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Project Title: FarmLife
Section: B

Submitted by

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1. Introduction:

Close to 50 percent of Bangladesh's population is primarily employed in agriculture, with more than 70 percent of its land dedicated to growing crops. Agriculture is deeply involved in our overall development as well as livelihood. So the development of agriculture means the overall development of the country. Agriculture is the largest source of employment in Bangladesh. Land and the farming community are the key to Bangladesh's potential and survival in the face of poverty, overcrowding, urban uncertainty and climate change.

The farmers situation of our country is not very well now. Many of the farmers can't cultivate their desired crops due to financial problems. Also many businessman buy crops from the farmers of rural area at less price for their profit. Many of the farmers are doing other works instead of farming as they don't get the expected profit. Also many lands are available in Bangladesh which can be used to grow more crops. So, if we can make more farmers to do farming and use more lands than it will boost our economy.

2. Project Title: FarmLife

3. Objectives:

- To motivate investors to invest on lands by seeing the location, climate, suitable crops and possible profit from that land.
- To motivate land owners for giving their land for productive works. So, more lands can be used for farming.
- To give the farmers a fair price for their hard work and product. Also, to increase the number of farmers and give them the invest they need for farming.

4. Justification:

We want to make a system where land owner, people can invest money on different lands. When investor is investing in a land he can view the details of the land and from which crops how much benefit he will get. We will have the data of farmers and after an investment a farmer will be allocated to the specific land for cultivating specific crops. In this system many people will be benefited. The stakeholders of the system and also the people and the country will be benefited through this project.

Many people own a decent amount of money which they want to invest but don't find proper resource or way to invest their money. So, by investing in the lands of our system the investors will get profit without any work. And can help others by investing his money. Also, the land owners who wants to do something productive with their land can get benefits by providing their land for short period of time.

Mostly, the farmers who want to do farming will get more benefit and their rightful amount of money from this system. And they don't have to worry about lands and money.

And lastly, more production in agriculture can contribute in our GDP. Through our system more people can be financially stable. Our system can provide basic raw materials for industrial processing. Also, Bangladesh can be more self-sufficient in food production which will ensure proper nutrition to the country's citizens.

5. Systems Overview: Total system is showing through a Use Case Diagram.

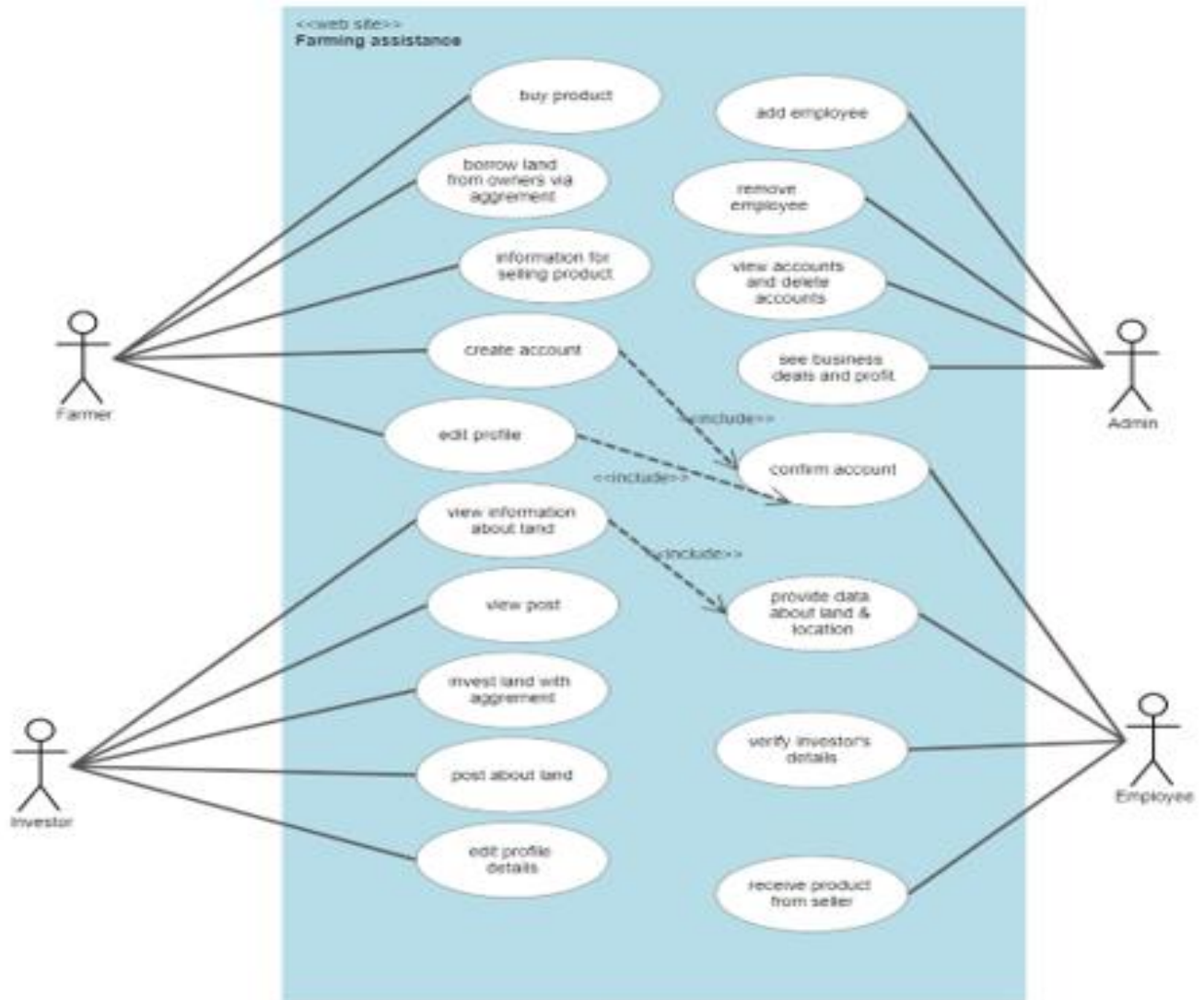


Figure 1 : Use Case Diagram

6. Stakeholder's analysis: Project stakeholders may be internal or external to the project; they may be actively involved, passively involved or unaware of the project & affected either positively or negatively by the cost, time, scope, resources, quality, or risks of this project.

6.1 Primary Stakeholder:

6.1.1 A positive stakeholder: Positive stakeholders help the project management team to successfully complete the project. Such as **"FarmLife"** management team (directly involved in project management activities), Sponsors –provide financial resources.

6.1.2 Internal to the project team: Project Manager, System Analyst, Developer, tester, analyst under the direct managerial control of the project leader.

6.2 Secondary Stakeholder:

External to the project team but in the same organization: **"FarmLife"** project information management group, User (Admin, Buyer, Tenant, and Seller), Customers/users and Negotiator.

7. Feasibility Study

A feasibility study is an assessment of the practicality of a proposed plan or project. A feasibility study analyzes the viability of a project to determine whether the project or venture is likely to succeed. The study is also designed to identify potential issues and problems that could arise while pursuing the project.

7.1 Technical Feasibility

The process of finding out how to manufacture the good or service to see if it's feasible for this business is called technical feasibility. We planned every aspect of our client's business operations before launching our offerings, starting with where we will get our production materials and ending with how we will keep track of the service. Technically our project is feasible. We are using Jira to monitor and develop our project work which is free and widely used in the software industry. We'll use C# as our programming language and MySQL for database management operations and visual studio as the platform to develop the system.

The technology and programming language we will use in this project are all widely available and used by many other software farms.

7.2 Financial Feasibility

Financial feasibility refers to whether or not a project is financially viable. A cost/benefit analysis of the project is included in a financial feasibility report. It also estimates the expected return on investment (ROI) and outlines any financial risks. The goal of the financial feasibility study is to

determine the economic benefits of the project. Our proposal is financially viable. We've identified several potential funding sources, including private investors and others. We're confident that these sources will provide us with enough funds to finish the project in the expected timeframe. In addition, we've identified a number of cost-cutting measures that can help to reduce the overall budget of the project. Furthermore, we've examined the project's potential Return On Investment. We're confident that, if everything goes as planned, the project will yield a healthy profit. Finally, we have included a backup plan in the budget. This plan will allow us to adjust our spending and resources to ensure that the project is completed on time and within budget, even if unexpected problems arise.

Cost-Benefit Analysis: Identified all of the costs and benefits of carrying out the project.

➤ Costs are:

- Development Costs:
 - Salaries and other employment costs of the staff involved in the development project
- Setup Costs
 - Costs of any new hardware and ancillary equipment's
 - Costs of file conversion
- Operational Costs
 - Costs of operating the system once it has been installed

➤ Benefits are:

- Direct Benefits
 - These accrue directly from the operation of the proposed system
- Intangible Benefits
 - Indirect benefits, which are difficult to estimate, are sometimes known as intangible benefits

8. System Component



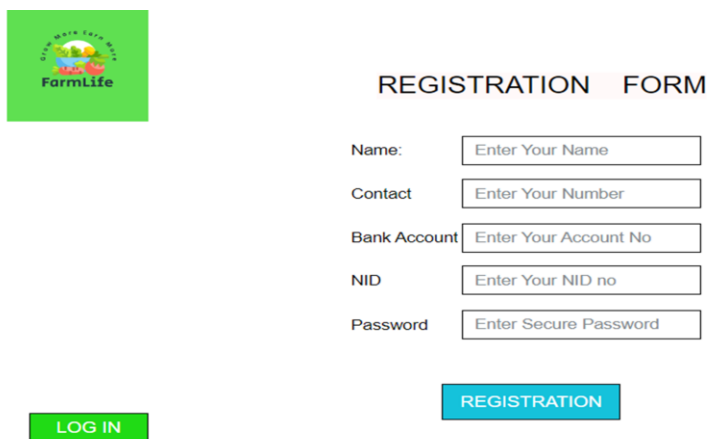
Enter ID/Username :

Enter Password:

[LOGIN](#)

If you don't have an account click here to register, [SIGN UP](#)

Figure 2: Login Form



REGISTRATION FORM

Name:

Contact

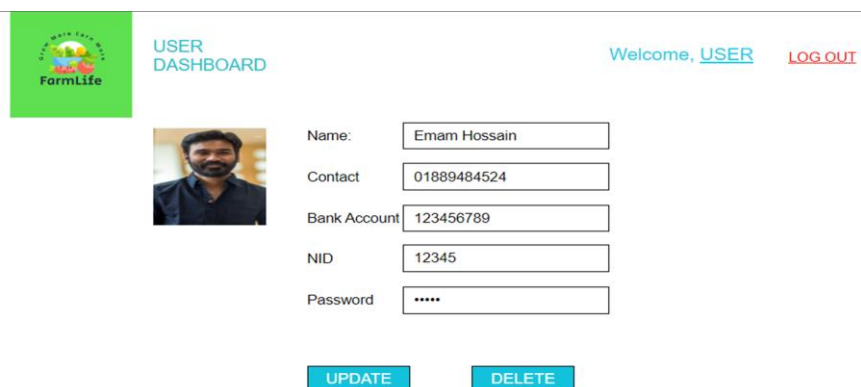
Bank Account

NID

Password


[LOG IN](#) [REGISTRATION](#)

Figure 3: Registration Form



USER DASHBOARD

Welcome, [USER](#) [LOG OUT](#)



Name:

Contact


Bank Account

NID

Password

[UPDATE](#) [DELETE](#)

Figure 4: Profile of User



EMPLOYEE
DASHBOARD


Welcome, [USER](#)
[LOG OUT](#)

Create Project
Manage Project
View Land Request
Search User

ONGOING PROJECTS

PROJECT CODE	FARMER	MONEY INVESTOR	LAND INVESTOR	
FL321X	emam	riyad12	jahid33	Details
FL543X	saeed	zishan43	sharif99	Details

Figure 5: Dashboard



EMPLOYEE
DASHBOARD

Welcome, [USER](#)
[LOG OUT](#)

Create Project
Manage Project
View Land Request
Search User

CREATE PROJECT

Post Duration

to

Project Duration

to


Land Code

This will be created during land approve

Project Code

[CREATE](#)


Figure 6: Create Project




INVESTOR
DASHBOARD

Welcome, [USER](#)
[LOG OUT](#)


My Projects
Financials
Provide Land



Land Size: 1 Acre
Land Location: Mirsarai, Chattogram
Crops: Rice, Lentil, Wheat
Investment: 30,000-50,000
Profit: 10,000-15,000
[View Details](#)



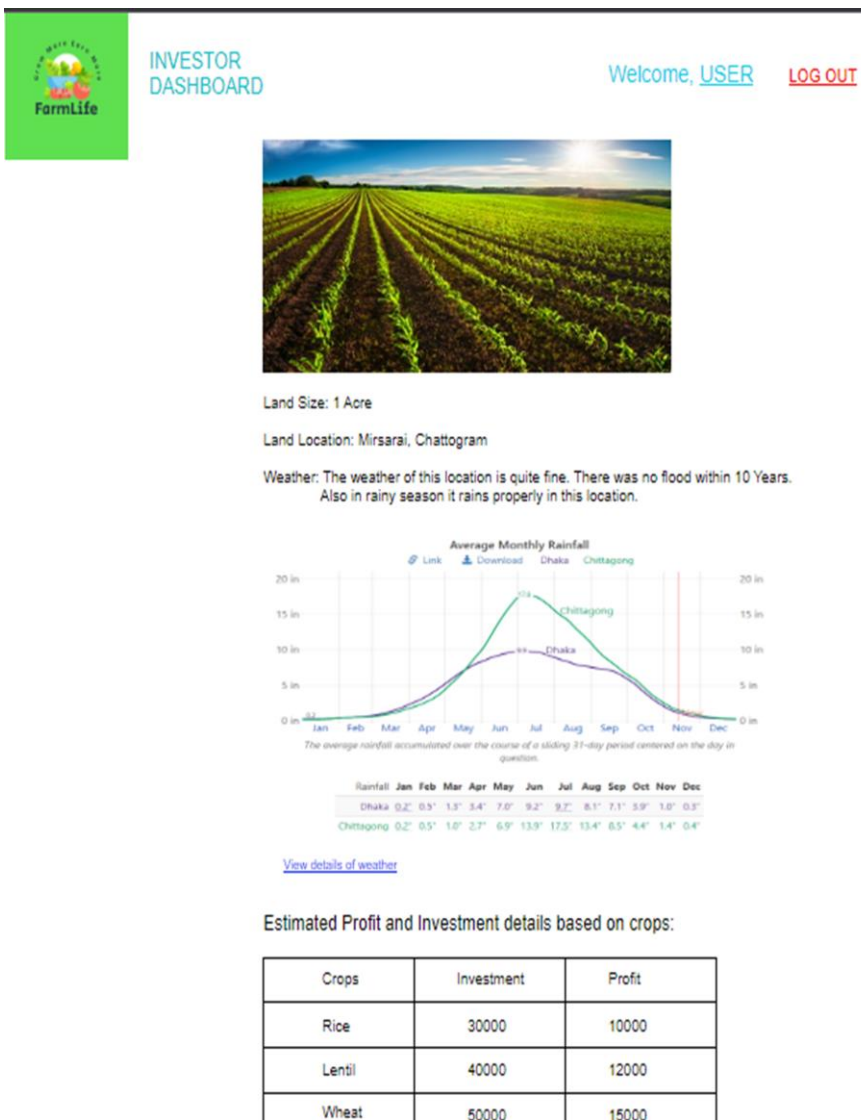
Land Size: 3 Acre
Land Location: Bashurhat, Noakhali, Chattogram
Crops: Onion, Tomato, Carrot
Investment: 80,000-100,000
Profit: 30,000-40,000
[View Details](#)



Land Size: 2 Bigha
Land Location: Hajiganj, Chandpur
Crops: Wheat, Rice
Investment: 30,000-50,000
Profit: 10,000-15,000
[View Details](#)

This details will be given by employee and after creating a project by giving details investors will see those.

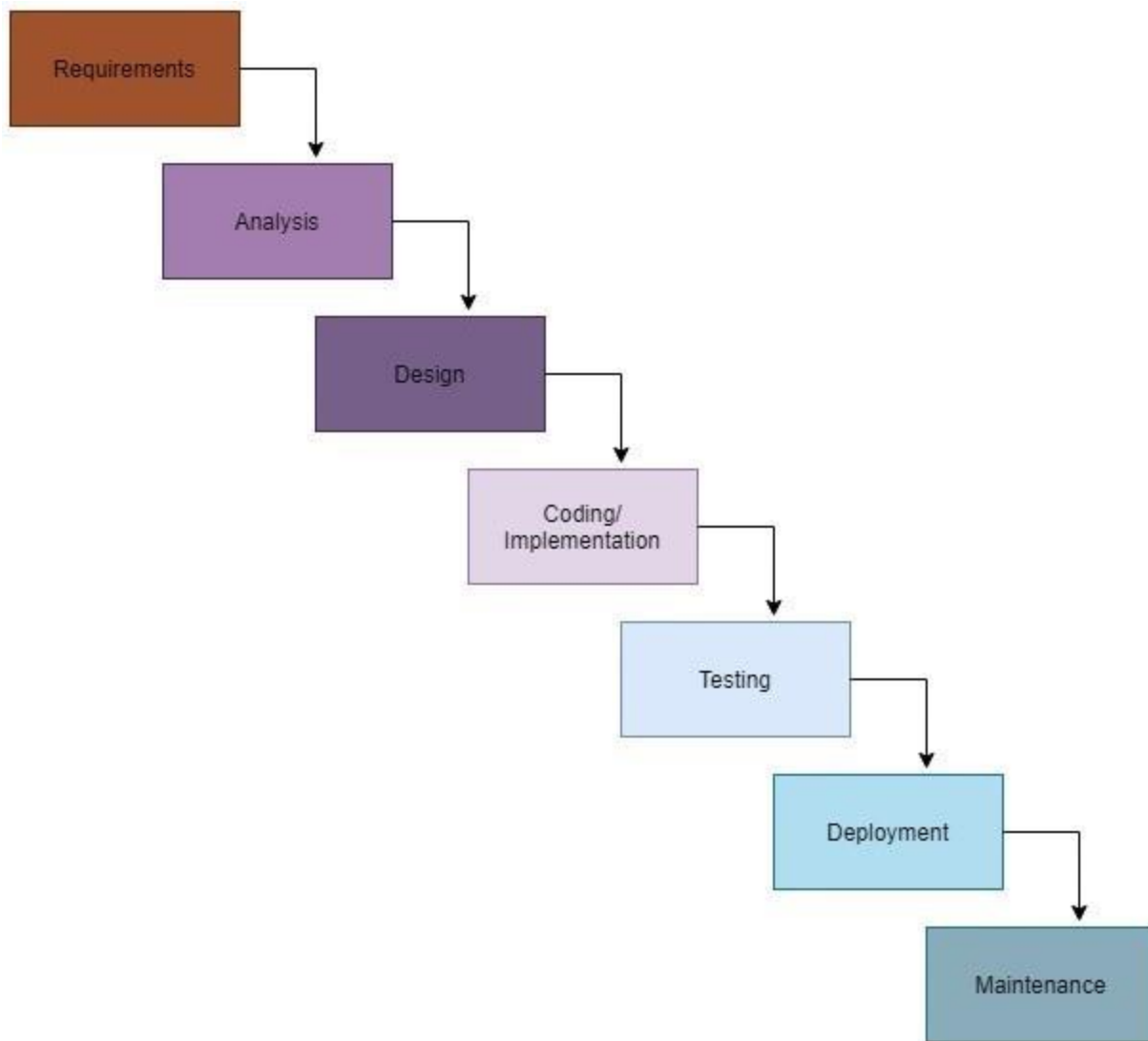
Figure 7: Project Show in User dashboard


Figure 8: Land details

9. Process Model

For the project, I have selected Waterfall Process model. It is also called linear-sequential life cycle model. Here each phase must be completed before starting the next phase as there is no overlap in this process model. For this model document must be well defined and fixed and requirements must not be ambiguous. Requirements and project cannot change until the end of production or else we have to start from the beginning. Product is produced at the last of the project.

The reason I chose this model because it is very simple and linear. Our project design is not so complex which is perfect for this model. Requirements are defined clearly in project planning and analysis phase so waterfall is suitable for this project.



10. Efforts Estimation

Cocomo (Constructive Cost Model) is a regression model based on LOC. It is a procedural cost estimate model for software projects and open used as a process of reliably predicting the various parameters.

Cost Drivers	Very Low	Low	Nominal	High	Very high
Product attributes					
• Required software reliability extent			1.00		
• Size of the application database			1.00		
• The complexity of the product		0.85			
Hardware Attributes					
• Run-time performance constraints					1.30
• Memory constraints				1.06	
• The volatility of the virtual machine environment				1.15	
• Required turnabout time		0.94			
Personnel attributes					
• Analyst capability				0.86	
• Software engineering capability				0.91	
• Applications experience			1.00		
• Virtual machine experience			1.00		
• Programming language experience				0.95	
Project attributes					
• Use of software tools				0.91	

• Application of software engineering methods				0.91	
• Required development schedule				1.04	

The Intermediate COCOMO formula now takes the form:

$$E = (a(KLOC)^b) * EAF.$$

Multiply all the above values,

Effort Adjustment Factor (EAF),

$$= 1 * 1 * 0.85 * 1.30 * 1.06 * 1.15 * .94 * .86 * .91 * 1 * 1 * .95 * .91 * .91 * 1.04$$

$$= 0.81$$

Software Projects	a	b	c	d
Organic	2.4	1.05	2.5	0.38
Semi Detached	3.0	1.12	2.5	0.35
Embedded	3.6	1.20	2.5	0.32

Consider, KLOC = 8000, and the project is organic

For, Organic Software Project,

$$a = 2.4$$

$$b = 1.05$$

So,

$$E = (a(KLOC)^b) * EAF$$

$$= (2.4 * (8000/1000) ^{1.05}) * 0.81$$

$$= (2.4 * (8) ^{1.05}) * 0.81$$

$$= 17.93 \text{ man-months}$$

The constant values a, b, c and d for the Basic Model for the different categories of system:

$$\text{Time} = c (\text{Effort})^d$$

$$= 2.5 * (23)^{0.38}$$

$$= 8.22 \sim 9$$

$$= 9$$

Months We know that,

$$\text{Required no. of people} = ST = PM/DM$$

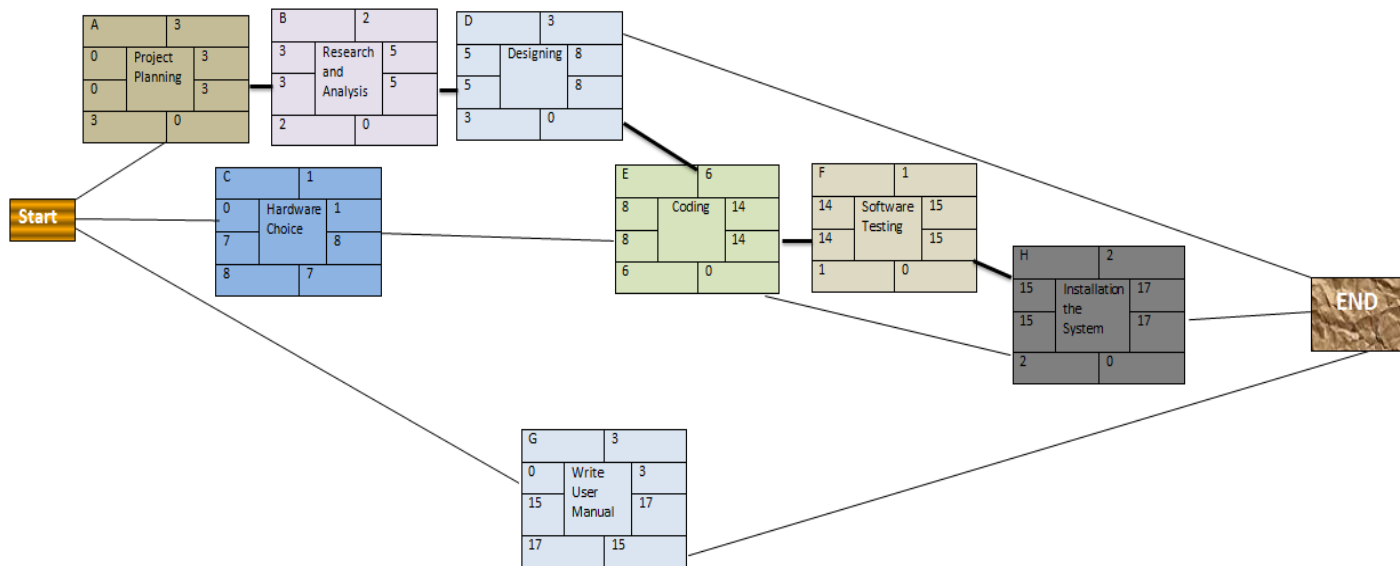
$$= 18/9$$

$$= 2$$

11. Activity Network Diagram:

Activity	Duration(Month)	Precedents
A. Project Planning	3	
B. Research and Analysis	2	A
C. Hardware Choice	1	
D. Designing	3	B
E. Coding	6	C,D
F. Software Testing	1	E
G. Write User Manual	3	
H. Installation the System	2	E,F

Activity Label		Duration	
Earliest Start	Activity Description	Earliest Finish	
Latest Start		Latest Finish	
Total Float		Free Float	



Paths-

$$A-B-D = (3+2+3) = 8$$

$$A-B-D-E-F-H = (3+2+3+6+1+2) = 17 \text{ [Critical Path]}$$

$$A-B-D-E-H = (3+2+3+6+2) = 16$$

$$C-E-F-H = (1+6+1+2) = 10$$

$$C-E-H = (1+6+2) = 9$$

$$G = 3$$

12. Risk Analysis

The risk analysis for the project is as below –

Risk ID	Risk Description	Category	Probability (1-10)	Impact	RMMM
Management Risk-1	▪ Poor management of system	BU	7	2	Receive consults <on form manager

Technology Risk -2	▪ Technical problems during management	TE	5	2	Before starting the project, listing all technical problem may aware the risk and also help find solution
Environment Risk-3	▪ Environmental damage's	DE	4	2	Check the soil conditions before building
Cost Risk- 4	▪ Funding lost: The company has no efficient cost refund	CU	1	1	Secure advanced payment Frequent communication
Performance issue Risk-5	▪ Schedule management plan	PR	6	3	Analysis the project and do WBS may resolve this
Worker Risk- 6	▪ Irresponsibility of worker's	ST	2	3	Supervised work daily
Data Management Risk-7	▪ Uncertain change of customer Requirement's	PS	8	2	Use simulation to avoid those risk, and show the client before starting actual project
Staff Turnover Risk-8	▪ Staff turnover will be high	ST	4	4	Secure efficient staff
Wrong Message Risk-9	▪ Misunderstanding The message from the admin	EM	3	2	Make more meeting to understand all the topics.
Wrong Software Function Risk- 10	▪ Developing the wrong software function	DE	4	3	Collect specific requirements.

Impact values –

- 1 – Catastrophic
- 2 – Critical
- 3 – Marginal
- 4 – Negligible

13. Required Resources

- **Hardware:** Ensuring the availability of the necessary hardware resources to develop and run the software project. This typically includes computers or laptops, servers, networking equipment, and storage devices.
- **Software Development Tools:** Depending on the programming languages and frameworks are planned to use, appropriate development tools may include integrated development environments (IDEs), code editors, version control systems (e.g., Git), project management software, and collaboration tools.
- **Programming Languages and Frameworks:** Popular choices for web and software development include Python, JavaScript, Ruby, PHP, and frameworks such as Django, React, Angular, or Laravel. We are choosing C# here.
- **Database Management Systems:** If the software project involves storing and managing data, it'll need a database management system (DBMS). Common options include MySQL, PostgreSQL, MongoDB, or SQLite, depending on specific requirements.
- **APIs and Third-Party Services:** Explore APIs and third-party services that can enhance the functionality of this software project. For example, it might integrate weather APIs for agricultural forecasting or payment gateways for financial transactions.
- **User Interface and Design Tools:** Utilize design tools to create an intuitive and visually appealing user interface (UI). Tools like Sketch, Adobe XD, or Figma will be used to design UI elements, wireframes, and prototypes.
- **Testing and Debugging Tools:** Implement testing and debugging tools to ensure the quality and reliability of this software. Popular choices include unit testing frameworks (e.g., PyTest, Jest), code linting tools (e.g., ESLint), and debugging tools provided by IDEs.
- **Documentation and Collaboration Tools:** Maintain proper documentation of this software project to assist with development, troubleshooting, and future enhancements. Tools like Confluence, GitHub Wiki, or Markdown editors can help to create and manage documentation. Additionally, collaboration tools like Slack, Microsoft Teams, or project management platforms facilitate communication among team members.
- **Deployment and Hosting Services:** Determine the hosting and deployment strategy for this software project. Cloud platforms like Amazon Web Services (AWS), Microsoft Azure, or Google Cloud Platform offer hosting solutions, virtual machines, server less computing, and scalable storage options.
- **Security Measures:** Implement security practices to protect the software project and users' data. This includes securing communication (HTTPS), applying proper authentication and authorization mechanisms, and regular security updates.
- **Continuous Integration and Deployment (CI/CD) Tools:** Consider using CI/CD tools such as Jenkins, Travis CI, or GitLab CI/CD to automate build, testing, and deployment processes, ensuring efficient software delivery.
- **User Feedback and Analytics:** Implement tools to gather user feedback and analytics data. This could involve integrating tools like Google Analytics, user feedback forms, or customer relationship management (CRM) systems to understand user behavior and improve the software project.

14. Budget Estimation

Developers Salary in 11 months: Considering 100 taka per hour per developer, 8hrs/day
: $100 * 8 * 30 * 11 = 264000$ taka

Requirements Analysis : Time needed = 70 working hours

Req Analysis person's hourly wage = 100 taka

Total Req Analysis expense = $1 \times 70 \times 100 = 7000$ taka

Transportation Cost : 32000 taka

Hardware Expense : 220000 taka

Rental Expense : $15000 \times 11 = 165000$ taka

Total Utilities : 30000 taka

Maintenance Cost : Expense per hour = 300 taka

Needed for maintenance = 50 hrs

Total maintenance cost = $50 \times 300 = 15000$ taka

Other Human Resource cost:

Project Manager = $1 \times 40000 \times 11 = 440000$ taka

Accountant = $1 \times 20000 \times 11 = 220000$ taka

Technical Staff = $1 \times 15000 \times 11 = 165000$ taka

Total HR cost = (440000+220000+165000)
= 825000 taka

Total Estimated Expense:

$$= 1353000 \text{ taka}$$

Profit : 20% of Total Estimated Expense = $1353000 \times 20\% = 270600$ taka

Final Project Budget: 1353000+270600 = 1623600 taka

15. Conclusion

In conclusion, developing a software project for farm life necessitates careful consideration of various resources. These include hardware such as computers, servers, and networking equipment, as well as software development tools like IDEs and version control systems. Programming languages and frameworks, along with database management systems, play a vital role in creating the software's functionality. Additionally, user interface design tools, testing and debugging tools, and documentation and collaboration platforms aid in the project's development and maintenance. Deployment and hosting services, security measures, and continuous integration and deployment tools ensure the software's reliability and efficiency. Lastly, user feedback and analytics tools contribute to enhancing the software's performance and user experience.

In order to strike a balance between the demands of a growing population and the need to safeguard our environment and natural resources, sustainable land use is crucial. Nowadays, land should be proper used for faster growth population. But it is a matter of regret that, our land owner cannot properly use their land for good harvest. Though Bangladesh is an agricultural country, most of the farmers in our country are poor. The farmers can't cultivate their land due to lack of money. They can't grow good crops due to lack of proper fertilization. They can't buy fertilizer. In this system, every poor farmer can grow more crops because rich people or investors will participate to grow crops by giving money to the poor farmers or land owners. Investors can choose the land where they may invest their money for cultivation by this system. When crops are ready to sell out, then farmers give a selected amount of profit to the investor. By doing this process, there are no poor land owners who cannot cultivate his field due to lack of money. They can proper use of their land. So, Bangladesh can develop her agricultural economy.