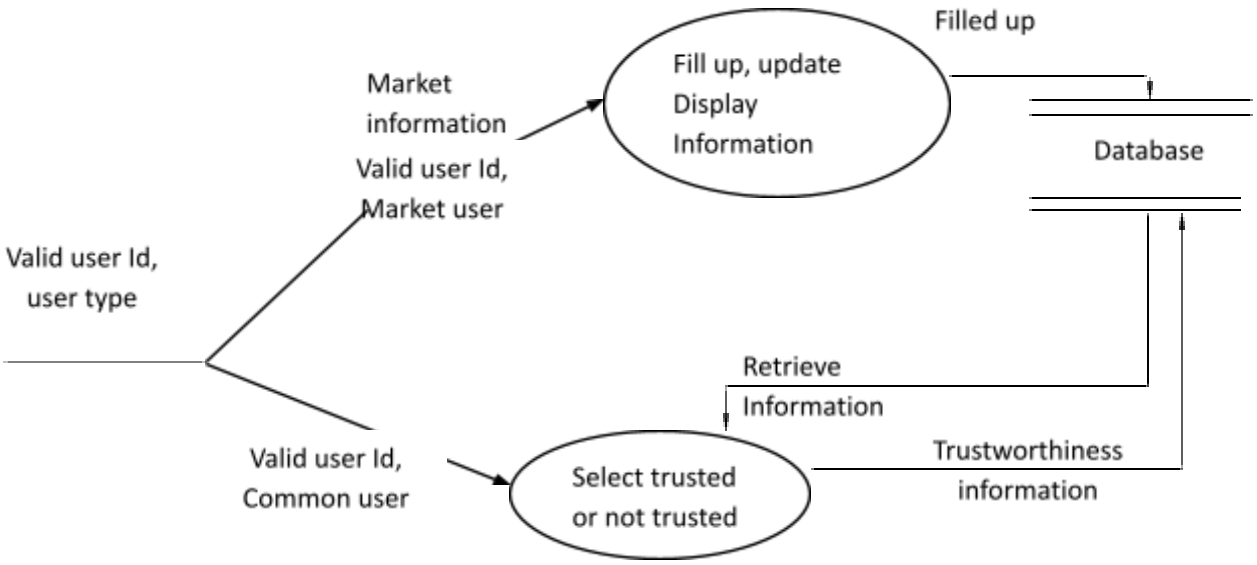


Figure 7.4: Level 2 DFD for Market Information interaction

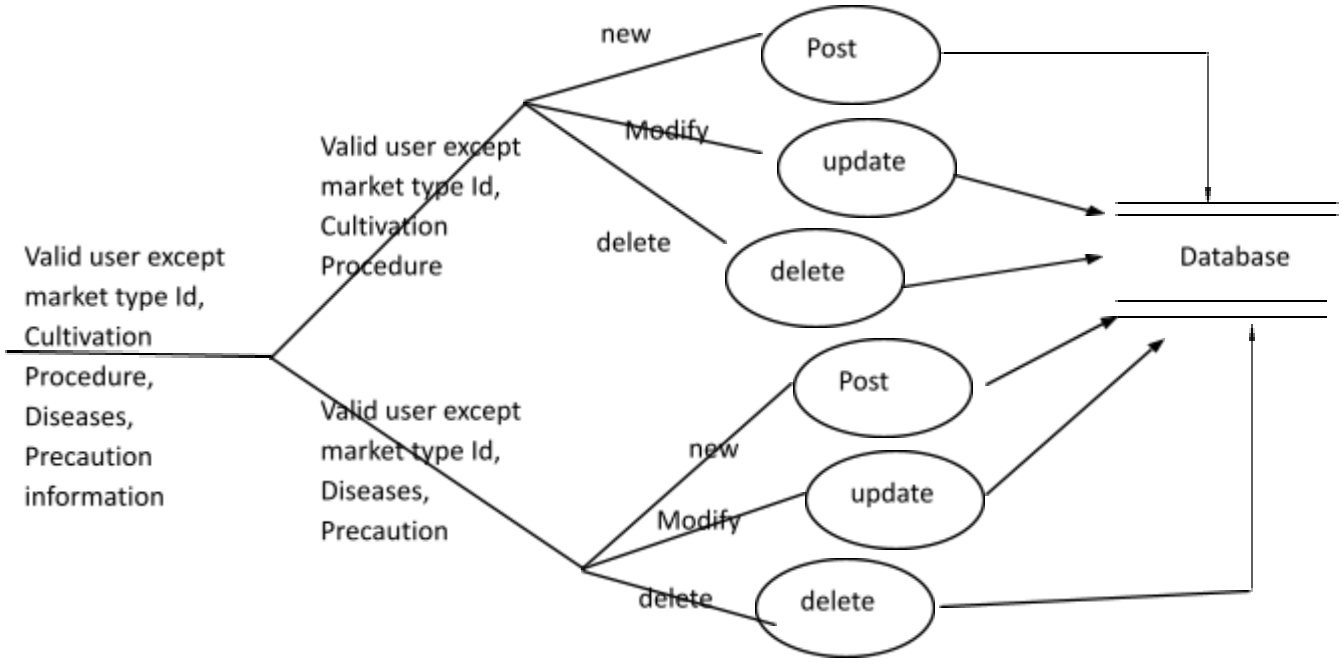


Figure 7.5: Level 2 DFD for Post/delete /update cultivation procedure and diseases and precautions

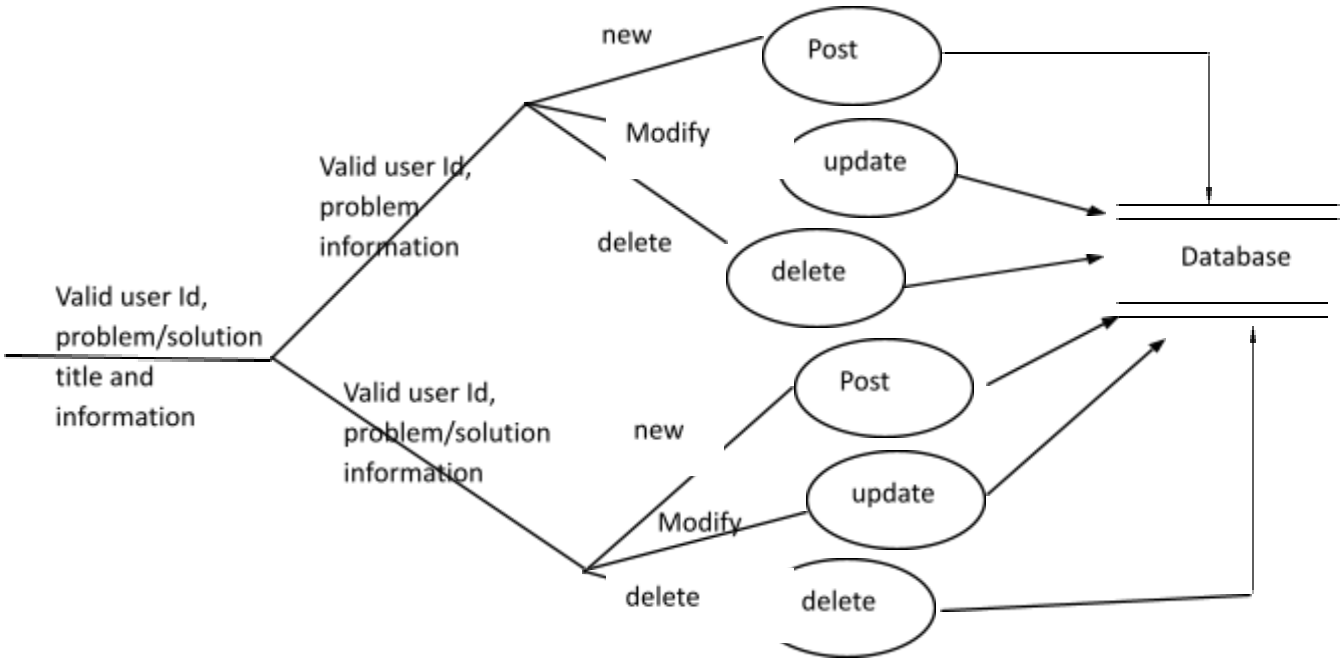


Figure 7.6: Level 2 DFD for Post/delete /update problem and solutions

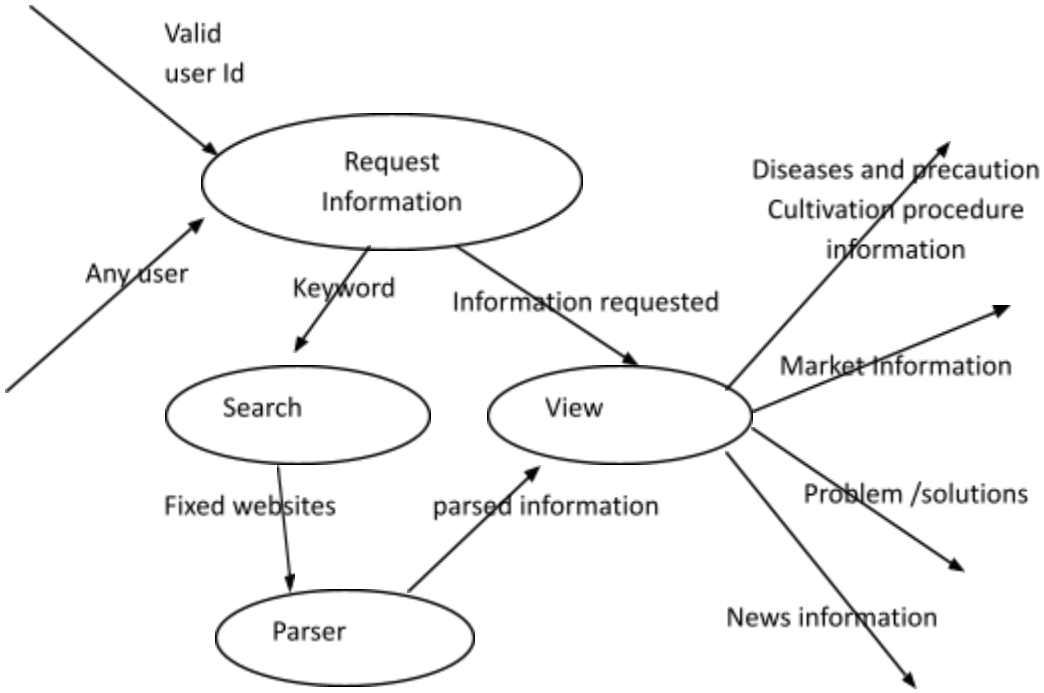


Figure 7.7: Level 2 DFD for Request Information

Chapter 8

Behavioral Model

8.1 Introduction:

Behavior modeling is also referred to as State modeling, State machines and State transition matrix. Behavior modeling is when one thinks of his ideas in terms of states and transitions. This requires both identifying all of the interesting states of being that software or its components are likely to be in. And also, at a high level, abstracting what events are likely to cause software or its components to change between states of being.

8.2 Event Identification:

I have identified following events:

Events	Initiator	Collaborator
Registering	Any unregistered user	User, Common user
Sending Email	Email	Common user
Html parsing	Parser	User, Common user, Market user
Getting Information	User	Cultivation procedure, Diseases and precaution, news, parser
Searching information	User	Cultivation procedure, Diseases and precaution, news, parser
Sharing cultivation procedure, Diseases and precautions information	Common user,	User, Market user
Informing users	Market User	Common User
Mentioning Problem	User	Common user. Market User
Responding	User	Common user. Market User

8.3 State Diagrams:

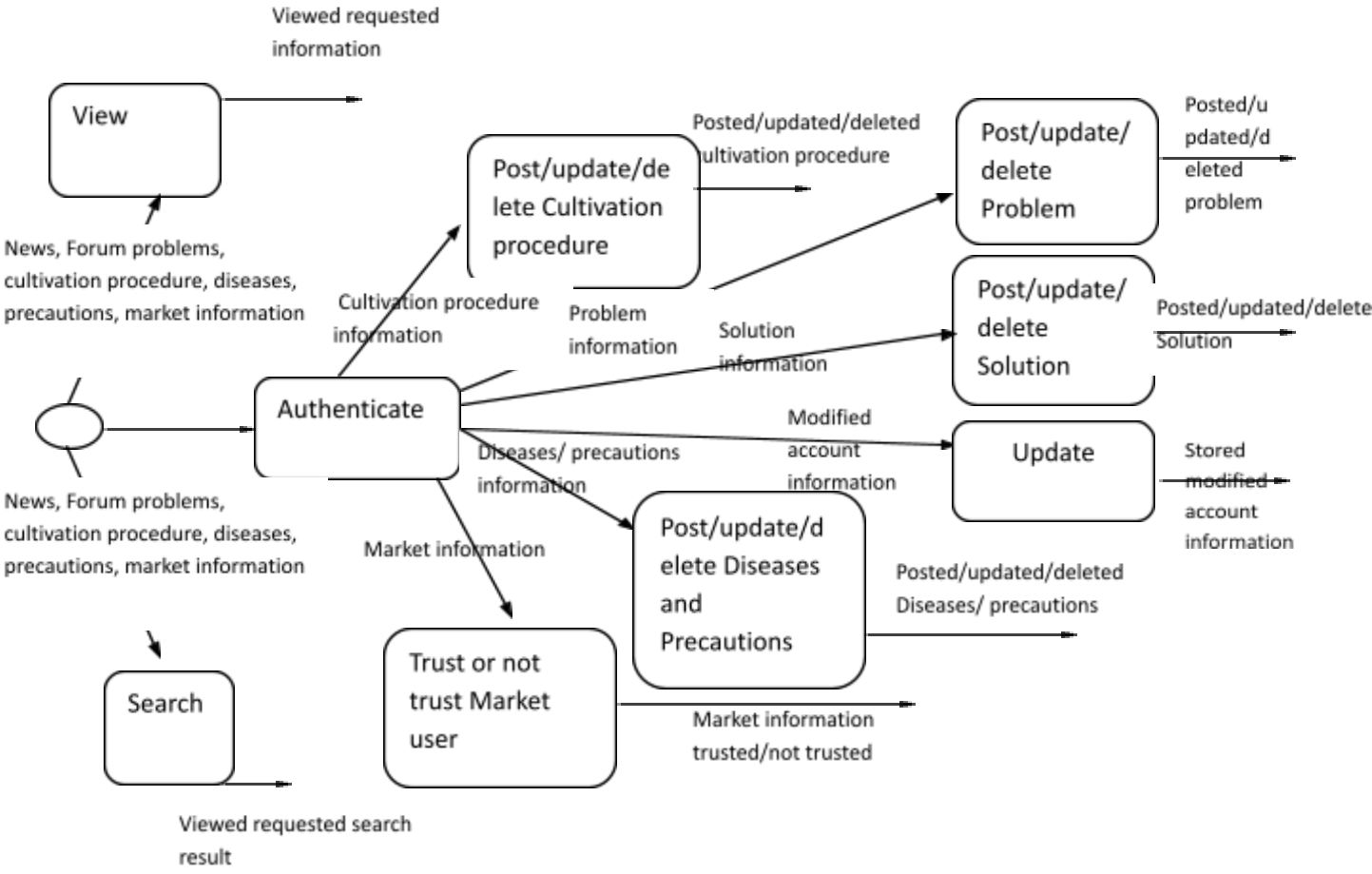


Figure 8.1: State Transition Diagram of Common User

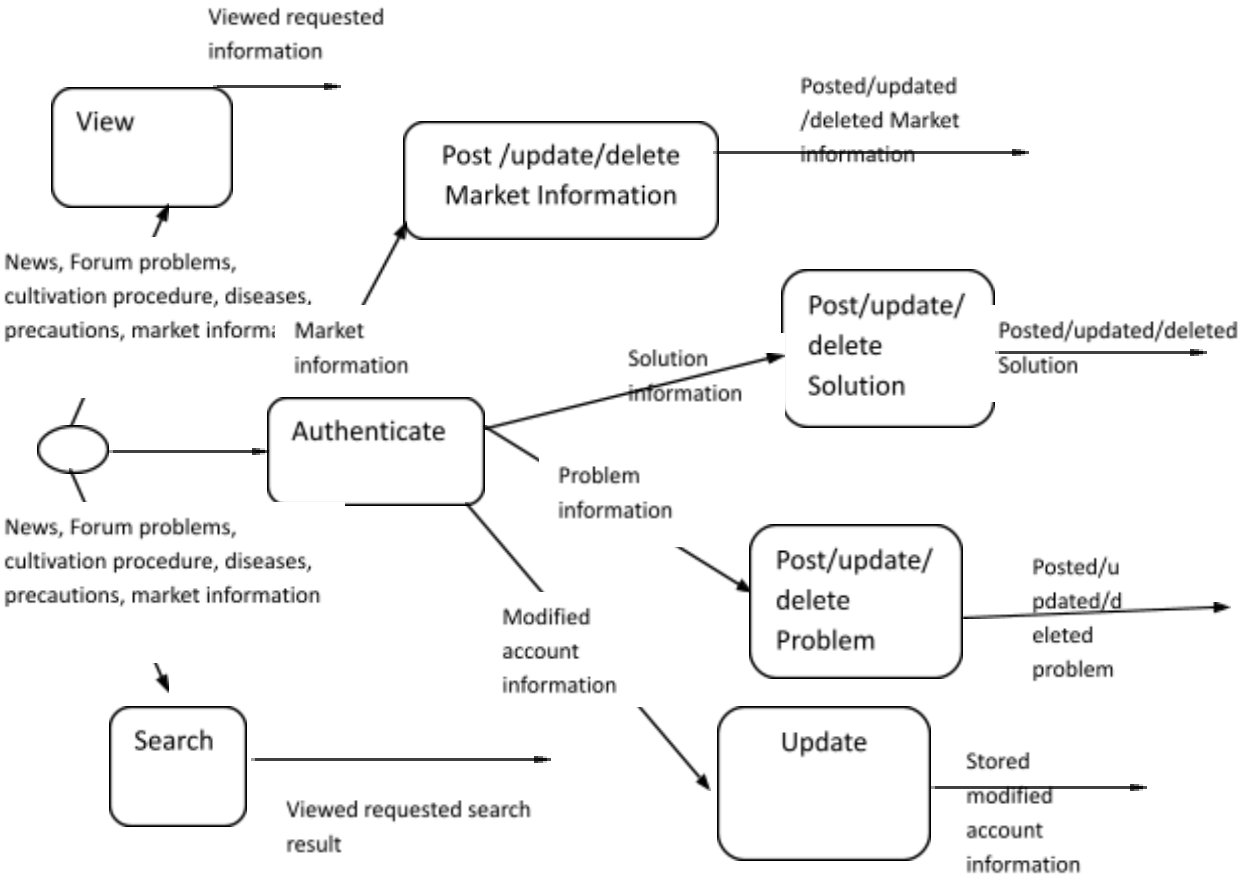


Figure 8.2: State Transition Diagram of Market User

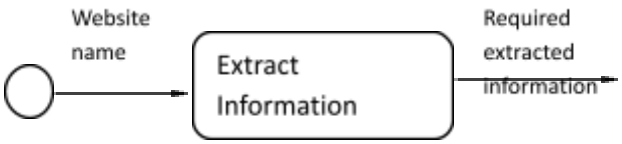


Figure 8.3: State Transition Diagram of Parser

Figure 8.4: State Transition Diagram of News

Figure 8.5: State Transition Diagram of Cultivation Procedure

Figure 8.6: State Transition Diagram of Diseases and Precautions

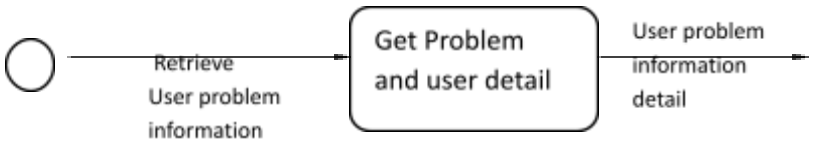


Figure 8.7: State Transition Problem

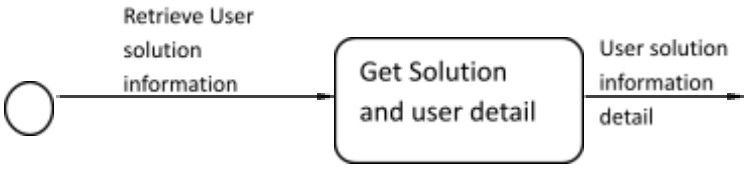


Figure 8.8: State Transition Solution

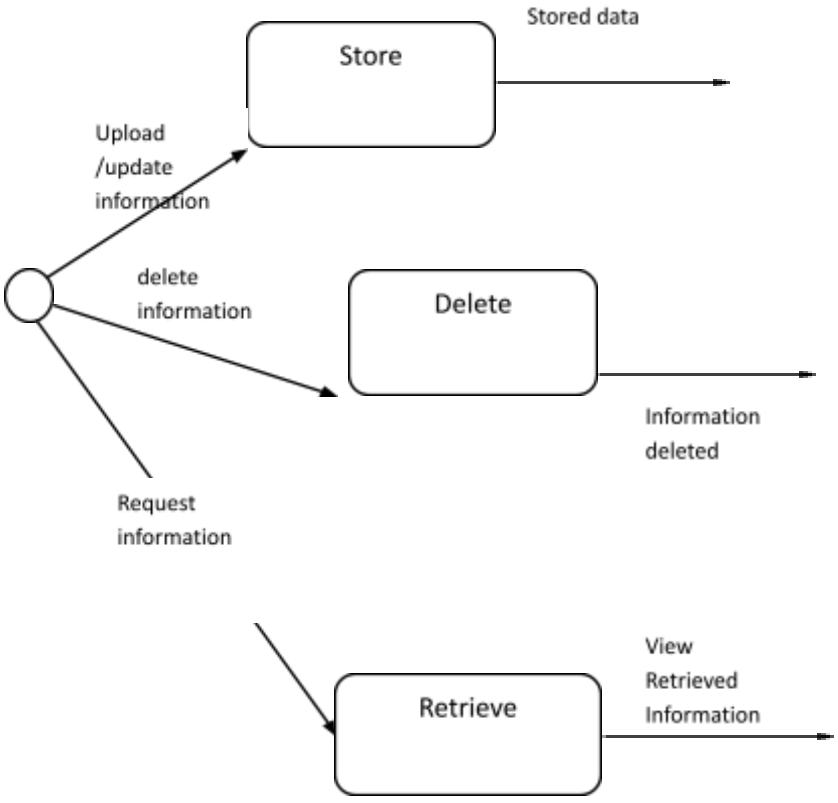
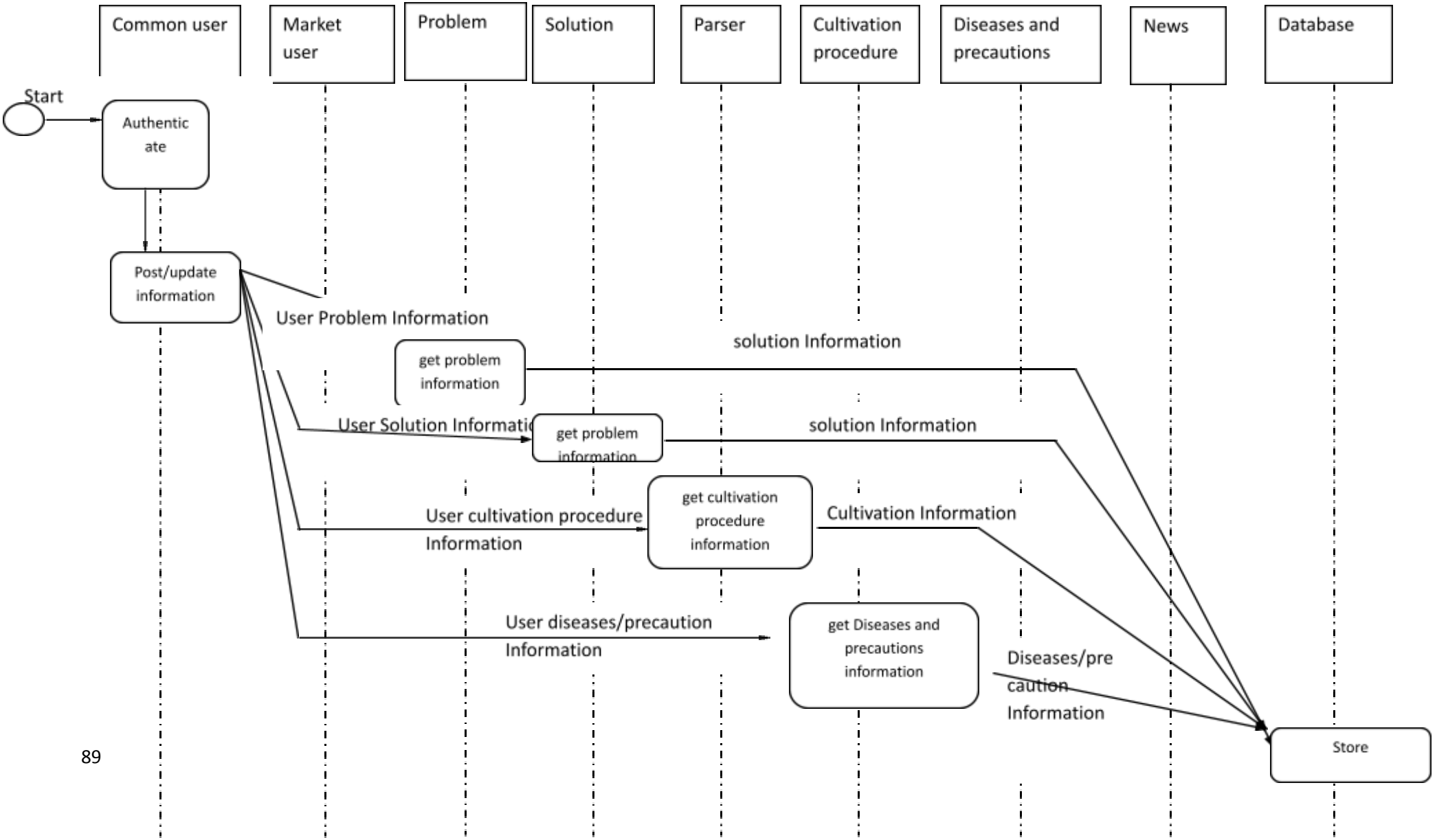
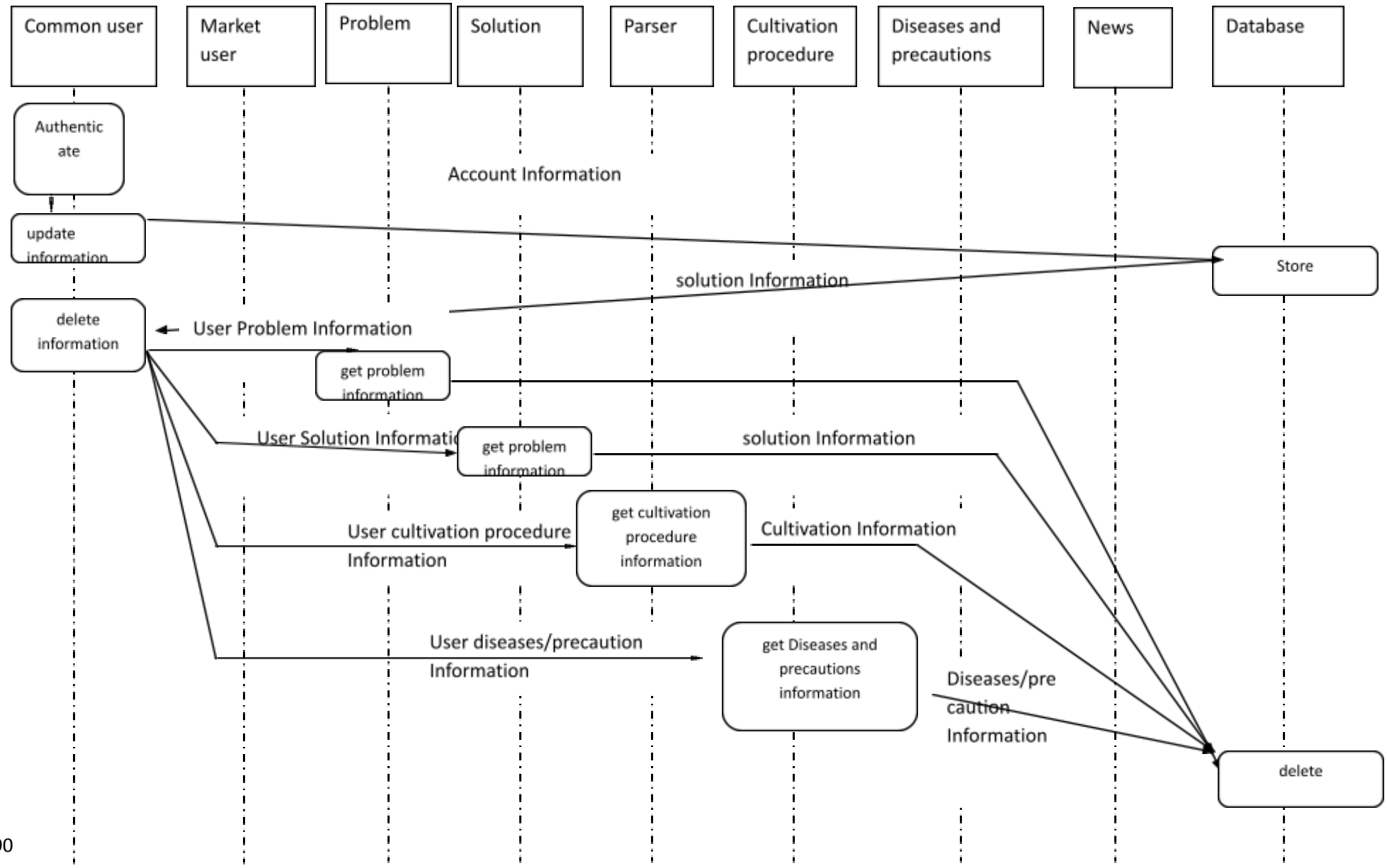
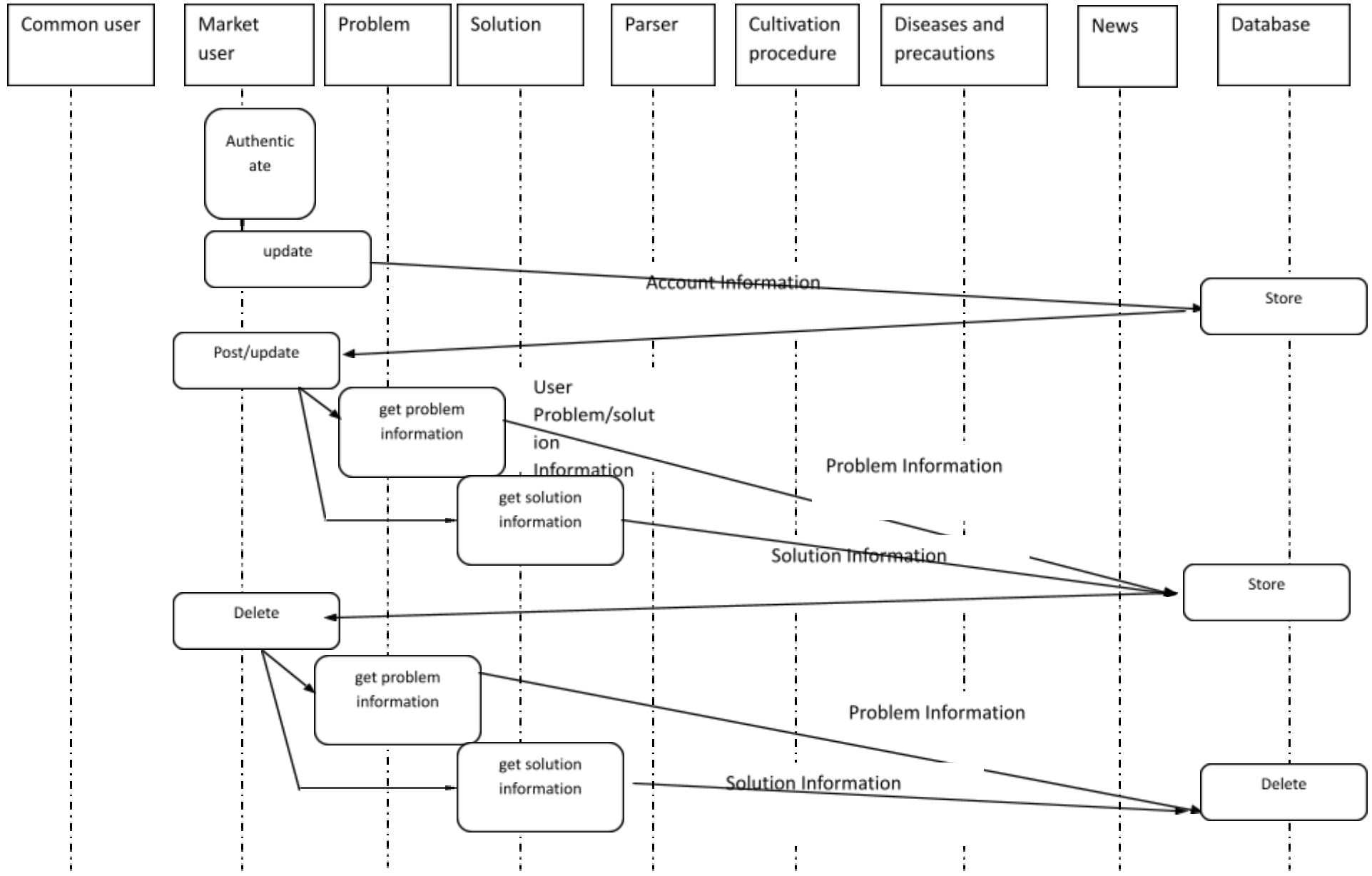


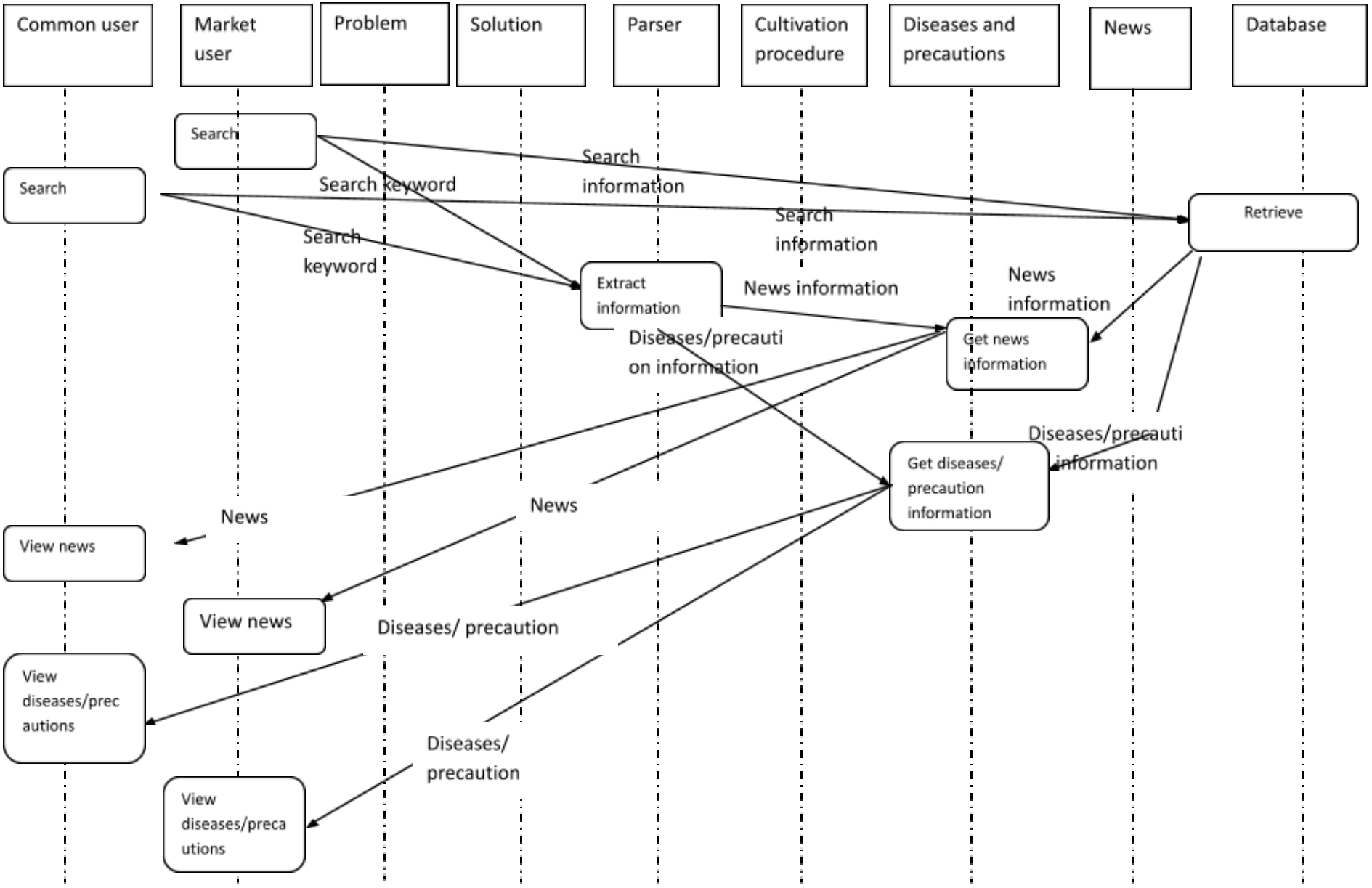
Figure 8.9: State Transition Diagram of Database

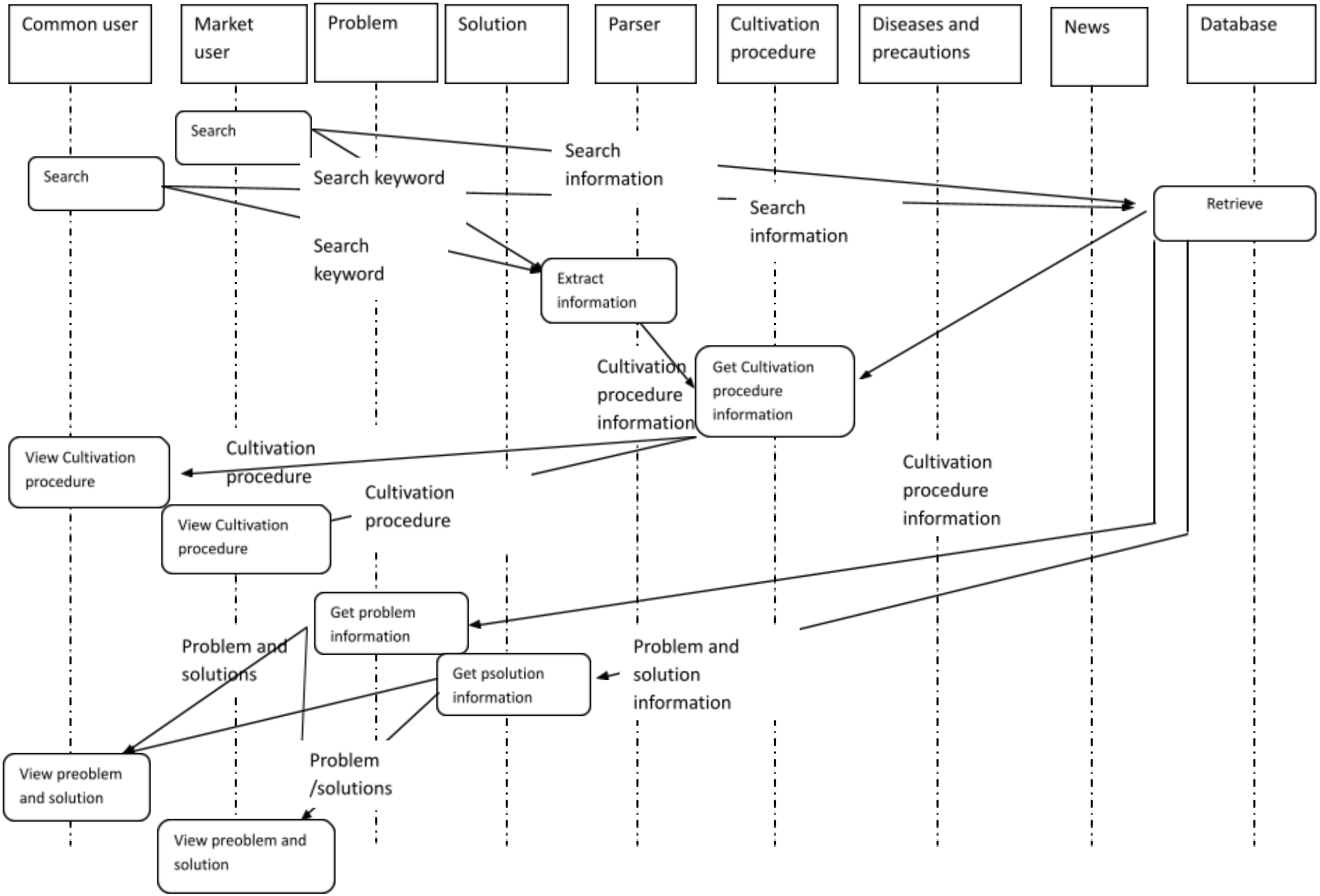
8.4 Sequence Diagram:




Common user
Market user
Problem
Solution
Parser
Cultivation procedure
Diseases and precautions
News
Database
Authentic ate
Account Information
update information
Store
solution Information
delete information
User Problem Information
get problem information
User Solution Informati
get problem information
solution Information
get cultivation procedure information
User cultivation procedure Information
Cultivation Information
User diseases/precaution Information
get Diseases and precautions information
Diseases/pre caution Information
delete


Common user
Market user
Problem
Solution
Parser
Cultivation procedure
Diseases and precautions
News
Database
Authentic ate
update
Account Information
Store
Post/update
get problem information
User Problem/solut ion Information
Problem Information
get solution information
Solution Information
Store
Delete
get problem information
Problem Information
get solution information
Solution Information
Delete


Common user
Market user
Problem
Solution
Parser
Cultivation procedure
Diseases and precautions
News
Database
Search
Search
Search keyword
Search information
Search information
Search keyword
Retrieve
Extract information
News information
News information
Get news information
Diseases/precauti on information
Diseases/precauti information
Get diseases/ precaution information
News
News
View news
View news
Diseases/ precaution
View diseases/prec autions
Diseases/ precaution
View diseases/preca utions


Common user
Market user
Problem
Solution
Parser
Cultivation procedure
Diseases and precautions
News
Database
Search
Search
Search keyword
Search information
Search information
Retrieve
Search keyword
Extract information
Cultivation procedure information
Get Cultivation procedure information
View Cultivation procedure
Cultivation procedure
Cultivation procedure information
View Cultivation procedure
Cultivation procedure
Get problem information
Problem and solutions
Get psolution information
Problem and solution information
View preoblem and solution
Problem /solutions
View preoblem and solution

Conclusion

I am pleased to submit the final SRS report on Agriculture Advisor. From this, the readers will get a clear and easy view of functions Agriculture Advisor. This SRS document can be used effectively to maintain software development cycle. It will be very easy to conduct the whole project using this SRS. Hopefully, this document can also help our junior BSSE batch students. I tried my best to remove all dependencies and make effective and fully designed SRS. I believe that reader will find it in order.

Appendix

References:

1. Pressman, Roger S. Software Engineering: A Practitioner's Approach (7th ed.). Boston, Mass: McGraw-Hill. ISBN 0-07-285318-2.

Links:

1. http://en.prothom-alo.com/
2. http://www.thompson-morgan.com
3. http://agrifarming.in
4. http://www.thedailystar.net/
5. https://www.plantvillage.org/