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**Nitkians**

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**Farmers Buddy**

**Software Requirements Specifications**

Version 1.0

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Nitkians

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**Project Guide:**

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## Revision History

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Date	Version	Description	Author
18/Oct2009	1.0	Initial documentation	Veeresh B

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# 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.

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- **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

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

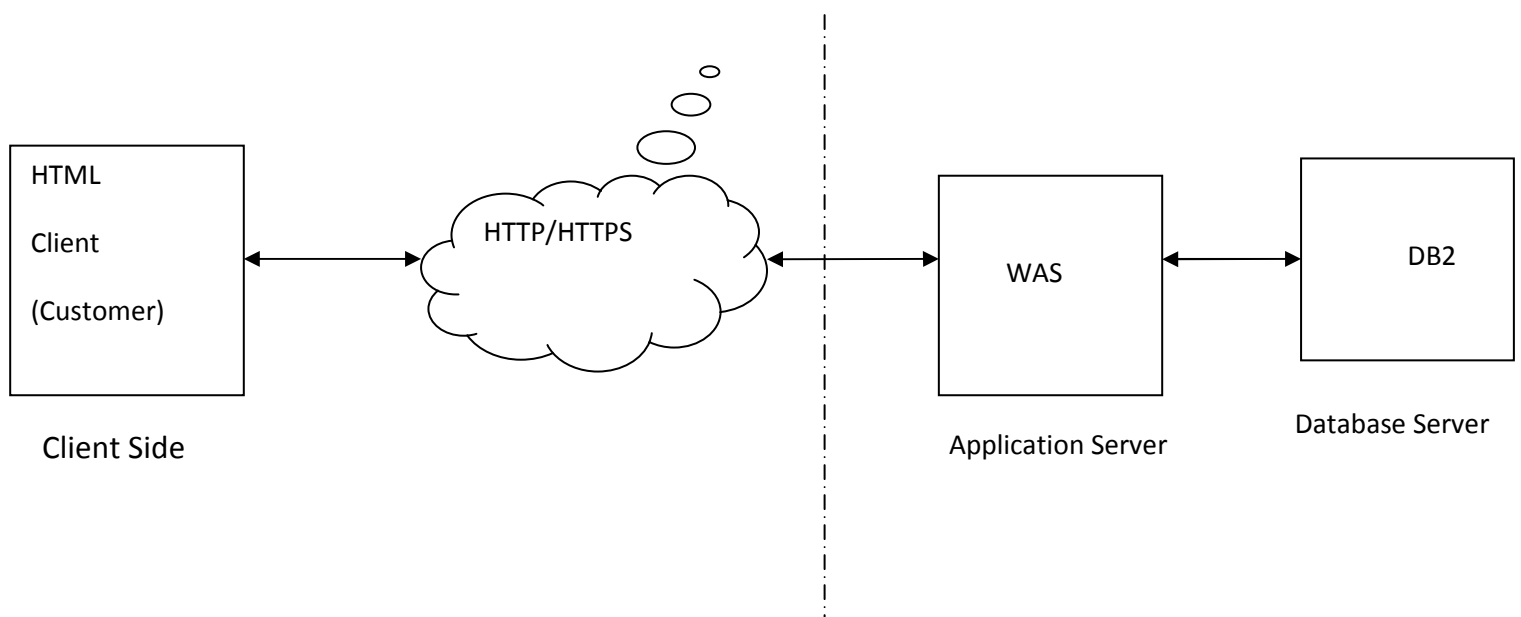
## 1.6 Overview:

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:



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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.

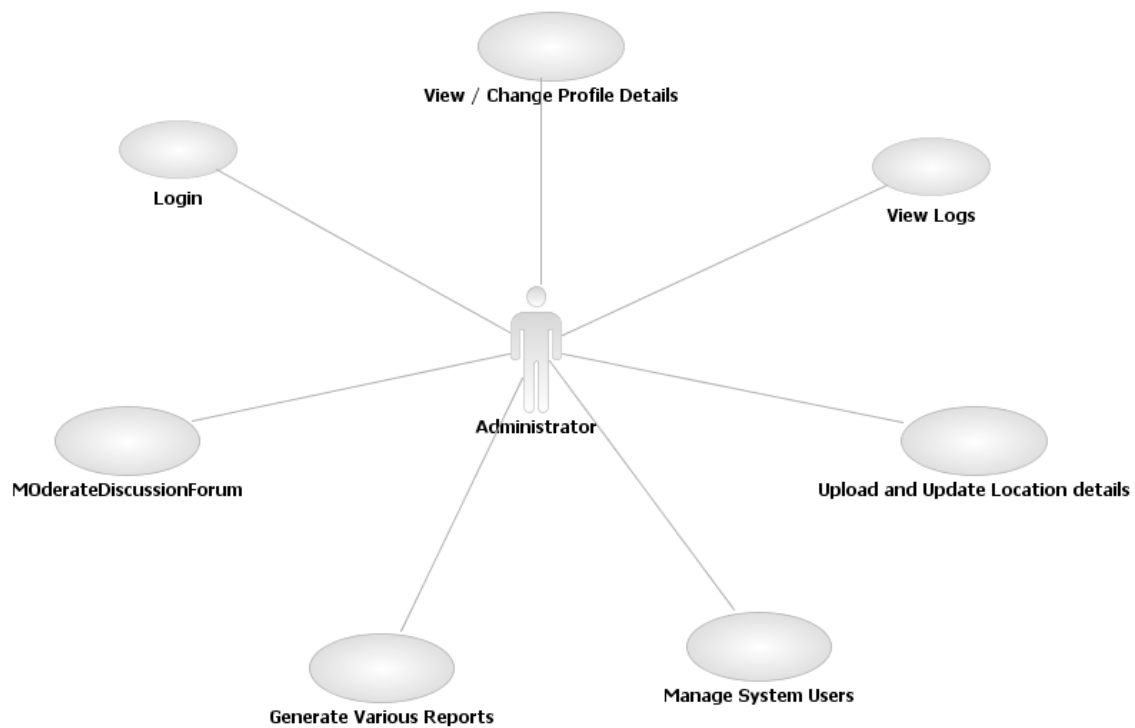
## 2.6 Use Case Model Survey:

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



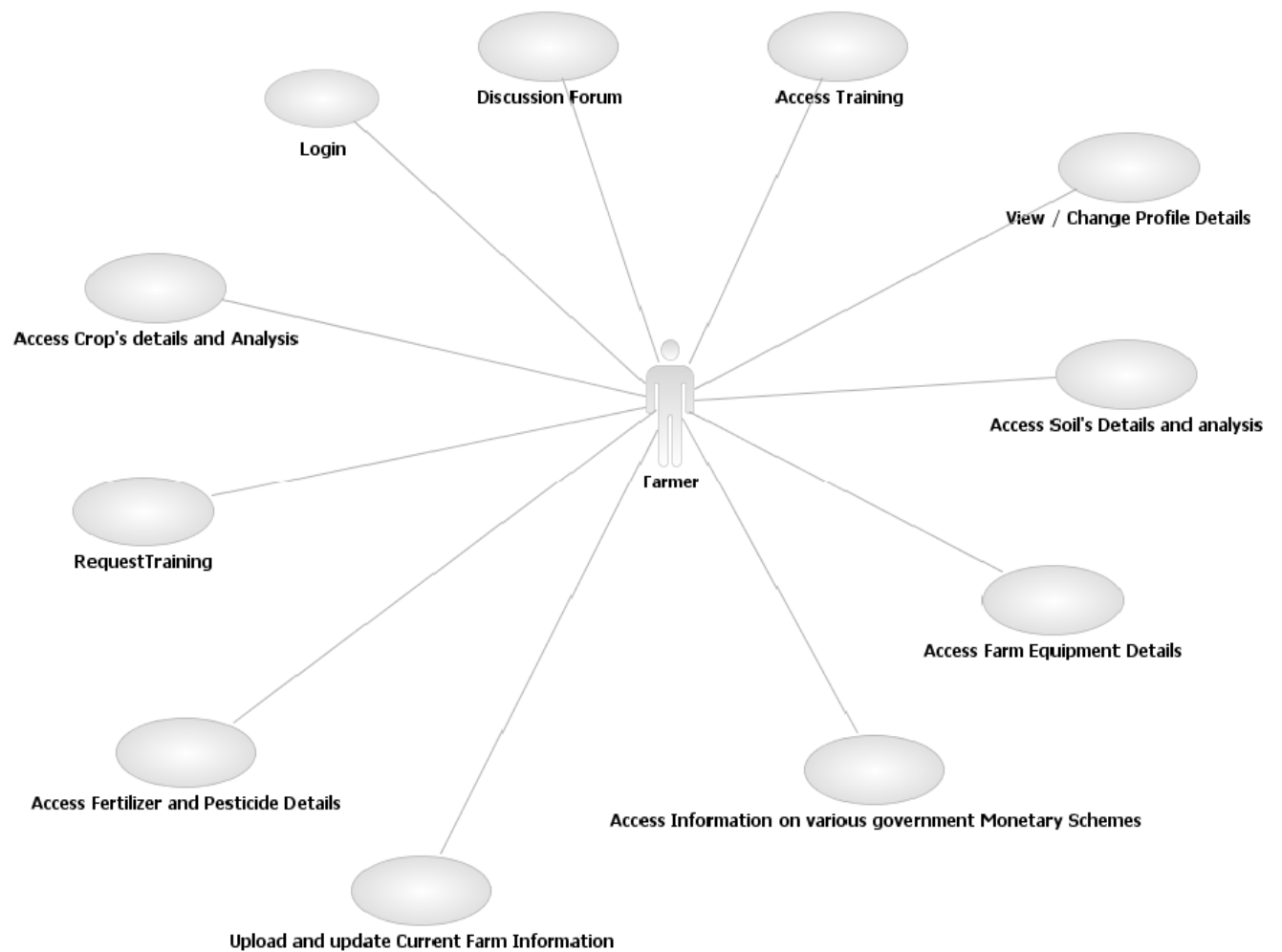
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### User: Administrator



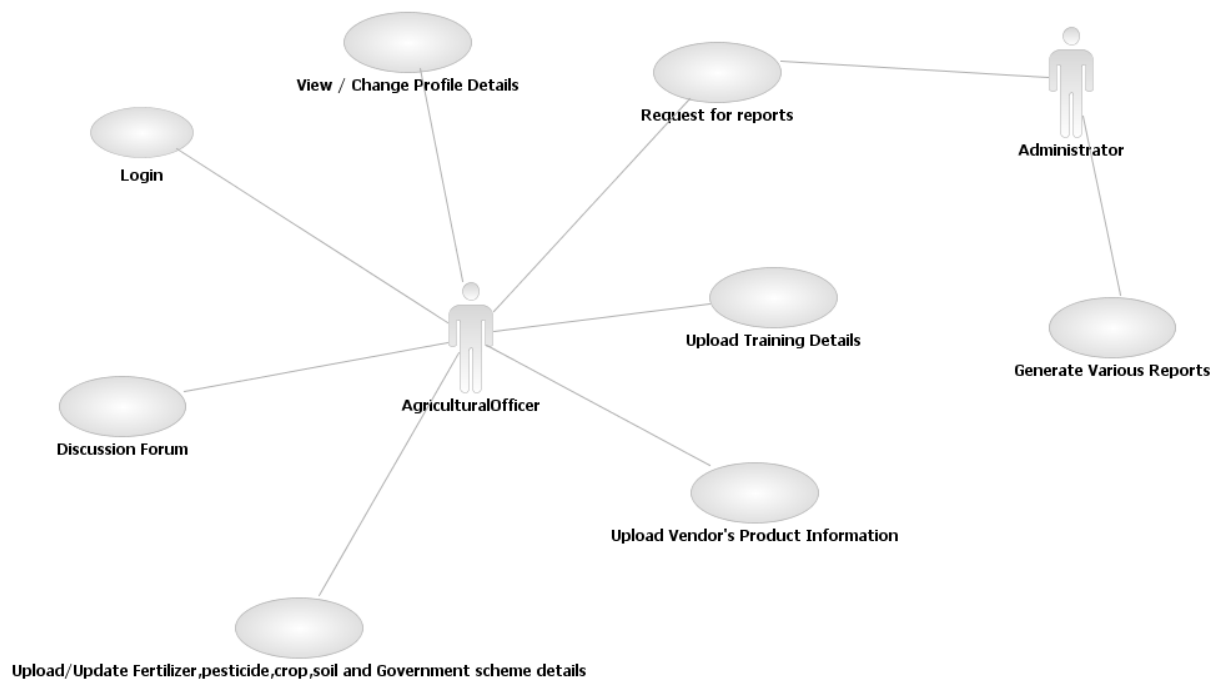
### User: Farmer

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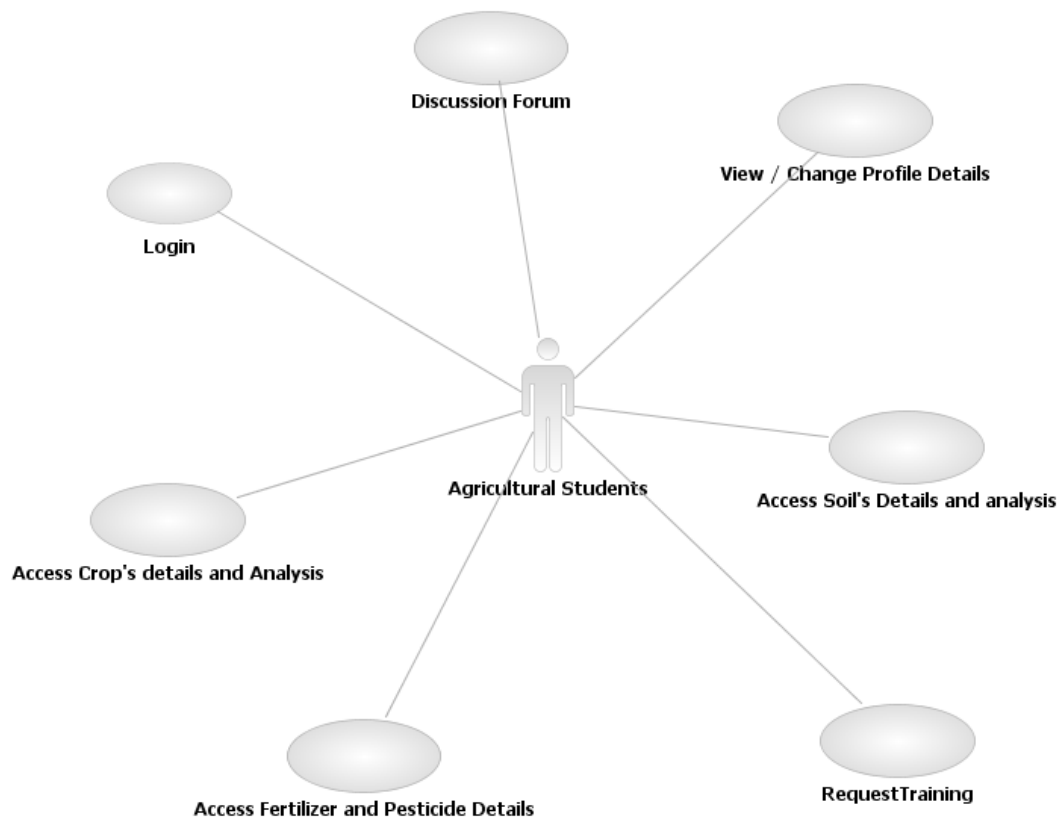
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## User: Agricultural Officer



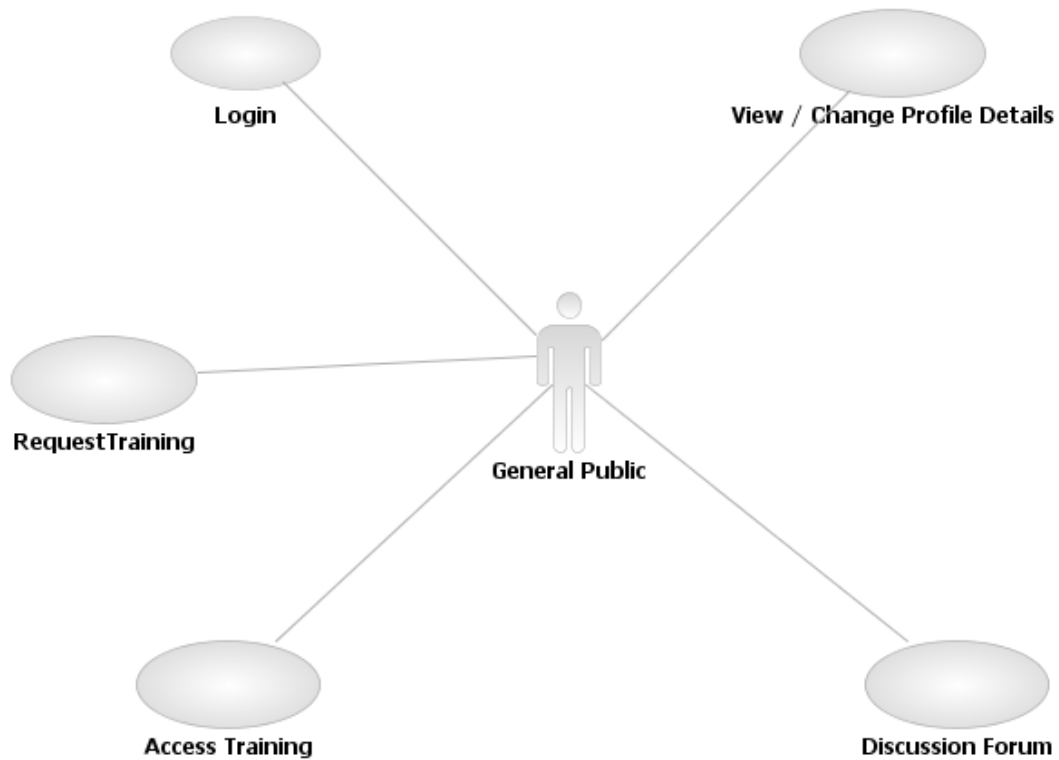
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## User: Agricultural Students



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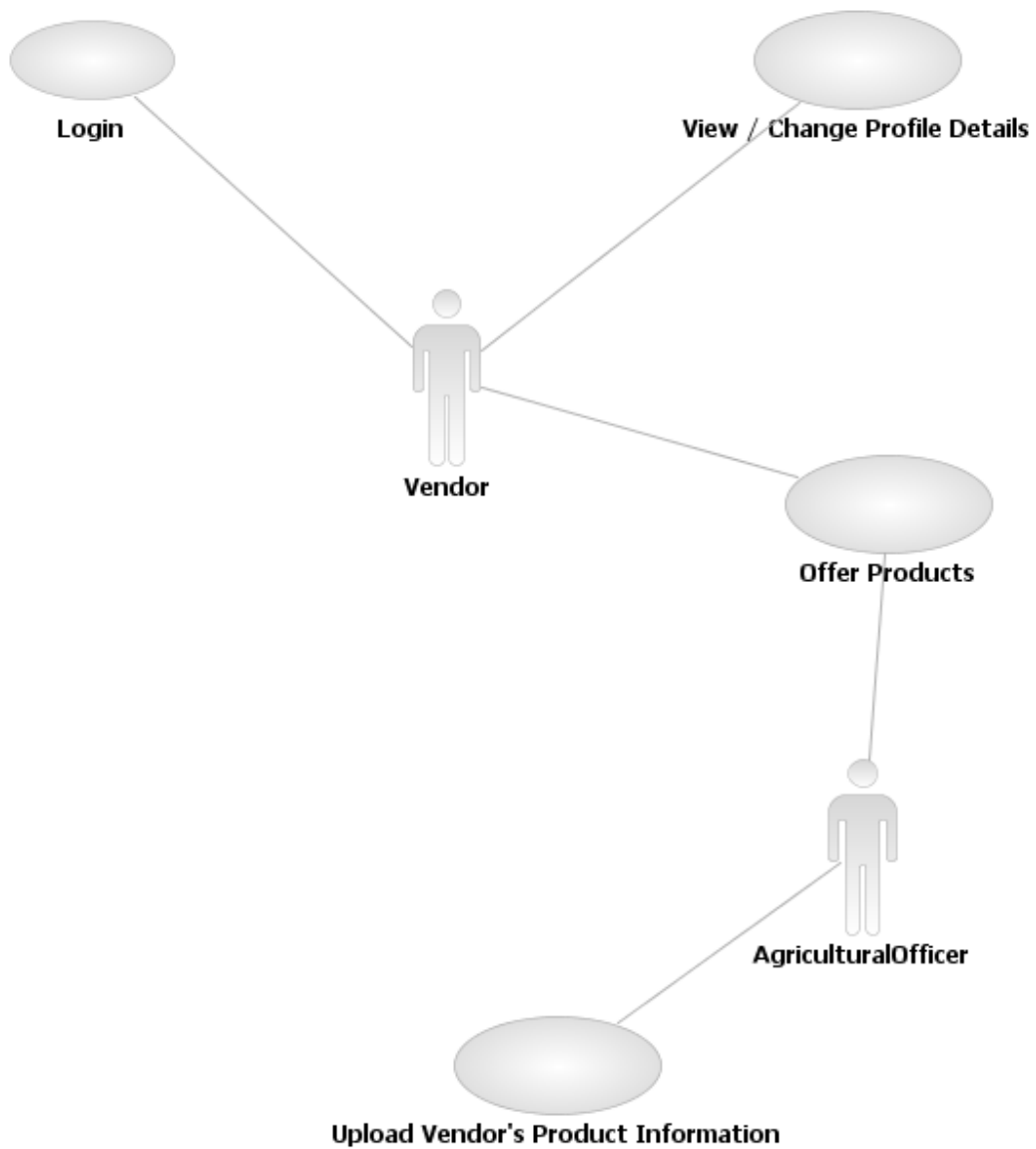
### User: General Public



### User: Vendor

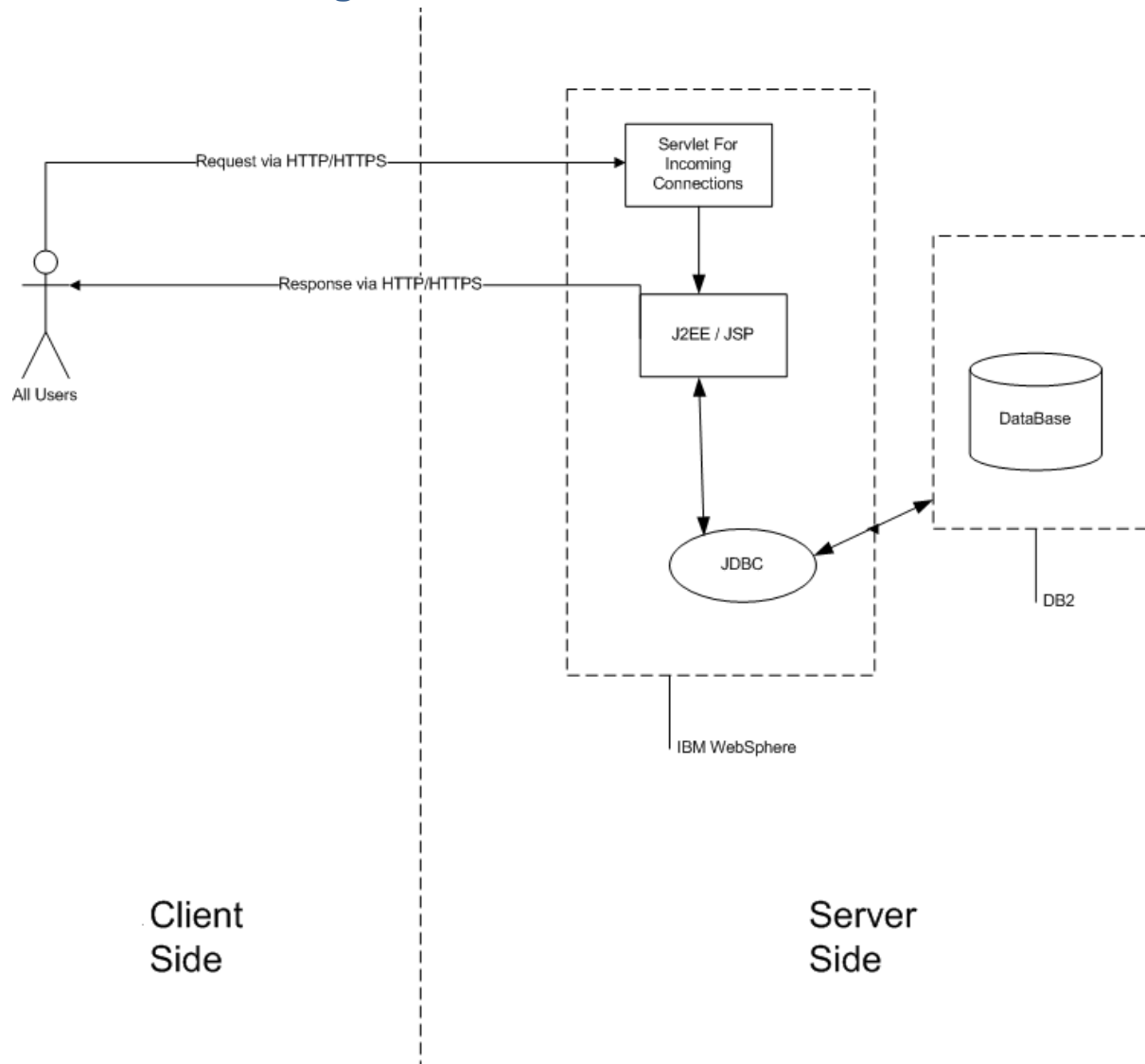
Apart from the above main users of the system, another user is the vendor (third party business man), who can upload solutions (more basically products)

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## 2.7 Architecture Diagram

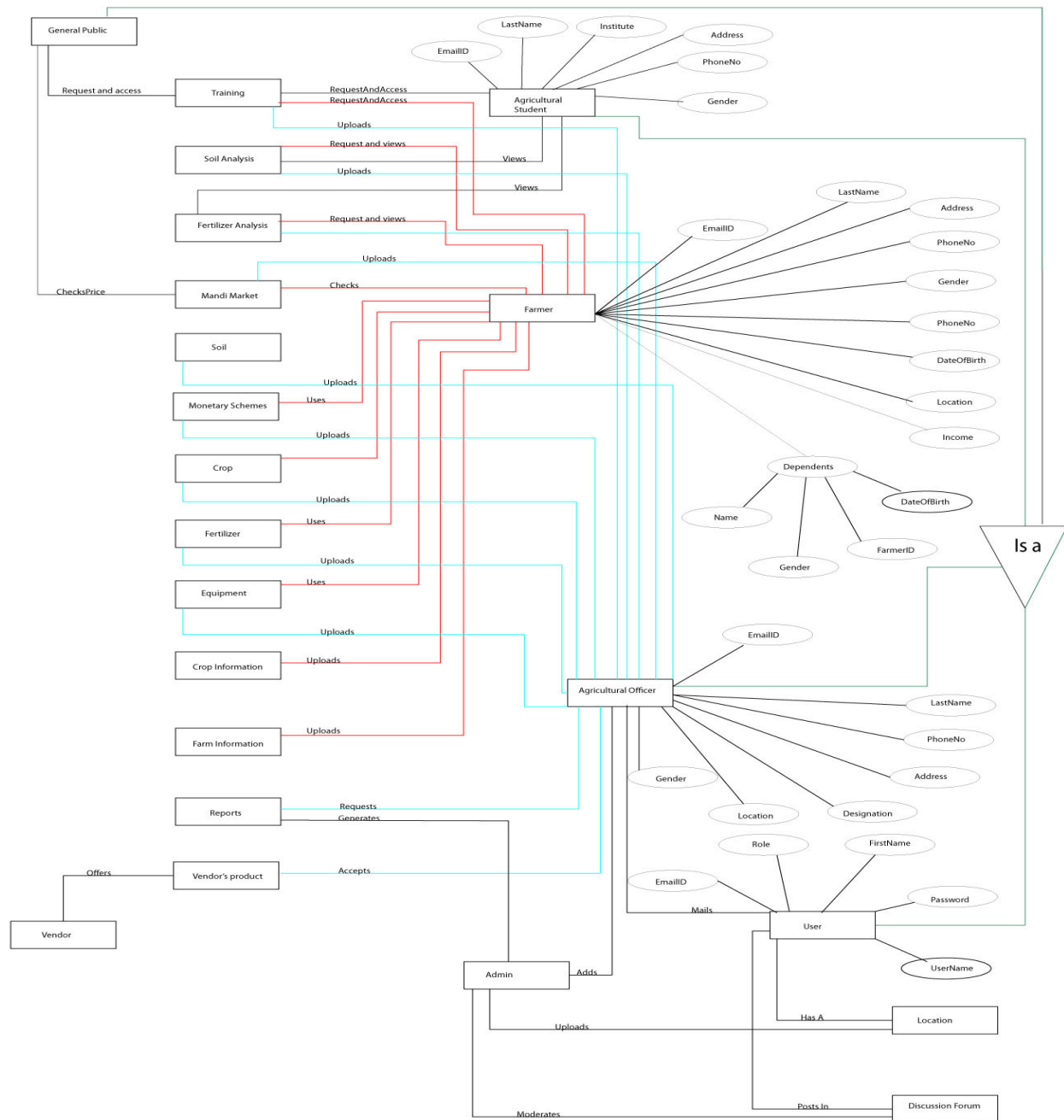


## 2.8 Database Design

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

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### E-R Diagram For Farmer Buddy







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## 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.

#### **Manage system users:**

The Administrator will create different roles. The system users will be created and will be assigned with the different roles. More than one task and permissions can be granted or revoked from the system users.

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**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:**

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

**View / change profile:**

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

**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.

**Preconditions:**

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

**Generate Various Reports:**

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The administrator has the privilege to generate various reports needed to run this system successfully. These reports may be weekly, monthly, or yearly. The request for reports comes from Agricultural officer.

#### **Moderate Discussion forum:**

The administrator is the moderator for the discussion forum. The main goal of this is to remove objectionable posts and spam's. He can give moderator privileges to other users.

### **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**

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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 vendor's product information**

The vendor will offer a product. He has to pay money for advertising his product on site. The officer needs to verify that vendor has paid the required fee and that his product is standard. Then only after his approval the vendor's information will be displayed 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 in discussion forum**

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.

### **Agricultural Students:**

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

### **Login:**

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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**

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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.

### **Request training**

The public member can also request for specific training in agricultural practices from various experts in the field.

### **Access training**

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

### **View/ change profile details**

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The public member can change his own details such as his name, email-ID, and contact details.

### **Discussion forum**

A public member can actively participate in discussion forum just as other users do. He can post doubts or queries. This will give him a platform to get in touch with farmers, students and experts.

## **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.

### **Discussion forum**

Farmer 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.

### **Access training**

Farmer can access the existing training material already available. This list of available training is searchable

### **View / change profile details**



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The public member 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

### **Access farm equipment 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.

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### **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.