Nitkians

Farmers Buddy

Software Requirements Specifications

Version 2.0

Team Name:

Nitkians

Team Members:

1) Praveen Jain
2) Veeresh B
3) Karthik Bellur
4) M Krupal

Project Guide:

Dr. Prakash Raghavendra

Revision History

Date	Version	Description	Author
18/0ct2009	1.0	Initial documentation	Veeresh B
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Index and Tables

1) Introduction.....5

1.1) Purpose: 5

1.2) Scope: 5

1.3) Abbreviations: 5

1.4) References: 6

1.5) Technologies: 6

1.6) Overview: 7

2) Overall Description: 7

2.1) Product Perspective: 7

2.2) Software Interface: 8

2.3) Product Function: 8

2.4) User Characteristics: 8

2.5) Constraints: 8

2.6) Use-Case Model Survey: 8

2.7) Architecture diagram: 14

2.8) Database design: 14

2.9) Assumptions and Dependencies: 16

3) Specific Requirements: 17

3.1) Use-Case Reports: 17

4) Concerns, queries and doubts:.....24

1 Introduction

1.1 Purpose:

Farmers buddy is an online portal which aims to provide the farmers and agricultural students of India, with a platform to access and share information regarding the agricultural practices and schemes.

1.2 Scope:

- Individual profile management for all kinds of users with secure access to data 24x7.
- The portal provides farmers access to scientific methods of Salt and fertilizer analysis based on location of his farm.
- It provides for direct communication between the farmer and the local agricultural officer / NGO.
- Besides this the farmer can browse through various equipments for use in his farm offered not only through government schemes but also through private firms.
- Information about various government loan and insurance schemes.
- Information about present crop prices in major Indian markets.
- Private firms and Multinational companies can upload the products offered by them.
- General Public (non-registered) users can also participate in discussion forums.

1.3 Definitions acronyms and Abbreviations:

- **Personal Details**: The details of farmer or student such as Name, address, Phone number, Date of Birth, etc
- **HTML**: Hypertext Mark-up Language is a mark-up language used to design static web pages.

- **EJB**: Enterprise Java Beans.
- **J2EE**: Java 2 Enterprise Edition is a programming platform—part of the Java Platform—for developing and running distributed multitier architecture Java applications, based largely on modular software components running on an application server.
- **DB2**: DB2 Database is the database management system that delivers a flexible and cost-effective database platform to build robust on demand business applications
- **WAS**: Web sphere application server is an application server that runs business applications and supports the J2EE and web services standards.
- **WSAD**: Web sphere studio application developer is a toolkit which is designed for the creation of more complex projects, providing fully dynamic web application utilizing EJB's. This consist of EJB tools , CMP ,data mapping tools & a universal test client that is designed to aid testing of EJB's.
- **HTTP**: Hypertext Transfer Protocol is a transaction oriented client/server protocol between web browser & a Web Server.
- **HTTPS**: Secure Hypertext Transfer Protocol is a HTTP over SSL (secure socket layer).
- **JSP:** Java Server Pages used to create dynamic web-content
- **Admin:** Refers to administrator of the system.

1.4 References:

- IEEE SRS Format.
- IBM SRS Template.
- Problem Definition (Provided by IBM).
- CT Arrington. *Enterprise Java with UML*. OMG Press.
- Grady Booch, James Rumbaugh and Ivar Jacobson. *The Unified Modeling Language Reference Manual, Second Edition*. Addison-Wesley

1.5 Technologies:

- ✓ J2EE: Application Architecture
- ✓ DB2 9 Express : Database
- ✓ WASCE: Web Server
- ✓ Rational : Design Tool
- ✓ AJAX: Webpage Development
- ✓ Eclipse : development tool
- ✓ iBATIS : ORM solution
- ✓ log4j : logging

- ✓ JASPER: Report Generation
- ✓ Struts 2 : J2EE framework

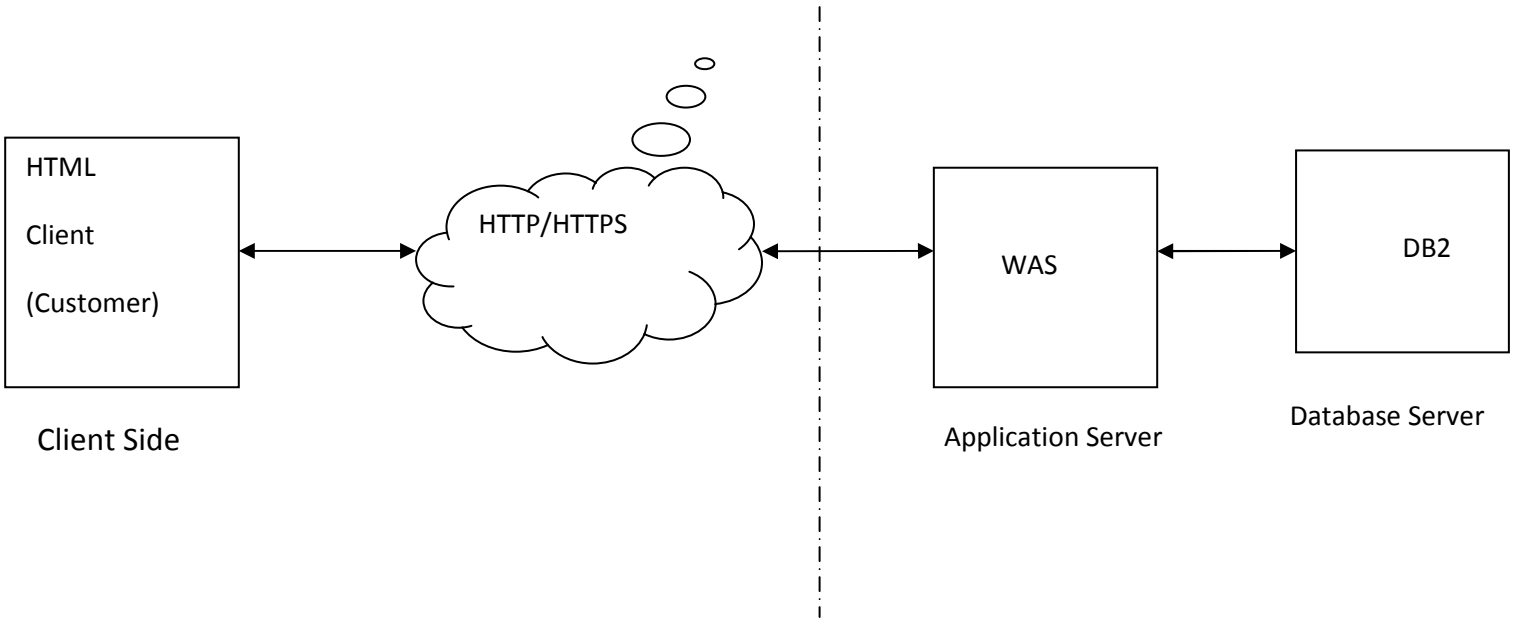
1.6 Overview:

SRS will include two sections:

- Overall Description will describe major components of the system, interconnection and external interfaces.
- Specific Requirements will describe the functions of actors, their role in the system and constraints.

2 Overall Description

2.1 Product Perspective:



Nitkians, 2009

The web pages (HTML) are present to provide the user interface to the end user. Communication between customer and server is provided through HTTP/HTTPS protocols.

On the server side WAS application server is for J2EE and DB2 database server is for storing the information.

2.2 Software Interface:

- End User: Web browser, Operating System(any)
- Web Server: Websphere application server , Operating System(LINUX / Windows)
- Database Server: DB2, Operating system(LINUX / Windows)

2.3 Product Functions:

- Farmer is kept up to date about various products, schemes and market prices
- Farmer, general public or students can contact the local officer for any information
- The students can get real time data regarding agricultural practices.

2.4 User characteristics:

- ✓ All users know how to operate a computer and browse internet.
- ✓ Users have access to computer and internet.
- ✓ Officers and administrators have received sufficient training in uploading data and maintaining system.

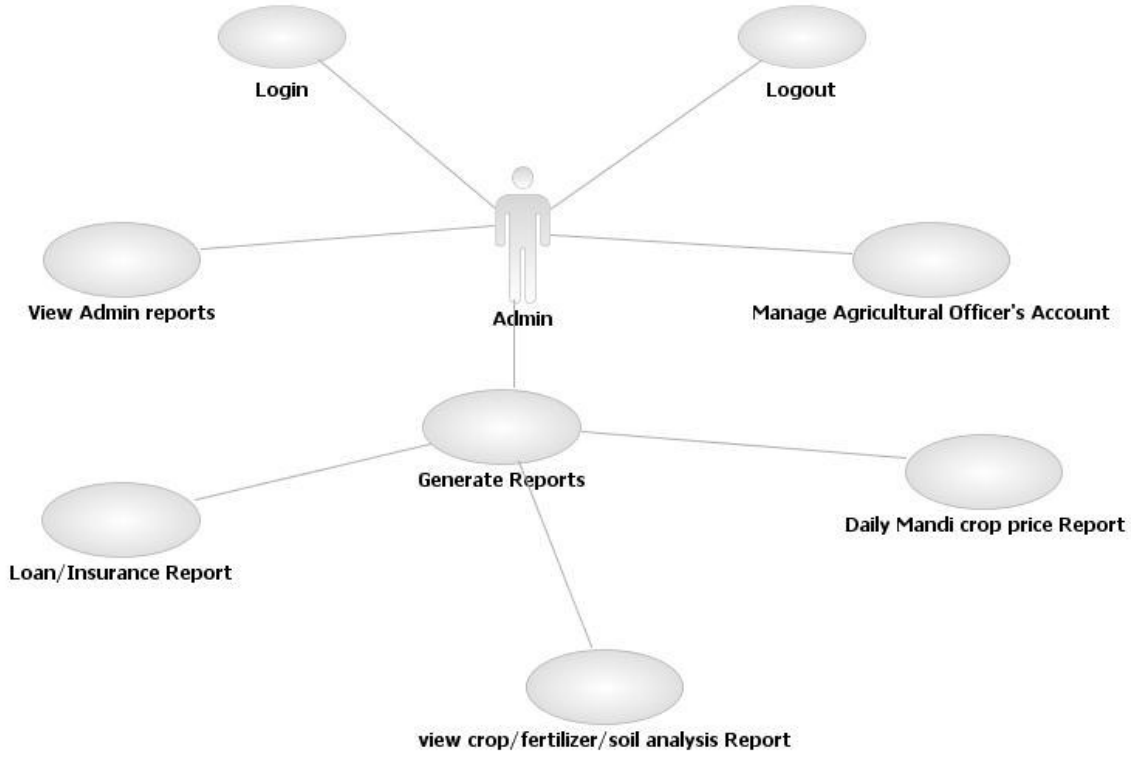
2.5 Constraints:

- ✓ The whole system is on a single server only.
- ✓ Only HTTP / HTTPS connections are supported.
- ✓ The whole system is only for registered members. No guest facility is provided.

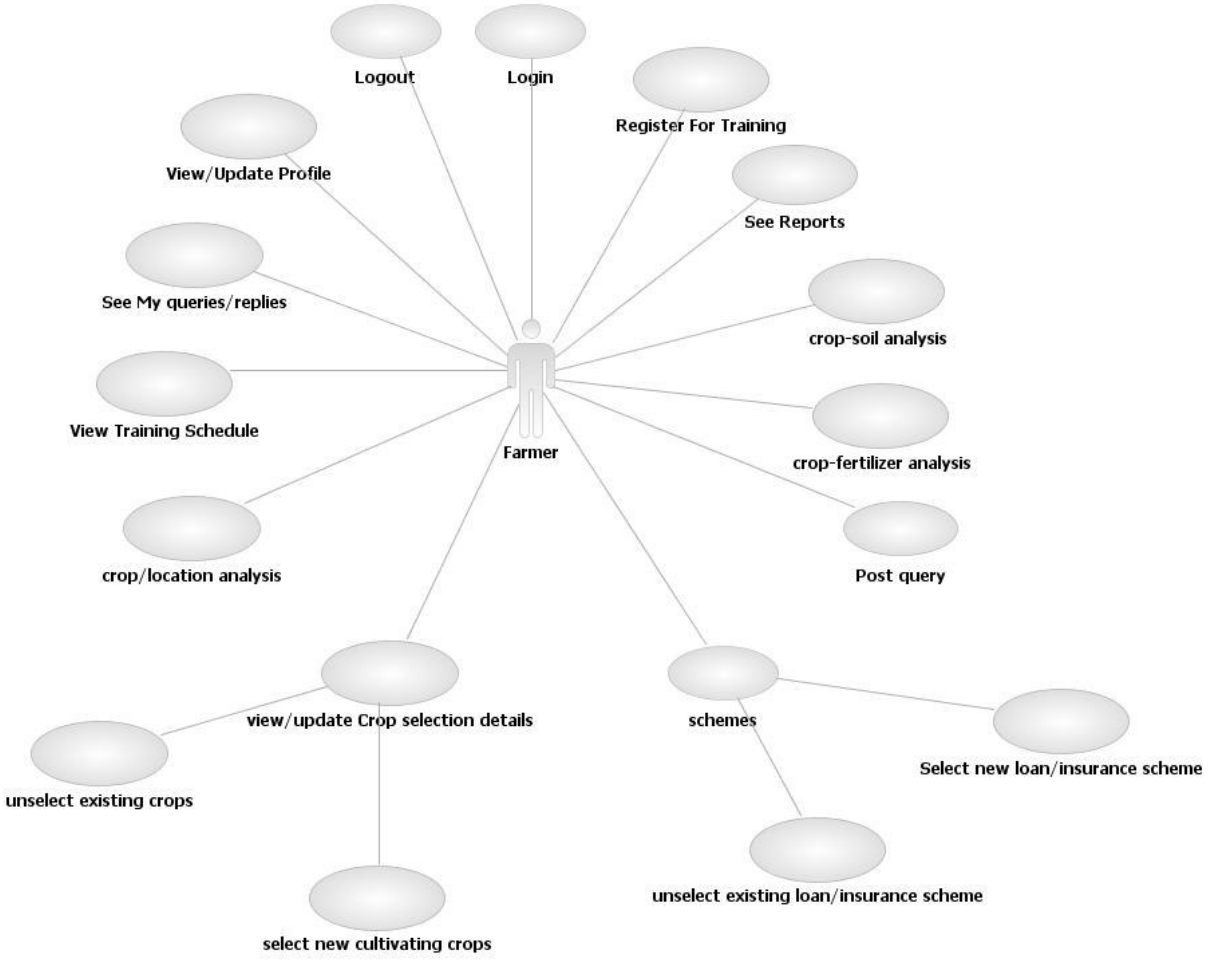
2.6 Use Case Model Survey:

The diagrams attached are the use-cases of various agents acting on the system.

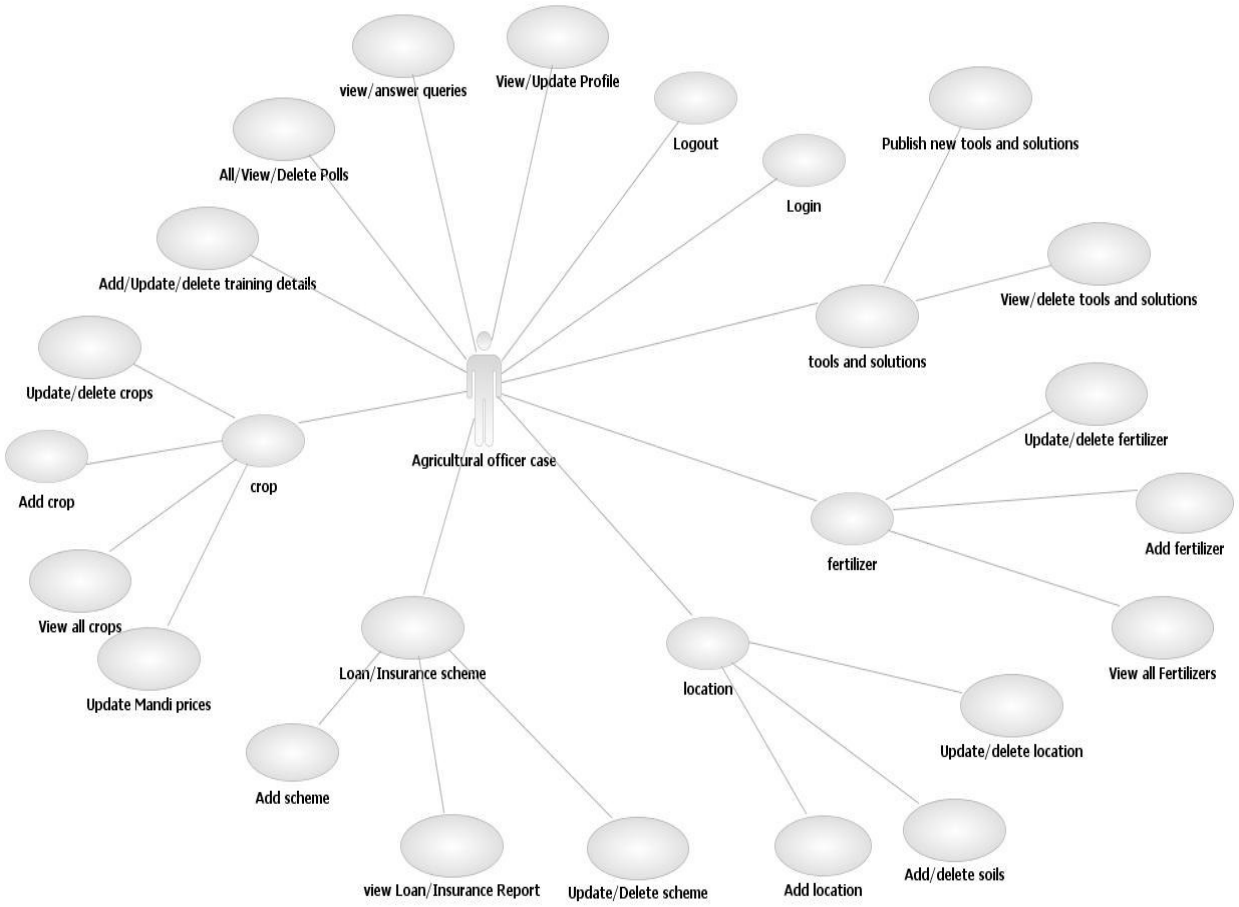
User: Administrator



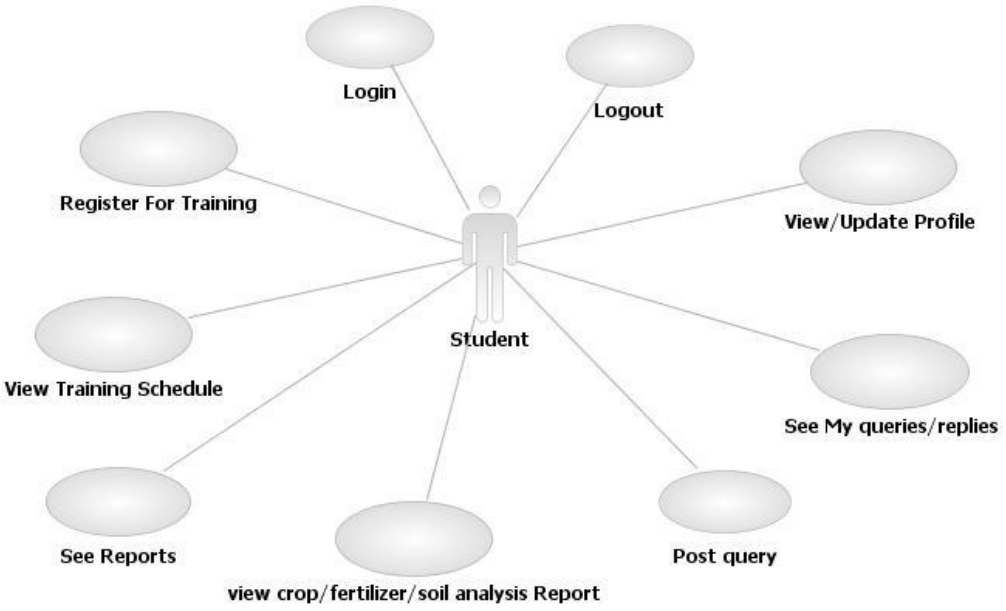
User: Farmer


Logout
Login
Register For Training
View/Update Profile
See Reports
See My queries/replies
crop-soil analysis
View Training Schedule
Farmer
crop-fertilizer analysis
crop/location analysis
Post query
view/update Crop selection details
schemes
Select new loan/insurance scheme
unselect existing crops
unselect existing loan/insurance scheme
select new cultivating crops

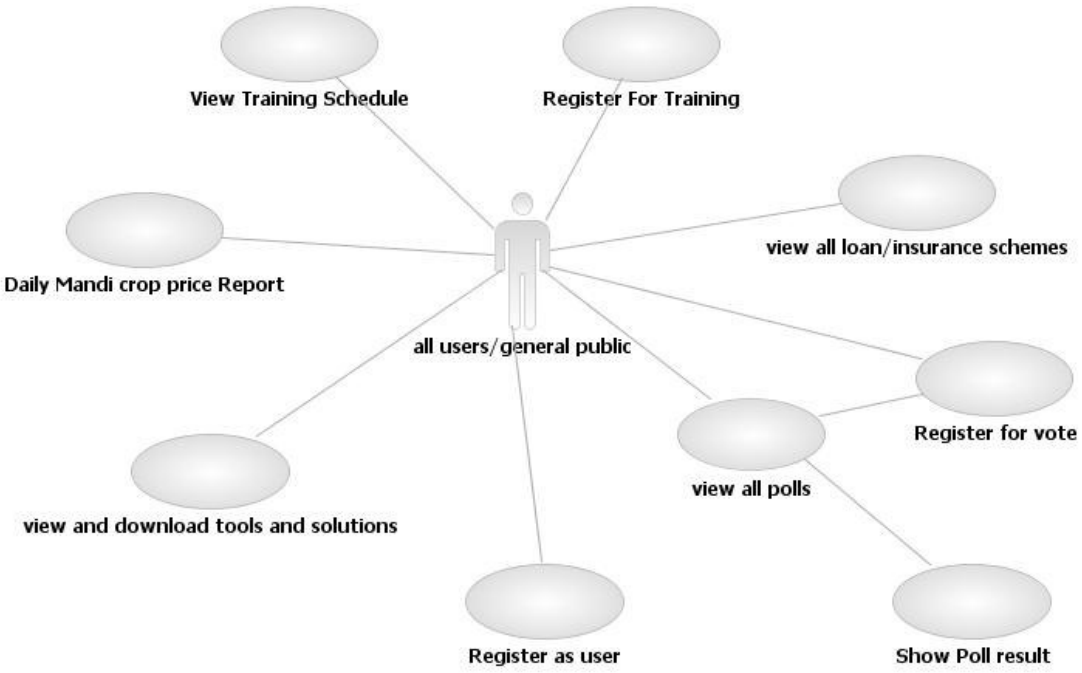
User: Agricultural Officer



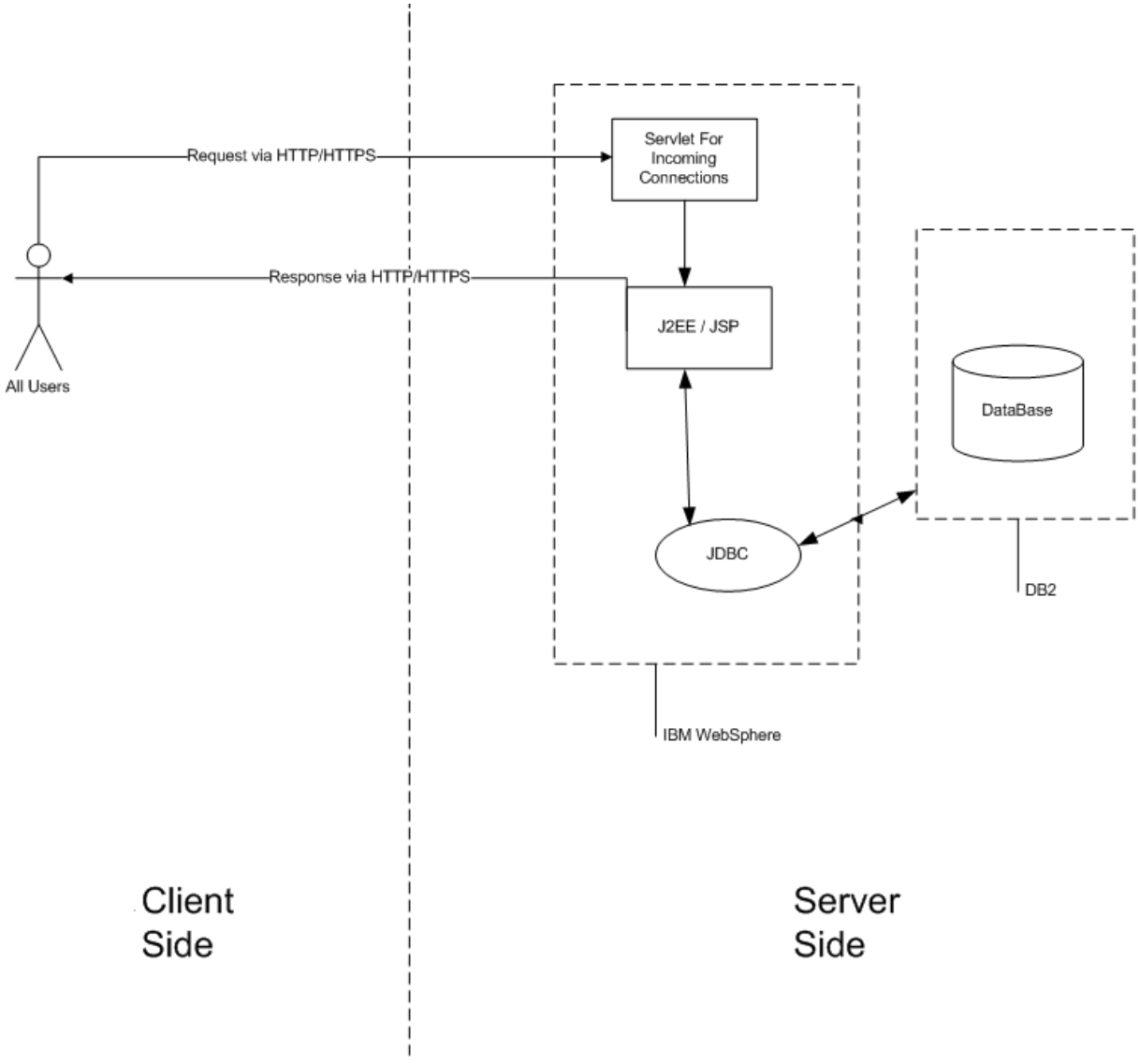
User: Agricultural Students



User: General Public

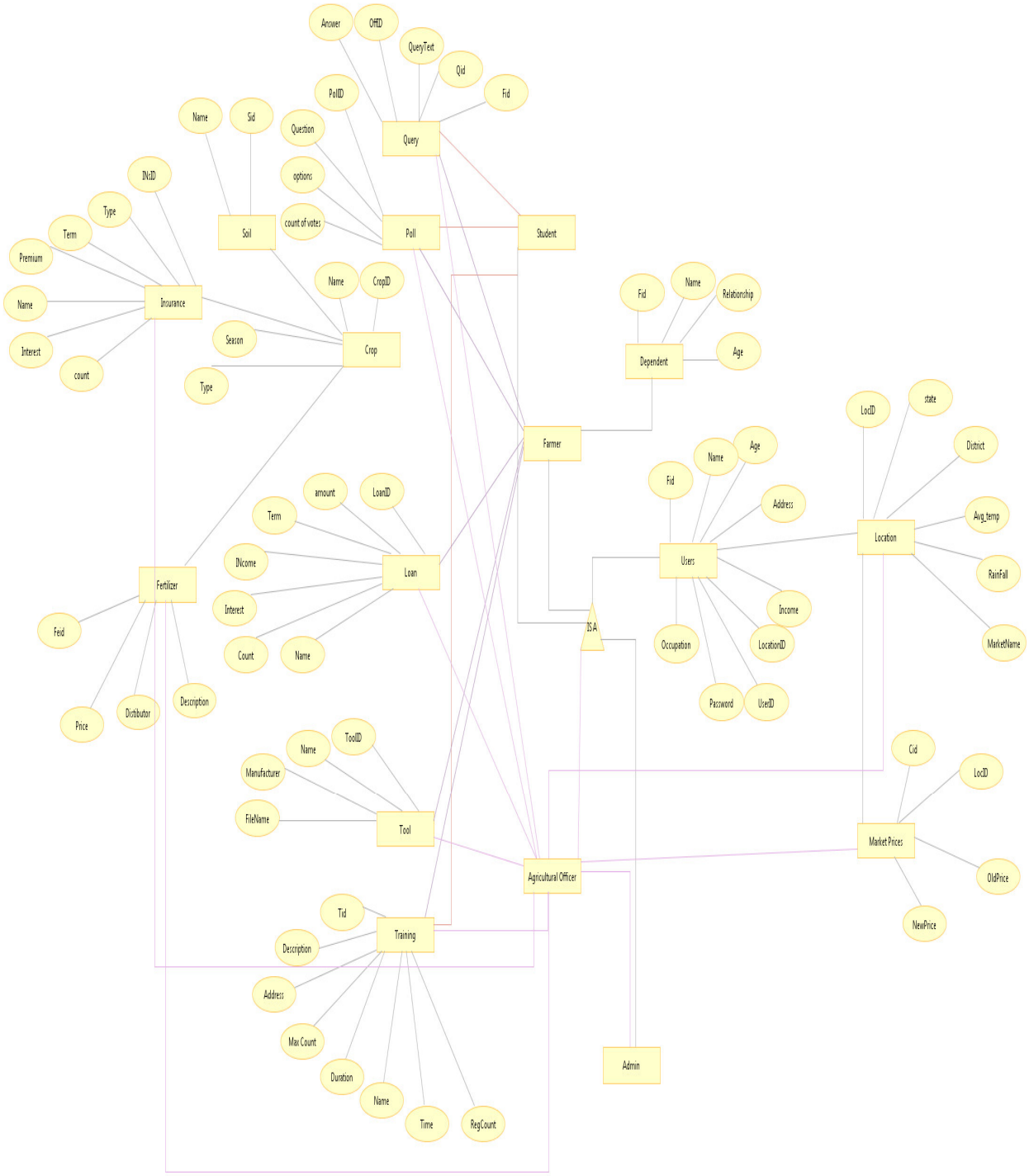


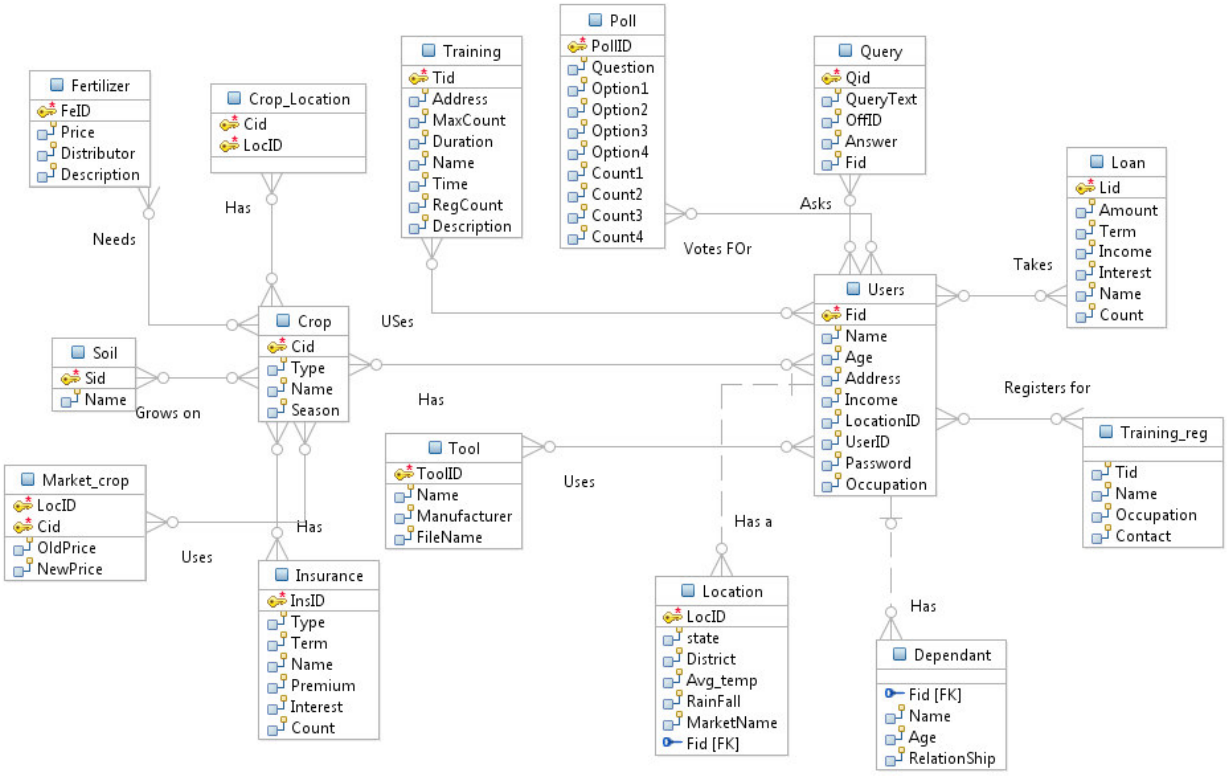
2.7 Architecture Diagram



2.8 Database Design

The Database design diagrams below i.e the ER diagram and Schema diagram are included separately in large and clear format in files :**ER.png** and **Schema.png** respectively


Answer
OffID
QueryText
Qid
Fid
PollID
Query
Name
Sid
Question
options
count of votes
Poll
Soil
Student
INsID
Type
Term
Premium
Insurance
Name
Interest
count
Name
CropID
Season
Crop
Type
Fid
Name
Relationship
Age
Dependent
Farmer
LocID
state
District
Name
Age
Fid
Address
Users
Location
Avg_temp
RainFall
MarketName
Income
LocationID
Occupation
Password
UserID
ISA
amount
LoanID
Term
INcome
Loan
Interest
Count
Name
Fertilizer
Feid
Price
Distributor
Description
ToolID
Name
Manufacturer
FileName
Tool
Cid
LocID
Market Prices
OldPrice
NewPrice
Agricultural Officer
Tid
Training
Description
Address
Max Count
Duration
Name
Time
RegCount
Admin



2.6 assumptions and dependencies:

- The government has the back-end system in place for effective use of the system.
- It assumes the entire range of users to be familiar with general web browsing and computer usage.
- The whole system is on single server and there is single administrator for whole system.

3 Specific Requirements

3.1 Use case reports:

Administrator use case:

Responsible for managing system users, viewing logs, moderating discussion forums and generating reports.

Login:

The administrator needs to login with a username and password at the login page. His privileges will be given by checking the login name with the predefined admin login name.

Report Generation:

The admin can generate various reports : loan, insurance, crop analysis, fertilizer analysis, mandi crop prices, etc.

Preconditions:

- The administrator has logged on.
- System users have already been created and assigned some roles, tasks and permissions.

Normal flow of events:

- The system user or a role will be selected.
- Query will be submitted.

- Relevant output will be displayed (If system user is selected then roles, tasks and permissions assigned to one will be displayed and if role is selected then list of system users assigned to that role will be displayed).

View Logs(Admin reports):

Responsible for checking the logs of different system user for auditing and maintaining the integrity of the system.

Preconditions:

- The administrator has logged on.
- A Formal request to add a location has come to the administrator.

Agricultural officer

Login:

The officer needs to login with a username and password at the login page. His privileges will be given by checking the login name with the role attribute of the user table.

View / change profile details:

The Officer can change his own details such as his name, email-ID, contact details.

Request for reports:

The officer can request for various reports from the admin. The officer must have logged on for this request. He has to clearly specify the contents expected of that report.

Upload training details

Students, farmers and general public can request training. The officer is in charge of getting these training to these users. He can take the training material and upload it on the site.

Upload /update crop, fertilizer, pesticide, scheme details

The officer is also responsible for uploading / updating any new information concerning crop, fertilizer, pesticide or scheme details applicable for his location.

Read and reply queries

Officer is a active participant in the discussion forum. He can reply to queries, post interesting details. A officer can also be a moderator of certain threads. But this privilege is granted only by the admin.

Upload and update location details:

A location basically refers to the area covered by the grassroot office in the hierarchy. New location with corresponding office details and officer account are uploaded OR if they already exists update these details.

Upload and update training details:

The officer is responsible for uploading training details for the end users.

Publish or remove tools and solutions:

The 3rd party vendor solutions are uploaded by the officer for other users.

View/delete/create polls:

The officer can manage polls. But he can't vote on the polls

View all kinds of reports:

The officer can view all kinds of reports. And can also ask for specific reports from the admin

Agricultural Students:

One of the key benefiters from this project are the students. This project gives the students a clear look at the real time information concerning the agricultural industry.

Login:

The student needs to login with a username and password at the login page. His privileges will be given by checking the login name with the role attribute of the user table.

Discussion forum

Student is an active participant in the discussion forum. He can reply to queries, post interesting details, request help or information, contact and discuss with experts, etc.

View / change profile details

The student can change his own details such as his name, email-ID, Institute, contact details.

Access soil details and analysis

The students can access the various soil analysis created for various locations and soil types, to get a clear understanding of existing situation. This information can also be used for educational reports, projects, etc.

Request and access training

Being a benefactor of the system, the student can request training on various topics from experts. He can also access and learn from existing training material. This list of available training is searchable

Access fertilizer and pesticide details

Factors like the actual chemical composition of industry grade fertilizers, their analysis and effects, etc can be accessed by the students.

Access crop's details and analysis

The students can access the various crop analysis created for various locations, soil types, and irrigation facilities to get a clear understanding of existing situation. This information can also be used for educational reports, projects, etc.

General public

The general public consist of users who are not registered either as farmer or student or vendor. They can be hobbyist plant lovers or merchants who want the hands on information about current agricultural scenario or any other person.

Login

The student needs to login with a username and password at the login page. His privileges will be given by checking the login name with the role attribute of the user table.

Access training

The public member can access the existing training material already available. This list of available training is searchable

Polls:

The general users can view and vote in polls.

Mandi prices:

The users can view reports on mandi prices of various locations.

Farmer

Login

The farmer needs to login with a username and password at the login page. His privileges will be given by checking the login name with the role attribute of the user table.

Access training

Farmer can access the existing training material already available. He must register for such training.

View / change profile details

The Farmer can change his own details such as his name, email-ID, and contact details. The farmer can also add dependents.

Access soil's details and analysis

The farmer can access all kinds of analysis and information on soil. This is dependent on his location. This helps him to make critical decisions about crops to sow, fertilizers to grow and irrigation facilities. This information is given to farmer in form of reports

Access Tools and solutions details

The farmer can access the details of various equipment available for farm usage. This will help him to decide the crops or strategies for his farm by taking into account his financial capability and farm type.

Access information on govt schemes

This is critical information for a farmer. Government constantly supports farmers through schemes. Such schemes as loans, subsidies are accessible.

Upload current farm information

This is for the farmer to upload the kinds of farms he has and their details. He may have many farms, in various locations.

Access fertilizer and pesticide details

The farmer needs to know the fertilizers needed for a crop. This use case is used to retrieve the information of fertilizer's type, applicability to his crop, etc.

Request training

The whole agricultural is centred around farmer. The farmer can ask for training in particular field from various experts.

Access crops details and analysis

This will give the general information on the crop. Besides this it gives the current mandi market price of this crop and the type of the crop. The analysis of crop will tell the farmer if it is suitable in his farm and the risks of that crop.