The Great Mind Challenge
Nurturing Great Minds

CHAMELI DEVI SCHOOL OF ENGINEERING

QUARK RETURNS

E-MANDI

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Project – E-Mandi	**Version** - 1.0
File - Software Requirement specification	**Team** – Quark Returns

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1.0 Introduction

E-Mandi – it's an electronic vegetable market making the vegetable market more convenient for the use of civilian and even to keep the transparency in the whole market system from retailer to the whole seller.

1.1) Purpose

The main aim is to create a portal that can have a proper check on the whole mandi system. The existing pitfalls of price hikes and illegal auditing can be eradicated. To make amendments such that farmers get the right prices for the raw materials and the negotiations happening between the farmers and whole sellers & whole sellers and retailers can be regularly maintained. The reports will be generated periodically and this will make the state governments to have a proper eye on the whole system and thus the so called mandi-mafias will be under control and any action that is illegal can be known and right actions can be taken.

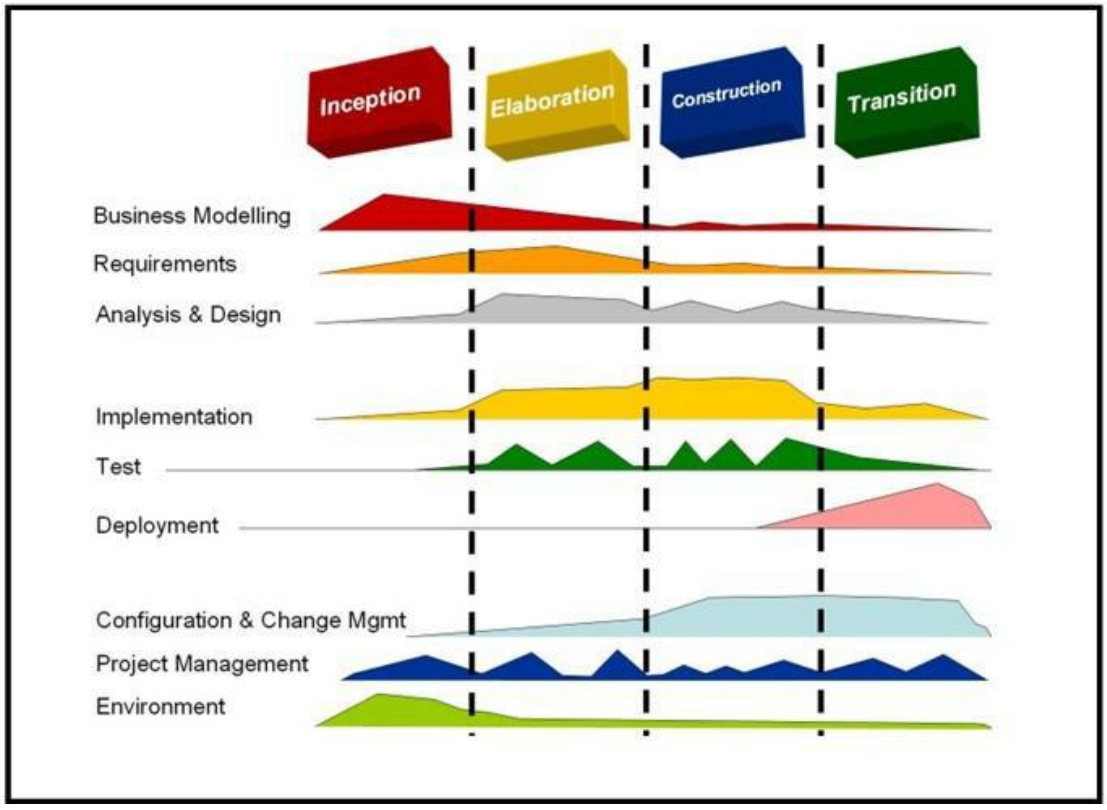
1.2) Methodology

The Rational Unified Process brings together elements from all of the generic process models, supports iteration and illustrates good practice in specification and design. The RUP is normally described from three perspectives:

A **dynamic perspective** that shows the phases of the model over time.

A **static perspective** that shows the process activities that are enacted.

A **practice perspective** that suggests good practices to be used during the process.



The different phases in RUP are

- **Inception**

  The goal of the inception phase is to establish a business case for the system. Identifying all external entities that will interact with the system and defining these interaction. This information is used to assess the contribution of system to business.

- **Elaboration**

The goals of the elaboration phase are to develop an understanding of the problem domain, establish an architectural framework, develop project plan and identify key project risks.

- **Construction**
  This phase is concerned with system design, programming and testing. Parts of the system are developed in parallel and integrated during this phase.

- **Transition**
  This is the final phase of RUP and is concerned with moving the system from the development community to the user community and making it work in real environment.

1.3) Scope

- Create different user profiles with respective privileges.

- Maintain a centralized database of all users and security to information which can be accessed by admin for any required updations and also maintains the database for all possible mandis in the district.

- All registered users are authenticated to avail this service.

- Regular prices of items can be known through our portal for various items be it vegetables or cereals or fruits.

- Track all the users and their contact details regularly.

- Java client facility for working officers.

- FAQ section will be also there for user benefits in case of any misunderstanding or doubt regarding any details in the portal.

- Conformation link will be sent to all those who are registered in the portal.

- Proper reports are periodically generated and thus help state government to have a look at it and check for any malicious activity.

- Amount of items in stock are known and no wastage of any commodity can happen and thus proper check against any possible price hikes in future is eradicated.

1.4) Definitions, Acronyms and Abbreviations

- **E-Mandi –** It is abbreviated as an electronic mandi which is a web application designed to provide and maintain the complex relationship among the different users of the system and make the whole process easy and feasible for all local guys.

- **Admin –** Administrator (super user), one who controls all the details of farmers, whole sellers and retailers to maintain the afore mentioned database.

- **Farmers –** Users who registers into site to provide informations related to their stock of commodities or to get contacts of various whole sellers and retailers.

- **Whole Sellers/ Retailers –** Who are in need of the details from the farmers and make negotiations for their business and to know different price of different raw materials by various farmers all over the country.

- **Civilians –** The end user who wishes to have a transparent view on all this flow of materials and to expect best price for themselves and also can know the price differences in various mandis.

- **Zones -** Locations into which the whole district/town will be divided so as to maintain the database in an easier way and to help civilians, farmers, whole sellers and retailers to locate the quickest and nearest mandi for details.

- **HTML –** Hyper Text Markup Language, used for creating static web pages.

- **J2EE –** Java 2 Enterprise Edition is a programming platform and is a part of java for developing and running distributed java applications.

- **RSA –** Rational software Architect is a designer toolkit which is designed and developed for more complex projects by providing fully dynamic web service applications.

- **DB2 –** Database 2 is the database management system that provides a flexible and efficient database platform to erect on strong on demand business applications.

- **XML –** Extensive Markup Language used for data transfer and XML is stored naturally in DB2.

- **HTTP –** Hyper Text Transfer Protocol is a transaction oriented client/server protocol between web browser and web server.

- **TCP/IP –** Transmission Control Protocol/internet protocol is the communication protocol used to connect hosts on the internet.

- **WSAD -** It stands for WebSphere Studio Application Developer. It is a designer toolkit which is designed to develop more complex projects by providing a complete dynamic web service.

1.5) References

- Project Specification Requirement (by IBM)
- UML in 24 hours by Joseph Schemuller
- IBM Red Books
- Sample SRS by TGMC website
- www.wikipedia.com

1.6) Technologies to be used

- **Java -** Java is an object-oriented programming language developed by Sun Microsystems. Java programs (applet and application) can run on any machine that has the Java virtual machine (JVM) installed. Platform-independent Java is used with server-side applications, such as Web Services, Servlets, and Enterprise java beans, as well as with Embedded system.

- **J2EE -** Java to enterprise edition has been used as a part of java platform enabled with eclipse platform to use technologies like java servlets, JSP and EJB to provide server side scripting.

- **DB2 –** DB2 Database is the database management system that delivers a flexible and cost effective database platform to build robust on demand business applications and supports the J2EE and web services standards.

- **WASCE -** WebSphere Application Server Community Edition (from now on WASCE) is a free, certified Java EE 5 server for building and managing Java applications. It is IBM's supported distribution of Apache Geronimo that uses Tomcat for servlet container and Axis 2 for web services. Over 15WASCE developers are committers in the Apache Geronimo project.

- **Lotus –** Lotus offers products for messaging, calendaring, application development, real-time and team collaboration, content management, mobile and wireless devices, and social networking that help organizations to work more productively, to communicate more effectively.

- **Web 2.0 -** It is associated with web applications which facilitate interactive information sharing, inter operability, user- centered design and collaboration on the World Wide Web.

- **RAD –** IBM Rational Application Developer for WebSphere Software (RAD) is an integrated development environment (IDE), made by

IBM's Rational Software division, for visually designing, constructing, testing, and deploying Web services, portals, and Java Enterprise Edition (JEE) applications.

- **RSM –** IBM Rational Software Modeler, (RSM) made by IBM's Rational Software division, is a Unified Modeling Language UML 2.0-based visual modeling and design tool. Rational Software Modeler is built on the Eclipse open-source software framework and includes capabilities focused on visual modeling and model-driven development (MDD) with the UML for creating resilient, thought-out applications and web services.

- **JDBC –** Java Database Connectivity, it stands for Java Database Connectivity, Java API that enables Java programs to execute SQL statements. This allows Java programs to interact with any SQL-compliant database. Since nearly all Relational Database Management System support SQL, and because Java itself runs on most platforms, JDBC makes it possible to write a single database application that can run on different platforms and interact with different DBMS.

- **TVM –** IBM Tivoli Storage Manager (TSM or ITSM) is an IBM-owned company that develops software that allows a business to manage its computing environment. The software enables a user to insert objects not only via backup, but also space management and archive tools.

- **AJAX –** It stands for Asynchronous Java Script and XML. It is a technique for creating fast and dynamic web pages. Ajax asynchronously updates part of a web page, without reloading the whole page.

1.7) Overview

SRS includes two sections overall description and specific requirements.

Overall description will describe major role of the system components and interconnections.

Specific requirements will describe roles & functions of the actors.

♦ Existing System –

a) The farmers were exploited in sense that they never got the best price for their vegetables or cereals or fruits.

b) No regular reports were available to state government to analyze what is happening in the market.

c) Easy for the mandi-mafias to hold power in the market by illegally storing items and hence resulting in price hikes and black marketing.

d) Civilians never used to know the difference in price in various mandis and hence were fooled by marketers.

e) The whole sellers and retailers used to gulp maximum portion of profit in the whole chain involved.

f) Farmers used to have limited access of contact details of whole sellers and retailers other than those whom they knew in prior.

♦ Drawbacks –

a) How much stock of any particular item was not clearly known to government.

b) Production of any particular vegetable or cereal or fruit for a year throughout the nation cannot be calculated.

c) It was difficult to stop those mafias who held power in mandis and used to exploit the poor farmers.

d) Real price of any commodity was hardly known, there was always some case of black marketing or inflation.

e) Wastage of commodity due to poor maintenance in rainy season or theft activities used to happen.

- **Proposed System –**

a) Registration for all users whether it be farmers or whole sellers or retailers or civilians.

b) Personal details were available to farmers of the whole sellers and retailers and hence he had more options to choose before selling his item.

c) Any non-member can visit the portal and know the prices of various commodities.

d) Proper maintenance of reports for mandis at regular intervals.

e) Price hike, black marketing and inflation could be made under control and illegal transfer of items against governmental policies can be stopped.

- **Our Plan –**

a) The farmer will get more contacts of whole sellers and thus will have options before selling the final goods making maximum profit.

b) The civilians knows the price and thus cannot be fooled any further by marketers.

c) The profit eaten up by the whole sellers and retailers can be taken under control.

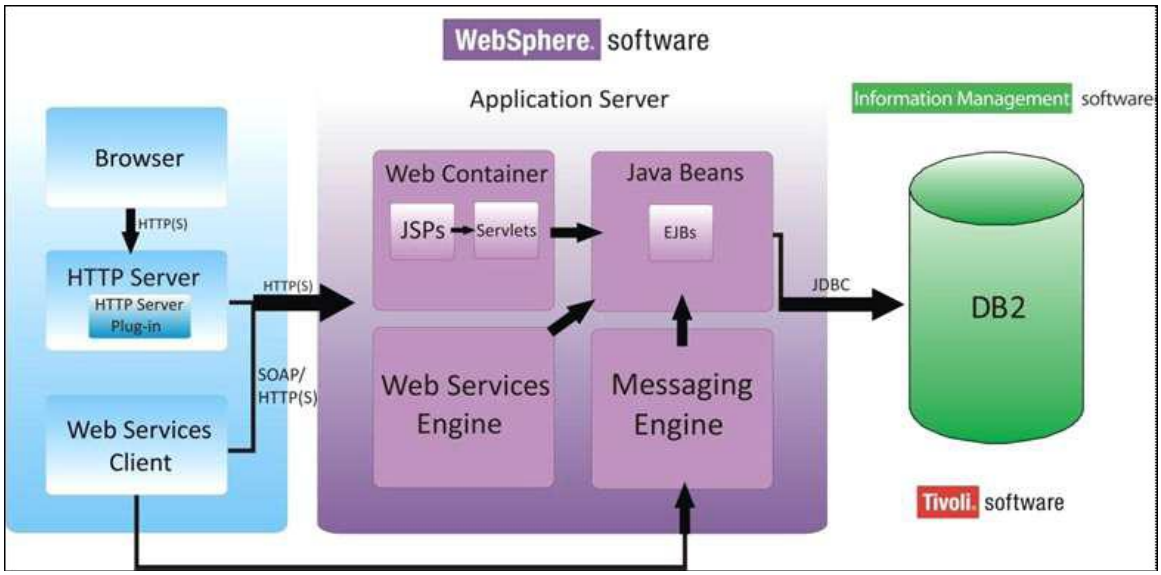
d) The state government will have regular reports mentioning all negotiation details and agreements and thus will help them to control any malicious activity.

e) The price hikes will be under controlled. The earlier situation of raw materials cannot be unnecessarily preserved and make the market price rise.

f) Complete transparency throughout the chain is maintained.

2. Overall Description:

2.1 Product Perspective:



2.2 Software Interface:

- **For Accessing the Application Online**
  - » Any web browser
  - » Any operating System

- **Web Server**
  - » Necessarily websphere
  - » Any operating system

- **Database**
  - » DB2
  - » Any operating system

- **At Development End**
  - » Eclipse
  - » jdk 1.6

- **Database Backup**
  - » IBM Tivoli storage manager

- **Report Creation**
  - » IBM Rational
  - » Microsoft Word
  - » IBM lotus Software
  - » Adobe Reader

2.3 Hardware Interface:

- **On the Client Side**

	Processor	RAM	Disc Space	Modem
Any Web Browser	P2 or above	256 MB	100 MB	Any

- **On the Server Side**

	Processor	RAM	Disc Space	Modem
DB2	P2 or above	512 MB	100 MB	Any
WebSphere	P2 or above	2GB	100 MB	Any

2.4 Communication Interface:

- Client (customer) on Internet will be using HTTP/HTTPS protocol.

- Client (system user) on Internet will be using HTTP/HTTPS protocol.

2.5 Product Functions:

a) Facilitate the users with registration forms.

b) To provide IDs to each authenticated users who registered themselves into the portal.

c) Profile of every user will be granted only if the end user goes to the portal and correctly fills all the mandatory details. Authentication will be carried out by the admin.

d) To withstand any information degradation, what the admin does is, regularly keeps checking against any odds or any malicious activities.

e) User can change profile details like his personnel details as contact & residential ones if in future they are changed. In case any farmer has started cultivating some new item he can definitely add it to his profile. Same goes for whole seller and retailer.

f) User be it the farmer, whole seller or retailer can via feedback form; can inform admin if in future they face any difficulty or bug that is not allowing the normal functioning of the system.

g) Efficient server architecture must be provided so as to bear high server load on the day of election.

h) To provide a platform to candidates for campaigning through the use of forums and blogs. To promote biological faming among next generation farmers.

i) After the negotiations had successfully happened between the farmer and whole seller and then between the whole seller and the retailer, the information can be uploaded to help others to know the market strategy which in turn will stop illegal processing of money through mandi system which had been seen regularly in the past.

j) Any civilian can go through the contact details of any farmer, whole seller or retailer and thus can also communicate with them but for that one must register into the portal.

k) After successful verification IDs will be sent to applicants along with the password on their respective email-ids.

l) This email ID will constitute their username, though they can change their password as many times they wish to.

m) Admin has the authority to create, delete and update the database of all users.

n) Admin deals with the security factors involved here in this web application.

o) Admin ensures back up of data in case of data loss. He can either choose to restore the database or view the last refreshed log file.

p) Admin ensures that the duplicate registration of any farmer or whole seller or retailer is not allowed. In process, he stops malicious activities by keeping a strict check.

2.6 User Characteristics:

- **Admin:**
  Admin is the super user. The whole portal is his virtual working directory. He manages all sorts of databases. He has got the authority to create, update and delete any details. He takes the responsibility of providing response to all the complaints received (if not spams). He writes blogs to make the people more aware of this whole mandi system.

- **Farmers:**
  He is the main component of the entire theme. He is who actually cultivates all sorts of items ranging from fruits to cereals to vegetables. All he needs to do is to register into the portal and let everyone know about his stock so that different whole sellers can contact him and pay him the desired price (at times retailers too can make the contact directly) which in turn provides justice to the farmers and minimizes the chances of them being exploited.

- **Whole Sellers:**

The negotiation details of the purchase order with farmers are uploaded by them on the portals to provide transparency in the system and also helps the dealing with the retailers who in turn will not oppose to the price that any whole seller expect just because he can confirm it from the portal. The possibility of any fraud from either side will be eradicated.

- **Retailers:**
  These are the third party of the mandi scenario. They are the ones who after getting the materials or items like vegetables, fruits and cereals will send it to mandis. At this part is when the market price is estimated for all items after taking care all sorts of dealing and negotiations. The illegal loss of items in the middle will be solved as the whole process is automized and hence mafias can't act and also the price hike will be controlled. Most importantly the transparence is restored within the system.

- **Civilians:**
  Civilians have not got any big rights. He is like the one who wish to be a part of this process and want to register for the same. To be noted, the civilians though can have an access to details of already listed farmers, whole sellers and retailers in the database and also can browse the portal by viewing help desk, reading blogs and knowing the laws and facts behind the scenario. He can know the price decided by government on commodities and what are the exact prices running in the mandis. By the system not only price hike will be restrained but also the civilians from now onwards will feel not being cheated.

2.7 Constraints:

- Login and password is essential for the identification of users.
- Only registered farmers, whole sellers and retailersa will be authorized to avail the services.
- Limited to HTTP/HTTPS.
- E-mandi system can be used by people who have basic computer knowledge.

2. 8 Architecture Design:

- 3-Tier client-server architectures have 3 essential components:
  a) A Client PC
  b) An Application Server
  c) A Database Server

- 3-Tier Architecture Considerations:

  - Client program contains presentation logic only.

    a) Less resources needed for client workstation.
    b) No client modifications if database location changes.
    c) Less code to distribute to client workstations.

  - One server handles many client requests.

    a) More resources available for server program.
    b) *Reduces data traffic on the network.*

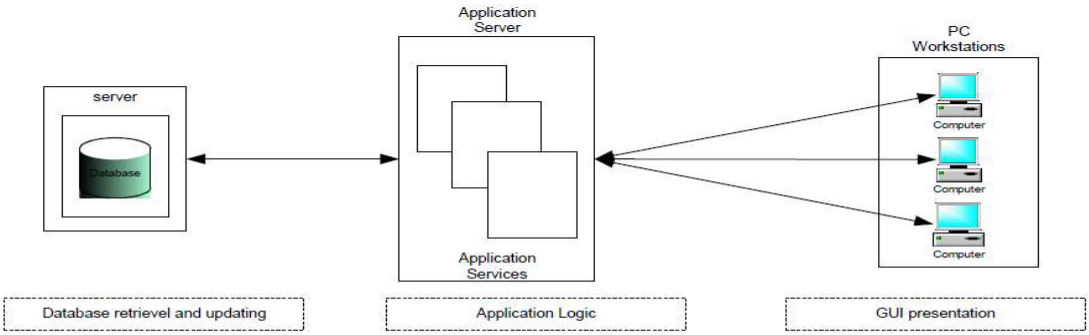
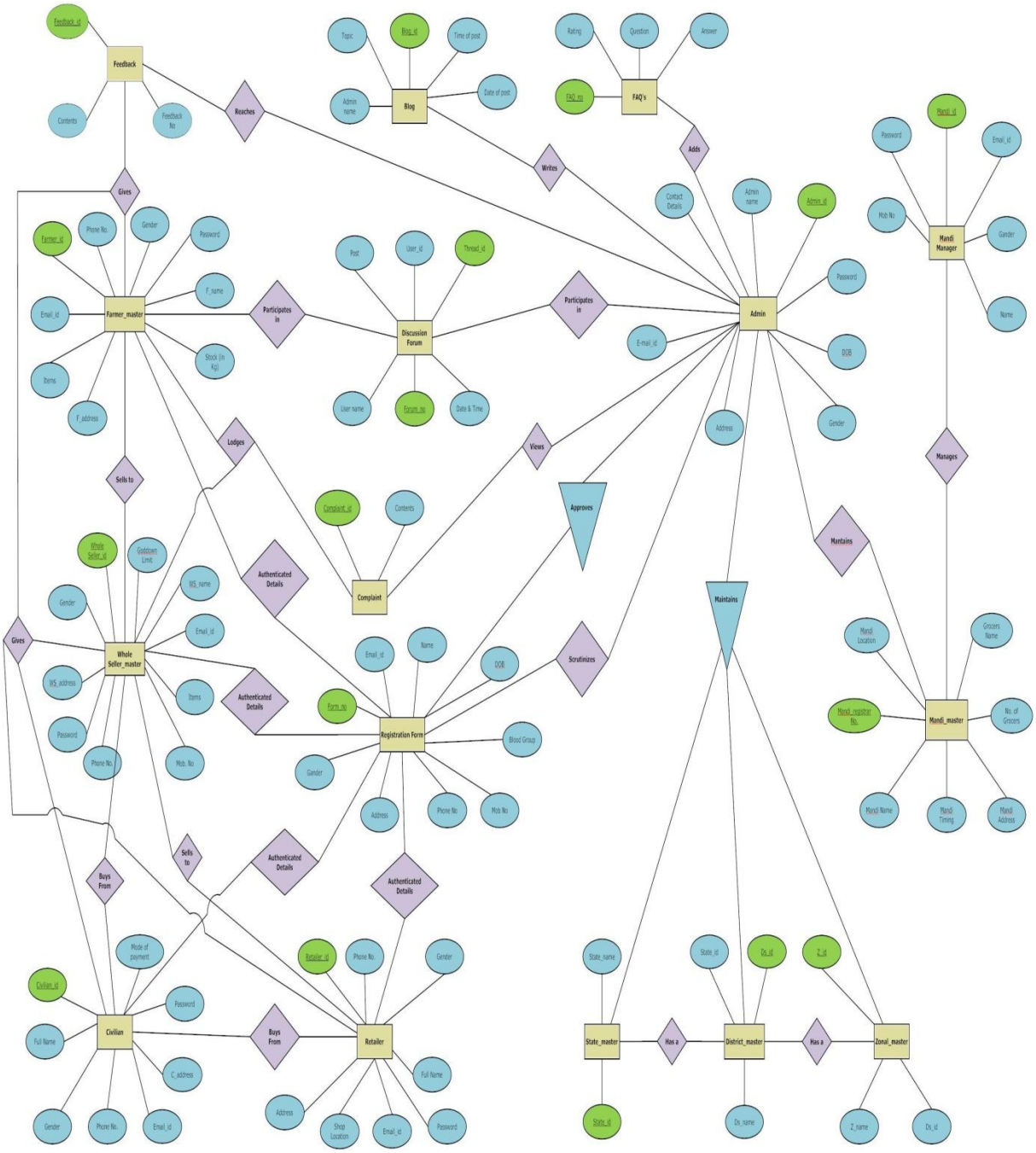


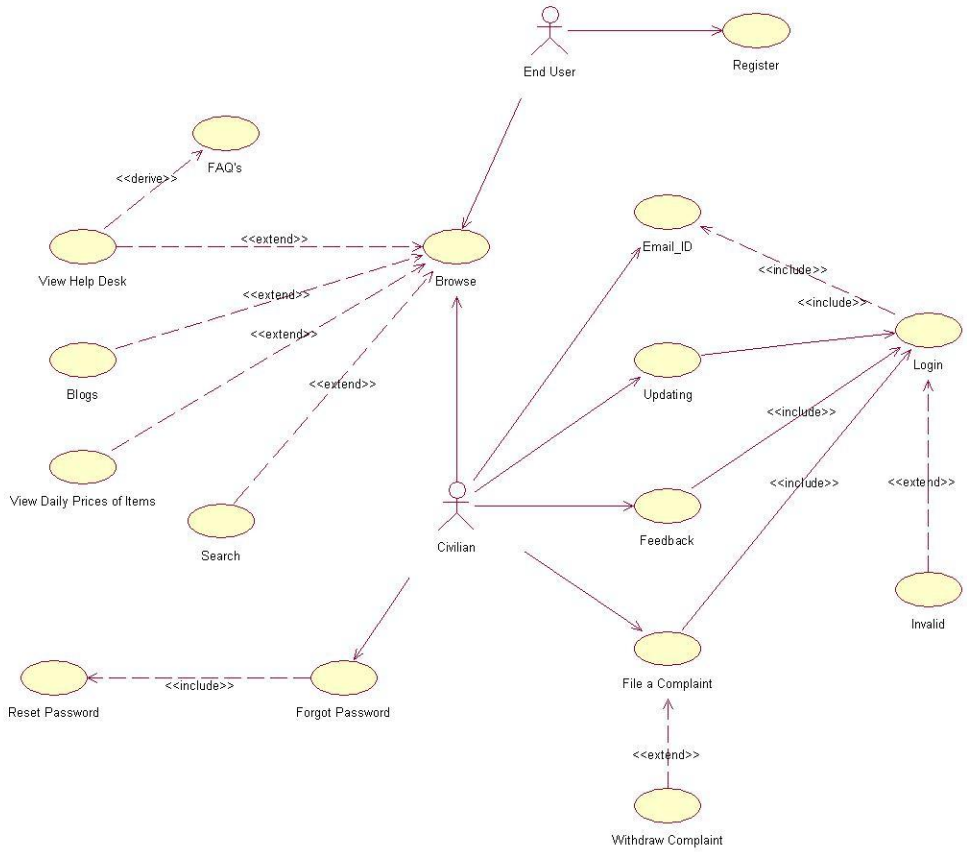
Figure 3.1 Client/Server 3-Tier Model

2.9 E-R Diagram



2.10 Use Case Model Diagram

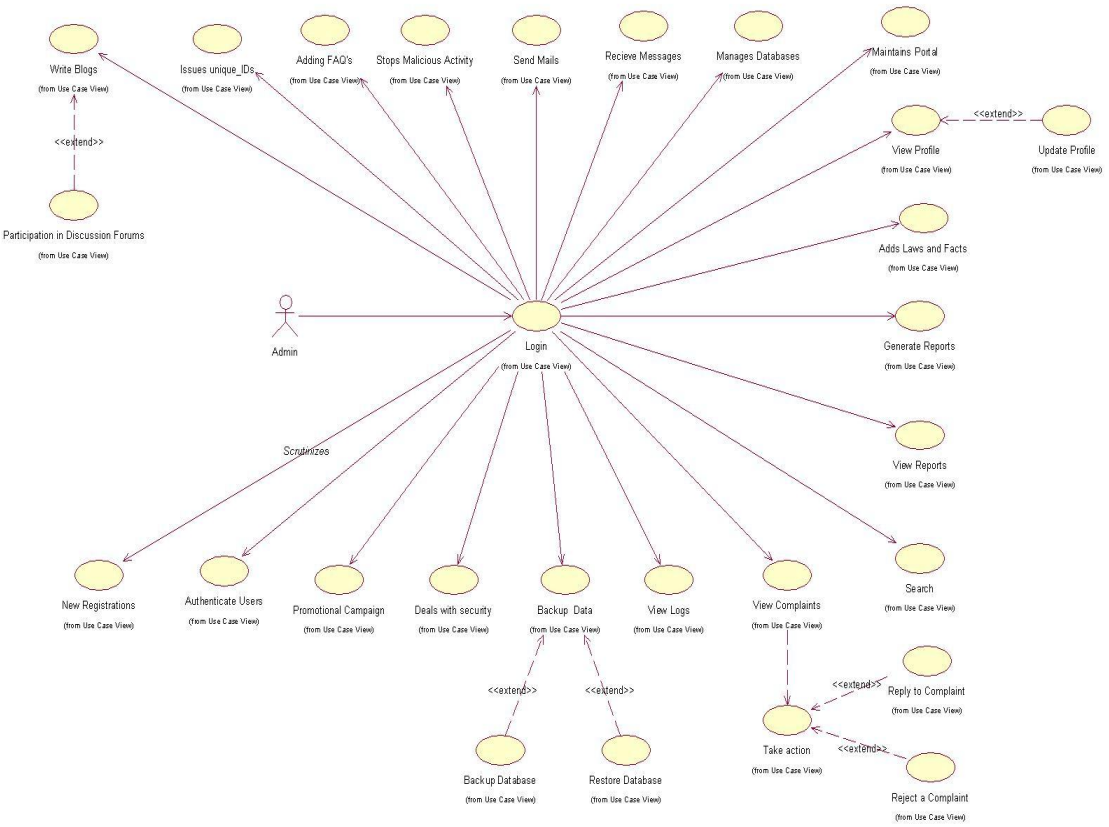
2.10.1) Use Case Diagram for Civilian & End User



USE CASE	DESCRIPTION
Login	Civilians to perform any task must first login to the portal.
Email ID	This email id provided by every civilian during registration after authorization will act as their username in future.
Updating	Civilians have the option to update or modify his/her profile.
Feedback	Civilians can share his experience with the admin after he had used the portal; optional to civilians.
File a complaint	To report admin regarding any issues that is frustrating the civilian, this option is provided.
Withdraw a complaint	Civilians can even choose to withdraw his complaint even after he has posted his issues.
Invalid	In the case that login is unsuccessful due to false details.

Forgot Password	This feature is there to help the civilian regain password if he/she had forgot it.
Reset Password	One can choose to change his/her password for entry to their profile as many times they wish.
Browse	This feature can be availed by all whether they are part of our portal or not. They can view blogs, can read FAQ's for help and also search details excluding contact details as per the norms. But above all, they can view the price of various vegetables, cereals etc. around all the mandis.

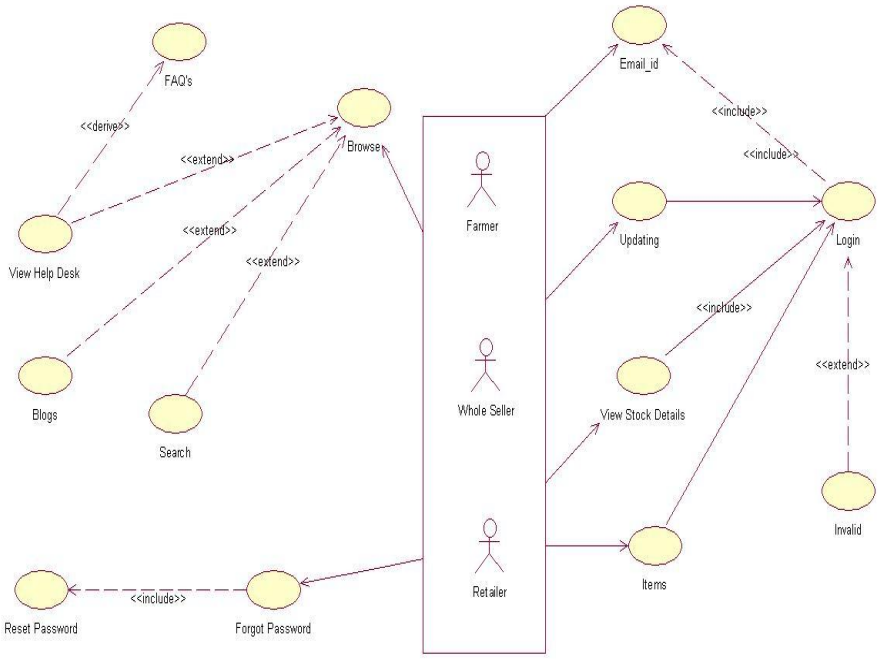
2.10.2) Use Case Diagram for Admin



USE CASE	DESCRIPTION
Login	Admin to perform any task must first login to the portal.
Maintains Portal	Does the work of keeping the website updated regularly.
View Profile	Admin has got the right to view profile of any whole seller, retailer or civilian.
Update Profile	Admin has got the right to make necessary amendments to the profile of anyone if needed.
Adds laws & facts	This section the admin introduces to keep the civilians and end users aware of the government provisions.
Generate Reports	To issue any nomination details or testimonials for all if required.
View Reports	On the other hand, admin can also receive reports

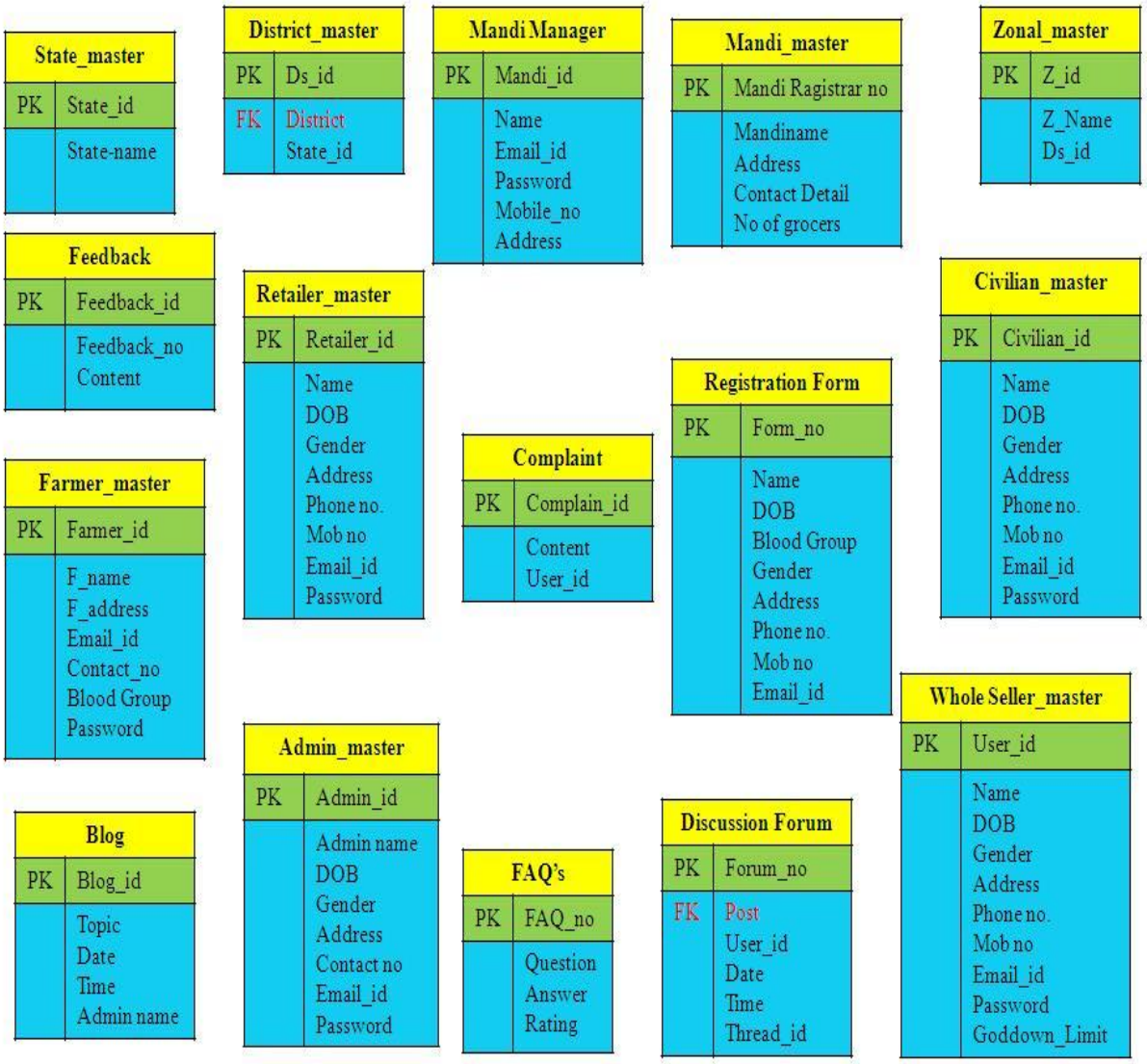
	from registered users and thus will view them.
Search	Like any other client the admin itself can search through the portal.
View Complaints	Admin has got the right to view the complaints posted to it.
Take Action	Admin must take some actions to the complaint forwarded to him.
Reject a complaint	In the case, admin finds the complaint as a spam he can reject it and thus no response needed.
Reply to the compliant	It is the job of admin that he gives proper response to all the difficulties faced by the civilians.
View Logs	This helps admin to locate any detail anywhere on the e-mandi database.
Back up data	Admin must make provisions for taking back up of the whole database, to resolve situations when data is lost due to any external or internal disc failures.
Restore Data	Data can be restored if some part of the information is lost by using check points in his database.
Back up data	Admin prefers to have a copy of the entire e-mandi database as a solution to premature failures.
Deals with security	Security issues must be tightly and closely observed by the admin.
Promotional Campaign	To raise voice against illegal auditing against farmers and price hikes done by whole sellers/ retailers for beneficial of general public.
Authenticate Users	Admin is responsible for allowing someone to become a member of the system or not.
Write a blog	Admin can write blogs in the interest of these social issues for public welfare and society upliftment.
Issues Unique IDs	To ensure the portal works authentically the admin must create such fixtures in his working directory.
Adding FAQ's	To help an outsider to know what this portal is all about and what he /she must do to be a part of it by declaring some common queries along with their answers.
Stop malicious activity	Admin take care about the fact that no one gets hold to personnel data of anyone and thus should not allow rise to unnecessary social issues.
Manages Database	One of the most important task of admin is to maintain the database by updating, adding, deleting to it to have a proper look at what all is going around the corner.

2.10.3) Use Case Diagram for Farmer/ Whole Seller / Retailer



USE CASE	DESCRIPTION
Login	Civilians to perform any task must first login to the portal.
Email ID	This id is the default username provided to every authenticated farmers, whole sellers and retailers by the admin.
Updating	Farmers, whole sellers and retailers have the option to update or modify their profile if there is any required changes.
Invalid	In the case that login is unsuccessful due to false details.
Forgot Password	This feature is there to help the farmers, whole sellers and retailers, regain password if they had forgot it.
Reset Password	One can choose to change their password for entry to their profile as many times they wish.
Browse	This feature can be availed by all whether they are part of our portal or not. They can view blogs, can read FAQ's for help and also search retailer/whole seller details excluding contact details as per the norms.
View Stock Details	Farmers, whole sellers and retailers have got the rights to look at the personnel details of any one of them like contact no and address for quick enquiry of the same.

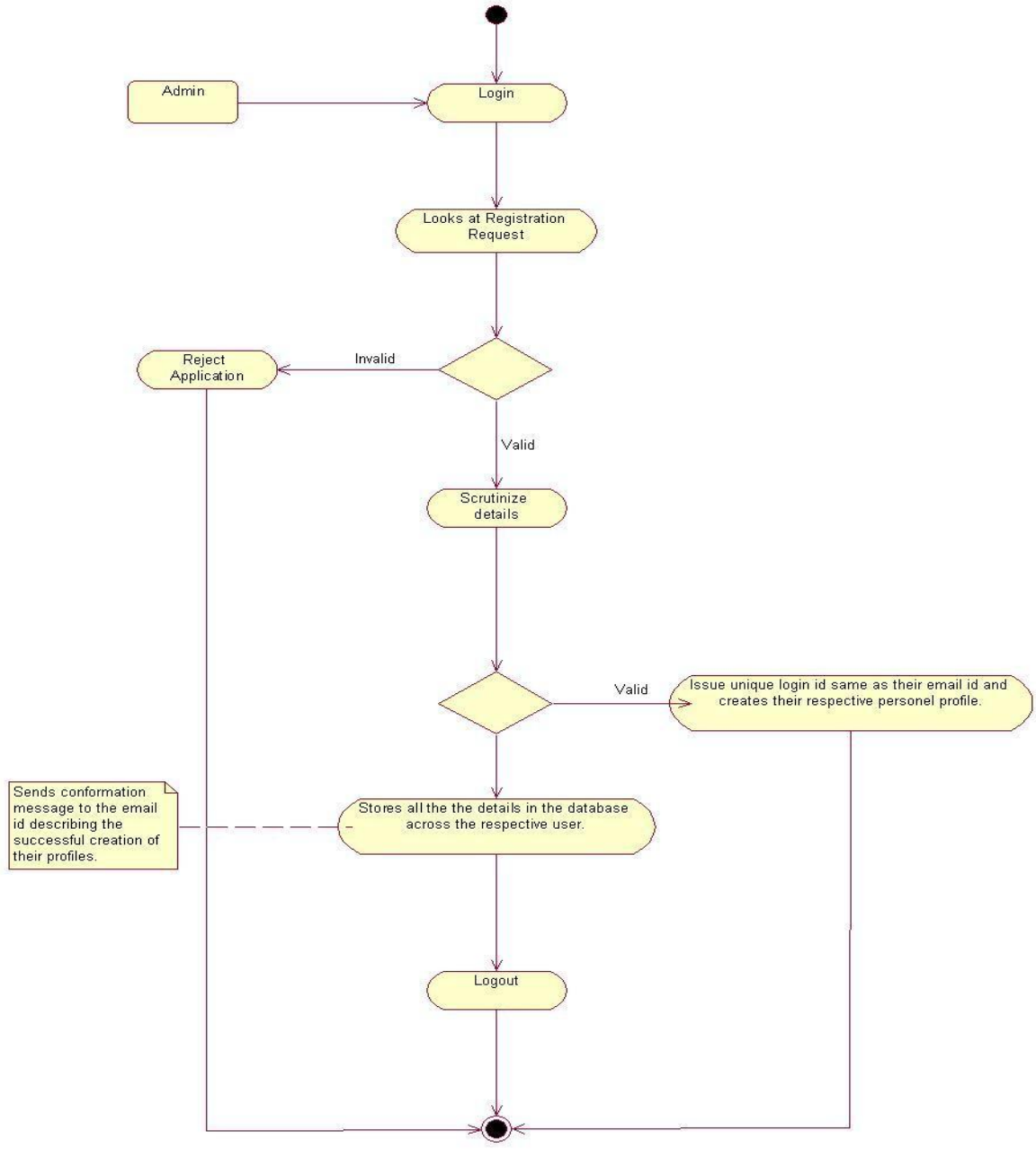
2.11 Database Design



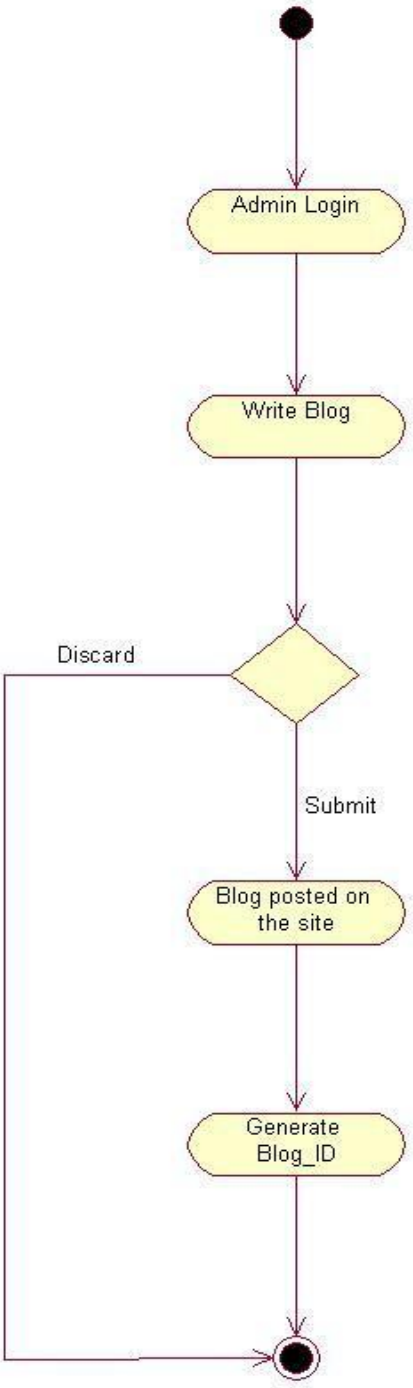
3.0 Specific Requirements:

3.1 Activity Diagrams:

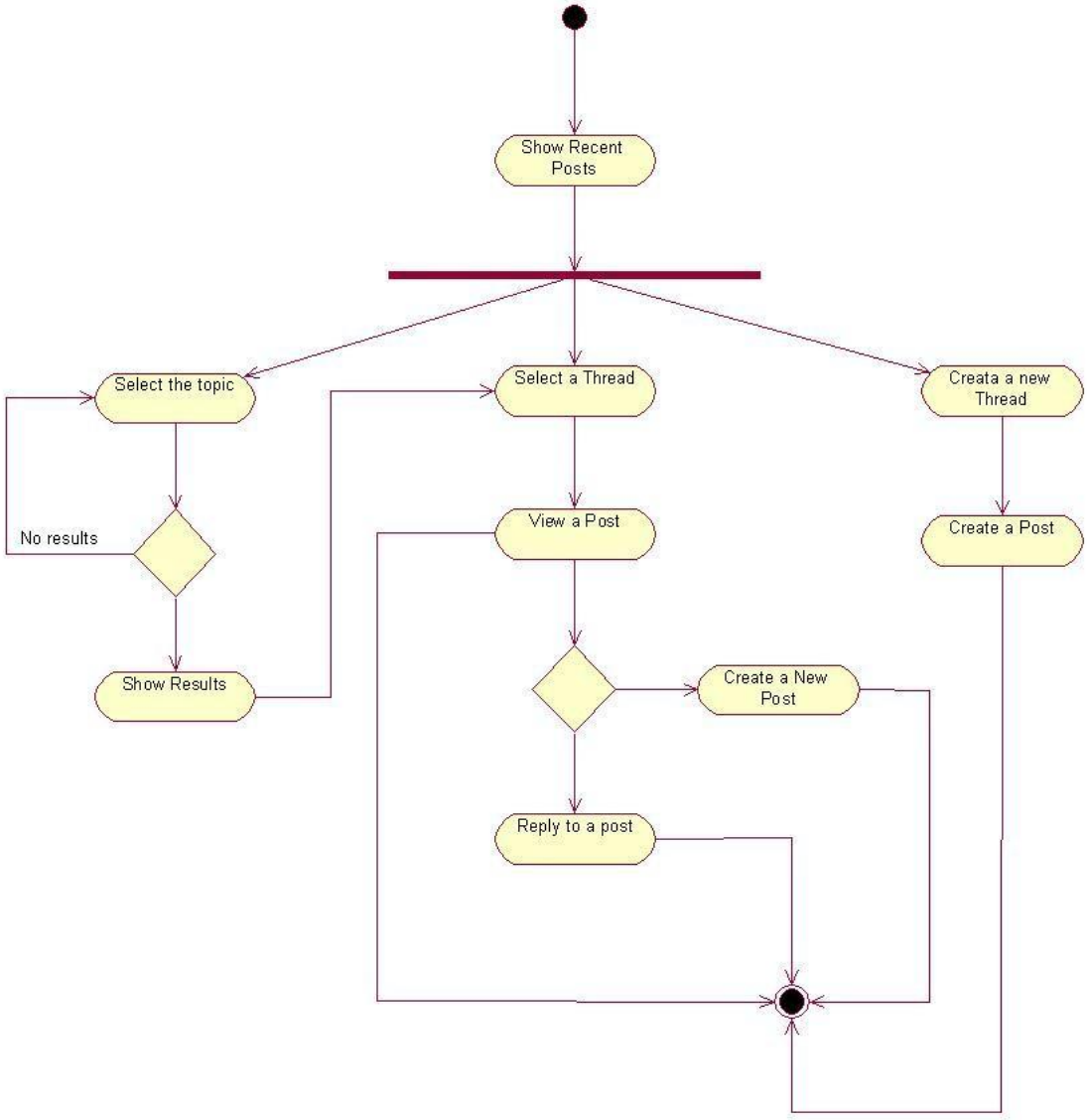
3.1.1) Activity Diagram for Admin



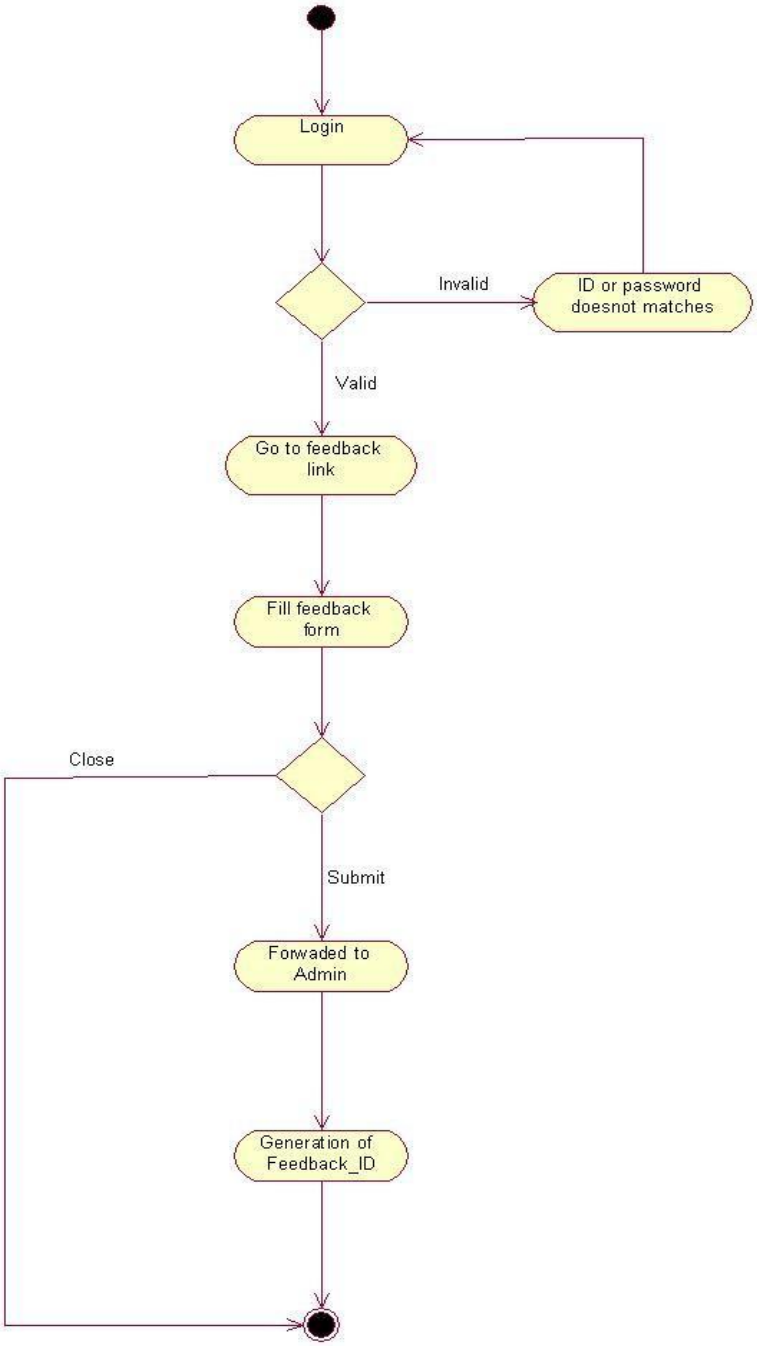
3.1.2) Activity Diagram for blog



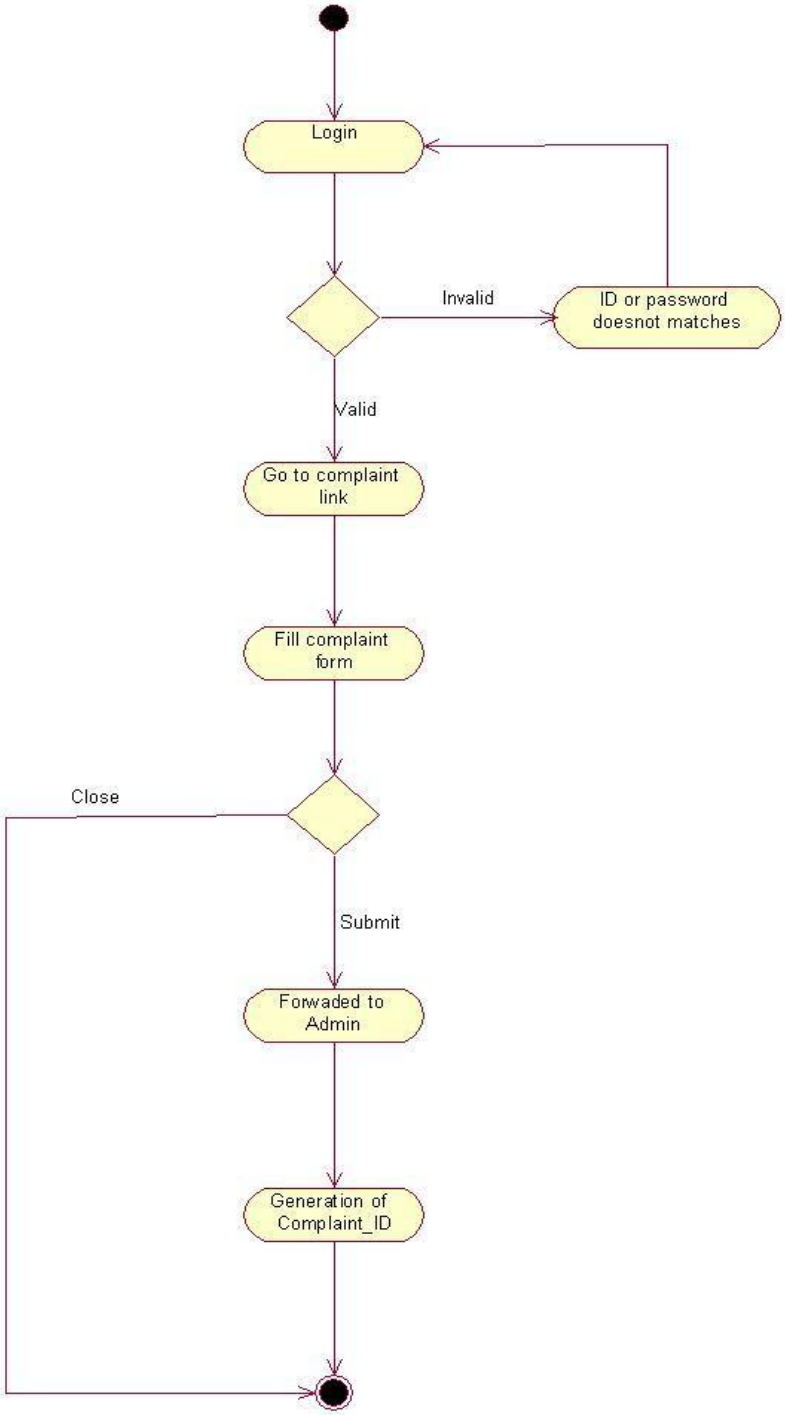
3.1.3) Activity Diagram for discussion forum



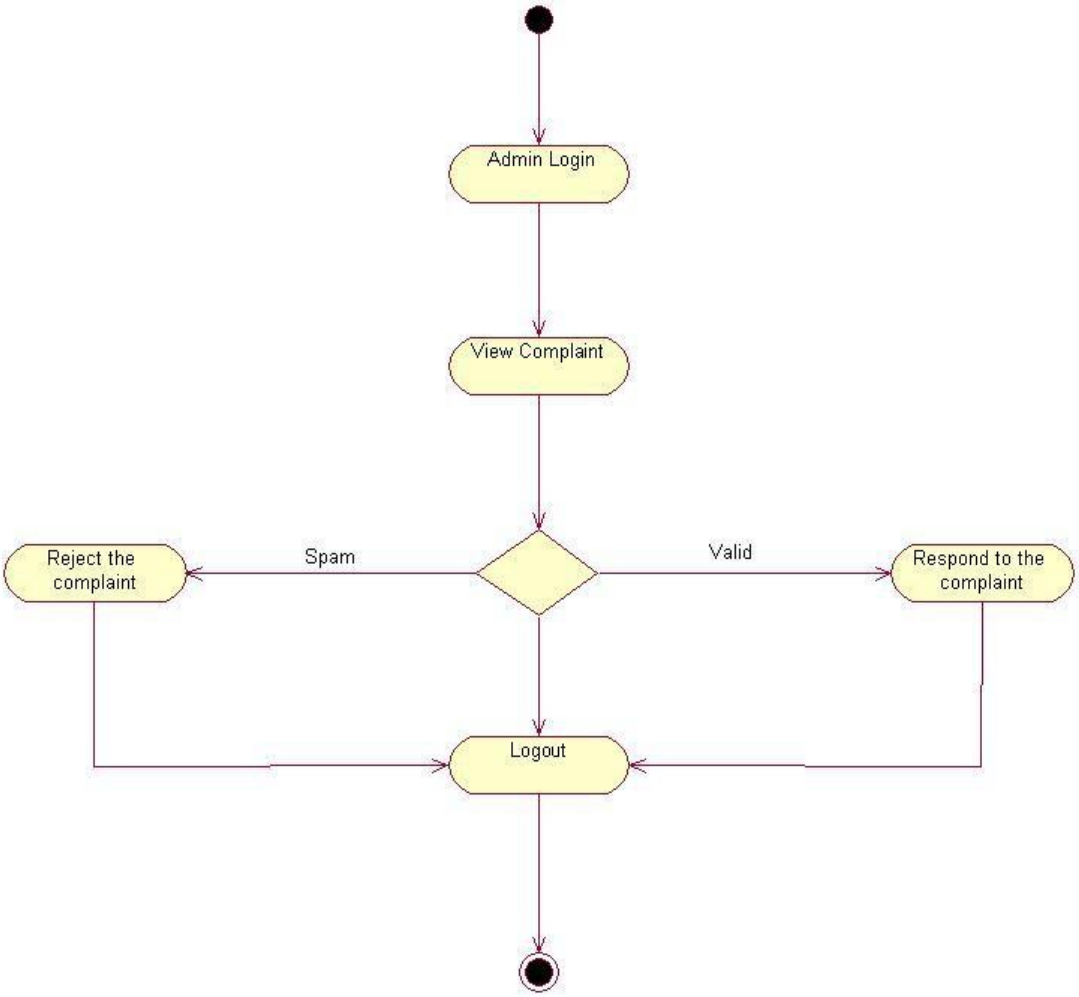
3.1.4) Activity Diagram for feedback



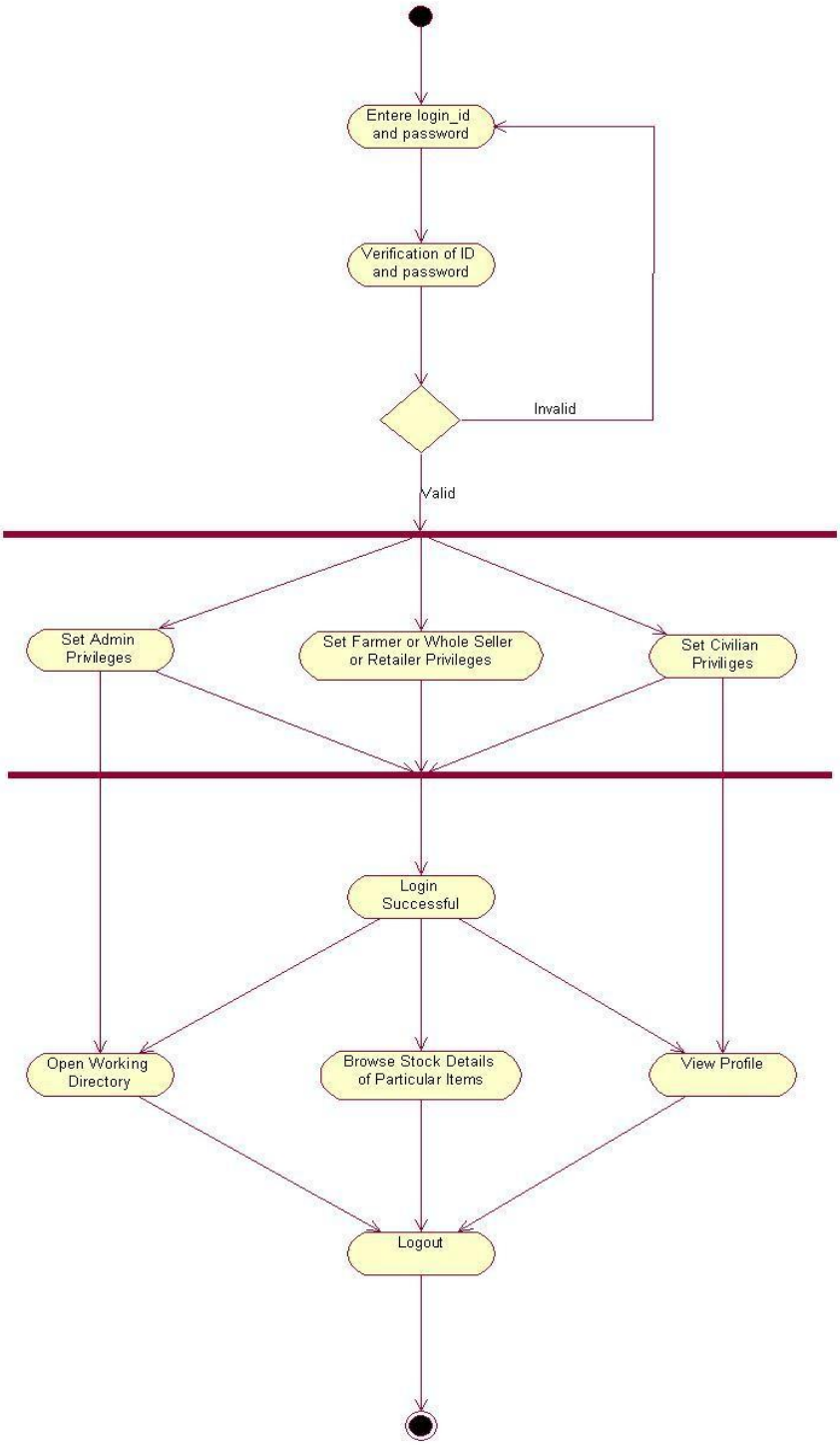
3.1.5) Activity Diagram for lodging complaint



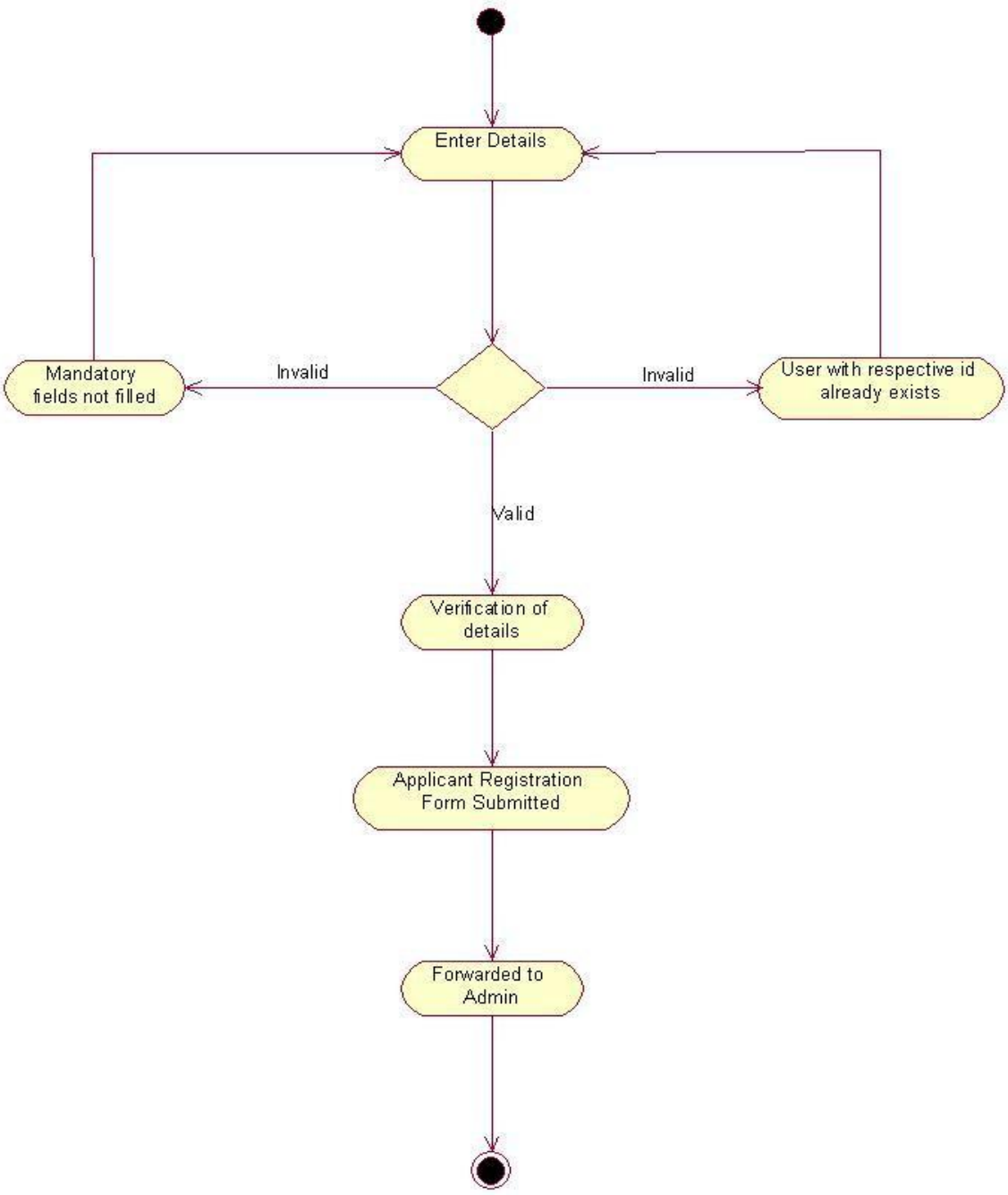
3.1.6) Activity Diagram for response to complaint



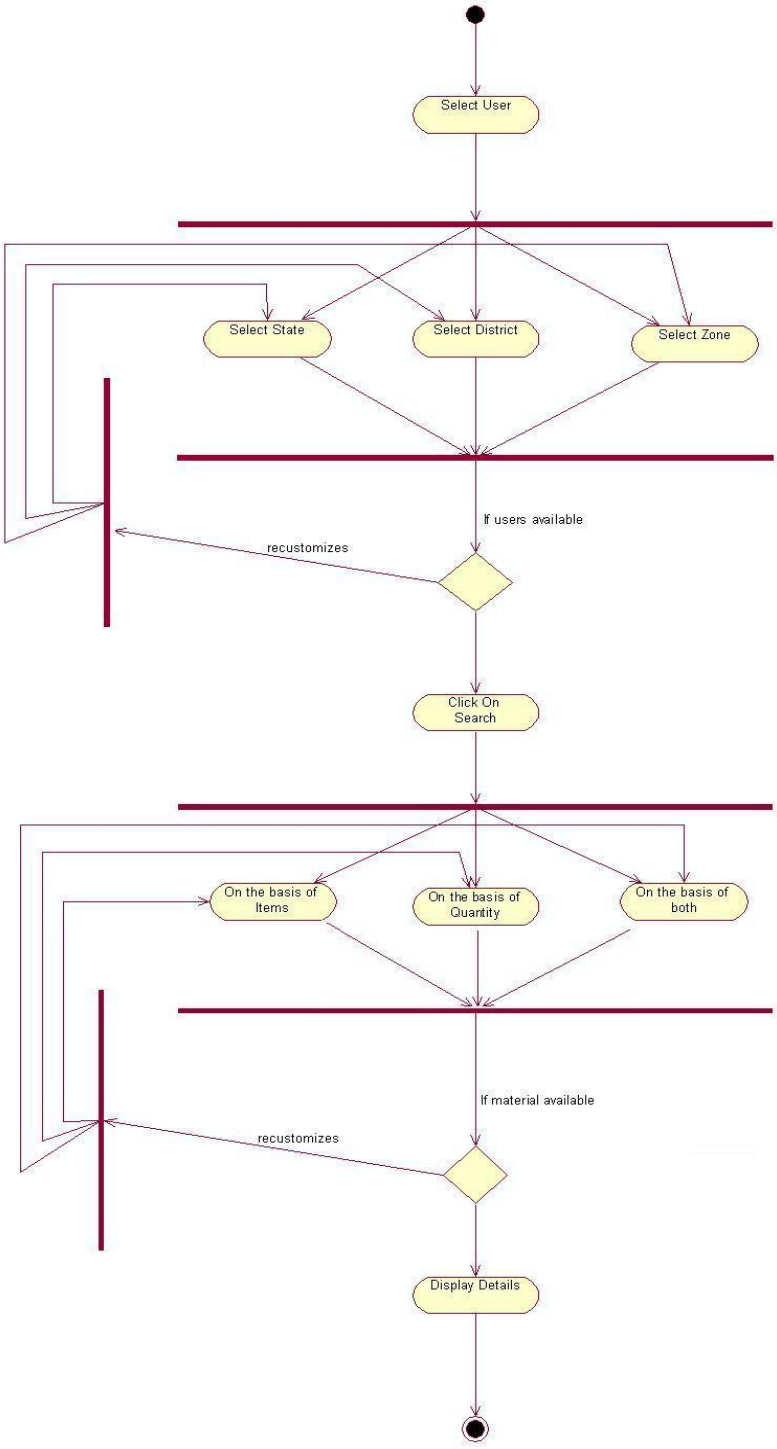
3.1.7) Activity Diagram for login privileges



3.1.8) Activity Diagram for user registration

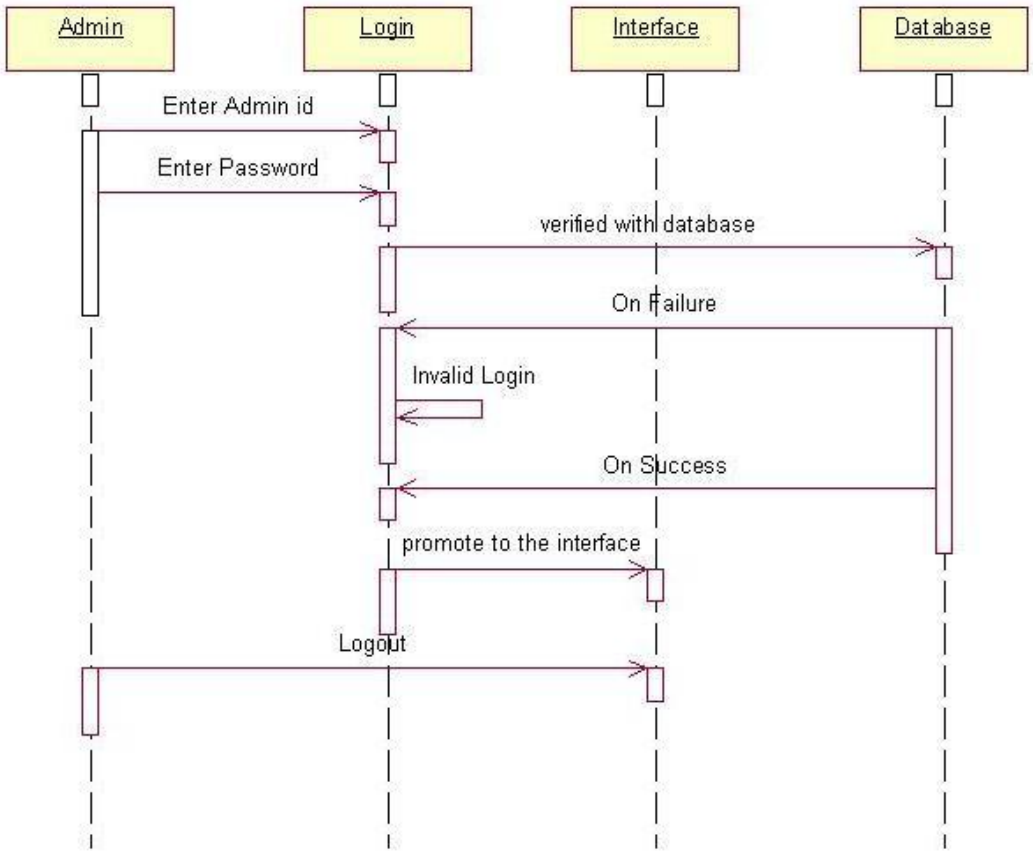


3.1.9) Activity Diagram for search items

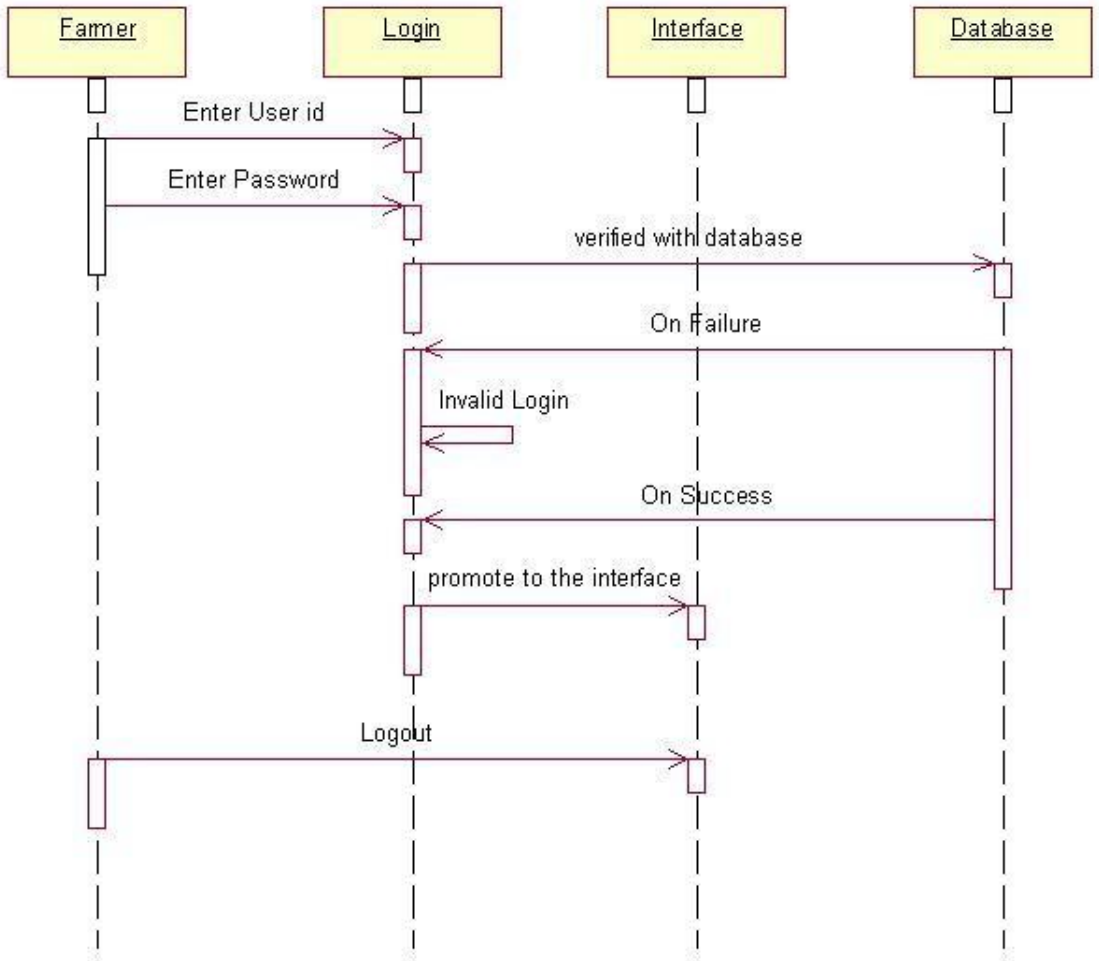


3.2 Sequence Diagram

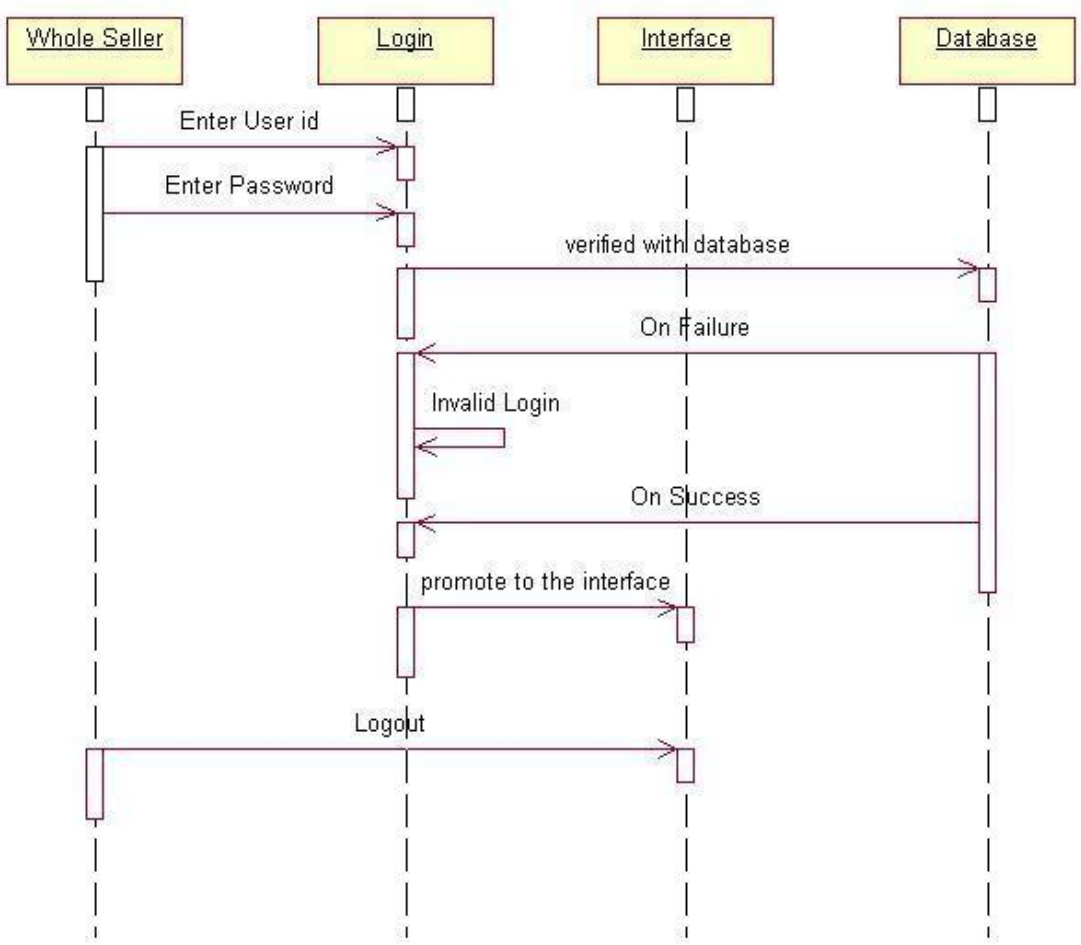
3.2.1) Sequence Diagram for Admin



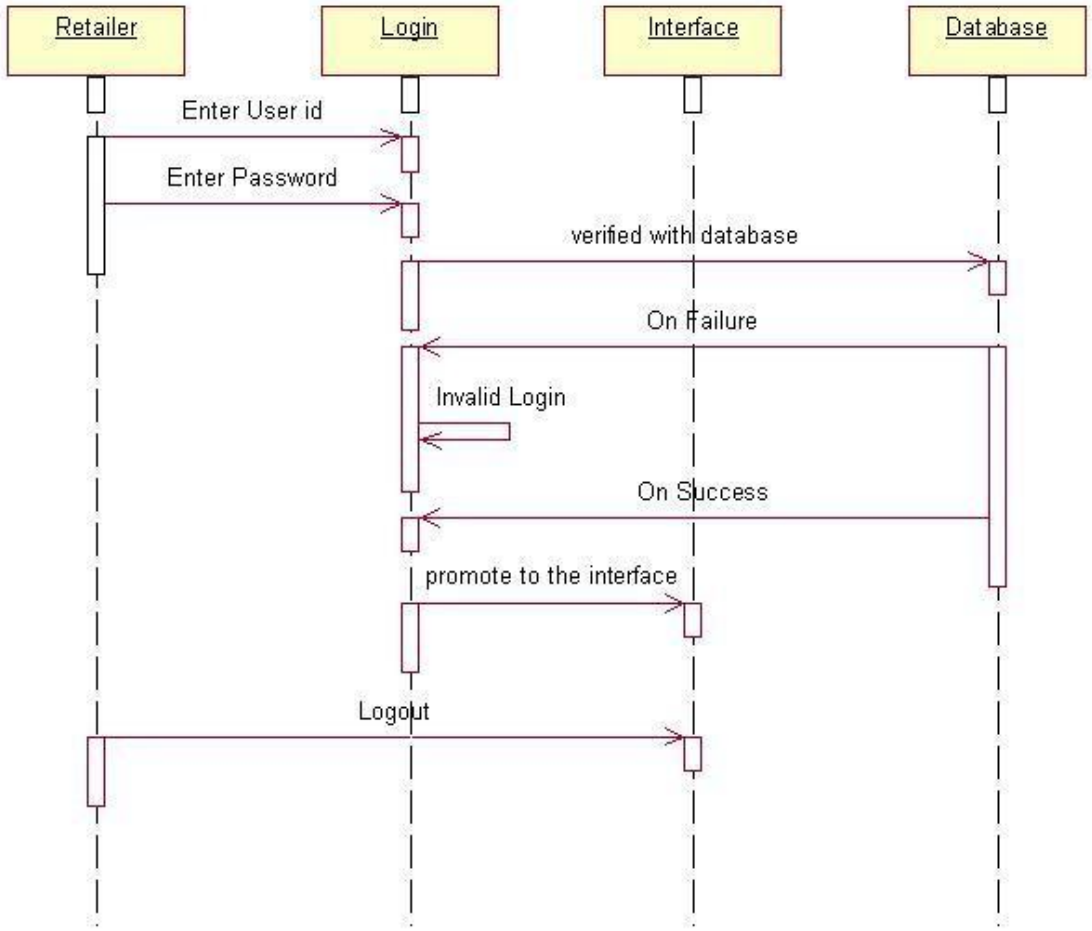
3.2.2) Sequence Diagram for Farmer Login



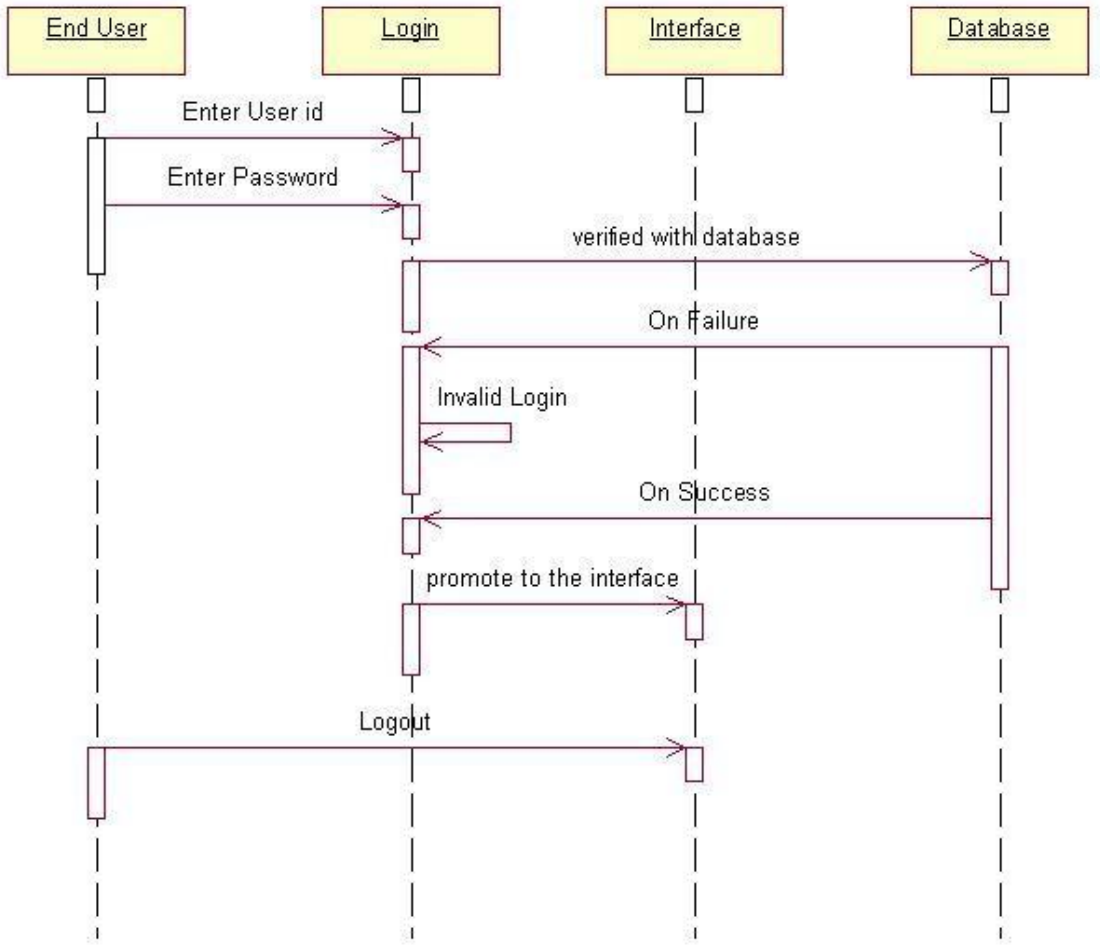
3.2.3) Sequence Diagram for Whole Seller Login



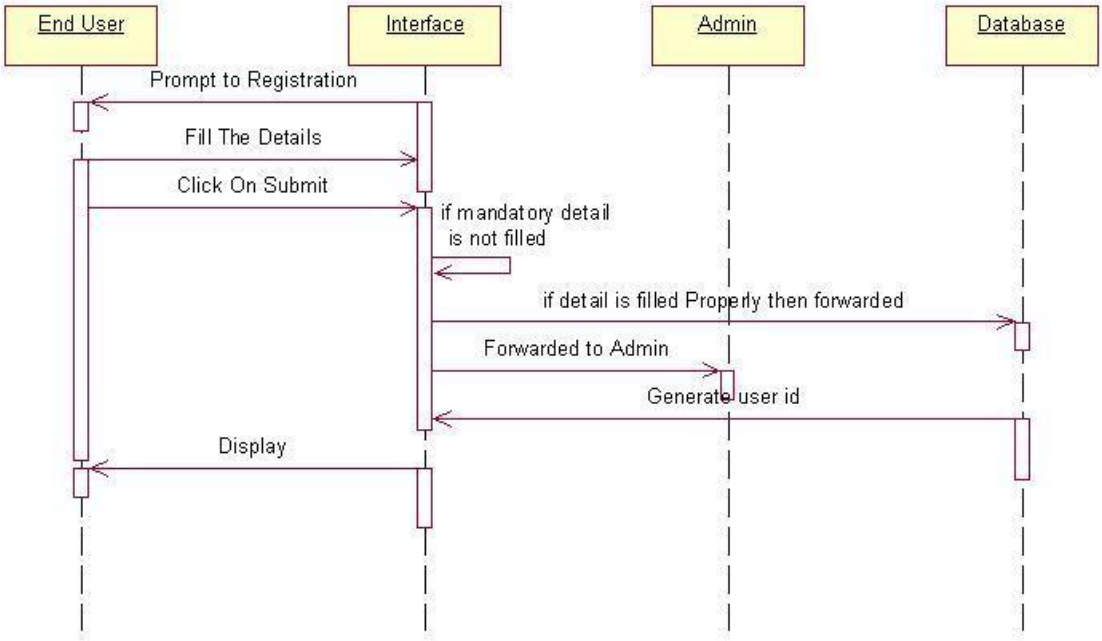
3.2.4) Sequence Diagram for Retailer Login



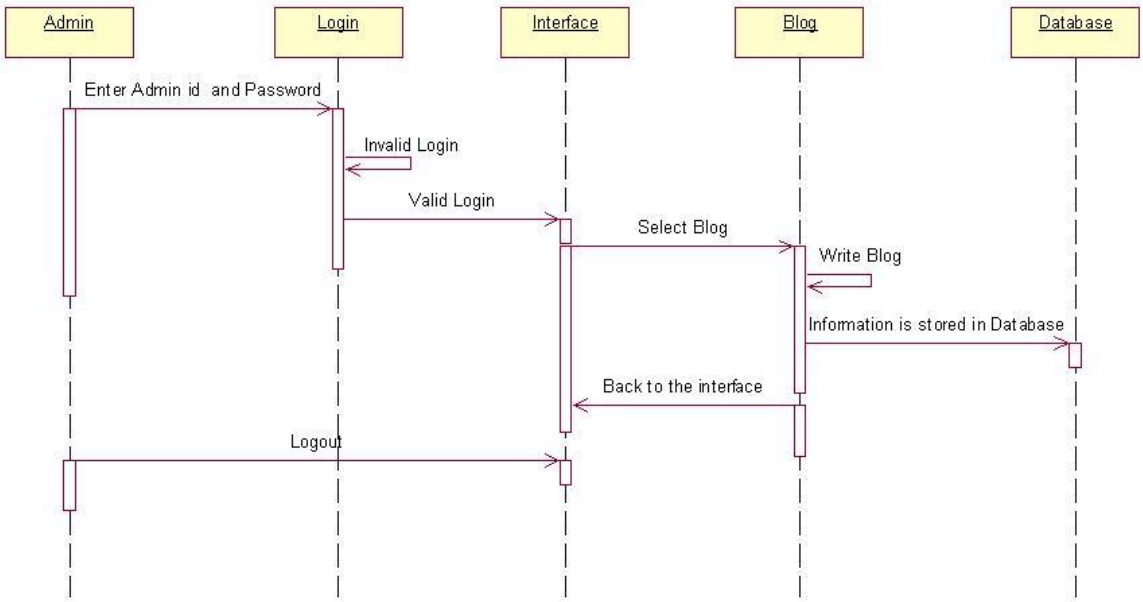
3.2.5) Sequence Diagram for Civilian



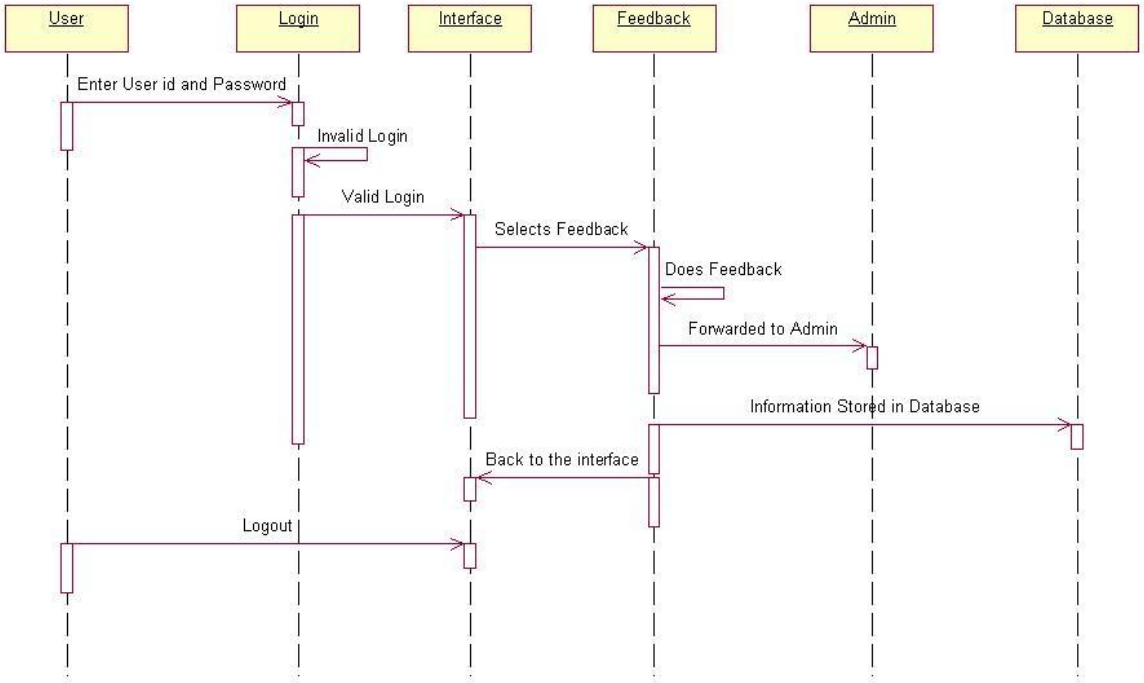
3.2.6) Sequence Diagram for Registration



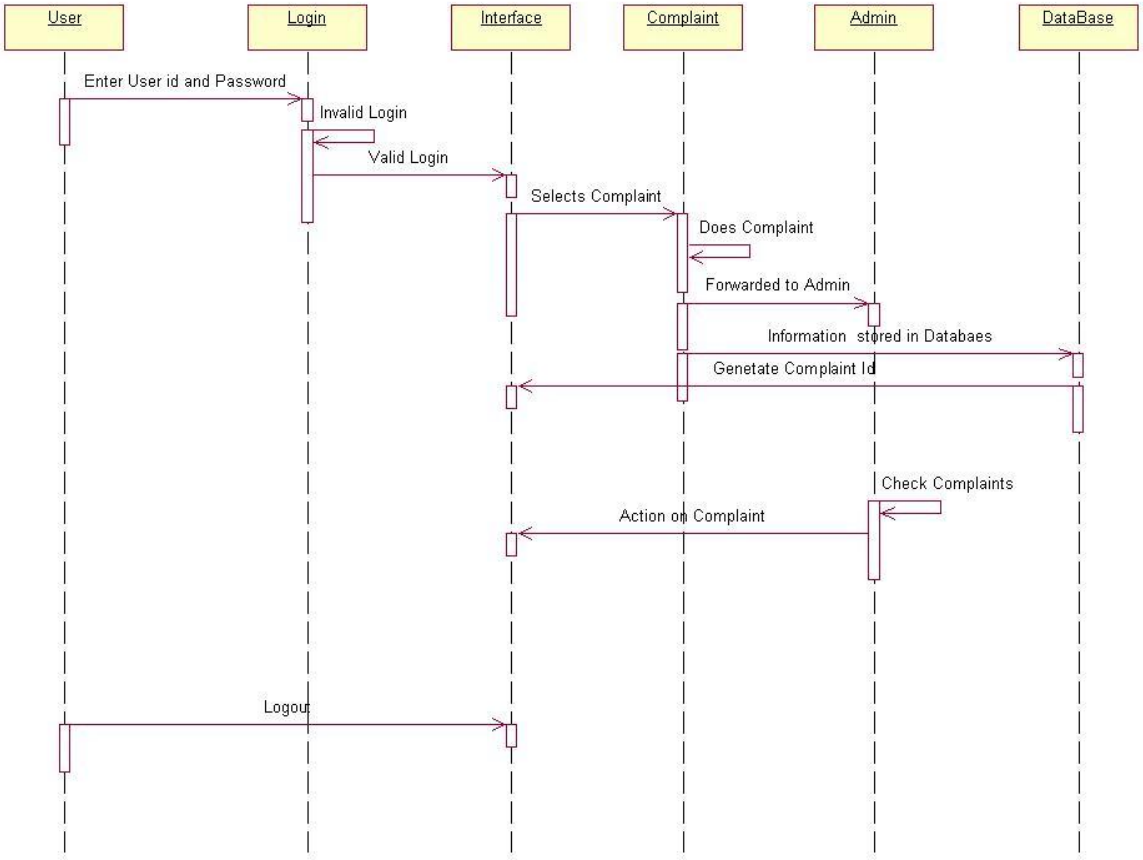
3.2.7) Sequence Diagram for Blog



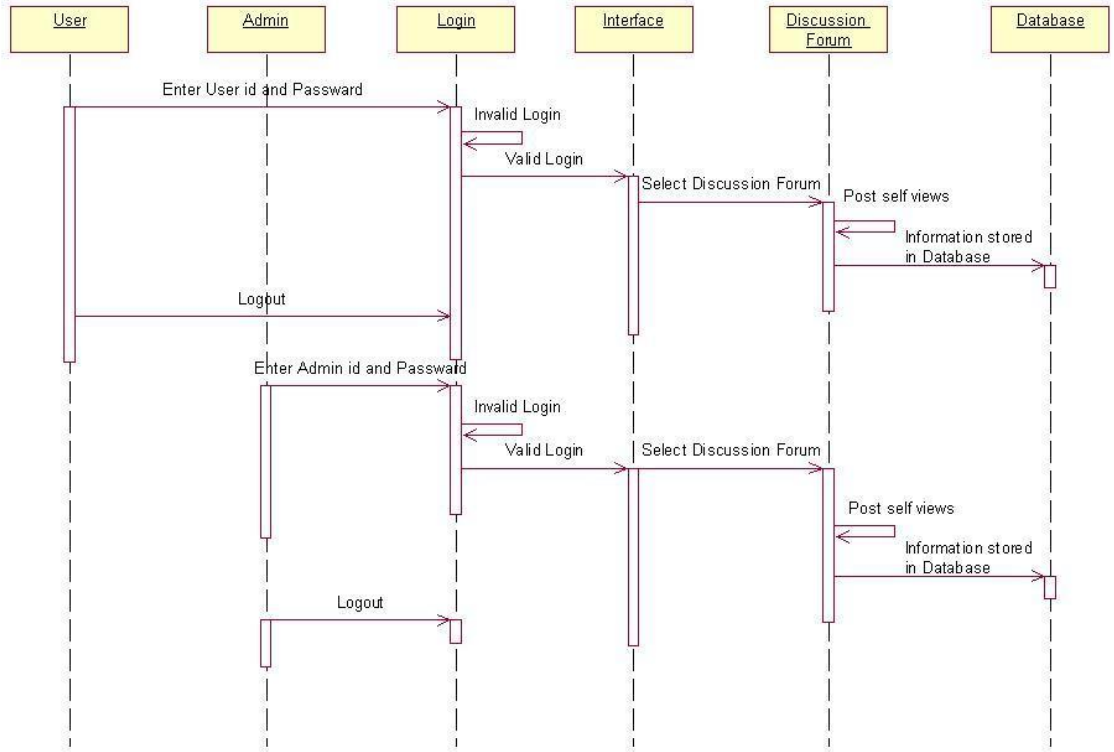
3.2.8) Sequence Diagram for Feedback



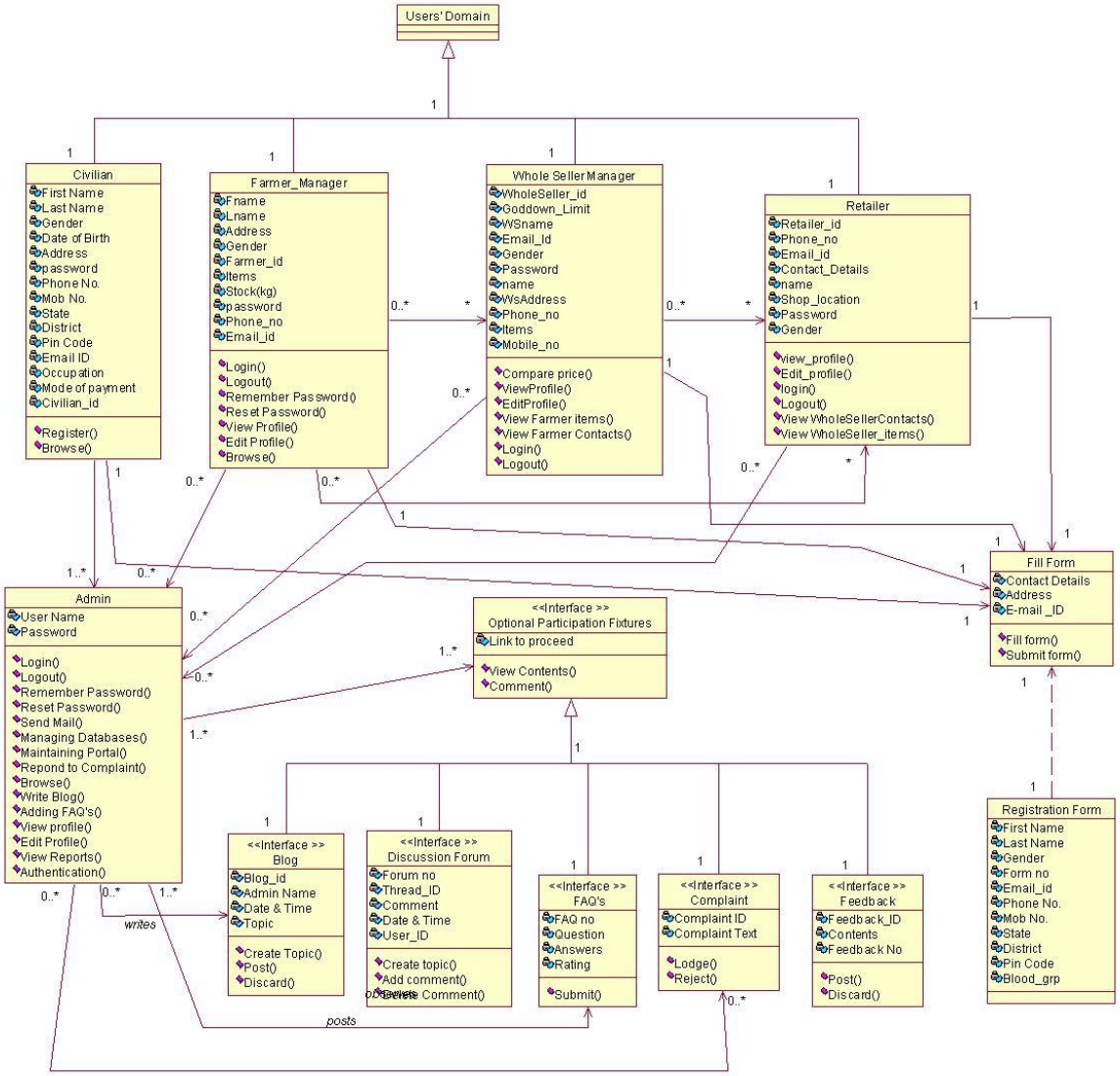
3.2.9) Sequence Diagram for Complaint



3.2.10) Sequence Diagram for Discussion Forum



3.3 Class Diagram



3.4 Feasibility Study

- **Introduction to feasibility study:**

  A feasibility study's main goal is to assess the economic viability of the proposed business. The feasibility study needs to answer the question: **"Does the idea make economic sense?"** The study should provide a thorough analysis of the business opportunity, including a look at all the possible roadblocks that may stand in the way of the cooperative's success. The outcome of the feasibility study will indicate whether or not to proceed with the proposed venture. If the results of the feasibility study are positive, then the cooperative can proceed to develop a business plan.

  If the results show that the project is not a sound business idea, then the project should not be pursued. Although it is difficult to accept a feasibility study that shows these results, it is much better to find this out sooner rather than later, when more time and money would have been invested and lost.

- **Purpose:**

  Before developing a product or software, it is an essential step that one does feasibility study in some or all the areas mentioned which would help in developing and maintaining the software efficiently and effectively within budgeted cost.

- **Economic Feasibility:**

  Built on the information provided in the feasibility study, a business case is used to convince the audience that a particular project should be implemented. It is often a prerequisite for any funding approval. The business case will detail the reasons why a particular project should be prioritized higher than others. It will also sum up the strengths, weaknesses and validity of assumptions as well as assessing the financial and non-financial costs and benefits underlying preferred options. Our project i.e. E-mandi is an

economically successful venture as it does not require humungous amount of investment in case of time as well as money.

- **Technical Feasibility:**

E-mandi is technically feasible as it can be upgraded for providing public utilities along with online registration and open browsing. Even the admin has got the write to make authentication online making full use of the server and technologies available. It is user friendly as the GUI (Graphical User Interface) assists the retailers, whole sellers and end users who are not from IT background. It is also OS compatible and supports multiuser environment.

- **Behavioral Feasibility:**

This is an estimate of how strong a reaction the users staff is likely to have towards the development of a computerized system. The users without much frustration accepted the system. Users can use the project without any training because of the user friendliness. Here, in e-mandi all the end users and farmers, whole sellers and retailers are free to give heir feedback about the behavioral aspect of the scenario and states if the requirement of staff and the working staff at present are in co-relation and thus ensuring the behavioral stability in the system.

- **Time Feasibility:**

In this part of the feasibility study what we need to do is to have a proper check over the fact that whether or not the project is being completed on time. What else we need is have a sound knowledge of the deadline assigned to the project and to get it completed on time and to move further. The time schedule required for the developed of this project is very important since more development time affects machine time, cost and causes delay in the development of other systems. The system is compatible for all the latest browsers and

servers, hence the time requirement for processing would not be an issue. Thus, e-mandi is time feasible project to implement.

- **Resource Feasibility:**

It is also an essential part of a feasibility study. It includes questions regarding time required to complete the project, type and amount of resources required and dependent factors. It also takes care whether the project is interrupting any current business activity. So it takes care of optimum utilization of the resources available. Time is considered as money, and as we understand its value significantly, we always look forward to complete the project in a time efficient way. While carrying out any new project our experts always take care that it's not affecting any other current business activity. We have a strong team who has the ability to finish a project in a given time frame with a definite output. We always take care of all the resources necessary to complete any project. All the important resources like human resource, artificial resources, financial resource etc. are taken care of. You do a complete research on feasibility of the resources needed to complete the project.

3.5 Work Summary

- Use Case Diagrams – Rational Rose (by IBM)
- Database Diagram – Open Office (by ORACLE)
- Activity Diagrams - Rational Rose (by IBM)
- Sequence diagrams - Rational Rose (by IBM)
- Class Diagram - Rational Rose (by IBM)
- E-R Diagram – Smart Draw

Project - E-Mandi	**Version -** 1.0
File - Software Requirement specification	**Team** – Quark Returns

Special Thanks

We convey a special thanks to our department and to our college. We also convey a special thanks to all these softwares and websites, they have been helping a lot in doing the project.

Also, we also are grateful to IBM, who has given us such an excellent opportunity to nurture our analytical level beside improving our coding skill by providing us with such good templates and scenarios to work on.

Finally, we are obliged that you all spent your precious time for reading our SRS work patiently.

With Regards,
Team Quark Returns