American International University-Bangladesh (AIUB)

Department of Computer Science

Faculty of Science &Technology (FST)

Section: G

Group No: 2

Farming Assistance Web Service

A Software Engineering project submitted

By

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Farming Assistance Web Service

Web based application that would help farmers and dealers to directly contact each other. Nice interface that would enable dealers successfully order products online. Dealers can post or request goods from farmers directly. Farmers can view goods request from dealers and supply them. This project is to help farmers ensure better profitability through farmer to farmer and farmer to supplier. This services boost business communication and brings transparency in the system. Separate login areas with appropriate functionality for farmer, supplier and administrator. A separate page where a farmer can post complains and only administrator can read and edit.

Features:

1. Separate login areas appropriated functionality for farmers, administrators, dealers.

2. A separate page where only farmers can post complains and only administrator can read and edit.

3. Page where dealers and retailers can post advertisement and notification.

4. Farmers are notified of this notification via SMS services.

5. An effective process so that rural people can access it easily.

6. Can be over for multiple villagers to communicate and deal with each other.

Functional Requirements:

Account:

Farmer:

- **Register:**The farmer first need to be registered to login.
- **Login:**The farmer need to login in to get access to the system.
- **Complaint Page:** The page where farmers can post their complaints and only assigned administration can read and edit.
- **Advertisement:**This page consist of crop advertisement details.
- **Sell product:**This page is for selling the crop to the supplier.This includes crop id,crop name,supplier name,quantity and price.
- **Sell product details:**This page consist of crop details sold by the farmer.

Supplier:

- **Register:** The supplier first need to be registered to login.
- **Login:**The supplier need to login in to get access to the system.
- **Post Advertisement:**Pages where dealers and retailers may post their ads and notifications.The post consists of crop id,crop name,crop image,quantity required.Farmers are notified of these notifications via SMS.
- **Crop Received:**It is result of post that notified that the crop is accepted or not to the farmers.

Dealer:

- **Register:** The dealer first need to be registered to login.
- **Login:**The supplier need to login in to get access to the system.
- **Post Engagement:**After valid login dealers can check product history and buy product.

Admin:

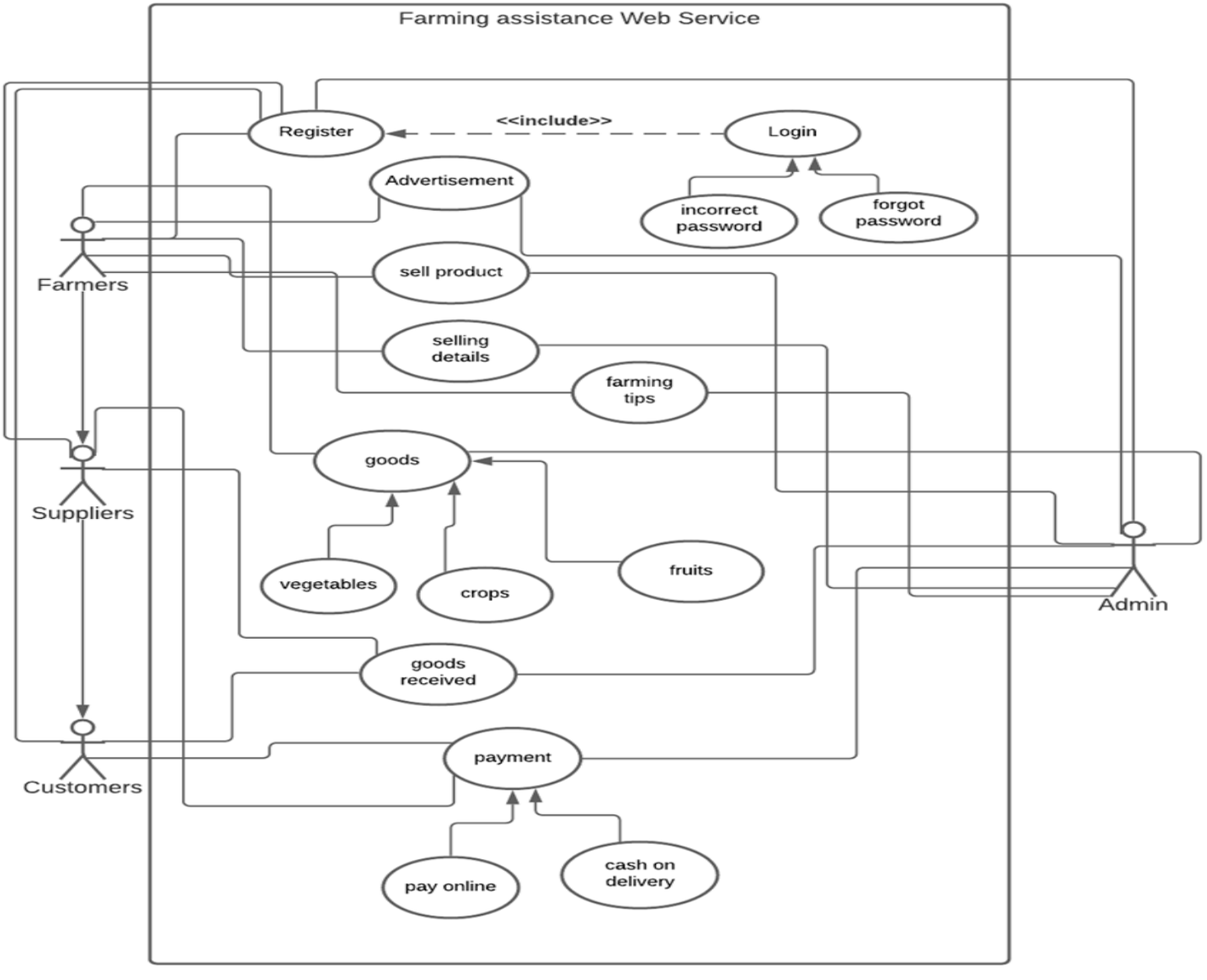
- **View Complaints:**This page contains the complaints of the farmers.
- **Farming Tips:**The admin give the farming tips to the farmers.

Implementation of Database: MySQL

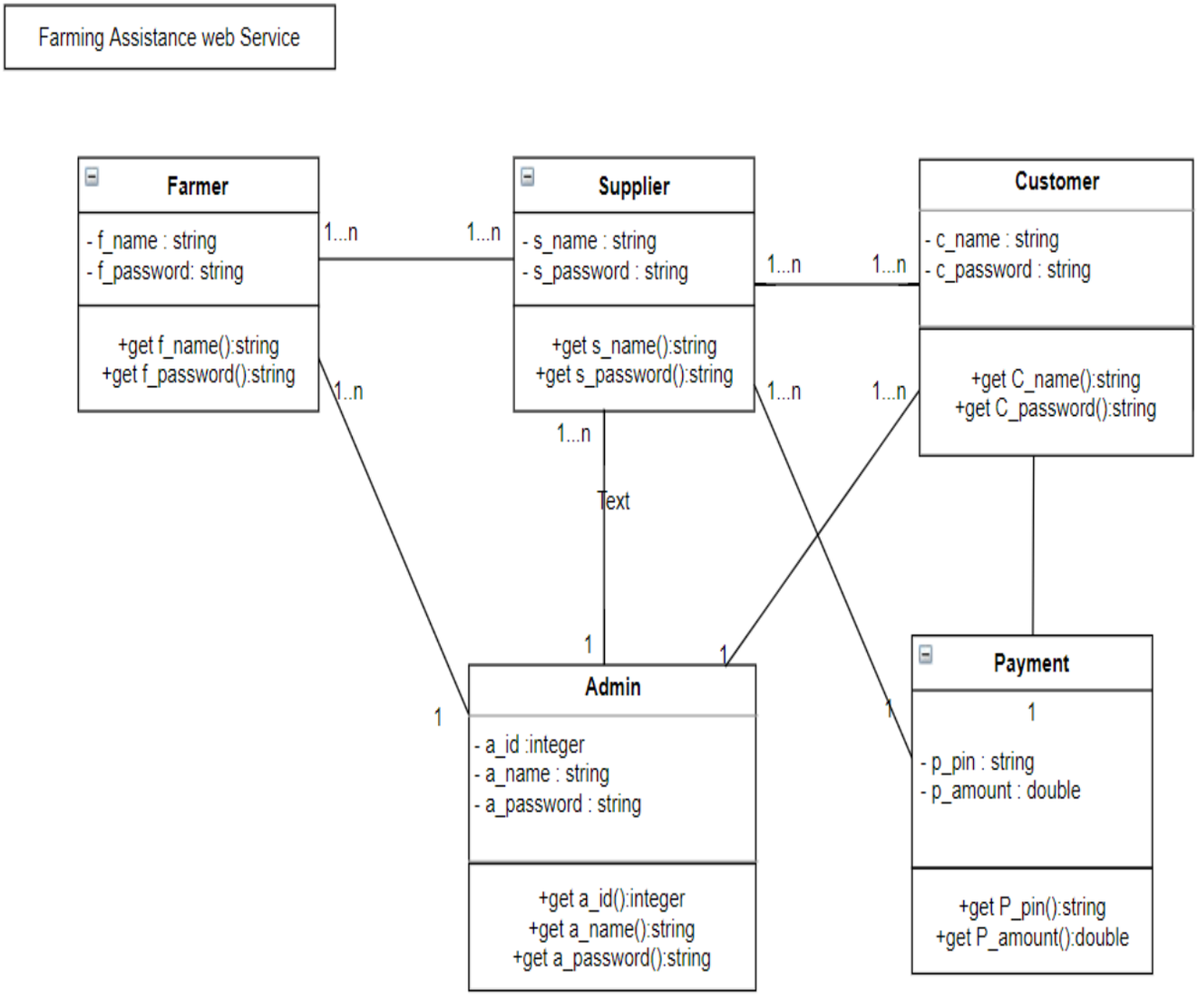
Constraints:

- ❖ If farmers need loan then he will get it but he must have sufficient income to service all debts.
- ❖ If any dealers order more than 3000/- then he/she will get 5% discount.
- ❖ If any dealers order more than 5000/- then their delivery charge will be free.

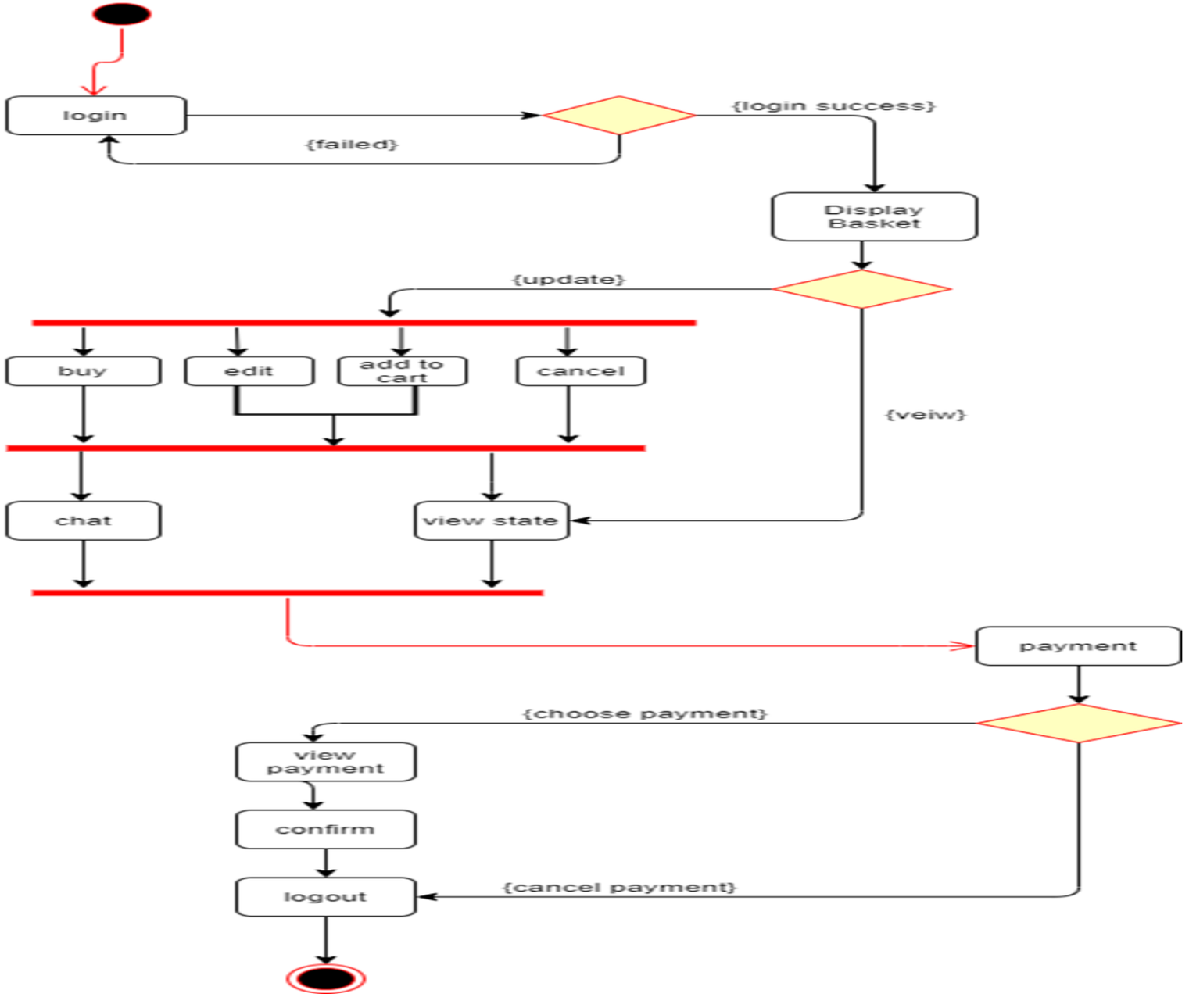
Use Case Diagram:



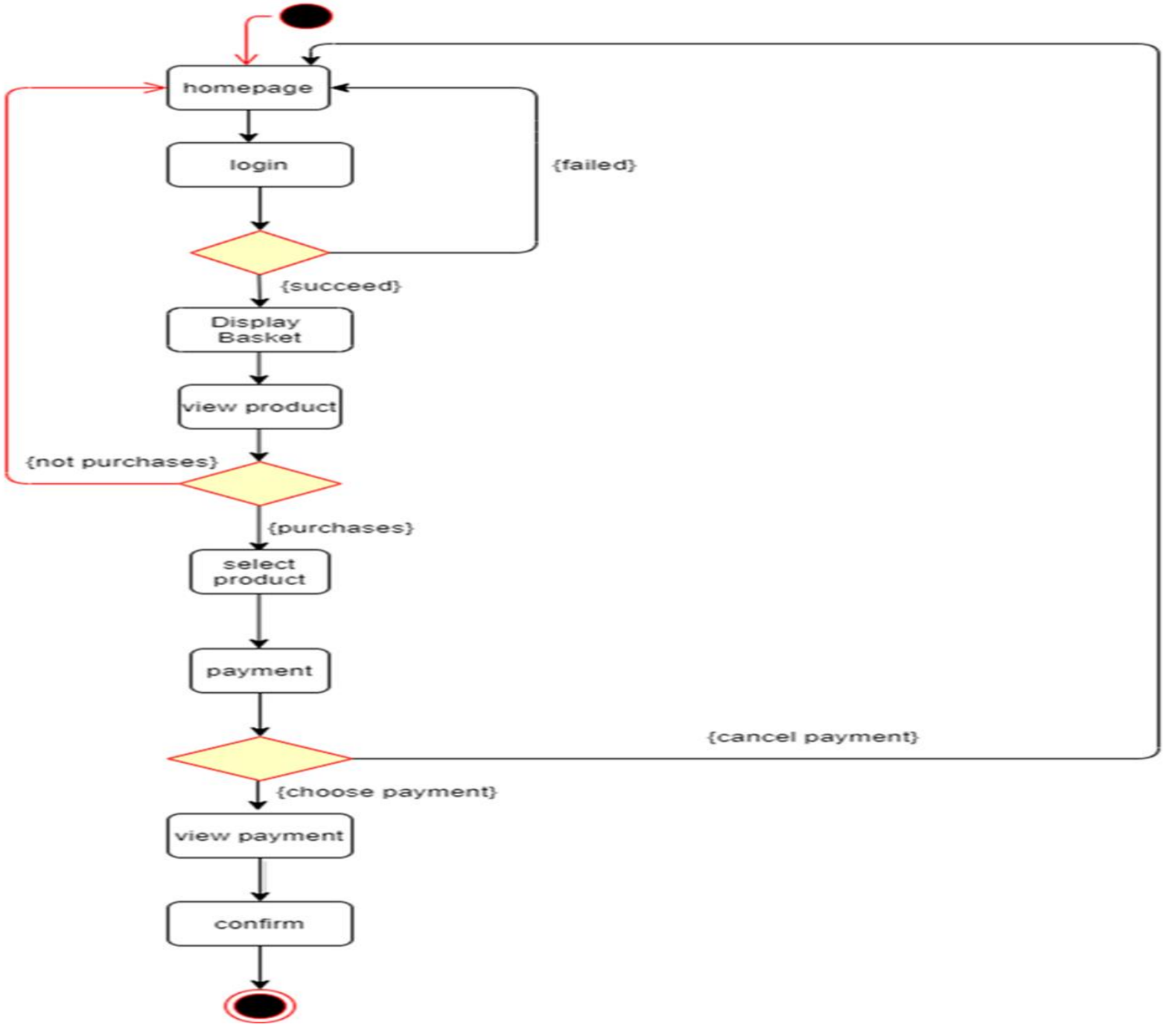
Class Diagram:



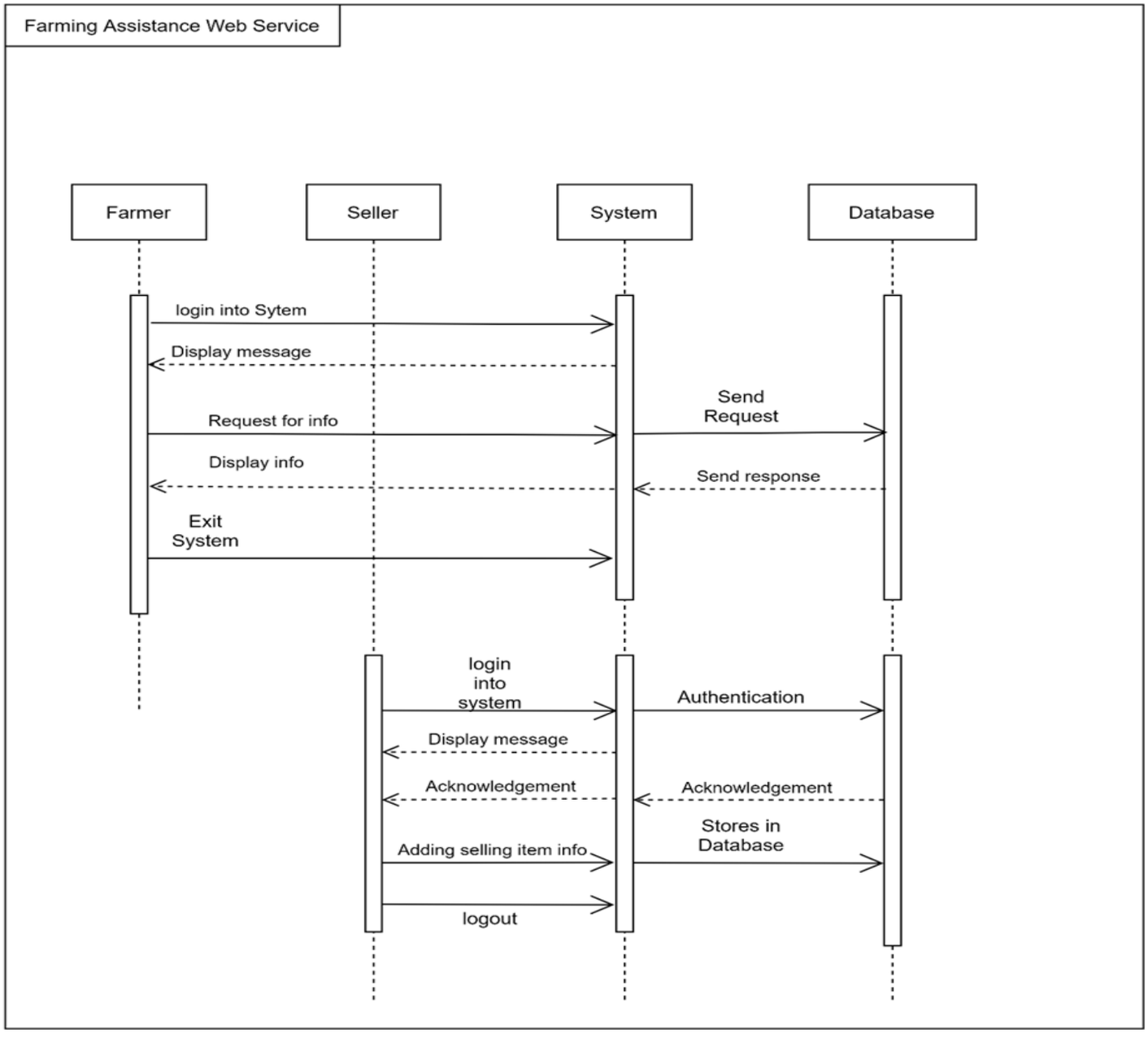
Activity Diagram:



State Chart Diagram:



Sequence Diagram:



Process Model Description

The model we select:

The model we have selected for our project Farming Assistance Web Service is V-Model. This is the suitable process for our project. V-Model is a linear process model. We chose V-Model because it begins with analysis and the identification, which feeds product information into the design and implementation phases. There are two branches representing integration and testing activities.

Why we chose this model:

The V-Model is an extension of the Waterfall Model and is based on the association of a testing phase or corresponding development stage. It is an upgraded Waterfall Model and a very straightforward model to understand. It allows the development team to verify the product at multiple levels. Its benefit over basic Waterfall Model is that the testing phase is done at the end of the project in the basic Waterfall Model. There are no direct involvements of clients required and shown to the client for validation. So, Sawtooth Model is also not needed. In V-Model, developers and testers are independent but in Spiral Model and Unified Process Model developers and testers are dependent on each other. We don't need to revisit previously completed phrases so Spiral model and Unified process model can't be applied. Depending on our project characteristics V-Model is more appropriate.

Roles and Responsibilities:

V-Model is used for small projects where project requirements are clear. It is simple and easy to understand and use. This model focuses on verification and validation activities early in the life cycle thereby enhancing the probability of building an error-free and good quality product.

Customer: Receives the selected product and then verifies the final product.

Programmer: Keeps the program code simple and definite.

Tester: Runs functional test regularly, broadcasts test result and maintains testing tools.

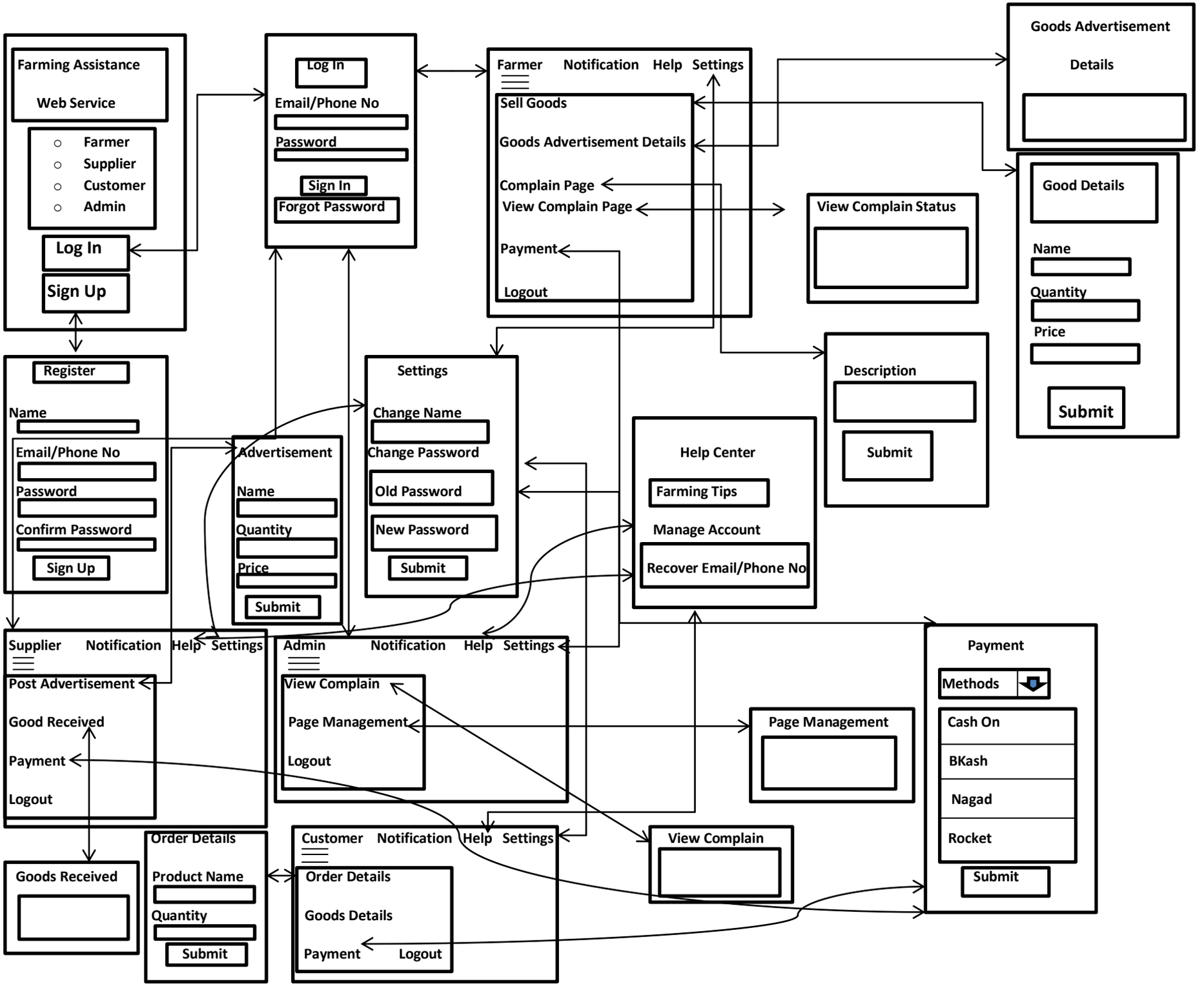
Tracker: Checks the accuracy of the developer's estimation.

Coach: Observes if the team members are following the practices.

Consultant: External member who possess the knowledge about the process and advices the team.

Manager: Handles all the decisions.

Prototype Model:



Test Case:

In this project, we are using both White-box testing and Black-box testing.

The internal logic and structure of the software can be tested by white-box testing. The algorithm also can be tested of our software in this testing.

Black-box testing is also required to test the functionality of our software. Before Black-box testing White-box testing should be done to test the internal structure for our software. It is the behavior testing of the software which is done by software testers.

1. Sign Up

Project Name: Faming Assistance Web Service			Test Designed by:	
Test Case ID: FR_1			Test Designed date:	
Test Priority (Low, Medium, High): High			Test Executed by:	
Module Name: Sign up Session			Test Execution date:	
Test Title: verify user with verification code sent to email/phone				
Description: Test app sign up page				
Precondition (If any): User must have valid username and password				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to the app 2. Click on Sign up 3. Enter a. Name b. Email/Phone c. Password d. Confirm password 4. Click sign up	Name: Kamal Email: kamal@gg.com Phone: 6742390 Password: 54321 Confirm Password: 54321	User should sign up into the application	As expected,	Pass
Post Condition: User is sign up into the database. The account is created.				

2. Log in

Project Name: Faming Assistance Web Service			Test Designed by:	
Test Case ID: FR_2			Test Designed date:	
Test Priority (Low, Medium, High): High			Test Executed by:	
Module Name: Login Session			Test Execution date:	
Test Title: Verify login with valid username and password				
Description: Test app login page				
Precondition (If any): User must have valid username and password				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Enter email/phone 2. Enter password 3. Click Log in	Username: 34567893 Password: 54321	User should login into the application	As expected,	Pass
Post Condition: User is validated with database and successfully login to account. The account session details are logged in the database.				

3. Settings

Project Name: Faming Assistance Web Service			Test Designed by:	
Test Case ID: FR_3			Test Designed date:	
Test Priority (Low, Medium, High): Low			Test Executed by:	
Module Name: Settings			Test Execution date:	
Test Title: Go to settings page				
Description: Test app settings page				
Precondition (If any):				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Enter Change name 2. Enter Change password 3. Click on submit	Name: Rahim Password: 12345	User could change their information	As expected,	Pass
Post Condition: User could be able to change their information.				

4. Help Center

Project Name: Faming Assistance Web Service			Test Designed by:	
Test Case ID: FR_4			Test Designed date:	
Test Priority (Low, Medium, High): Low			Test Executed by:	
Module Name: Help center Session			Test Execution date:	
Test Title: Go to help center page				
Description: Test help center page				
Precondition (If any):				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Click on help 2. Farming Tips	View farming tips	User could see farming tips	As expected,	Pass
Post Condition: User could be able to see farming tips.				

5. Payment

Project Name: Faming Assistance Web Service			Test Designed by:	
Test Case ID: FR_5			Test Designed date:	
Test Priority (Low, Medium, High): Low			Test Executed by:	
Module Name: Payment Session			Test Execution date:	
Test Title: Go to payment page				
Description: Test payment page				
Precondition (If any):				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Click on payment methods 2. Select method 3. Click on submit		User should select the payment method	As expected,	Pass
Post Condition: User is proceeded to the payment page.				

6. Complain [Farmer]

Project Name: Faming Assistance Web Service			Test Designed by:	
Test Case ID: FR_6			Test Designed date:	
Test Priority (Low, Medium, High): Low			Test Executed by:	
Module Name: Complain Session			Test Execution date:	
Test Title: Go to complain page				
Description: Test complain page				
Precondition (If any):				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Write Complain 2. Click on submit	Description	Complain should be placed	As expected,	Pass
Post Condition: User could be able to place a complaint.				

7. Forgot Password

Project Name: Faming Assistance Web Service			Test Designed by:	
Test Case ID: FR_7			Test Designed date:	
Test Priority (Low, Medium, High): Medium			Test Executed by:	
Module Name: Forgot password			Test Execution date:	
Test Title: Go to forgot password				
Description: Test forgot password				
Precondition (If any):				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Enter email/phone 2. Recover password 3. Click on submit	Email: kamal@gg.com Phone No: 4578943 Password: 12345	Verification code sent to email/phone no	As expected,	Pass
Post Condition: Verification mail should be sent with new login information.				

8. Sell Goods [Farmer]

Project Name: Faming Assistance Web Service			Test Designed by:	
Test Case ID: FR_8			Test Designed date:	
Test Priority (Low, Medium, High): High			Test Executed by:	
Module Name: Sell Session			Test Execution date:	
Test Title: Go to sell goods page				
Description: Test sell goods page				
Precondition (If any):				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Enter goods name 2. Enter quantity 3. Enter price 4. Click on submit	Goods Name: Vegetable Quantity: 5 kilo Price: 70 taka	User could list their goods	As expected,	Pass
Post Condition: User entered the goods into the database.				

9. Goods Advertisement [Farmer]

Project Name: Faming Assistance Web Service			Test Designed by:	
Test Case ID: FR_9			Test Designed date:	
Test Priority (Low, Medium, High): Medium			Test Executed by:	
Module Name: Goods advertisement details			Test Execution date:	
Test Title: Go to good advertisement page				
Description: Test goods advertisement page				
Precondition (If any):				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Enter advertisement	Add goods advertisement details	Advertisement should be placed	As expected,	Pass
Post Condition: User could advertise their goods.				

10. Post Advertisement [Supplier]

Project Name: Faming Assistance Web Service			Test Designed by:	
Test Case ID: FR_10			Test Designed date:	
Test Priority (Low, Medium, High): Medium			Test Executed by:	
Module Name: Post advertisement			Test Execution date:	
Test Title: Go to post advertisement page				
Description: Test post advertisement page				
Precondition (If any):				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Enter goods name 2. Enter quantity 3. Enter price 4. Click on submit	Goods name: Fruits Quantity: 4 Price: 500	User could list their goods	As expected,	Pass
Post Condition: User entered the goods into the database.				

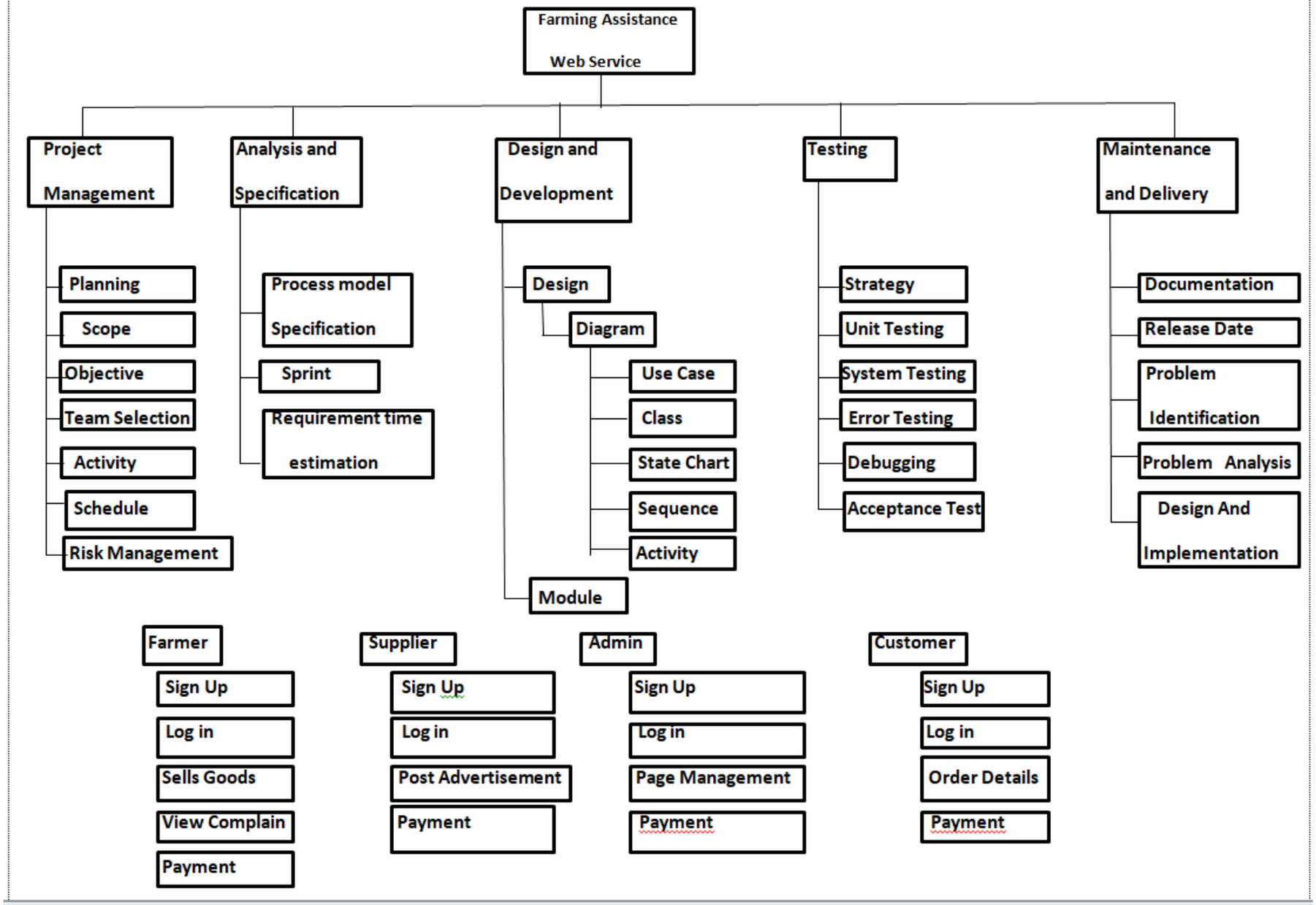
11. Order Details [Customer]

Project Name: Faming Assistance Web Service			Test Designed by:	
Test Case ID: FR_11			Test Designed date:	
Test Priority (Low, Medium, High): Medium			Test Executed by:	
Module Name: Order details Session			Test Execution date:	
Test Title: Go to order details page				
Description: Test order details page				
Precondition (If any):				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Enter goods name 2. Enter quantity 3. Click on submit	Goods name: Fruits Quantity: 4	User could ordered their wanted goods	As expected,	Pass
Post Condition: User could be able to ordered their wanted goods.				

12. View Complain [Admin, Farmer]

Project Name: Faming Assistance Web Service			Test Designed by:	
Test Case ID: FR_12			Test Designed date:	
Test Priority (Low, Medium, High): Medium			Test Executed by:	
Module Name: View complain Session			Test Execution date:	
Test Title: Go to view complain page				
Description: Test view complain page				
Precondition (If any):				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. View complain		User could see the complain	As expected,	Pass
Post Condition: User could be able to see the complaint.				

Work Breakdown Structure(WBS)



COCOMO (Constructive Cost Model)

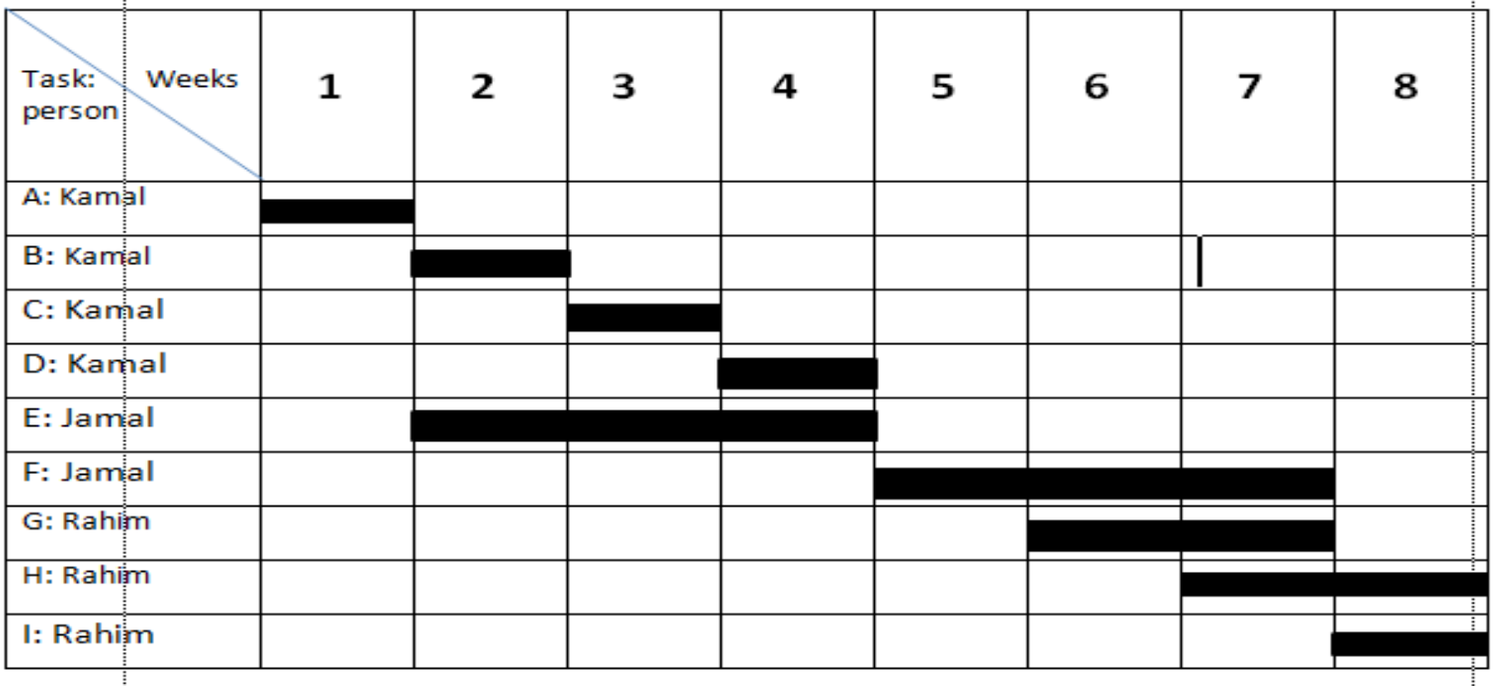
According to our project, the software project type is Organic.
So, Coefficient = 2.4 P = 1.05 T = 0.38
Based on SLOC characteristics, and operates according to the following equations:

Effort = PM = Coefficient* (SLOC/1000) ^P
= 2.4*(8000/1000) ^1.05
≈ 21.303
= 22 person months

Development Time = DM = 2.50*(PM) ^T
= 2.50*(22) ^0.38
=8.09 week days
≈8 week days

Required number of people = ST = PM/DM
= 21/8.5
= 2.47
≈ 3

Timeline Charts



Activity Key: A: Overall design

B: Specify module 1

C: Specify module 2

D: Specify module 3

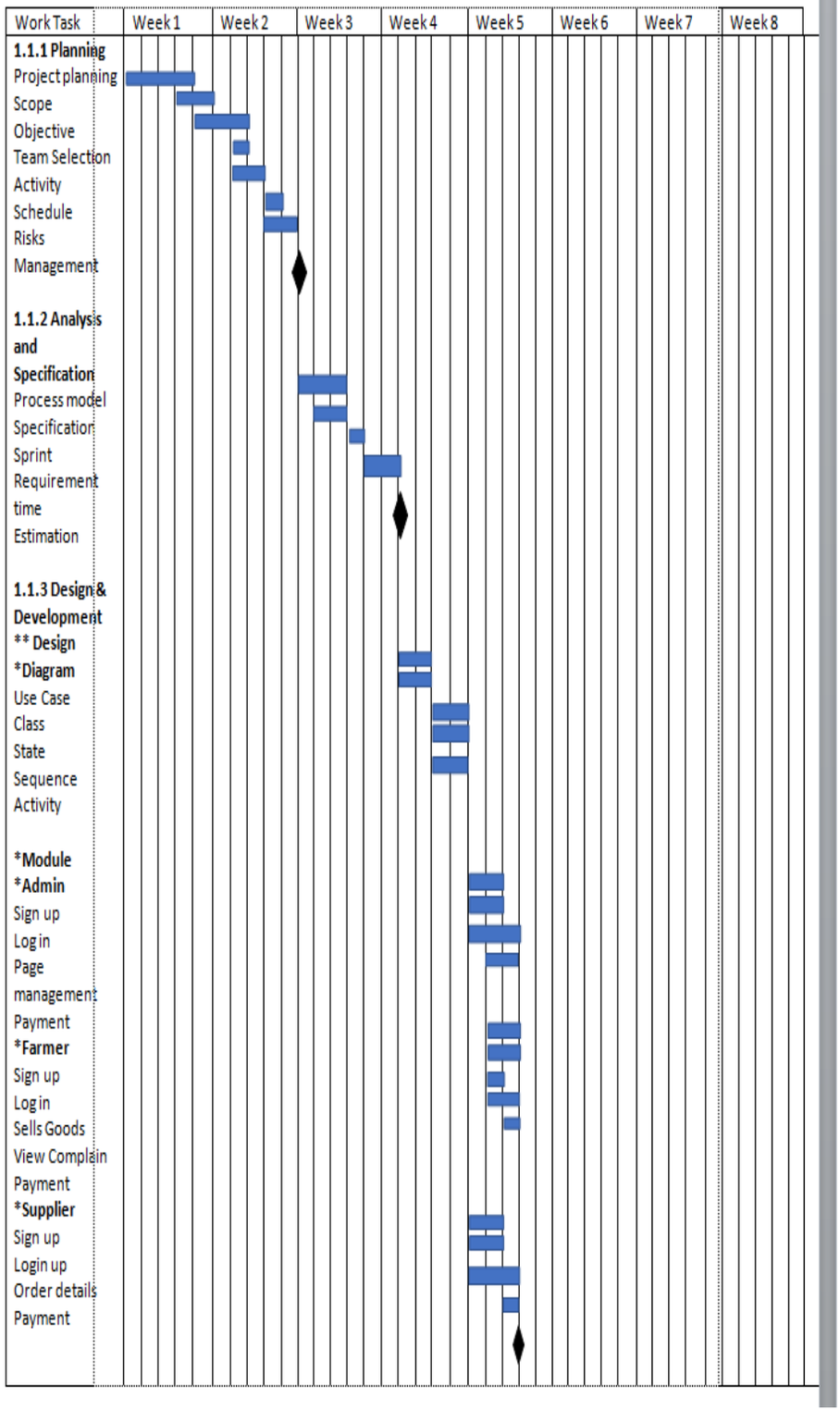
E: Code module 1

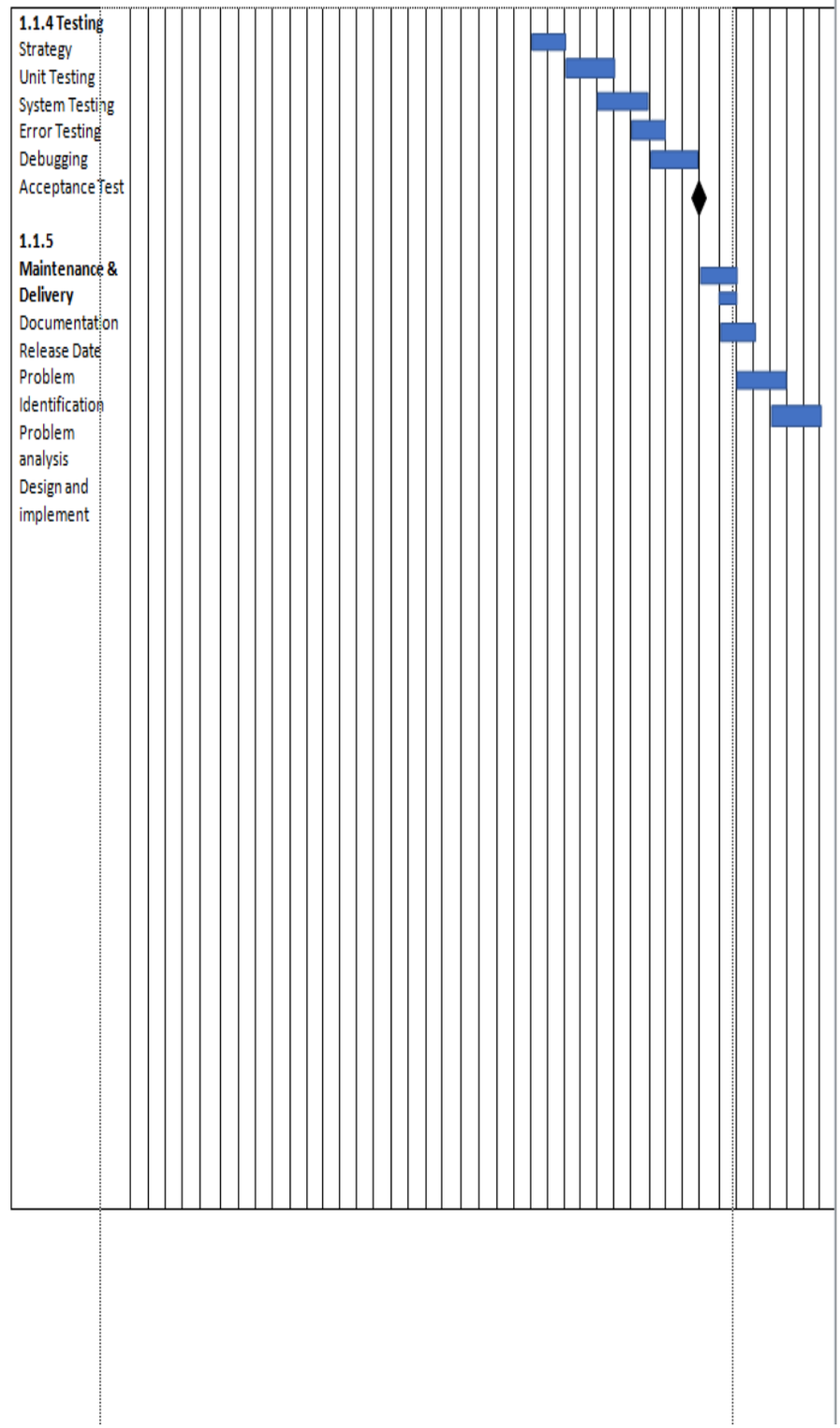
F: Code module 2

G: Code module 3

H: Integration testing

I: System testing


Work Task
Week 1
Week 2
Week 3
Week 4
Week 5
Week 6
Week 7
Week 8
1.1.1 Planning
Project planning
Scope
Objective
Team Selection
Activity
Schedule
Risks
Management
1.1.2 Analysis and Specification
Process model
Specification
Sprint
Requirement
time
Estimation
1.1.3 Design & Development
** Design
*Diagram
Use Case
Class
State
Sequence
Activity
*Module
*Admin
Sign up
Log in
Page management
Payment
*Farmer
Sign up
Log in
Sells Goods
View Complain
Payment
*Supplier
Sign up
Login up
Order details
Payment


1.1.4 Testing
Strategy
Unit Testing
System Testing
Error Testing
Debugging
Acceptance Test
1.1.5 Maintenance & Delivery
Documentation
Release Date
Problem Identification
Problem analysis
Design and implement

EVA

Task	planned Effort	Actual Effort
1	13.3	14.5
2	15	13
3	11	16
4	8	11
5	9	11.5
6	17	19
7	6	6.5
8	14.5	12
9	12	11
10	8	10
11	5	—
12	16	—

BCWP= 113.8

BCWS= 134.8

ACWP=124.5

- BAC = pm*22 = 21.30*22 = 468.6
- SPI = BCWP/BCWS = 113.8/134.8 = 0.8442
- SV = BCWP – BCWS = - 21 person-day
- CPI = BCWP/ACWP = 113.8/124.5 = 0.9140
- CV = BCWP – ACWP = 113.8 – 124.5 = -10.7 = -11 person-day

- % Schedule for completion = BCWS/BAC = 134.8/468.6 = 28.77%

  [% of work scheduled to be done at this time]

- % Complete = BCWP/BAC = 113.8/468.6 = 24.29%

  [% of work completed at this time]