

Software Design Specifications

FLITS

Version: 1.0

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Definition of Terms, Acronyms and Abbreviations

Term	Description
ASP	Active Server Pages
DD	Design Specification

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1 Introduction

1.1 Purpose of Document

This document is a definition of software requirements to facilitate the Pakistani Farmers by providing a Task Scheduling and Management System called “Farming Livestock Inventory and Task Scheduling (FLITS)”. This document will present the functional, non-functional, and design constraint requirements for the system to be developed. Use case models and descriptions are included along with class diagrams to help model and specify the functional requirements and specifications of the system.

1.2 Intended Audience

The potential audiences for this document are design and development team of the FLITS in order to specify software designs. Test team will utilize this software requirements specification document to define test scenarios accordingly.

The intended audience are the farmers of Pakistani Agricultural Industry who will be using this application.

1.3 Document Convention

Font: Arial

Font-size:

Heading: 16px

Subheading: 14px

Description: 12px

1.4 Project Overview

Agriculture and farming industry plays a vital role in Pakistan's economy. To keep consistently growing in this industry, we needed a system through which we could manage equipment, workers, and simplify regulatory compliance. Traditionally Pakistani farmers had been working unsystematically and some of the farmers who were doing it systematically relied on paper-based work. Work Orders CMMS (Computerized Maintenance Management System) solution streamlines the management of agricultural and farm maintenance routines. Currently Pakistani Farming industry is not digitally aware due to which the upcoming generations of agricultural families are not interested in doing farming and are trying to find opportunities in different fields of work. FLITS will not only ease the farm management and operations but will also create digital awareness in the upcoming generations of farmers and help them look at it as a business model. We will be creating a system where landlords can monitor the progress of their farms and are

responsible to assign supervisor to each of their farm. Supervisor will manage farm operations and assign tasks to workers. Workers will be responsible to update their daily activities

1.5 Scope

FLITS is a mobile application that will digitalize farm management operations. This includes farm customization, task scheduling, labor management and evaluation, inventory management, crop progress, etc.

2 Design Considerations

2.1 Assumptions and Dependencies

User interface and some functionalities can change during the development process of project., and also new functionalities can be added which is able to change the dependent system requirements.

2.2 Risks and Volatile Areas

If the servers crashes and shuts down, then the application will stop working and all the operations run through the app could be seized off until the server is up again.

3 System Architecture

3.1 System Level Architecture

3.1.1. Component Diagram

Our System consists of three modules Farm Owner, Farm Supervisor, Farm Worker. As System level architecture shows the top level that is why no internal description is given.

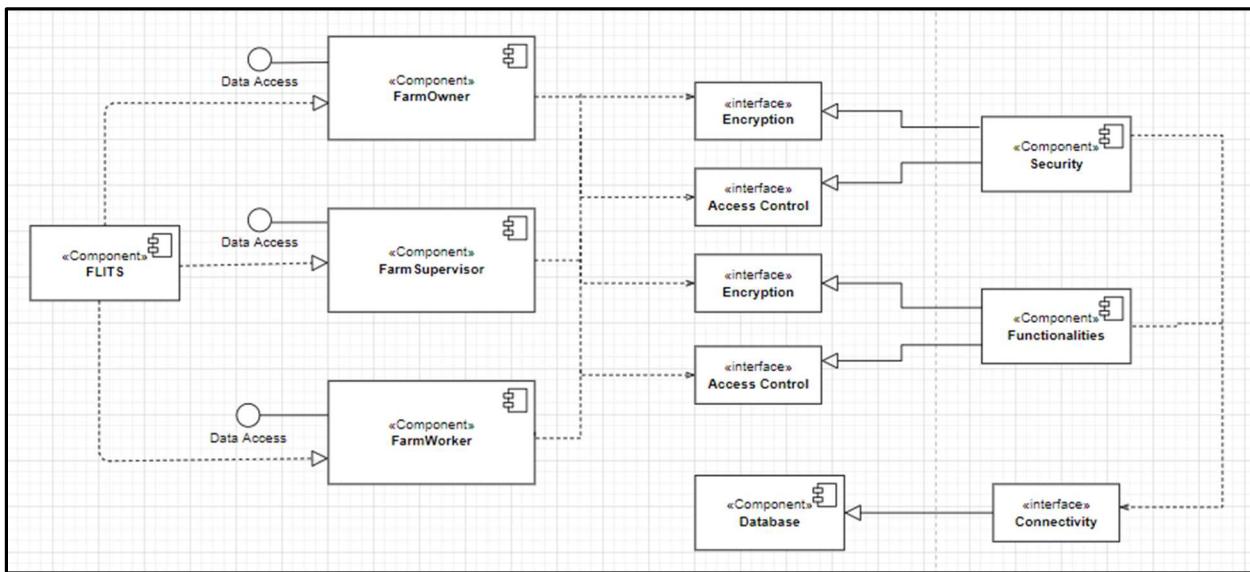


Figure 1: Component Diagram

3.1.2. Deployment Diagram

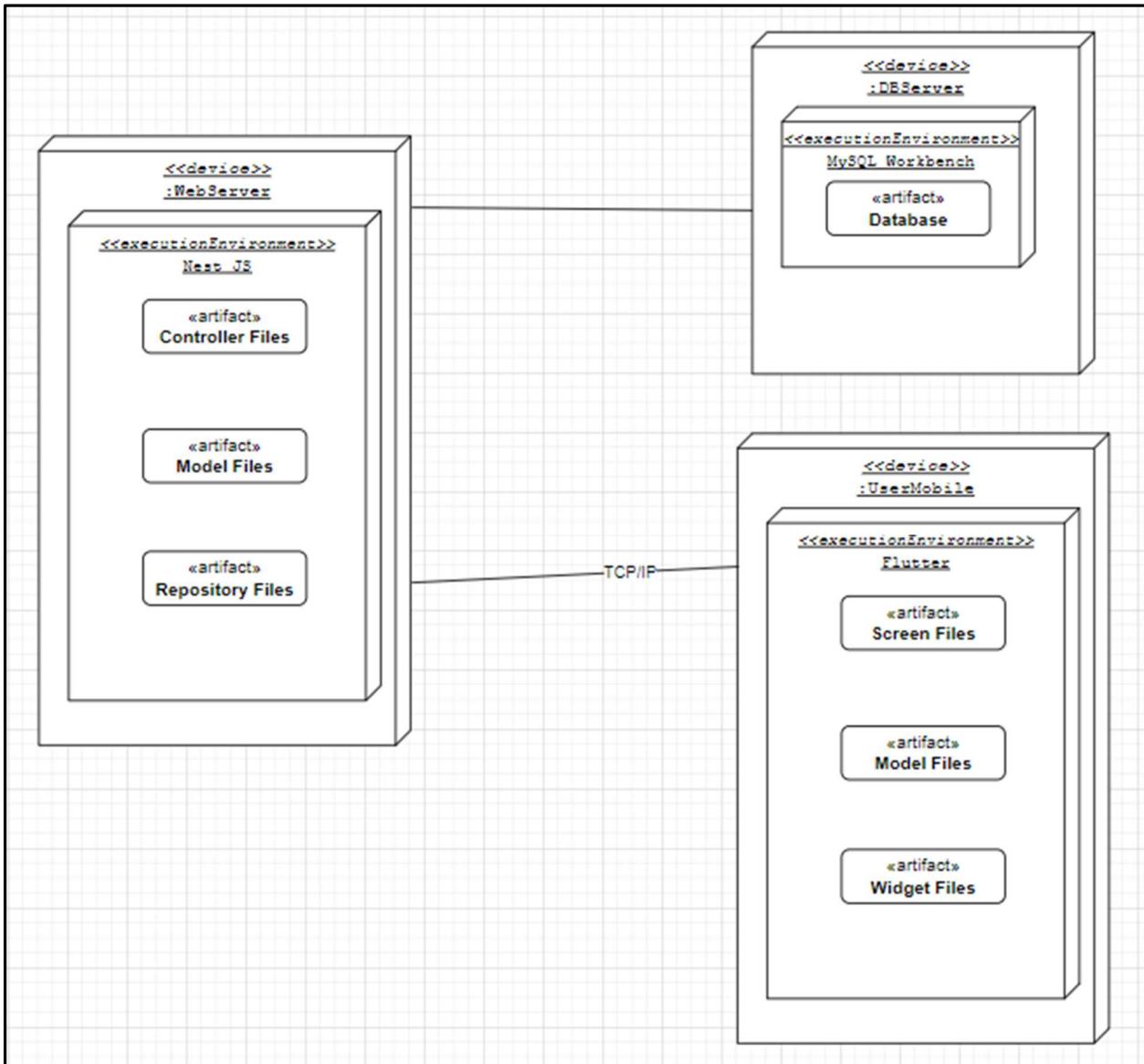


Figure 2: Deployment Diagram

3.2 Software Architecture

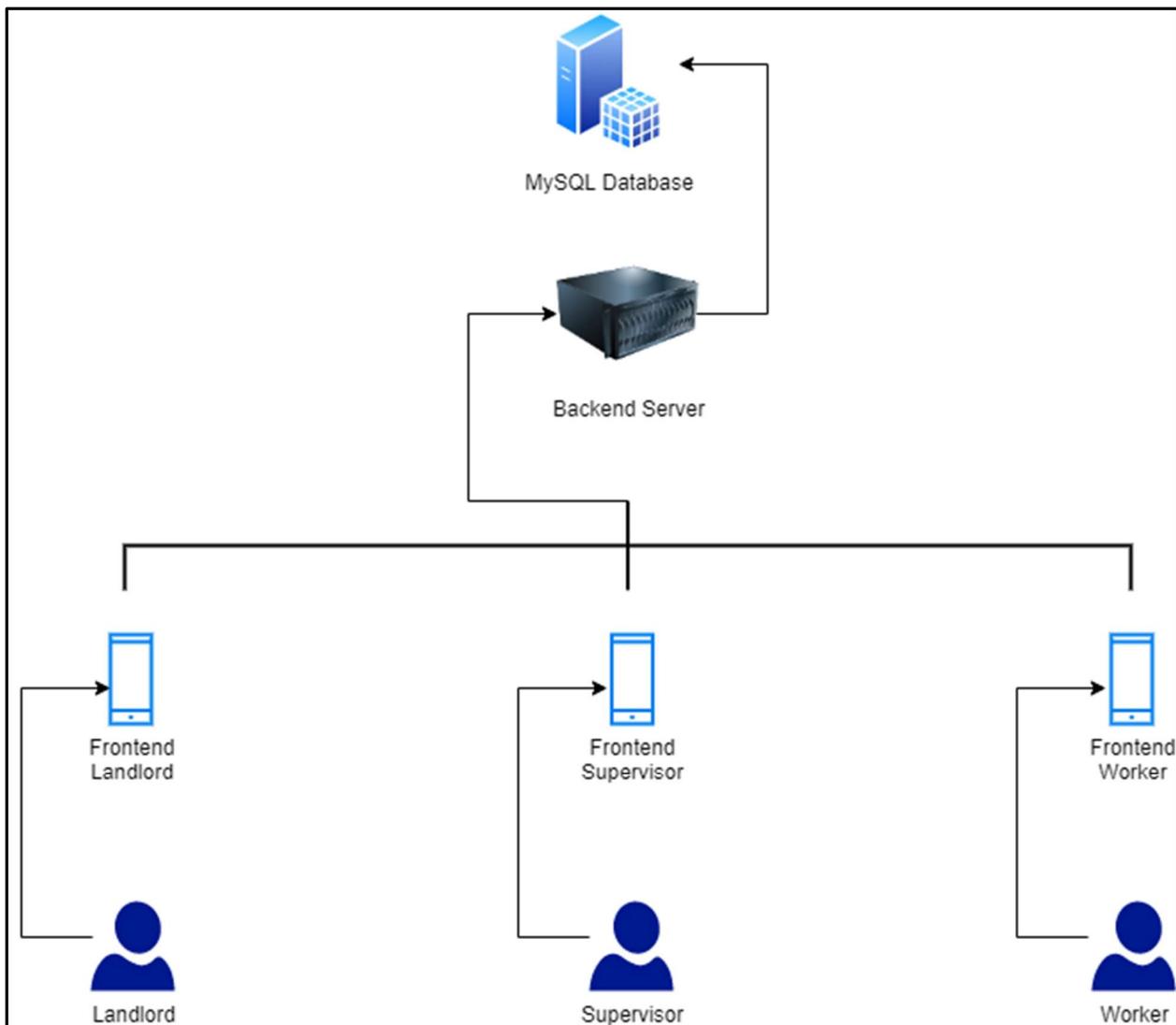


Figure 3: Software Architecture Diagram

4 Design Strategy

- MySQL has been used for database to store all the information of the users, and user activities .
- NodeJS has been used for backend as its giving response in less time for verification purposes than python.
- Flutter has been used for frontend on which the complete application is built.

5 Detailed System Design

5.1 Database Design

5.1.1 ER Diagram

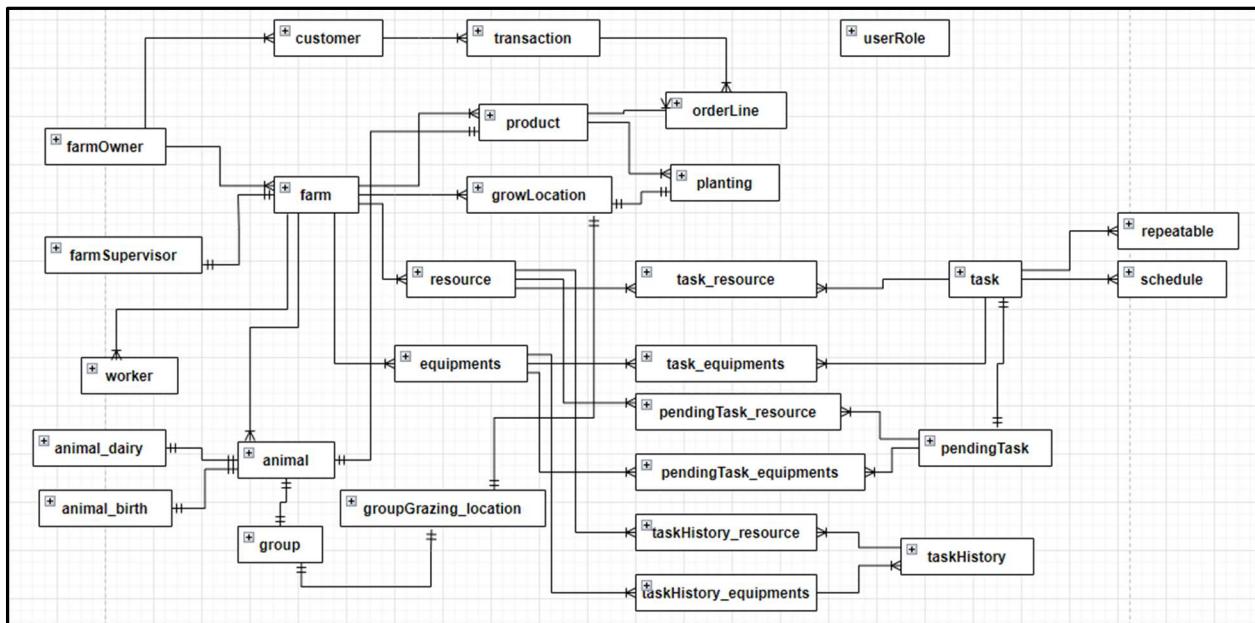


Figure 4: ER Diagram

5.1.2 Data Dictionary

5.1.2.1. User Role

User Role						
Name	User Role					
Alias	User Role					
Where-used/how-used	For sign up information and either user is a student or a faculty member. User also can offer ride and book to ride depending on the user.					
Content description	composed of entries (user roles)					
Column Name	Description	Type	Length	Null able	Default Value	Key Type
id	Unique auto generated number	integer		Non-null able	1	PK
email	Any email	varchar2	50	Non-null able	None	
password	Strong password	varchar2	50	Non-null able	None	
roleName	Either login as Owner or Supervisor or Worker	varchar2		Non-null able	None	

Table 1: User Role

5.1.2.2. Farm Owner

Farm Owner						
Name	Farm Owner					
Alias	Farm Owner					
Where-used/how-used	Used wherever Farm Owner detail is required					
Content description	composed of entries (owner details)					
Column Name	Description	Type	Length	Null able	Default Value	Key Type
id	Unique auto generated number	integer		Non-null able	1	PK
firstName	Owner First Name	Varchar2	50	Non-null able		
lastName	Owner Last Name	Varchar2	50	Non-null able		
cnic	Owner Cnic	Varchar2	16	Non-null able		Unique
email	Any email	varchar2	50	Non-null able	None	Unique

password	Strong password	varchar2	50	Non-null able	None	
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Table 2: Farm Owner

5.1.2.3.Farm Supervisor

Farm Supervisor						
Column Name	Description	Type	Length	Null able	Default Value	Key Type
id	Unique auto generated number	integer		Non-null able	1	PK
farmId	Farm Foreign Key	integer		Non-null able		FK
firstName	Supervisor First Name	Varchar2	50	Non-null able	None	
lastName	Supervisor Last Name	Varchar2	50	Non-null able	None	
cnic	Supervisor Cnic	Varchar2	16	Non-null able	None	Unique
email	Any email	varchar2	50	Non-null able	None	Unique
password	Strong password	varchar2	50	Non-null able	None	
displayName	Supervisor Display Name	Varchar2	50	Non-null able	None	
phoneNumber	Supervisor Contact	Varchar2	15	Non-null able	None	

Table 3: Farm Supervisor

5.1.2.4.Worker

Farm Worker						
Column Name	Description	Type	Length	Null able	Default Value	Key Type
id	Unique auto generated number	integer		Non-null able	1	PK

farmId	Farm Foreign Key	integer		Non-null able		FK
firstName	Worker First Name	Varchar2	50	Non-null able	None	
lastName	Worker Last Name	Varchar2	50	Non-null able	None	
cnic	Worker Cnic	Varchar2	16	Non-null able	None	Unique
email	Any email	varchar2	50	Non-null able	None	Unique
password	Strong password	varchar2	50	Non-null able	None	
displayName	Worker Display Name	Varchar2	50	Non-null able	None	
phoneNumber	Worker Contact	Varchar2	15	Non-null able	None	
rating	Worker Rating	Decimal		Non-null able	0	

Table 4: Farm Worker

5.1.2.5.Farm

Farm						
Column Name	Description	Type	Length	Null able	Default Value	Key Type
id	Unique auto generated number	integer		Non-null able	1	PK
ownerId	Farm Owner Foreign Key	integer		Non-null able		FK
Name	Farm Name	Varchar2	50	Non-null able	None	
phoneNumber	Farm Contact	Varchar2	15	Non-null able	None	
locationLat	Location Latitude	Decimal		Non-null able		
locationLong	Location Longitude	Decimal		Non-null able		

Table 5: Farm

5.1.2.6.Product

Product	
Name	Product
Alias	Product

Where-used/how-used	Used wherever Product detail is required					
Content description	composed of entries (Product details)					
<hr/>						
Column Name	Description	Type	Length	Null able	Default Value	Key Type
id	Unique auto generated number	integer		Non-null able	1	PK
farmId	Farm Foreign Key	integer		Non-null able		FK
Name	Product Name	Varchar2	50	Non-null able	None	
type	Product Type	enum		Non-null able	None	
inventoryUnit	Unit type	Varchar2	6	Non-null able	None	
quantity	Product Quantity	decimal		Non-null able	0	
sellingPrice	Product Selling Price per Unit	decimal		Non-null able	None	
SKU	Product Unique SKU	Varchar2	7	Non-null able	None	Unique

Table 6: Product

5.1.2.7. Grow Location

Grow Location						
Name	Grow Location					
Alias	Grow Location					
Where-used/how-used	Used wherever Grow Location detail is required					
Content description	composed of entries (Grow Location details)					
<hr/>						
Column Name	Description	Type	Length	Null able	Default Value	Key Type
id	Unique auto generated number	integer		Non-null able	1	PK
farmId	Farm Foreign Key	integer		Non-null able		FK
Name	Grow Location Name	Varchar2	50	Non-null able	None	
lightProfile	Sunlight Direction	enum		Non-null able		
plantingFormat	Grow Location Type	enum		Non-null able	None	
growingStatus	Grow Location Status	enum		Non-null able	None	
area	Grow Location Area	decimal		Non-null able		

type	Grow Location Type	enum		Non-null able	None	
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Table 7: Grow Location

5.1.2.8.Planting

Planting						
Name	Planting					
Alias	Planting					
Where-used/how-used	Used wherever Planting detail is required					
Content description	composed of entries (Planting details)					
Column Name	Description	Type	Length	Null able	Default Value	Key Type
id	Unique auto generated number	integer		Non-null able	1	PK
productId	Product Foreign Key	integer		Non-null able		FK
growLocaionId	Grow Location Foreign Key	integer		Non-null able		FK
method	Planting Method	enum		Non-null able		
growthStage	Planting Stage	enum		Non-null able	None	
startDate	Planting Start Date	DATE		Non-null able	None	
plantingDate	Planting Start Date	DATE		Non-nullable	None	
plantSpacing	Spacing between Plants	decimal		Non-nullable	None	
rowSpacing	Spacing between Rows	decimal		Non-nullable	None	
depth		float		Non-nullable	None	
harvestDate	Expected Harvest Date	DATE		Non-Nullable	None	
harvestQuantity	Expected Harvest Quantity	decimal		Non-Nullable	None	

Table 8: Planting

5.1.2.9.Resource

Resource	
Name	Resource
Alias	Resource
Where-used/how-used	Used wherever Resource detail is required
Content description	composed of entries (Resource details)

Column Name	Description	Type	Length	Null able	Default Value	Key Type
id	Unique auto generated number	integer		Non-null able	1	PK
farmId	Farm Foreign Key	integer		Non-null able		FK
Name	Resource Name	Varchar2	50	Non-null able	None	
type	Resource Type	enum		Non-null able	None	
value	Resource Price	decimal		Non-null able	None	
quantity	Resource Quantity	float		Non-nullable	None	
unit	Resource Unit	Varchar2	6	Non-null able	None	
alertQuantity	Resource Alert Quantity	float		Non-nullable	None	
SKU	Resource Unique SKU	Varchar2	7	Non-null able	None	Unique

Table 9: Resource

5.1.2.10. Equipment

Equipment						
Column Name	Description	Type	Length	Null able	Default Value	Key Type
id	Unique auto generated number	integer		Non-null able	1	PK
farmId	Farm Foreign Key	integer		Non-null able		FK
Name	Equipment Name	Varchar2	50	Non-null able	None	
type	Equipment Type	enum		Non-null able	None	
brand	Equipment brand	Varchar2	50	Nullable	None	
plateNumber	Equipment Plate Number	Varchar2	50	Nullable	None	
model	Equipment model	Varchar2	50	Nullable	None	
dateAcquired	Buying Date	DATE		Non-Nullable		

description	Equipment description	Varchar2	50	Non-Nullable	None	
purchasePrice	Buying Price	decimal		Non-Nullable		
SKU	Equipment Unique SKU	Varchar2	7	Non-null able	None	Unique

Table 10: Equipment

5.1.2.11. Task

Task						
Name	Task					
Alias	Task					
Where-used/how-used	Used wherever Task detail is required					
Content description	composed of entries (Task details)					
Column Name	Description	Type	Length	Null able	Default Value	Key Type
id	Unique auto generated number	integer		Non-null able	1	PK
farmId	Farm Foreign Key	integer		Non-null able		FK
Name	Task Name	Varchar2	50	Non-null able	None	
description	Task description	Varchar2	50	Non-Nullable	None	
flexibility	Task flexibili	TINYINT		Non-Nullable	None	
priority	Task Priority	enum		Non-Nullable	None	
status	Task Status	enum		Non-Nullable	None	
repeatable	Task repeatable	TINYINT		Non-Nullable	None	
associationType	Task Association Type	enum		Non-Nullable	None	
associtionId	Association Id	int		Non-Nullable		

Table 11: Task

5.1.2.12. Repeatable

Repeatable	
Name	Repeatable
Alias	Repeatable
Where-used/how-used	Used wherever Repeatable detail is required
Content description	composed of entries (Repeatable details)

Column Name	Description	Type	Length	Null able	Default Value	Key Type
id	Unique auto generated number	integer		Non-null able	1	PK
taskId	Task Foreign Key	integer		Non-null able		FK
timespan	Duration	decimal		Non-null able	None	
startDate	Duration Start Date	DATE		Non-Nullable	None	
endDate	Duration End Date	DATE		Non-Nullable	None	

Table 12: Repeatable

5.1.2.13. Schedule

Schedule						
Name	Schedule					
Alias	Schedule					
Where-used/how-used	Used wherever Schedule detail is required					
Content description	composed of entries (Schedule details)					

Column Name	Description	Type	Length	Null able	Default Value	Key Type
id	Unique auto generated number	integer		Non-null able	1	PK
taskId	Task Foreign Key	integer		Non-null able		FK
dependencyId	Task Foreign Key	integer		Non-null able		FK
startTime	Start Time	DATETIME		Non-Nullable	None	
endTime	End Time	DATETIME		Non-Nullable	None	

Table 13: Schedule

5.1.2.14. Pending Task

Pending Task						
Name	Pending Task					
Alias	Pending Task					
Where-used/how-used	Used wherever Pending Task detail is required					
Content description	composed of entries (Pending Task details)					

Column Name	Description	Type	Length	Null able	Default Value	Key Type
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id	Unique auto generated number	integer		Non-null able	1	PK
taskId	Task Foreign Key	integer		Non-null able		FK
leftDuration	Pending Task Left Duration	decimal		Non-null able		

Table 14: Pending Task

5.1.2.15. Task History

Task History						
Column Name	Description	Type	Length	Null able	Default Value	Key Type
id	Unique auto generated number	integer		Non-null able	1	PK
farmId	Farm Foreign Key	integer		Non-null able		FK
Name	Task Name	Varchar2	50	Non-null able	None	
description	Task description	Varchar2	50	Non-Nullable	None	
associationType	Task Association Type	enum		Non-Nullable	None	
associtionId	Association Id	int		Non-Nullable		
endingDate	Ending Date	DATE		Non-Nullable		

Table 15: Task History

5.1.2.16. Task Resource

Task Resource						
Column Name	Description	Type	Length	Null able	Default Value	Key Type
Name	Task Resource					
Alias	Task Resource					
Where-used/how-used	Used wherever Task Resource detail is required					
Content description	composed of entries (Task Resource details)					

id	Unique auto generated number	integer		Non-null able	1	PK
resourceId	Resource Foreign Key	int		Non-Nullable		FK(Combined Unique)
taskId	Task Foreign Key	integer		Non-null able		FK(Combined Unique)
resourceQuantity	Resource Quantity	decimal		Non-null able		

Table 16: Task Resource

5.1.2.17. Task Equipment

Task Equipment						
Column Name	Description	Type	Length	Null able	Default Value	Key Type
id	Unique auto generated number	integer		Non-null able	1	PK
equipmentId	Equipment Foreign Key	int		Non-Nullable		FK(Combined Unique)
taskId	Task Foreign Key	integer		Non-null able		FK(Combined Unique)

Table 17: Task Equipment

5.1.2.18. Pending Task Resource

Pending Task Resource						
Column Name	Description	Type	Length	Null able	Default Value	Key Type
id	Unique auto generated number	integer		Non-null able	1	PK
resourceId	Resource Foreign Key	int		Non-Nullable		FK(Combined Unique)

pendingTaskId	Pending Task Foreign Key	integer		Non-null able		FK(Combined Unique)
LeftResourceQuantity	Left Resource Quantity	decimal		Non-null able		

Table 18: Pending Task Resource

5.1.2.19. Pending Task Equipment

Pending Task Equipment						
Column Name	Description	Type	Length	Null able	Default Value	Key Type
id	Unique auto generated number	integer		Non-null able	1	PK
equipmentId	Equipment Foreign Key	int		Non- Nullable		FK(Combined Unique)
PendingTaskId	Pending Task Foreign Key	int		Non-null able		FK(Combined Unique)

Table 19: Pending Task Equipment

5.1.2.20. Task History Resource

Task History Resource						
Column Name	Description	Type	Length	Null able	Default Value	Key Type
id	Unique auto generated number	integer		Non-null able	1	PK
resourceId	Resource Foreign Key	int		Non- Nullable		FK(Combined Unique)
taskHistoryId	Task History Foreign Key	integer		Non-null able		FK(Combined Unique)

resourceQuantity	Resource Quantity	decimal		Non-null able		
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Table 20: Task History Resource

5.1.2.21. Task History Equipment

Task History Equipment						
Name		Task History Equipment				
Alias		Task History Equipment				
Where-used/how-used		Used wherever Task History Equipment detail is required				
Content description		composed of entries (Task History Equipment details)				
Column Name	Description	Type	Length	Null able	Default Value	Key Type
id	Unique auto generated number	integer		Non-null able	1	PK
equipmentId	Equipment Foreign Key	int		Non-Nullable		FK(Combined Unique)
taskHistoryId	Task History Foreign Key	int		Non-null able		FK(Combined Unique)

Table 21: Task History Equipment

5.1.2.22. Animal

Animal						
Name		Animal				
Alias		Animal				
Where-used/how-used		Used wherever Animal detail is required				
Content description		composed of entries (Animal details)				
Column Name	Description	Type	Length	Null able	Default Value	Key Type
id	Unique auto generated number	integer		Non-null able	1	PK
farmId	Farm Foreign Key	integer		Non-null able		FK
productId	Product Foreign Key	integer		Non-null able		FK
groupId	Group Foreign Key	integer		Non-null able		FK
Name	Animal Name	Varchar2	50	Non-null able	None	
type	Animal Type	enum		Non-Nullable	None	
breed	Animal Breed	Varchar2	50	Non-Nullable	None	

sex	Animal Gender	enum		Non-Nullable	None	
lifeStage	Animal Life Stage	enum		Non-Nullable	None	
color	Animal Color	Varchar2	10	Non-Nullable	None	
purchased	Animal Purchased or not	TINYINT		Non-Nullable	None	
tagNumber	Animal Tag	Varchar2	10	Non-Nullable		

Table 22: Animal

5.1.2.23. Animal Dairy

Animal Dairy						
Column Name	Description	Type	Length	Null able	Default Value	Key Type
id	Unique auto generated number	integer		Non-null able	1	PK
animalId	Animal Foreign Key	integer		Non-null able		FK
productId	Product Foreign Key	integer		Non-null able		FK
dailyProduction	Milk Production	decimal		Non-null able		

Table 23: Animal Dairy

5.1.2.24. Animal Birth

Animal Birth						
Column Name	Description	Type	Length	Null able	Default Value	Key Type
id	Unique auto generated number	integer		Non-null able	1	PK
animalId	Animal Foreign Key	integer		Non-null able		FK

birthweight	Animal Birth Weight	decimal		Non-null able		
birthdate	Animal Birth Date	DATE		Non-null able		

Table 24: Animal Birth

5.1.2.25. Group

Group						
Name	Group					
Alias	Group					
Where-used/how-used	Used wherever Group detail is required					
Content description	composed of entries (Group details)					

Column Name	Description	Type	Length	Null able	Default Value	Key Type
id	Unique auto generated number	integer		Non-null able	1	PK
farmId	Farm Foreign Key	integer		Non-null able		FK
name	Group Name	Varchar2	50	Non-null able		
description	Group Description	Varchar2		Non-null able		

Table 25: Group

5.1.2.26. Group Grazing Location

Group Grazing Location						
Name	Group Grazing Location					
Alias	Group Grazing Location					
Where-used/how-used	Used wherever Group Grazing Location detail is required					
Content description	composed of entries (Group Grazing Location details)					

Column Name	Description	Type	Length	Null able	Default Value	Key Type
id	Unique auto generated number	integer		Non-null able	1	PK
groupId	Group Foreign Key	integer		Non-null able		FK
growLocationId	Grow Location Foreign Key	integer		Non-null able		FK

Table 26: Group Grazing Location

5.1.2.27. Customer**Customer**

Name	Customer					
Alias	Customer					
Where-used/how-used	Used wherever Customer detail is required					
Content description	composed of entries (Customer details)					
<hr/>						
Column Name	Description	Type	Length	Null able	Default Value	Key Type
id	Unique auto generated number	integer		Non-null able	1	PK
farmOwnerId	Farm Owner Foreign Key	int		Non-Nullable		FK
Name	Customer Name	Varchar2	50	Non-null able		
cnic	Customer Cnic	Varchar2	16	Non-null able		Unique
email	Any email	varchar2	50	Non-null able	None	Unique
phoneNumber	Customer Contact	Varchar2	15	Non-null able	None	

Table 27: Customer

5.1.2.28. Transaction

Transaction						
Name	Transaction					
Alias	Transaction					
Where-used/how-used	Used wherever Transaction detail is required					
Content description	composed of entries (Transaction details)					
<hr/>						
Column Name	Description	Type	Length	Null able	Default Value	Key Type
id	Unique auto generated number	integer		Non-null able	1	PK
customerId	Customer Foreign Key	integer		Non-null able		FK
date	Transaction date	DATETIMR		Non-null able		
reference	Reference Number	Varchar2	50	Nullable		

Table 28: Transaction

5.1.2.29. Order Line

Order Line	
Name	Order Line
Alias	Order Line

Where-used/how-used	Used wherever Order Line detail is required					
Content description	composed of entries (Order Line details)					
<hr/>						
Column Name	Description	Type	Length	Null able	Default Value	Key Type
id	Unique auto generated number	integer		Non-null able	1	PK
transactionId	Group Foreign Key	integer		Non-null able		FK
productId	Product Foreign Key	integer		Non-null able		FK
quantity	Quantity	decimal		Non-Nullable		

Table 29: Order Line

5.2 Application Design

5.2.1 Sequence Diagram

5.2.1.1 Farm Owner

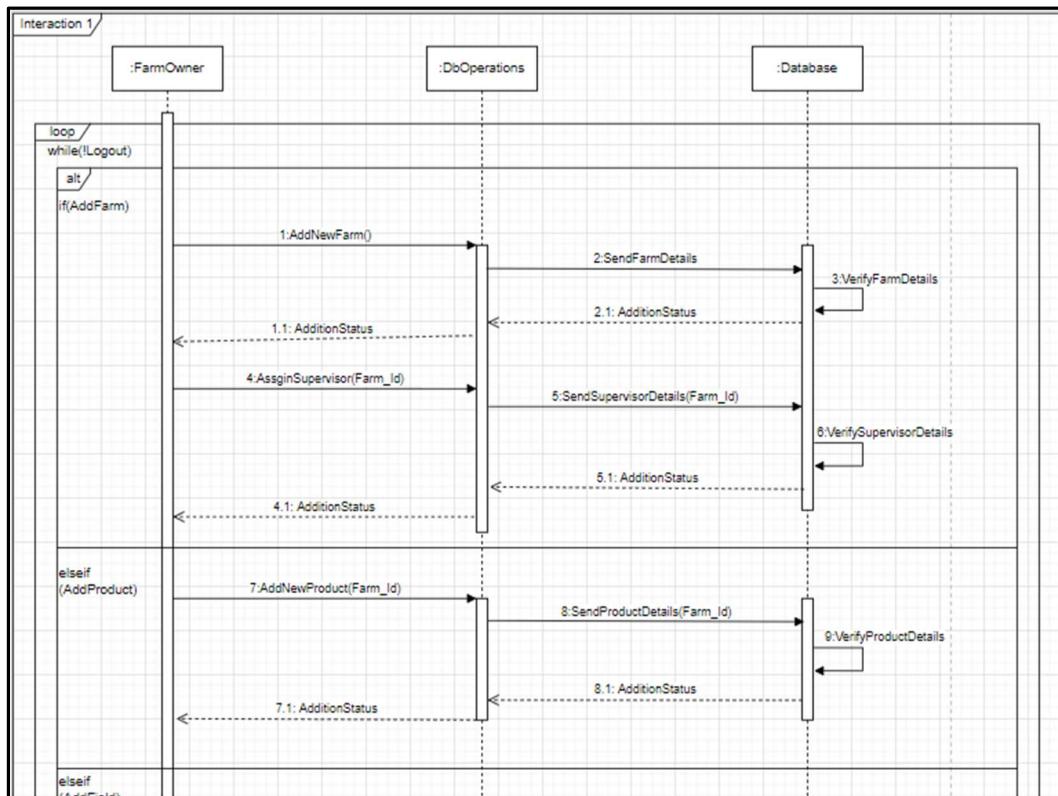


Figure 5: Farm Owner Sequence Diagram

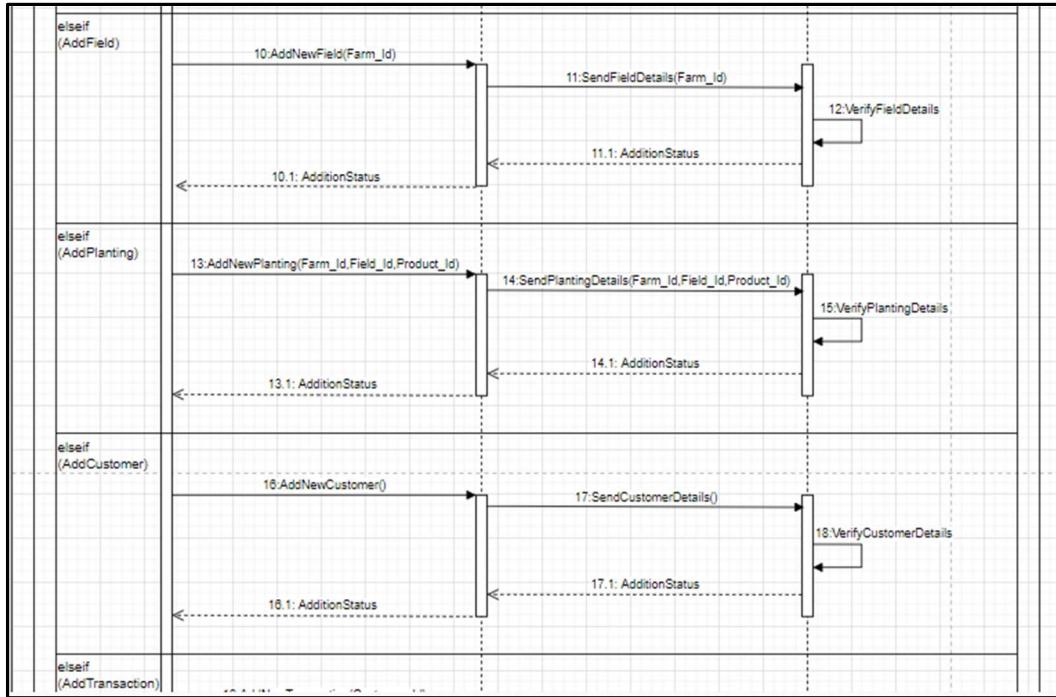


Figure 6: Farm Owner Sequence Diagram(Continued)

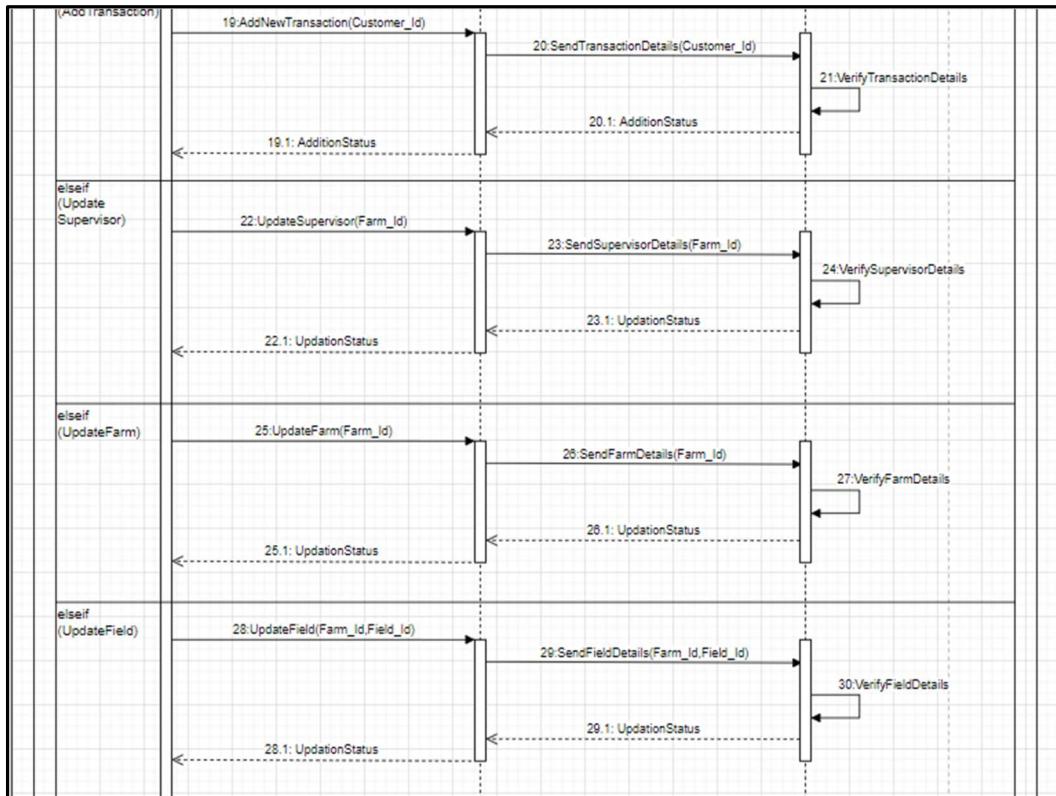


Figure 7: Farm Owner Sequence Diagram(Continued)

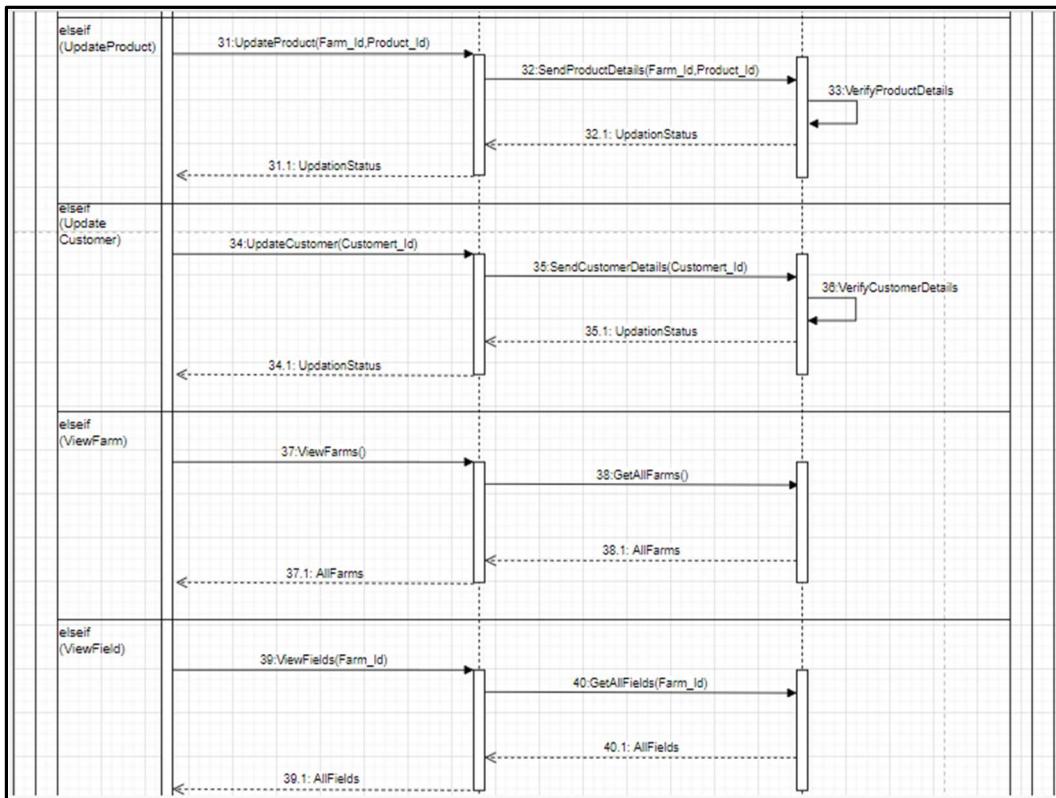


Figure 8: Farm Owner Sequence Diagram(Continued)

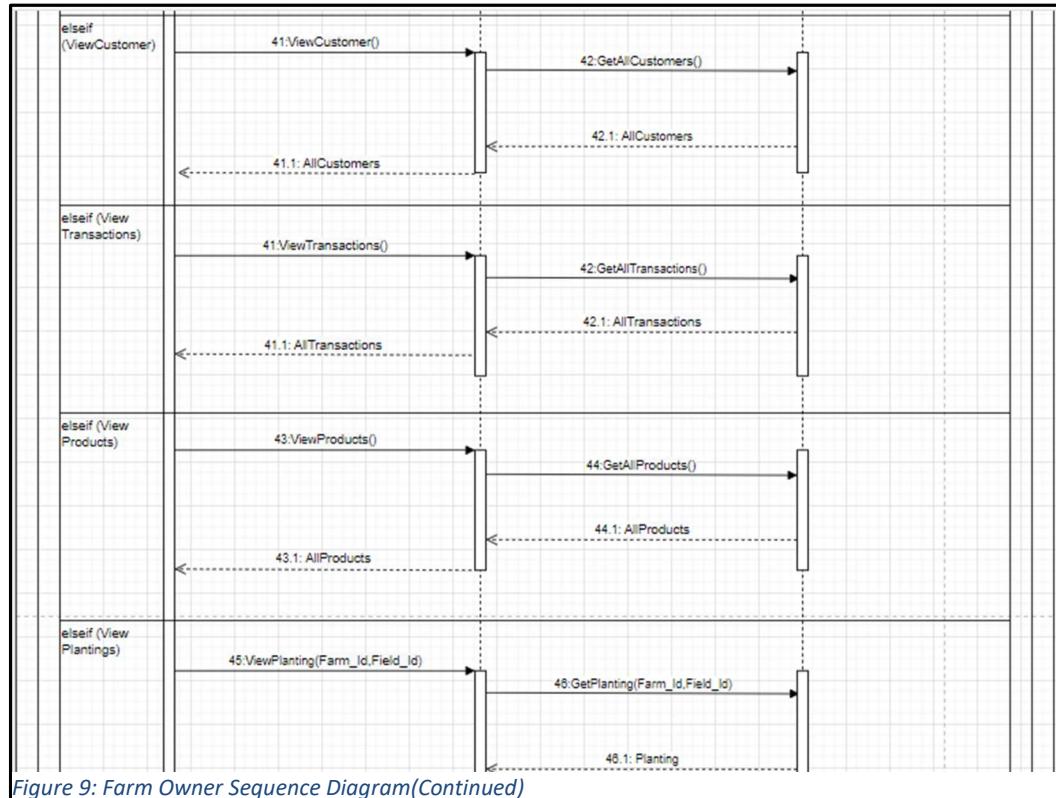


Figure 9: Farm Owner Sequence Diagram(Continued)

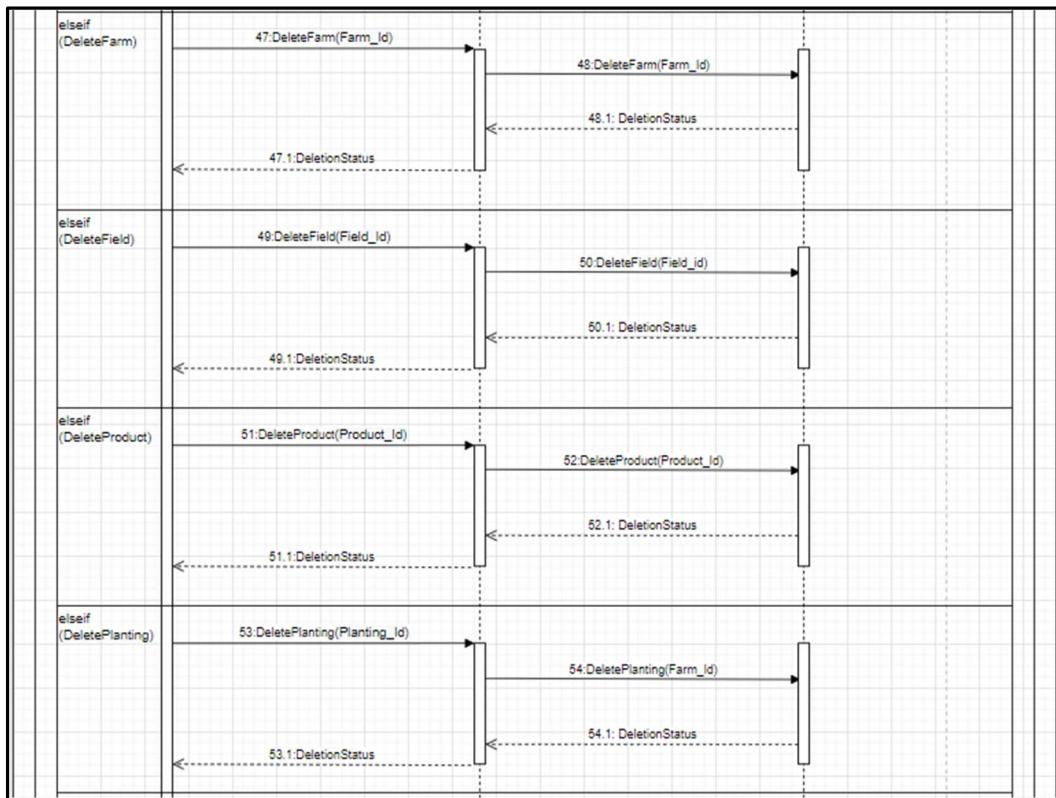


Figure 10: Farm Owner Sequence Diagram(Continued)

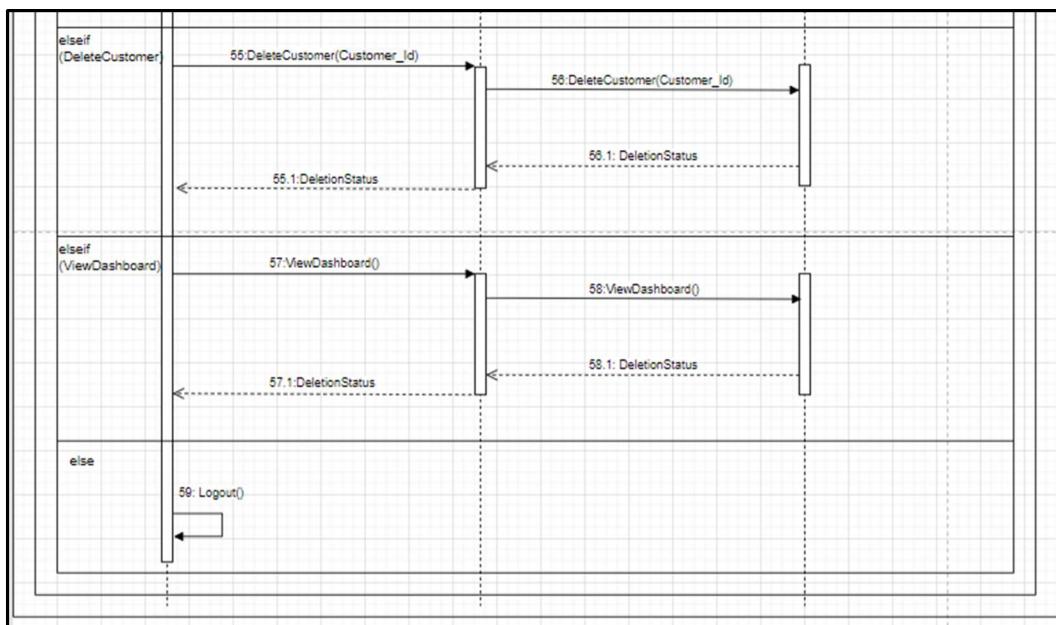


Figure 11: Farm Owner Sequence Diagram(Continued)

5.2.1.2 Farm Supervisor

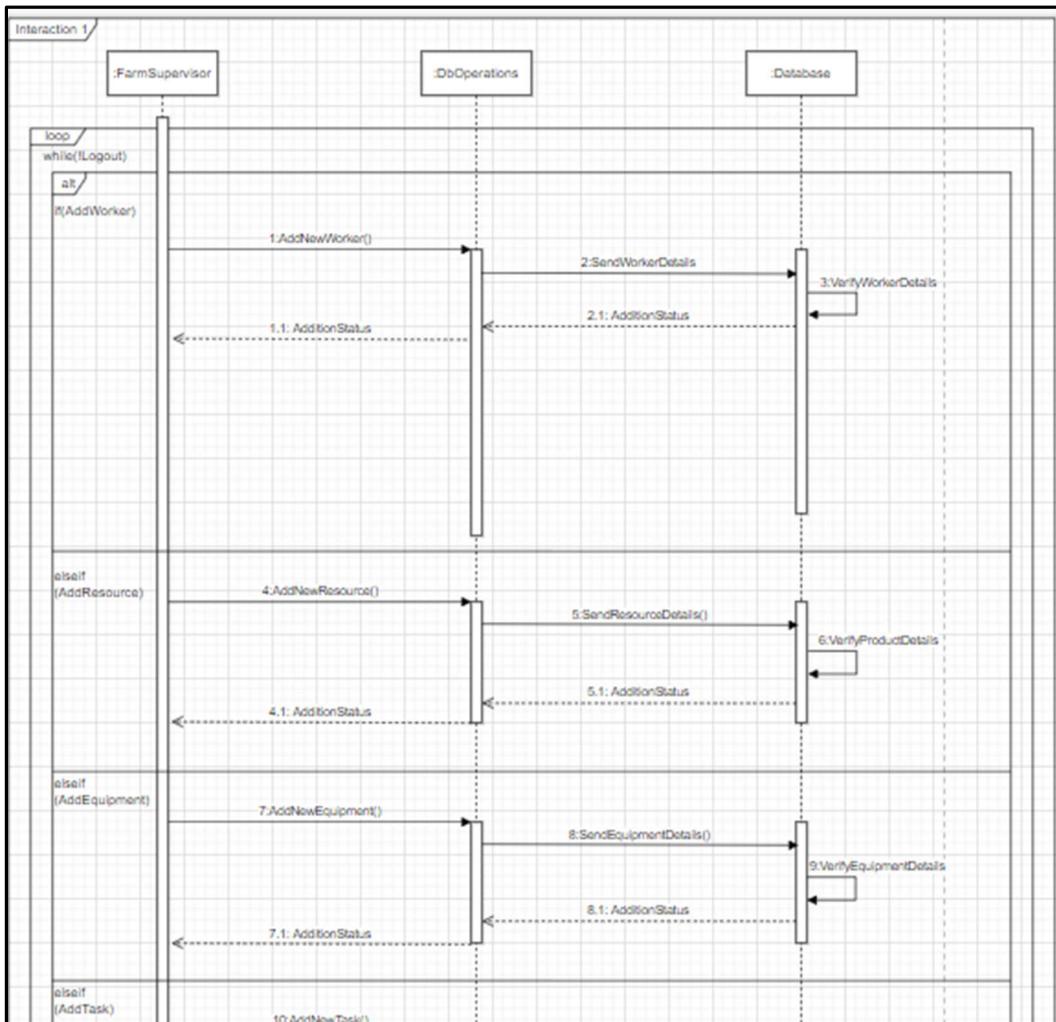


Figure 12: Farm Supervisor Sequence Diagram

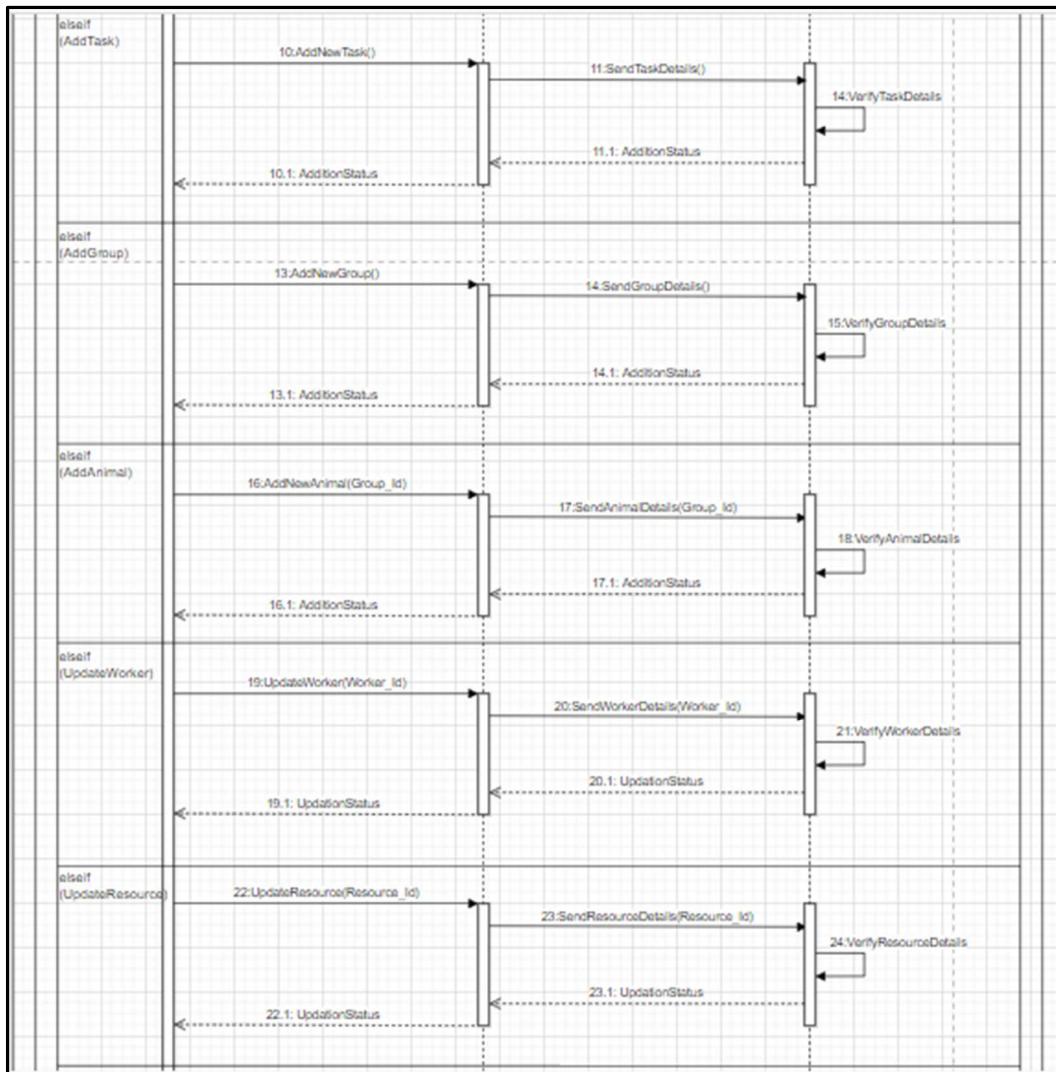


Figure 13: Farm Supervisor Sequence Diagram (Continued)

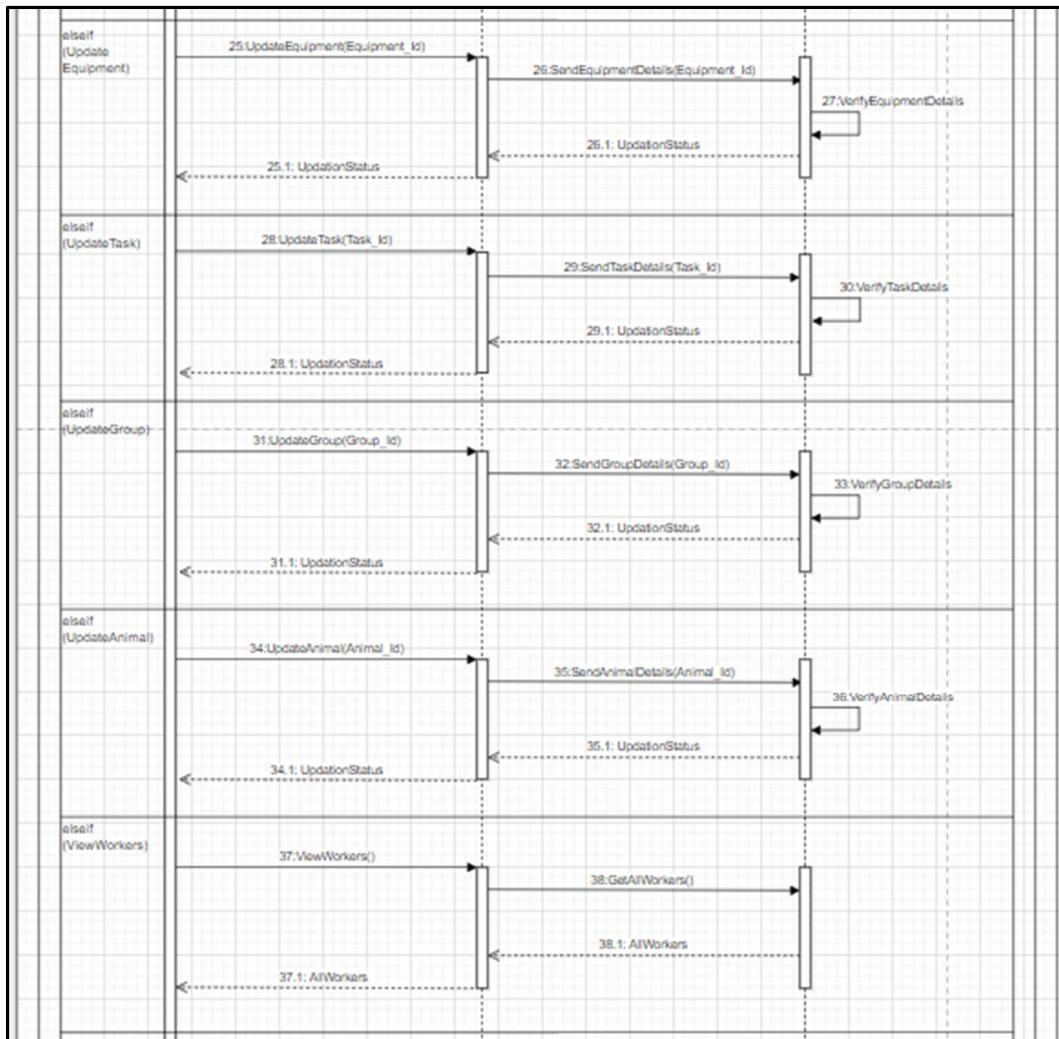


Figure 14: Farm Supervisor Sequence Diagram (Continued)

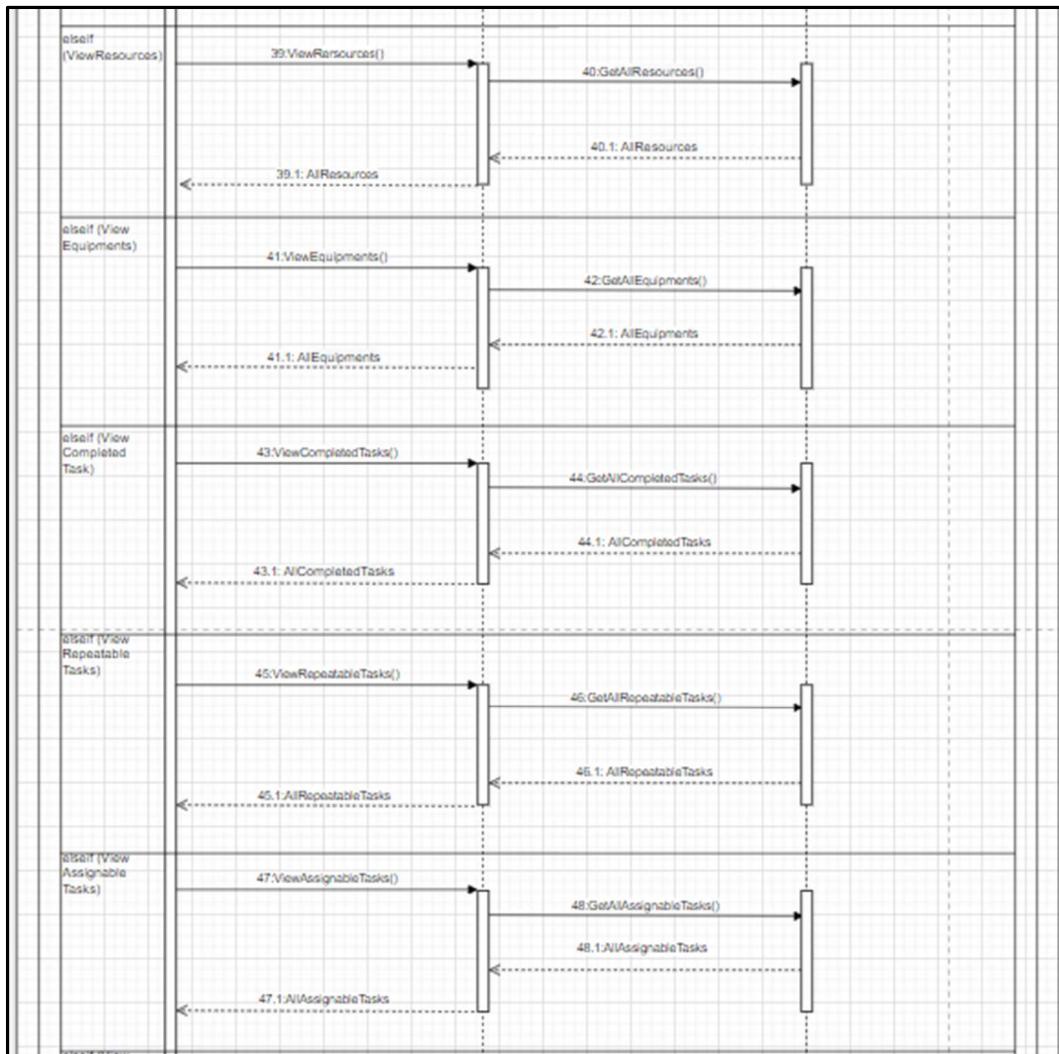


Figure 15: Farm Supervisor Sequence Diagram (Continued)

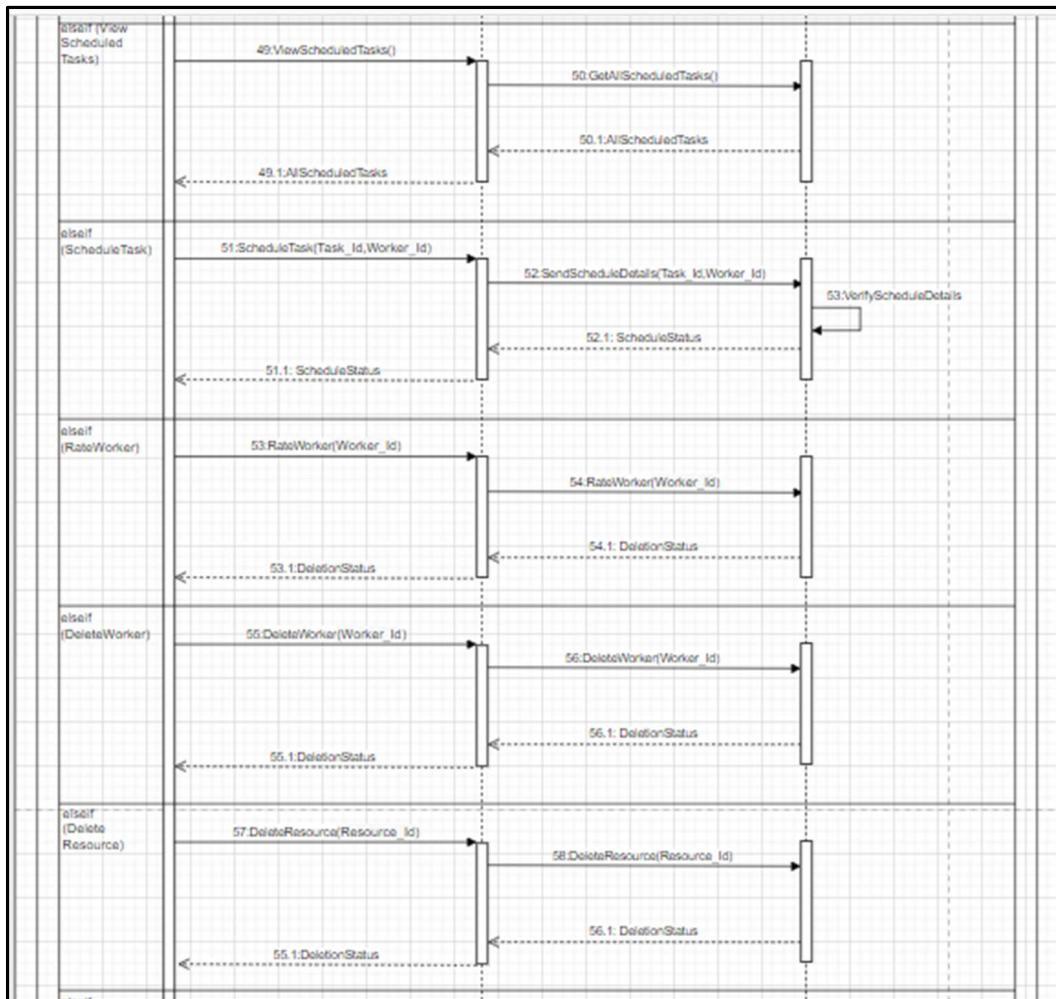


Figure 16: Farm Supervisor Sequence Diagram (Continued)

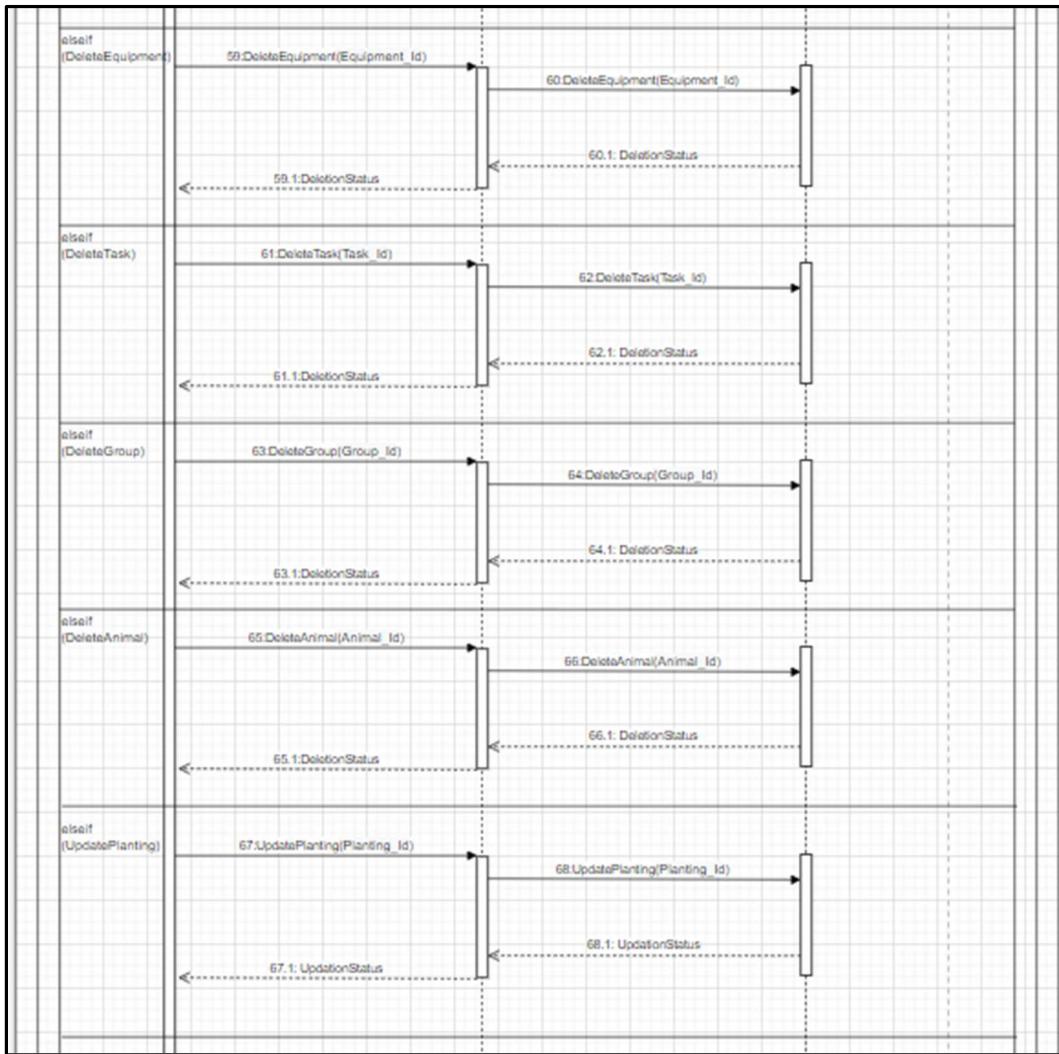


Figure 17: Farm Supervisor Sequence Diagram (Continued)

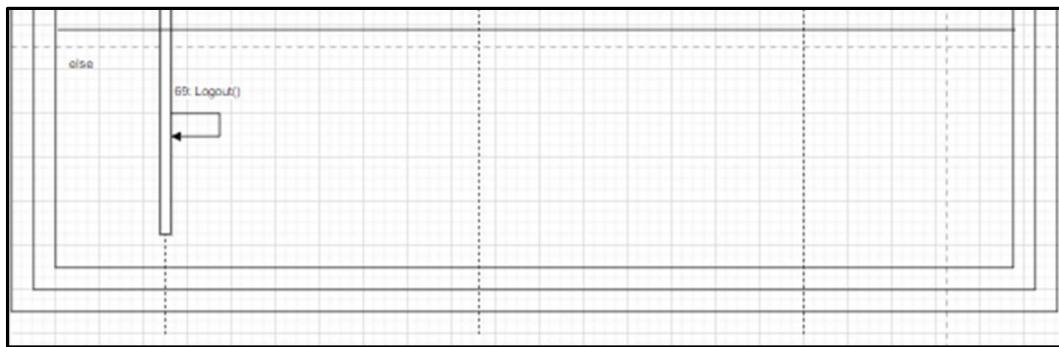


Figure 18: Farm Supervisor Sequence Diagram (Continued)

5.2.1.3 Farm Worker

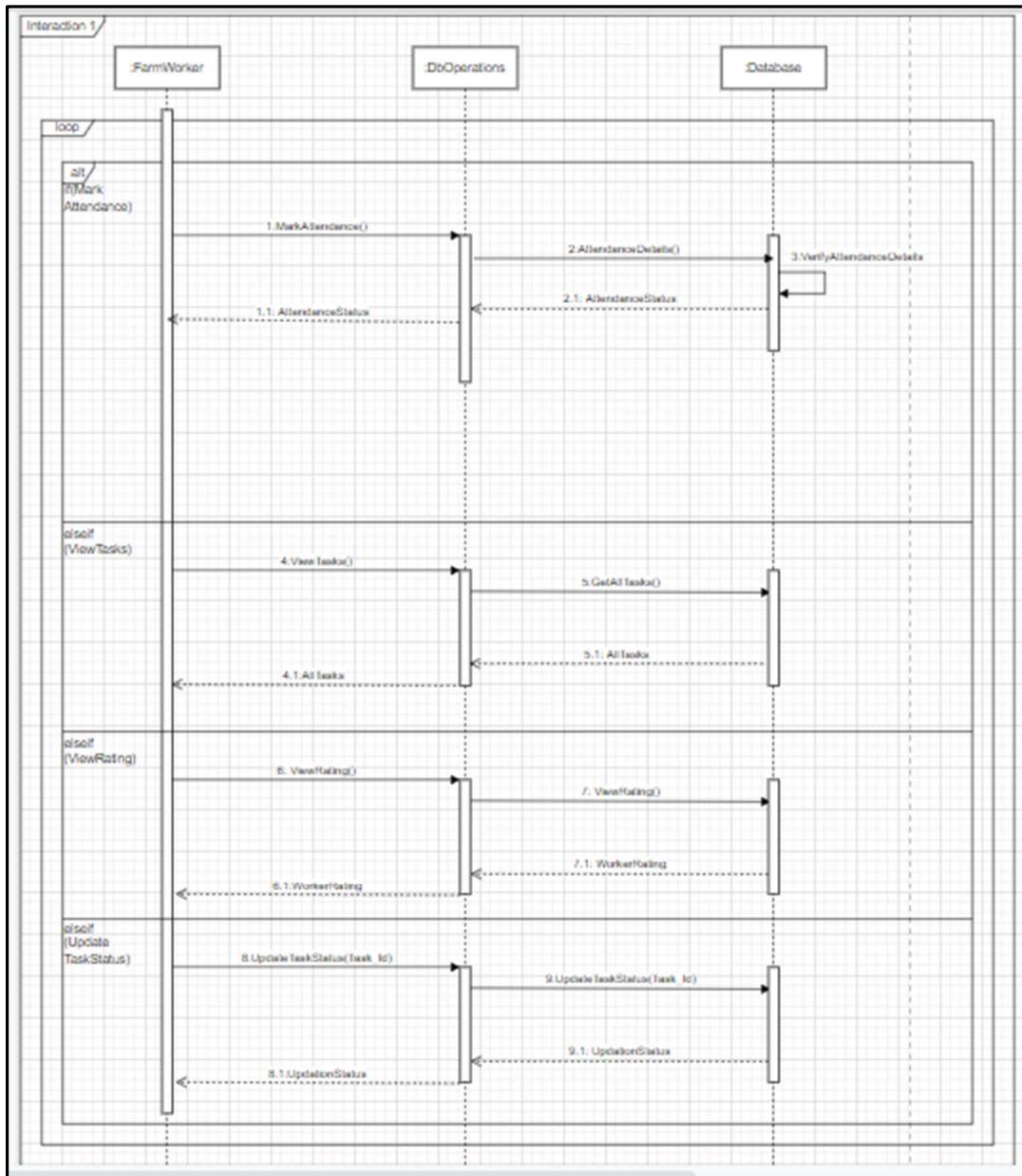


Figure 19: Farm Worker Sequence Diagram

5.2.2 Communication Diagram

5.2.2.1 Farm Owner

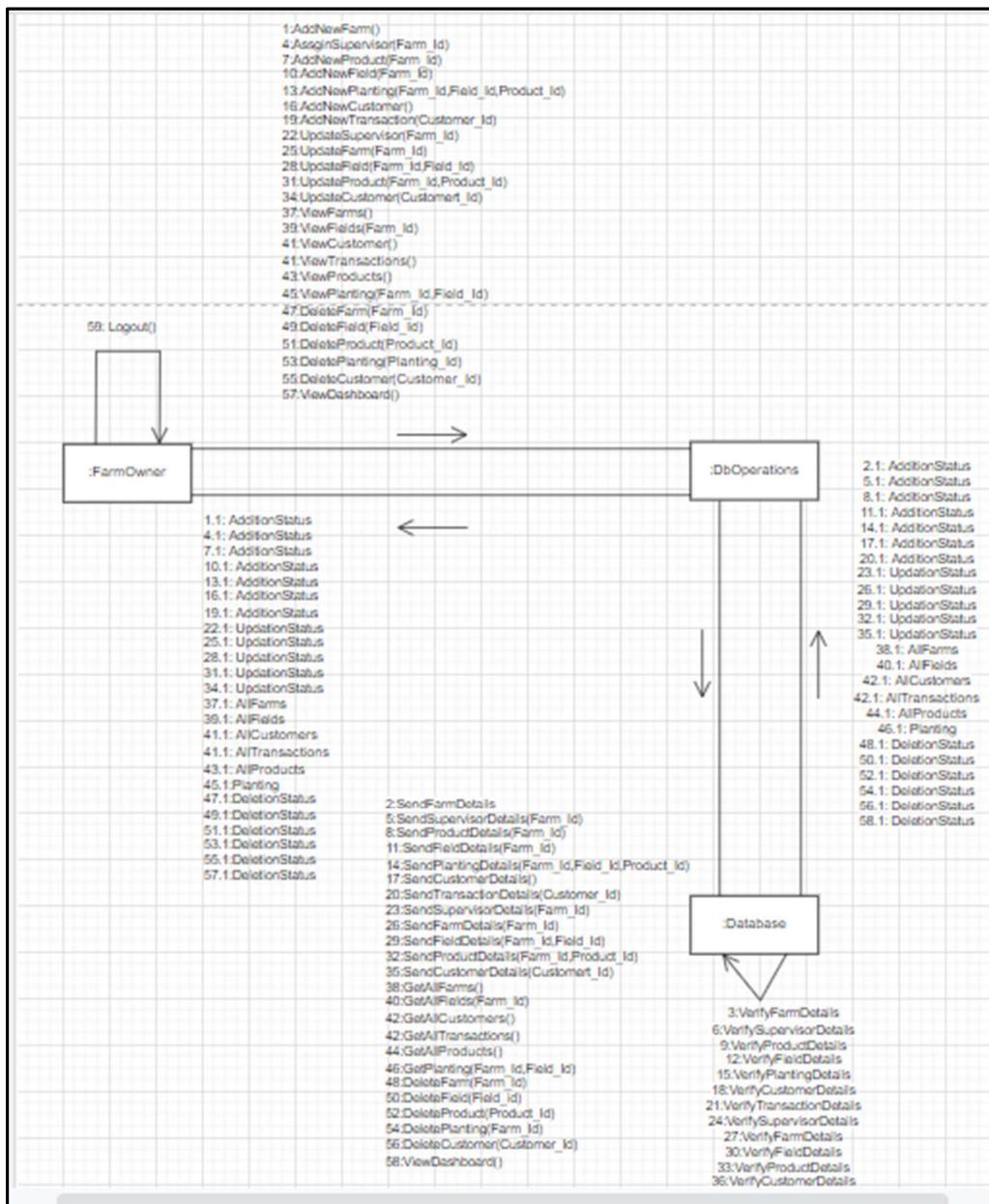


Figure 20: Farm Owner Communication Diagram

5.2.2.2 Farm Supervisor

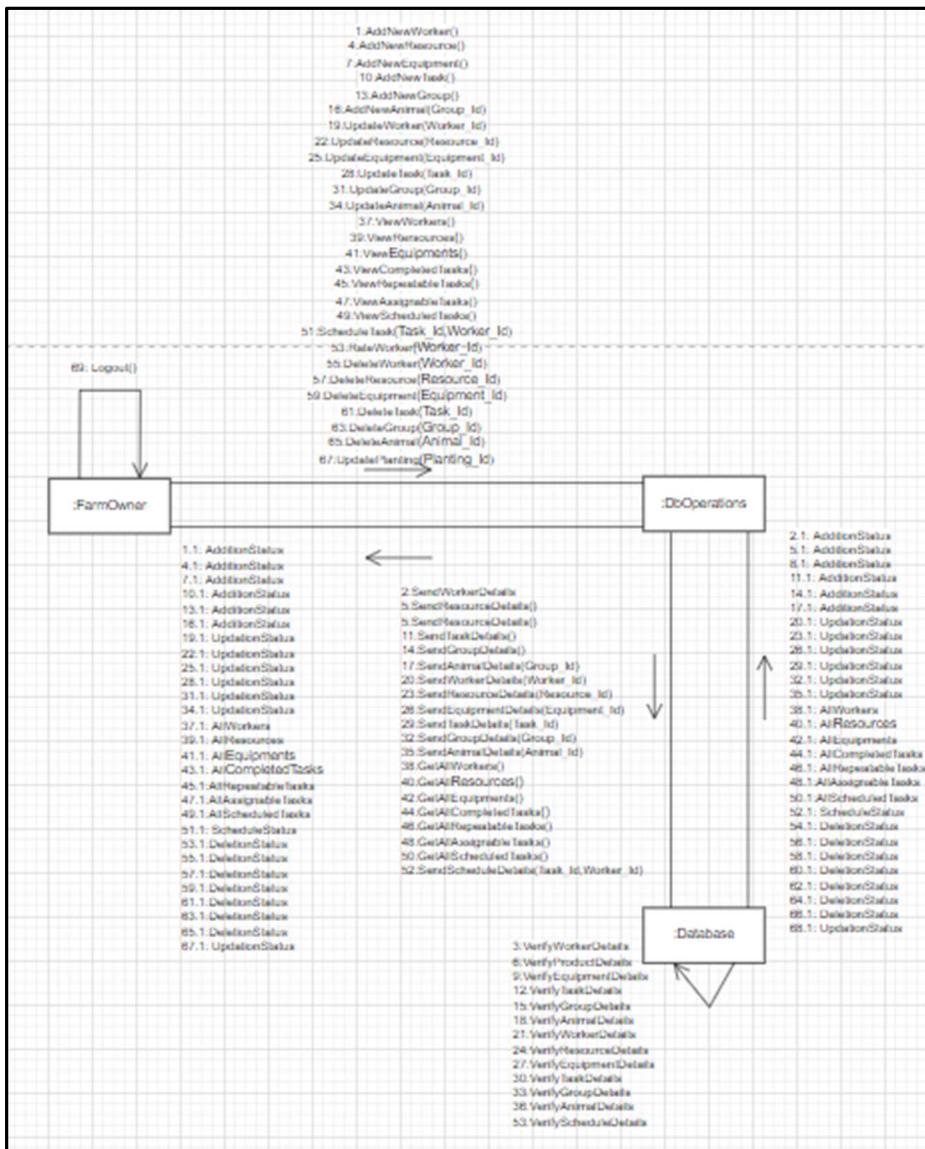


Figure 21: Farm Supervisor Communication Diagram

5.2.2.3 Farm Worker

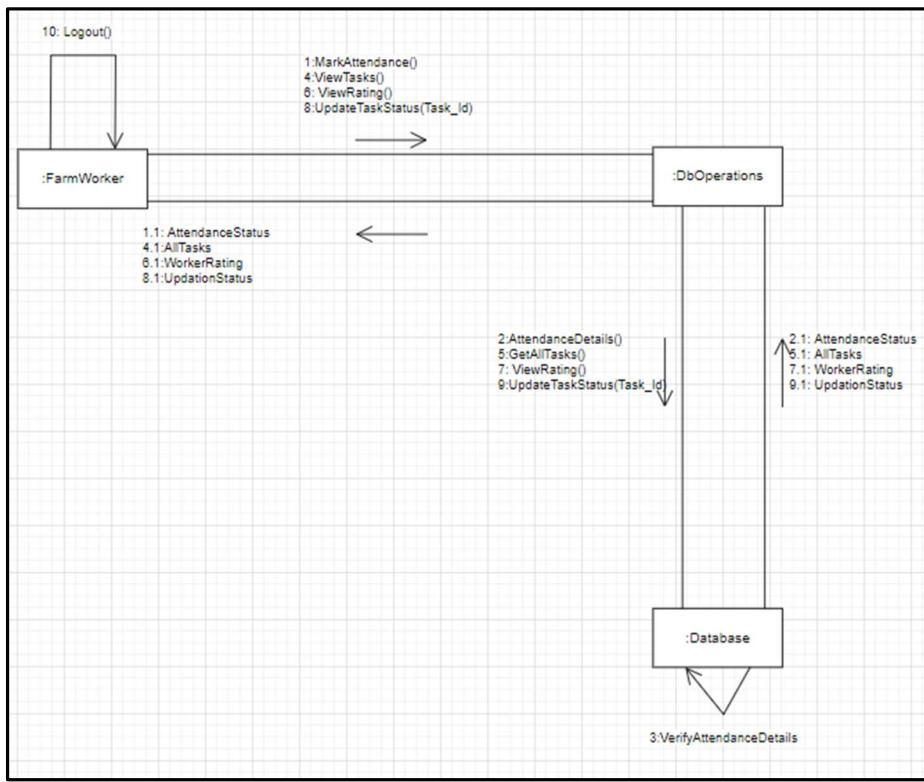


Figure 22: Farm Worker Communication Diagram

5.2.3 Activity Diagram

5.2.3.1 Farm Owner

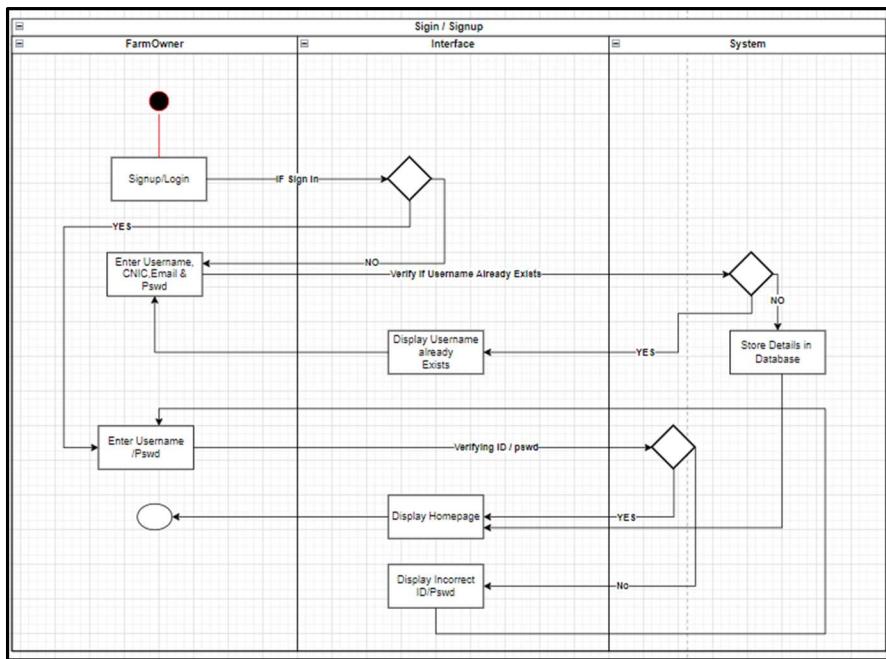


Figure 23: Farm Owner Activity Diagram

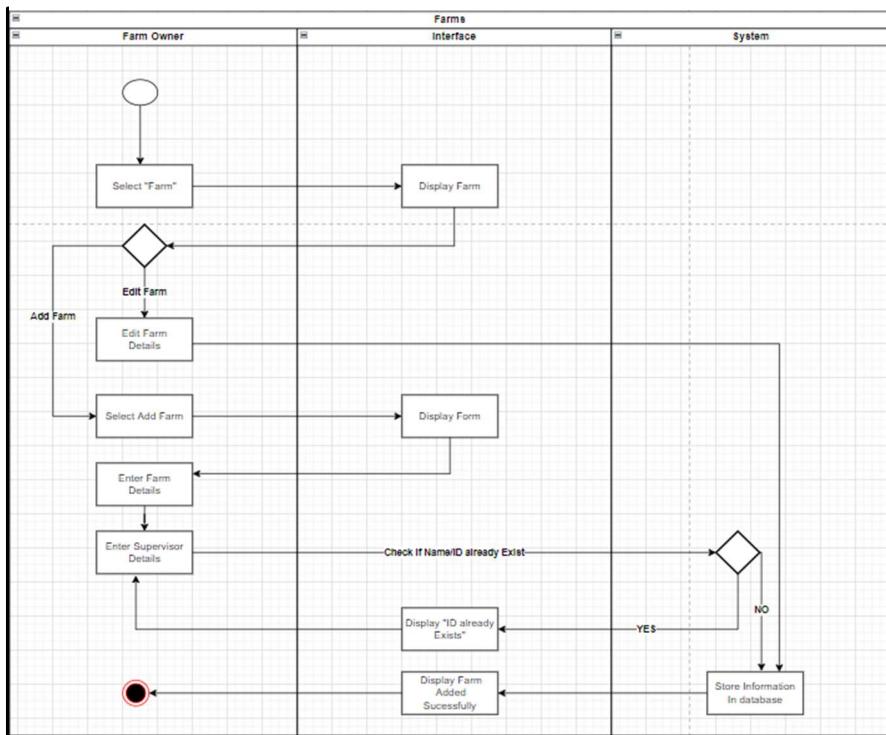


Figure 24: Farm Owner Activity Diagram (Continued)

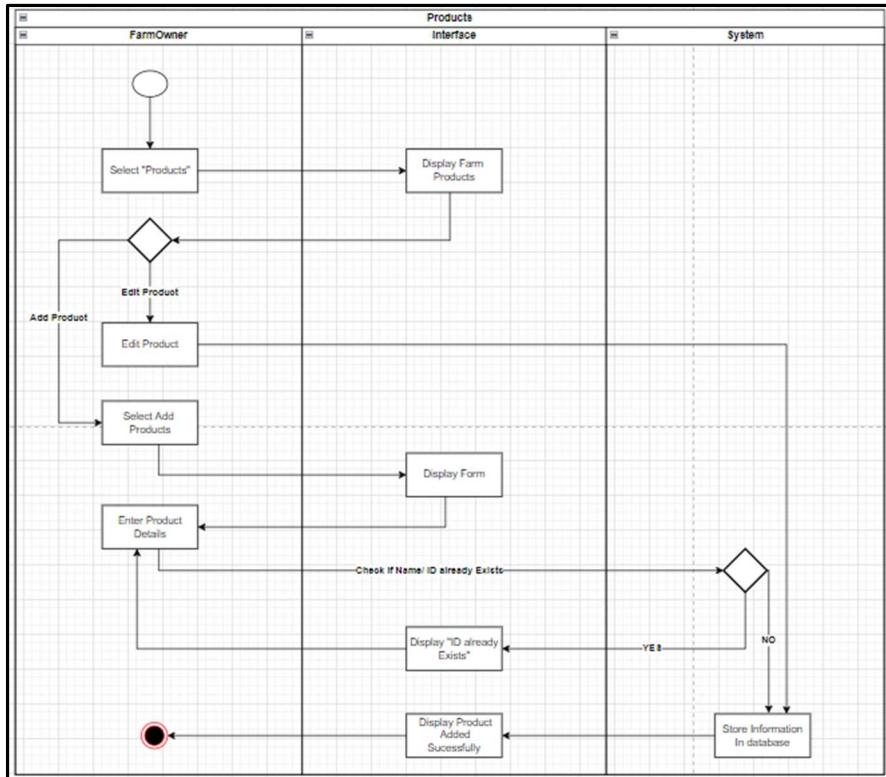


Figure 25: Farm Owner Activity Diagram (Continued)

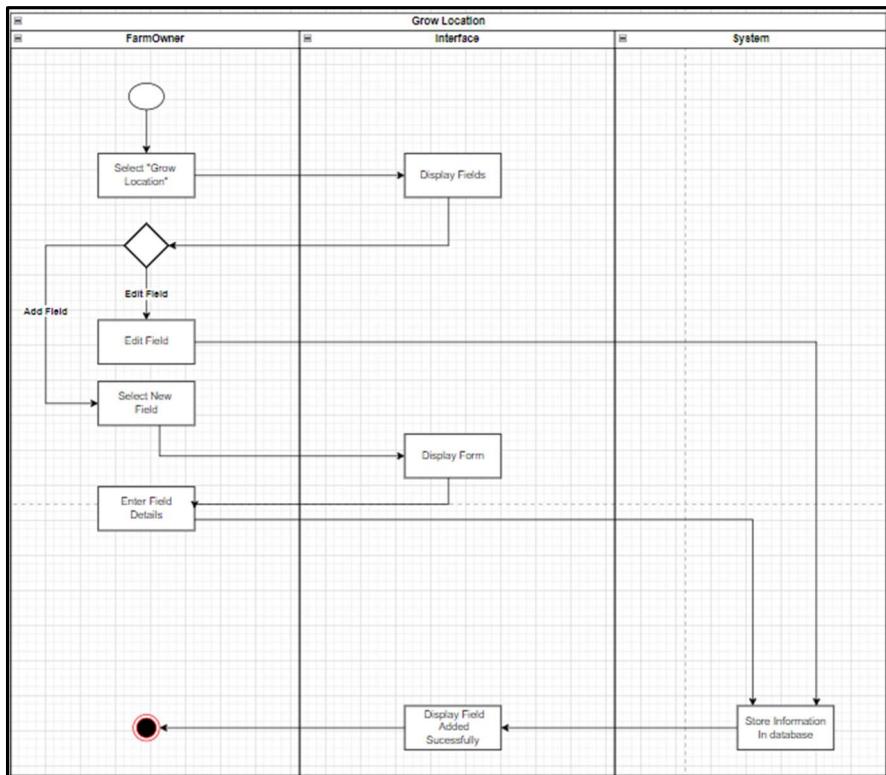


Figure 26: Farm Owner Activity Diagram (Continued)

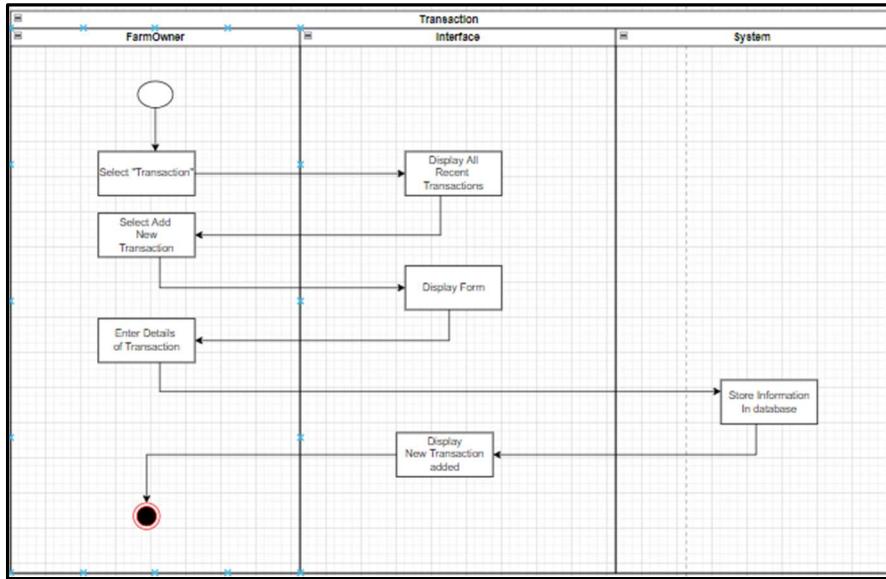


Figure 27: Farm Owner Activity Diagram (Continued)

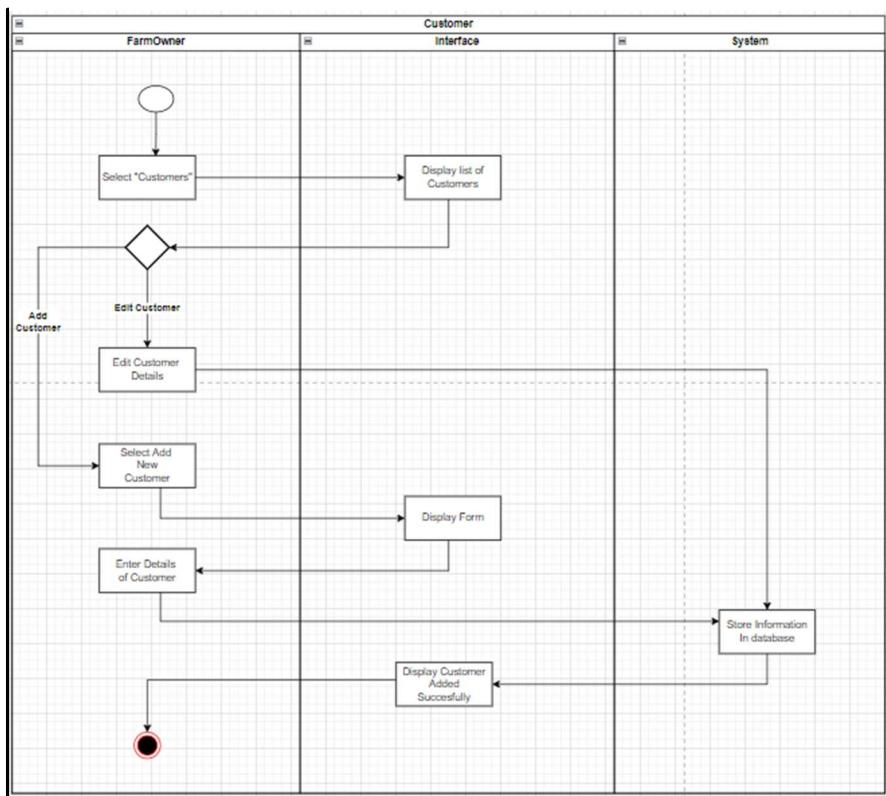


Figure 28: Farm Owner Activity Diagram (Continued)

5.2.3.2 Farm Supervisor

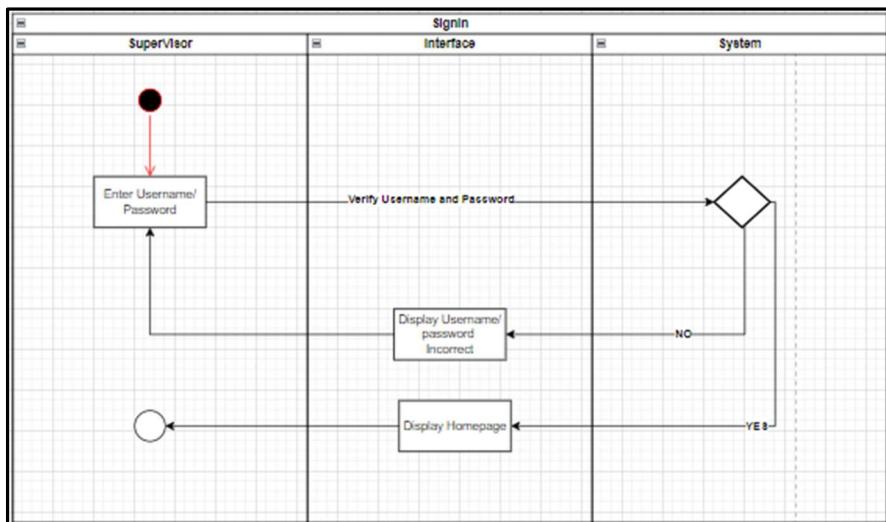


Figure 29: Farm Supervisor Activity Diagram

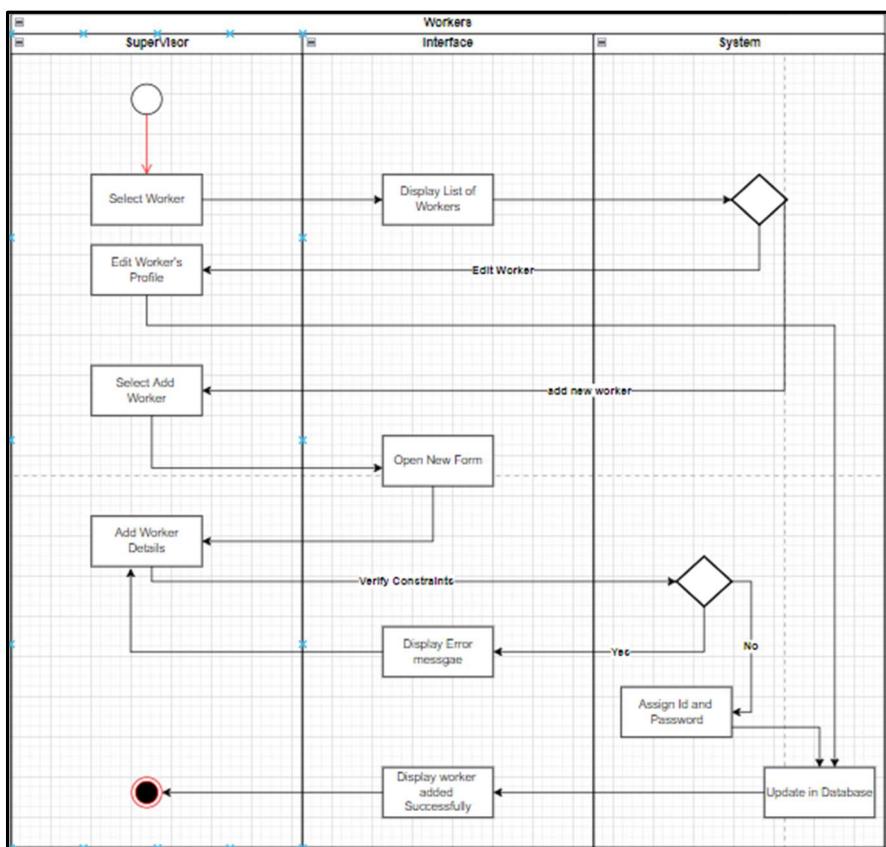


Figure 30: Farm Supervisor Activity Diagram (Continued)

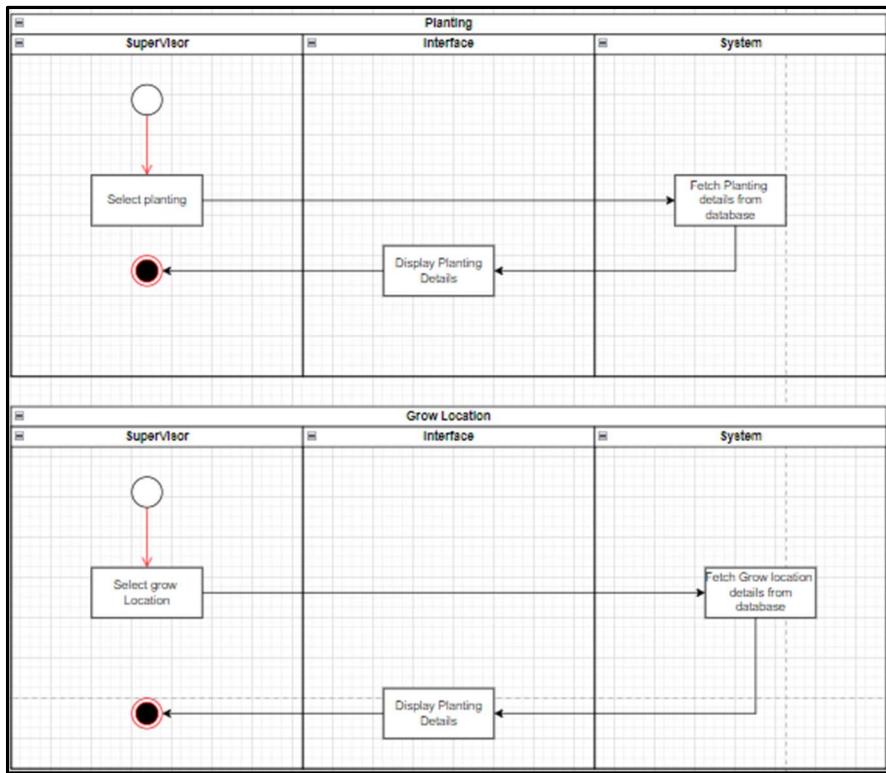


Figure 31: Farm Supervisor Activity Diagram (Continued)

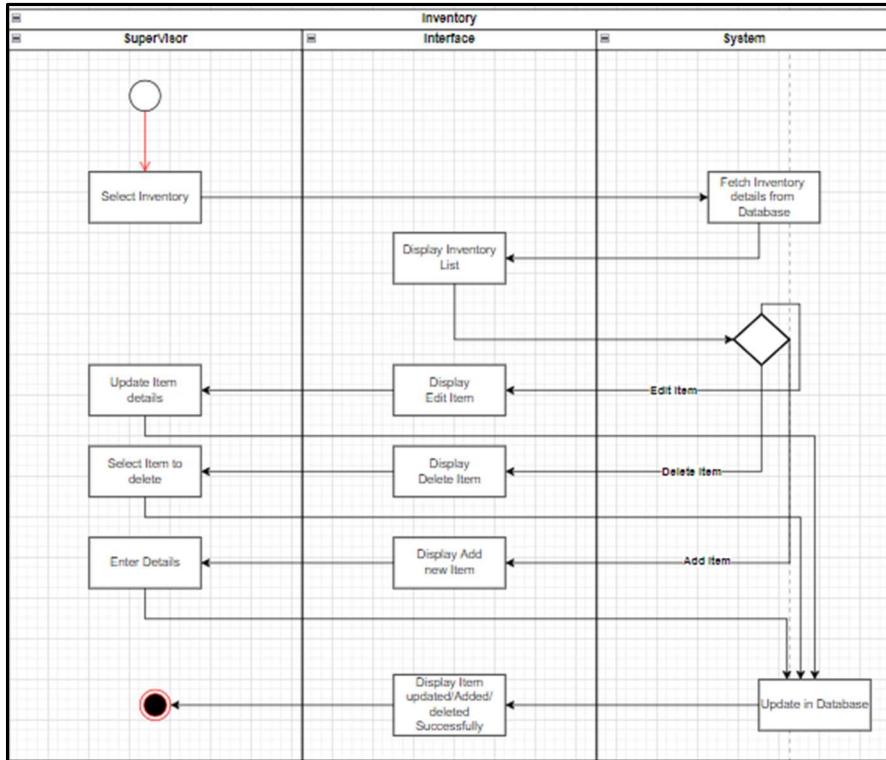


Figure 32: Farm Supervisor Activity Diagram (Continued)

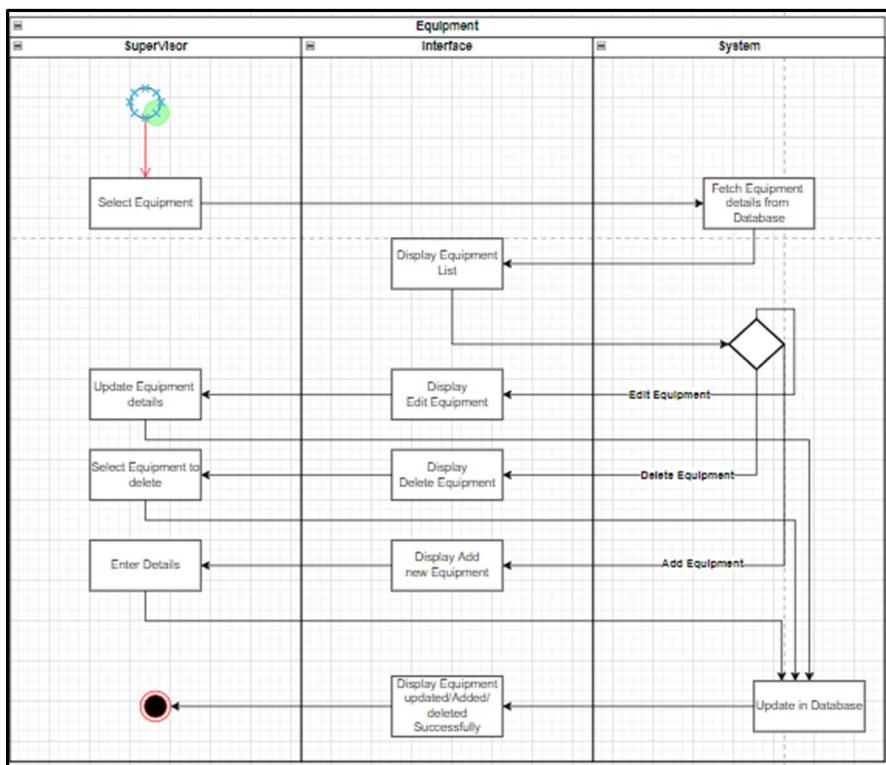


Figure 33: Farm Supervisor Activity Diagram (Continued)

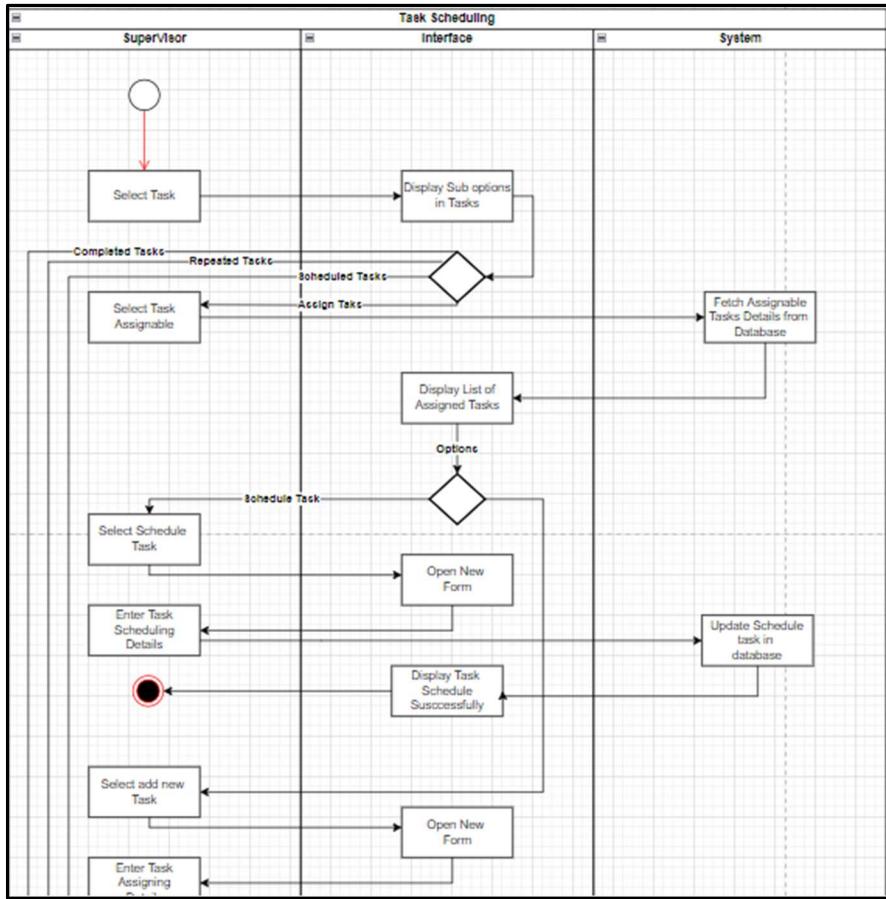


Figure 34: Farm Supervisor Activity Diagram (Continued)

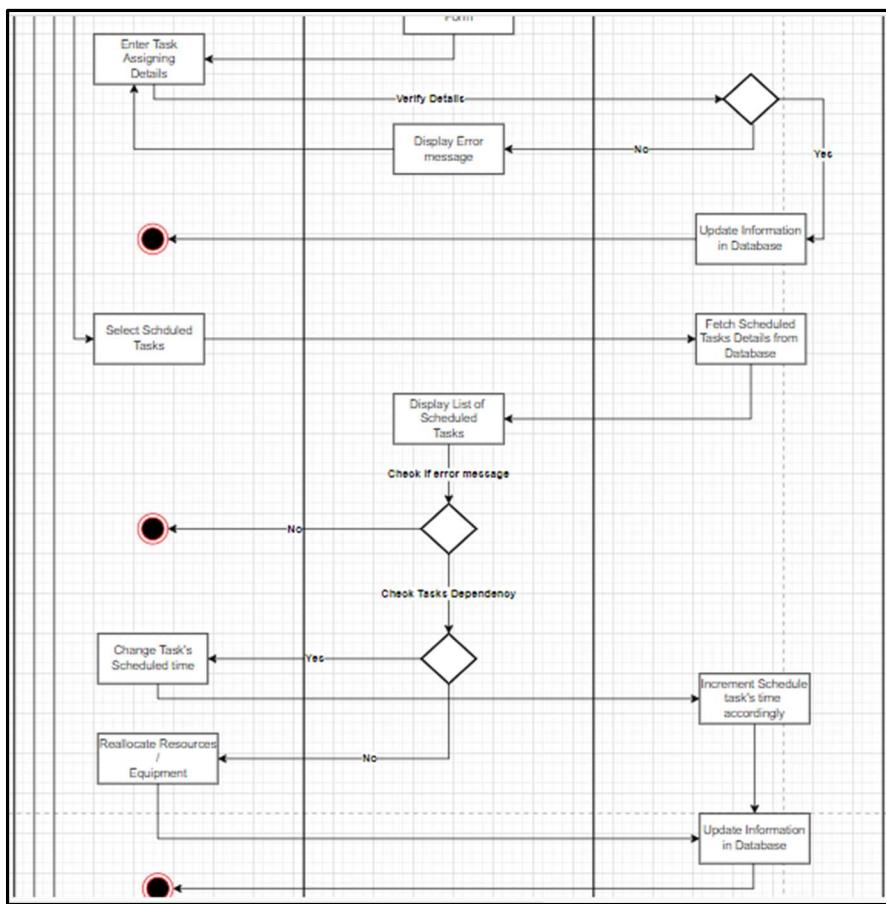


Figure 35: Farm Supervisor Activity Diagram (Continued)

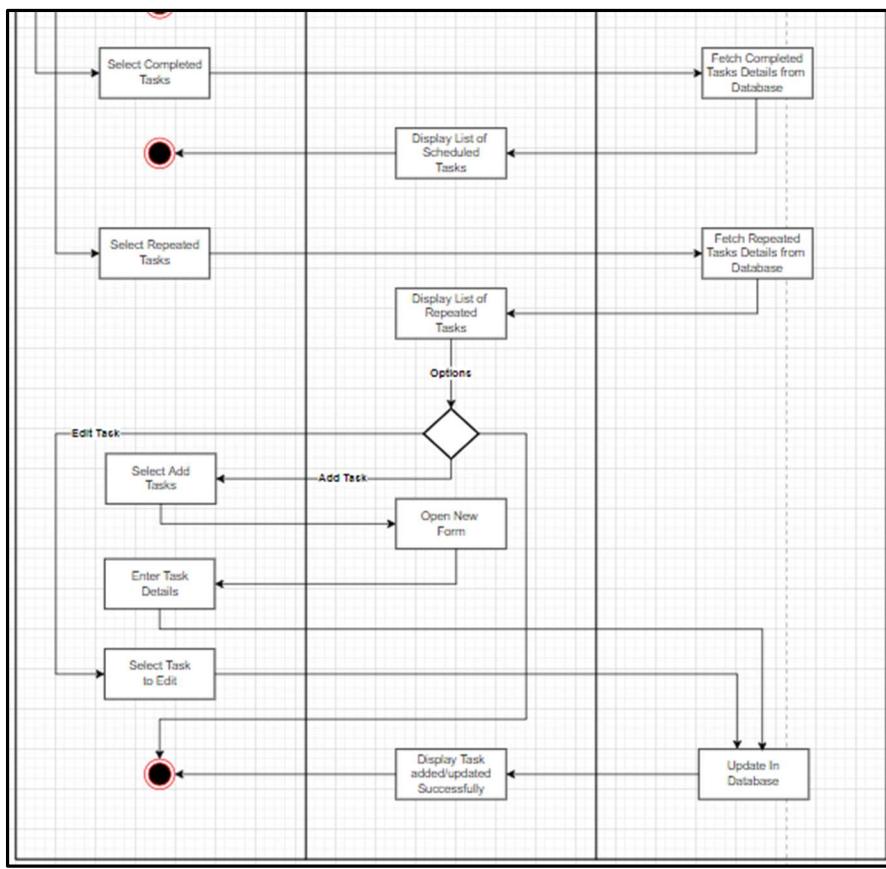


Figure 36: Farm Supervisor Activity Diagram (Continued)

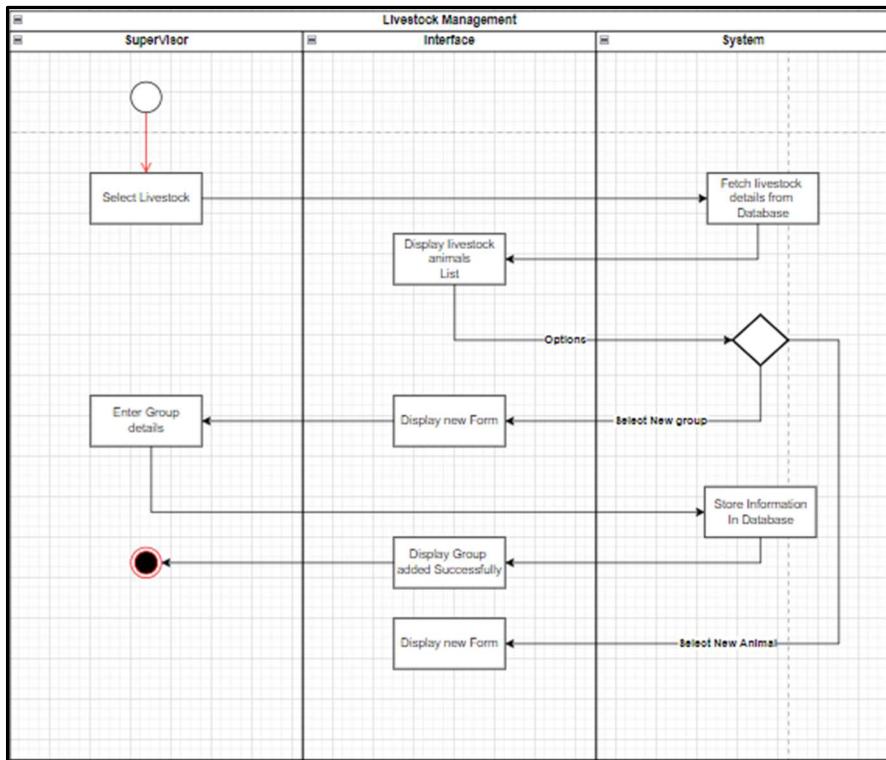


Figure 37: Farm Supervisor Activity Diagram (Continued)

5.2.3.3 Farm Worker

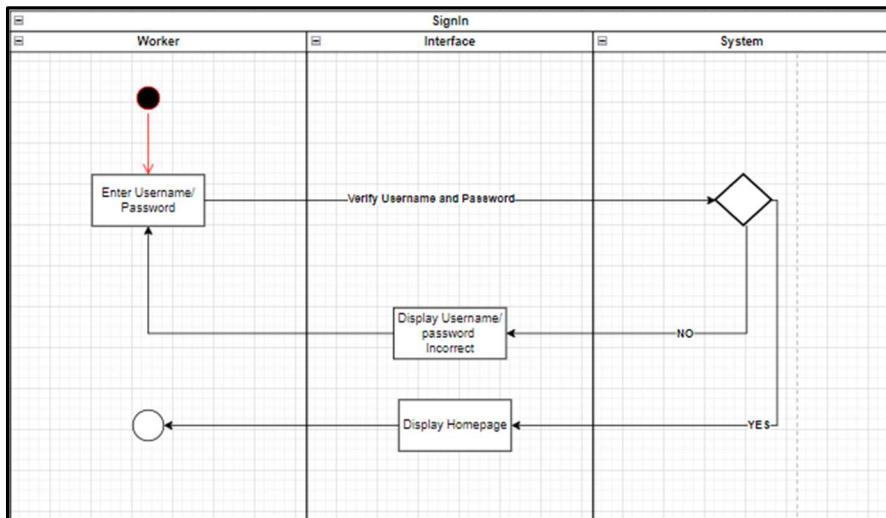


Figure 38: Farm Worker Activity Diagram

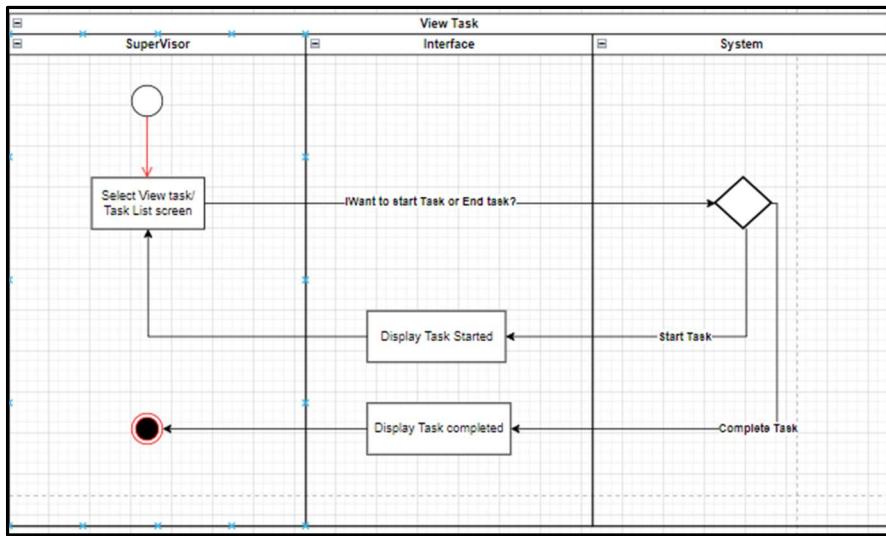


Figure 39: Farm Worker Activity Diagram (Continued)

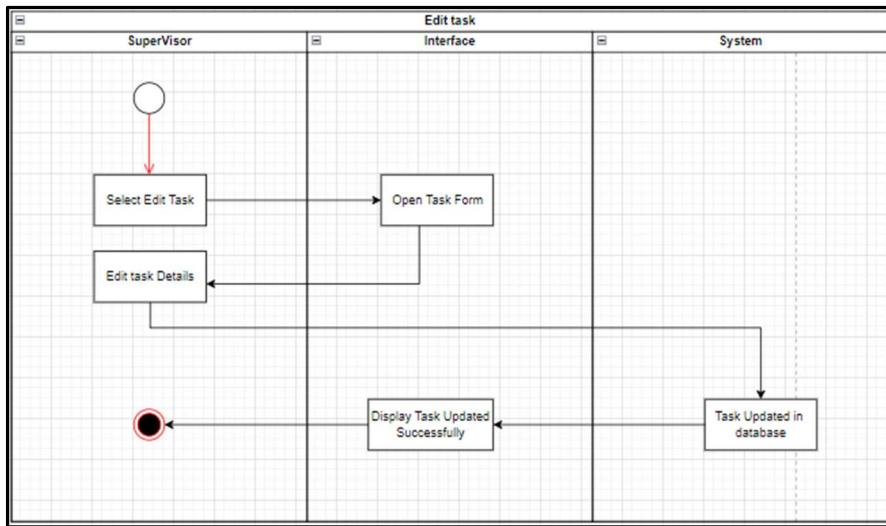


Figure 40: Farm Worker Activity Diagram (Continued)

5.2.4 State Diagram

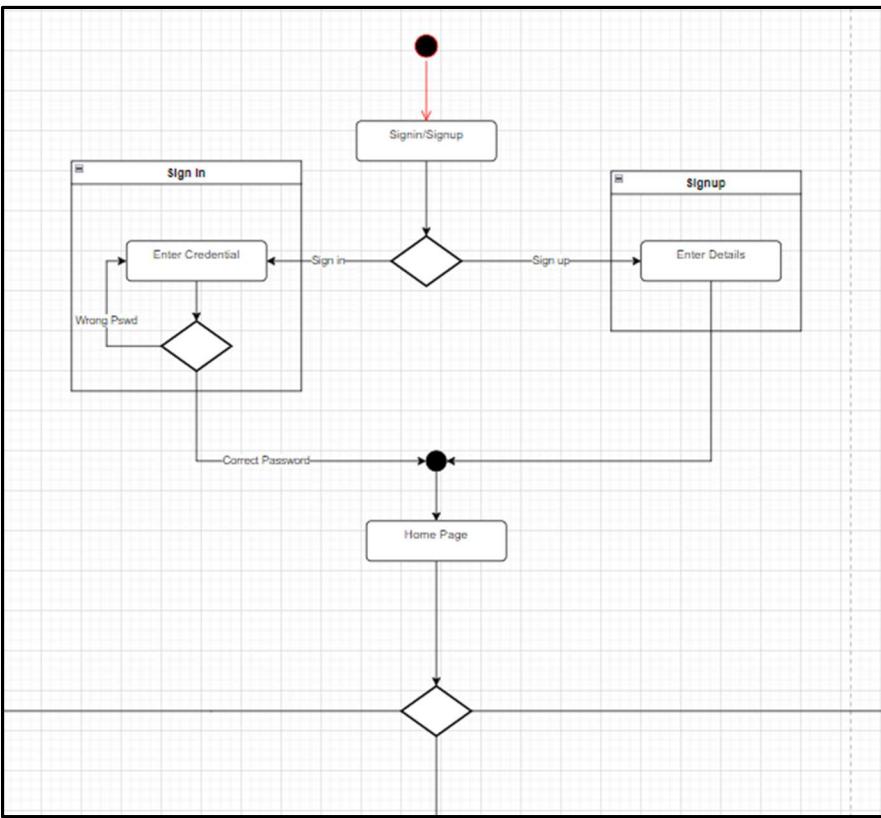


Figure 41: Login State Diagram

5.2.4.1 Farm Owner

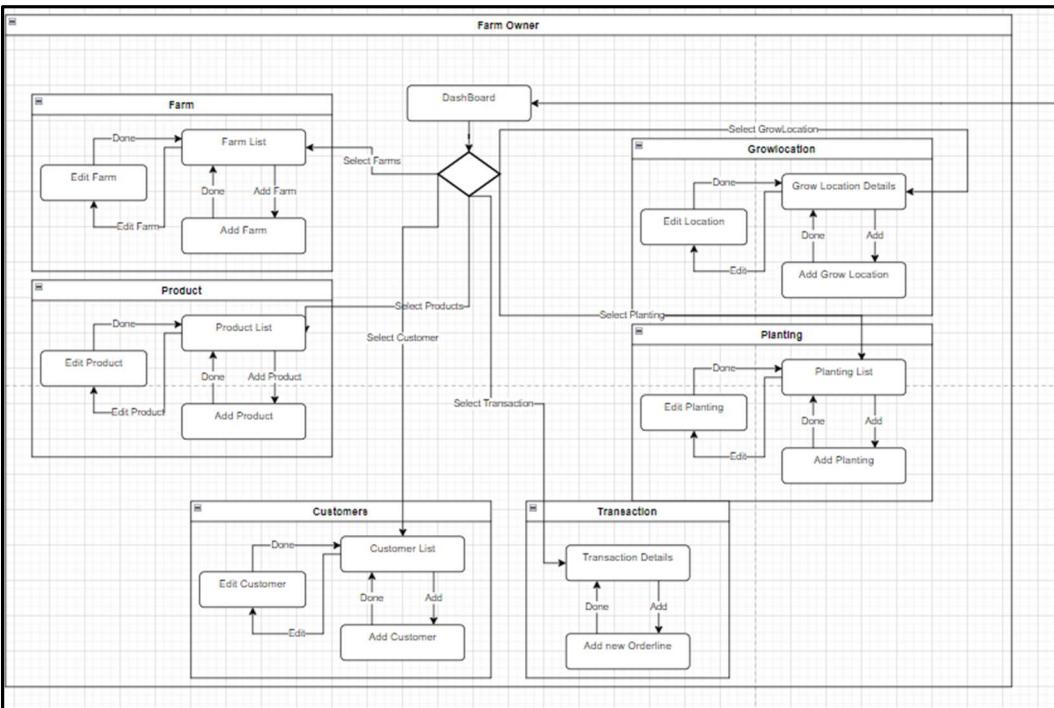


Figure 42: Farm Owner State Diagram

5.2.4.2 Farm Supervisor

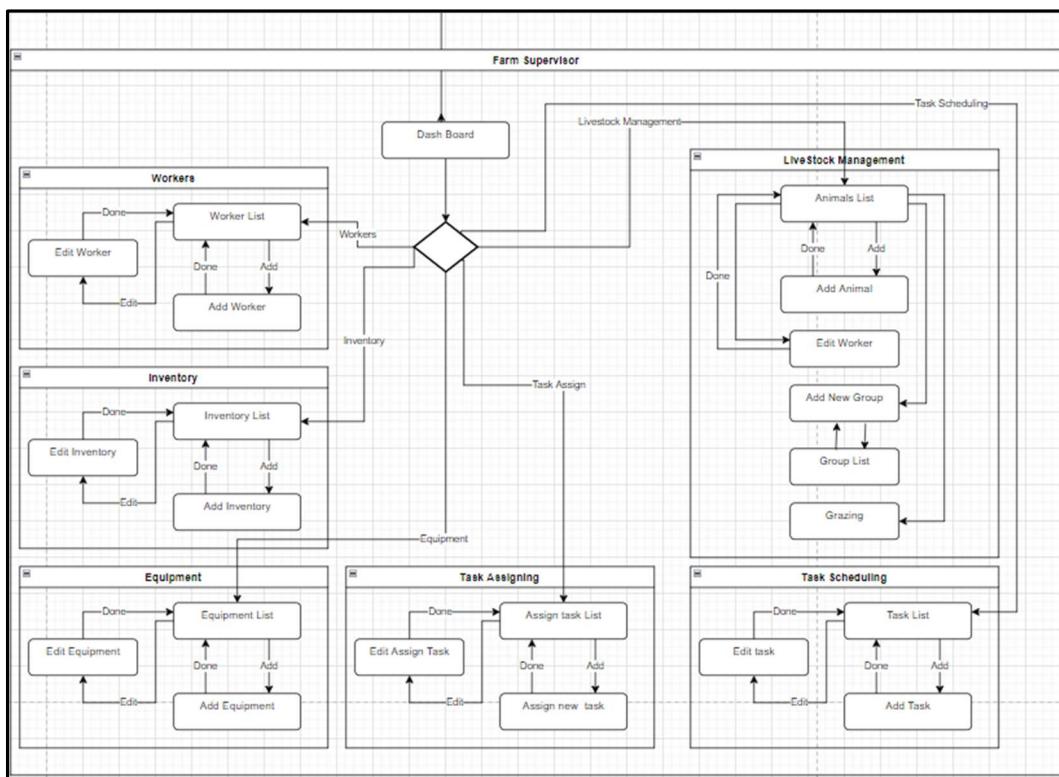


Figure 43: Farm Supervisor State Diagram

5.2.4.3 Farm Worker

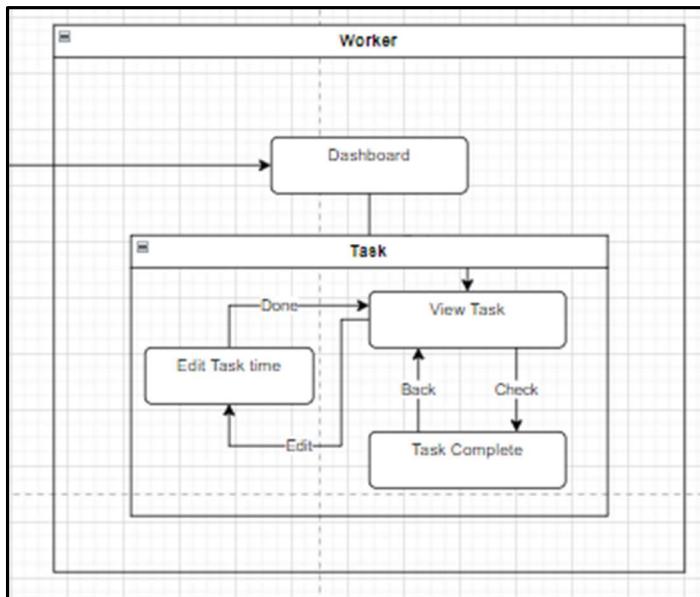


Figure 44: Farm Worker State Diagram

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7 Appendices