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Arunella

SRS Report



Group IS-20

University of Colombo School of Computing

Content

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1. Introduction

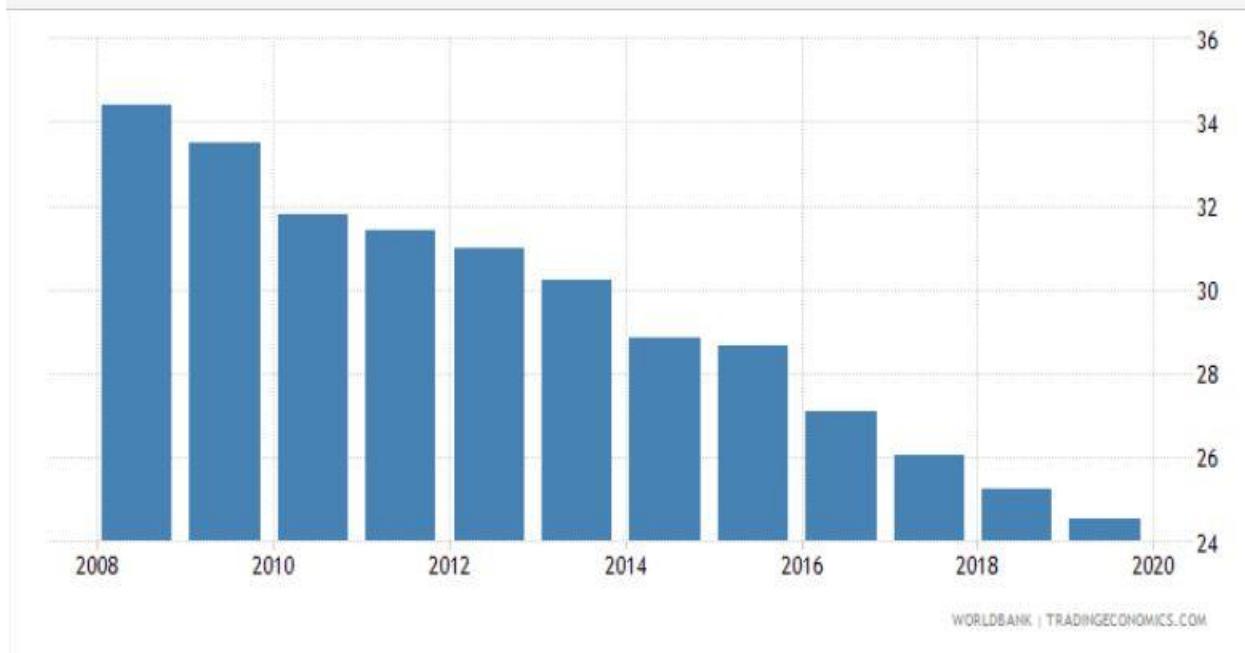
1.1 Domain Description

Sri Lanka has a strong agricultural history dating back more than 2500 years. Agriculture is not just an economic activity in Sri Lanka. Agriculture is the way that interconnect the human life with the nature. Sri Lankan culture, society and the economy is based on agriculture. Most of the people who live in rural areas are depend on Agricultural sector.

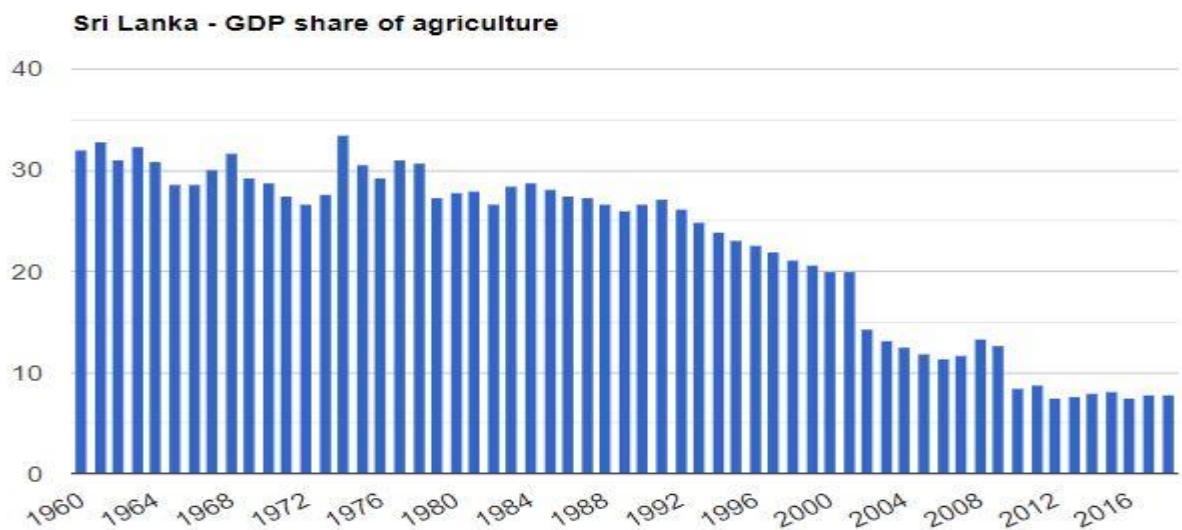
Agriculture has many sectors such as growing crops, livestock, poultry, fishery, dairy etc. Agriculture of Sri Lanka has been dominated by four main crops. They are rice, tea, rubber and coconut. Rice is cultivated during two seasons and almost all rice harvest is for internal consumption. Tea a major source for foreign exchange is cultivated in central highlands of Sri Lanka. Most of tea and rubber harvest are exporting and coconut is used in both domestic and international markets. Fruits, vegetables, seed crops are also cultivated in the country. Although other crops are exporting, they couldn't challenge those four main crops. Tea, coffee and spices takes 8.8% of exportation and rubber and rubber articles takes 8.2% of total exportation of Sri Lanka.

When we consider about the present condition, agriculture plays an important role in Sri Lankan economy. Majority of the Sri Lankan work force engaged in agriculture. According to the World Bank collection of development indicators, agriculture takes 24.52% of total employment in 2019. But due to many reasons the employment percentage level engaged in Agricultural sector decreased. And main reason for that decrement is, youth getting away from agriculture due to lack of attractiveness and lack of economic and social protection from agriculture towards them.

Sri Lanka - Employment In Agriculture (% Of Total Employment)



Although the 24% of total employment in Sri Lanka engaged in Agricultural sector, the contribution to the gross domestic product from agricultural sector, declined substantially during past two decades. It is 7.87% of total GDP in 2018.



How crops are selling within the country?

Before 1998, if whole sellers want to buy goods they had to come to the farmers place or, farmers had to go to the market place of the seller to sell their products. But in 1998, government started setting up “Dedicated Economic Centers (DEC)”, which provides farmers and whole sellers a market place to buy or sell their products. After 2007, coordination and supervision of DEC is carrying out by the Ministry of Trade, Marketing Development, Co-operative and Consumer Services.

Government has mentioned their objectives for setting up economic centers as,

- Ensure obtaining reasonable prices for agriculture producers for their crops by providing targeted market.
- Provide opportunity to small scale producers to minimize their transport costs and wastage in transportation.
- Provide opportunities for wholesale traders to purchase fresh fruits and vegetables, directly from producers.
- Encourage business community by providing competitive marketing environment for wholesale traders.
- Provide facilities for consumers to purchase food items at cheaper prices.

There are 14 Dedicated Economic Centers was established all over the country as now. They are Dambulla, Nuwaraeliya, Thambuththegama, Kappettipola, Kurunduwaththa, Veyangoda, Welisara, Narahenpita, Rathmalana, Meegoda, Embilipitiya and Piliyandala. And two more DEC established in 2017 in Kilinochchi and Ampara.

After the establishment of DEC, farmers bring their goods to these Centers and whole sellers also come to the economical center to buy goods from farmers. As western province and other provinces around the western province has highest population of the country, consumption of food items also high in those areas. So the demand for the food items are huge in these areas. But most of the cultivation is happened away from those areas. So that most of the farmers are depending on their nearest economic centers. So the farmers of other areas have to supply their products to geographically dispersed areas. So a huge amount of products from dry zone are supplied in to Dambulla, Thambuththegama and other Economic Centers located in those areas. When huge amount of supply come in to a single DEC, they could not handle those stocks effectively. This cause to a huge amount of wastage of food products.

Now it has been more than two decades, but there are only 14 economic centers established in all over the country since 1998. But those economic centers do not spread all over the country and also they don't even fulfill the whole country's requirements.



Issues happened in the current system

Although the government wanted to provide a good market place to farmers, and sellers through those dedicated economic centers they couldn't achieve their objectives completely. Many issues arose with the time.

1. Farmers couldn't sell their agricultural products for reasonable prices
2. High bargaining power of intermediary parties (whole sellers)
3. Extra ordinary scarcity of some products generated by intermediaries
4. Sell products to consumers for unreasonably high prices
5. Excessive wastage of food items
6. Unnecessary production

Ultimately farmers were demotivated because they have to sell their products to unreasonably low prices and also they could not afford the high transportation cost which resulting less or no profit. Small scale farmers are the people who suffer a lot. And also with the current system it is hard for the new farmers and new sellers to enter in to the market. Because of that many small scale sellers also hardly survive in the market.

Reasons for Issues

Main reasons for those above mentioned issues are,

▲ **Gap between farmers and the government**

Government do not have a proper method to connect or communicate with the farmers. This leads to many problems as farmers do not have a party to listen to their problems and also the government couldn't understand the problems that is really happening in the country.

▲ **Lack of government intervention for the agricultural sector**

There is a huge need of proper regulation from a central body to the cultivation, buying and selling of goods, pricing etc. The lack of intervention to those areas leads high bargaining power of intermediate parties, unreasonable prices for farmers and also for consumers, extraordinary scarcity, excessive production and wastage, unnecessary importation etc. If government interfere to those areas and take proper measure, those problems may minimized.

▲ **Lack of knowledge of the government about the agricultural sector**

The government doesn't have proper idea about the harvest, cultivation areas, production and other agriculture related things. This is because they don't do a proper agricultural census so those census doesn't provide an overall picture. And the main weakness of the government in this problem is they only do periodic agricultural census. According to the Agriculture and Environment Statistics division of the Department of Census and Statistics of Sri Lanka,

“The census of agriculture conducted by the division happens in once 10 years. The last census of agriculture was conducted in the year 2002. “

▲ **Lack of management of economic centers**

Government doesn't managing the dedicated economic centers properly, leads to high wastage of agro products. This is because an economic center doesn't have the capability to handle huge amount of harvest that are supplied to them. There are limited number of economic centers in the whole country. One center may have to deal with large amount of farmers, sellers and enormous amount of harvest. Sometimes lack of quality and the storage will also leads to high amount of wastage.

▲ **Lack of intervention of technology**

As technology is thriving and relate with all the sectors, we must also add the modernized technology to agriculture. This becomes a huge need, because with the intervention of technology most of the activities can be smoothen.

Proposed Solution

Here we captured two main problems. They are lack of intervention of government to the agricultural sector and lack of knowledge towards agricultural sector. To address this problem we are planning to develop a web site that links farmers and the government which helps to reduce the gap between them. And also through this system government can interfere in to the agricultural sector by managing pricing of products and managing harvest. This will helps to prevent the unfairness to the farmers and also extraordinary scarcity generated by intermediary parties. This system will also calculate information from farmers that will ultimately help the government to get a broad and continuous idea about the harvest, cultivation products, areas, wastage etc.

This system consists four main types of users. They are farmer, buyer (whole sellers), government authorized officer, and delivery person. This system takes all the data of the farmers through those government authorized officers who are assigned to each area (district). Authorized officers are the intermediate party which communicate with all other users.

Government authorized officers are appointed to each area. He has to manage all the farmers and the harvest collected from those farmers. And he has the authority to change the prices of some of the products for his area.

All the farmers of the country must register to the system even if they are selling through this system or not. Purpose for that rule is to get all the information of the harvest to the government. Farmer who has registered to this system has two options. Whether to supply their goods to the government or whether to provide harvest information only. Farmers can register in to the system and only provide information. If he/she decides to supply their products to the government he/she has to deliver their goods to their registered nearest hub in their area. They do not have to deliver products to the far away economic centers. They only have to deliver them to the collecting center which is located in his area.

Buyer or the whole sellers can register in to this system and order through the system. They can order their goods from their preferred area. To get their order they have to come to their nearest hub or hub located in his area.

Delivery person of this system is the one who deliver the packaged orders from a hub to the destination hub. Delivery person will be moving between two hubs only.

Admin in this system will also plays a massive role. Because admin of this system is not just a technical person. Admin will be a person in the government, agricultural department. He is the one who assign prices and valid price ranges for all the products.

(But the pricing calculations will not be done by Admin.)

Benefits offered by the system

- Farmer
 - Reasonable prices.
 - Reduced transportation cost.
 - Motivation to enter in to the market

- Buyer
 - Reasonable prices
 - Reduced transportation cost
 - Good quality products
 - Save time
 - Motivation to enter in to the market

- Government
 - Save time and man power
 - Can use census data collected through this system to future decision making
 - Motivate local production
 - Encouraging exportation.
 - Reduce importation.

Deliverables of the project

The overall result of our project is to provide working reliable and secure web based system to link farmer and buyer through the government intervention.

But in this process not only for buying and selling target but also we mainly focus about gather information about the current status of agriculture in Sri Lanka.

1.2 Objectives of the Project

As Objectives, We follow some meaningful steps which must be completed to reach the project goal. They are commonly used to communicate project purpose, direction, value and progress.

In our project main goal is to decrease the gap between farmer buyer and government. We plan some deliverables to fulfilling our goals in certain stage of project development process. Most of these are intangible,

- Provide an interface for buyers to,
 - View available products and their respective prices which is dynamically Updating with the availability.
 - Order goods and make relevant payments online.
- Provide an interface for authorized government officer to, Manage orders and view reports that are related to his area Manage goods from farmers (stock update etc.)
- Provide an interface for delivery person to,
 - View order descriptions and confirm delivery status
- Provide an interface for admin to,
 - Manage product list and respective prices
 - View reports about harvest and sales

1.3 Project Goals

The goal of our project is to make all our customers' satisfaction and make them financially strong towards the world. So among them we are trying to empower the agricultural sector to the self-sufficient economy in Sri Lanka. And also,

- Reduce the gap between government and farmers
 - We hope to build a close relation between government and farmer by this system.
- Provide reasonable prices to the farmers on their harvest.
 - Give a reasonable price to the farmer that they are happy with and not let the traders to argue with them.
- Reduce the excessive buying power of intermediate dealers and price bargaining with the farmers.
 - Being the competitor to the traders who are buying goods from the harvest is more difficult to them because farmers are sell their price at they are happy with.
- Provide access to the government to analyze the harvest and their distribution among the country.
 - Government can have the raw idea and census about the distribution of agro among the country is easy to identify the agro needs for each district or province.
- Through managing all island harvest, it will give the government the ability to,
 - get an idea about the consumption of the country
 - get an idea about the wastage and reduce wastage
- Encourage product exportation that leads to reduced wastage.
 - Not to throw away of harvest by not in quality, but to export the harvest and make them as the income to the inner country. As the products are in goo quality.
- Demotivate unnecessary importation of products.
 - Reduce the importations on agro foods and develop the farmers' lives to the higher satisfactory level. By this way we can rise as the self-sufficient island.

1.4 Assumptions

- All the users have the technical knowledge or ability to work with the system or to use this system.
- All of the users are comfortable with English language.
- All the users have particular technical resources that need to use this system.(smart device, internet connection)
- Once a farmer registered to the system and chose to supply their goods, they are supplying their goods for an agreed period.
- Once a farmer agrees to supply, the quality of their products are measured and maintained by the government hub.(farmers must meet the desired quality)
- Quality of the products are very high.
- Payments done by manual method with farmers.
- Delivery process done by the government using their own vehicles.
- There are delivery person dedicated to a particular province. They only delivering to that particular province.
- Required resources for the packaging, delivering and storing are already available.
- Government has the necessary resources to implement the new system.
- Goods selling through the system meet the quality.
- Buyers will not reject the goods.
- Orders from the buyers are not refused.
- Always the ordered quantities of goods are available in the stock and so it does not require any refunds.

1.5 Constraints

- All the farmers must register to the system.
- All the farmers must supply information of their harvest before selling them.
- Buyer should buy more than 20kg from each vegetable.
- Delivery will be done within two - three days.
- Location of the delivery person will not be tracked by this system.
- Buyers must come to the nearest hub to collect their orders.
- Prices of products are defined by the admin.(Government control prices)

1.6 Project Limitations

In Scope

Connecting farmers for agricultural hubs.

- Agricultural hubs are established for defined areas.
- Officers of the agricultural hubs should collect information about farmers and their harvest in his area.(All the farmers)
- Farmers can sell their products to government officers or any other buyers according to their preference.

Connecting buyers for agricultural hubs.

- Through registering in this system buyers can search,
 - Available products and the particular areas or officers.
 - Prices of available products.
- Buyers can send their purchase orders to authorized government officers.
- According to the purchase orders, the authorized government officer delivers the ordered items to the nearest agricultural hub that the buyer mentioned in his purchase order.
- There are delivery people for that process and also the vehicles needed for the delivery are owned by the hub.
- Buyer can buy their ordered goods from the nearest authorized government officer (agricultural hub) that they mentioned in their purchase order.

Calculating Payment

- Payment amounts for both farmers and buyers are calculated by the system according to the government control prices and quantities they sold / buy.
- The payment process for the buyers is done by an online method.

Generating reports to make decisions

- Admin can view reports of,
 - Quantity of all island harvest according to each product.
 - Amount of sales and revenue earned.
- Authorized government officers can view reports of,
 - Quantity of harvest which collects in his area.
 - Amount of sales and revenue earned in his area.

Out of Scope

Farmer

- Handle payments
 - We are not doing online payments for the farmers.
- Maintain Quality of the harvest
 - Although we expecting the quality of the goods from the farmers we are not handle them through this system. Farmers have to follow the quality guidelines given in the farming instructions.
- Gathering Products
 - Collecting the goods from the farmers will not be done through the system. They have to deliver their products to the particular agricultural hub.

Buyer

- Delivering goods
 - Deliver to the door step of the buyer will not be done. They have to collect their order from the nearest agricultural hub.

Officer

- Warehouse management will not be done through this system.

2. Project Feasibility

2.1 Operational Feasibility

When considering about the operational feasibility, the main factors that have to focus are,

- How well the system meets the requirements or the features and,
- What benefits that the new system adds to the existing system are.

Main objective of this system is to reduce the barriers between government and the farmers when communicating.

As this system is web based, it is very easy to operate who has an internet connection and a smart device. Because anybody in the user database can access the system easily by log in to the system using their respective usernames and passwords. As this system has an authentication process, the login process will be protected by doubtful logins.

And another objective of this system is the ability to gather all the information about the harvest of each and every farmer. It will help the government to get a detailed or very clear idea about the harvest of the country, or in a certain area, or of a certain product. And also to make decisions from that information.

So the system supports that objective by providing a method to collect those information through an e-form. All the farmers must update those particular information before they sell their harvest to the sellers. This e-method helps the government to collect information easily and the manpower, time and other resources that need to do this process manually will be reduced.

Another objective of this new system is to control the buying power of intermediaries and increase the selling power of farmers to a certain level. To succeed in this process, the government puts a control price on each of the products and the government buys those products and sells them to the sellers through this system.

So the system will offer a platform to buy and sell all those products. And the farmers can view the buying prices of their products so they can come to an opinion whether to sell their products through the government using this system or to sell them to the sellers directly, according to their preference. It will be very easy and reasonable to farmers because they have guaranteed prices to their products and they don't have to wait for sellers physically, if they chose to sell through this system.

And also this system will support sellers by introducing a platform to check out selling prices of all the products and the available quantities. So they can choose whether to buy from the farmers directly or buy through this system. If they chose to go with this system, they can order their products through the system and so they don't want to seek for farmers by going to their areas. And also another benefit that sellers will get from using this system is the delivery. As the ordered products will be delivered to the nearest hub of the seller, they won't have to go to the farmers and so the transportation cost of the sellers will be reduced.

2.2 Economic Feasibility

When considering the economic feasibility, it relates to the cost effectiveness of this system. Main factors that should consider are,

- Whether the system is cost effective
- How profitable is the system
- Whether it pays off for itself

To measure the cost effectiveness of the system, we have to compare the cost with the benefits of the system.

Cost

There are many types of costs related to this area, such as cost related to purchasing hardware or software, any training cost (staff training about the new system), or any cost when the new system is implemented to the company or organization, and other operational costs related to maintaining and upgrading the system throughout its life cycle.

Development Cost

These are the onetime costs that are associated with developing the system.

- Software cost
 - uses free and open source software to develop and implement system
- Hardware cost
 - doesn't require purchasing new hardware, can use existing resources
- Implementation cost
 - doesn't require a huge cost.
- User training cost
 - additional training cost may be incurred, because the System is totally new for the users (officers)
- Computer usage cost
 - electricity, internet charges that needs when developing
- Domain and hosting cost
 - we are going to use local host or free hosting service.

Operating Cost

These are the recurring costs throughout the lifetime of the system.

- Maintenance and Upgrading Cost - these cost are depend on the technology, time and the defects that can be happen

- Training cost - training cost for the new users (depends)
- Other cost - electricity, communication charges that depends on the usage

Benefits

The benefits of the system that add value to the organization or the users can be tangible or intangible benefits.

Tangible Benefits

- Save time
- Save manpower
- Save hardware/ stationary cost
- Increase revenue

Intangible Benefits

- Increase user experience
- Increase satisfaction
- Increase effectiveness/ productivity

Cost Benefit Analysis

When taking those costs and benefits into account, the accurate value of the operating costs and the intangible benefits are hard to measure. Because those operating costs will depend on the usage, time and the technology used at that time and also the seriousness of defects. And the intangible benefits of the system can't measure but they add more value to the system.

So when we compare those costs with the benefits that we get through this system, it will show that the value of the benefits of the system is very high. As because, when we concern the long run, it will not only increase revenue but also it will supply important information that will help to make critical decisions.

And those decisions will help the government to,

- encourage local production
- analyze wastage
- encourage exportation
- enhance economic growth etc

So the cost benefit analysis shows that this project is economically feasible.

2.3 Technical Feasibility

When considering about the technical feasibility of the system, the main factors that have to focus are,

- Practicality of the technical solution
- Availability of technical resources and technical expertise

And the main thing when choosing technical solutions, resources and technical expertise is they should support the economic ability or the economic status of the project.

The technical solution that this project brings out are,

- a platform to connect farmers and the government, that collects information from farmers about their harvest
- a platform for sellers to buy products

This technical solution is practical as most of the people nowadays have smart devices and internet connection, and also they are familiar with using those devices. And this system will supply them a platform to do their work easily.

And as the proposed system is very user friendly, it doesn't need any complex technical knowledge to operate the system. So we can train the current employees to adapt to the new system easily. This situation will help the current environment, as no additional employees shouldn't be hired and also it will help to save money.

When considering the availability of technical resources, we have to consider more about the technologies that are going to be used to accomplish the development.

Web Development

Client-Side	- HTML, CSS, Java Script
Server-Side	- PHP

Database Management

- MySQL

The technologies mentioned above are free and open source. As they are free and open source, they are available in any web browser, and so that we don't want to spend money for possession of those technologies. So the availability of technical resources is not an issue when deploying this system.

And also we do not use any frameworks to develop this system.

As all the members of the team are familiar with above mentioned technologies, the availability of technical expertise will be solved. And also team members can share their technical knowledge among each other when needed. So we don't need to spend more for technical expertise.

When considering those mentioned factors, the development of this system is technically feasible.

2.4 Legal and Ethical Feasibility

When considering the legal and ethical feasibility, we have to measure how the proposed system can be implemented within existing legal and contractual obligations and how the system should align with the ethics and values.

Copyright Issues

Copyright issues happen whenever we publish someone else copyright protected original work/content.

As we are using free and open source technical resources, the issue of software copyright issues will be reduced.

If we are using any content from another person in this system, we will indicate the reference for that copyright content.

Data Privacy/ Security

When considering data privacy, we have to focus on following factors mainly.

- How data is collected and stored (legally)
- How the access to information will be allocated
- Whether data is shared with third parties

In this system, users should have a user account to operate with the system. If they want to get a service first they have to login to the system using their user name and respective password. So the security of the account will be protected when log in to the system.

And when creating a user account, the system will require users to enter, only adequate or important information that is needed to the system.

This system doesn't store any sensitive data such as payment or credit card information as it will breach the data privacy.

When considering the accessing data, only the relevant users have access to the particular information they need. Accesses to the data in the system will be restricted to other users. It will ensure the privacy of users and their information.

Above privacy measures apply for both external users (farmers, buyers) as well as internal users (officer, delivery person).

When consider about how data in the system managed and whether the data will be shared among third parties,

- As a privacy measure the system won't share or transfer any kind of data to third parties for advertising or any such purposes
- And as a precautionary measure, the company (government) has to establish rules and regulations about privacy and train them to obey them.

Government Constraints

As this system is built for the government we have to consider existing government constraints that relate to this system.

Sri Lanka has an open economy, with the government motivating competition not only the domestic competition but also the international competition. Open economy facilitates local and foreign entities to associate with the local economy. As a result of this process, the involvement of the government with regard to the local economy reduced. This situation motivates intermediaries to be strong and so their buying power becomes very high. This results in unreasonable prices for the farmers and also extraordinary scarcity of some products in the market which are made by them.

The proposed system will help to reduce those extraordinary powers of the buyers and also to link with farmers. But at the end this system should not breach the government policies on open economy also. As because the strict intervention of the government will demotivate the open economy.

So the system achieves that by allowing intermediaries (buyers) to buy from the government or directly from the farmers according to their preference. And the farmers also can sell their products to both the government or to buyers. But the government will offer reasonable prices as well.

And the system will not break any other rules and regulations of the government. So it proves that this proposed system is legally and ethically feasible.

2.5 Schedule Feasibility

When consider about the schedule feasibility we have to measure,

- How reasonable the project time table is
- Can the solution be designed and implemented within the proposed time period
- How much time available to develop
- Will accelerated schedule pose any risks

When considering the timeline, this project is scheduled for one year (about 46 – 48 weeks). We focus on adhering to the timeline by assigning the workload to members of the team equally and also the progress of the work will be tracked or measured.

When scheduling the time we have to consider more about the cost also. As because if we try to accelerate or speed up the work, sometimes it may lead to any risks such as productivity will be reduced and also to increase the cost that makes the project more expensive. So the best way is to handle the time very effectively and be aligned with the timeline.

The proposed time line for this project is mention in below.

Schedule – Group project

Task	April	May	June	July	August	September	October	November	December	January	February	March
	3	4	1	2	3	4	1	2	3	4	1	2
Problem Identification		1										
Requirement Analysis		1	2									
Feasibility Study and Project Scope		1	2	3	4							
Diagrams Drawing		1	2	3	4							
Documentation of Proposal		1	2	3	4							
SRS		1	2	3	4							
ER Modeling		1	2	3	4							
Database designing		1	2	3	4							
Front end Design		1	2	3	4							
Back end Design		1	2	3	4							
Database implementation		1	2	3	4							
System Implementation		1	2	3	4							
Unit test		1	2	3	4							
Integrated Testing		1	2	3	4							
System Testing		1	2	3	4							
Deployment and Maintenance		1	2	3	4							

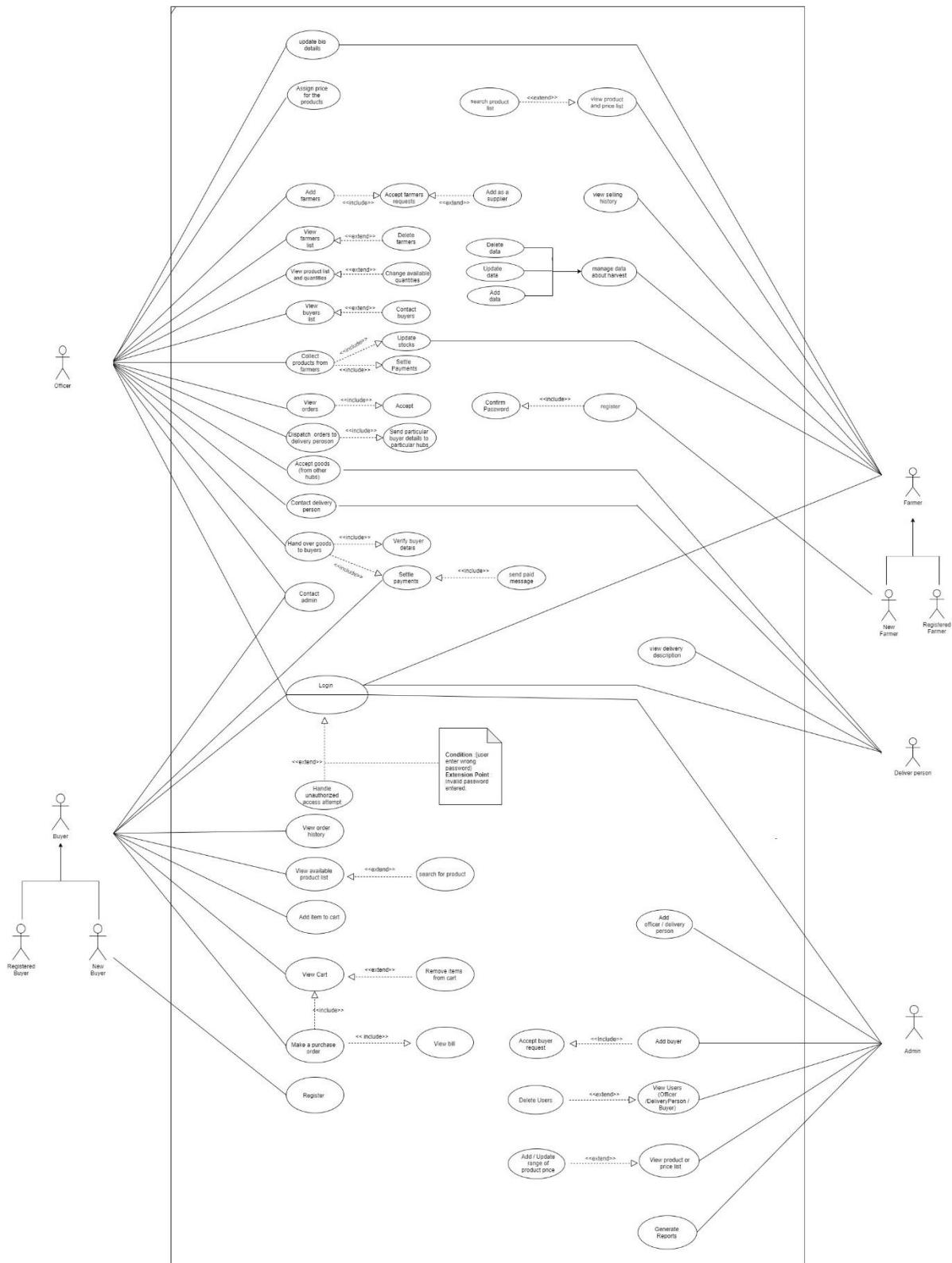
3. Requirements

3.1 Stakeholders of the system

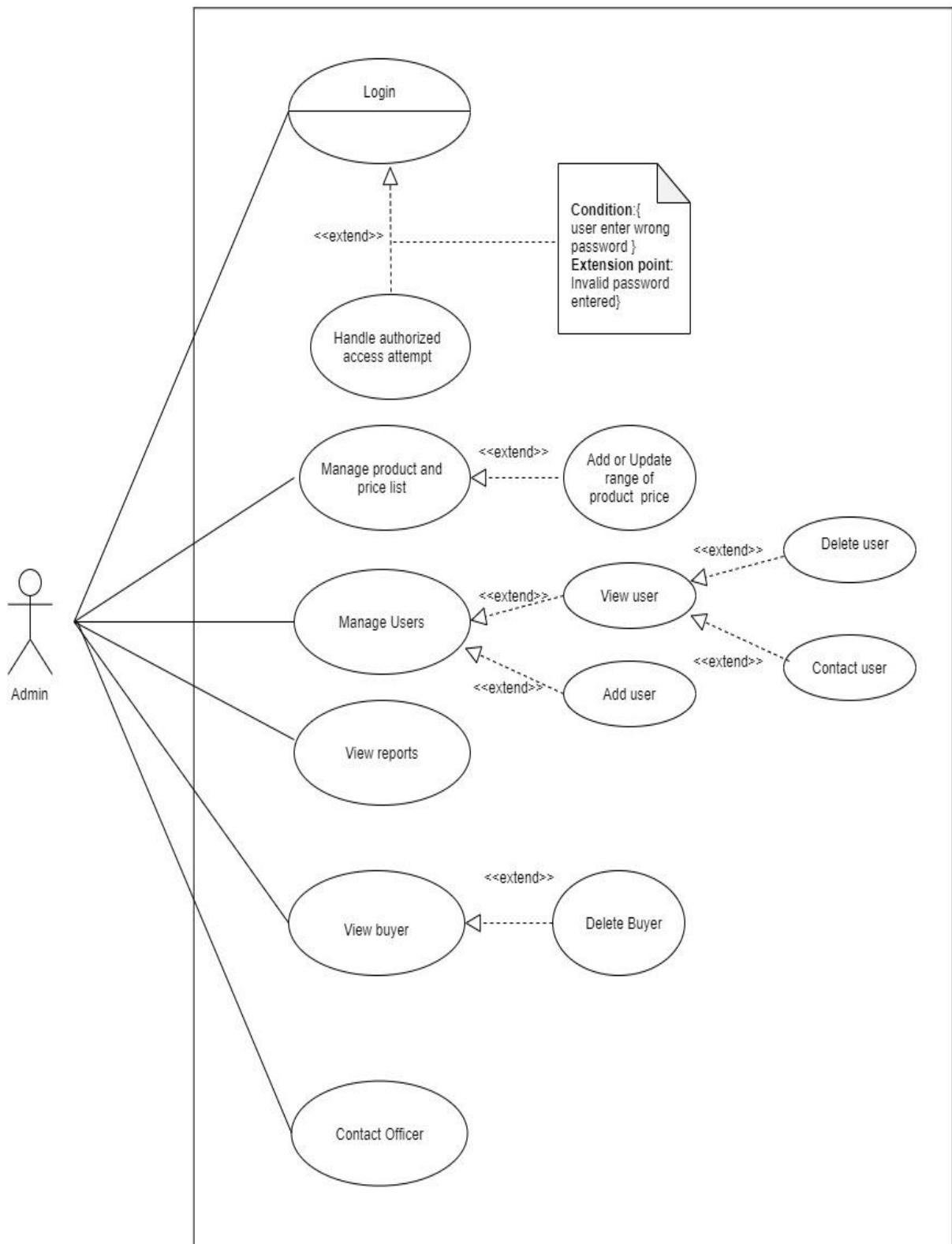
- Delivery Person
 - People who distribute products among the agricultural hubs.
 - Delivery person have access to view delivery descriptions.
 - Delivery description is the document providing proof of the delivery process.
 - Delivery description can have accessed by officer who sends order products, officers who received delivered products and delivery person.
- Farmer
 - F
 - People who do cultivation provide data about their harvest to the system.
 - They can sell their products to the government through this system.
- Buyers
 - Buyers are the people who buy products through this system.
 - They can select products that they need through this system and also they can choose the hub (area).
 - They receive their order from the nearest agricultural hub.
- Officer
 - They are people who gather information about farmers in the related area.
 - They can add farmers to the system.
 - They deliver ordered goods to particular agricultural hubs mentioned in the purchase orders.
 - And when they received delivered orders from other hubs, they hand over the goods to the particular buyers.
- Admin
 - People who have authority to define prices of products / items.
 - Admin can add new products to the system.
 - Admin make decisions according to the records which related to all island harvest.
 - Admin can add officers and delivery people

3.2 Use Case

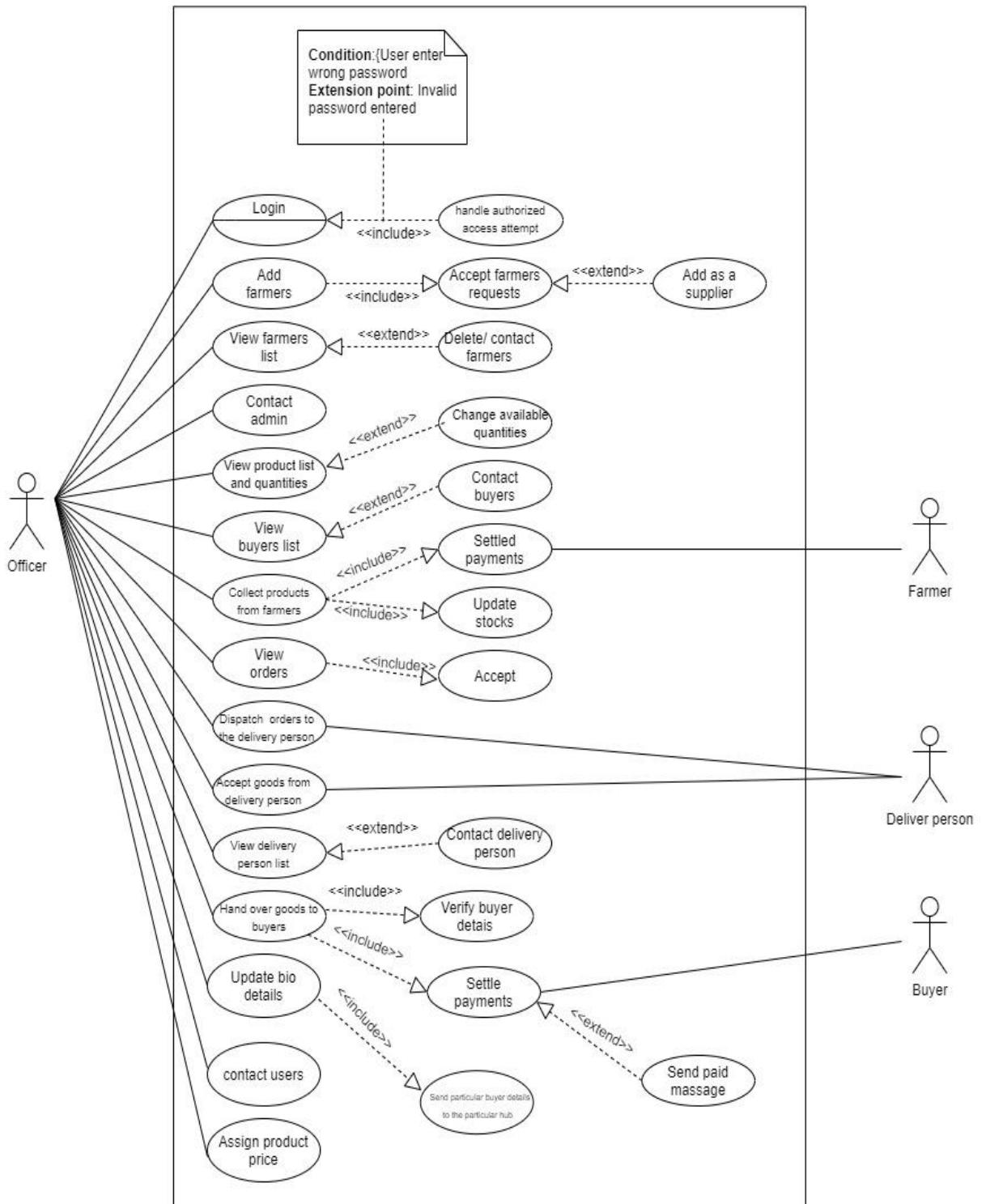
Complete use case of system



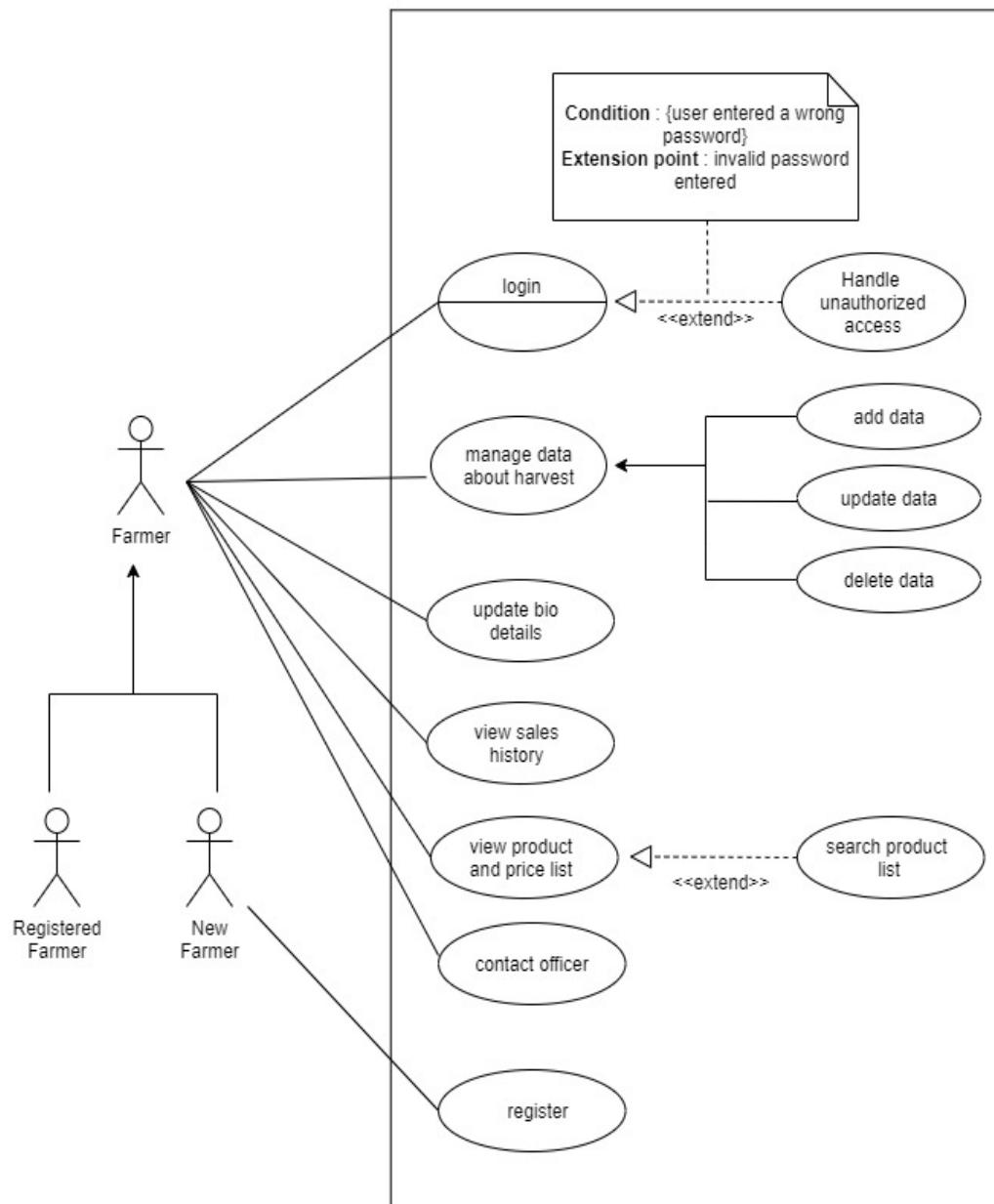
Usecase of Admin



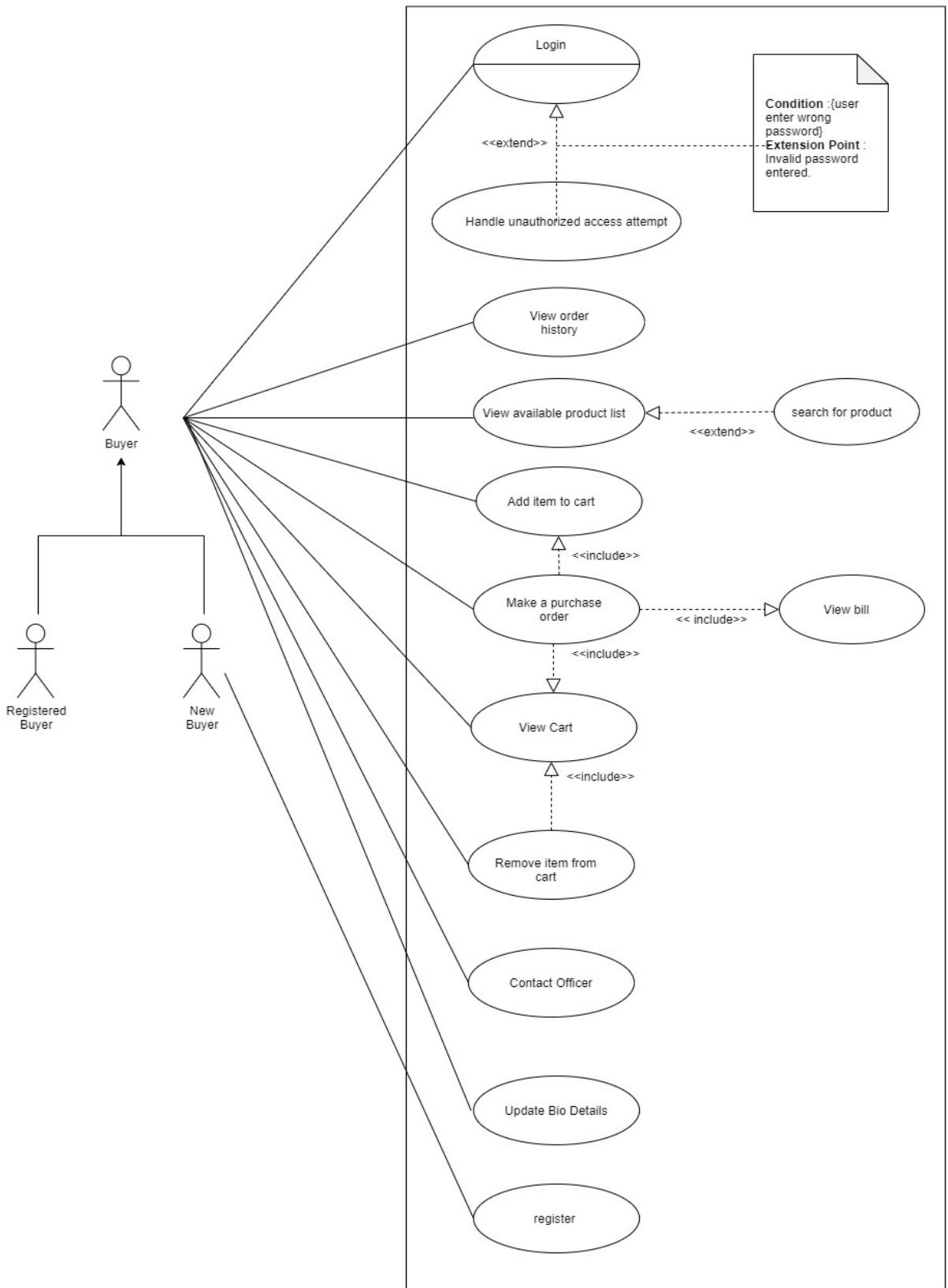
Usecase of Authorized Officer



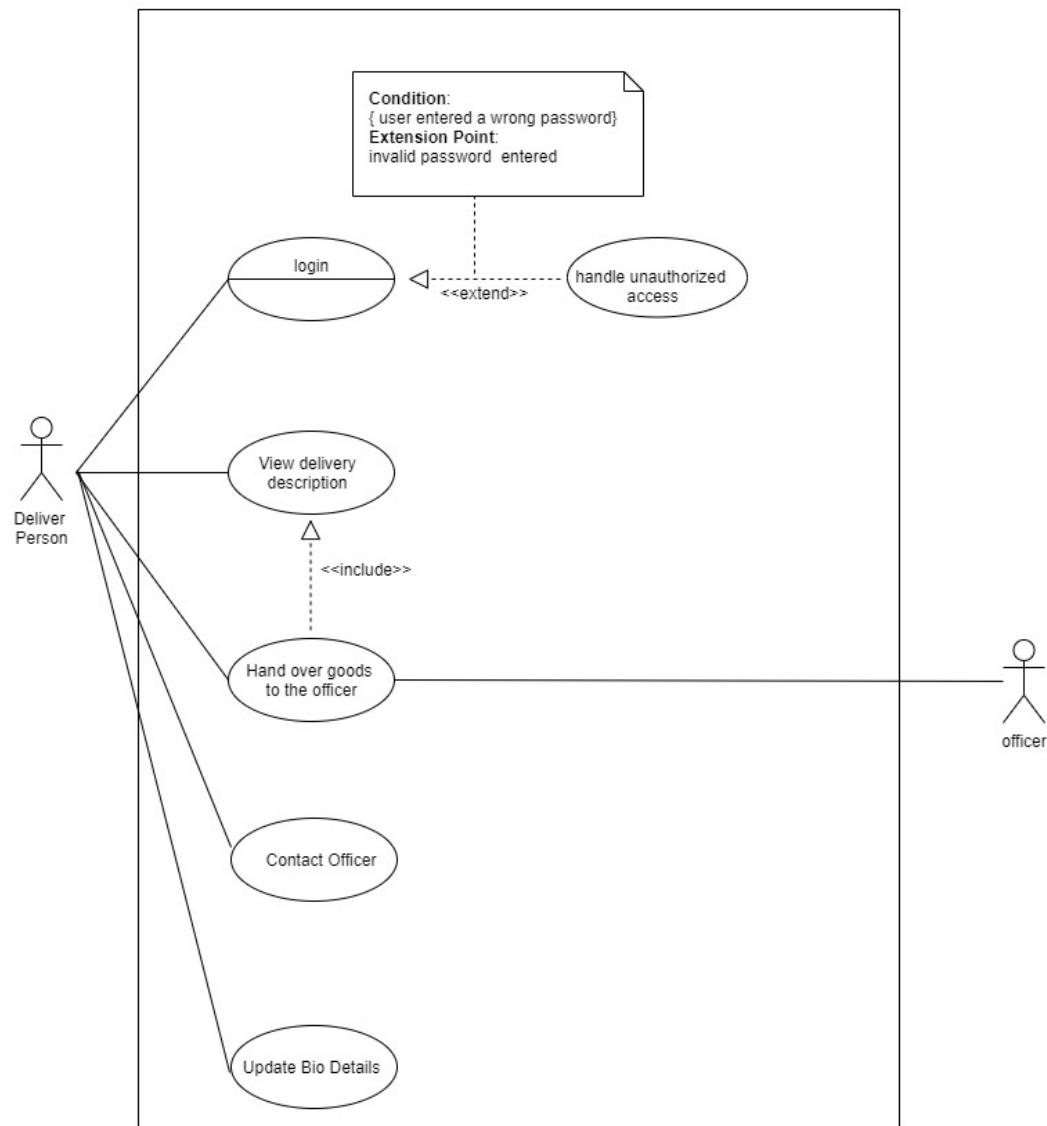
Usecase of Farmer



Usecase Of Buyer



Usecase of Delivery Person



3.3 Functional Requirements

Admin

Login

Admin can login to the system.

Logout

Admin can logout from the system.

View Reports

Admin can view reports of the system.

Contact Officer

Admin has the ability to contact officers through sending messages through the system.

Manage Product Price List

Managing product and price list can be in many ways.

- Add Items to the system
- Delete Items from the system.
- Update Items
- Update Item Prices (Selling Price / Buying Price)

Manage Users (Officers, Delivery Person)

Here Admin has the authority to manage some internal customers which means that employees. Admin can manage officers as well as delivery person. Managing them also can be in many ways.

- View Officers and Delivery Person
- Add Officers and Delivery Persons to the system.
- Delete Officers and delivery persons from the system.

Manage Buyers

Here Admin has the ability to manage buyers which are external customers of the business. Managing buyers will be,

- View Buyer
- Delete Buyer from the system

Officer

Login

Officer can login to the system.

Logout

Officer can logout from the system.

View Reports

Officer can view the reports related to his/ her area.

Update Bio Details

Here officer have the ability to view his/ her profile and update their details when there is a need.

Contact Users

As officer takes a major role in this system and he/she has to work with all other users officer has the ability to contact admin, other officers, buyers, farmers, delivery person.

View Product and Price List and Manage Prices

Officer can view the product and price list and he has the ability to change selling and buying prices of some products of his area. These changing of prices will only applied for his area and valid to that day or time period he defined.

Manage Orders

Officer is the one who manage all the orders that has ordered from his hub and that orders that has delivered to his hub.

Ordered from his/her hub

- View order and accept

When order is to the same area

- Send confirm message to the buyer

When order is to another hub

Choose delivery person to deliver from available delivery person list

- Send notification to the delivery person

After the delivery person arrived to the hub and accept the package

- Send delivery notification to the particular hub/officer

Order delivered to his/her hub

Accept package from the delivery person

- Send delivered notification to relevant hub
- Send confirm order message to buyer

After buyer has arrived and pick the order

- End the order process

Manage Farmers

Officer has the authority to manage farmers of his/her area.

- View farmer list
- View farmer signup request
- Accept signup request (add a new farmer to the system)
- Delete farmer

Collect Harvest

Officers are in charge of collecting harvest from farmers of their area. In this process officer will be filling the relevant form for collecting harvest, and

- Update stock

Buyer

Login

Buyer can login to the system.

Logout

Buyer can logout from the system.

View Order History

Buyer can view the history of orders that he has previously made and their details.

Update Bio Details

Here buyer has the ability to view his/ her profile and update their details when there is a need.

Contact Officer

Buyer can contact the officer of his area.

Make Purchase Order

Buyers can make a purchase order through following steps

- View Product List
- Add Items to Cart
- Remove Items from the Cart
- Update Cart
- View Cart
- Checkout Order
- Settle Payments

Farmer

Login

Farmer can login to the system.

Logout

Farmer can logout from the system.

Update Bio Details

Farmer has the ability to view his/ her profile and update their details when there is a need.

Contact Officer

Here farmer can contact the officer of his area/hub.

View Product and Price List

Farmer can view the product list and their prices.

Manage Harvest Information

Here this system collect farmers harvest information to the government. So farmers have to give the information of their harvest and their farms. Farmers can,

- Add data
- Delete data
- Update data

Delivery Person

Login

Delivery Person can login to the system.

Logout

Delivery Person can logout from the system.

Contact Officers

Delivery person have the ability to contact the officer of his area and other officers related to his delivery order.

Update Bio Details

Farmer has the ability to view his/ her profile and update their details when there is a need.

View Delivery Orders

Here he can view the delivery orders that has assigned to him.

Confirm the end of delivery

After he has delivered the order to the relevant hub he must confirm the handing over the delivery.

3.4 Quality attribute requirements

Usability

We provide user friendly (easy to understand) interface for all users. And also clear navigation path. Can find the information the users need easily. Improve readability of the contents.

Reliability

Information of the users will be protected. Sensitive information will not be share with third party.

And also we hope to keep privacy rules correctly. Access for the information of the users will be given only for authorized persons.

Efficiency

This can help to save lots of time because farmers no need to travel island wide to sell their goods. Farmers can sell his products at our hub which belongs to his district. So, farmers can save not only their time but also, they can save their money because they no need to travel more distance to sell their products.

Testability

We can test this system easily by running this system in a small area in Sri Lanka. If it's successful, we can use this to the whole country.

Interoperability

We can use these details for many other purposes like giving fertilizer subsidy to farmers, giving management credit bills to farmers etc. Also we can use buyers details to encourage their businesses as well as.

Reusability

This system can easily be used in other procedures in other sectors like the tea industry in Sri Lanka. We can connect tea makers with tea factories by using this system method.

Availability

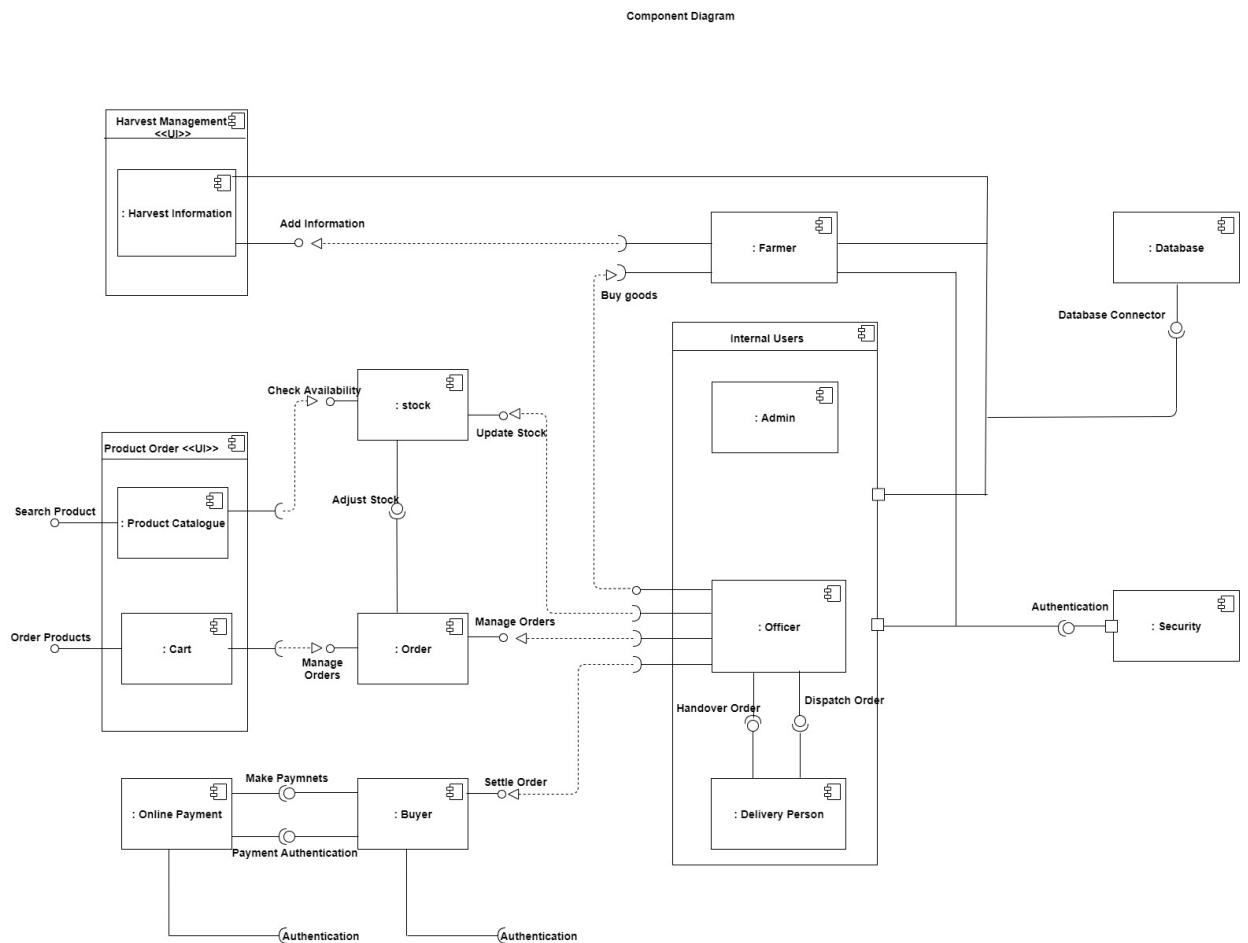
The system will be available for 24 hours.

Security

Logging process will be secured. Users have to logging to the system using their particular username and password if not access will be denied.

4. Proposed System architecture

4.1 Component Interaction



4.2 Components and their Responsibilities

Internal Users

- User registration.
- User sign in.
- Update bio details
- Contact users.
- Assign price limits and price for products.

Harvest management

- Manage Harvest

Product order

- Manage cart.
- Manage Product Catalogue

Online payment

- Handle online payment

Farmer

- Manage harvest information
- View product and price list

Buyer

- Buy products
- Done online payments
- Create cart

Order

- Manage orders

Stock

- Provide Product quantity.

Database

- Store Data

Security

- Maintain data security

4.3 Component Interaction

Harvest Component

Harvest component interact with Farmer component and internal user component. Inside of internal user component there are three sub components as Authorized officer, delivery person and Admin. All of the farmers who registered in this system should provide information about their harvest. That information gathering process done through the Harvest component. Farmers who willing to provide their harvest to the Arunella harvest collecting hubs, at the movement of buying products from farmer authorized officer can register details about the buying products through the Harvest component.

Product order Component

Product order component interact with stock component, officer component, cart component and order component. Product order component has two sub components as product catalogue and Cart. Buyer search products through this product catalogue component. Product catalogue component interact with stock component and stock component interact with order component to provide updated available product list to the buyers. Buyer component interact with Cart component and order component in the order product process. Order component and officer sub component interact to order managing process.

Online payment component

Online payment component interact with buyer and officer in the payment managing process.

Internal user component

Internal user component has three sub components as Authorized officer, delivery person and Admin. Officer interact with harvest, stock, order, buyer, farmer and delivery person components. According to the order details officer handover products to the delivery person in this process delivery person component interact with officer. And also delivery person dispatch orders to the relevant authorized officers.

Security component

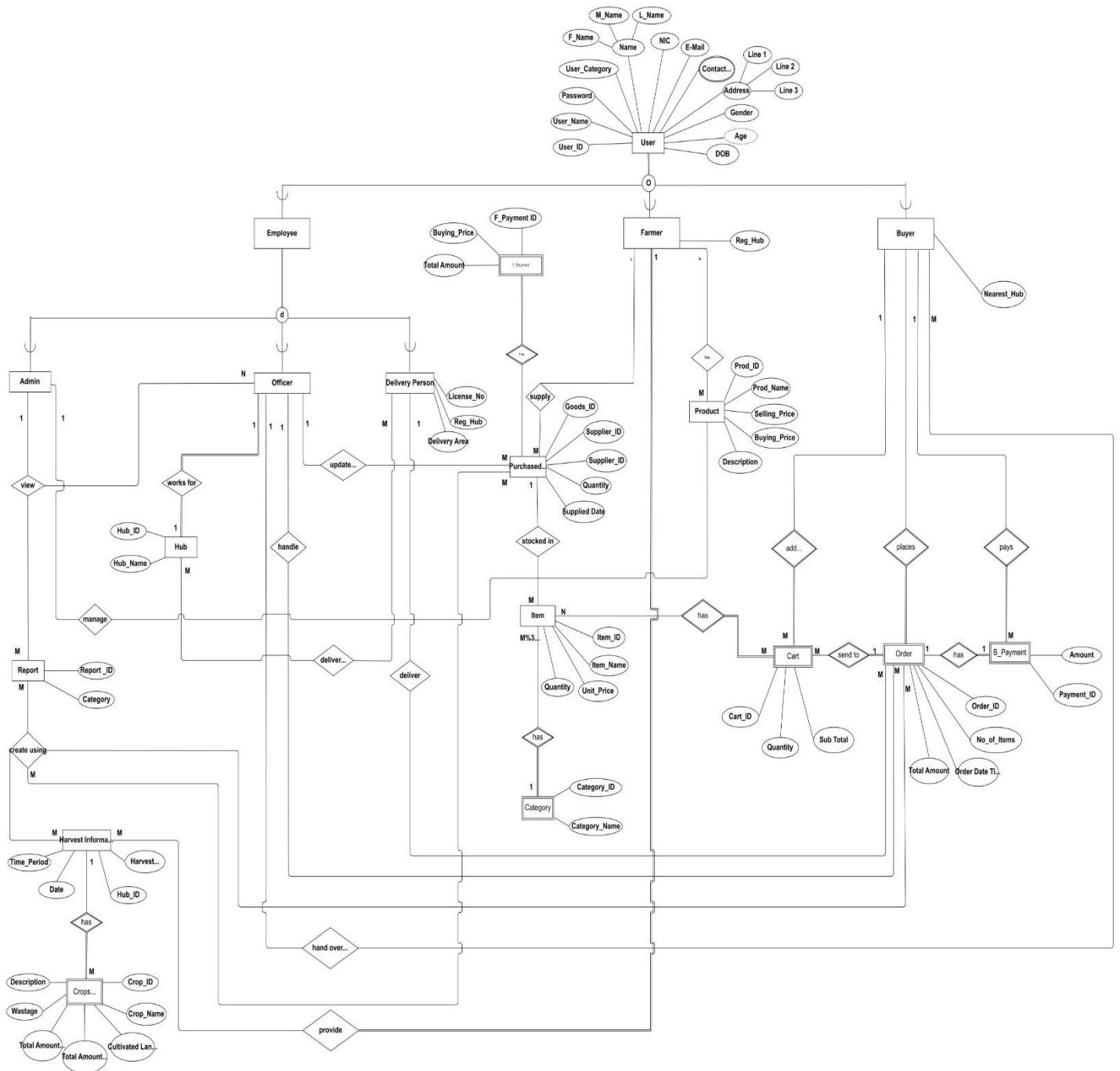
Security component interact with all other components of this system.

Database component

Database component interact with all components of this system. All the information of the users store in the database component through the persistence component.

5. System Design

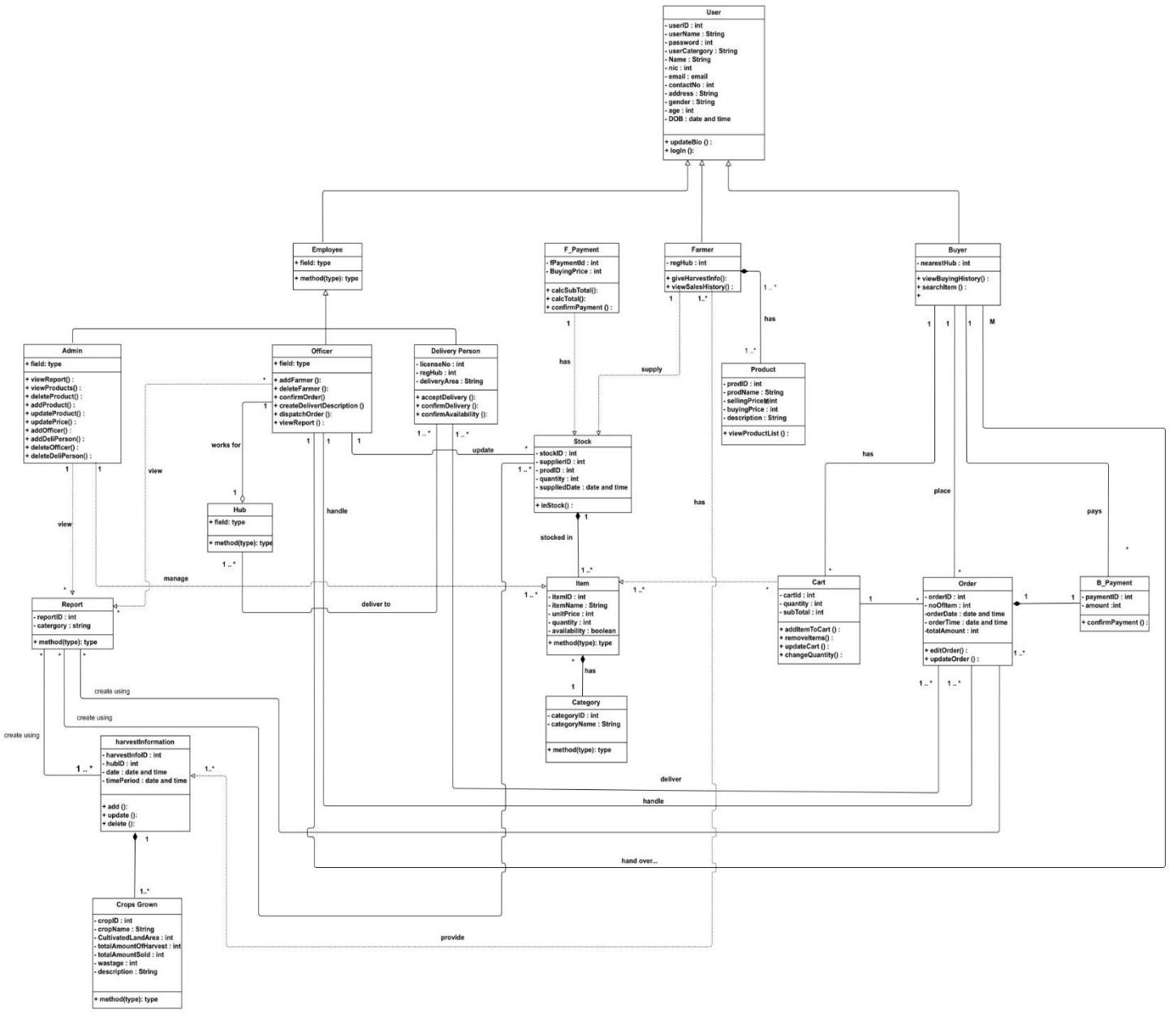
5.1 ER Diagram



Assumption

Farmer cannot be a Buyer.→ Disjoint USER

5.2 Class Diagram



Assumption:

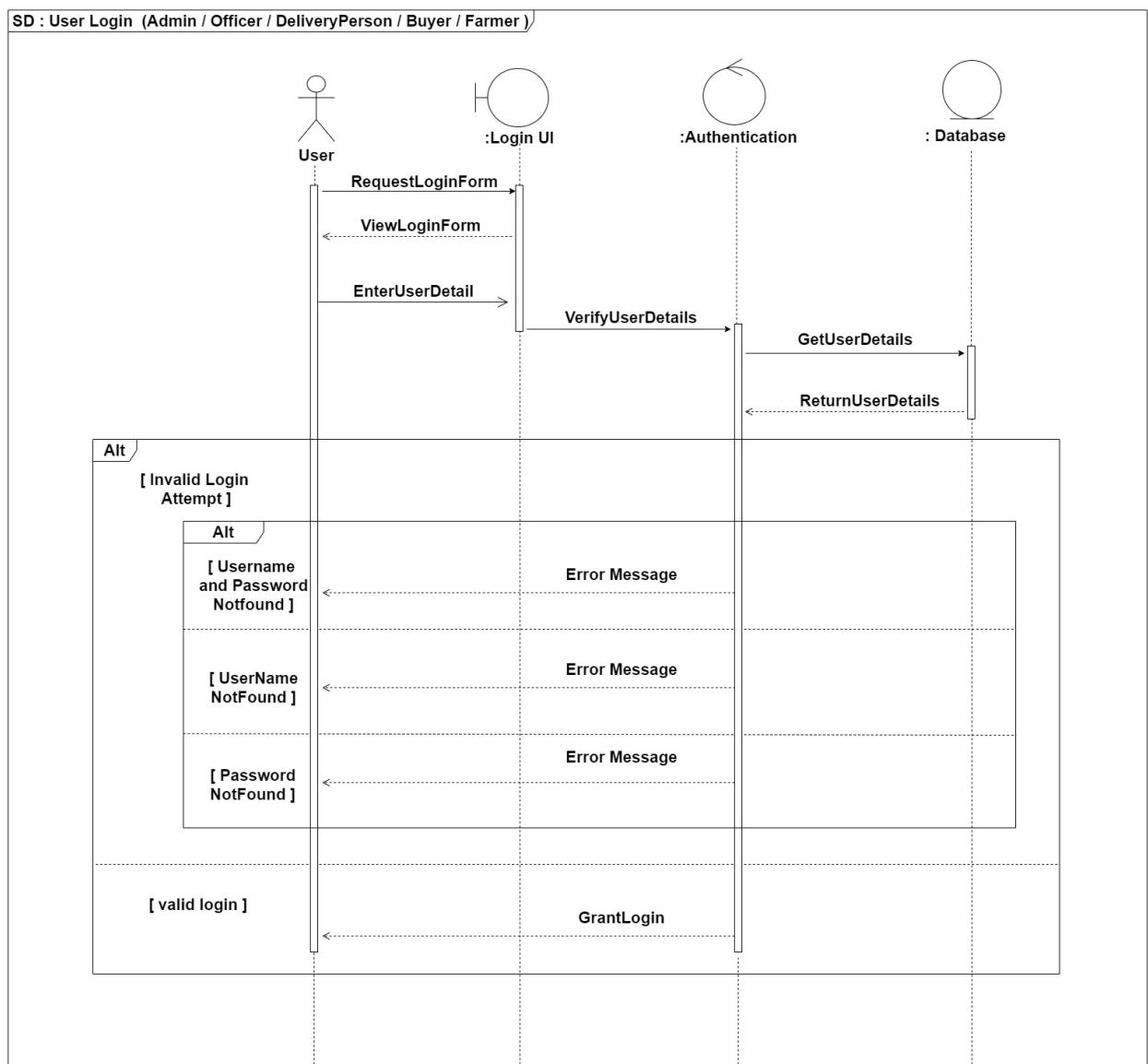
Farmer can also be a buyer in this system.

<https://www.visual-paradigm.com/guide/uml-unified-modeling-language/uml-class-diagram-tutorial/>

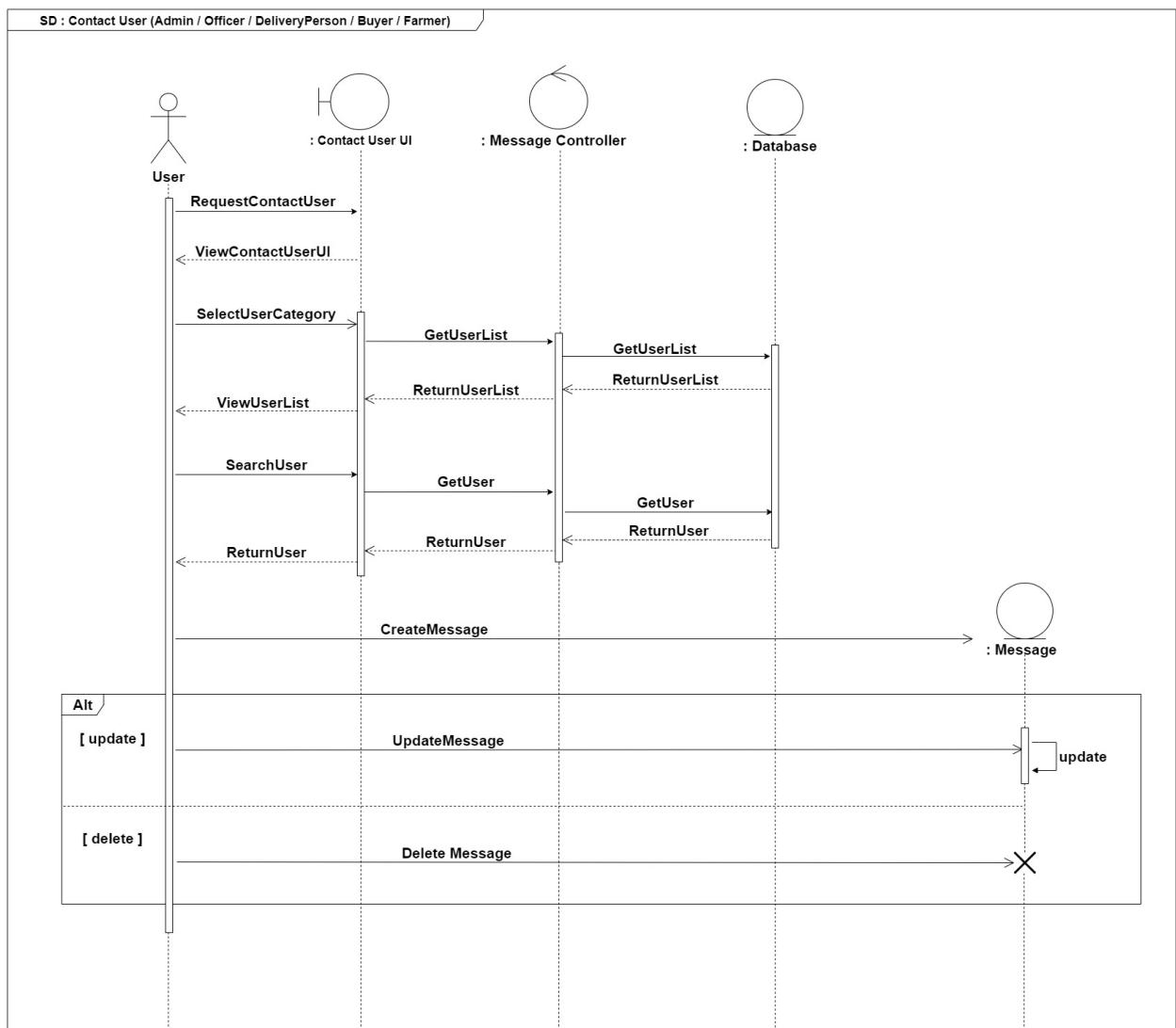
5.3 Sequence Diagram

Common users

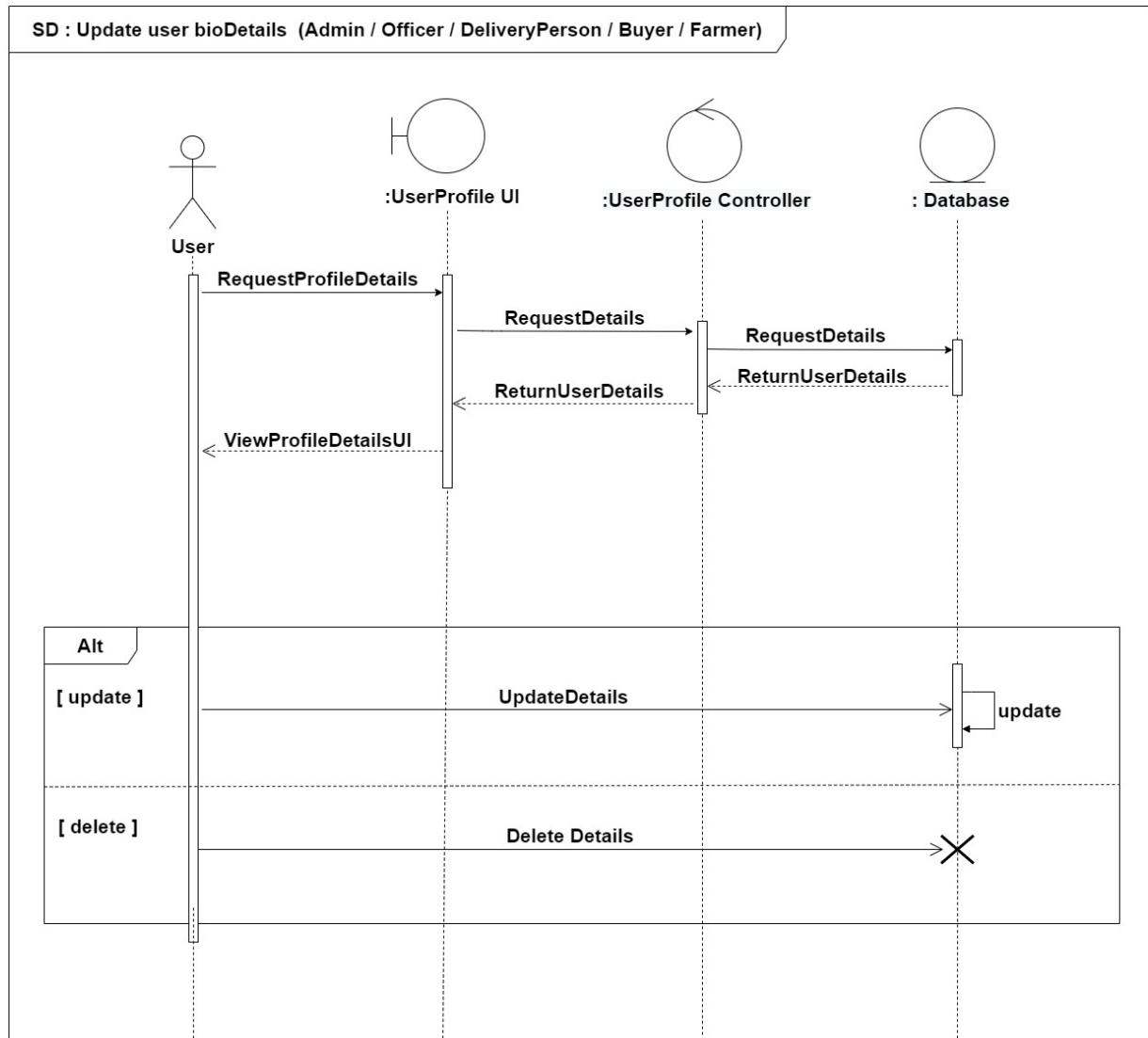
Login



Contact User

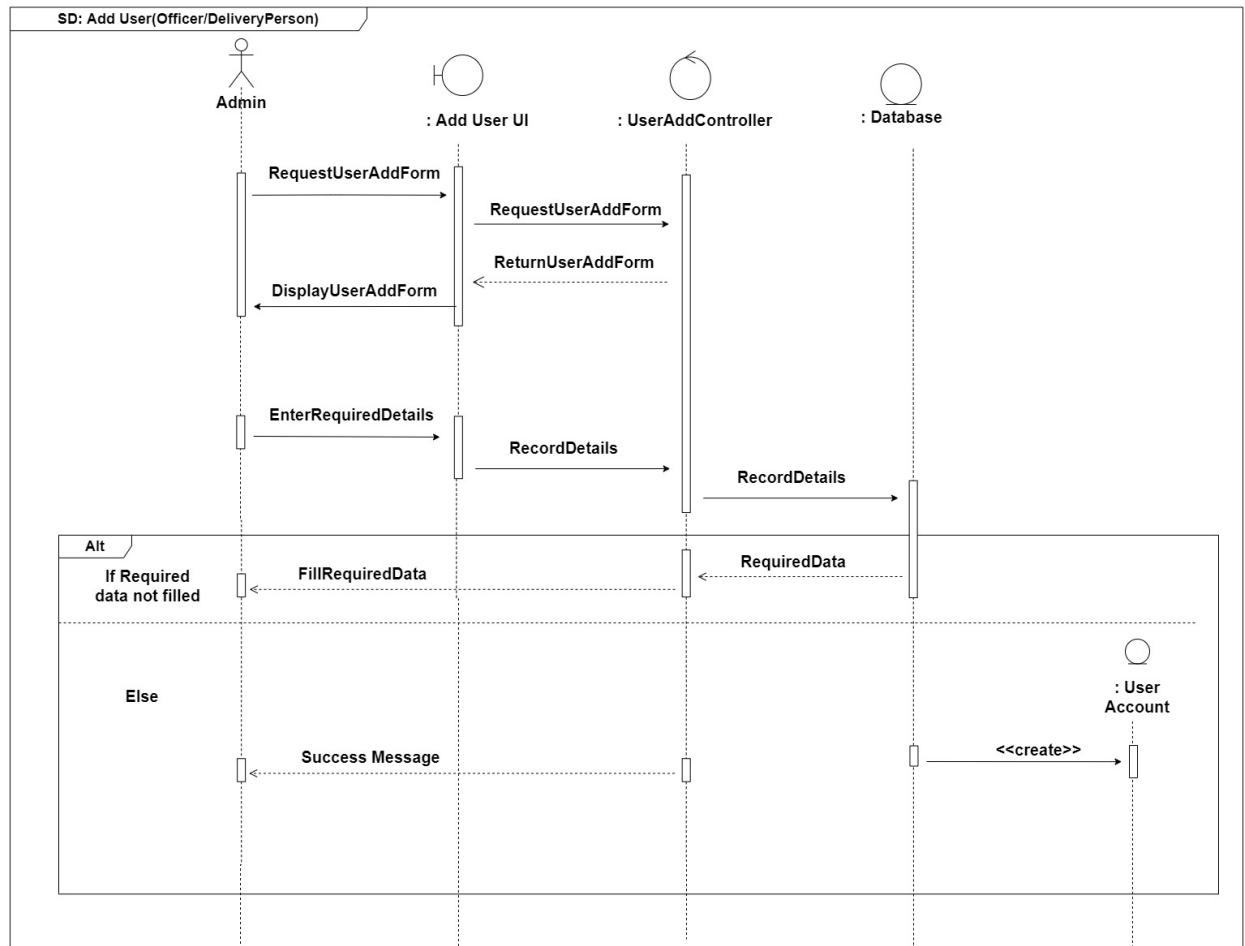


Update bio Details

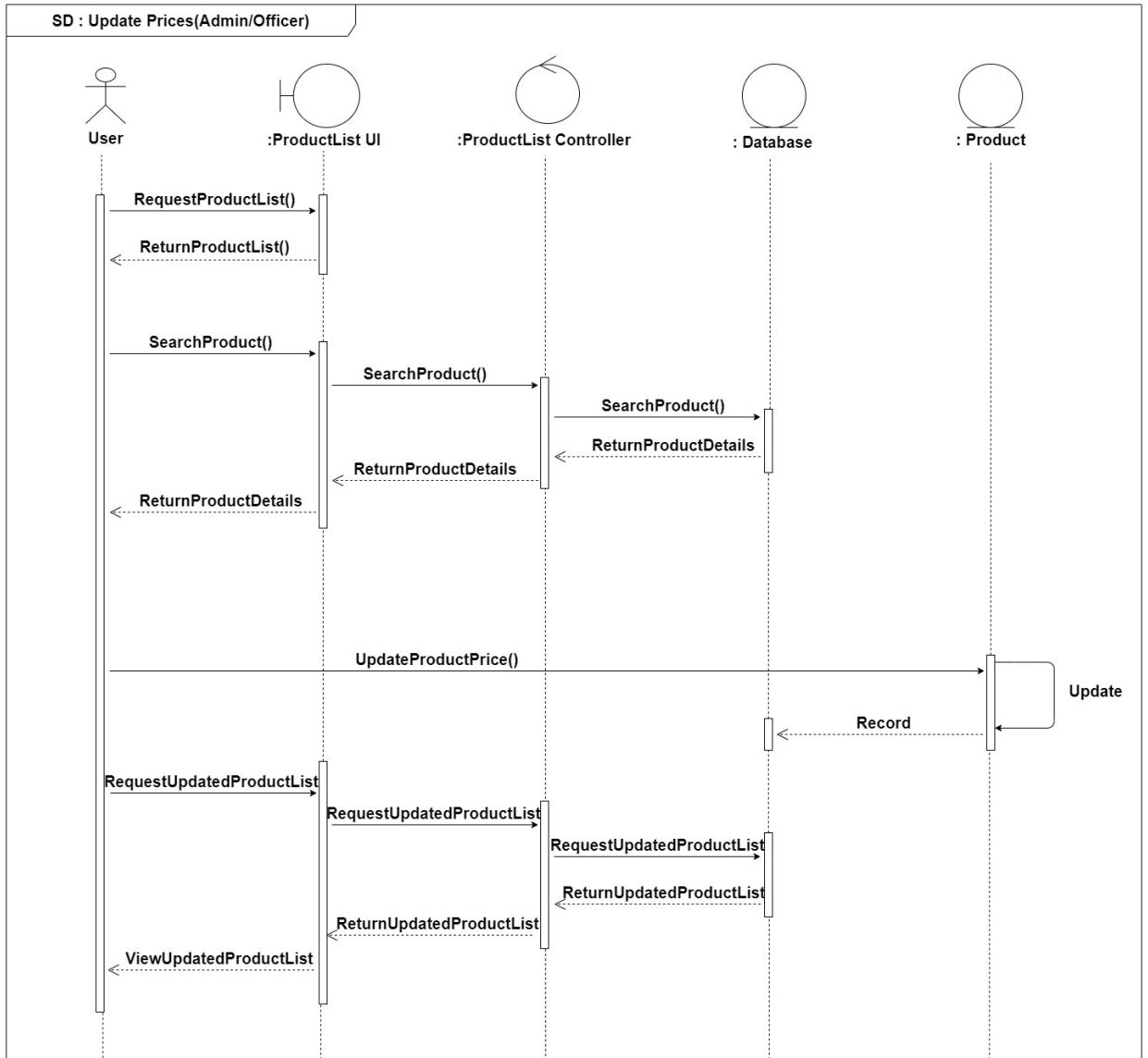


Admin

Add Delivery Person/ Officer

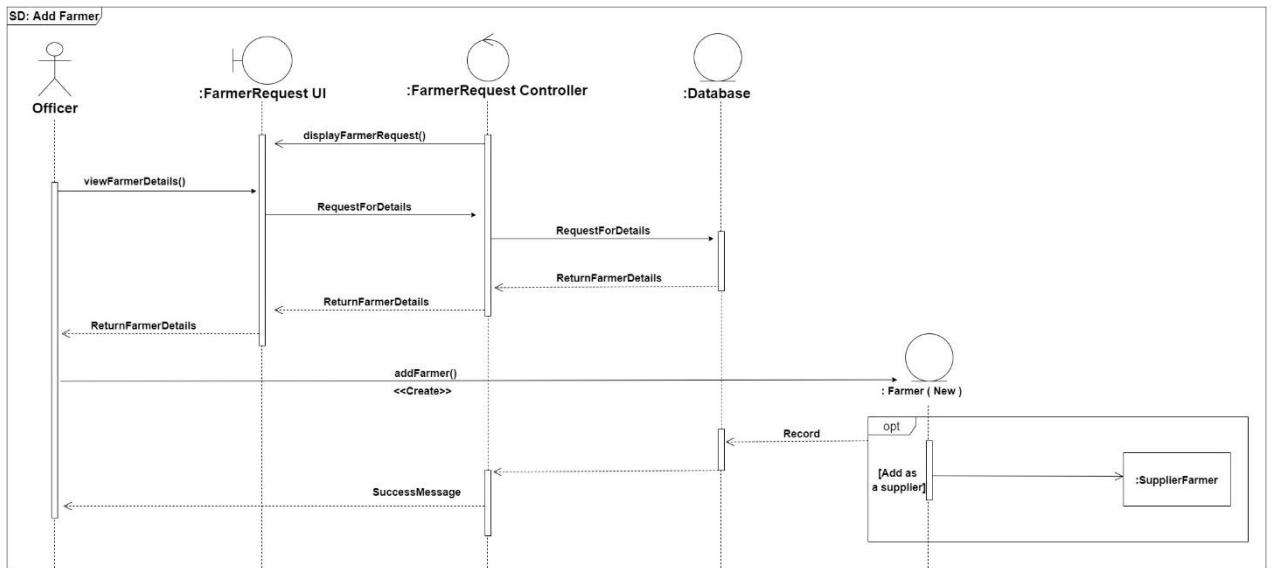


Manage Product and Price List

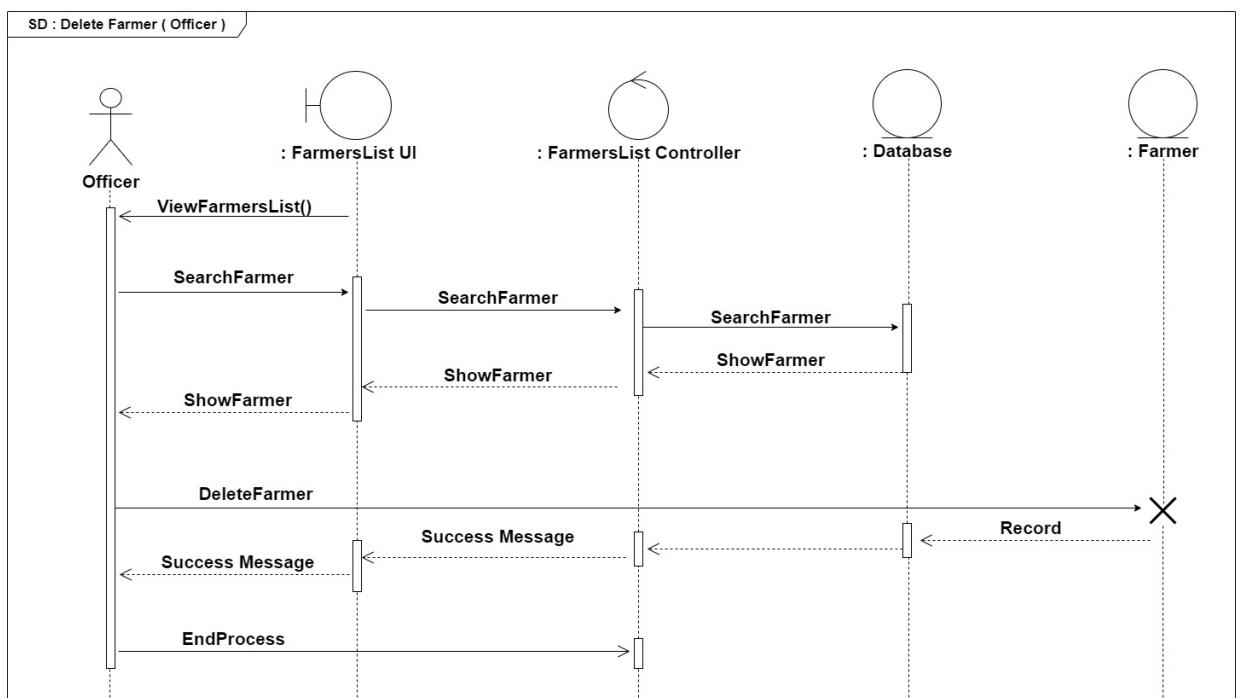


Officer

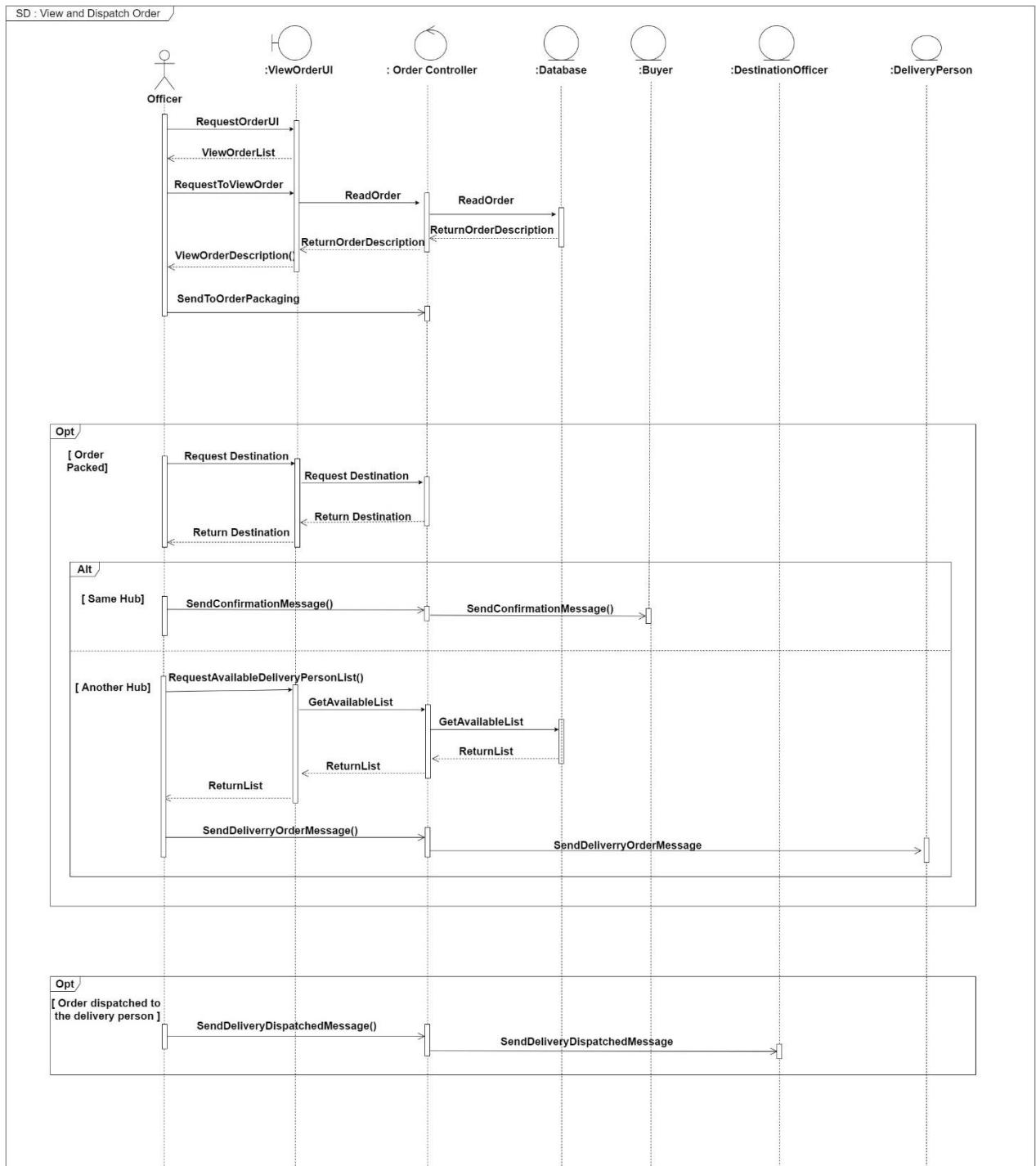
Add Farmer



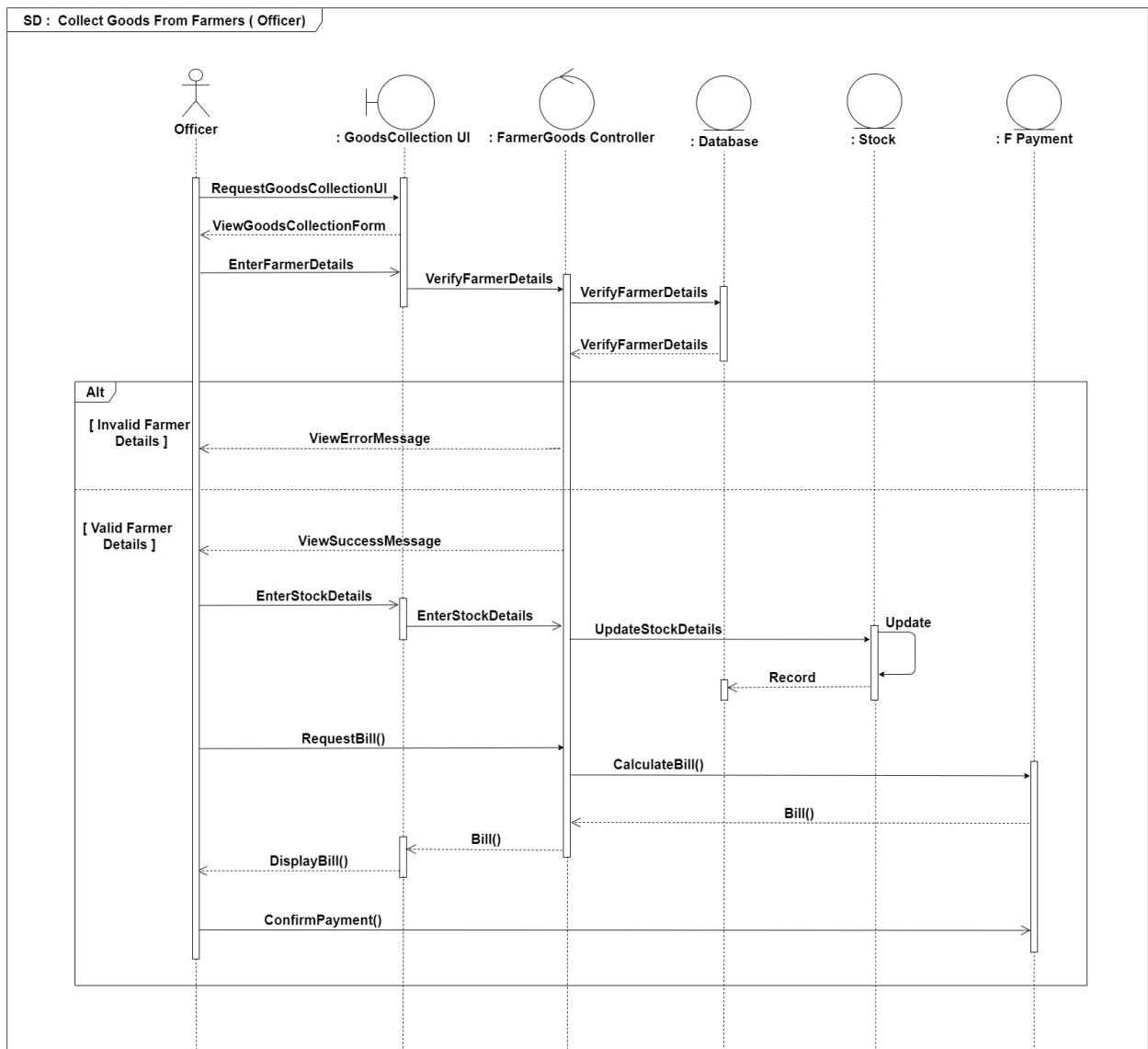
Delete Farmer



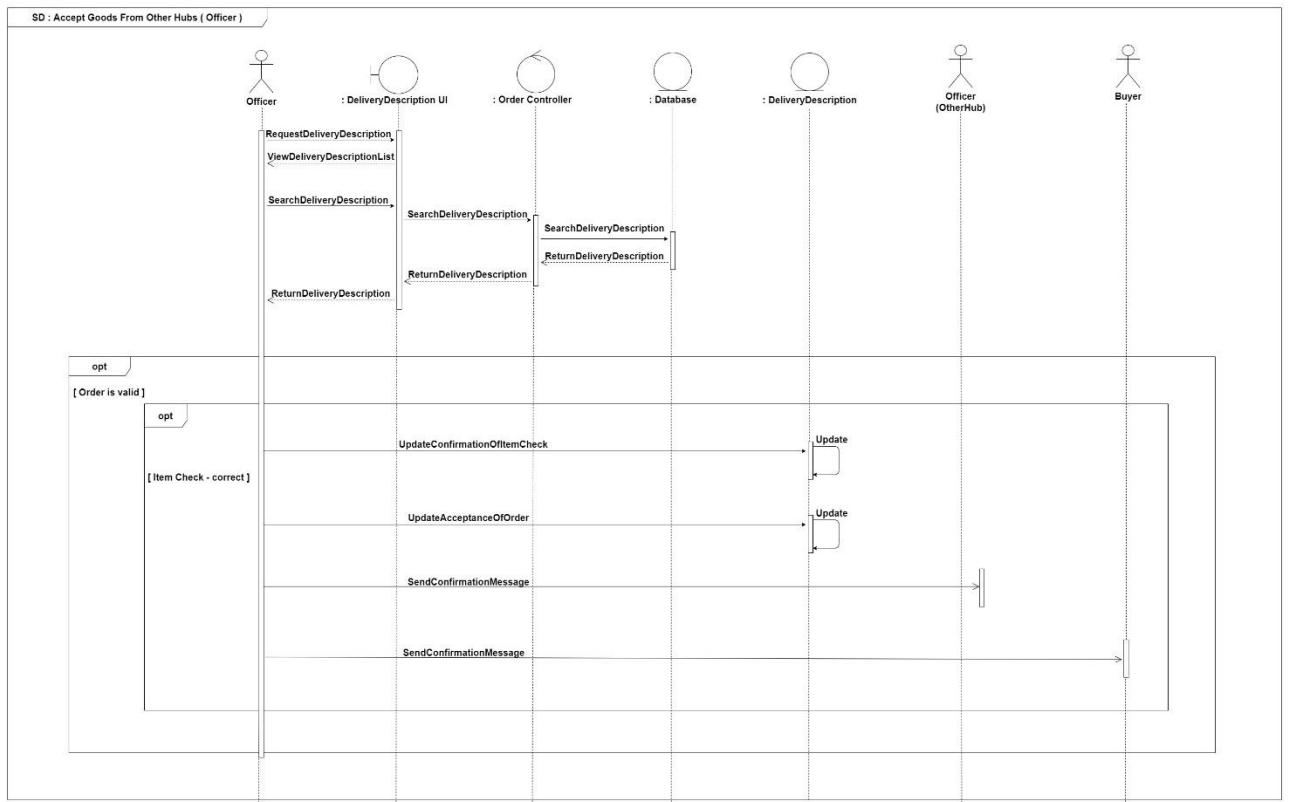
View and Dispatch Orders



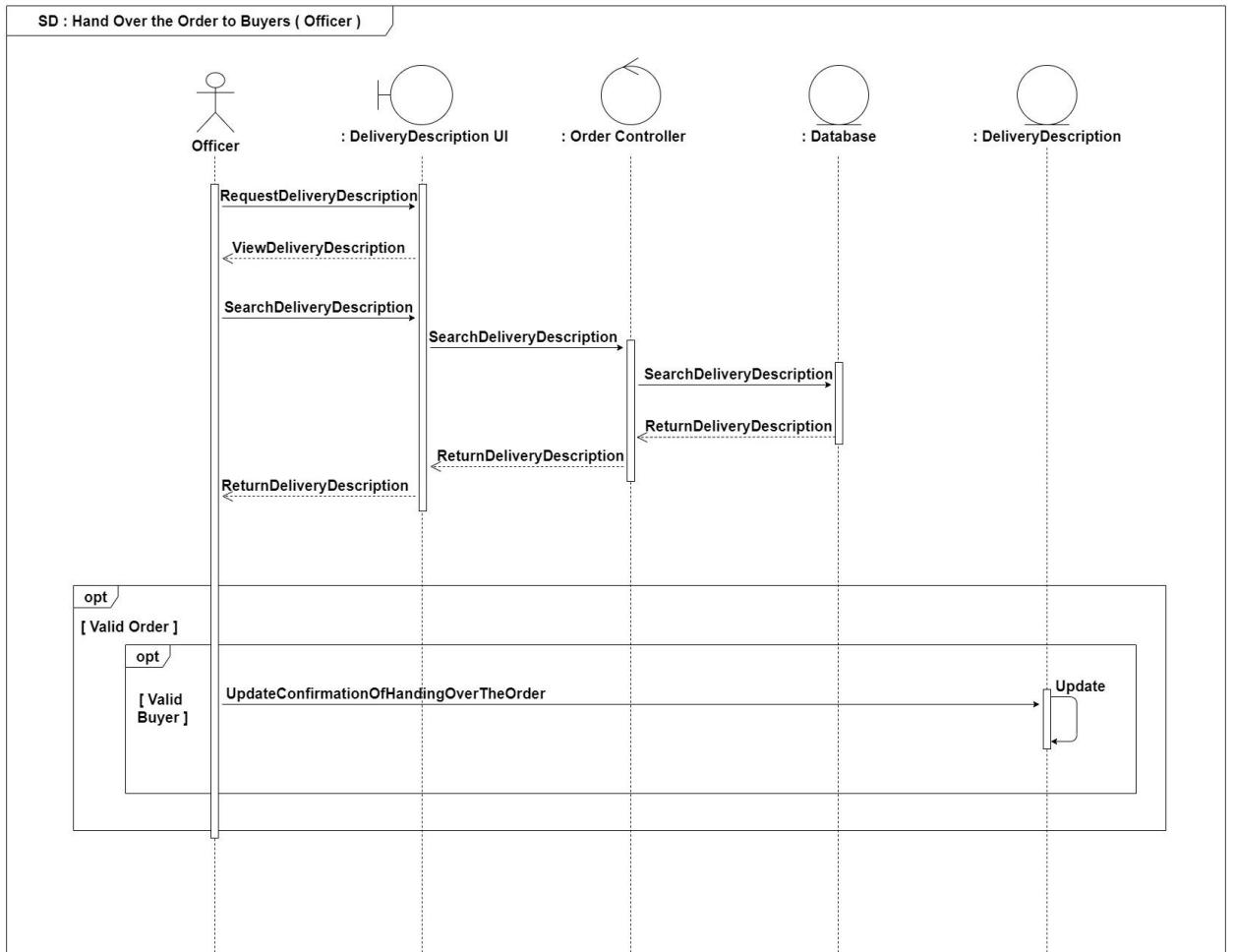
Collect goods from farmers



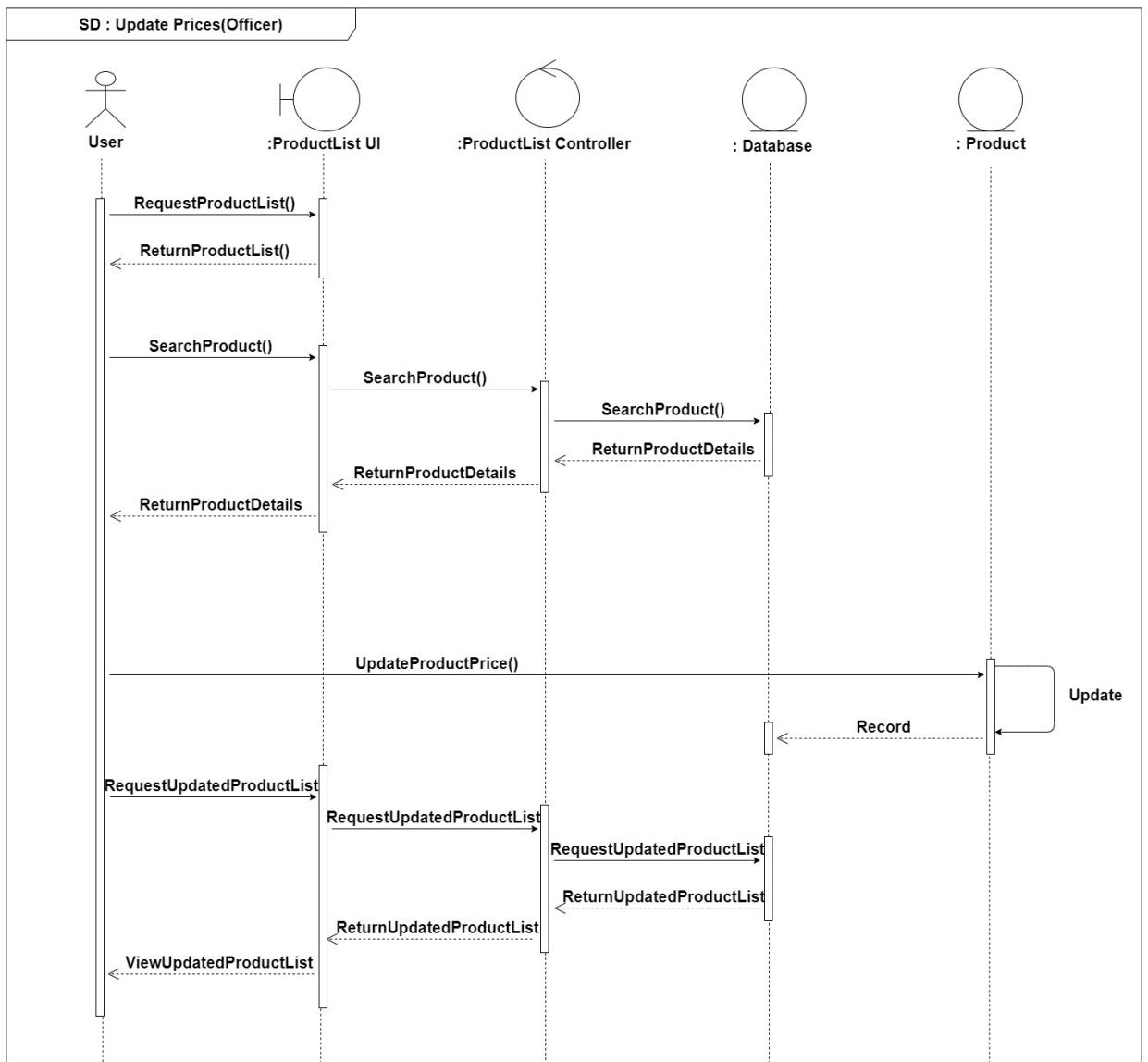
Accept Goods from other hubs



Handover goods to buyer

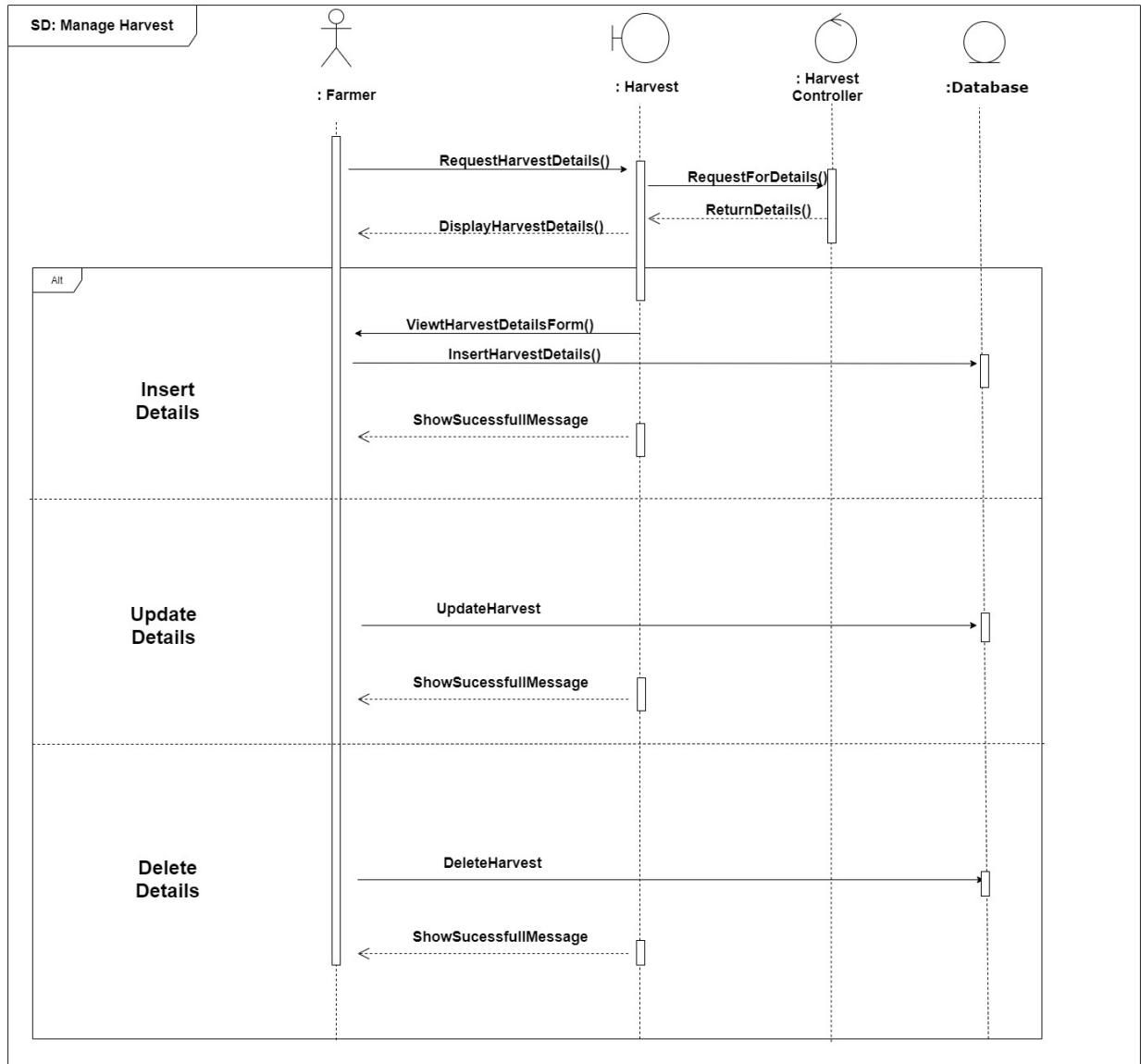


Update Prices

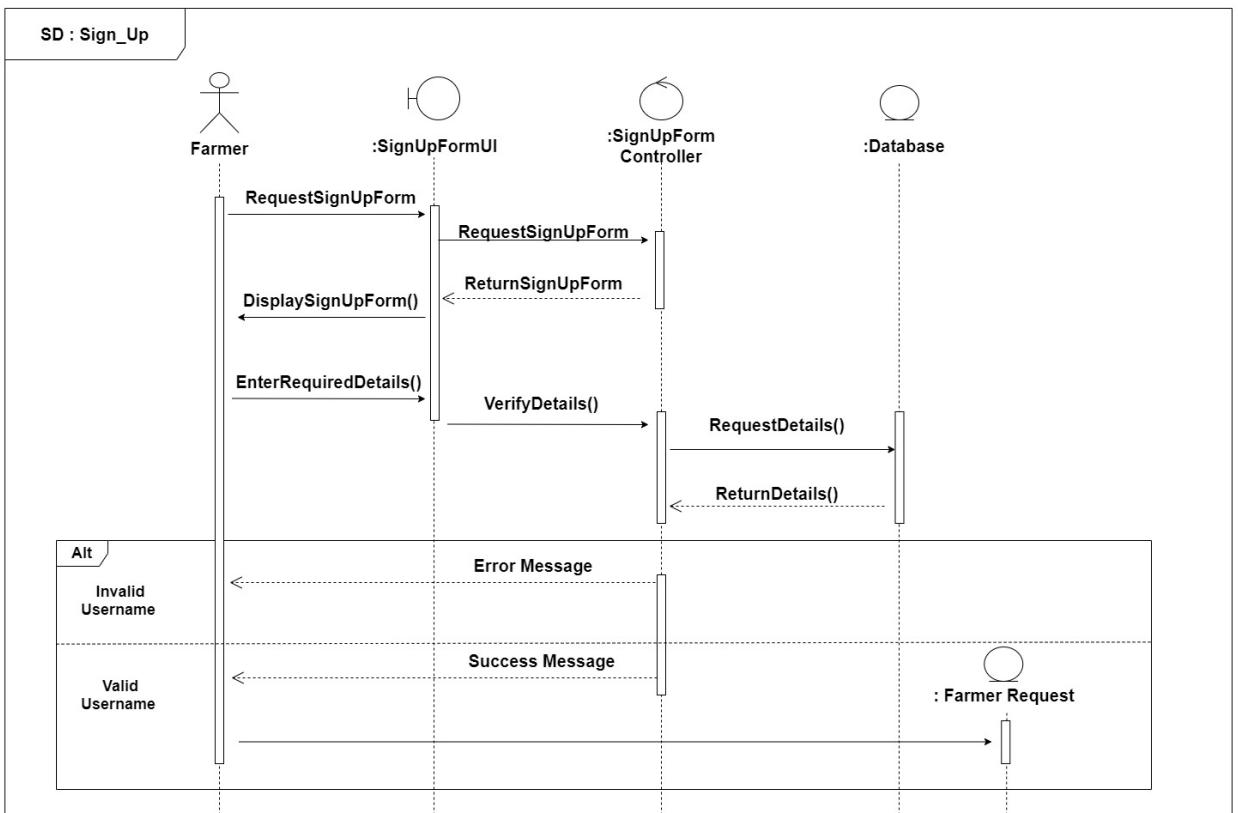


Farmer

Manage harvest

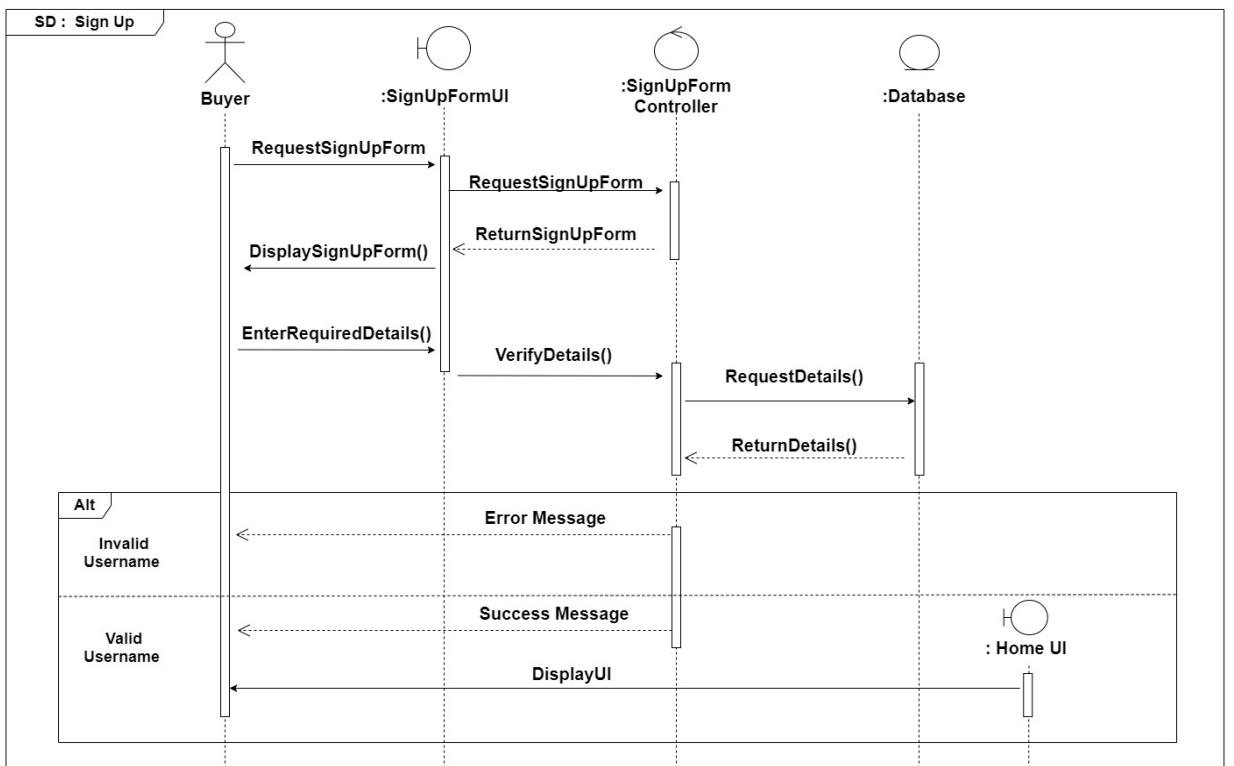


Farmer Sign-Up

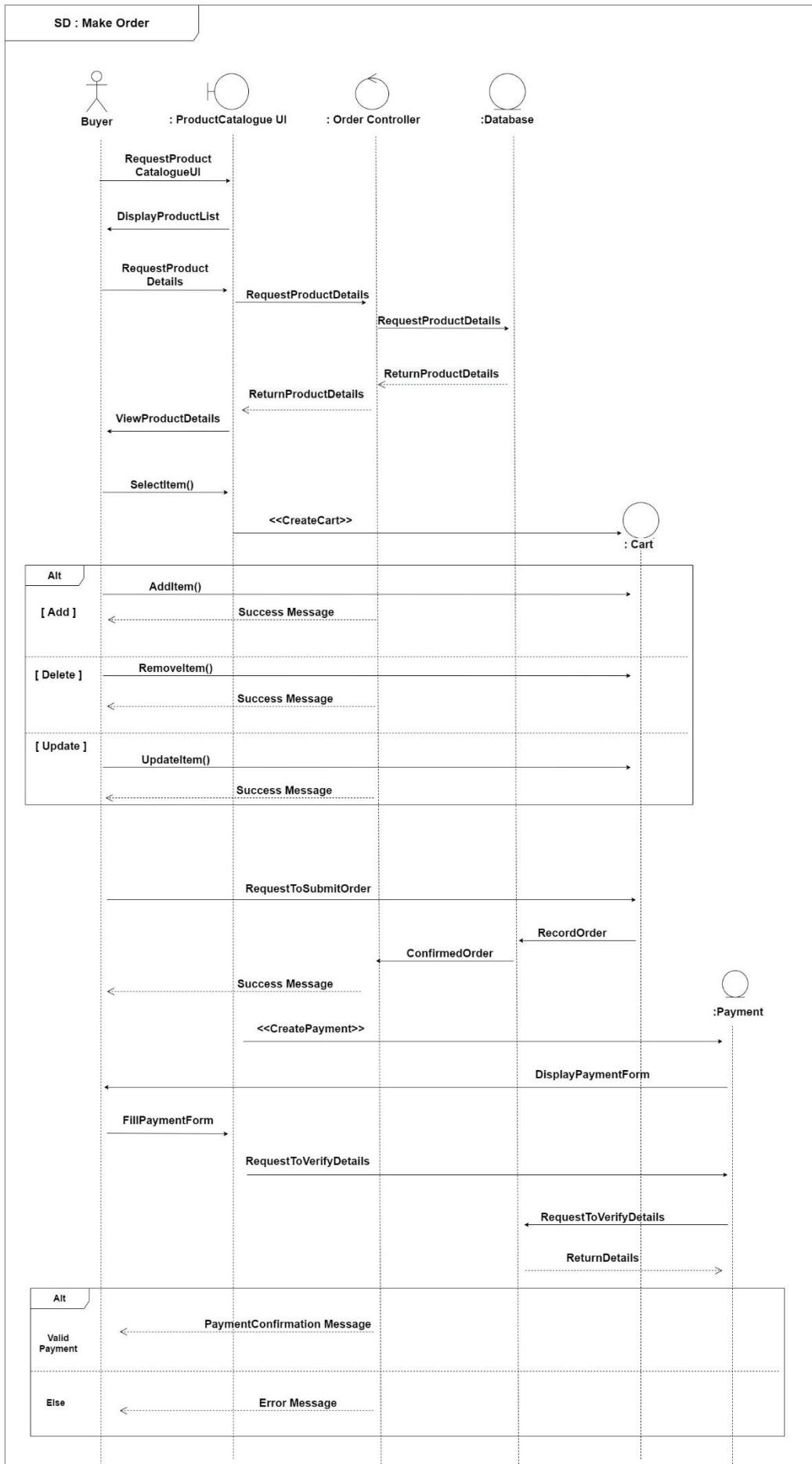


Buyer

Signup

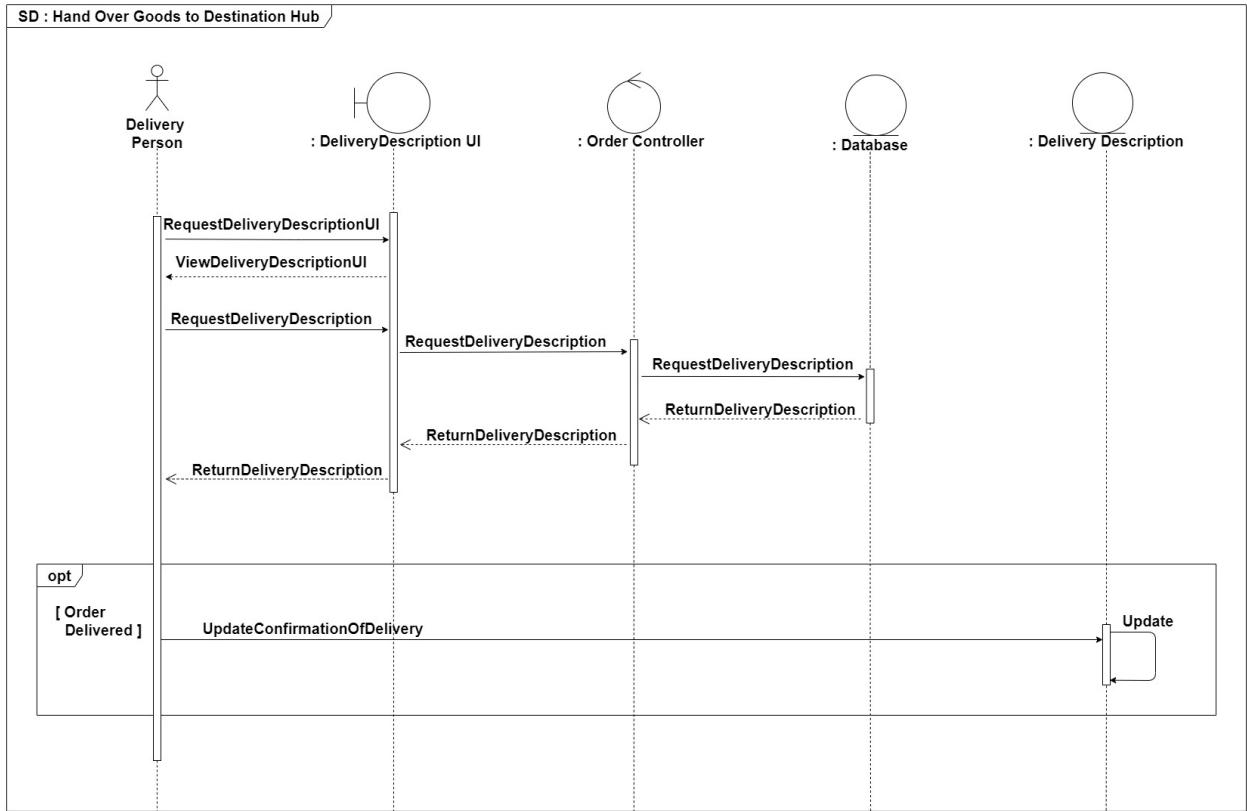


Order

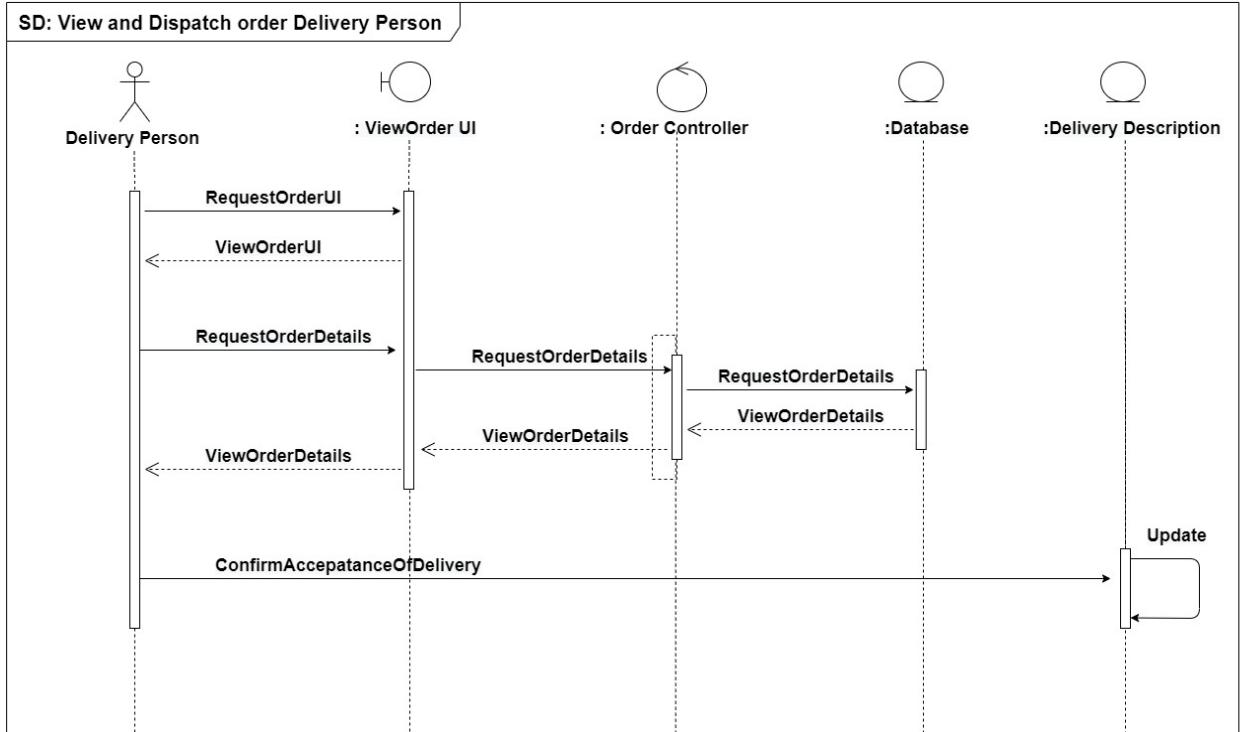


Delivery Person

Hand Over Goods



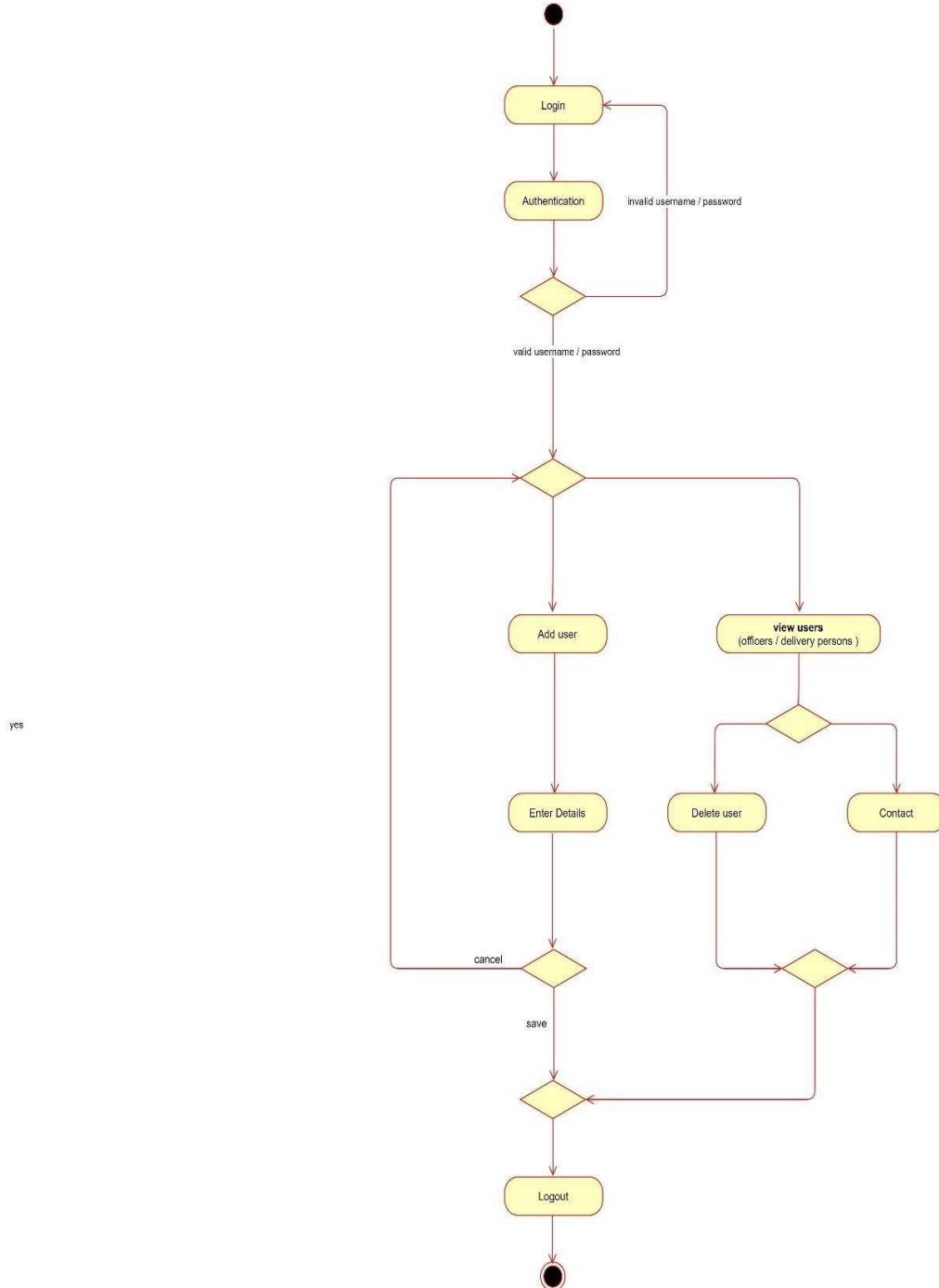
View and Dispatch Order



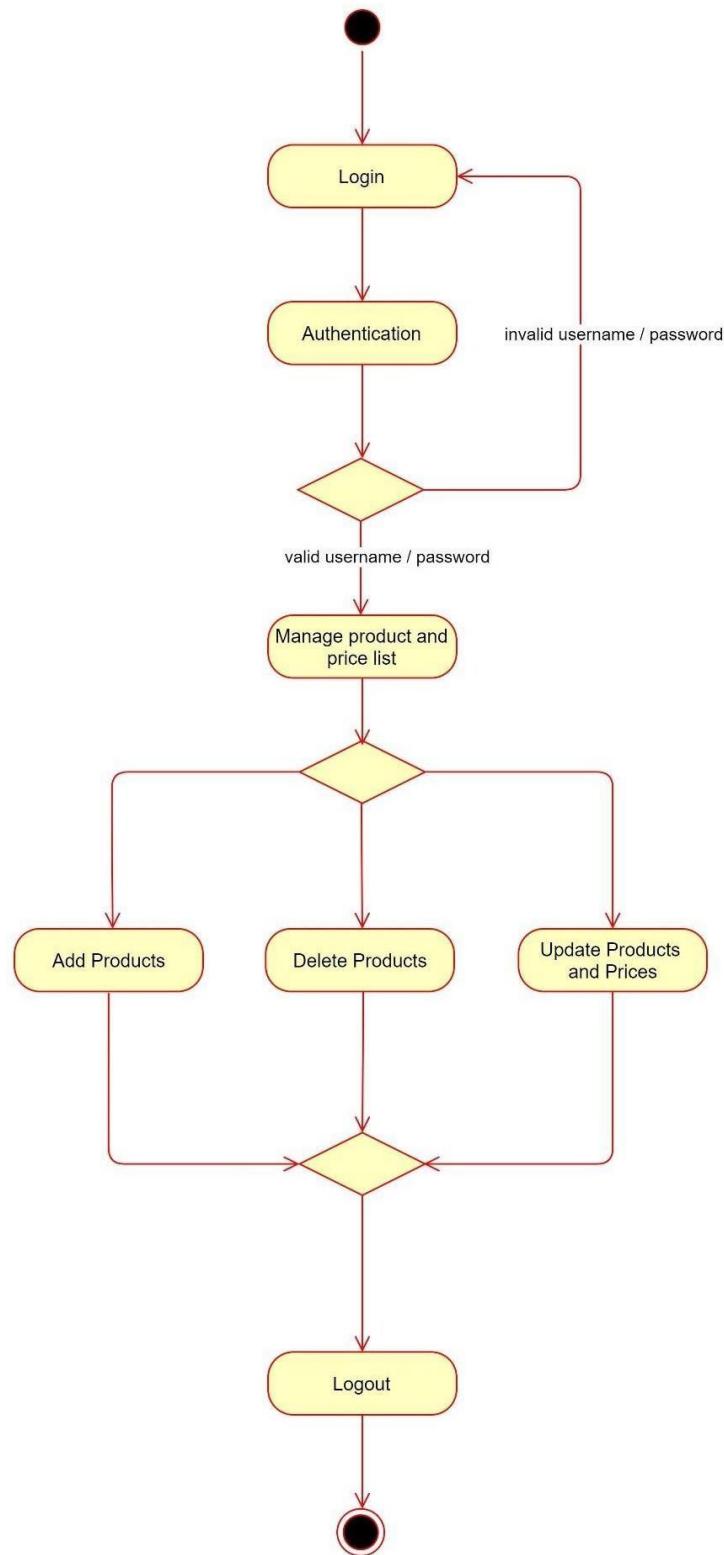
5.4 Activity Diagrams

Admin

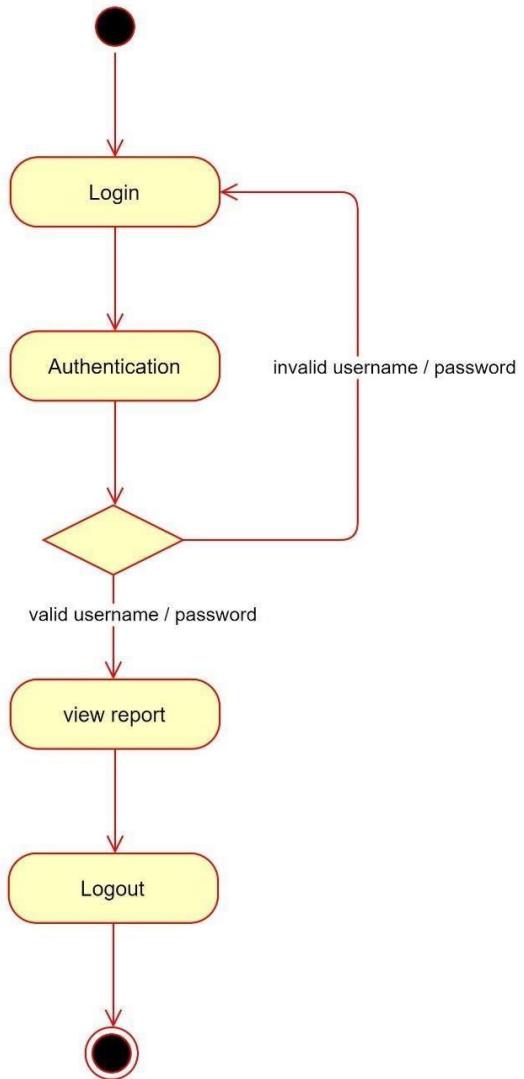
Manage Users



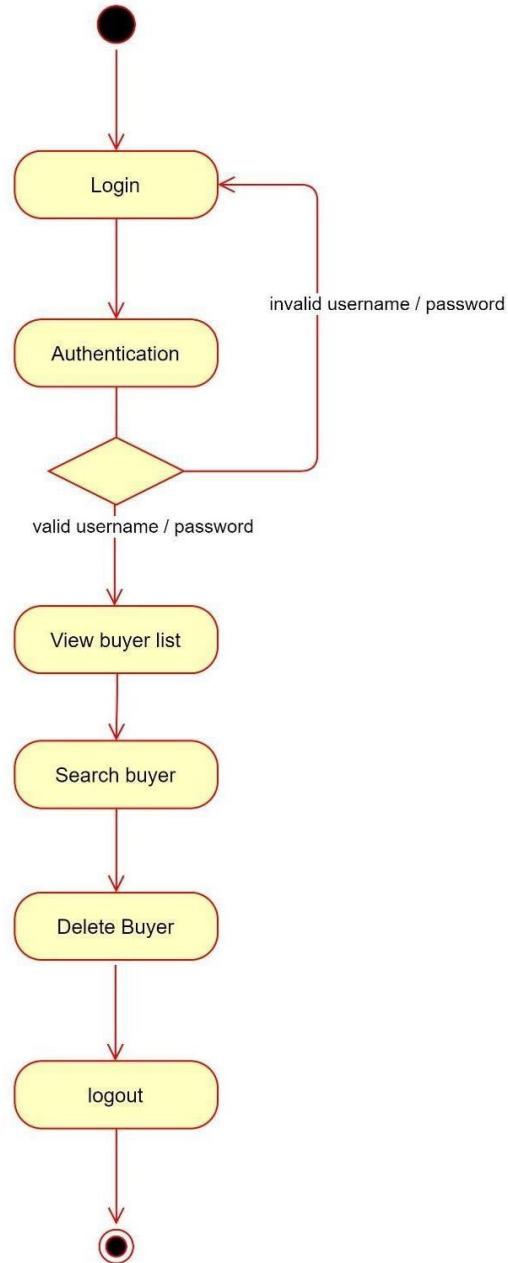
Manage Product and Price list



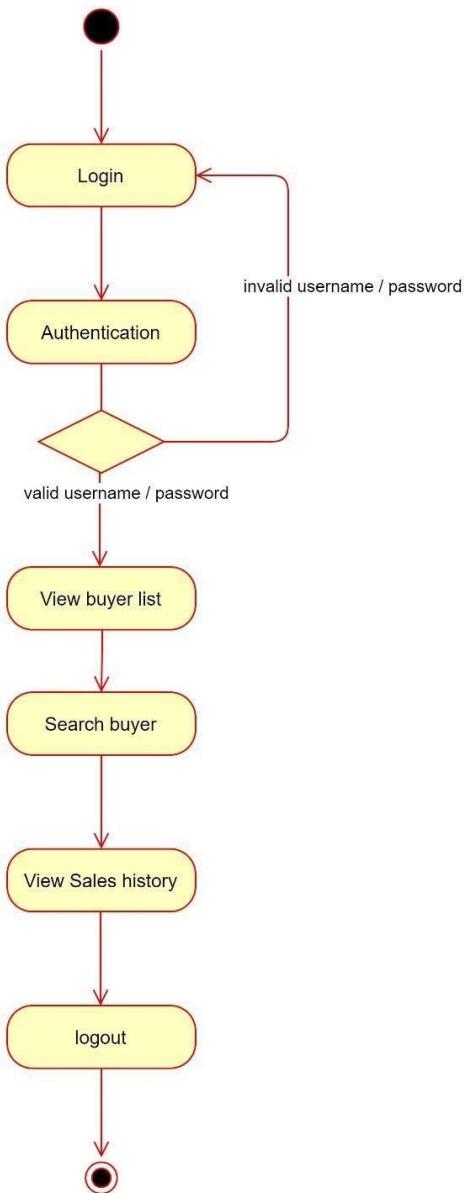
View Report



Delete Buyer

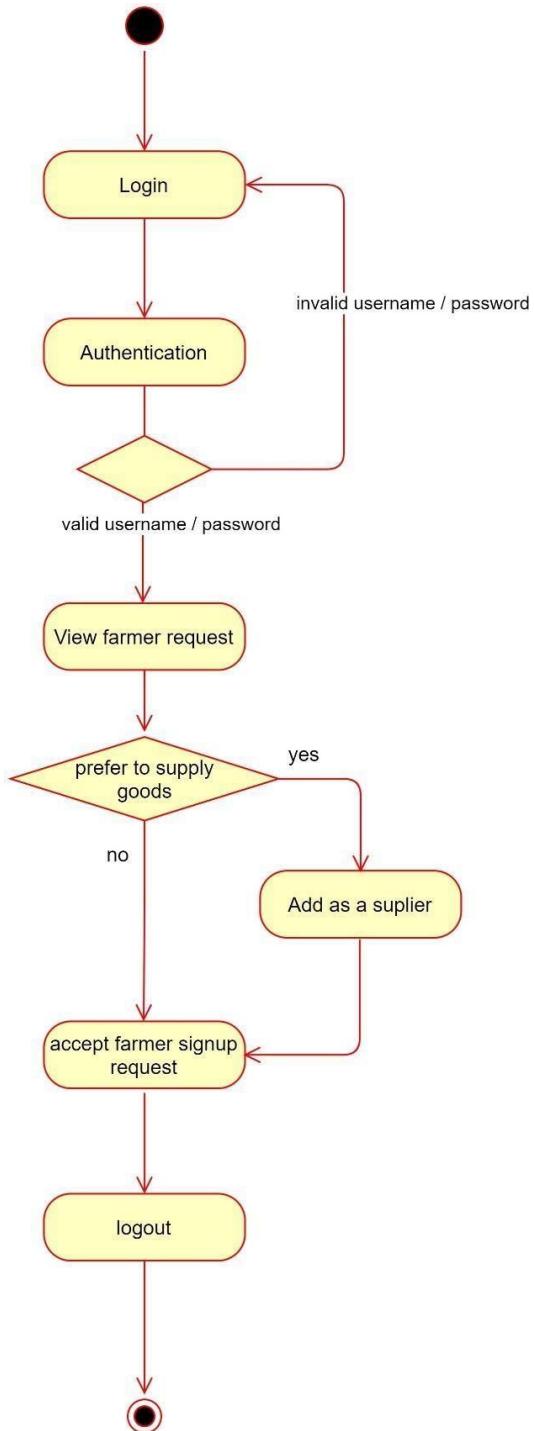


View Sales History

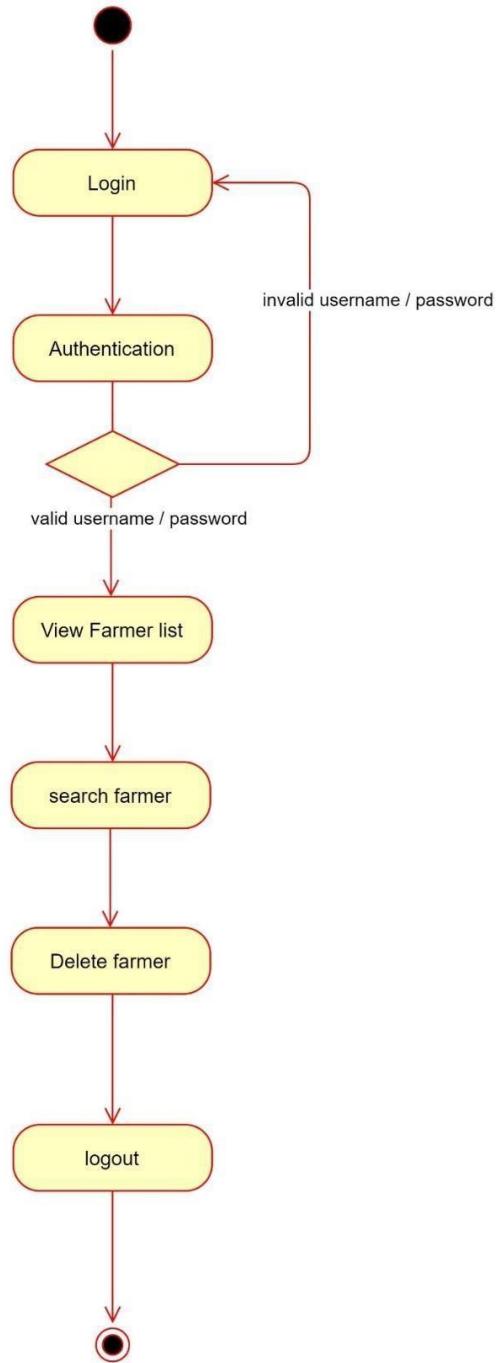


Officer

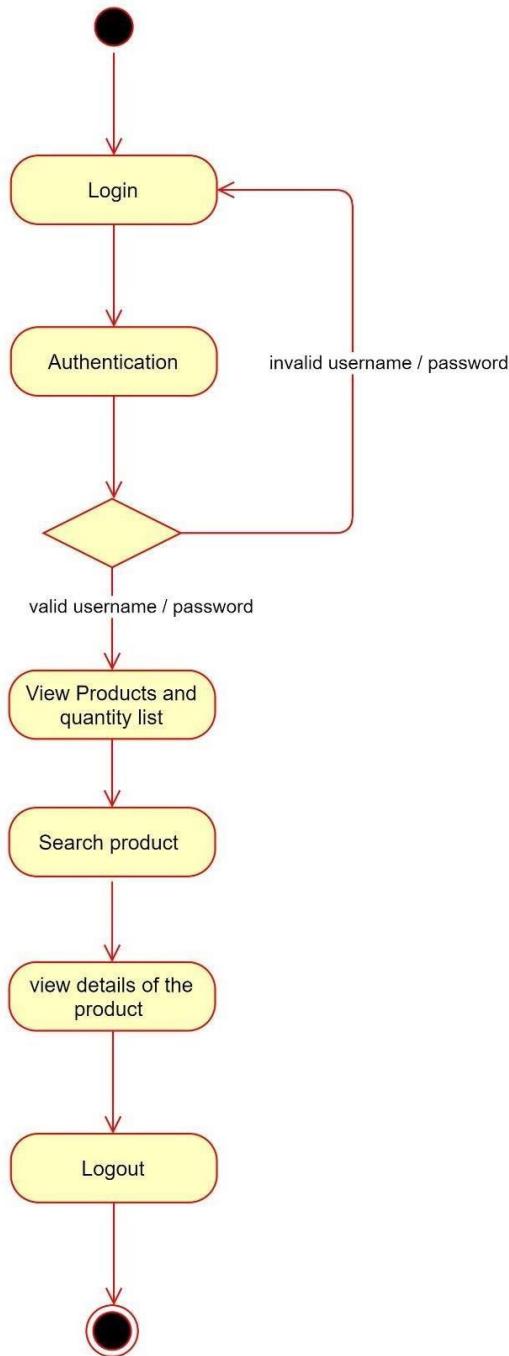
Add Farmer



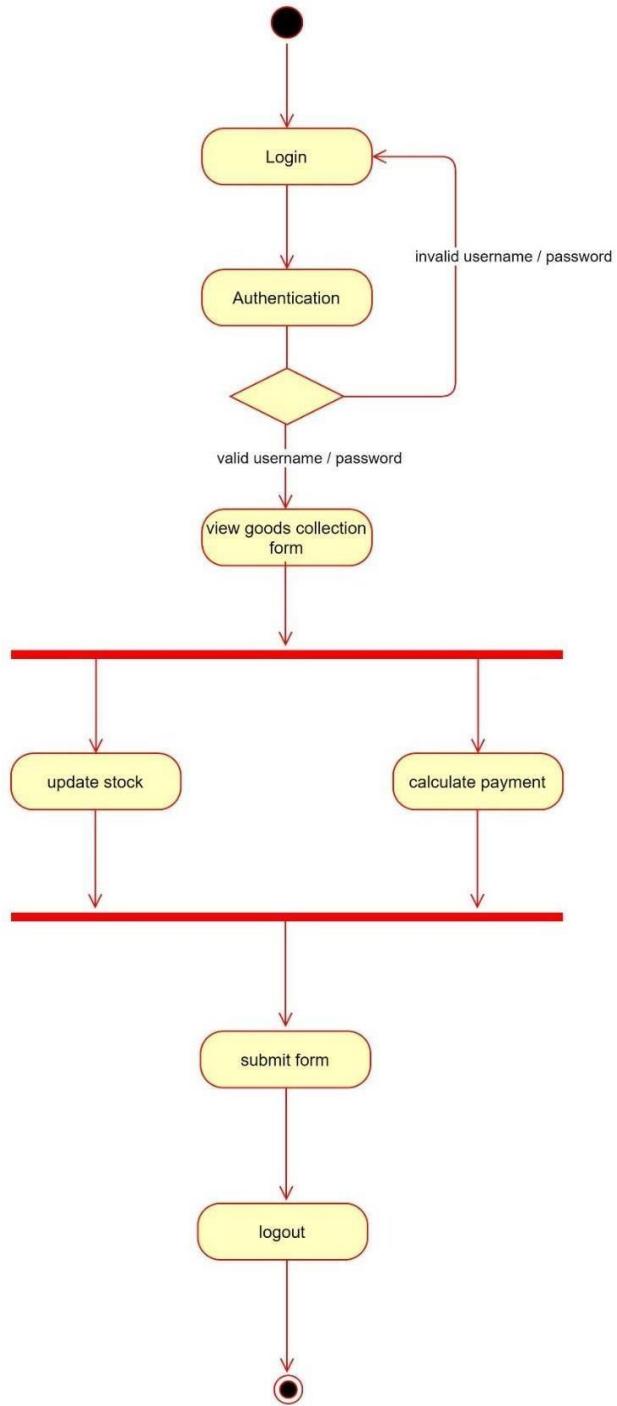
Delete Farmer



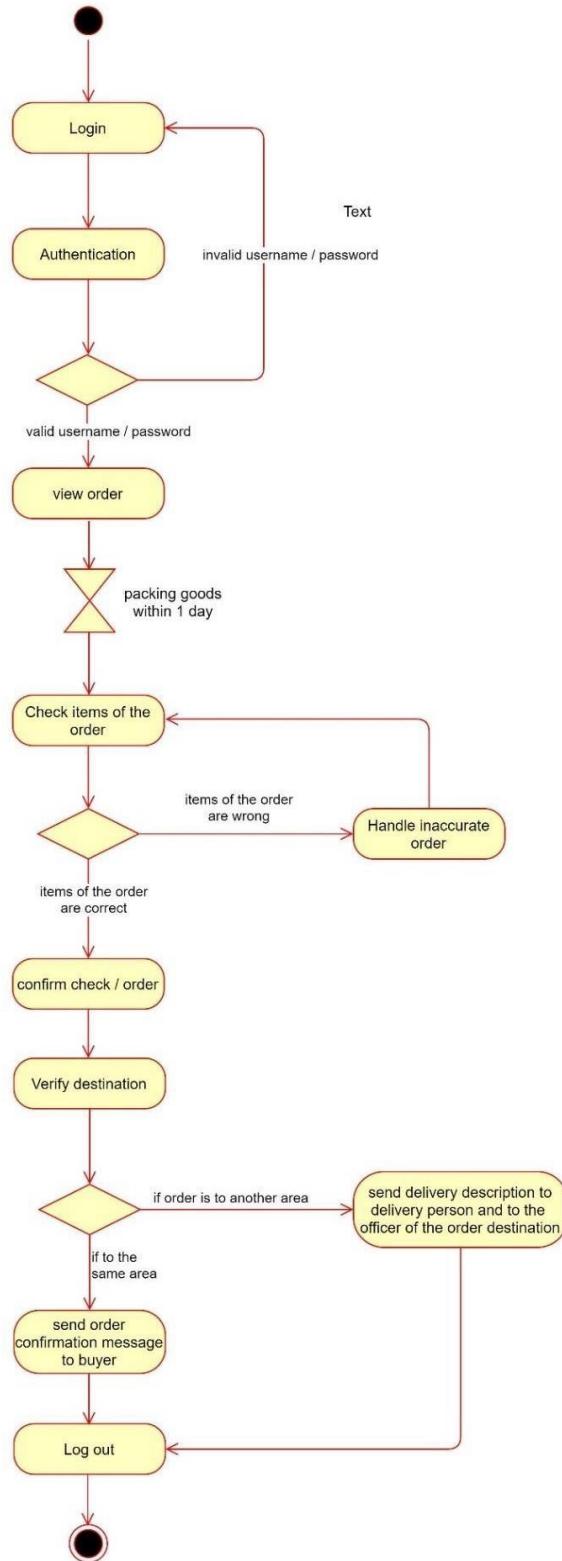
View Product and Quantity List



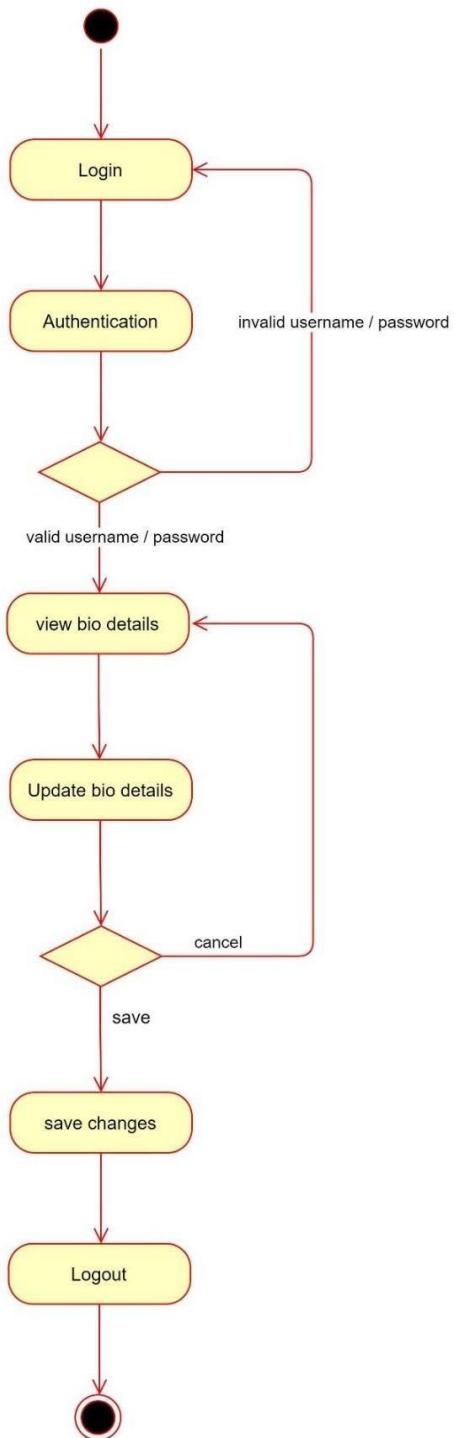
Collect Goods from Farmer



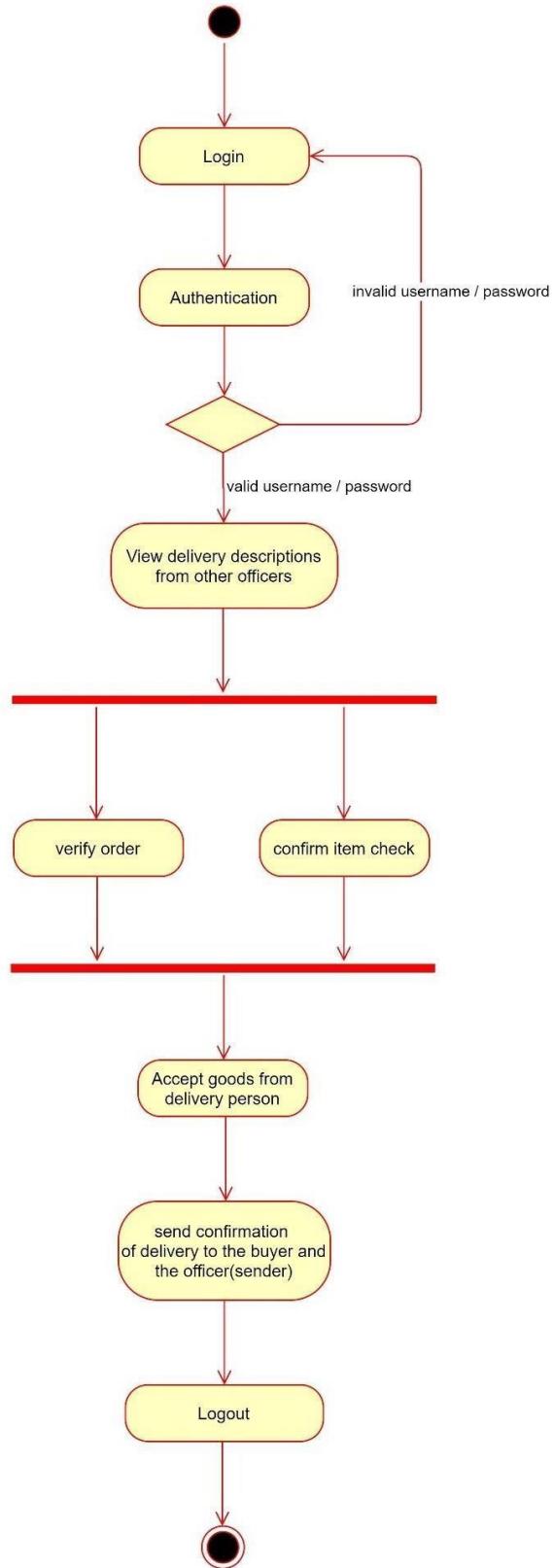
View Orders And Dispatch order to delivery Person



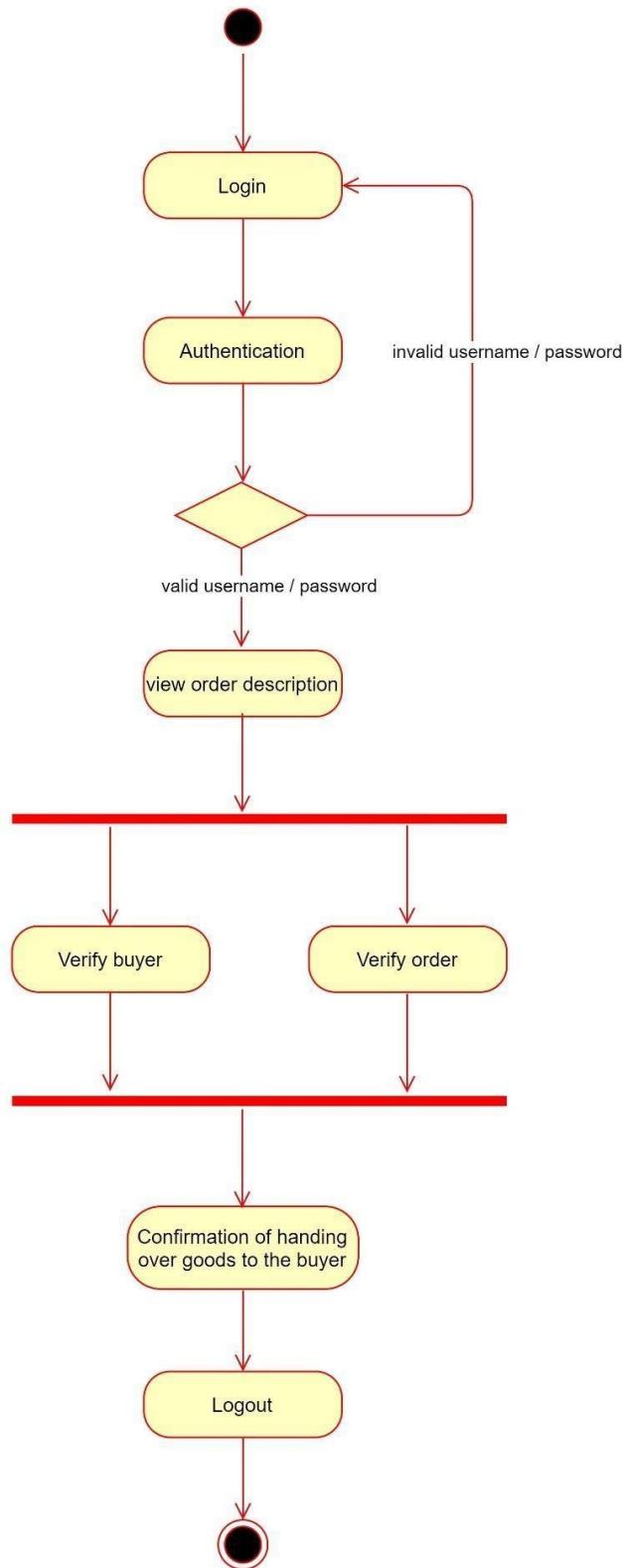
Update Bio Details



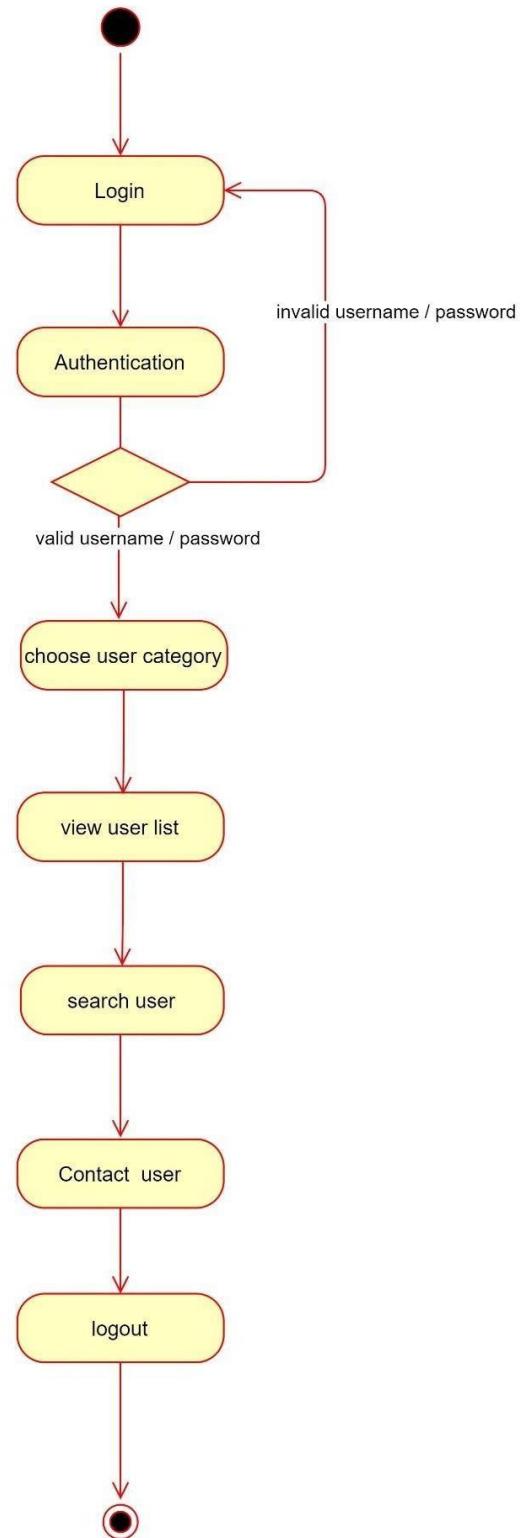
Officer Accept goods from other hubs



Hand over Goods to Buyer



Contact User

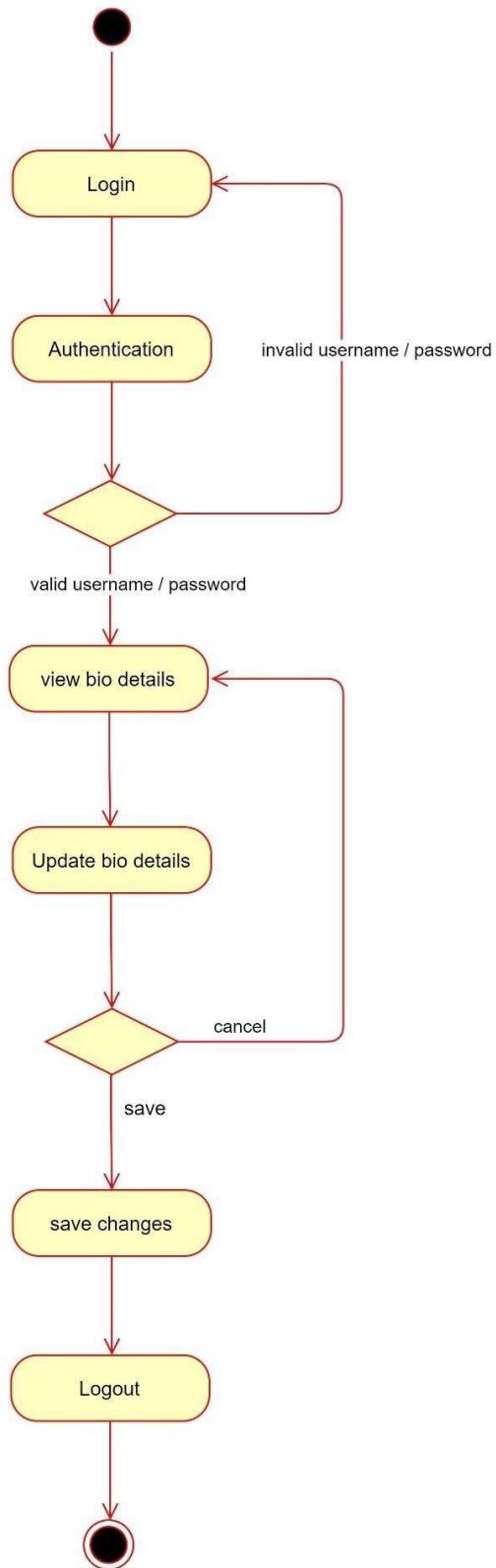


Farmer

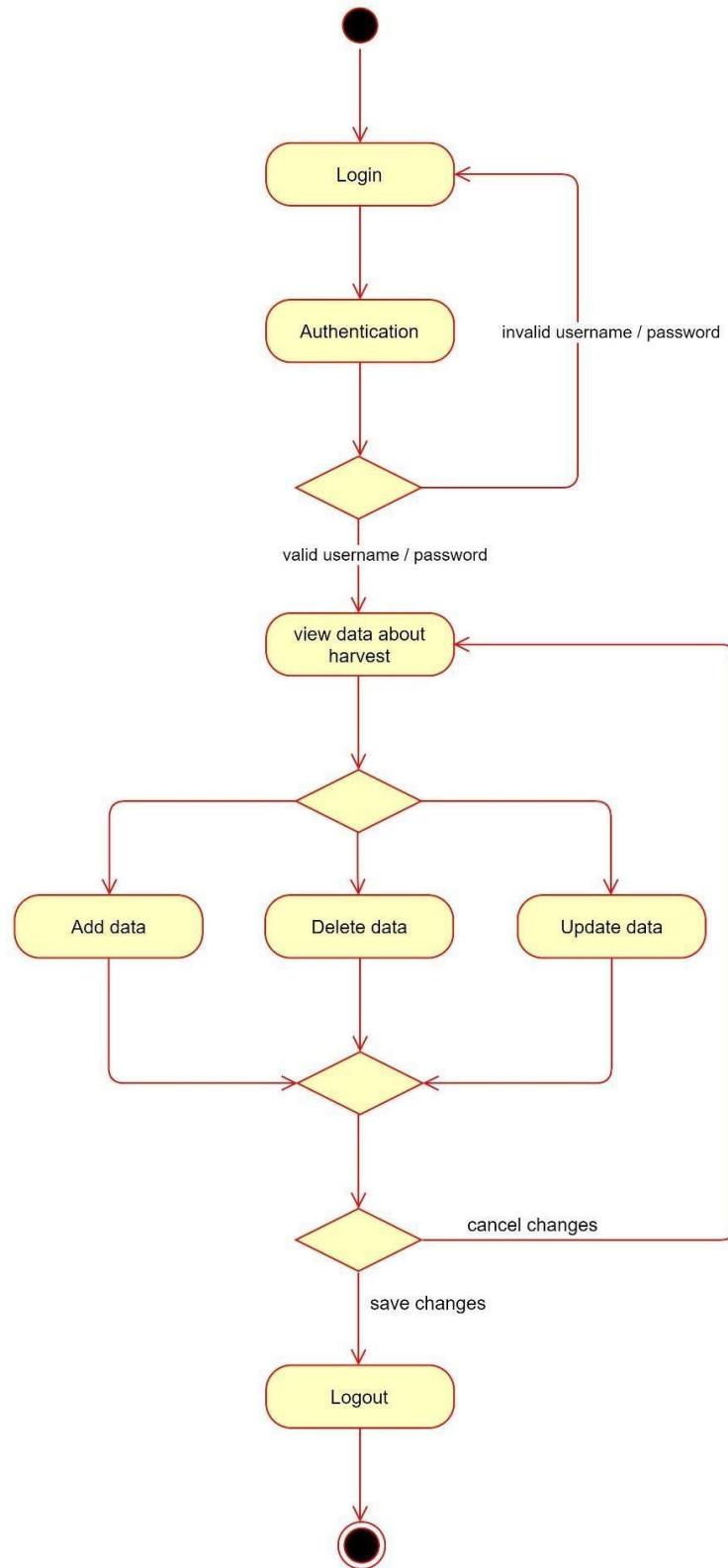
Register farmer / buyer



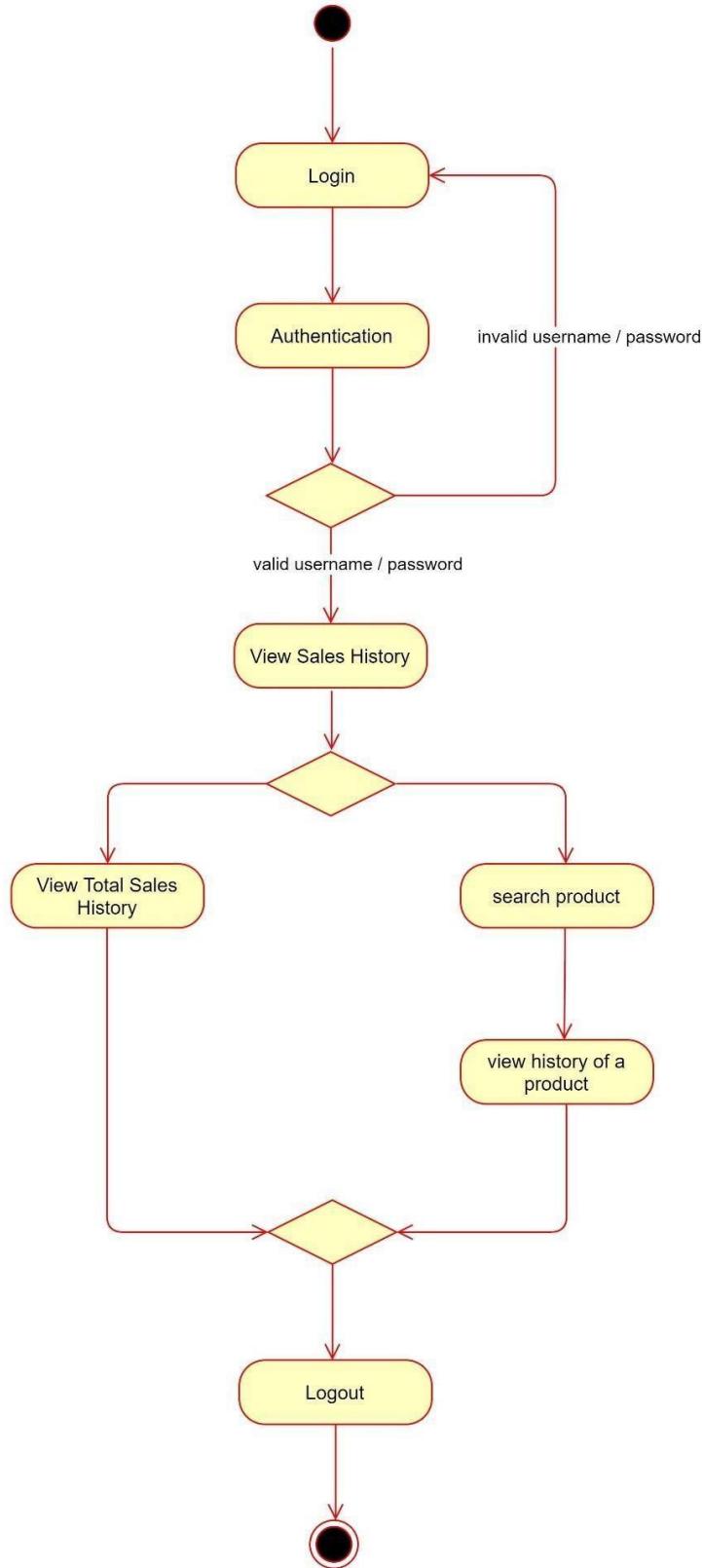
Update Bio Details



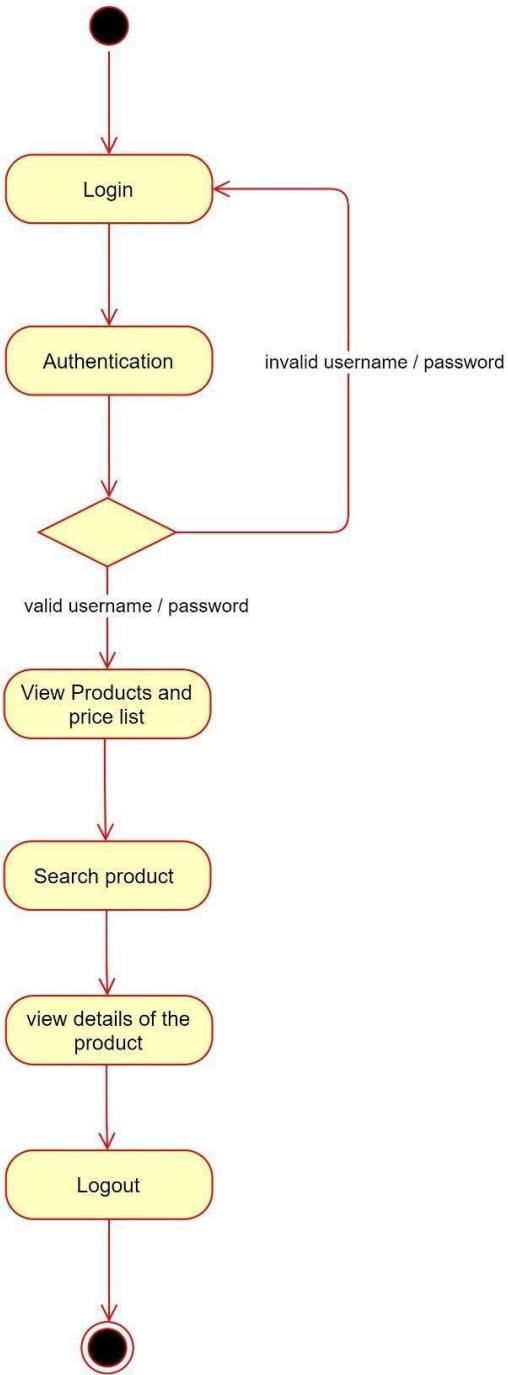
Manage Data About Harvest



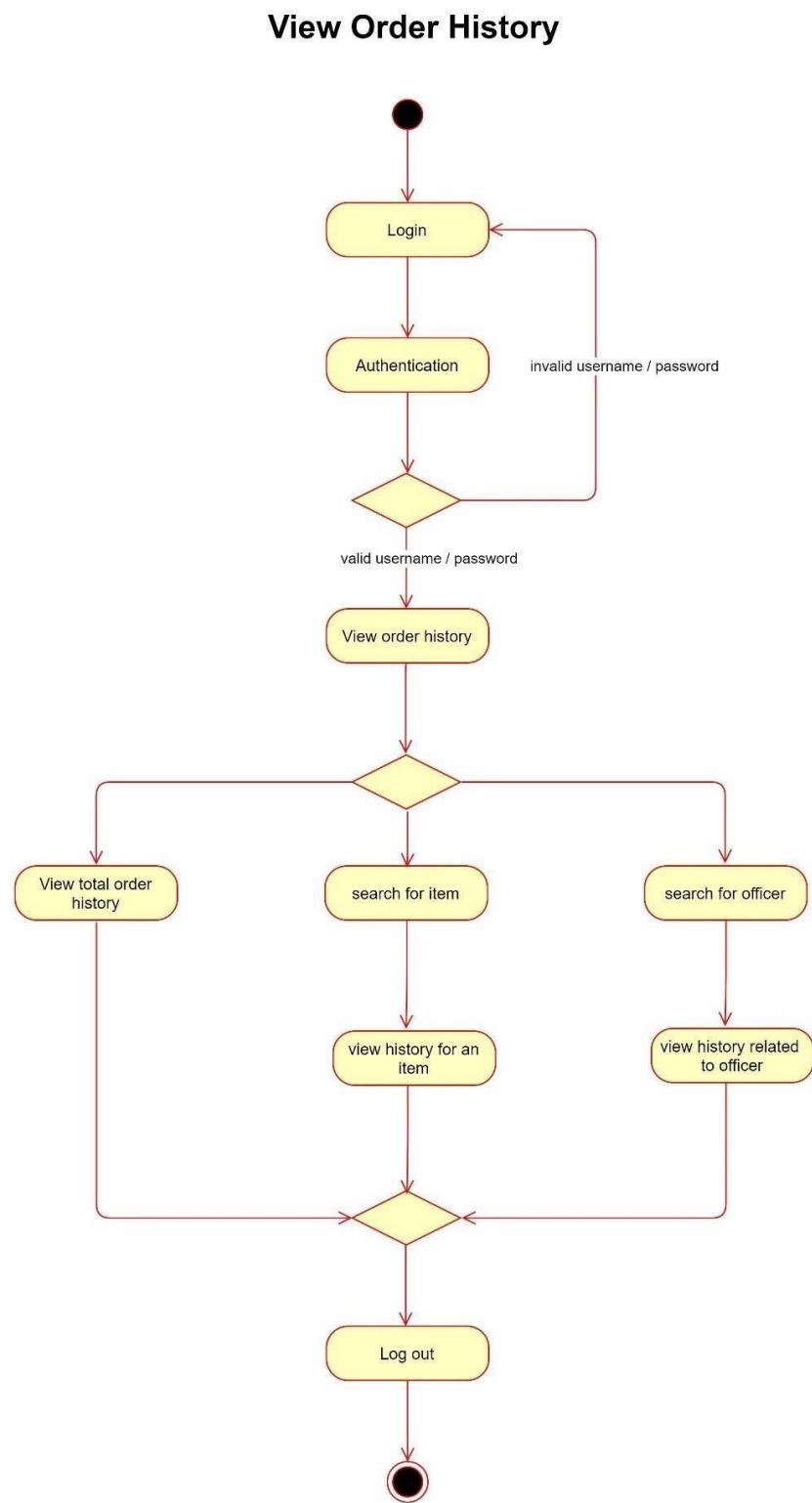
View Sales History



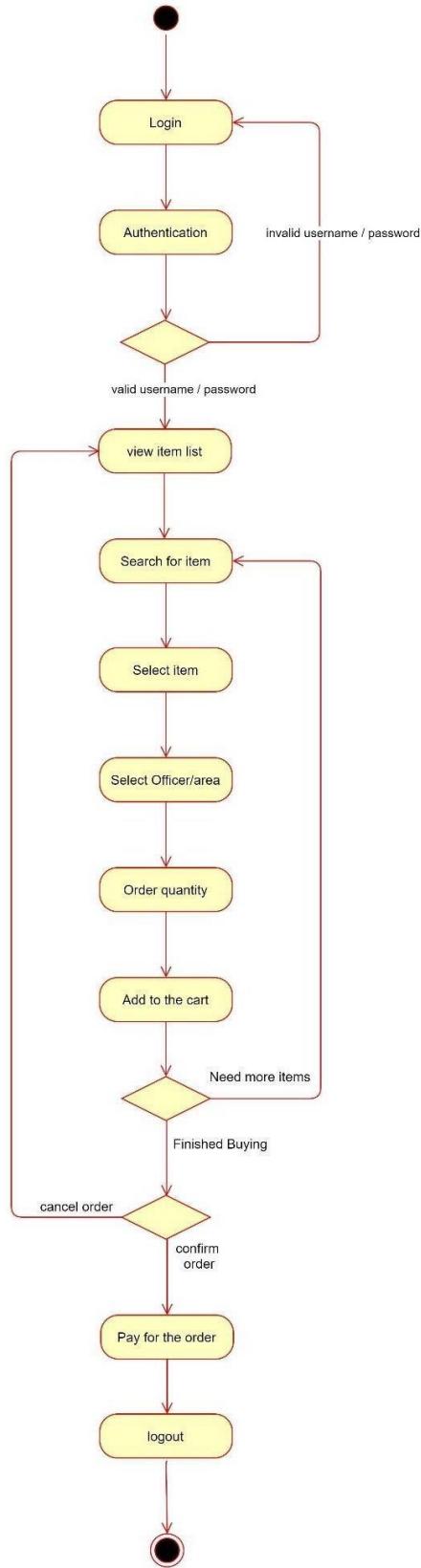
View Product and Price List



Buyer

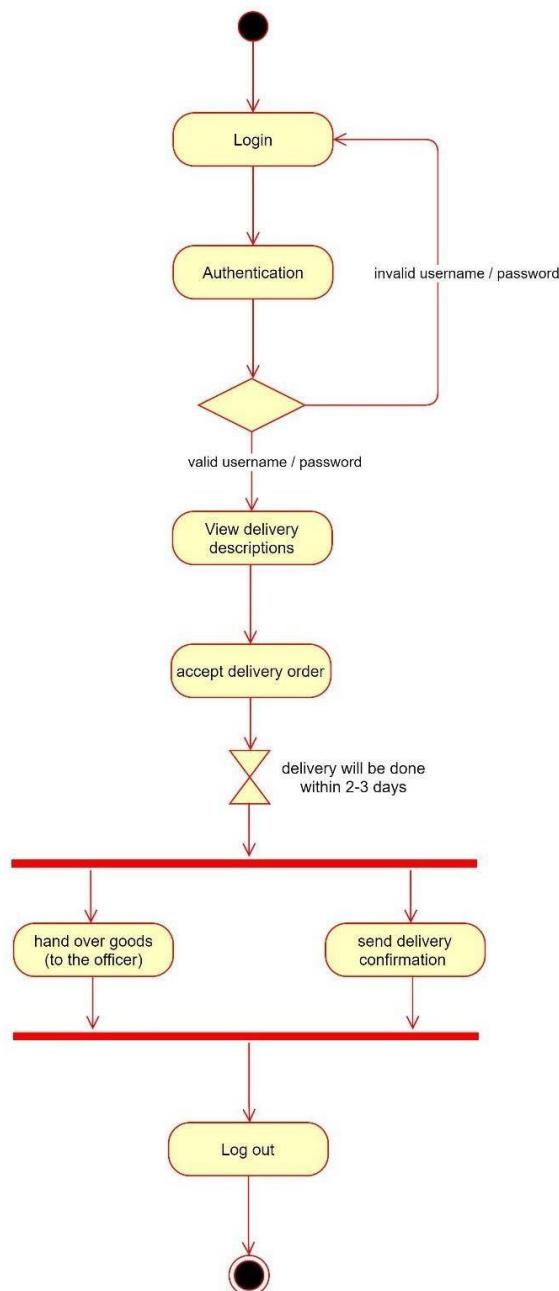


Buyer Order Goods



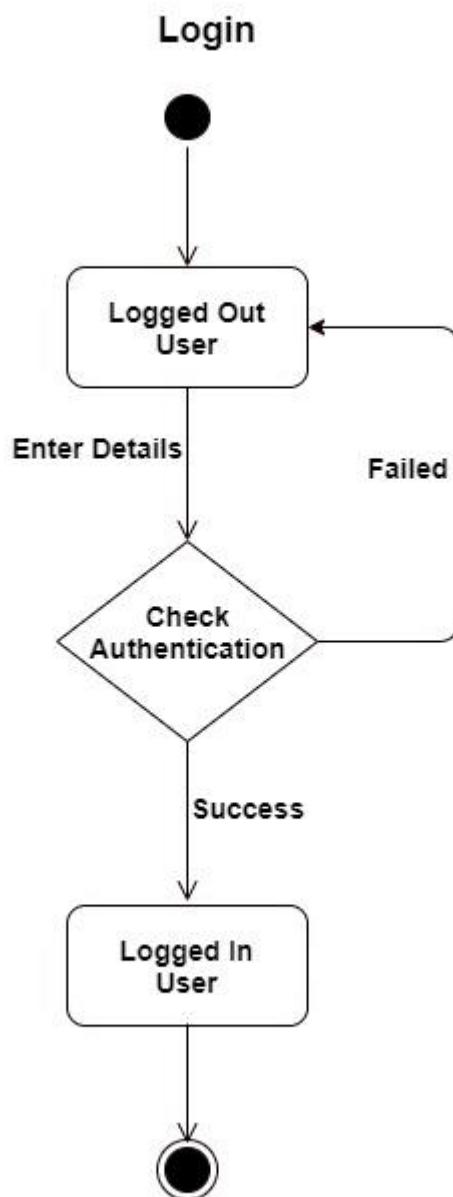
Delivery Person

Hand Over Goods to the Officer

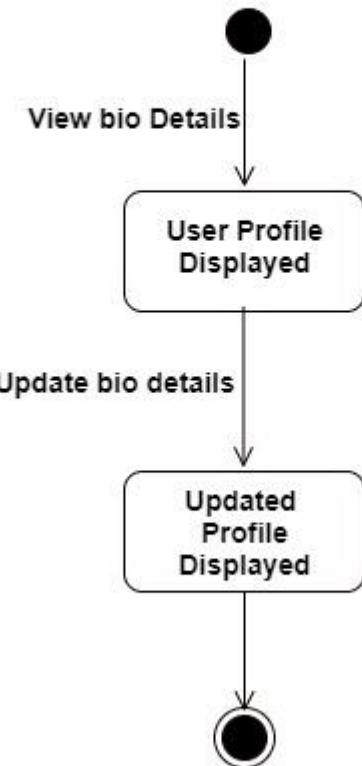


5.5 State Transition Diagrams

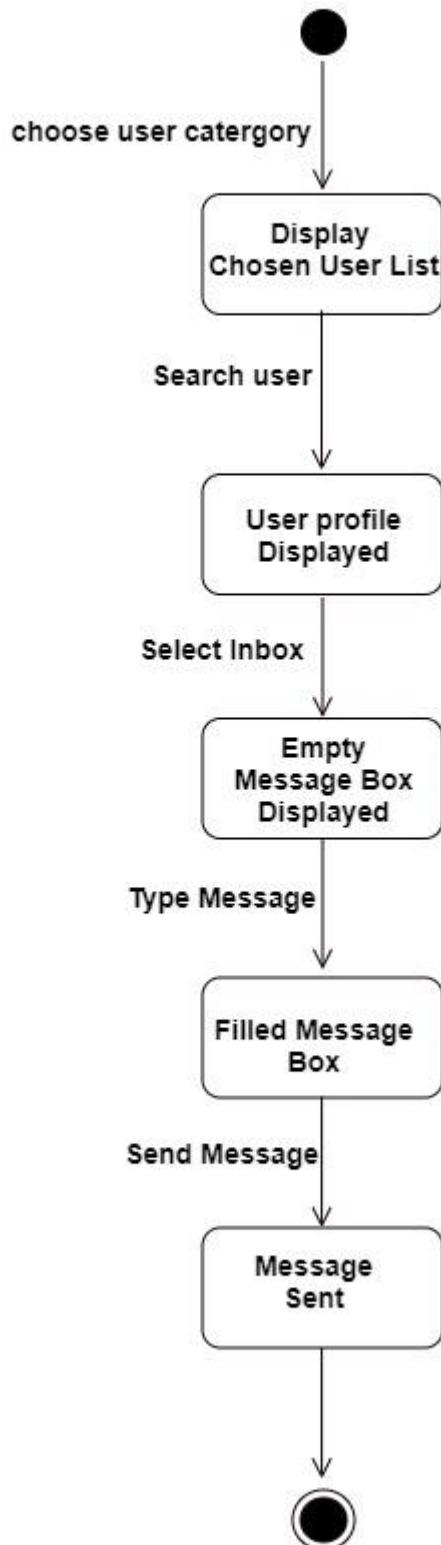
Common User



Manage Bio Details

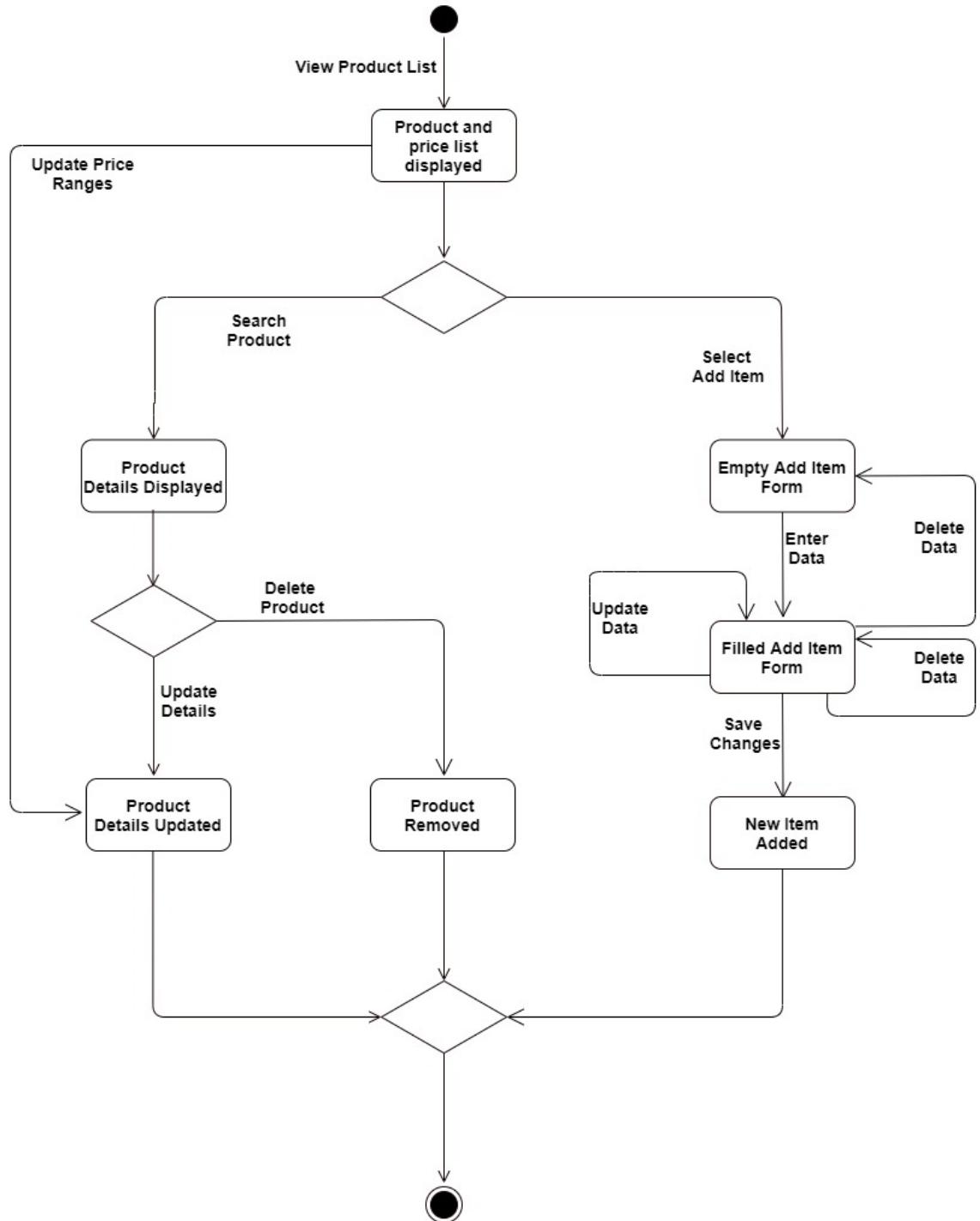


Contact User

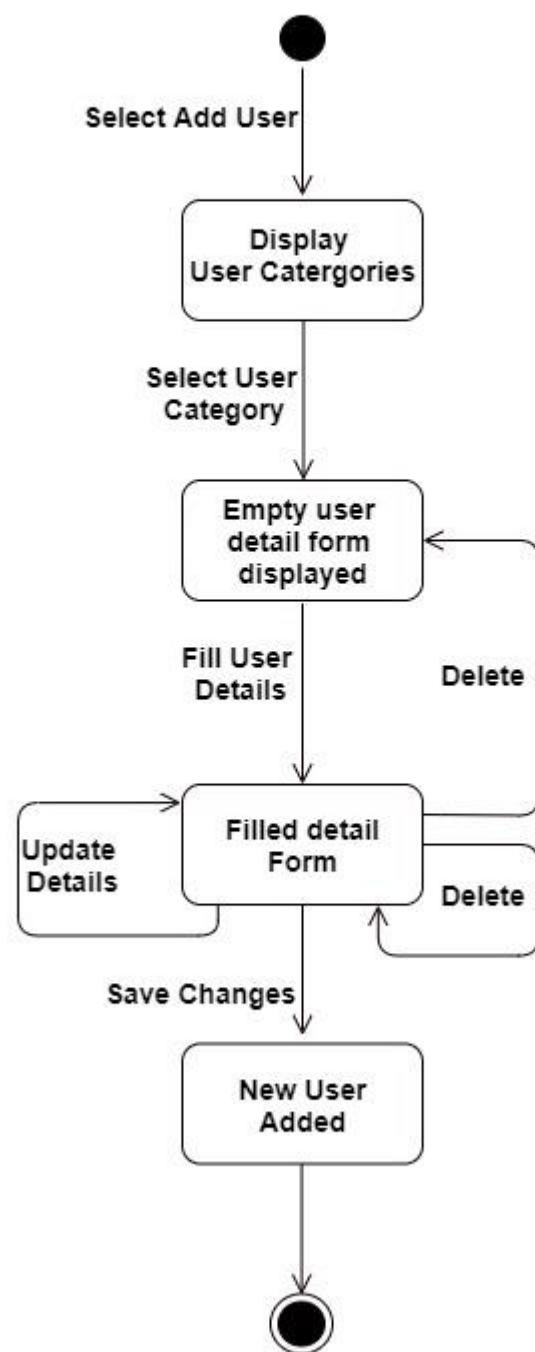


Admin

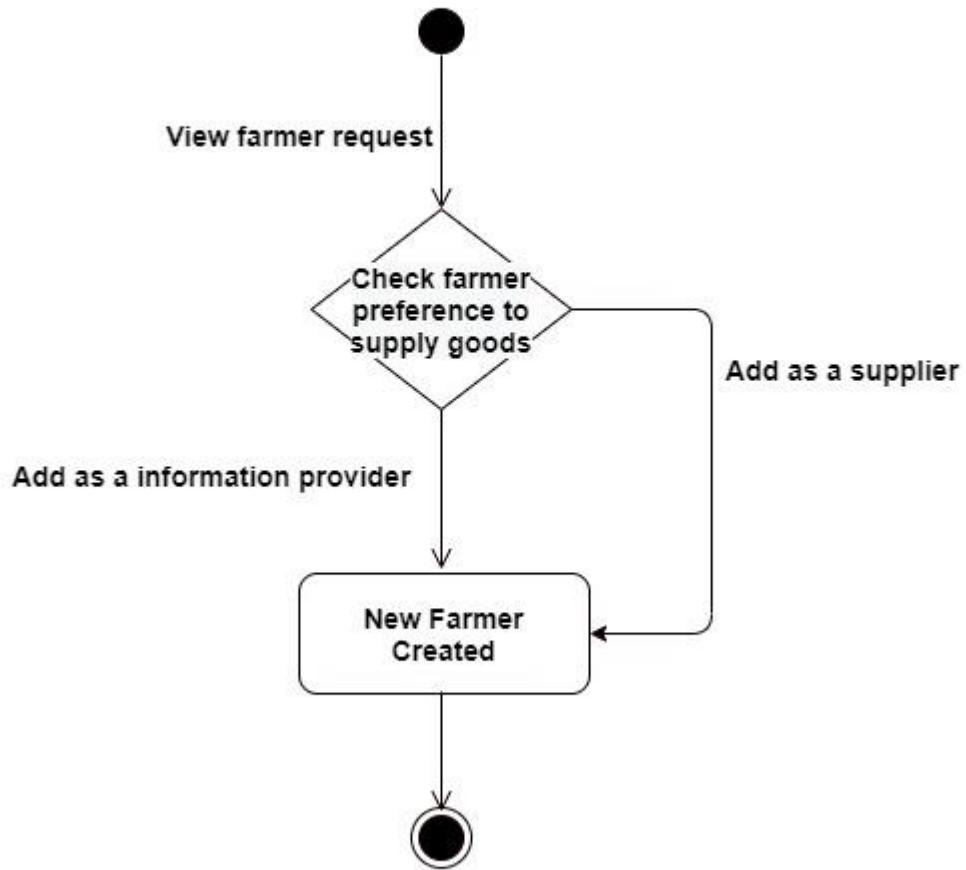
Manage Product Price List



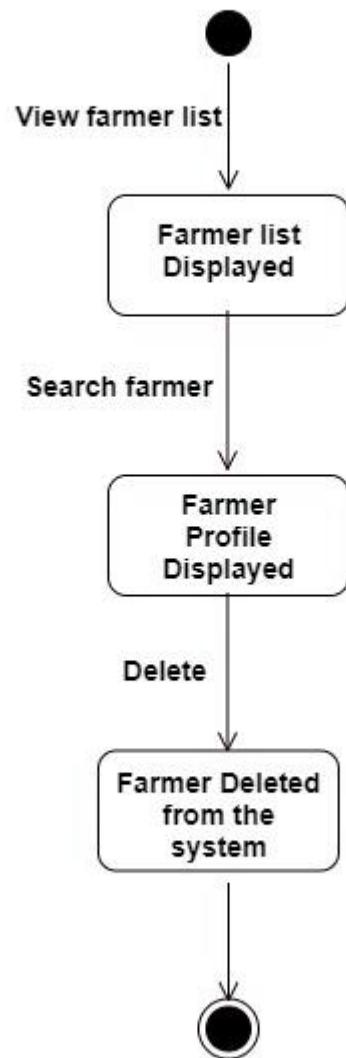
Add User



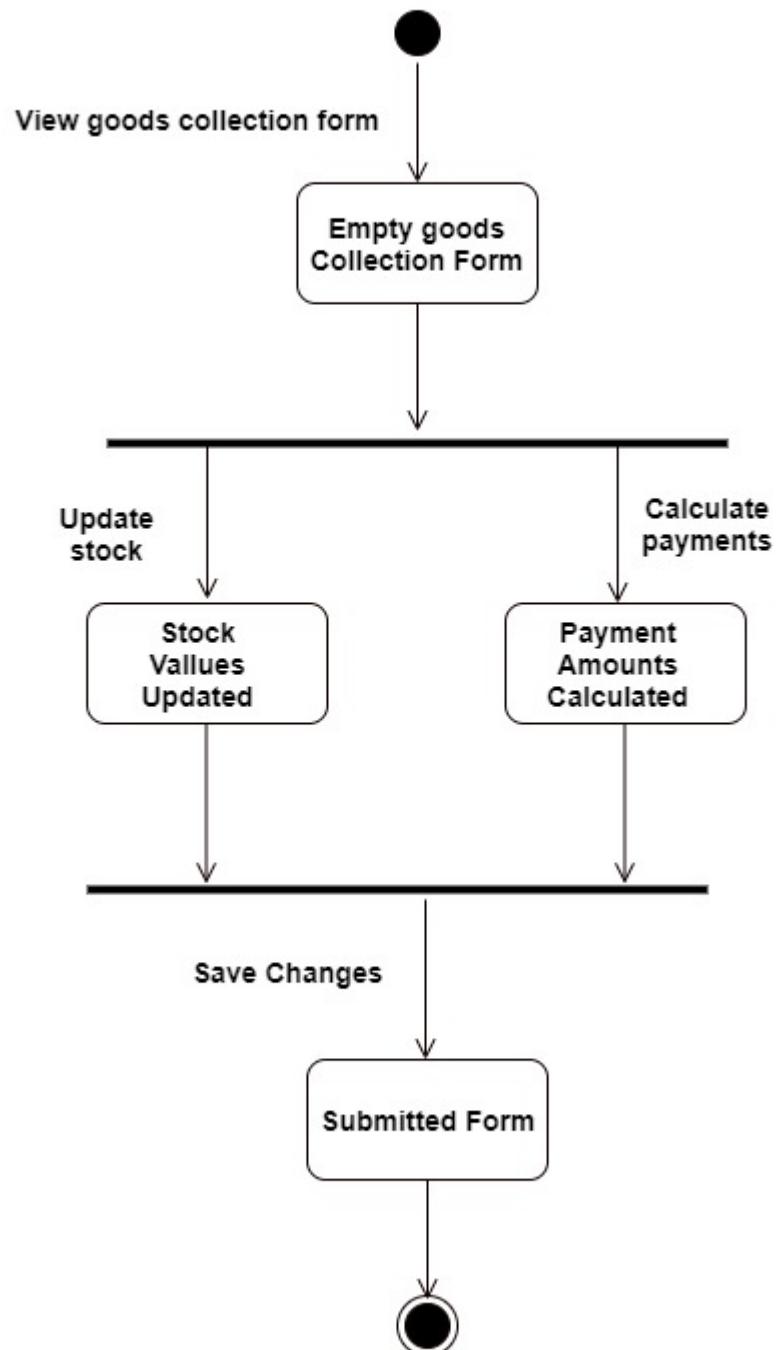
Add Farmer



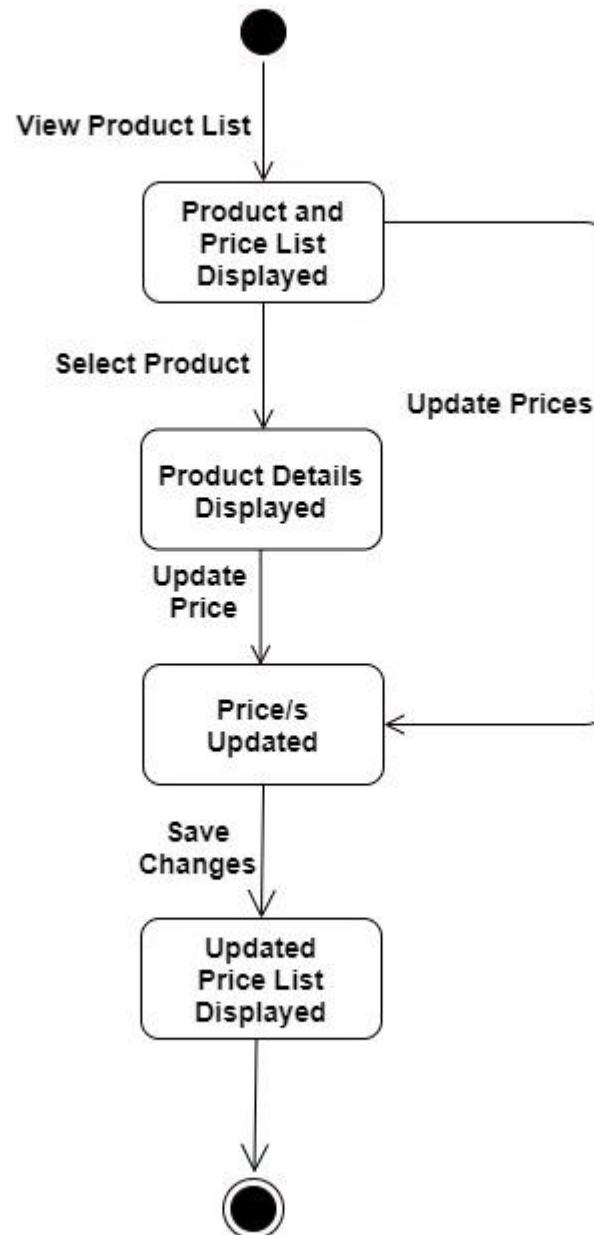
Delete Farmer



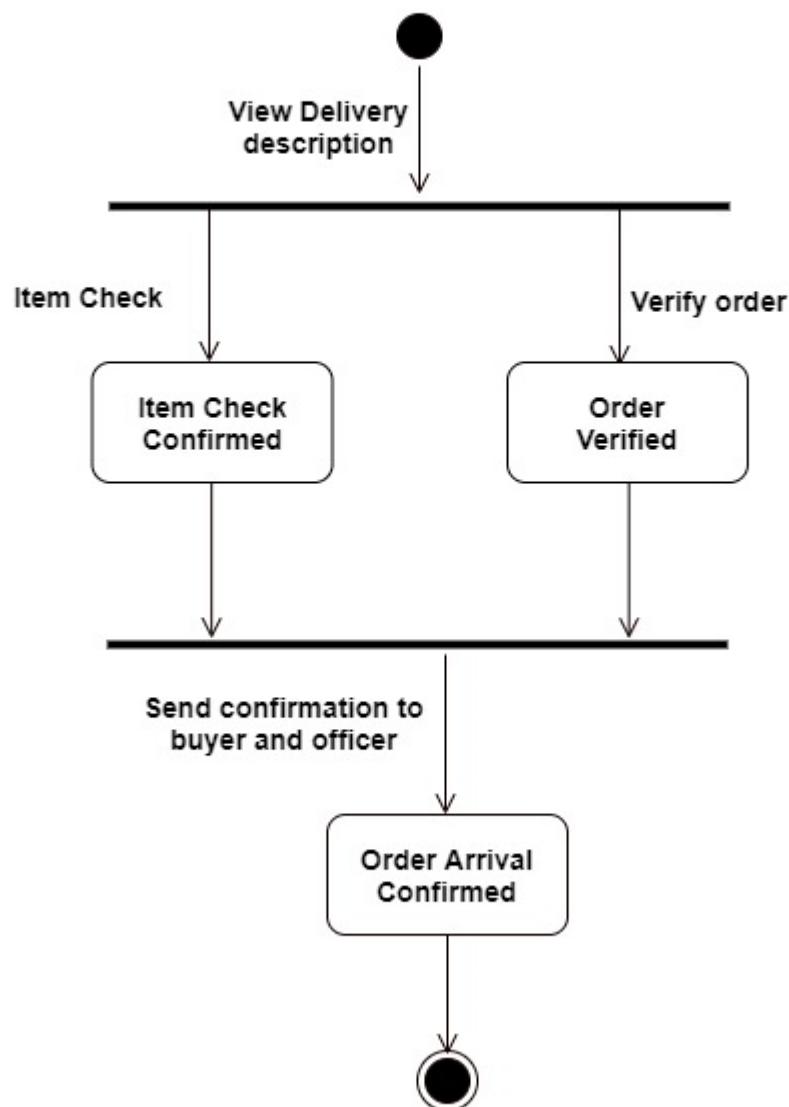
Collect goods from farmer



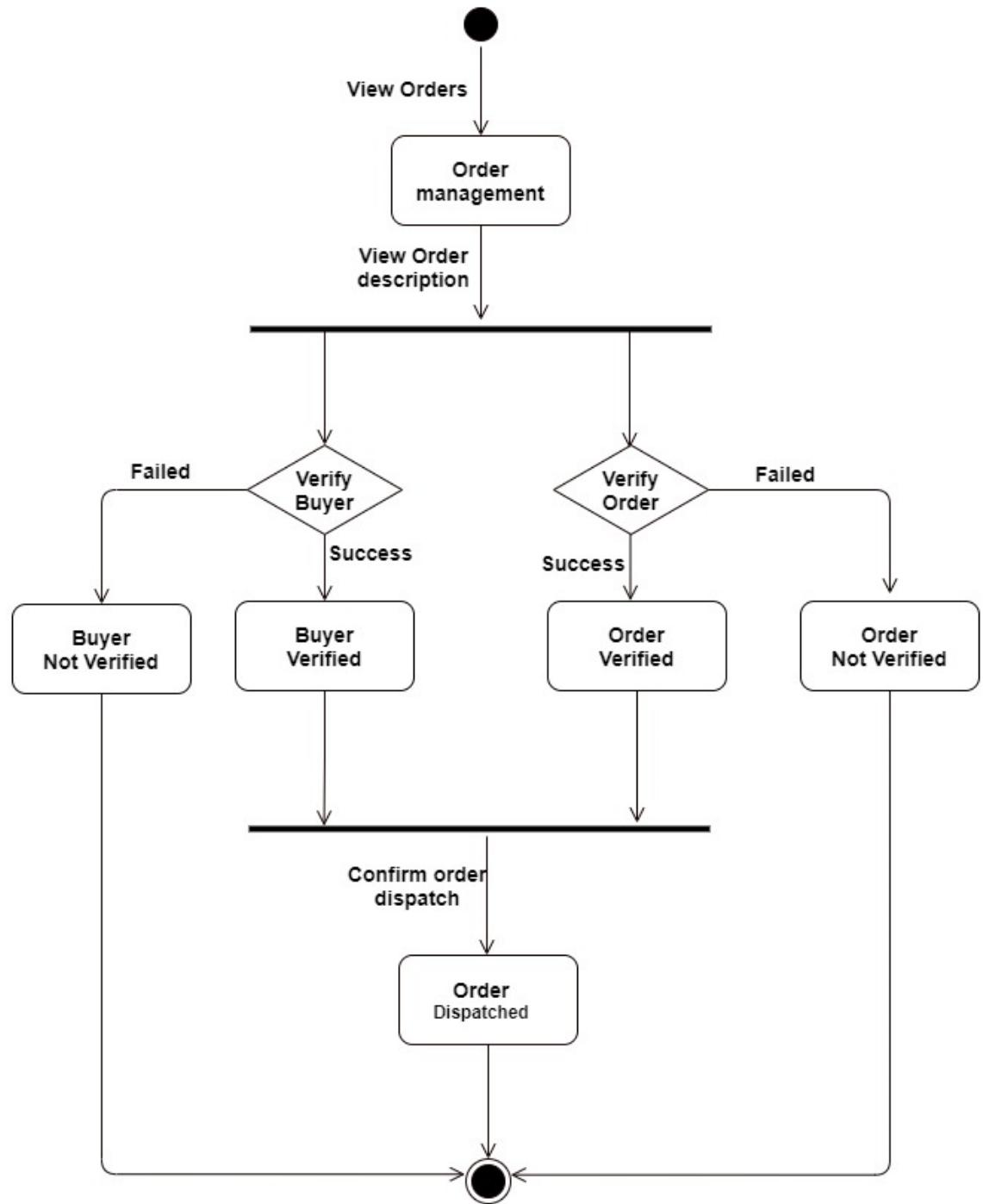
Manage Product Price List



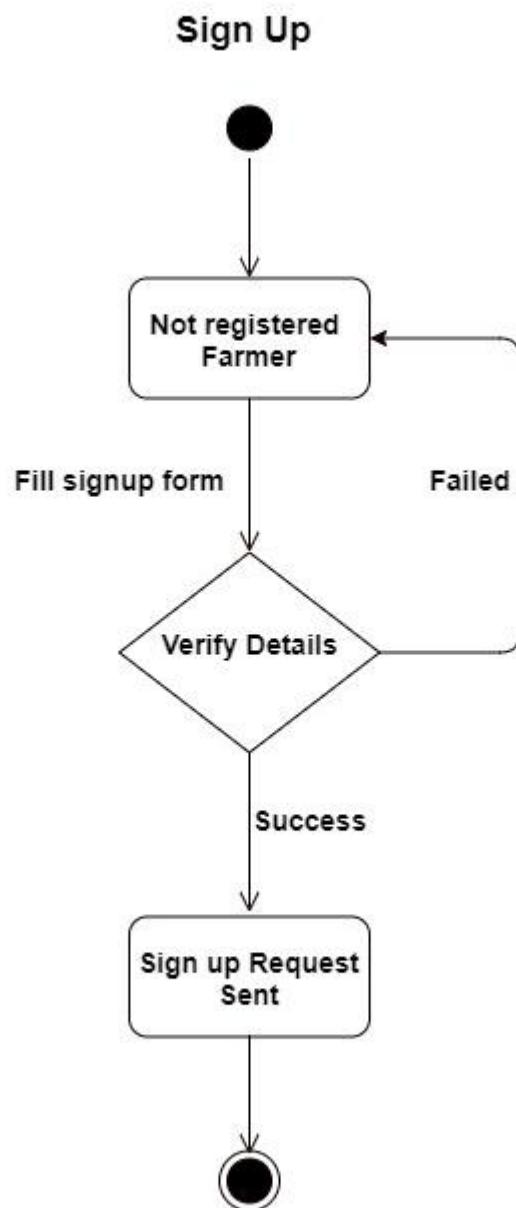
Officer accept goods from other hubs

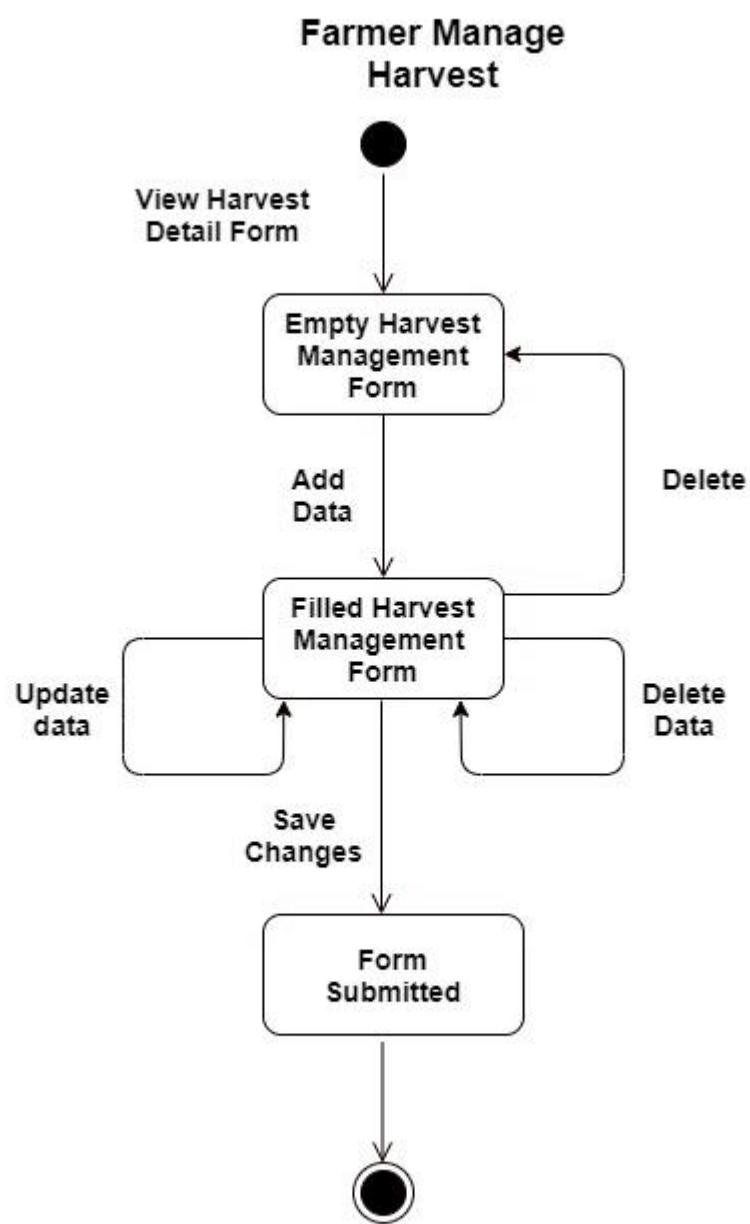


Hand over goods to buyer

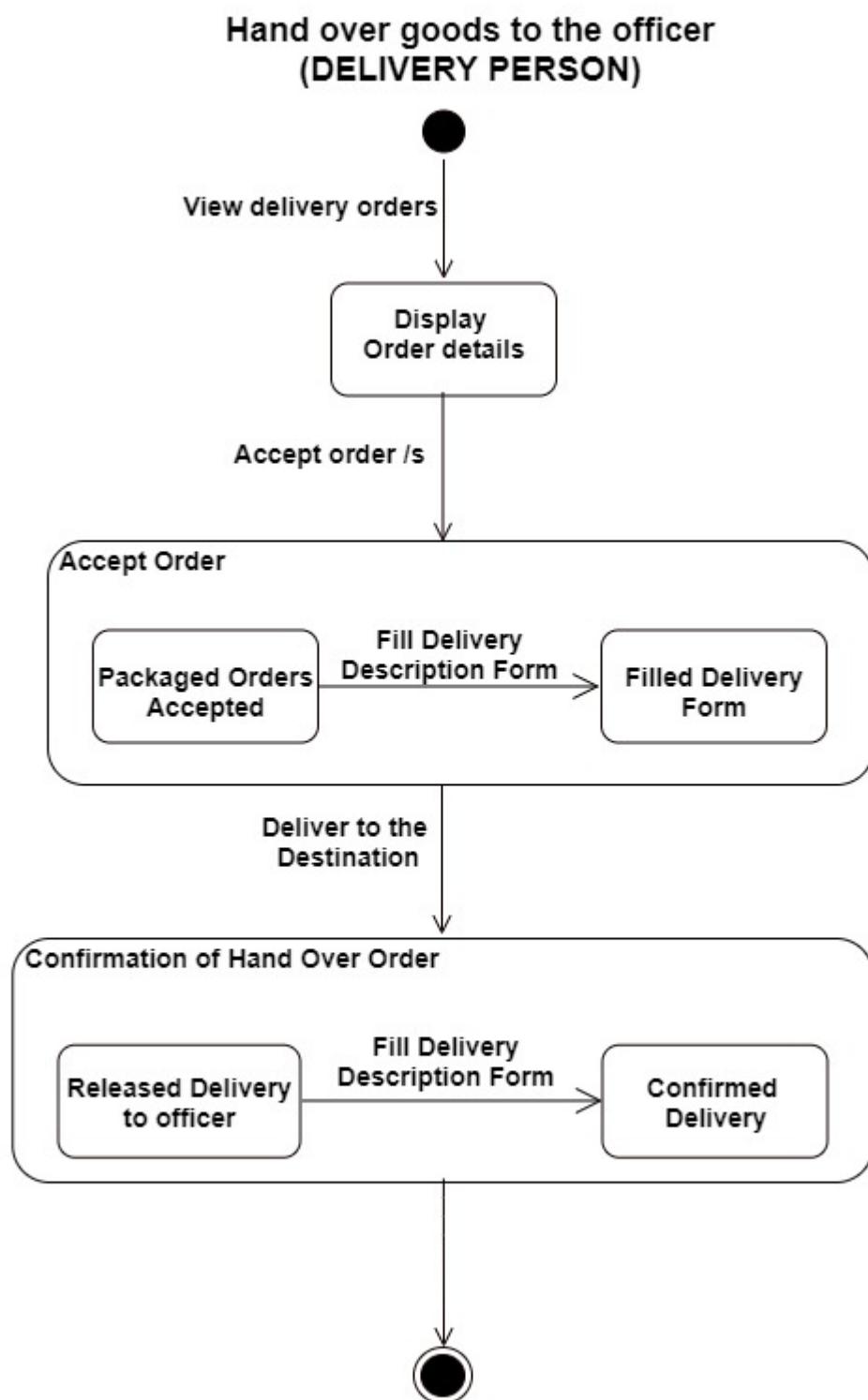


Farmer

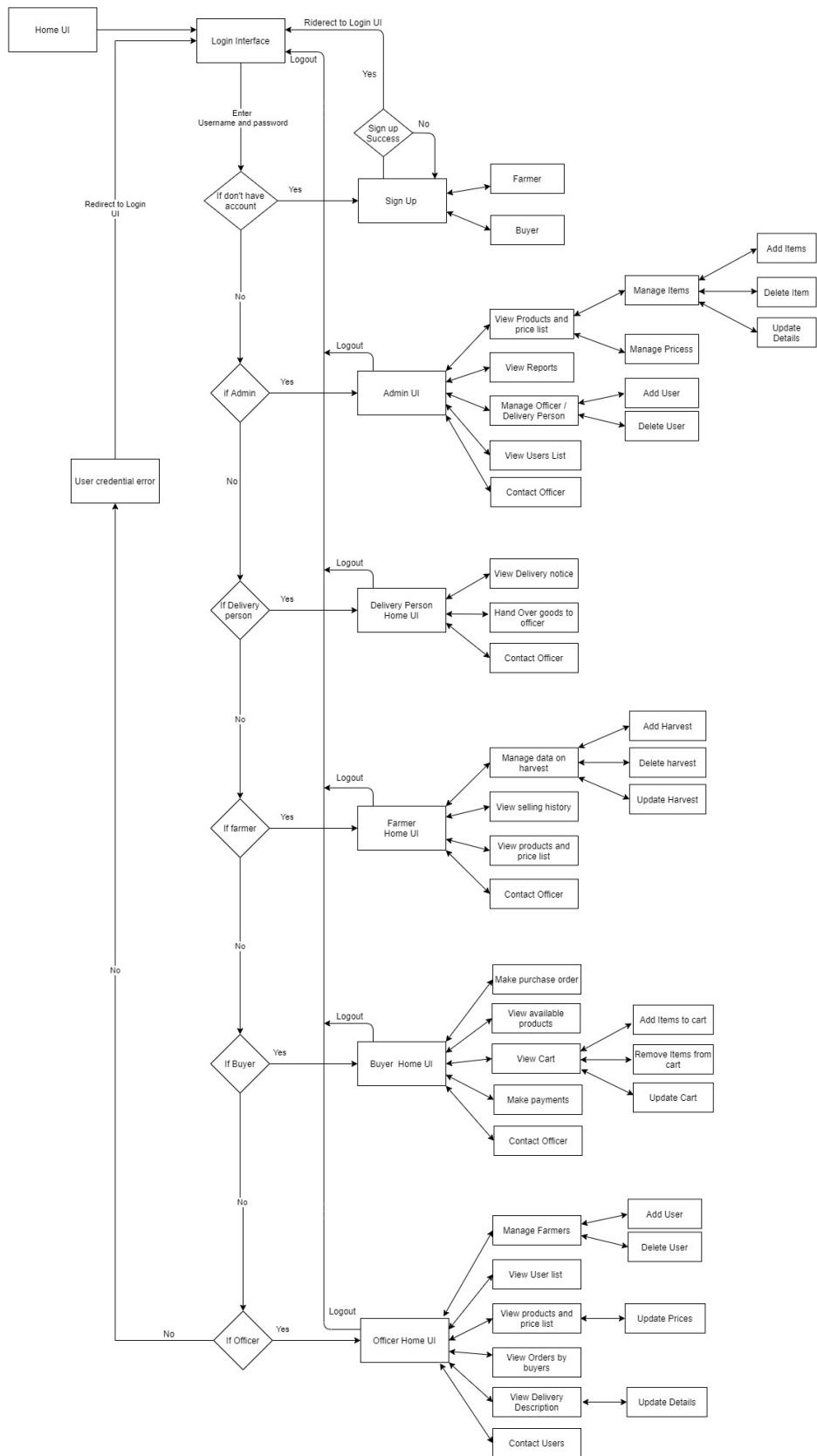


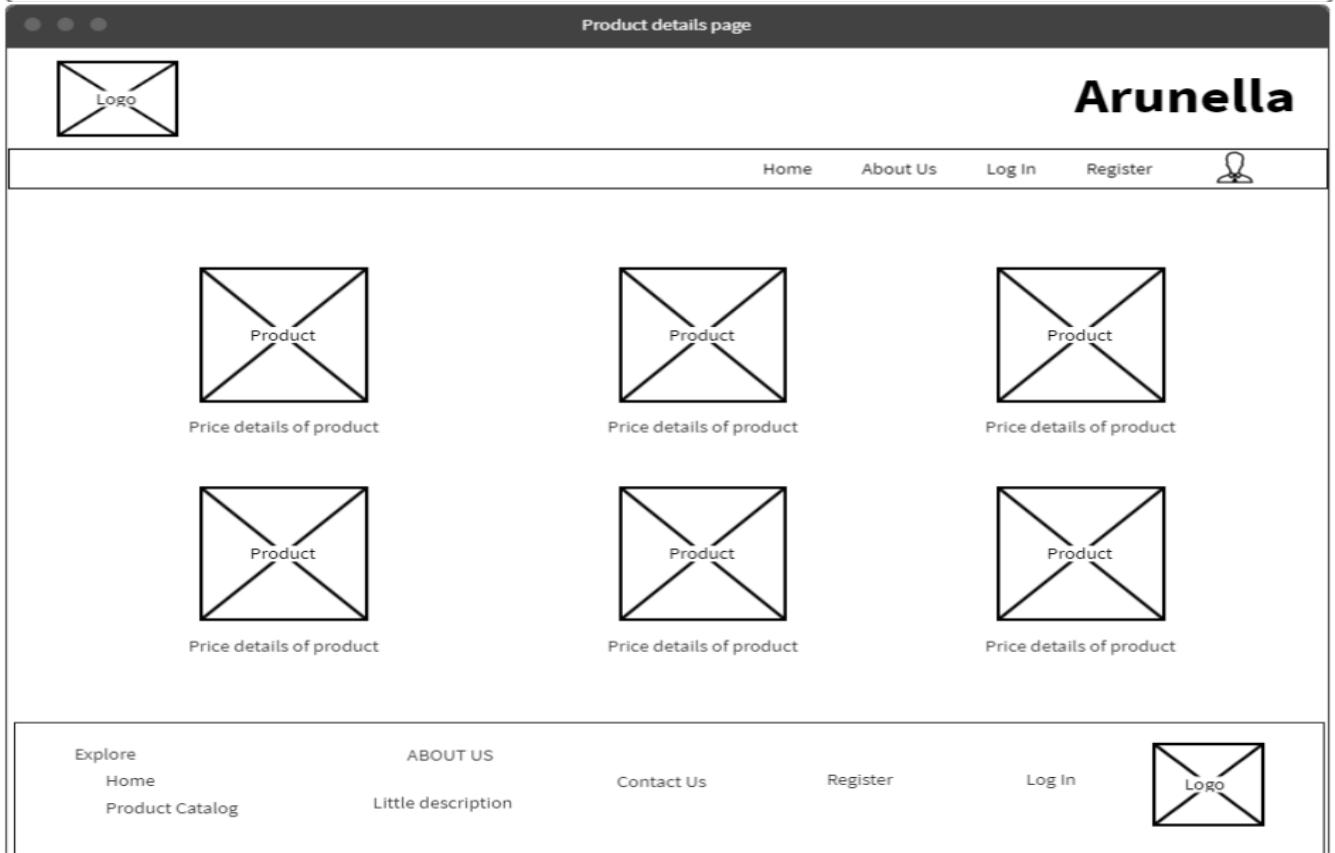
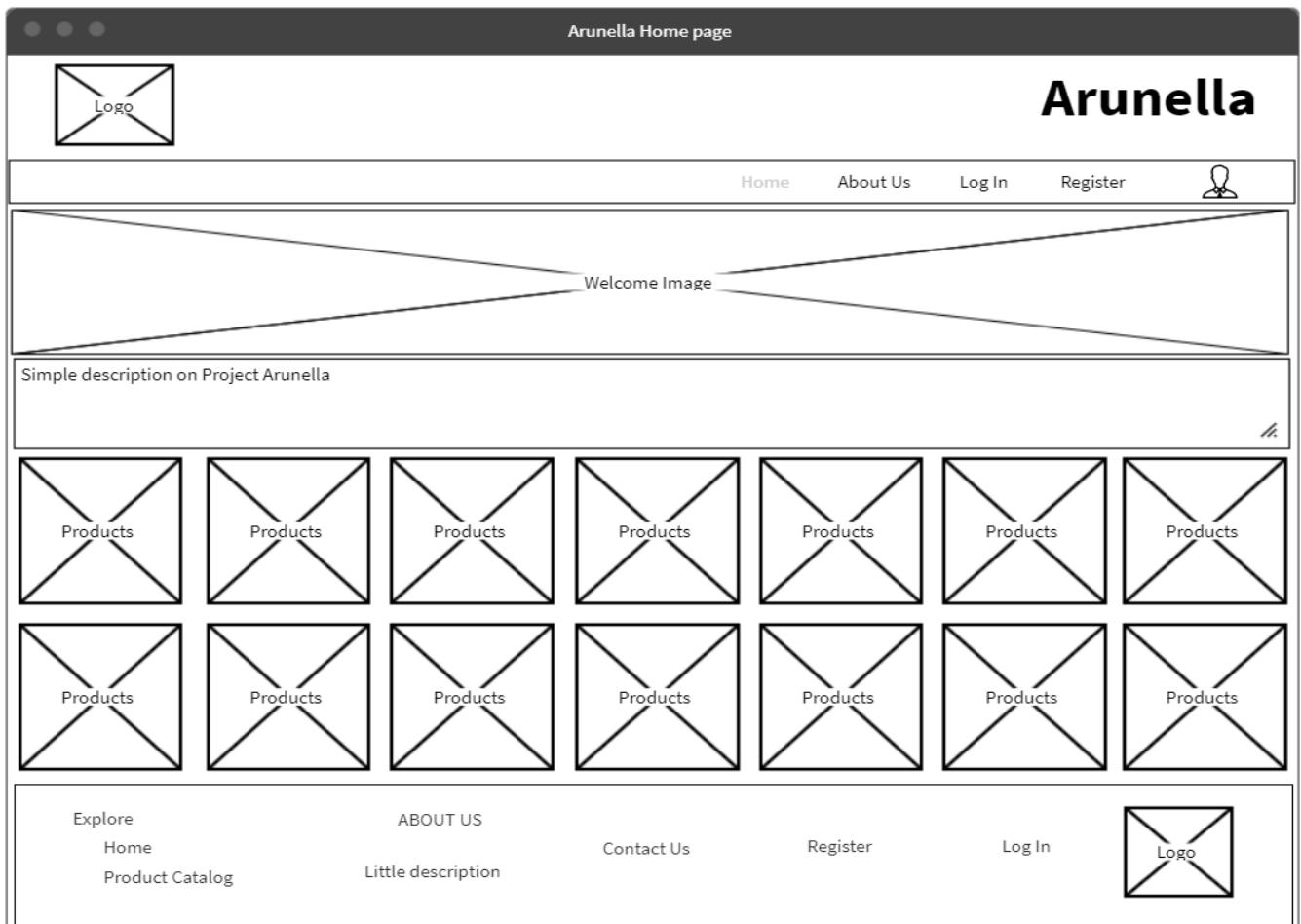


Delivery Person



6. User Interface Flow Diagrams





About Us page



Arunella

Home About Us Log In Register 

About the project Arunella

Vision and Mision statements

Explore

Home

Product Catalog

ABOUT US

Little description

Contact Us

Register

Log In



Log In page



Arunella

Home About Us Log In Register 

Explore

Home

Product Catalog

ABOUT US

Little description

Contact Us

Register

Log In

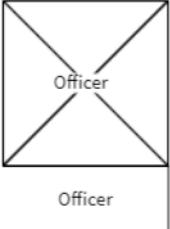


Admin Home page



Arunella

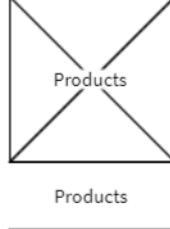
Home About Us Register Log In



Officer



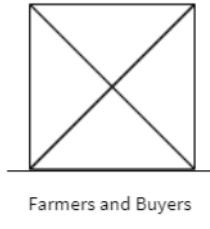
Delivery Person



Products



Reports



Farmers and Buyers

Messages by Officers

Explore

ABOUT US

Contact Us

Register

Log In



View reports page

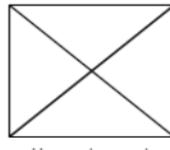


Arunella

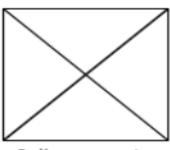
Home About Us Log In Register



Sales report



Harvest report



Delivery reports

Explore

ABOUT US

Contact Us

Register

Log In



Product details page

The wireframe illustrates a product details page for a website named "Arunella".

Header:

- Logo icon
- Title: **Arunella**
- Navigation: Home, About Us, Log In, Register, User profile icon

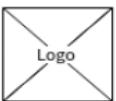
Main Content Area:

- List of products
- Buttons: Update, Delete, Add Product

Footer:

- Explore: Home, Product Catalog
- ABOUT US: Little description
- Contact Us
- Register
- Log In
- Logo icon

Buyer's and Order's Details Page



Arunella

Home
About Us
Login
Register


 Name
emailaddress@buyer.com

 Name
emailaddress@buyer.com

 Name
emailaddress@buyer.com

 Name
emailaddress@buyer.com

 Name
emailaddress@buyer.com

 Name
emailaddress@buyer.com

Orders List

Buyer Name	District	Confirm
 Buyer Name	District	Confirm
 Buyer Name	District	Confirm
 Buyer Name	District	Confirm
 Buyer Name	District	Confirm
 Buyer Name	District	Confirm
 Buyer Name	District	Confirm

Explore
ABOUT US
Contact Us
Register
Login


Farmer's Details Page



Arunella

Home
About Us
Login
Register


 Name
Some main Products & District

 Name
Some main Products & District

 Name
Some main Products & District

 Name
Some main Products & District

 Name
Some main Products & District

 Name
Some main Products & District

 Name
Some main Products & District

 Name
Some main Products & District

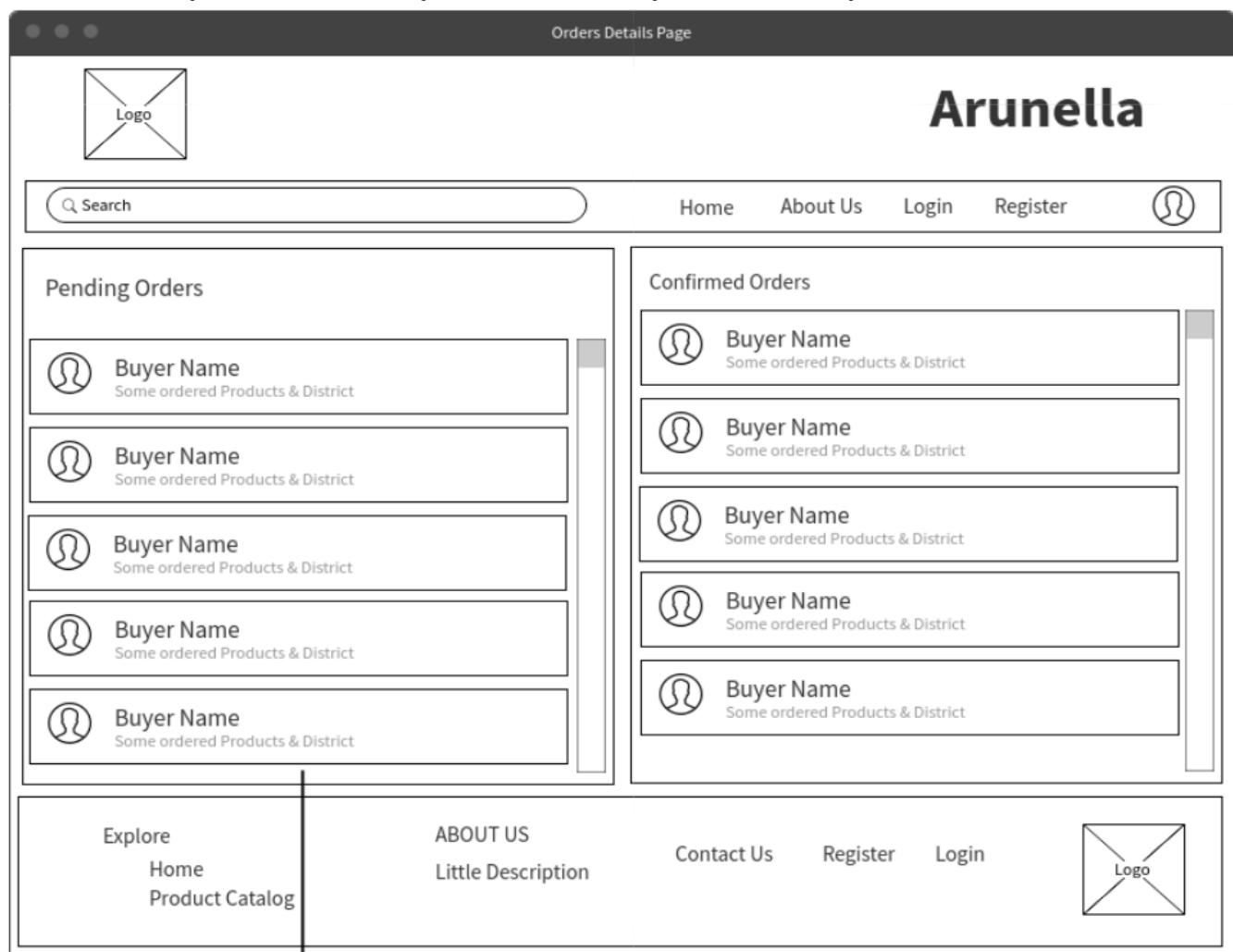
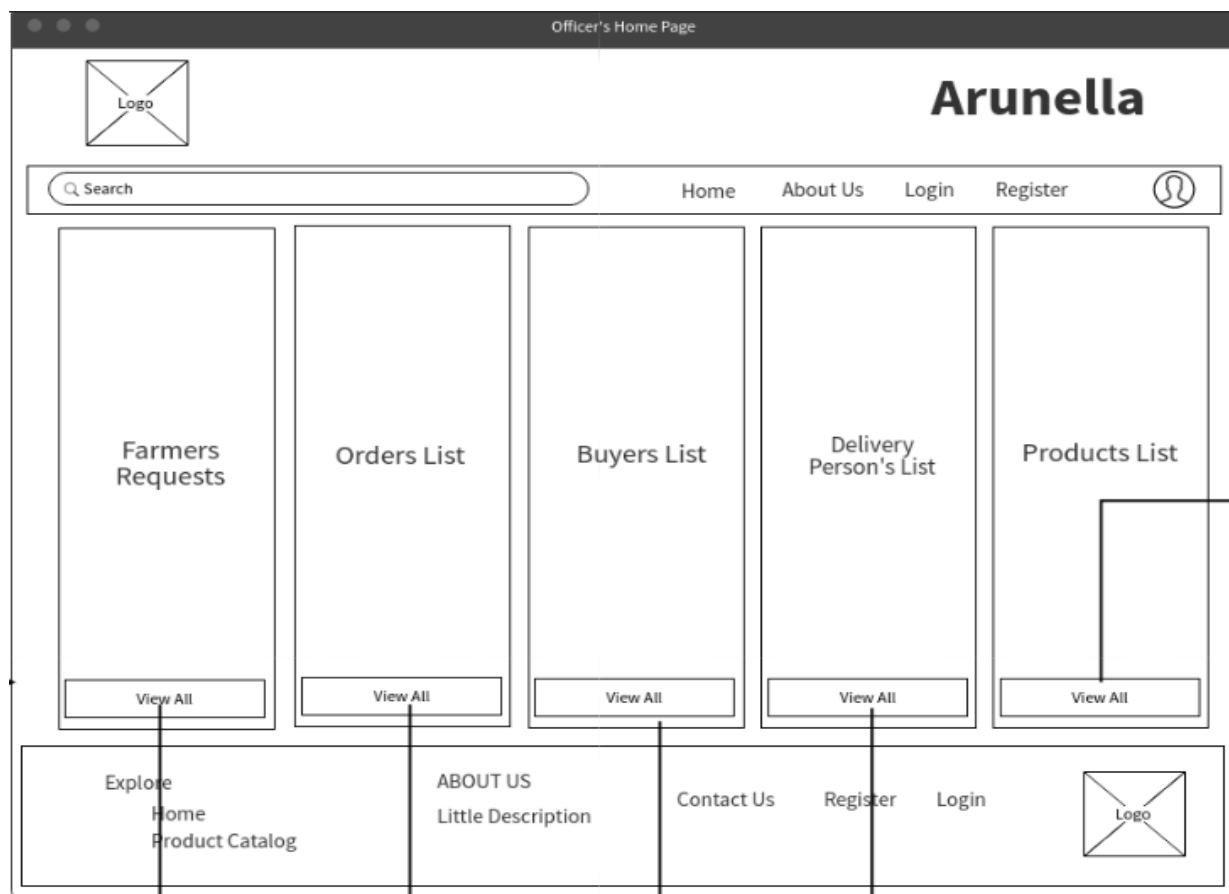
 Name
Some main Products & District

 Name
Some main Products & District

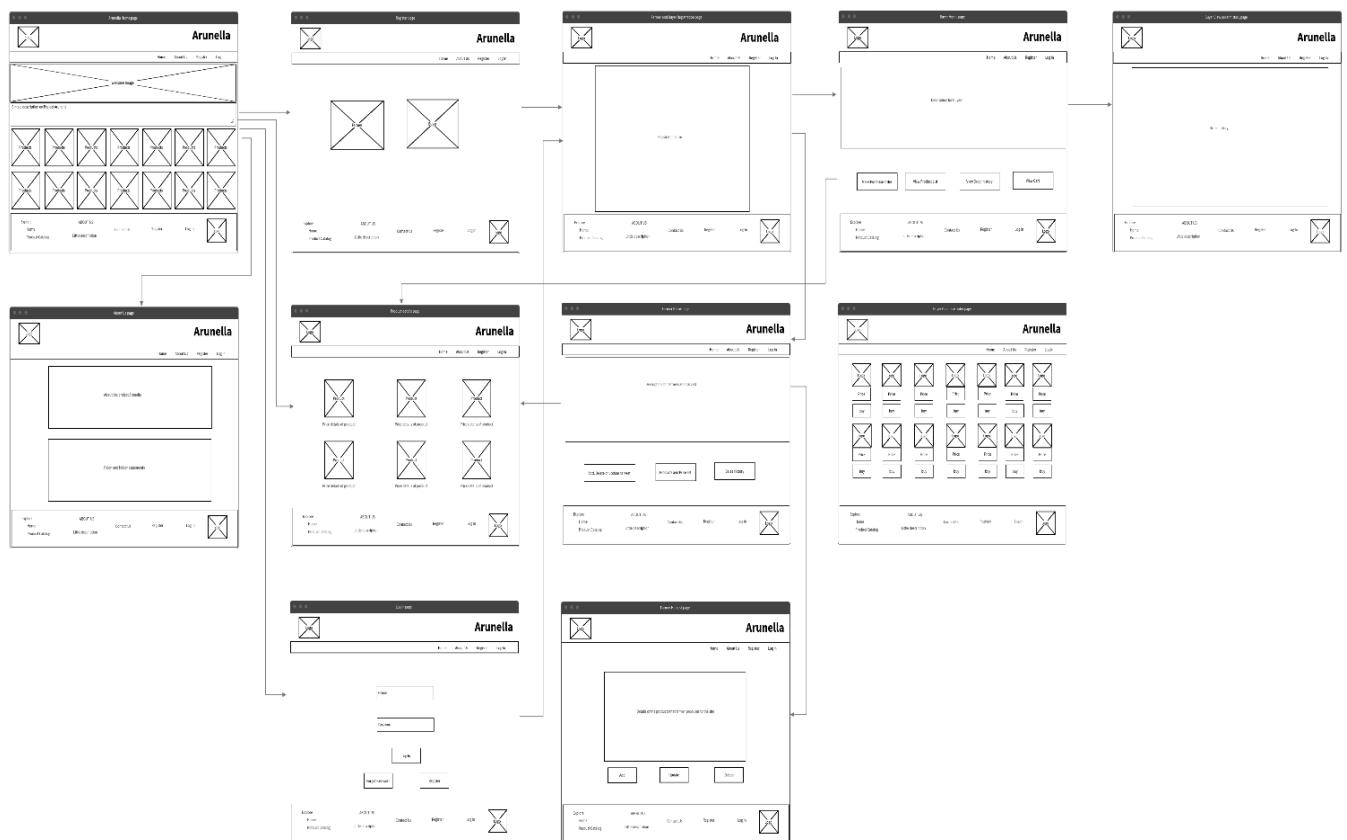
 Name
Some main Products & District

 Name
Some main Products & District

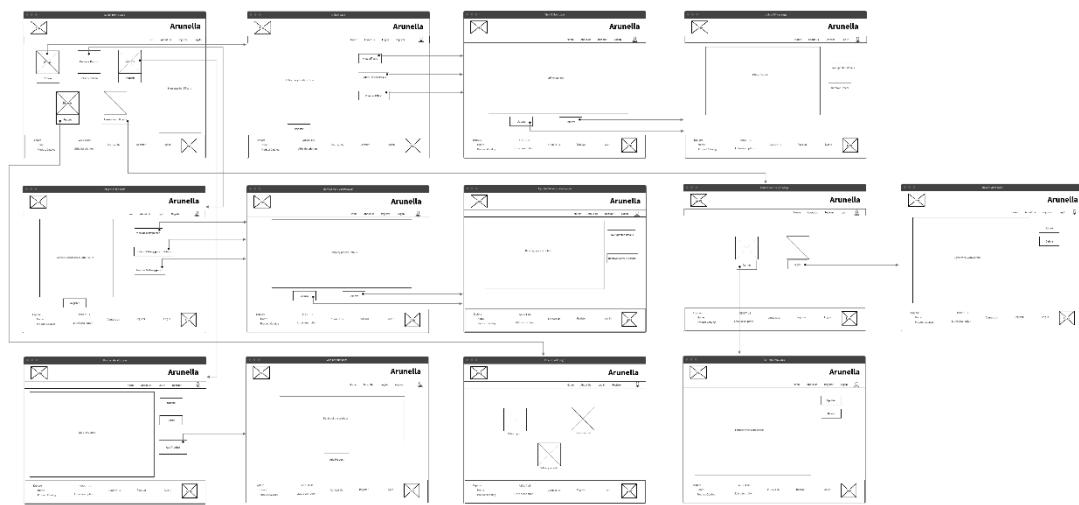
Explore
ABOUT US
Contact Us
Register
Login

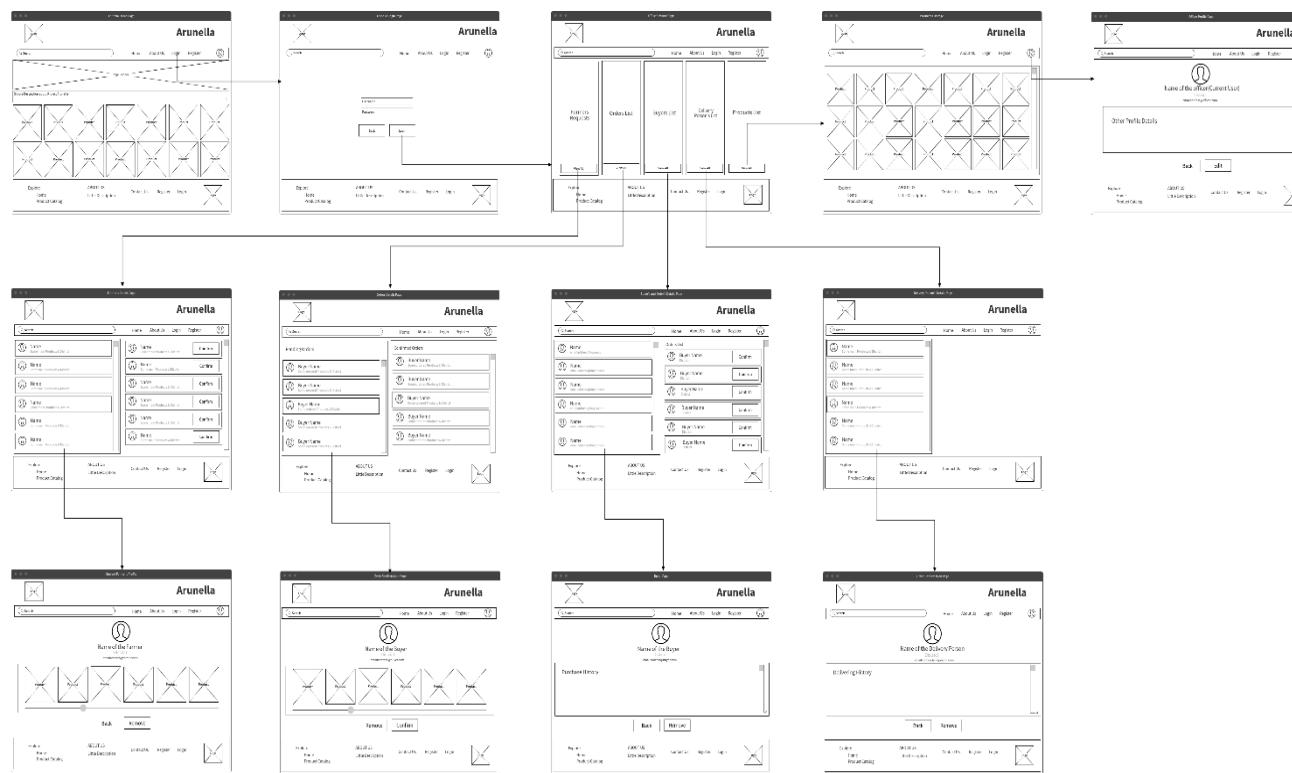
Arunella



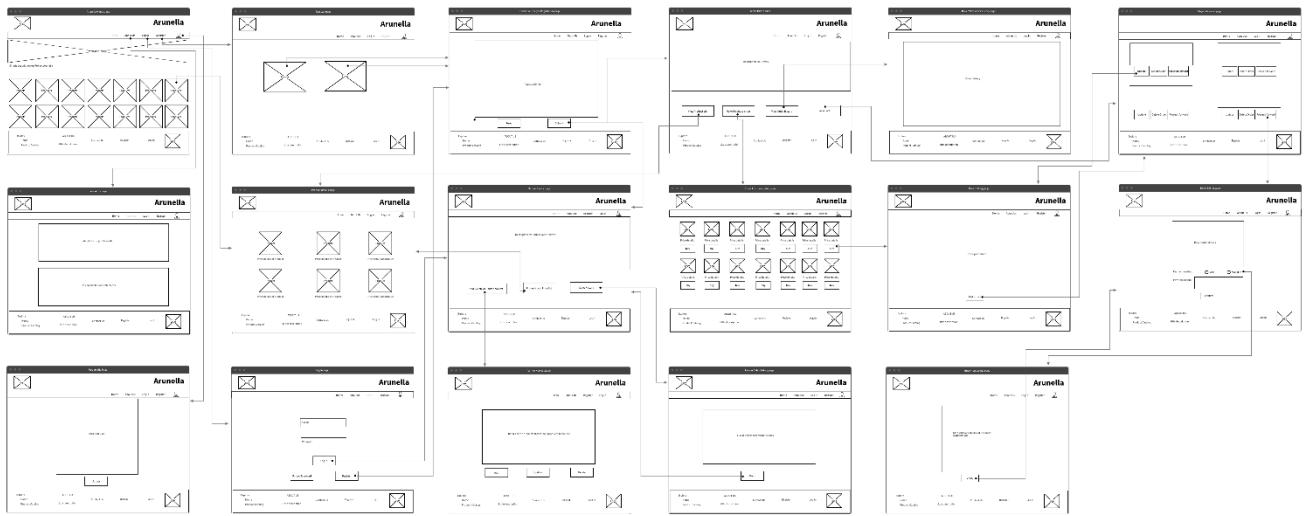
Admin



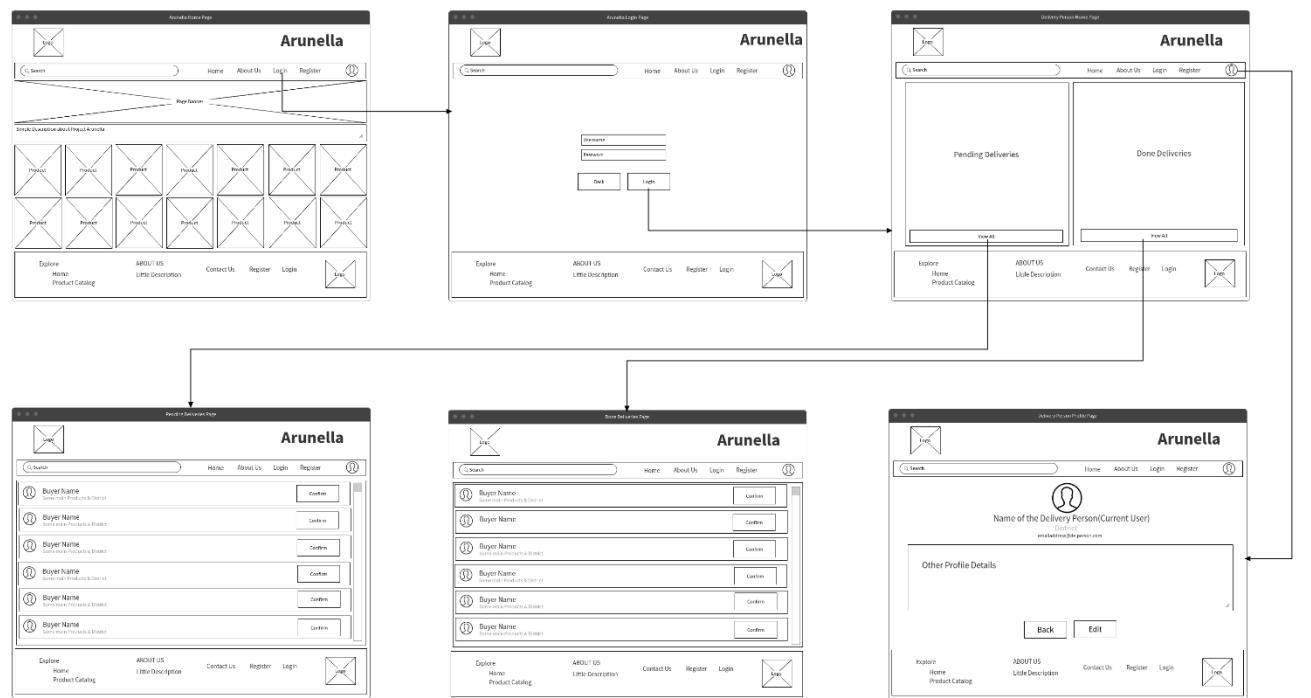
Authorized Officer



Farmer and Buyer



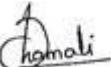
Delivery person



Declaration

We as members of the project titled Arunella,

Certify that we will carry out this project according to the guidelines provided by the coordinators and supervisors of the course as well as we will not incorporate, without acknowledgement, any material previously submitted for a degree or diploma in any university. To the best of our knowledge and brief, the project work will not contain any material previously published or written by another person or ourselves except where due reference is made in the text of appropriate places

Index No	Name of Student	Signature
18020712	P.R.S.T. Sandeepani	
18020615	D.A.D.N. Premawardhana	
18020722	G.T.S. Sathindra	
18020674	D.M. Samarasinghe	

Date:

25/07/2020

Proposed Project Supervisor (Academic Staff of UCSC):

Name of the supervisor: Dr. Noel Fernando

Signature of the supervisor:

Date:

Name of the co-supervisor: Mr. Kavinda Athapaththu

Signature of the co-supervisor:

Date: The client of the Project (If applicable, otherwise supervisor will be considered as the client)

Name of the client: Dr. Noel Fernando

E mail address of the client: nas@ucsc.cmb.ac.lk

Contact person at client:

Contact number of the contact person:

E-mail address of the contact person:

I. Appendix

Use Case Description – Admin

Login Description for all users

Name	: Login
Description	: User can login to the system.
Primary Actors	: Officer
Secondary Actors	: None
Pre-Conditions	: User must enter the correct password to enter the system.
Main Flow:	<ol style="list-style-type: none">1. User enter Username and password.2. System check data by combining username and password.3. System identifies the user details.4. Users get into the system.
Post Conditions :	Users can enter into the system or User access denied.
Alternative Flows :	1.a User can enter a phone number as the username. 1.b User password errors may occur.

Update bio details description for all users

Name	: Update bio details
Description	: User can update his bio details.
Primary Actors	: Officer
Secondary Actors	: None
Pre-Conditions	: Users must log in.
Main Flow :	<ol style="list-style-type: none">1. Go to profile.2. Click on edit button3. Edit what user wanted to change4. Save data into system
Post Conditions :	Users can edit his bio.
Alternative Flows :	3.a Required data will not be saved 3.b System gives errors to save the data

Name	: View products and Price list
Description	: User view products list and related price.
Primary Actors	: Admin
Secondary Actors	: None
Pre-Conditions	: User must logged in to the system
Main Flow:	<ol style="list-style-type: none"> 1. User clicks products and prices list menu 2. System redirect user to the Products and Prices list menu. 3. System stores data to the database.
Post Conditions :	User can make changes in this section.
Alternative Flows :	<p>3.a User can view every product with their prices. 3.b User can add, delete or update any record of datasets.</p>

Name	: View officers' list
Description	: User can view the details about officers and make changes.
Primary Actors	: Admin
Secondary Actors	: None
Pre Conditions	: User must log into the system.
Main Flow:	<ol style="list-style-type: none"> 1. Click on the view tab. 2. Click on the officers tab. 3. Click on one officer name to see his details. 4. Make changes to the officer. 5. Click back to go to view officer's page again.
Post Conditions :	User can view, update or delete officers.
Alternative Flows :	<p>4.a User can delete/ contact the officer.</p>

Name	: Add Officer
Description	: User can add officer to the system.
Primary Actors	: Admin
Secondary Actors	: None
Pre Conditions	: User should log to his account.
Main Flow:	<ol style="list-style-type: none"> 1. Go to the view officers tab. 2. Click Add New Officer button. 3. Fill the form by using officer's details. 4. Click the Add button to confirm the process.
Post Conditions :	User can add new officers to the process.
Alternative Flows	: None

Name	: View buyers
Description	: User can view the list of buyers.
Primary Actors	: Admin
Secondary Actors	: None
Pre Conditions	: User must log into the system.
Main Flow:	<ol style="list-style-type: none"> 1. Click the view tab. 2. Click on the Buyers tab. 3. System will show all buyers' details in the list.
Post Conditions :	User can view buyers and delete records about the transactions from the system.
Alternative Flows :	3.a User can contact the buyer. 3.b User can delete the transaction records also.

Name	: Add Delivery Persons
Description	: User can add delivery persons to the system.
Primary Actors	: Admin
Secondary Actors	: None
Pre-Conditions	: User must log into the system.
Main Flow:	<ol style="list-style-type: none"> 1. Click Add New Worker button. 2. Fill the form using details about the worker. 3. Click the Add button to confirm the process.
Post Conditions :	User can change the database of the Delivery workers.
Alternative Flows	: None

Name	: View reports
Description	: User can view all the transactional details.
Primary Actors	: Admin
Secondary Actors	: None
Pre-Conditions	: User must log into the system as the admin.
Main Flow :	<ol style="list-style-type: none"> 1. Click on the reports tab. 2. System redirect user to the reports. 3. View the reports in transactions. 4. Leave the tab.
Post Conditions :	User can view the all transaction details in detail.
Alternative Flows :	<ol style="list-style-type: none"> 2.a User can delete the transactional data from the database.

Use Case Description – Farmer

Name	: Register
Description	: User can register to the web site.
Primary Actors	: Farmer
Secondary Actors	: None
Pre-Conditions	: User must enter the website..
Main Flow	<ol style="list-style-type: none"> 1. Get into the website. 2. Click on the sign up button. 3. Enter details to sign up. 4. Password confirmation 5. Click Register. 6. System sends details to the Officer to confirm.
Post Conditions	: <p>User can register to the system as a farmer.</p>

Name	: Manage data about harvest
Description	: User can manage the data on his harvest.
Primary Actors	: Farmer
Secondary Actors	: None
Pre-Conditions	: User must enter the exact quantity and product category in the add process.
Main Flow	<ol style="list-style-type: none"> 1. User can click on the harvest button. 2. User can add data about their harvest. <ol style="list-style-type: none"> 2.1. Click save button. 3. User can update/ delete data about their harvest. <ol style="list-style-type: none"> 3.1. User must fill reason box. 3.2. Click save button. 4. System stores data to the database.
Post Conditions	: <p>User can make changes about their harvest.</p>
Alternative Flows	: None

Name	: View selling history
Description	: User can view the details on his sold items.
Primary Actors	: Farmer
Secondary Actors	: None
Pre-Conditions	: User must log into the system by their account. User should register as a supplier.
Main Flow	: <ol style="list-style-type: none"> 1. Click on the Sales button on the menu. 2. User can view all the details about sales. 3. User can search a product. <ol style="list-style-type: none"> 3.1. View sales history of particular product.
Post Conditions :	User can identify the income for each product and detailed list. User can't change the data.
Alternative Flows	: None

Name	: View Product and price list
Description	: User can view the current product prices.
Primary Actors	: Farmer
Secondary Actors	: None
Pre-Conditions	: User must log into the system by their account.
Main Flow:	1. Click on the Price list tab on the menu. <ol style="list-style-type: none"> 2. Search product. <ol style="list-style-type: none"> 2.1. User can view price of particular product.
Post Conditions :	User can view prices related to the products. User can't change the data.
Alternative Flows	: None

Name	: Contact Officer
Description	: User can contact the Officer.
Primary Actors	: Farmer
Secondary Actors	: None
Pre-Conditions	: User must log in as his username.
Main Flow:	<ol style="list-style-type: none"> 1. Select contact button. 2. Type the message in the given box. 3. Enter the send button to send the message. 4. System sends the message to the officer with details of the farmer.
Post Conditions :	<p>Users can contact the officer. User can get reply message from officer.</p>
Alternative Flows :	<p>User can view messages from inbox.</p>

Use case Description – Officer

Name	: Add Farmers
Description	: User can add farmers to the system.
Primary Actors	: Officer
Secondary Actors	: None
Pre-Conditions	: User must log in as his credentials.
Main Flow :	<ol style="list-style-type: none">1. Click on the Farmers' request button.2. Accept the farmers' request.
Post Conditions :	Users can give permission to register the farmers and add them as suppliers.
Alternative Flows :	1.a Add as the supplier.

Name	: View farmers list
Description	: Users can view the farmers' list.
Primary Actors	: Officer
Secondary Actors	: None
Pre-Conditions	: User must login to his account to view details.
Main Flow :	<ol style="list-style-type: none">1. Click the view button.2. Click the Farmers' button.3. Search the farmers' name or the username to view the farmer.4. System output view the farmer details.
Post Conditions :	Users can see the farmers' details near his area. Users can manage farmers.
Alternative Flows :	3.a User can delete / contact the farmer.

Name	: Contact Admin
Description	: User can contact the admin and make complaints etc.
Primary Actors	: Officer
Secondary Actors	: None
Pre-Conditions	: User must log in as his username.
Main Flow :	<ol style="list-style-type: none"> 1. Select button called contact admin. 2. Type the message in the given box. 3. Enter the send button to send the message to the admin. 4. System sends the message to the admin with details of the officer.
Post Conditions :	Users can contact the admin.
Alternative Flows :	<p>2.a Officer can write any of the complaints, ideas etc. 2.b Type unnecessary comments.</p>

Name	: View product list and quantities
Description	: User Can view the list of product and quantities.
Primary Actors	: Officer
Secondary Actors	: None
Pre Conditions	: User must log in as his user credentials.
Main Flow :	<ol style="list-style-type: none"> 1. Select the view tab in the main menu. 2. Select product list and quantities. 3. View all registered products available in his area. 4. Leave the page.
Post Conditions :	View the products in users' area.
Alternative Flows	: None

Name	: View buyers list
Description	: User Can view the buyers list.
Primary Actors	: Officer
Secondary Actors	: None
Pre Conditions	: User must log in as his user credentials.
Main Flow :	<ol style="list-style-type: none"> 1. Select view tab. 2. Select buyers' button. 3. View buyer details. 4. Exit.
Post Conditions :	View and contact the buyers.
Alternative Flows :	<p>3.a User can view buyers details. 3.b User can contact the buyer also. 3.c View details about transactions done with this buyer.</p>

Name	: Collect products from farmers
Description	: User get the products from the farmer and make payment to them.
Primary Actors	: Officer
Secondary Actors	: Farmer
Pre Conditions	: User must login to his account.
Main Flow :	<ol style="list-style-type: none"> 1. Contact farmers through the details given in the system. 2. Calculate the income on farmer's harvest. 3. Settle payments to the farmer. 4. Update stock in the system. 5. System stores data into the database.
Post Conditions :	Collected farmers' harvest by the officer and settled their payments
Alternative Flows :	<p>2.a Wrong rate can be applied. 4.a Product selection can be wrong.</p>

Name	: View orders
Description	: User can view the orders that were ordered by the buyers.
Primary Actors	: Officer
Secondary Actors	: None
Pre Conditions	: User must log in by his credentials.
Main Flow :	<ol style="list-style-type: none"> 1. User views the orders list. 2. Check the products and quantities about the order.. 3. Confirm the order.
Post Conditions : User can accept orders.	
Alternative Flows :	<p>2.a Items will be incorrectly entered.</p>

Name	: Dispatch orders
Description	: User dispatch the orders to the delivery person.
Primary Actors	: Officer
Secondary Actors	: Delivery person
Pre Conditions	: User must type the correct delivery person details.
Main Flow:	<ol style="list-style-type: none"> 1. Verify the delivery person. 2. System Creates an invoice and details of the order to the delivery person. 3. Send a copy to the officer in the receiving hub. 4. Send the detailed document to the delivery person.
Post Conditions :	User dispatches the order to the right delivery person.
Alternative Flows :	<p>1.a Verifying the correct delivery person.</p> <p>1.b System will give an error to find the delivery person.</p>

Name	: Accept Goods
Description	: User receive the ordered goods at the hub from the delivery person.
Primary Actors	: Officer
Secondary Actors	: Delivery Person
Pre Conditions	: Participants must log into their accounts.
Main Flow :	<ol style="list-style-type: none"> 1. verify the delivery person and officer. 2. Check the goods according to the order. 3. Send confirmation of delivery to each participant. 4. Send confirmation of arrival of the order to the particular buyer.
Post Conditions :	Delivered goods to the destination and received by the officer.
Alternative Flows :	<ol style="list-style-type: none"> 1.a errors on Verifying of participants. 2.a Order will not be in good condition.

Name	: Handover goods to the buyer
Description	: handover the order to the buyer in the particular hub.
Primary Actors	: Officer
Secondary Actors	: Buyer
Pre Conditions	: Buyer must have the details of his order.
Main Flow :	<ol style="list-style-type: none"> 1. Verify the buyer. 2. Check the order. 3. Send confirmation on order received by the buyer. 4. End up the process in the system.
Post Conditions :	Buyer gets his order and endup the systematic process.
Alternative Flows :	<ol style="list-style-type: none"> 1.a Verified buyer won't come to collect the order. 2.a Ordered goods not in the delivery.

Use Case Description – Buyer

Name	: Register
Description	: User can register in the system..
Primary Actors	: Buyer
Secondary Actors	: None
Pre Conditions	: User needs an internet connection to connect our website or download the app to connect with us.
Main Flow :	<ol style="list-style-type: none">1. Get into the website.2. Click on the sign in button.3. Enter details to sign in.4. Password confirmation5. Click Register.6. System sends details to the Officer to confirm.
Post Conditions :	User can register with us.
Alternative Flows :	None

Name	: View products or Price list.
Description	: User can view the available products.
Primary Actors	: Buyer
Secondary Actors	: None
Pre Conditions	: User must log into the system first.
Main Flow :	<ol style="list-style-type: none">1. User clicks products and Prices list menu2. System redirect users to the Products and Prices list menu.3. User can view the selling price from this menu.
Post Conditions :	User can view all the details about selling goods from this menu
Alternative Flows :	None

Name	: View ordered items list / purchase history
Description	: User can view the details on his purchased items.
Primary Actors	: Buyer
Secondary Actors	: None
Pre-Conditions	: User must log into the system by their account.
Main Flow :	<ol style="list-style-type: none"> 1. Click on the purchase history tab. 2. User can see their purchase history with prices and quantities. 3. Can leave the page using back button
Post Conditions :	User can view, and place another order in this section.
Alternative Flows :	None

Name	: Make a purchase order
Description	: User can purchase the goods.
Primary Actors	: Buyer
Secondary Actors	: None
Pre-Conditions	: User should log to his account.
Main Flow :	<ol style="list-style-type: none"> 1. Go to the product list. 2. Scroll through products or search for a product and choose products and quantities. 3. User can see the purchased item by clicking the view cart button. 4. In the view cart user can also remove items from the cart by clicking remove from cart button of the item. 5. After purchasing items, he can confirm the order by clicking the confirm button in the bill page.
Post Conditions :	User can purchase items as he wants.
Alternative Flows :	None

Use Case Description – Delivery Person

Name	: View Delivery Description
Description	: User can view the orders which have to deliver.
Primary Actors	: Deliver person
Secondary Actors	: None
Pre-Conditions	: User must log into the system first.
Main Flow:	<ol style="list-style-type: none">1. Click on order tab.2. View officer sends delivery description.3. Fill deliver's delivery description form.4. Click accept goods button to start the delivery process.
Post Conditions :	User can view the delivery description and start the delivery process.
Alternative Flows	: None

Name	: Handover the goods
Description	: Handover the goods to a particular hub.
Primary Actors	: Deliver person
Secondary Actors	: Officer
Pre-Conditions	: User must have delivery description.
Main Flow:	<ol style="list-style-type: none">1. Click on delivery tab.2. View delivery description.3. Click delivery complete button.
Post Conditions :	User can complete the session
Alternative Flows	: None