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Department of CIS

TITLE OF THE PROJECT

Agriculture Management System (AMS)

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APPROVAL

This Project titled “**Agriculture Management System**”, Submitted by **Asif Mahmud Akash, ID No:181-16-251** to the Department of Computing & Information Systems, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computing & Information Systems and approved as to its style and contents. The presentation has been held on- **13-02-2022**.

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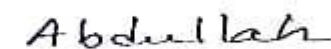
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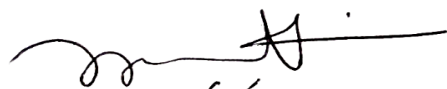
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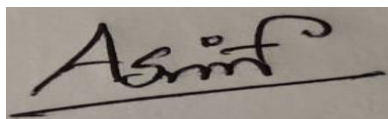
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Dedication

First of all, I want to thank Allah for empowering me.

I would like to dedicate my project to my parents and my two uncles Md. Aslam and Md. Selim Uddin. I am nothing but imperfect without the courage, support and inspiration of my parents. I want to dedicate to my two uncles because they guided me and encouraged me to do the project. They also helped me a lot and got the courage and emotional support for higher studies.

Abstract

Users and farmers may get online information on crops, statistics, recent product pricing, warehouse management, immediate issue solutions, and new trends through the Agricultural Management System (AMS). The Agriculture Management System provides instant issue solutions, up-to-date product pricing, agricultural product warehouse management, and all the benefits of product purchase and sell. Crop trends function in such a way that consumers who access them will find them useful. Fertilizer, research institutions, and research, land availability, disease, soil density suited for associated crops, and statistical information about exports and warehousing are all key components of the Internet information system. Users may access data from anywhere in the form of statistical and PDF-format information retrieval, as well as quick issue solutions. Used to construct front edges as well as rear edges in PHP's Laravel Framework and SQL Server. A SQL Server is used to connect the front end with the back end. The Department of Agriculture can manage the agricultural information system. They'll be able to access it over the internet. Users will be assigned a login name and password in order to access the database. Agriculture Management System (AMS) is a project which will be considered as a system of solving all issues relating to agriculture including the purchasing and selling of agricultural crops. Agriculture Management System (AMS) is an academic project. The project is under the central supervision and control of the government in the field of proper agricultural work and proper production in the field of agriculture as well as the solution of all agricultural problems, the price of a new product in any district, the sale of items. If there is any problem in the agricultural land using this system, the farmer will post for the solution of that problem and their post will reach the agriculture office. All the activities can be done in our system starting from sending the solution of the problem immediately. This would assure agricultural security while also increasing government revenue.

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Chapter 1 - Introduction

1.1 Introduction

Agriculture Management System (AMS) is an online application for farmers that assists them in providing best-practice farming practices. It helps farmers increase their output and revenues. It allows farmers to sell their products online, as well as buy tools and seeds straight from the supplier. For an investor to profit from the asset's overall appreciation, proper farmland management is essential. Today's farming entails more than just growing crops; it also necessitates farmers and landowners to handle challenges such as profitability, fertility, conservation, and taxation, to mention a few.

The answer to all of today's issues is close at hand. We can increase the profitability of our farm by utilizing technology. Most of the farmers in our country go after a lot of suffering in solving their problems. Also, in our country we still have to suffer a lot with warehouses. Due to the lack of timely storage of crops by the farmers, our country is suffering a lot due to crop failure. Also, there is no system in place to provide proper advice in agriculture, opportunity to describe the problem, provide information about the problem of the farmer and its solution, buy and sell the product online. As Bangladesh is currently undergoing a major technological shift, especially in the IT sector, using the Internet and the country's growing infrastructure, it has the potential to become a highly self-sufficient agricultural industry. The agriculture sector needs a system that will save time, automate the process, and keep track of issues and solutions in the agricultural sector. At such a time, if we do not make progress in the agricultural sector, then we will have nothing but weakness and misfortune. So, the system will reduce the cost to the farmers and also increase the government revenue through proper tax calculation. Therefore, Agriculture Management System (AMS) or the only way to meet the demand will be to use a comparable method.

1.2 Document Contents in Project Document

The following chapters will be covered in this publication or documentation to chronicle the project's progress.

Chapter 1: Introduction

A brief introduction to the suggested project and system.

Chapter 2: Initial Phase

This chapter covers the preliminary research findings for the proposed system, such as the major goals and objectives, issue area, possible solutions, and project history.

Chapter 3: Literature Review

The issue domain, solutions, evaluation of current solutions, and ultimately suggestion are all discussed in detail in this chapter.

Chapter 4: Methodology

The importance of employing methodology, many methods that may be employed, and the preferred methodology and its application will all be explored in this section.

Chapter 5: Planning

This chapter covers project plans such as project plans, test plans, risk and change management, and so on.

Chapter 6: Feasibility

This is where you'll find the full feasibility study report and cost-benefit analysis.

Chapter 7: Foundation

This chapter will contain information on the issue area identification, general need list, proposed technologies, and reasons.

Chapter 8: Exploration

It includes basic UML diagrams and a need list for both the existing and new systems, as well as a prototype.

Chapter 9: Engineering

This chapter contains the proposed system's logical and behavioral models.

Chapter 10: Deployment

Here, we'll talk about coding samples and how to split down a development challenge based on development priority.

Chapter 11: Testing

This chapter includes a number of test ideas and outcomes.

Chapter 12: Implementation

This section covers the implementation strategy, training model, and other related topics.

Chapter 13: Critical Appraisal and Evaluation

The review of the initial objectives that were reached and those that were not met in great detail.

Chapter 14: Lessons Learned

The learnings and obstacles encountered during the project are mostly included in the pre-project-closing evaluation.

Chapter 15: Conclusion

Here you will find a summary of the project, as well as its goals, successes, and lessons learned.

Chapter 2 – Initial Study

2.1 Project Proposal

In today's world people have the solution to all their problems at hand. Internet based work has become in the world. With the passage of time, we have to make progress towards agriculture and online based work. For agricultural operations, challenges, and solutions, use the Agriculture Management System (AMS). So, the digital and online based system is Agriculture Management System (AMS). This is a completely separate sector for farmers. It will be usable only for farmers and agricultural work.

The Agriculture Management System (AMS) was created to help the country's agriculture industry flourish. To solve agricultural problems all over the country and to sell and buy products at hand which will be done entirely through internet. In other words, in this system of Agriculture Management System (AMS) all agricultural work will be completed from anywhere in the country through internet.

The aim of this project is to improve the most profitable sector of agriculture in Bangladesh. To develop more and more opportunities. This project will develop a system that will bring together our farmers and agricultural officers to solve the problems of farmers. Farmers do not have to go anywhere else to seek solutions. Similarly, from the Department of Agriculture, it is not necessary to go to every village and solve the problem by listening to it.

Background Study

Although in our country there is Department of Agriculture or Agriculture Office to solve all the problems. Even after that, the effort is less than the problem of this agriculture department or agriculture office. So, I look at some of these agricultures based online websites that are working for our farmers. I have searched a total of four websites, out of which the Department of Agricultural Extension has seen this website through which we have noticed the aspects of agricultural window, agricultural weather, agricultural complaints and advice. <http://www.dae.gov.bd/>. The second website is Bangladesh Agricultural Research Institute where only research on agricultural crops and its success is mentioned. <http://www.bari.gov.bd/>. The third website is Farming Future Bangladesh, whose work is very similar to that of the Bangladesh

Agricultural Research Institute, which conducts research on what will happen to Bangladesh's crops in the future and uploads this website to the portal. <https://farmingfuturebd.com/>. Speaking of Agriculture and Farmers, the latest website where agri-entrepreneurs and agri-buyers have used a system to match and sell <https://akkbd.com/>. There are many such websites but I believe that the solution to all the problems like the agriculture management system in my props cannot be found in one system.

It sometimes takes some time for the Department of Agriculture and the Agriculture Office to solve the farmer's agricultural problem. There is also no other system for buying and selling warehouses and products. This technology will make the entire process easier, more dependable, more efficient, and will provide a comprehensive answer to the agriculture sector's difficulties. As a result, this sort of system is in high demand on the market.

Description of the proposed system

Agriculture Management System (AMS) is a website based on agriculture. We call this website-based application. Using this system, farmers will get the latest news everywhere, as well as some information that is unique. In addition to the rules related to debt. You will get information about where to lend and where to lend. The Agriculture Officer will get this number and will get the details of the Agriculture Officer of the district where he is staying. Then the problem of land and agricultural work (such as: rice insects, land not being fertile) chart of all these problems and the chart of its solution will be reported in pdf format. After that, the farmers and customers will be given the information about the wholesale and retail price per kg of potato, onion, brinjal etc. in a district. After that, how much crop has been harvested in any part of the country, also how much fertilizer should be applied, all the information per land will be given in PDF format. Then there will be information about the warehouse in our country (for example: how much can be stored in the warehouse, how much is stored in the crop, how much space is left to store the crop, and the number of the owner of each store will be claimed). There will be activities of buying and selling crops. There will also be a complaint box by which we can submit the problem in real-time and the problem can be solved in real-time. So, in this system we can do all the above work together.

Prioritized Features according to MoSCoW

MoSCoW is a strategy for prioritizing requirements that is used during the requirement analysis stage. It aids in comprehending the significance of the criteria.

Serial No.	Requirement for AMS	Priority of AMS
1.	Registration & Login for all users (Farmer, Product buyer and seller.	Must Have
2.	Admin/Agriculture Officer manipulation	Should Have
3.	Manage Complain Box & Solution of that particular complain	Must Have
4.	Manage Answer Via Email to farmer	Must Have
5.	Manage previous problem and solution for farmer.	Must Have
6.	Manage Agriculture Officer contact list.	Must Have
7.	Manage warehouse and recent price by admin	Must Have
8.	Manage All latest news by admin	Could Have
9.	Manage Agriculture Input	Could Have
10.	Manage Agriculture Product for Buy and Sell	Must Have
11.	Report of sell and buy product	Must Have
12.	Store All reports	Must Have
13.	Facebook, Twitter	Should Have

Table 1: Prioritized Features

Exploration & Engineering

The final criteria are based on the Prioritized Requirements List (PRL).:

- System for manipulating farmers
- Latest News facility for farmer.
- Agriculture officer number according to their own division.
- Farmer submit their Complain or Problem facility.
- The farmer will get the solution of the complaint through email.
- Farmer watch the previous complain or problem solution.
- Product buy and sell facility.
- Farmer or General User or Product buyer and seller know the recent price of product facility.
- Email and notification sending facility.
- Warehouse/Store House manage Facility.

Iterative development – Timeboxing

The tasks must be divided into pieces and a time estimate for each segment in an iterative development process. The feasibility and foundation stages of the project will take 15-20% of total time, genuine development will take 50-60% of total time, and documentation will take 10-15% of total time.

The project has a three-month deadline, which amounts to 280-320 hours of work. The project is broken into seven time periods, each lasting 20-40 hours. I'm going to use the "T-Shirt" estimating method to estimate the time-boxes. Story points will be calculated using t-shirt sizes such as XS, S, M, L, and XL. The larger size will take more time and work than the smaller ones.

Time Boxing

Timebox	Start Date	End Date	Duration	Tasks/Deliverables
TB1	9/25/2021	10/05/21	10	Feasibility & Foundation
TB2	10/8/2021	10/15/21	7	Requirement Analysis & Database design
TB3	10/15/2021	10/27/21	12	Developing the Agriculture Management System
TB4	10/27/2021	11/03/21	7	Implementing the problem solution, Warehouse & product buy sell management
TB5	11/3/2021	11/10/21	7	Developing Farmer's Problem's Forum & all Agriculture Management Functionalities
TB6	11/10/2021	11/20/21	10	Implementing information on all previous problems and solutions available to farmers.
TB7	11/20/2021	11/24/21	4	Use efficiently by including the officers of the Department of Agriculture
TB8	11/24/2021	12/06/21	12	Problem & Solution also Product buyer and seller record keeping system
TB9	12/6/2021	12/11/21	5	Testing and Development of the developed application

TB10	9/25/2021	12/11/21	77	Project Documentation
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Table 2: Time box estimation

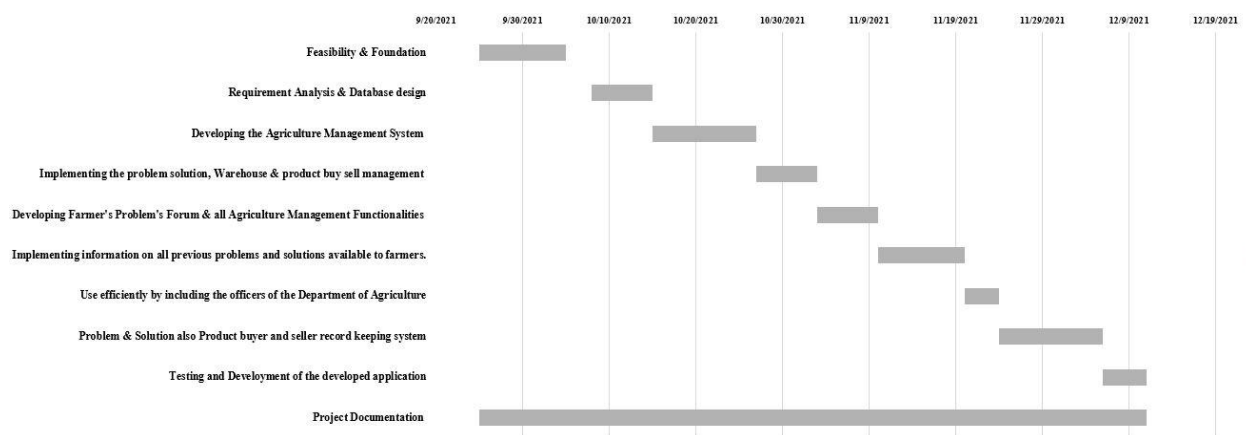


Figure 1: Gantt Chart of the Proposed Timebox Estimation

2.2 Background of the project

No such system has been developed in the field of agriculture not only in Bangladesh but also in almost any developing country. In our country still paper-based work is more acceptable in agriculture. But with the passage of time, we need to make progress in online based work. As a result, our country's agricultural sector and crops have not made the expected progress. Other countries have done but all their work is limited to their research only. If there is a problem in our country (such as a state catastrophe in crops) then we have to announce our seminars or announcements in every village or agricultural major area. But in the midst of our system, they can easily learn about disasters and the solutions to those disasters. In our country, due to lack of many stores in agriculture, people lose their crops.

Also, farmers in our country sell their agricultural crops as they do not get proper price. Because only for some syndicates and brokers. They have made a crocodile so that both the farmers and the government are suffering economically. So, I put it in the feature system of buying and selling crops. Through this the government will get its proper percentage VAT and the country will improve. The syndicate has an impact not only in the field of buying and selling of our country's crops, but in all fields of agriculture. In this way, the team of the syndicate has occupied all the places from taking loans from the farmers to all the cooperation from the government. So, this **Agriculture Management System (AMS)** in our country's agricultural sector reduces the cost of proper use and time and provides an easy way to get the job done.

2.3 Problem Areas

At present our country is getting less than its demand which is a threat to us. Although the crop is growing, it is becoming difficult to meet our demand due to lack of stocks. According to the World Food Program and the United Nations Food and Agriculture Organization (FAO), we can only satisfy 40% of Bangladesh's demand.

We have to import 70 percent of all crops and crops from outside. When looking for the specific cause, it is clear that no action has been made to address crop loss in our country. If insects or other unavoidable events occurred, the crop would be damaged. The farmer will then be unable to determine the reason, problem, or disaster associated with that crop. As a result, the farmer is unable to find a solution, and the harvest is lost. Another issue discovered is that if we do not stockpile (potatoes, paddy, etc.) soon enough, the crop will be damaged, necessitating rapid stockpiling. Equations and certain information are used to emphasize the problem:

According to the food ministry, the government's rice supply has decreased to a 13-year low of 300,000 tonnes, despite experts advise keeping at least 1.25 million tonnes on hand. The stock was depleted mostly as a result of the government's failure to buy as expected last year due to a higher market price. Only 83,000 tonnes of rice were procured in the previous Aman season, versus a target of 800,000 tonnes. When food prices rise, the government frequently intervenes in the local market through programs such as open market sales (OMS), Vulnerable Group Feeding (VGF), and Food for Work to keep costs down. To properly appreciate the pricing process, we must assess the effects of intermediaries. Before reaching a client, rice goes through four further processes, including traders, millers, wholesalers, and retailers. At each stage, a markup is applied, impacting the ultimate price for the customer. In other cases, more middlemen are used, particularly for small and marginal farmers. Small and marginal farmers are pressured to sell their crops as quickly as possible after harvest due to a shortage of storage space. As a result, they're often forced to sell it for a lower price. According to IFPRI study, 83 percent of farmers fall into the marginal and small group, meaning they have less than 1.5 acres of land. As a result, the government should buy paddy from farmers directly and in larger amounts. The entire rice equivalent acquisition in 2018-2019 was just 7.25 percent of total output, with a gloomy forecast for 2020. According to a study conducted by the International Food Policy Research Institute (IFPRI), the government should

purchase at least 19 percent of paddy in order to offer minimum price support. With a capacity of approximately 2.4 million tonnes, the government's storage facility is insufficient. The government will need to be able to store 5 million tonnes of rice in order to finance new purchases. If the government has enough stock, programs like OMS, VGF, and Food for Work, which help low-income people by stabilizing prices as required, might be expanded. In the case of an emergency, clear and real-time stock information must be available, both at the public and private levels, so that import choices can be taken ahead of time, and authorities can explore exports or other programs if there is a surplus. Any unethical attempt to influence price should be dealt with sternly. As a consequence, it's critical to keep a close eye on market trends. The most crucial component in ensuring Bangladesh's food security is rice. As a result, in order to protect the interests of farmers and consumers, it must be dealt with the utmost seriousness, appropriate policy, a comprehensive plan, and close attention.

I have given above only statistics and information about paddy and rice. This is exactly the problem with all agricultural crops in our country. **(Hassan, 2021)**

2.4 Possible Solutions

Problems can be solved very easily. Here we have the District Agriculture Officer to assist us. This is because when the farmer informs us about the problem through our system due to crop pests or any crop failure, the message of solving the problem will go to the farmer from our agriculture office immediately. Also, in our system there will be information about the problem that the farmer has talked about before and the solution to that problem. The database will continue to be updated everywhere. In case of any other need, they can talk to the officers of the Department of Agriculture. We will send their number to the database. They will then be provided with all the information (name of the warehouse, location, how much is in stock, and how much is empty and management number) from our system for supply or storage. In addition, there will be advice information. Farmers and agricultural crop buyers will be able to buy and sell products at the right time without the hands of any syndicate.

Chapter 3 – Literature Review

A literature review is a sort of assessment paper. The term "literature review" refers to a material UI collection on a certain topic, not to the entire world's literary content. The term "literature review" refers to trustworthy information on a certain topic that is published in a respectable publication after thorough research and analysis. A literature review provides the foundation for comprehending a particular topic for the system's development purposes. The identification of problem areas and their remedies is aided by a project literature review. This component facilitates a potential discussion about the research as well as a comparison within the same sector of work, setting the way for a successful project.

3.1 Discussion on the Problem Domain (AMS)

The Architecture Management System (AMS) is a web-based agribusiness problem-solving and product-sale center. This website just has one part, which is dedicated to architects. They may submit their problems here and find their own salutation, as well as perform all work-related agriculture. However, because it is an online-based system, there are certain security concerns. Sometimes there is an issue with the network. Authentication issues are the most common in my system. The Transaction Processing System (TPS) and the Management Information System (MIS) are the two main components of the Agriculture Management System (AMS) (MIS). From the outset, the government of Bangladesh has made attempts to enhance our agriculture industry, and various groups have built websites. Bangladesh Agricultural Development Corporation (BADDC), Bangladesh Agricultural Research Council, Adhunik Krishi Khamar, and others (BARC). However, in the country, there is still no total answer to the agricultural problem or a complete solution to the selling process. Each of the organizations listed above designs their systems in light of their business operations. However, the fundamental issue is that owing to a lack of analysis and in-depth examination, there is no coordination between these groups and their operations. The main problems associated with the country's agriculture system are-

- In this industry, there is no monitoring system.
- The internet is not fully updated throughout Bangladesh.
- People with a bad network will not be able to find job that is satisfying.
- Not centralized

- There is no proper forum for solving the problems of agriculture, there is no way to solve the problem quickly and there is no selling system.
- Awareness of farmers and their problems.
- Lack of proper laws and policies.
- No real-time consultants and no notification system.

These are the main problems in the good and timely problem solution agriculture management system in Bangladesh.

3.2 Discussion on the Problem Solution:

However, because this is an online-based issue, having access to the internet is critical. The AMS project focuses on ways to solve the problem of centralized agricultural work and safe way to buy, sell and store products that are under the domain of the agricultural sector. Automation is omnipresent in this age of technology and globalization, from the bed to the office. The agriculture industry isn't going away anytime soon. Every day, technology is transforming our industry. Everything is data-driven and computer-based. The following issues should be considered in the solution:

- **Safety and security**

Because the system will be holding private data, including personal data, data security should be a top focus for the solution. The system should have high-security measures as well as role-based data access restrictions.

- **Trust**

The most serious issue that these systems confront is their dependability. Users should be able to see through the entire system. The government policy should integrate in order to acquire the trust of the users.

- **Privacy**

The privacy of the Buyer and Seller, the problem solver in system, the volunteer agriculture officer, and the transaction of that particular system must be protected. To guarantee privacy, the system should use encrypted data transfer and an encrypted VPN connection for client server answers.

- **Server Down or 24/7 Availability in AMS**

The application's accessibility from everywhere in the country should be investigated. The application must be available 24 hours a day, seven days a week since there is no other choice. There is a lack of bandwidth, and there is a lot of traffic to manage, hence the server is down.

- **Backup**

Because the system deals with a large volume of data, it must guarantee that backups are made on a regular basis. A proxy server and data storage should be kept on hand at all times in case the system has to be backed up.

3.3 Comparison among the leading solutions

The environment changes with time, and new technologies emerge to keep up with the times and make life simpler. Because of the Internet, the globe has shrunk to the size of a hamlet these days. There are hundreds of alternative approaches to tackling the same problem. AMS is a one-of-a-kind solution, however there are several other systems in the same area. In this part, I'll compare and contrast some of the most well-known and popular contemporary websites, listing their finest features, strengths, and drawbacks. These are the following:

- <https://akkbd.com/> (Bangladesh)
- <http://www.badc.gov.bd/> (Bangladesh)
- [\(Bangladesh\)](http://www.barc.gov.bd/(Bangladesh))

Adhunik Krishi Khamar

Agriculture news, current agriculture techniques, agriculture farming, and Bangladesh's agriculture university are all covered in Adhunik Krishi Khamar, the top Bangla online daily.

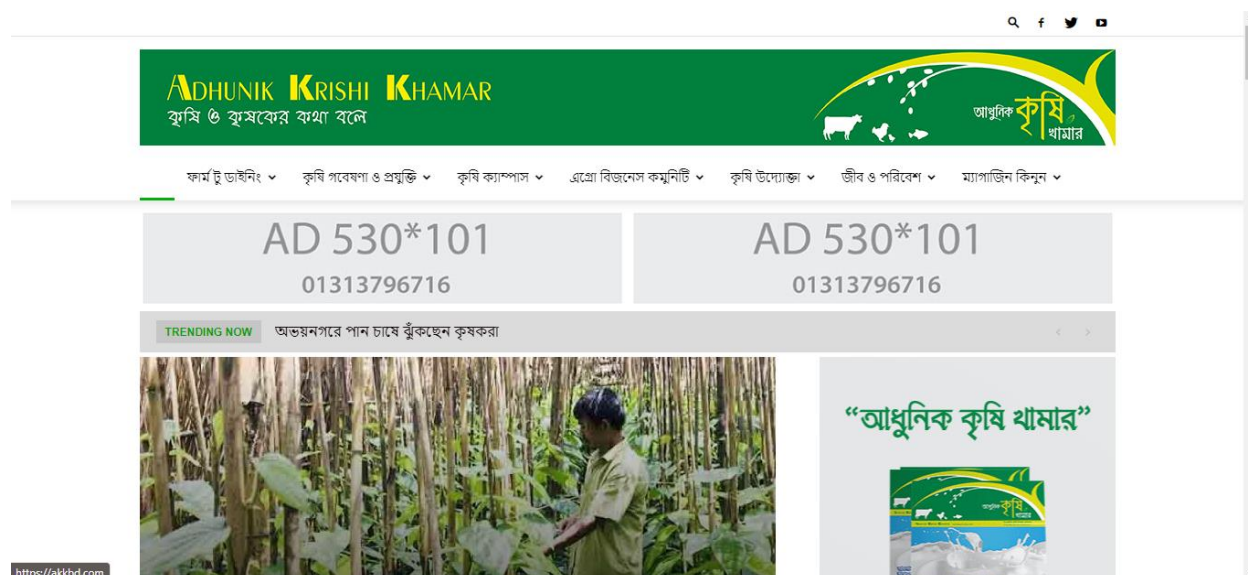


Figure 2: Overview of Adhunik Krishi Khamar

Best Features

- Get an idea about Agro business.
- Get all the information about each agricultural research and know about the campaigns in the agricultural sector.
- All over Bangladesh will get agricultural news.
- Daily post new blog about architectures.

Limitations

- Here the farmer has no other job but to know the information of his agricultural work in the system.
- Data security and privacy are lacking.
- Users' identities are not verified.
- There is no system for real-time request processing or notification.

Bangladesh Agriculture Development Corporation (BADC):

The Bangladesh Agricultural Development Corporation (BADC) is the successor to the East Pakistan Agricultural Development Corporation, which was established under the Agricultural Development Corporation Ordinance of 1961. (E.P. Ordinance XXXVII of 1961).



Figure 3: Overview of Bangladesh Agriculture Development Corporation (BADC)

Best Features

- Farmers will learn about the Seed and Horticulture Wing.
- The farmer will also get to know about Fertilizer Management, Wing Micro Irrigation, Wing Administration Wing.
- Will be able to get information about agricultural notifications and orders.

Limitations

- No private request options.
- Create user restrictions.

Bangladesh Agricultural Research Council (BARC)

The Bangladesh Agricultural Research Council (BARC) is an autonomous organization that reports to the People's Republic of Bangladesh's Ministry of Agriculture.

বাংলাদেশ জাতীয় তত্ত্ব বাতায়ন

অবিসের ধরণ

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এক নজরে বিএআরসি

এনএআরএস

ডাটাবেস

ফসল পঞ্জিকা

ম্যাপ ও শেইপ ফাইল

ইনোভেশন

কর্মকর্তা তালিকা

যোগাযোগ

করোনাভাইরাস মোকাবিলায়

নির্বাহী চেয়ারম্যান

কৃষিগণিত ড. শেখ মোহাম্মদ বখতিয়ার ৩১ ডিসেম্বর ২০১৯ তারিখে বাংলাদেশ কৃষি গবেষণা কাউন্সিলে সি...

কর্মকর্তাবৃন্দের তালিকা (জ্যেষ্ঠতার ক্রমানুসারে নয়)

নির্বাহী চেয়ারম্যানের দপ্তর

পরিচালনা ও মূল্যায়ন বিভাগ

শস্য বিভাগ

প্রাকৃতিক সম্পদ ব্যবস্থাপনা বিভাগ

প্রাণিসম্পদ বিভাগ

মৎস্য বিভাগ

কৃষি অর্থনীতি ও গ্রামীণ সমাজবিজ্ঞান বিভাগ

প্রশাসন ও অর্থ বিভাগ

জনশক্তি ও প্রশিক্ষণ

কৃষি তথ্য কেন্দ্র

প্রযুক্তি হস্তান্তর ও পরিবীক্ষণ ইউনিট

কম্পিউটার ও জিআইএস ইউনিট

সাপোর্ট সার্ভিস ইউনিট

অর্থ ইউনিট

সকল কর্মকর্তাবৃন্দ

কর্মকর্তাবৃন্দের তালিকা ছবি ছাড়া

১		নাম	ড. শেখ মোহাম্মদ বখতিয়ার	Download Vcard
		পদবি	নির্বাহী চেয়ারম্যান	ফোন (অফিস)
		অফিস	চেয়ারম্যান কার্যালয়	০২-২২২২৪২৬৬৬
		ই-মেইল	ec-barc@barc.gov.bd	মোবাইল
				০১৭০৩০৪৫২২৯
				ফ্যাক্স
				০২-২২২২৪২৬৬৬
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		অফিস	বিএআরসি	০১৭১০৫১৬২১৭
		ই-মেইল	maawal70@barc.gov.bd	

Figure 4: Overview of Bangladesh Agricultural Research Council (BARC)

Best Features

- There is a list of information of the officials of the Department of Agriculture.
- There are medicines in the agricultural crop register.
- The latest information on Bangladesh Agricultural Research is available.

Limitations

- Not user friendly.
- No real-time searching options.

3.4 Recommended Approach

It is evident from the preceding discussion that existing websites lack the needed characteristics. It also clarifies the features and concerns that the new system must take into account. The new system should include the following features:

- The system's design is user-friendly and appealing.
- Access to product or crop buyer and seller information is restricted.
- Agriculture official makes a personal request to the farmer.
- It is necessary to establish a central regulating authority.
- The procedure of verifying and approving your identity.
- The farmer will send his problem to the Department of Agriculture through a forum in the system.
- The farmer will find a warehouse or a place to store.
- The farmer will feel comfortable to use.
- The farmer does not have to go anywhere else to get all the latest information.

Chapter 4 – Methodology

The software team that works for the best of the project chooses software development technique for a successful project and effective project management. A project management methodology is a set of ideas, methods, and procedures used by experts in a certain industry. Not only are the top approaches constructed differently, but they also need different outputs, procedures, and even the development of project management software. **(Asana, 2021)**. With sufficient study and knowledge, this chapter will comprehensively examine the chosen methodology and the right explanation for adopting the technique.

4.1 What to Use

Software methodology is a technique for system design, structure, and development in software development. In the software development process, software development methodologies are critical. The waterfall model, prototype model, agile software development, quick application development, dynamic systems development model, spiral model, and collaborative application development are only a few examples of software development methodologies. For my project, the Waterfall Methodologies SSADM and Dynamic System Development Method (DSDM) are both significant. I'll go through the benefits and drawbacks of three approaches below:

Dynamic System Development Method (DSDM)

The Dynamic Systems Development Technique (DSDM) is an Agile technique that takes the whole project life cycle into consideration. A cornerstone of the DSDM approach is project alignment with the organization's strategic goals. The purpose of a DSDM project is to meet business needs while also generating actual business benefits. Before starting a project, DSDM double-checks that the benefits are clear, the solution is feasible, and sound foundations are in place. DSDM is a versatile and adaptable Agile approach that allows it to respond to changing business demands. Simultaneously, it provides the necessary project management and governance mechanisms. **(Study.com, 2020)**

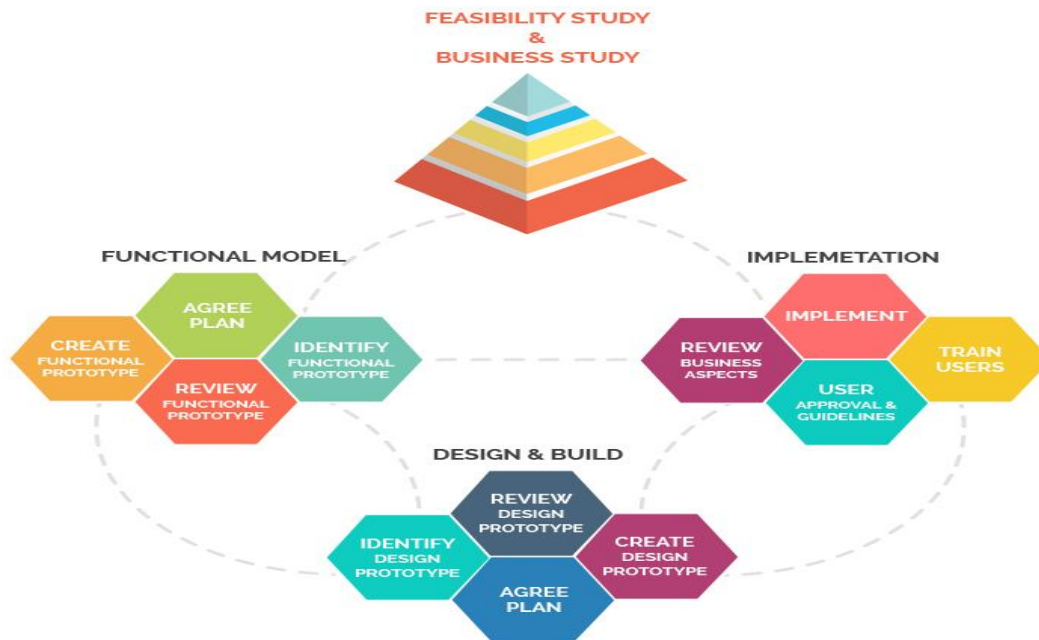


Figure 5:DSDM Methodology

Benefits of DSDM

- Provides a technique that is not reliant on a single method.
- It's adaptive in terms of need progression.
- Deadlines and budgets must be strictly adhered to.
- The development process includes stakeholders.
- Each project team is expected to have at least one tester because testing is so crucial.
- Because it is created from the ground up by business people, business value is discovered and expected to be the top priority delivery.
- Has a unique approach for determining the relevance of each iteration required.
- Sets the expectation among project stakeholders from the start that not all demands will be met in the end product. (Ltd}, 2021)
- Allow changes and response quickly.
- Developers can easily access their end-users.

Drawbacks of DSDM

- It entails the gradual buildup of needs.
- Focusing on RAD can reduce code robustness; it necessitates complete commitment to the DSDM process; it necessitates significant user involvement; it necessitates a skilled development team in both business and technical areas; and it necessitates a skilled development team in both business and technical areas.
- This is most likely the most important project in this survey. **(Ltd}, 2021)**
- If the customer is heisted and unclear about the project's eventual consequence, the project can simply be ruined.
- DSDM doesn't encourage developer creativity

Waterfall Model or Structured System Analysis and Design Method (SSADM)

The Waterfall approach, also known as the Waterfall model, is a sequential development process that flows like a waterfall through all stages of a project (such as analysis, design, programming, and testing), with each step finished before moving on to the next. The waterfall method is a project management style that emphasizes a project's linear flow from beginning to end. Engineers commonly use this front-loaded approach, which relies on thorough planning, detailed documentation, and consistent execution. **(Anon., 2021).**

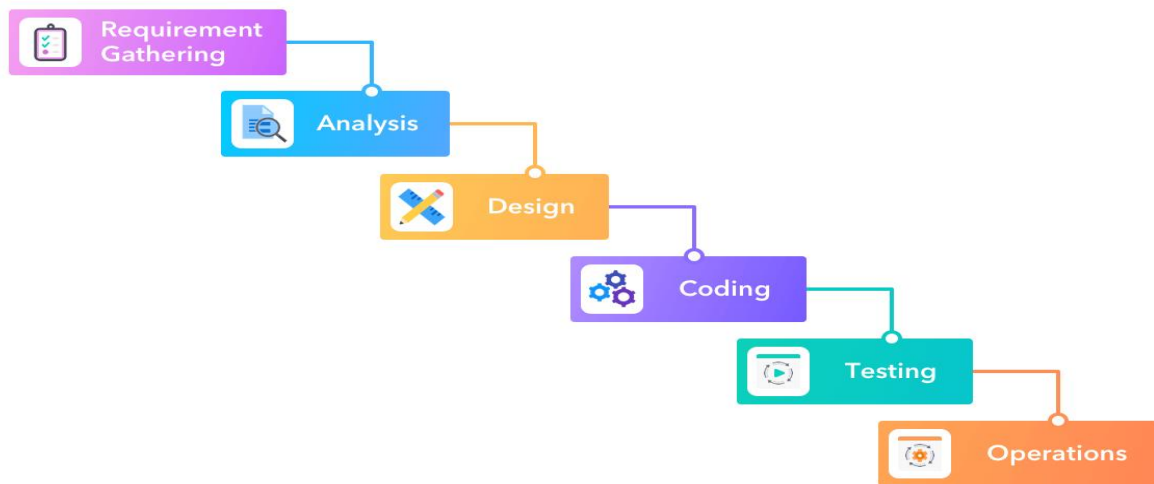


Figure 6: Waterfall methodology

Benefits of Waterfall

- Developers may detect design issues during the analysis and design stages, sparing them from writing incorrect code during the implementation phase.
- Once the criteria have been established, the project's total cost and timeline may be accurately projected.
- Because milestones are clearly defined, it's easier to track progress using an organized approach.
- New developers will have no issue coming up to speed on a current project because the requirements document should contain all they need to know.
- Customers don't always add new requirements to projects, causing delays in production.

Drawbacks of Waterfall

- Projects may take longer to finish using this historical method than with an iterative plan, such as the Agile process.
- Clients often don't know exactly what they want up front, leading to requests for changes and new features later in the process, when they're more difficult to accomplish.
- Clients are not allowed to participate in the design and implementation stages.
- When one stage of a process is delayed, the subsequent phases are also delayed.

Rapid Application Development

The Rapid Application Development (RAD) paradigm emphasizes prototyping and iteration with minimal (or no) planning ahead of time. In general, using a RAD approach to software development means putting less emphasis on planning and more emphasis on development and prototyping. The RAD technique, in contrast to the waterfall paradigm, which emphasizes meticulous definition and preparation, focuses on continuously emerging demands as the development progresses. (Anon., 2021)

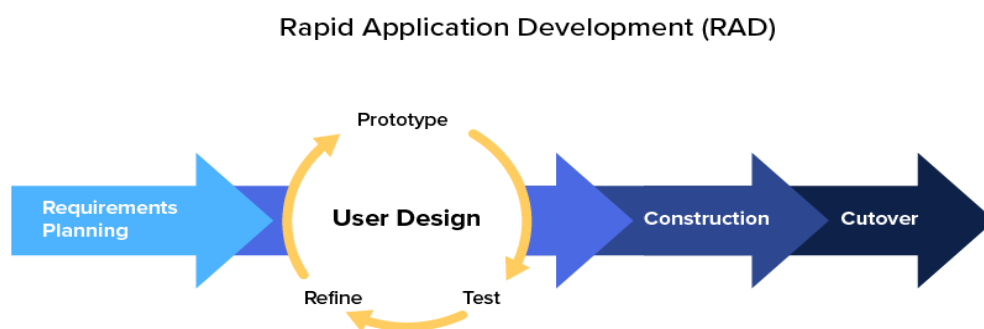


Figure 7: Rapid Application Development methodology

Benefits of RAD

- It's adaptable and versatile, and it comes in useful when you need to reduce the overall project risk.
- It is adaptable and receptive to changes.
- Deliverables may be easily transferred via scripts, high-level abstractions, and intermediate programs.
- As a consequence of code generators and reuse, manual coding has diminished, and there is a likelihood that there will be less faults in nature as a result of prototyping. (Martin, 2021)

Drawbacks of RAD

- Strong teamwork is required.
- I'm unable to work in huge groups.
- High-skilled developers are required.
- Rapid application development can only be used to design systems that can be modularized throughout the life cycle of the product.(**Martin, 2021**)

Choosing Methodology

However, the waterfall model has been employed in farm management systems in some circumstances. Because the DSDM technique always provides product and project quality on time and is fairly versatile for application in any company or organization, it will be the finest choice and ideal solution for farm management system project. During the development phase, clients or clients may adjust their requirements if they believe they are necessary for their project.

4.2 Why to Use Methodology

The system must follow a methodology in order to satisfy the requirements within the provided time frame and budget. A methodology assists in the achievement of the project's key objectives by following its set stated processes. While choosing the right technique for an academic project like this might be tough, it will substantially assist in the project's completion and delivery of results.

4.3 (AMS) Sections of Methodology

The development team must adhere to some established elements of the DSDM approach. These are the following:

Phase one of the project

This section generates the first project concept, as well as the time period, budget, and fundamental requirements.

Feasibility Study Phase

This phase assists with the business case, business strategy technical solutions, and project budget.
This phase assists with the business case, business strategy technical solutions, and project budget.

Requirement Gathering Phase

Various strategies are used to identify both functional and non-functional project needs in this area.

Requirement Analysis and Prioritization Phase

Using a prioritizing approach such as MoSCoW, the acquired needs are analyzed and prioritized in this step.

Using MoSCow prioritization:

To help in the development of the system, MoSCoW has created a prioritizing tool. There are a few parts that are listed below:

Must have:

In this part, it is important to determine the primary functions that are required of the system; otherwise, the system would be useless to the consumers.

Should have:

This section aids in the discovery of critical criteria and the creation of a key that benefits everybody.

Could Have:

This section assists in identifying a few needs that are not important and have no influence on the system.

Won't Have:

This element of the system assists in identifying needs that aren't required by this system.

Exploration and Engineering Phase

Engineering: Iterative testing, system increments, system design, and ensuring that user demands are addressed in line with system criteria are all part of the engineering phase.

Exploration: Using MoSCoW prioritizing, this phase aids in identifying the system's functional and non-functional needs.

The methodology's major iterative portion was used to iteratively examine the requirements and design the solution.

Post- project:

This phase aids in determining the project's projected benefit and developing the system's final intended solution.

Review Phase

The created deliverables are tested with users in this step, and if adjustments are required, they are returned to the previous phase.

4.4 Implementation Plans

The project is nearing completion, with sophisticated applications being made available for usage. If there is a problem with this identification and solution, make the new system available for usage. This part determines the release criteria, configuration, and planning. The new system is then launched if everything is in order.

Chapter 5 – Planning

5.1 Project Plan

This section depicts the project completion planning process. Basically, the project is separated into several distinct segments, and if everything goes according to plan, all of the work will be done within a certain time frame.

5.1.1 Work Breakdown Structure

This phase entails breaking down the project into smaller tasks so that it may be done within the specified time frame and in a more efficient and effective manner. This structure provides us with a time and task estimate. Without this framework, the project might become more difficult to execute. As a result, the suggested system has been divided into categories and subcategories in the WBC, as shown in the chart below:

No.	Task Name	Start	Finish	Duration
1	Introduction	9/25/2021	9/28/2021	3
2	Initial Study	9/29/2021	10/4/2021	5
3	Literature Review	10/5/2021	10/8/2021	3
4	Methodology	10/9/2021	10/15/2021	6
5	Planning	10/15/2021	10/20/2021	5
6	Feasibility Study	10/20/2021	10/24/2021	4
7	Foundation	10/24/2021	10/28/2021	4
8	Exploration & Engineering	10/28/2021	11/17/2021	20
9	Deployment	11/17/2021	12/1/2021	14
10	Testing	12/1/2021	12/4/2021	3
11	Implementation	12/4/2021	12/7/2021	3
12	Critical Appriasal & Evaluation	12/7/2021	12/8/2021	1
13	Lessons Learned	12/8/2021	12/10/2021	2
14	Conclusion	12/10/2021	12/11/2021	1
15	Total			74

Figure 8: AMS Work Breakdown Structure of the

5.1.2 AMS Resource Allocation

To ensure that the desired project is executed in a timely and efficient way, all assets and resources are assigned and managed. One of the most crucial aspects of project planning is resource allocation. Because this is an academic endeavor, I shall act in various positions at various times because there is no team. The AMS project's resource allocation is as follows in order to satisfy the pre-scheduled job delivery date.

Task Name	Duration	Resource
Introduction	3	Analyst, User
Initial Study	5	Analyst
Literature Review	3	Analyst
Methodology	6	Analyst, User
Planning	5	Analyst, Team Leader
Feasibility Study	4	Analyst, User
Foundation	4	Analyst, Designer, Developer
Exploration & Engineering	20	Analyst, Designer, Developer
Deployment	14	Designer, Developer
Testing	3	Developer, Tester, User
Implementation	3	Analyst, Developer, User
Critical Appriasal & Evaluation	1	Analyst
Lessons Learned	2	Analyst, Designer, Developer, Tester
Conclusion	1	Analyst

Table 3: AMS Resource allocation list

5.1.3 Time Boxing

Another significant aspect of the DSDM project planning is the division of tasks into time boxes in order to fulfill the goals before the deadline. All jobs are organized into timeboxes with a set duration in this section. These tasks must be completed within the time frame specified by the iterative technique.

Time Box	Task Name	Duration	Resource
TB1	Introduction	3	Analyst, User
TB1	Initial Study	5	Analyst
TB1	Literature Review	3	Analyst
TB2	Methodology	6	Analyst, User
TB2	Planning	5	Analyst, Team Leader
TB2	Feasibility Study	4	Analyst, User
TB3	Foundation	4	Analyst, Designer, Developer
TB4	Exploration & Engineering	20	Analyst, Designer, Developer
TB5	Deployment	14	Designer, Developer
TB5	Testing	3	Developer, Tester, User
TB6	Implementation	3	Analyst, Developer, User
TB7	Critical Appriasal & Evaluation	1	Analyst
TB7	Lessons Learned	2	Analyst, Designer, Developer, Tester
TB8	Conclusion	1	Analyst

Table 4: AMS List of the Time Boxes

5.1.4 Gantt Chart of AMS Working

A Gantt Chart is a graphical depiction of the project activity schedule. It displays the length as a progress bar from the start to the completion date, rather than in days. A Gantt chart for the Agriculture Management System is shown below:

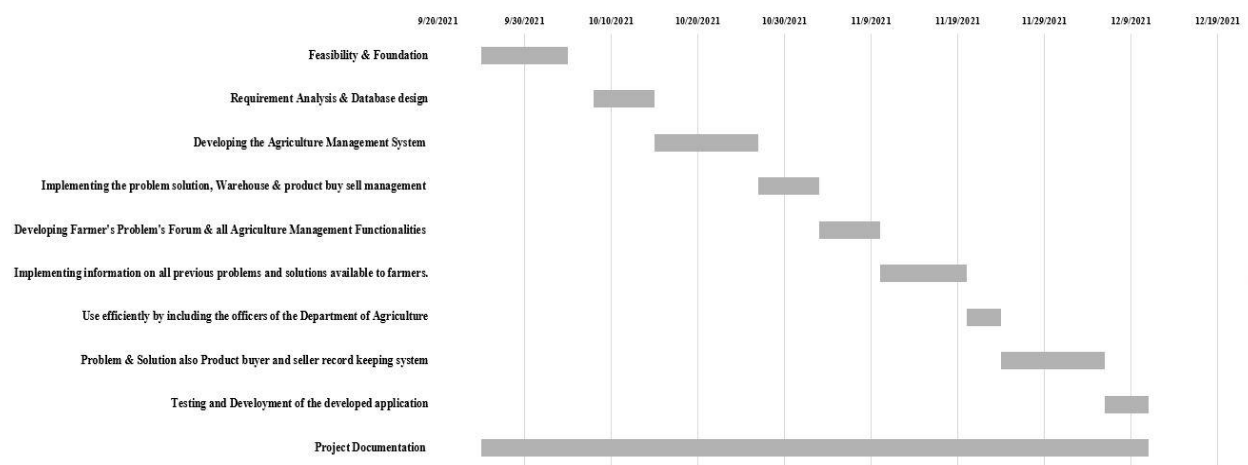


Figure 9: AMS Project File cycle Gantt Chart

5.2 Test Plan

A Test Plan is a comprehensive document that details the test strategy, objectives, timetable, estimates, deadlines, and resources required to execute a project. Consider it a blueprint for doing the tests necessary to ensure that the software is up and running, with test managers in control. The test plan was developed in response to discrepancies between the given input and the system's expected output. Testing, which included verification and validation, was done during the software development process.

5.2.1 AMS Testing Against the Time Boxes

The time box method was used to estimate a fixed and maximum unit of time for a certain segment. Time limits are being tested-

User Name for testing purpose	Example for testing	Role for testing	Example for testing
ID of the Time Box			

Content of the Time Box			
-------------------------	--	--	--

Type of test	Steps for testing	Expected outcome	Actual outcomes	Comment
Unit testing				
Integration testing				
System testing				
Acceptance testing				
Security testing				
Usability testing				
Reliability testing				

Figure 10: AMS Sample of Testing Against the Timebox

5.2.2 Required Test

There are various testing modules available, however the two most common forms of system testing are functional and non-functional testing:

Functional Testing:

- Unit Testing: Individual software units, such as groupings of computer program modules, usage processes, and operating procedures, are analyzed to see if they are appropriate for use in unit testing. It is a testing method in which the developer tests each individual module to check if there are any flaws. It is tied to the functional soundness of the various modules. (GeeksforGeeks, 2019).

- **Integration Testing:** Integration testing is the practice of checking the interaction between two software components or modules. Its major purpose is to see if the interface is working properly. Integrity testing is used to identify weaknesses in the way integrated units interact with one another. After all of the modules have been unit tested, integration testing is performed. **(GeeksforGeeks, 2018)**
- **System Testing:** System testing is a type of software testing that is performed on a whole integrated system to see if it meets the proper criteria. Components that pass integration testing are utilized as input in system testing. Integration testing is performed to find any differences between the linked components. System testing examines both individual components and the complete system for problems. The outcome of system testing is the observable behavior of a component or system when it is tested. **(GeeksforGeeks, 2019)**
- **Acceptance Testing:** It is a type of formal testing that is carried out in accordance with user demands, requirements, and business procedures in order to determine whether a system meets the acceptance criteria and to allow users, customers, or other authorized organizations to decide whether or not to accept the system. **(GeeksforGeeks, 2019)**

Non-Functional Testing:

- **Security Testing:** External security testing is performed, as well as web application security testing. By verifying unauthorized users or access, it defends against external and internal threats, including SQL injections.
- **Usability Testing:** Usability testing has various benefits, the most notable of which is that it allows designers to uncover usability concerns with a design as early as possible, allowing them to be fixed before the design is adopted or mass manufactured. As a result, usability testing on prototypes rather than final products is common, with variable levels of fidelity depending on the development phase. **(GeeksforGeeks, 2019)**

Reliability Testing: This testing allows users to engage with it directly. It guarantees the system's functioning is reliable. It examines and assures a system's many sorts of failures.

5.2.3 Test Case of AMS

The test case number, test type, test description, and test procedures were all contained in the test case.

No. of Test Case			
Type of Test			
Description of the test			
Steps of testing	Expected outcome	Actual outcome	Comment

Table 5: Sample Test case

5.2.4 User Acceptance Test Plan

User acceptance is the final step of testing segment. It refers and check testing performance by the involved user.

No. of Test Case			
Type of Test			
Description of the test			
Preparation for testing			
Name of the User			
Assume the role of			
Steps of testing	Expected outcome	Actual outcome	Comment

Table 6: AMS User Acceptance Test Plan

5.3 Risk Management of AMS

Risk management is the act of identifying, analyzing, and responding to any risk that may exist during the project development life cycle so that the project can be tracked and its goals and objectives met. The risk associated with a project might include the project's timeline, budget, and performance. There are many different types of risk management.

- Risk identification
- Risk assessment
- Risk precaution / action plan
- Steps taken for possible risks

5.3.1 Risk Identification

Risk identification is one of the most critical segments and activities in risk management planning. The first step in risk identification is to guarantee that risks that may develop and have an influence on the project are identified and documented, as well as to identify and produce document characteristics with their features. As a consequence of this research, several risk identification criteria will be justified, and they are as follows:

- Identification of potential risks and documentation of the risks.
- Actual causes were considered in the formulation of identified risks.
- Future consequences and effects, as well as the risk's influence.

Elaboration of potential risk identification and monitoring of the project's risks, as listed below:

Types of dangers	Causes	Consequences & Impact
Devilry	Delivery hazards can occur for a variety of causes, including: ➤ Inadvertently delay the cause of a natural calamity.	➤ Late submission of a project.

	➤ Farmers, sellers, and admins, as well as buyers, were among the divisions that failed.	
Destroy and Database Error	➤ Several sorts of users were included in this initiative, including Farmer, Product Buyer, Product Seller, Agriculture Department Officer & Admin etc. ➤ If a farmer could not be found the solution of problem due to a lack of system materials failure incorporated at the time of necessity. ➤ Agriculture Department Officer due to a database fault, I was unable to access the system.	➤ Farmer was unable to locate the anticipated remedy.
Unauthorized Entry	➤ If someone tries to get access to this system without authorization, this may produce and generate a problem, as well as a risk.	➤ Confidential information can be hacked and modified.

	➤ This unauthorized user has the ability to alter the data of the Farmer, Buyer, and Seller.	
System Technical Problem ➤ Hardware	➤ A lack of the required speed ➤ Due to a lack of essential performance ➤ Lacking the necessary configuration	➤ It's possible that delivering the product will fail.
Project Backup for Security	➤ There isn't a backup of the project on GitHub or anything comparable.	➤ Cost implications ➤ The entire project is lost.
Failure of the Network	➤ For certain integrated api and email management, internet access is required.	➤ Emails to the farmer, product buyer, and vendor are not permitted.

Table 7: Risk Identification of AMS Table

5.3.2 Risk Assessment of AMS

Risk assessment involves with quantitative or qualitative value of risks included threats of a project

Type of risks	Likeliness	Impact	Restore time
Devilry	5	6	8

Destroy and Database Error	5	5	5
Unauthorized Entry	6	6	6
System Technical Problem ➤ Hardware	4	5	5
Project Backup for Security	5	6	4
Failure of the Network	4	4	8

Table 8: Risk Assessment of AMS

5.3.3 Risk Precaution / Action Plan

After risk identification and risk assessment, a risk action plan was created. There are many different sorts of measures that may be taken to prepare for risk.

- To avoid the dangers that have already happened and those that may come in the future
- To minimize the hazards that have already happened and those that may arise in the future
- To address the issues that have arisen as well as potential dangers

Type of risks	Action	Taking Action	Action Required
Devilry	Using a Gantt chart and other tools, generate accurate time estimates.	Developer who is actively involved	Before we begin working on our project, be sure we have everything we need

	Use of technology: Microsoft Excel and Asana		
Destroy and Database Error	➤ To carry out the necessary normalizing ➤ In order to create the precise needed relationship on the table,	Developer who is actively involved	When it comes to adding, updating, and deleting data,
Unauthorized Entry	➤ To write code while maintaining a pleasant odor. ➤ On this project, create a multi-authentication system.	Developer who is actively involved	When the authentication parts are configured
System Technical Problem ➤ Hardware			
Project Backup for Security	Any cloud service, such as GitHub, may be used to back up our/my project.	Developer who is actively involved	Update frequently

Failure of the Network	To make effective communication with professionals in network service.	Developer who is actively involved	On schedule for project completion.
------------------------	--	------------------------------------	-------------------------------------

Table 9: Agriculture Management System (AMS) Risk Precaution

5.3.4 Steps Taken for Possible Risks of AMS

The responsible individual takes the necessary procedures after detecting and analyzing the potential hazards. These are the following:

Type of risks	Description	Likelihood	Impact	Taking Step
Devilry	Missing the project's delivery and deadline is one of the most serious dangers.	Rare	High	The Gantt chart and task breakdown structure were designed, as well as the project time boxing.
Destroy and Database Error	May be possibility of duplicate entry.	Likely	High	The data dictionary was created using the third normal form normalization and entity relationship diagram.
Unauthorized Entry	Access to the system that is not allowed.	Unlikely	High	Implemented a proper authentication and access authorization system.

System Technical Problem ➤ Hardware	It's possible that our/my hardware will crash or become unresponsive.	Frequent	Medium	Backup is ensured, as well as continuous maintenance and monitoring.
Project Backup for Security	All project file should backup (Like Git hub)	Rare	High	Monitoring the project file securely.
Failure of the Network	Failure of the internet or a problem with the connection.	Frequent	Low	The proxy server has been configured and given high-bandwidth access.

Table 10: Risk dealing steps for AMS

5.4 Change Management

5.4.1 Factors that Might Cause Change

There are several types of changes needed for this system which are included:

- Delivering portions have changed.
- Modifications to the functional requirements
- Changes to various user interface modules.
- Changes in the product buyer and seller sectors' rating and review segments.
- Security handling portions have changed.

5.4.2 DSDM Welcome Change of AMS

The project development life cycle should be changed as needed depending on the project requirements. As a result of these considerations, we should choose a method that accepts a wide range of challenges based on the system's requirements. As a result, 'DSDM' is one of the methodologies that is relevant, trustworthy, and easy to implement. This approach is used in this system to maintain and conduct modifications to the development time.

It operates in a variety of ways:

- It creates a system to keep track of every system module that needs to be updated.
- It solicits feedback from a number of users on the timing of segment changes.
- Farmer information, product buyer and seller information, and email automation modifications are just a few examples.
- It runs when all of the modifications have been made.
- It guarantees that security is maintained.
- It provides both scalability and dependability.

5.4.3 Considering Business Priority

Changes have been explored in order to achieve the intended aim and vision for the firm. As a result, we must place a high priority on adjustments to functionality and needs that will result in a significant advantage to the consumers.

Priorities were as follows:

Topical Area	Priority Level
Delivering Segments	6
Functional requirements	8
Non-Functional requirements	6
Segments for ratings and reviews	5
Segments for security handling	8

5.4.4 Change Workshop

The user's communication will be strengthened by knowing the profiles of team members. According to the modifications and additions that are required, interested developers can hold a workshop and create a questionnaire to determine what needs to be changed and added to the system. By understanding the profiles of various sorts of users, such as farmers, product buyers,

and sellers, typical discussions can be held, as well as implementations depending on user input, which this change workshop will keep track of.

- To specify the change and include the team, a change workshop is required.
- To develop a detailed team members' profile, including users' profiles.

5.4.5 Changes That are Allowed

Changes must be accepted based on the change's priority level. Accepting changes was necessary due to a number of considerations, including resource availability, cost, schedule, delivery quality, and risk. We need to allow priority-based adjustments throughout the development of a specific sector of this system.

5.4.6 Key Decision Taker of Change

Change-makers will be guided by a variety of experts in their field. Separate decision makers to adjustments were incorporated in this project.

- System Requirements Analyst
- System Developer
- System Tester

If necessary, the analyst can alter the functional requirement, and the developer can alter the applicable code.

5.5 Quality Management

Maintaining the standard that the user agreed to accept during the project's inception is what quality management is all about. Quality management is based on a number of factors, including

- The ability to deliver a product to both the supplier and the consumer.
- Communication between members of the team and users.

- Changes in requirements are ongoing.

5.5.1 Rules Applied to Maintain Quality

The guidelines for maintaining quality vary from one system to the next, as well as from one user to the next. While maintaining quality, two concepts must be followed: quality control and quality assurance.

Product buyer and seller service quality control has been maintained as a result of assessing farmers' problems.

- The ability to supply a product to both the customer and the supplier.

Quality Assurance: Quality assurance has been maintained by analyzing the correct and wrong approach rationale.

- To assure quality by managing user requests
- To ensure quality by providing email automation excellence to all users (Farmer, Buyer& Seller).

5.5.2 DSDM Standard Quality Measures

Solution quality: Solution quality has been ensured based on expected business demands and user expectations by tracking user requirements. To complete this technique, two types of prioritizations were used.

- Time Boxing
- MoScoW

These two techniques have been accomplished, and the timetable has been maintained.

Process quality has been guaranteed depending on the intended organization. To ensure the quality of these processes, two approaches have been devised and implemented.

- CMMI

➤ DSDM

5.5.3 Quality Plan and Measuring Meter

Several sorts of quality plans have been kept in place at this point, including

- The delivery and resource allocation were done correctly.
- Following the conclusion of each module, testing was carried out in each section.
- When all of the modifications have been completed, it is necessary to track and record all of the changes in order to proceed with the execution process.

Chapter 6 – Feasibility

6.1 All Possible Types of Feasibility Agriculture Management System (AMS)

Because the proposed system's usability, ease-of-use, and required functionalities are important to operational feasibility, the proposed AMS has proper validation and verification for user inputs, a very easy and smooth navigation system, a location-based searching option, and an easy request option, all of which make the system much easier and effortless to use. With proper credentials, admins, agriculture officers, farmers, and product buyers and sellers may quickly get access to their portal and complete their jobs.

Technical Feasibility:

Some aspects of technical feasibility are:

Users of AMS can simply manage their operations, compared to the prior manual approach, according to a technical feasibility test. The system was built and developed utilizing the most up-to-date and popular web and mobile technologies, ensuring that it can work in any web browser with a low-bandwidth Internet connection. To ensure safe access to system data, the system contains an access control hierarchy. The web-based software is platform-agnostic, and the development platform and resources employed are both sensible and cost-effective, guaranteeing that it is technically feasible.

So, clearly in this project perspectives the technical aspects are given below:

Hardware:

- HP laptop (Configuration)
- Wi-fi Router(Tp-link)

Software:

- Xampp
- Microsoft office(MS)
- Microsoft Excel
- Google chrome browser
- Windows 10 Pro (operating system)
- VS Code
- Brackets

Database:

- MySQL

Technology:

Design Slide:

- Html
- CSS
- Java Script
- Bootstrap

Server Side:

- PHP
- Laravel 8.6

Economic Feasibility:

There are several options for developing the suggested system, including web-based and desktop applications.

➤ **Web based application cost:**

The whole program and data are stored on a remote server, which can be accessed through the Internet from anywhere at any time.

Equipment	Cost per unit	Cost
VPN enabled extranet network	₹2000 per/m	₹2,000
Laptop (core i5, 2.50-271 GHz processor, 4 GB DDR4 RAM, 1 TB HDD)	₹ 85,000	₹ 85,000
Web, File and Email servers	₹17,000 per/m	₹17,000
Total		₹ 1,04,000

➤ **Desktop Application cost:**

Equipment	Cost per unit	Cost
-----------	---------------	------

Laptop (core i5, 2.50-271 GHz processor, 4 GB DDR4 RAM, 1 TB HDD)	₳ 85,000	₳ 85,000
Web, File and Email servers	₳17,000 per month	₳17,000
Total		₳ 1,02,000

To make the system work, you'll need a domain name and hosting provider. Because, in order to meet the problem solver and delivery search, the system must constantly solve the problem and monitor the location of the goods. The rest of the system will be developed as a web app.

Agriculture Market Research Analysis Based on the Feasibility Factors:

Market and user demand are included in this area. According to the Food and Agriculture Organization (FAO), Bangladesh collects 80% of the needed food or crop each year, however over 20% of the produce is lost owing to bug and soil issues. On the other hand, not getting the right price for the farmer is a common occurrence in our country and in all these cases the farmer suffers a lot due to the financial crisis due to which the agricultural work is not done in the next season. Currently, there is a huge demand for an automated system to solve all the problems, get the right price of the crop and conduct safe agricultural work. The system can automatically send messages, emails and notifications to the concerned resolving agriculture officer after generating a request for solution of the problem, bringing the whole process under the supervision of the central authority. Thus, the Agriculture Management System (AMS) for the people of the country, it will be a fresh and effective platform.

6.2 Cost Benefit Analysis for Agriculture Management

The primary goal of a cost-benefit analysis is to determine the earnings and spending assumptions. The entire cost and earnings are compared to determine the benefit. The following is a cost-benefit analysis for this project:

Total cost:

Serial No.	Equipment	First Year	Second Year	Third Year	Fourth Year	Five Year	Total
1	Web based application cost	₹ 1,04,000	-	-	-	-	₹ 1,04,000
2	Desktop Application cost	₹ 1,02,000	-	-	-	-	₹ 1,02,000
3	The cost of a domain plus hosting	₹25,000	₹25,000	₹25,000	₹25,000	₹25,000	₹ 125,000
4	Expenses for Employees	₹40,000	₹40,000	₹40,000	₹40,000	₹40,000	₹2,00,000
5	Other Cost	₹20,000	₹20,000	₹20,000	₹20,000	₹20,000	₹1,00,000
6	Total Cost	₹ 291,000	₹ 85,000	₹ 85,000	₹ 85,000	₹ 85,000	₹ 631,000

Table 11: Total Cost Estimation for the project AMS

Total Earning:

SL No.	Earn Sector	First Year	Second Year	Third Year	Fourth Year	Five Year	Total
1	Govt. Tax one	₹1,50,000	₹1,80,000	₹2,10,000	₹2,40,000	₹2,70,000	₹1,050,000

2	Govt. Tax two	₳2,00000	₳2,10,000	₳2,40,000	₳2,60,000	₳3,00000	₳1,210,000
	Total	₳3,50,000	₳3,90,000	₳4,50,000	₳5,00000	₳5,70,000	₳2,260,000

Table 12: Earning estimation for the project AMS

Total Revenue of project:

SL No.	Sectors	First Year	Second Year	Third Year	Fourth Year	Five Year	Total
1	Total Earning	₳3,50,000	₳3,90,000	₳4,50,000	₳5,00000	₳5,70,000	₳2,260,000
2	Total Equipment Cost	₳4,02,000	₳80,000	₳80,000	₳80,000	₳80,000	₳7,22,0000
	Total Revenue	₳4,02,000	₳3,10,000	₳3,70,000	₳4,20,000	₳4,90,000	₳1,538,000

Table 13: AMS Estimated Revenue on a Five-year scale

As a result, it is apparent that by pushing this method, the government would be able to receive a large number of takas in annual income from various Agriculture Department such as Farmer. Each year, the revenue will be raised. As a result, this initiative will benefit both the government and the general public.

6.3 Explain DSDM Good or Bad for this Project

This is a project in Bangladesh's advanced agriculture industry that I am submitting as my academic project. The project must be done in a short amount of time while still incorporating all basic skills. It is possible that the project may need to accept modifications during development,

hence it should be developed iteratively. The iterative development process is ensured by DSDM, which imposes tight rules and constraints. It guarantees that the task is completed in a timely manner. It also guarantees that users are involved throughout the project's duration. As a result, it is evident that AMS is the best agriculture management system approach to use.

Chapter 7 – Foundation

7.1 The Problem Area Identification

Identifying the issue is the greatest way to enhance any project. And the user can handle that aspect because they will be the ones who will be using the system the most. As a result, there are certain portions that appear to be an issue that we have gathered from the user, as follows:

7.1.1 Interview

If you want to acquire information, figure out what the problem is, or figure out what the aim is, an interview is the ideal solution. The genuine remedy might be precepted by locating the problem. As a result, for the proposed system, several questions from the user have been established to participate in the following interviews:

1. Farmer:
 - What type of challenge does a farmer confront at the time?
 - Is the notice real-time and can I obtain it?
 - Earlier problem solution is history significant or not?
 - Faced any problem of getting update of farmer's problem solution for checking the eligibility
2. For Product Buyer:
 - At the moment of Product delivery what type of issue do you have.

- Is the existing distribution procedure working correctly, or does it need to be made more seamless and user-friendly?
- Help from the admin to manage that section of our system would be very appreciated.

3. For Product Seller:

- Faced any problem of getting update of product delivery for checking the record.
- Faced any of managing problem.

7.1.2 Observations

The PMBOK's Collect Requirements method uses observation (also known as Job Shadowing) as a tool and approach. The Collect Requirements process identifies and documents the stakeholders' needs in relation to the project's goals. This strategy involves watching individuals do their jobs. **(Pmimidnebraska.org, 2021)**

Observations are also useful for gathering user needs and determining the true problem. Observation tactics are mostly used to go to the workplace and figure out how to accept the users. The following are the major factors to consider:

- For Farmer, examine the present system for a solution to the problem.
- For Farmer and Admin (Department of Agriculture officer) both, Check notification system in the existing system.
- Recognize the previous' s true aim. problem giving by farmer and the solution in the existing system.
- For buyer and seller, checking product delivery portion in the existing system.
- Reviewing the product delivery portion and problem solve portion help in the existing organization.
- For Department of agriculture's officers, they can review farmer problem report in the existing system.

7.1.3 Questionnaires

Collecting information is crucial for successful decision-making in project management. There are several methods for gathering information from various sorts of individuals. Observation, focus group discussion, assisted seminars, and benchmarking are common tactics used by project managers. **(knowledge, 2016)**

Questionnaires are one of the most effective methods for gathering data and asking questions of users and other stakeholders. The user will be asked certain questions, which may be MCQs or short questions. As a result, the following questions are provided:

Identification of Problems Questions			
Name		Age	
General User	Farmer	Problem	
Question-one	How often do you utilize the system and submit a problem for resolution?		
Answer			
Question-two	How would you want to be alerted if a send difficulty arises again?		
Answer			
Question-three	How do you feel about resolving your agricultural issue?		
Answer			
Question-four	Let us know what you think about the Agriculture Management System.		
Answer			

Identification of Problems Questions			
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Name		Age	
General User	Product Seller	Product	
Question-one	How do you keep track of the products you want to sell?		
Answer			
Question-two	What system should be used to process product sales?		
Answer			
Question-three	What method do you use to communicate with the product buyer?		
Answer			

Identification of Problems Questions			
Name		Age	
General User	Product Buyer	Product Delivery	
Question-one	How do you order product for Buy?		
Answer			
Question-two	What should the product purchasing system be like?		
Answer			
Question-three	What method do you use to communicate with the Product Seller?		
Answer			
Question-four	What to do with partial payment?		
Answer			

Identification of Problems Questions			
Name		Age	
General User	Agriculture Dept. Officer	Post	
Question-one	Will a central system make it easier for you to manage things?		
Answer			
Question-two	How can you know whether a farmer is truly eligible?		
Answer			

7.2 Rich Picture

A rich picture is a top-down or bird's-eye view of a system's users' activities. It also depicts the challenges that are at odds, as well as communication and business procedures. The following is a detailed picture of the AMS: -

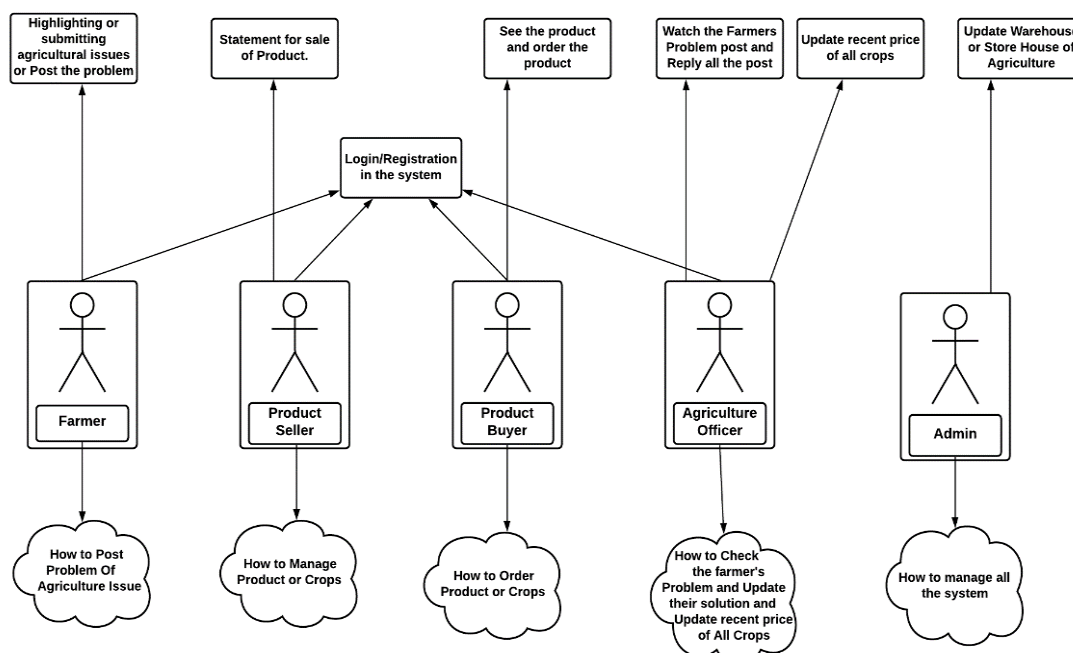


Figure 11: Rich Picture of the AMS

AMS The legends of rich picture

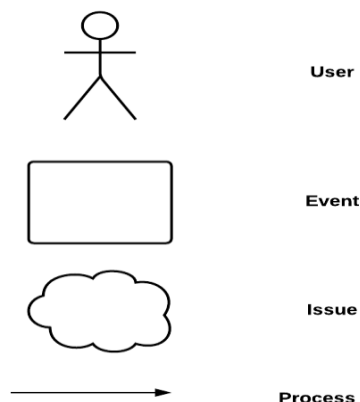


Figure 12: AMS Legends of the rich picture

Key actors

In the AMS system, there are five different sorts of actors.

- Farmer
- Product Seller
- Product Buyer
- Agriculture Department Officer
- Admin

The picture shows that admin can monitor and manage every process and manage conflicts.

7.3 Specific Problem Area Identification

In the problem area identification portion, a variety of issues are discovered utilizing information collecting approaches. The full system processes of the AMS are depicted in a rich image. By examining them, I was able to identify certain specific issues, including:

- No centralized Agriculture Management System in the country.
- No real-time farmer's problem-solving process is required.
- There is no online product sales platform for farmers
- There is no online platform for buying or selling agricultural products.

- There is no online paper to know the prices of recent agricultural products.
- Record keeping system for previous problems and solutions.
- Keep all records of purchase and sale in the system
- Users cannot be identified or verified.

7.4 Possible Solutions

The following are the recommended remedies to the highlighted issues:

- AMS can be used to design a new centralized system.
- It is necessary to design a real-time farmer issue solution and alerting system.
- Impose government policy and legal norms to increase trustworthiness.
- Concerns about security and privacy should be addressed.

7.5 Overall Requirement List

The following is the final list of requirements:

Functional Requirement

- Agriculture Management system for farmer.
- Farmer's problem solution management facility.
- Real Time Problem Solution by Department of Agriculture.
- Farmer and Agriculture officer manipulation.
- Product Buy and Sell in the system.
- Knowing about warehouse or agriculture store.
- Real time product price in the various place.
- Email, SMS and notification sending facility.
- Product Seller and Buyer Database.
- Product Delivery System.

Non-functional Requirements

- Data security and privacy are both important.
- Make sure you have a backup of your data and resources.
- Design of a user-friendly interface.
- Restrict access by implementing authentication and authorization.
- Comply with the law's accessibility requirements.
- Validation and verification

7.6 Technology to be Implemented

The suggested system can be implemented using a variety of technological alternatives. It is critical to select the appropriate technology in order to achieve success. Alternatives include:

Client-Server Application Technology

Client-server computing is a computer technology concept in which clients and servers operate independently but are linked via a computer network. Any instance of a client can send a request to an online server and wait for a response. (ApacheBooster, 2020)

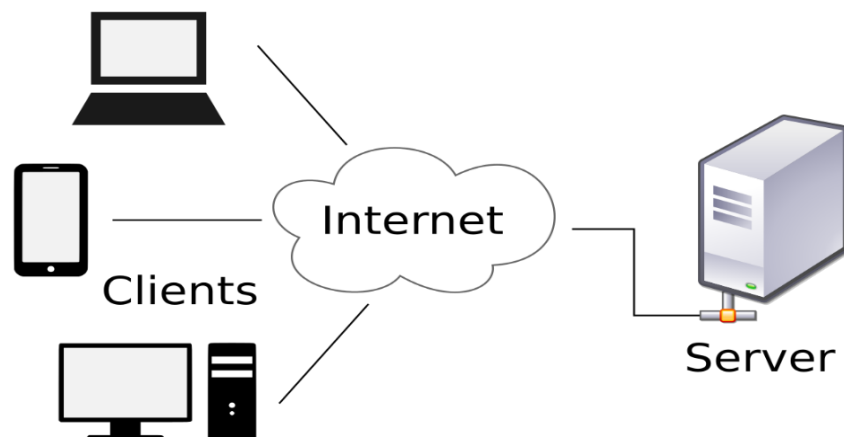


Figure 13: Client Server Application Model (Wikimedia.org, 2019)

The following are the basic features of a client-server application:

- The application must be installed physically.
- The server and client programs must be kept up to date..
- Users must acquire the program, which is costly.
- It is not portable and is not constantly available.

Web Application

A web application (or web app) is application software that runs on a web server, as opposed to computer-based software applications that run locally on the device's operating system (OS). To access web applications, the user must utilize a web browser with an active network connection.(**contributors, 2021**)



Figure 14:Web Application

Main features of a web-based application are-

- There is no requirement for installation.
- The cloud can be accessed via the internet via a web browser.
- It is rather inexpensive.

- Available at any time and from any location.

7.7 Recommendation and Justification

The planned Agriculture Management System must be accessible at all times from anywhere in the country. Any internet-enabled device, such as a smartphone, laptop, desktop, or tablet, should be able to access the system. It should also be able to handle a large number of users at the same time. Because client-server application technology does not allow for this, the best solution for the suggested system is a web application.

Chapter 8 – Exploration

8.1 Agriculture Sector Old System Use Case

The flow of a system's business processes is depicted in a use case diagram. As an example of an earlier system, I'll utilize the Bangladesh Agriculture Development Corporation (BADC).

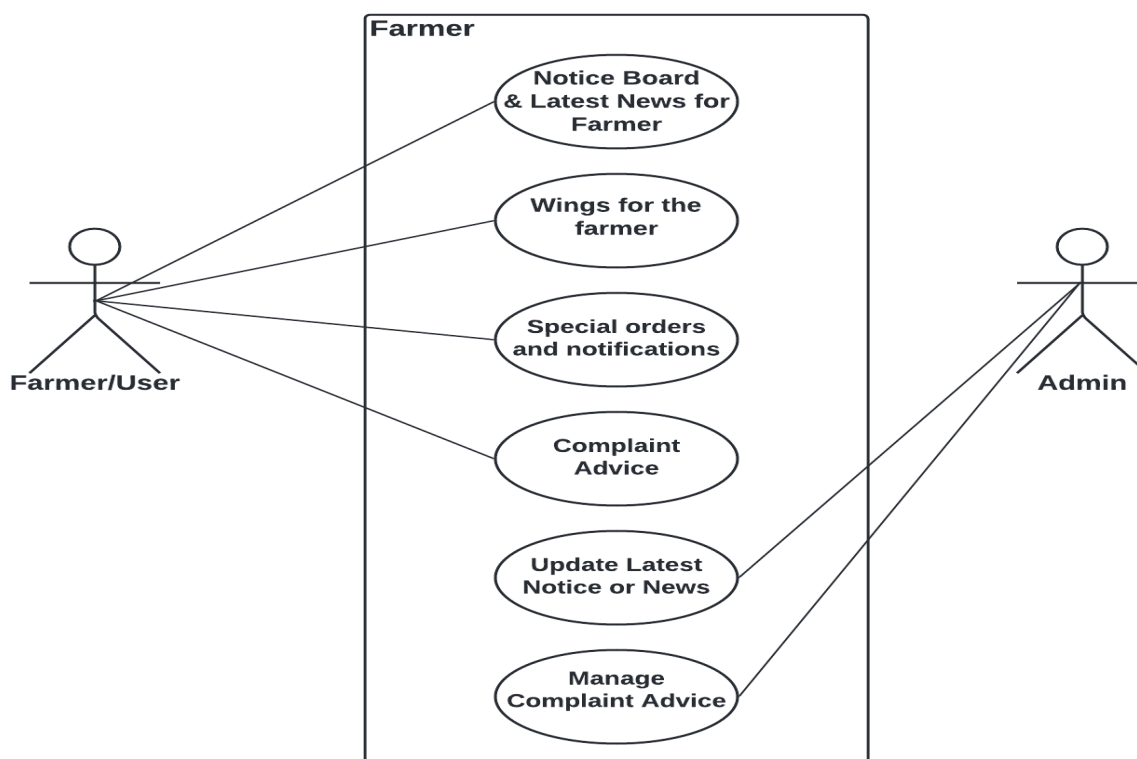


Figure 15: Use Case Diagram of Bangladesh Agriculture Development Corporation (BADC)

8.2 Activity Diagram

Farmer Activity Diagram

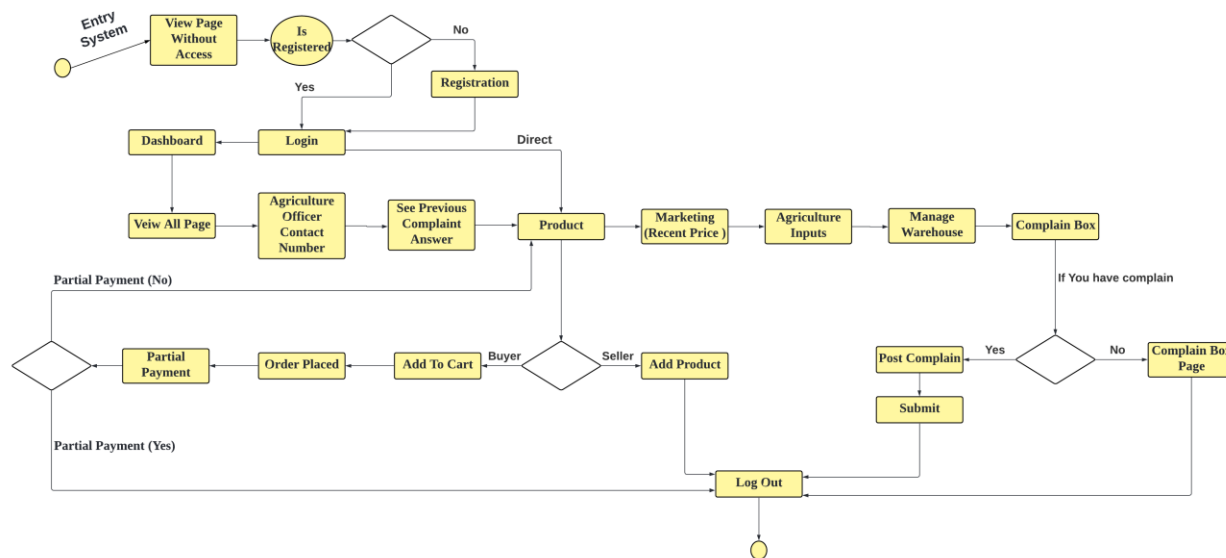


Figure 16:Farmer/General User Activity Diagram of AMS

8.3 Full System Use Case

The following is a use case diagram for the proposed AMS:

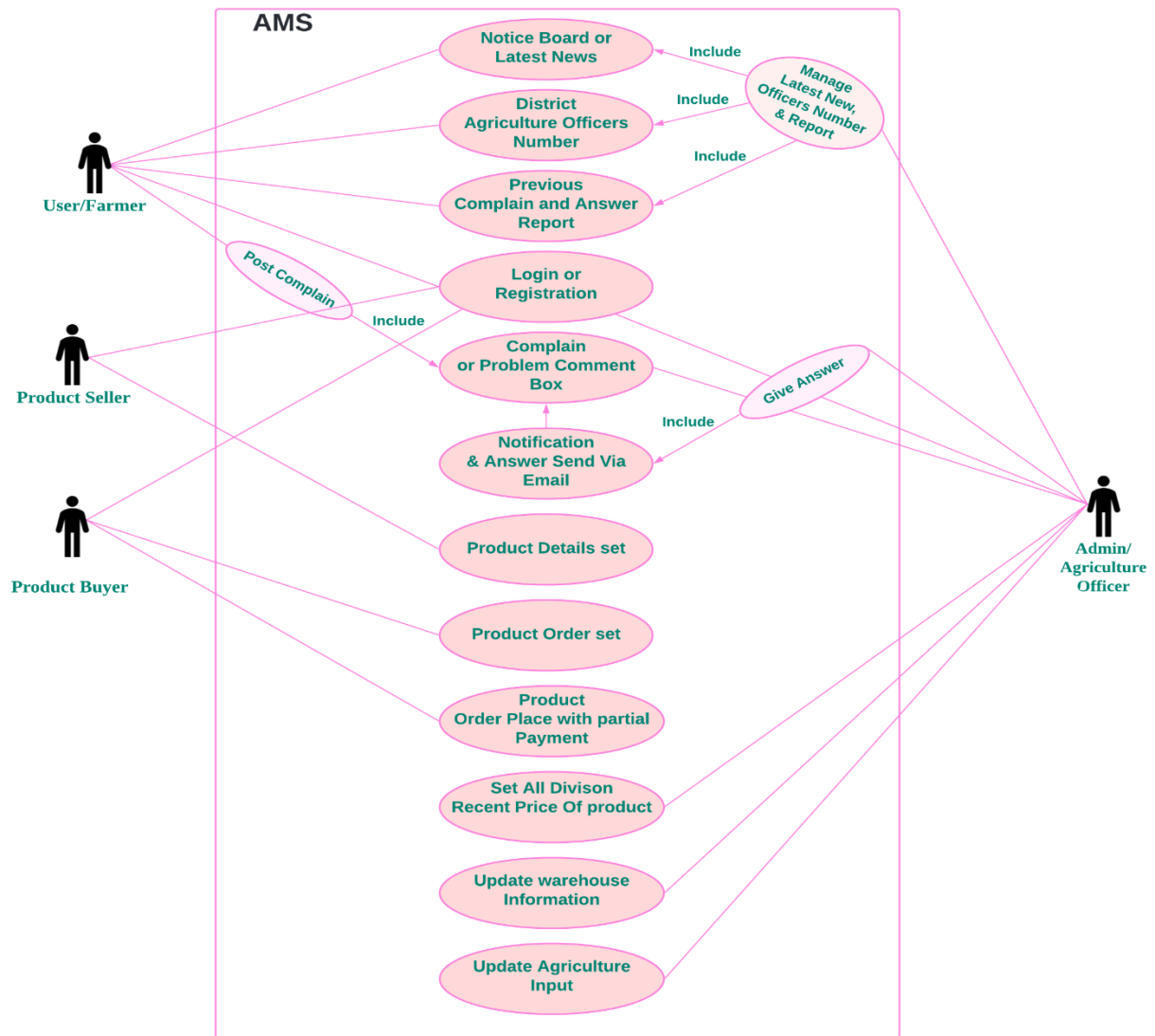


Figure 17: Use Case of the Propose AMS System

8.4 Full System Activity Diagram

There are a variety of users in the planned AMS system, each with their unique workflow. The activity diagrams for various work processes are shown below.

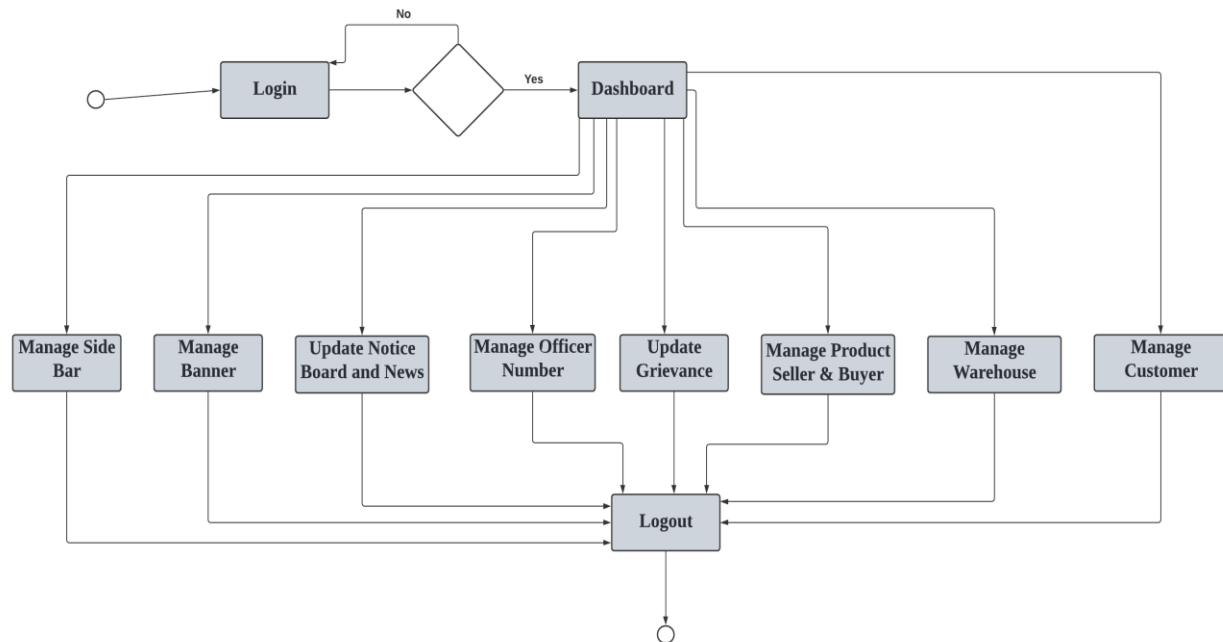


Figure 18:Admin Activity Diagram AMS System

8.5 Agriculture Officer/Admin Activity Diagram

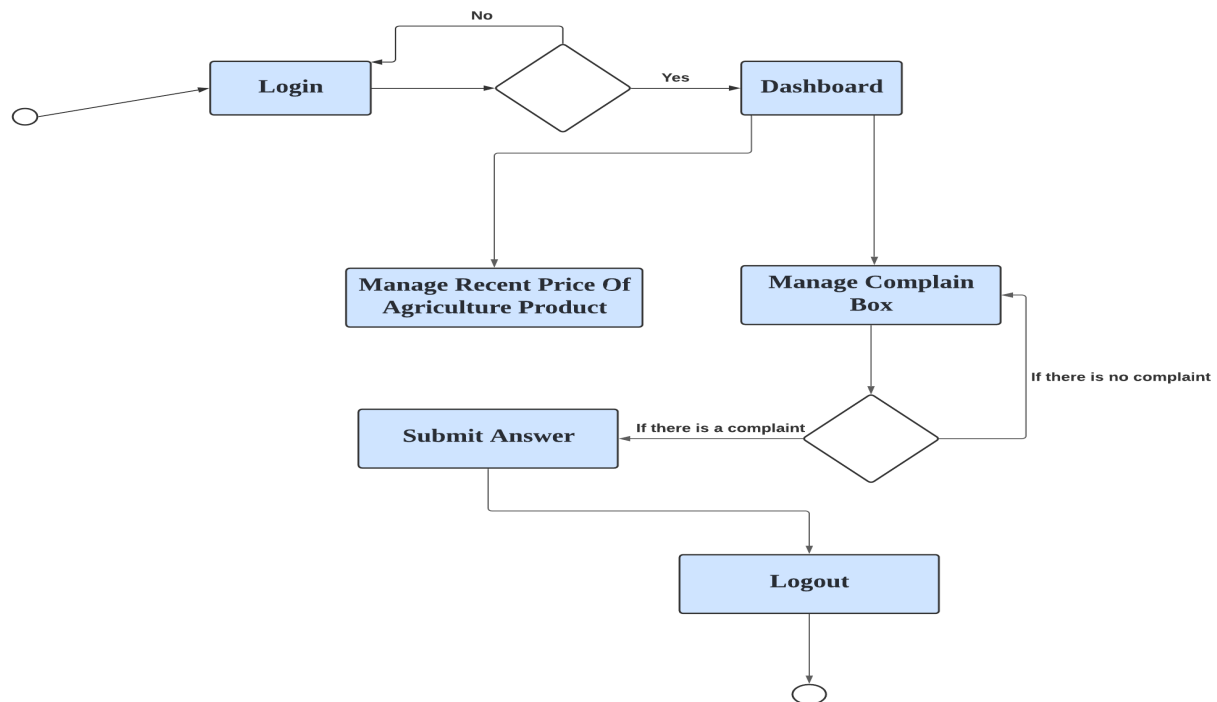


Figure 19: Agriculture Officer/Admin Activity Diagram AMS System

8.5 Catalogue of Requirements

A requirement catalogue is a list that contains all of the identified needs for a project in the agriculture management system. Now I'll enter the identified needs into the requirement catalog using the usual format.

Complain/Problem Solution requirement catalogue

Source	Sing Off	Priority	Requirement
Complain/Problem Solution	Farmer/General Users	Must Have	M-01
Functional Requirement Farmer requirement catalogue: The farmer has to submit their problem/complaint.			
Non-functional requirement			
Description	Target Value	Acceptance Value	Comment
Complain (per/day)	12000 (per/day.)	9500	

Table 14: Requirement Catalogue for Complain/Problem Solution

Registration and login requirement catalogue

Source	Sing Off	Priority	Requirement
Admin	All Users	Must Have	M-02
Functional Requirement Registration and login requirement catalogue: All sorts of system users must first register and then log in to the system. Without appropriate authentication, no one can conduct an activity.			
Non-functional requirement			
Description	Target Value	Acceptance Value	Comment

Registration and login requirement (Per/day)	10000 (per/day.)	7500	
--	------------------	------	--

Table 15: Requirement Catalogue for Complain/Problem Solution

Product Buyer & Seller requirement catalogue

Source	Sing Off	Priority	Requirement
Product	Buyer & Seller	Must Have	M-03
Functional Requirement Product Buyer & Seller requirement catalogue: The product seller will give the details of his product and the product buyer will order.			
Non-functional requirement			
Description	Target Value	Acceptance Value	Comment
Complain (per/day)	5000 (per/day.)	3500	

Table 16: Requirement Catalogue for Product Buyer & Seller

Warehouse requirement catalogue

Source	Sing Off	Priority	Requirement
Product	Buyer & Seller	Must Have	M-04
Functional Requirement Warehouse requirement catalogue: How much more space can be stored in the warehouse for storing agricultural products and the number of the owner or management will be claimed.			
Non-functional requirement			

Description	Target Value	Acceptance Value	Comment
Warehouse (per/day)	3000 (per/day.)	2000	

Table 17: Requirement Catalogue for Warehouse

Agriculture Officer Contact List requirement catalogue

Source	Sing Off	Priority	Requirement
Agriculture Officer Contact List	Farmer/ All Users	Must Have	M-05
Functional Requirement Agriculture Officer Contact List requirement catalogue: Farmers will get the number of the officer of the agriculture department of their nearest district.			
Non-functional requirement			
Description	Target Value	Acceptance Value	Comment
Agriculture Officer Contact List (per day)	1000 (per day.)	500	

Table 18: Requirement Catalogue for Agriculture Officer Contact List

8.6 Prioritized Requirements List (PRL)

To create a priority list of recognized requirements, I used the MoSCoW prioritizing approach. The Agriculture Management System's priority requirements are shown below.

Must Have requirements-

SL	Requirement	Priority
1.	All users (Farmer, Product Buyer, and Seller) must register and log in.	Must Have
2.	Manage Complain Box & Solution of that particular complain	Must Have
3.	Manage Answer Via Email to farmer	Must Have
4.	Manage previous problem and solution for farmer.	Must Have
5.	Manage Agriculture Officer contact list.	Must Have
6.	Manage warehouse and recent price by admin	Must Have
7.	Manage Agriculture Product for Buy and Sell	Must Have
8.	Report of sell and buy product	Must Have
9.	Store All reports	Must Have

Should Have Requirements-

SL	Requirement	Priority
1.	Admin/Agriculture Officer manipulation	Should Have
2.	Facebook, Twitter	Should Have

Could Have Requirements-

SL	Requirement	Priority
1.	Manage All latest news by admin	Could Have
2.	Manage Agriculture Input	Could Have

8.7 Complain/Problem Comment Box

[About Us](#)
[Office/Agency](#)
[Grievance](#)
[Products](#)
[Marketing](#)
[Agricultural Inputs](#)
[Warehouse](#)
[Complain Box](#)

Complain/Comment Box

Name:

Email address:

Complain:

Submit

The Honourable Prime Minister of Bangladesh



Sheikh Hasina

[Details](#)

The Honourable Minister of Agriculture



Mohammad Abdur Razzaque

[Details](#)

Figure 20: Complain/Problem Comment Box Prototype

	About Us	Office/Agency	Grievance	Products	Marketing	Agricultural Inputs	Warehouse	Complain Box
--	--------------------------	-------------------------------	---------------------------	--------------------------	---------------------------	-------------------------------------	---------------------------	------------------------------

Registration

Name:

Email address:

Password:

Submit

Already Registered? [Click Here](#)

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Sheikh Hasina

Details

The Honourable Minister of Agriculture



Mohammad Abdur Razzaque

Details

Figure 21:Product Buyer Registration Prototype



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Sheikh Hasina

Details

The Honourable Minister of Agriculture



Mohammad Abdur Razzaque

Details

চালের দাম শিগগিরই স্থিতিশীল হবে, কৃষক-ভোক্তা পর্যায়ে :

ন দেওয়ার পরে ২০২২ এ এর আবার একটি ভাতা দেওয়ার উদ্যোগ নিয়েছে সরকার। (After paying)



Notice Board

@ কৃষি ভাতা এর সর্বশেষ টাকা দেওয়ার পরে ২০২২ এ এর আবার একটি ভাতা দেওয়ার উদ্যোগ নিয়েছে সরকার। (After paying the latest amount of agricultural allowance, the government has taken initiative to give another allowance in 2022.)

@ উত্তম কৃষি চর্চা নীতিমালা দ্রুত বাস্তবায়ন করার জন্য উদ্যোগ নিয়ে কিছু সমাবেশ এর আয়োজন করা হবে ফেব্রুয়ারি এবং মার্চ মাস জুড়ে। (Some rallies will be held throughout the months of February and March to expedite the implementation of the Good Agricultural Practices Policy.)

@ কৃষি এবং খাদ্য নিরাপত্তার উপর গুরুত্ব দিয়ে ডি-৮ মিটিং শুরুর হচ্ছে বুধবার(The D-8 meeting on agriculture and food security will begin on Wednesday)

@ জাতীয় বীজ বোর্ডের সভা/থানার ১০টি জাতের নিবন্ধন ও ছাড়করণ(Meeting of National Seed Board / Registration and release of 10 varieties of paddy)

Important information and links(গুরুত্বপূর্ণ তথ্য এবং লিংক সমূহ)

- ✓ বাংলাদেশ কৃষি উন্নয়ন কর্পোরেশন (BADC)
- ✓ বাংলাদেশ কৃষি গবেষণা কাউন্সিল (BARC)
- ✓ বাংলাদেশ কৃষি গবেষণা ইনস্টিটিউট(BARI)

Figure 22:Notice Board & Latest News Prototype

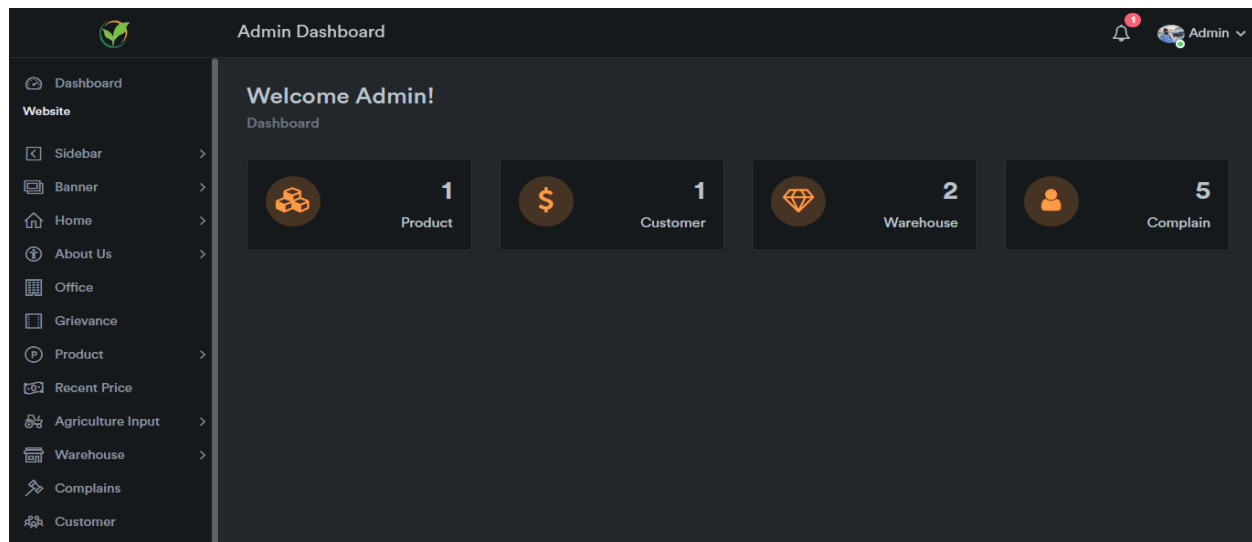


Figure 23:Admin Home Prototype

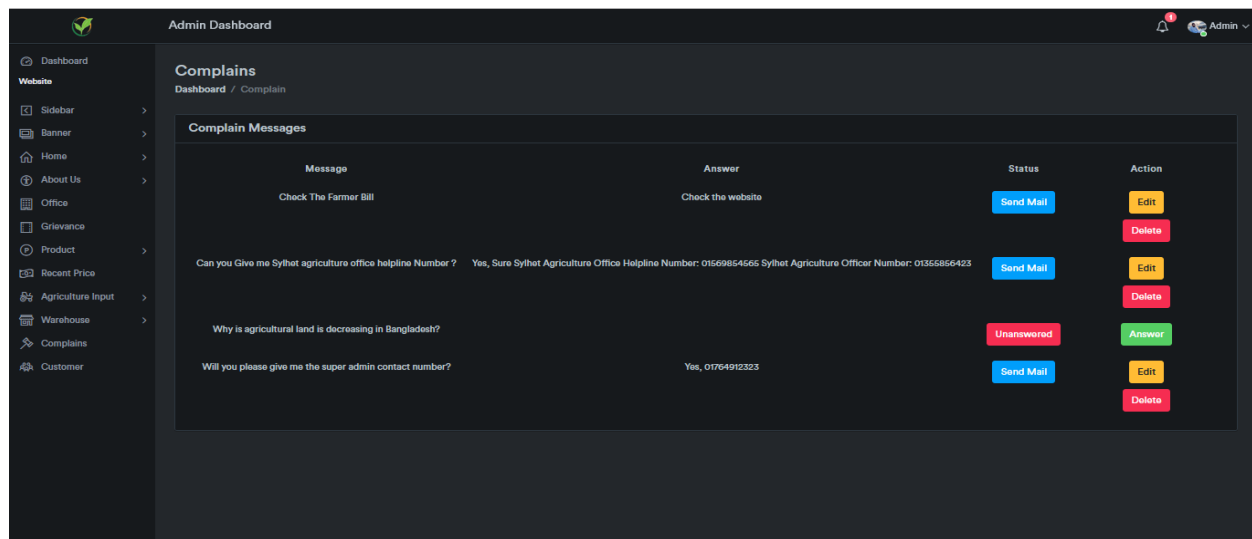


Figure 24:Complains Request Prototype

Admin Dashboard

Recent Price
Dashboard / Recent Price

Recent Price Add Recent Price

Name	Price Type	Measurement	Dhaka	Chittagong	Khulna	Rajshahi	Rangpur	Sylhet	Barishal	Action
Rice (চাউল)	Retail	Kilogram	60	55	52	50	57	58	55	Edit Delete
	Wholesale	Quintal	5000	2900	2800	2000	3000	3200	3350	
Pepper (কাজিচ)	Retail	Kilogram	30	35	25	20	28	32	32	Edit Delete
	Wholesale	Quintal	2500	4000	1700	1500	2200	3200	3800	
Onion (পাটাত)	Retail	Kilogram	12	14	13	15	12	23	21	Edit Delete
	Wholesale	Quintal	1234	4318	3421	5433	6543	65	2343	
Potato (আলু)	Retail	Kilogram	12	13	14	15	16	17	20	Edit Delete
	Wholesale	Quintal	1234	1345	1456	1567	1678	1789	1890	

Figure 25: Officer's Update Recent Price Prototype

Chapter 9 – Engineering

9.1 Approach New System Modules:

In my project, the Agriculture Management System (AMS) new system, there are several components. Following that, some of the fundamental components, as well as the working procedure of my project AMS, are detailed below.

Module for logging in

Serial No.	Action of User	Serial No.	Action of System
1.	The admin will click on the login link to access.	1.	A login form will appear before users enter the system.
2.	To login the admin needs to enter their credentials.	2.	The system verifies/ validates the information provided in the login form.
3.	Admin has to click on login button.	3.	The system verifies the administrator's identity. If you are authorized, you will be sent to the admin dashboard; otherwise, you will be sent back to the login page with an error notice.

Table 19:Module for logging in

Farmer Complain Answer Module.

Serial No.	Action of Farmer	Serial No.	Action of System
1.	The admin will click the complain/problem comment link	1.	All complain/problem comment are shown
2.	Check the complaint and answer all. After that send the answer.	2.	Farmer or General User get their complain answer via email provide by admin.

Table 20:Farmer Complain Answer Module**Product Buyer and Seller Module**

Serial No.	Action of product buyer & seller	Serial No.	Action of System
1.	Both the product seller and the product customer should go to the login page and then to the home page.	1.	The system will take information from the buyer and seller.
2.	Seller set their product detail and buyer can order their chosen product.	2.	Manage product and delivery. Also Update all information.

Table 21:Product Buyer and Seller Module**Recent Price Module.**

Serial No.	Action of Recent Price	Serial No.	Action of System
1.	Admin/Officer click the page name recent price	1.	The system will show blank section of recent price page. Then ask the prices.
2.	Admin or officer will submit recent price of agriculture product of their own division.	2.	The System show the seven division current prices of agricultural products or daily necessities.

Table 22:Recent Price Module.

Warehouse Module.

Serial No.	Action of Warehouse	Serial No.	Action of System
1.	Admin click the warehouse link	1.	System asks about warehouse
2.	Admin set all information about warehouse.	2.	The System show the how much space is left in the warehouse for storage of agricultural products, how much can be stored.

Table 23: Warehouse Module.

9.2 Use Case Diagram of the AMS

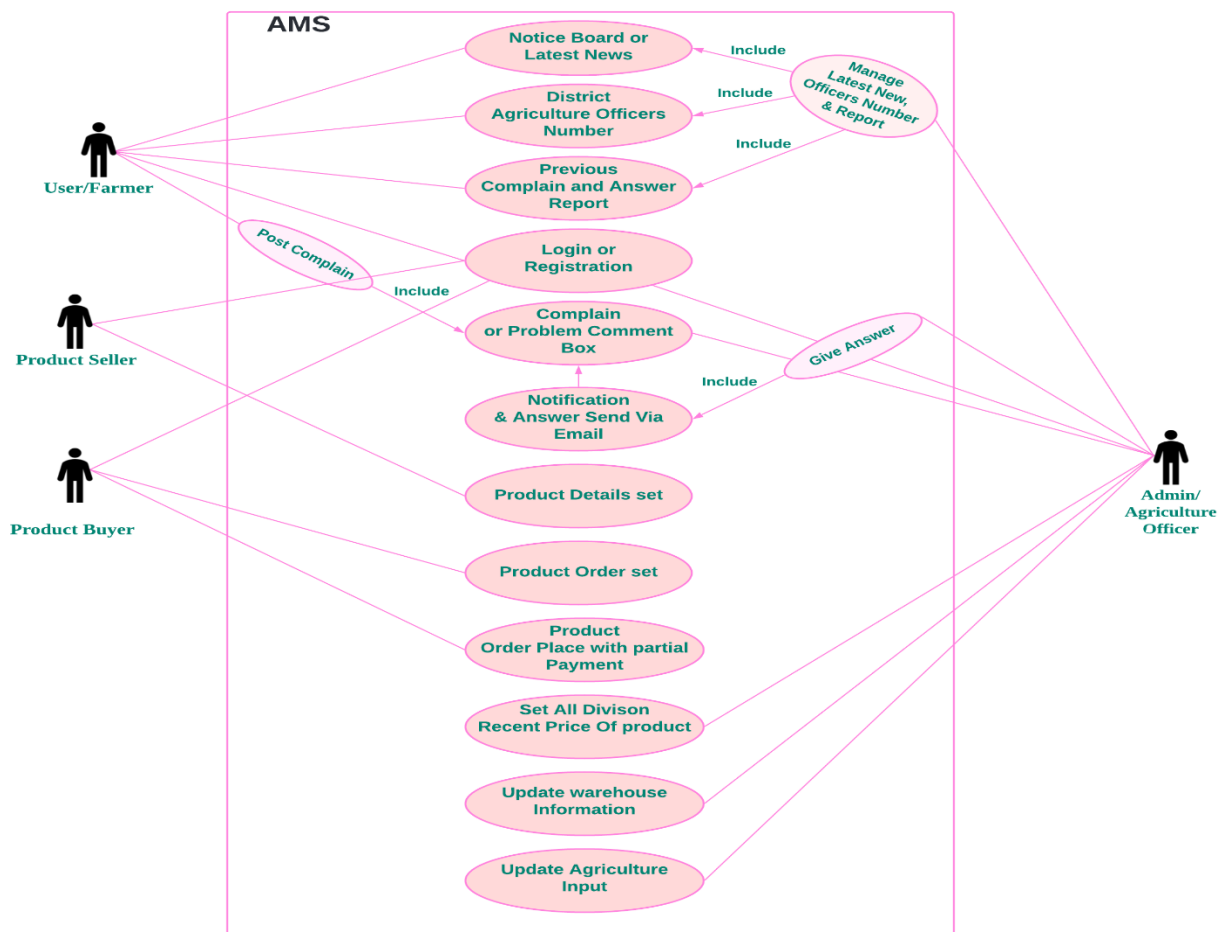


Figure 26:AMS Use Case

9.3 The AMS's Class Diagram

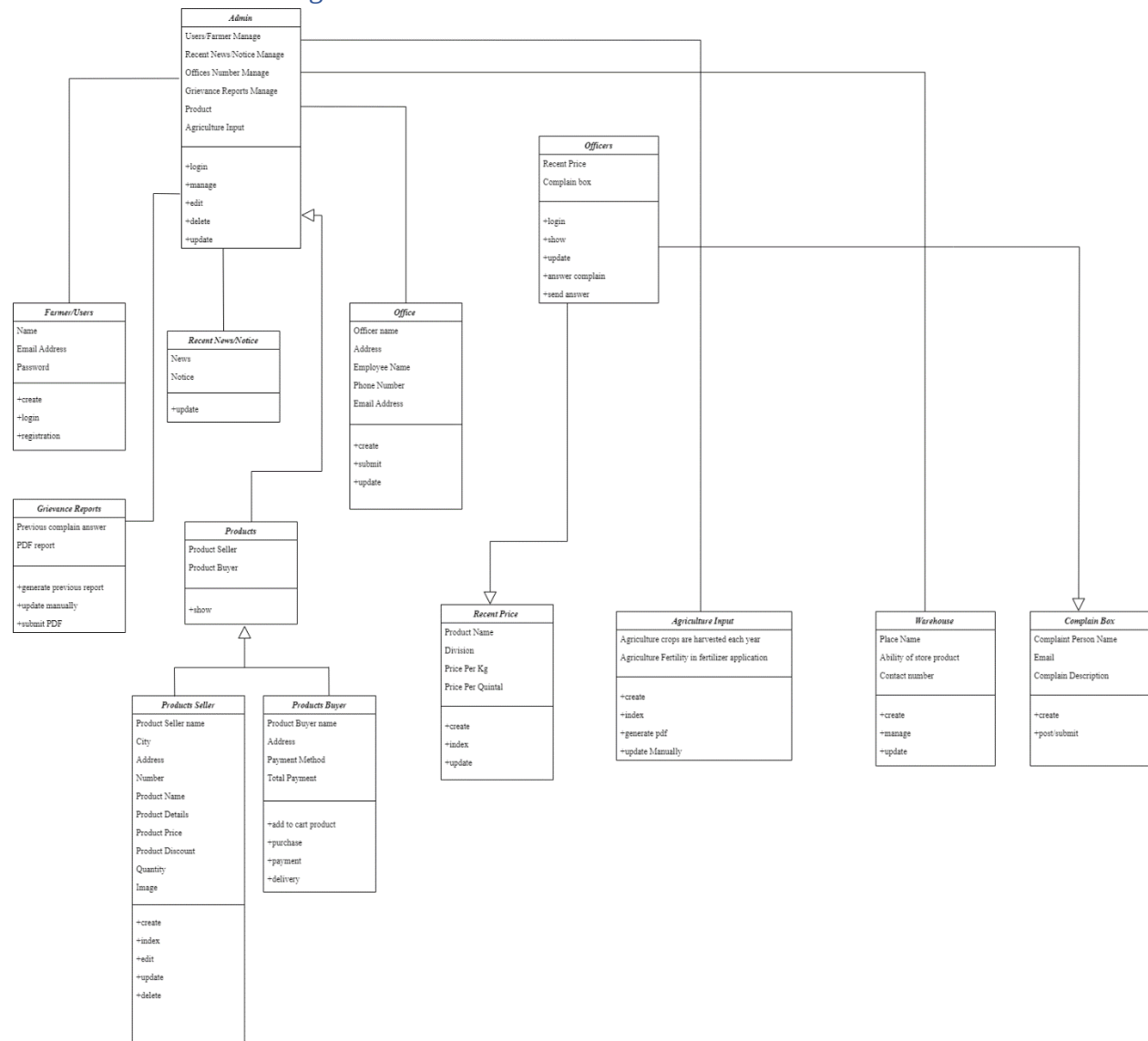


Figure 27:AMS Class Diagram

9.4 Entity Relationship Diagram

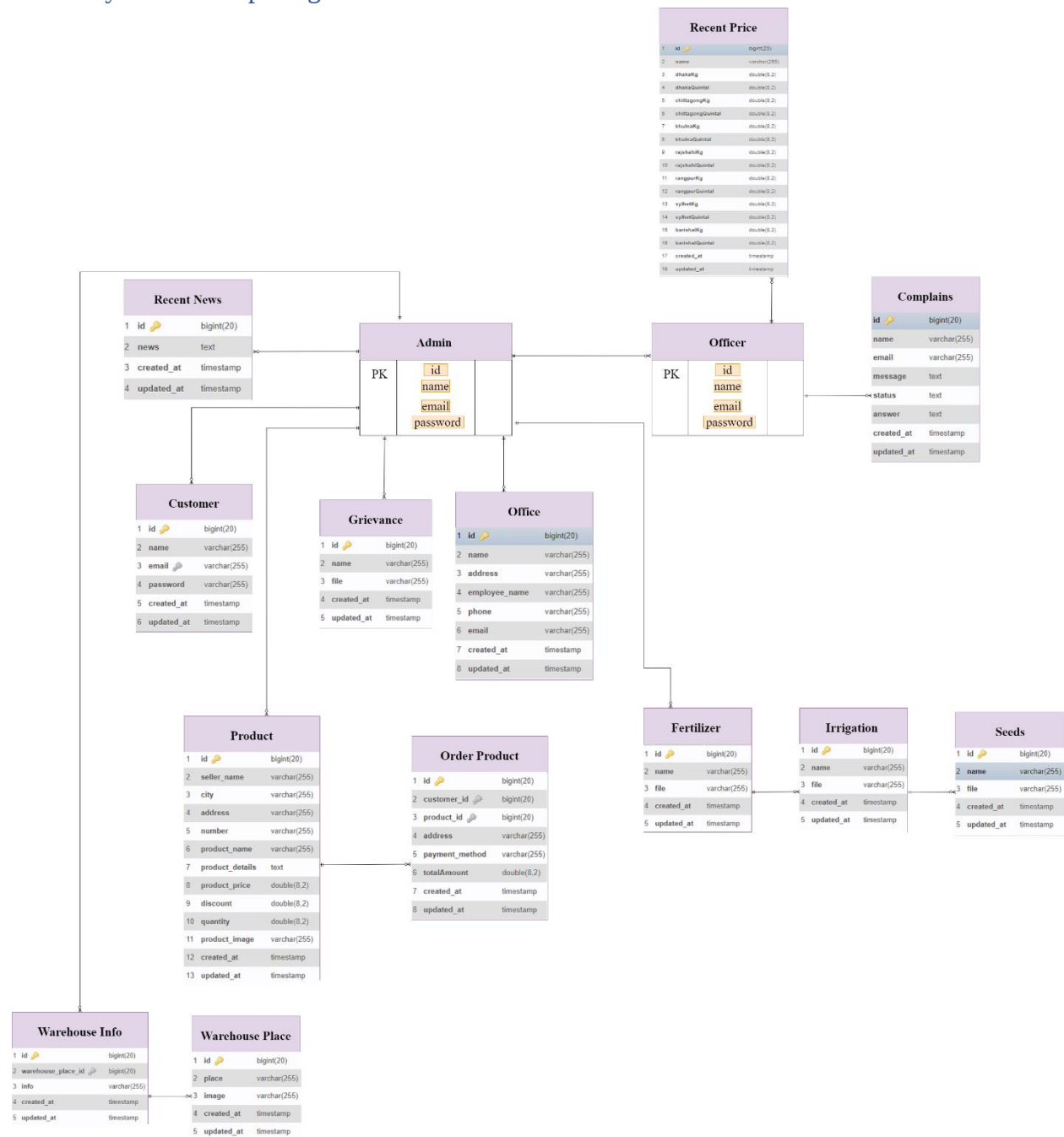


Figure 28:AMS ERD

9.5 AMS Sequence Diagram

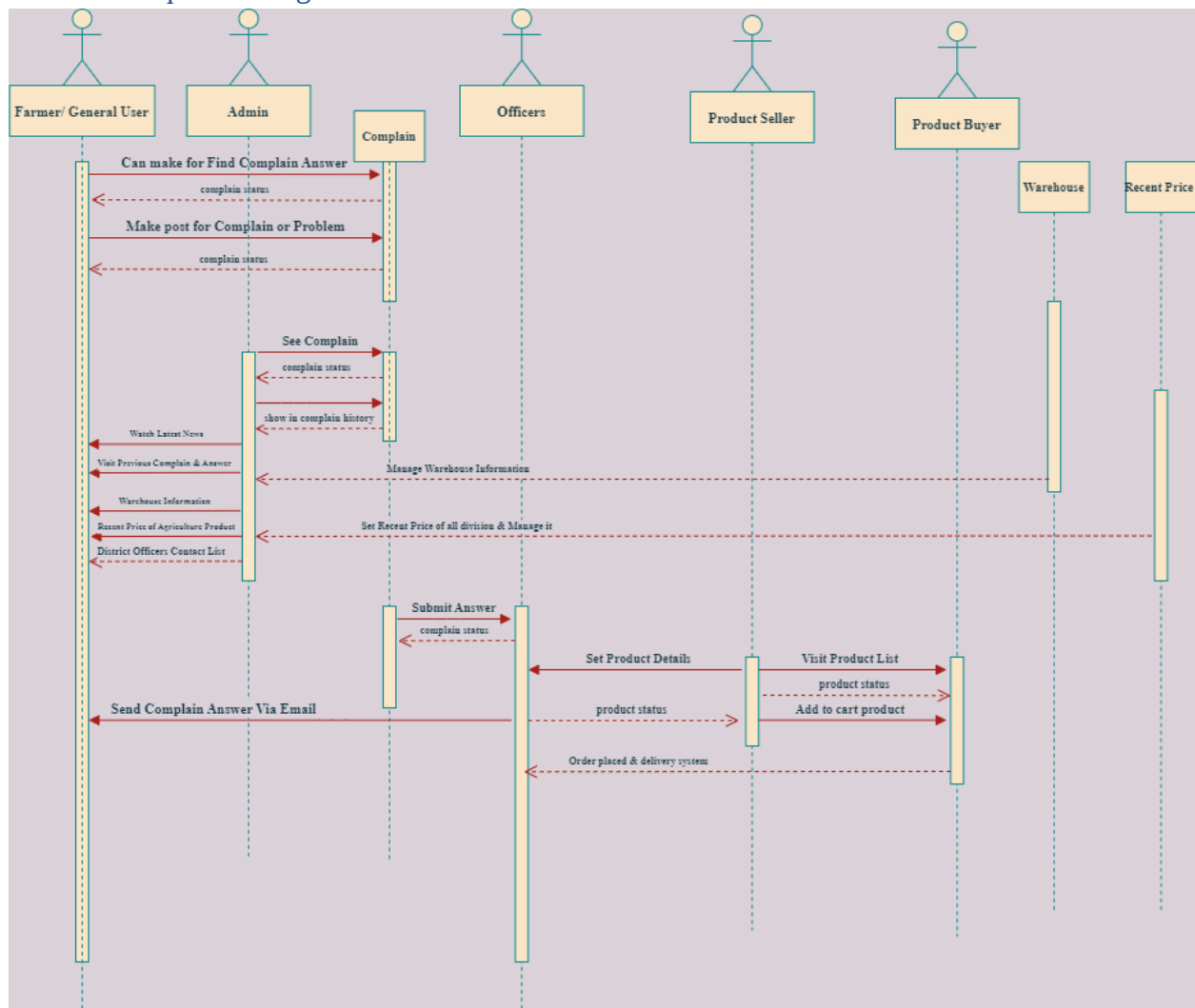


Figure 29:AMS Sequence Diagram

9.6 The AMS component diagram

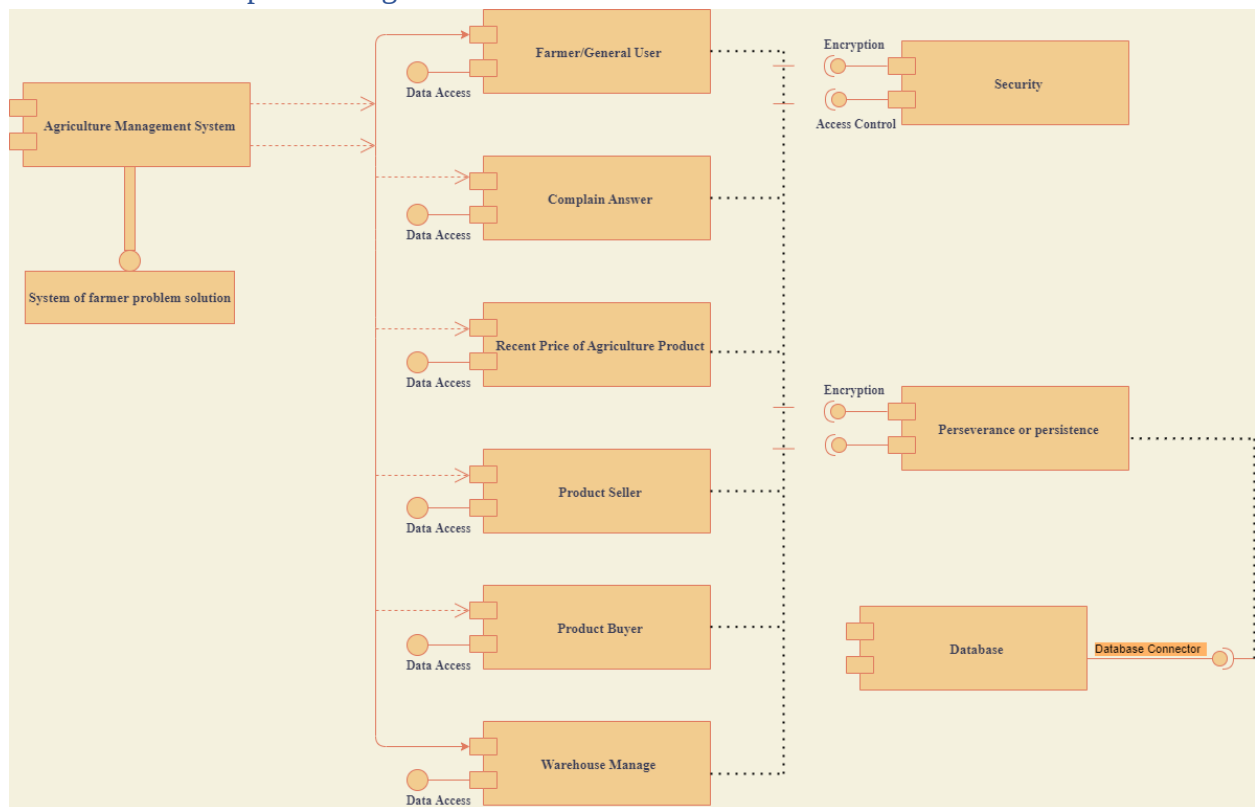


Figure 30: Component Diagram of AMS

9.7 Deployment Diagram of AMS



Figure 31:Deployment Diagram of AMS

9.8 System Interface Design

Home page Interface Design



Figure 32:Interface design home page

Complain/Comment Box Page interface

Complain/Comment Box

Name:

Email address:

Complain:

Submit

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 Mohammad Abdur Razzaque
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Figure 33: Complain/Comment Box Page interface

Complain/Comment Box Answer or feedback Page interface

Admin Dashboard

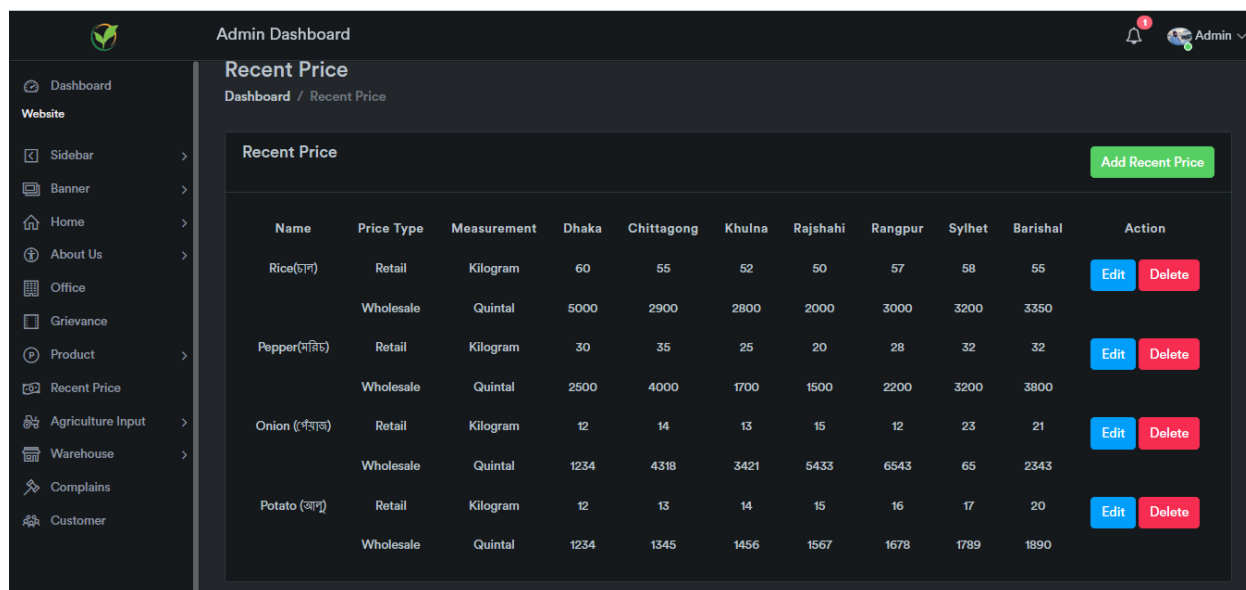
Complains
 Dashboard / Complain

Complain Messages

Message	Answer	Status	Action
Check The Farmer Bill	Check the website	Send Mail	Edit Delete
Can you Give me Sythet agriculture office helpline Number ?	Yes, Sure Sythet Agriculture Office Helpline Number: 01569854565 Sythet Agriculture Officer Number: 01355856423	Send Mail	Edit Delete
Why is agricultural land is decreasing in Bangladesh?		Unanswered	Answer Edit Delete
Will you please give me the super admin contact number?	Yes, 01764912323	Send Mail	Edit Delete

Figure 34: Complain/Comment Box Answer or feedback Page interface

Recent Price add Page interface



Recent Price

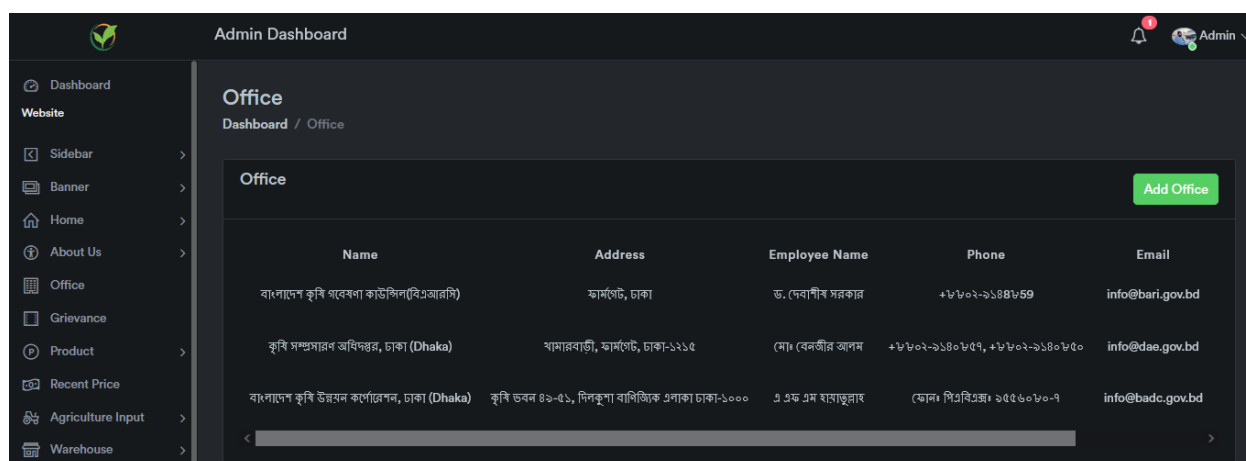
Dashboard / Recent Price

[Add Recent Price](#)

Name	Price Type	Measurement	Dhaka	Chittagong	Khulna	Rajshahi	Rangpur	Sylhet	Barishal	Action
Rice(চাউ)	Retail	Kilogram	60	55	52	50	57	58	55	Edit Delete
	Wholesale	Quintal	5000	2900	2800	2000	3000	3200	3350	
Pepper(পাট)	Retail	Kilogram	30	35	25	20	28	32	32	Edit Delete
	Wholesale	Quintal	2500	4000	1700	1500	2200	3200	3800	
Onion (পঁয়াজ)	Retail	Kilogram	12	14	13	15	12	23	21	Edit Delete
	Wholesale	Quintal	1234	4318	3421	5433	6543	65	2343	
Potato (আলু)	Retail	Kilogram	12	13	14	15	16	17	20	Edit Delete
	Wholesale	Quintal	1234	1345	1456	1567	1678	1789	1890	

Figure 35:Recent Price add Page interface

Agriculture Officer add Page interface



Office

Dashboard / Office

[Add Office](#)

Name	Address	Employee Name	Phone	Email
বাংলাদেশ কৃষি গবেষণা কাউন্সিল(বিএআরসি)	ফার্মহাট, ঢাকা	ড. দেবশীল সরকার	+৮৮০২-৯১৪৪৮৫৭	info@bari.gov.bd
কৃষি সম্প্রদায়ের অধিদপ্তর, ঢাকা (Dhaka)	খামারবাড়ী, ফার্মহাট, ঢাকা-১২১৫	মোঃ বেনজীর আলম	+৮৮০২-৯১৪০৮৫৭, +৮৮০২-৯১৪০৮৫০	info@dae.gov.bd
বাংলাদেশ কৃষি উন্নয়ন কর্পোরেশন, ঢাকা (Dhaka)	কৃষি ভবন ৪৯-৫১, বিন্দুকা বাণিজ্যিক এলাকা ঢাকা-১০০০	এ.এফ.এম. হান্নাতুল্লাহ	ফোন: পিএবিএক্স: ৯৫৫৬০৮০-৭	info@badc.gov.bd

Figure 36:Agriculture Officer add Page interface

Product List Page Interface



Figure 37: Product List Page Interface

Seller create Product Page Interface

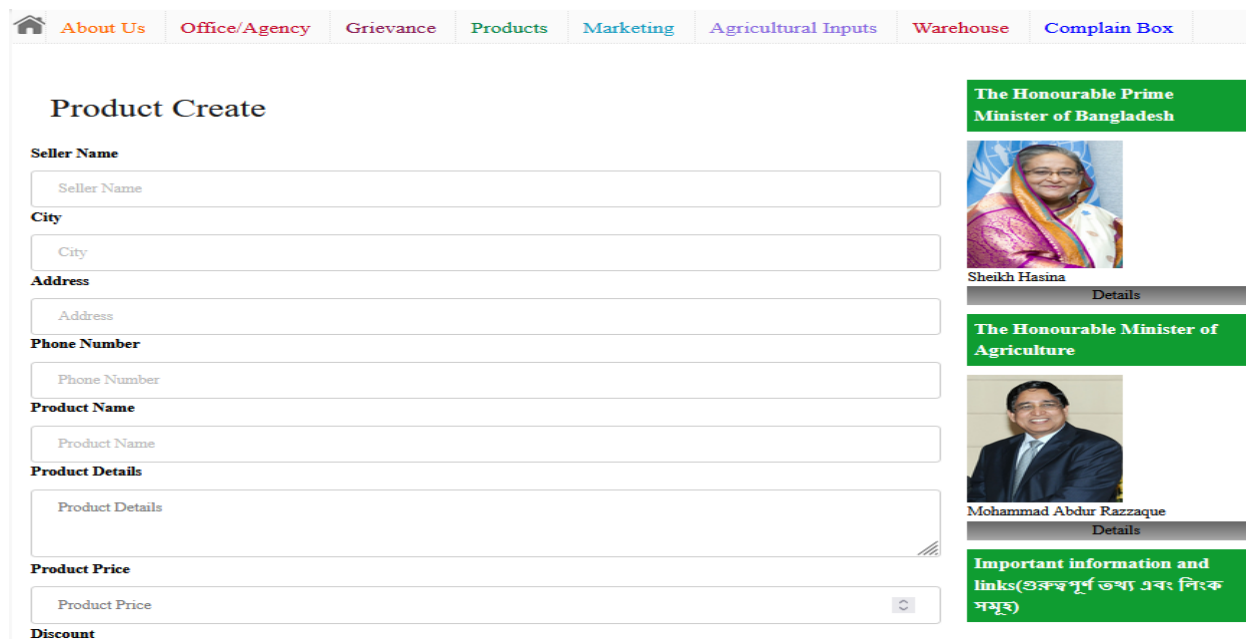


Figure 38: Seller create Product Page Interface

Warehouse Page Interface

[About Us](#)
[Office/Agency](#)
[Grievance](#)
[Products](#)
[Marketing](#)
[Agricultural Inputs](#)
[Warehouse](#)
[Complain Box](#)

Warehouse

জয়পুরহাট চাল মজুদ কেন্দ্র(Joypurhat Rice Storage Center)



- ▶ ৫০০০০০ টন চাল মজুদ করা যায়
- ▶ ২৫০০০০ টন চাল মজুদ আছে
- ▶ ফোন নম্বর : ০১৭৬৪৯১২৫২৫

জয়পুরহাট আলু মজুদখানা(Joypurhat Potato Store)



- ▶ আলু মজুদ করা যায় ২০,০০০০০
- ▶ আলু মজুদ আছে ১০,০০০০০
- ▶ মোবাইল নম্বর: ০১৭৬৮৯৪২৩১৪

বগুড়া আলু মজুদ কেন্দ্র (Bogra Potato Storage Center)



- ▶ আলু মজুদ করা হয় ২৫,০০০০
- ▶ মজুদ আছে ১৫,০০০০
- ▶ মোবাইল নম্বর: ০১৭৬৫৮৫৩২৫৩

বগুড়া ধান মজুদ কেন্দ্র (Bogra Paddy Storage Center)

The Honourable Prime Minister of Bangladesh



Sheikh Hasina

Details

The Honourable Minister of Agriculture



Mohammad Abdur Razzaque

Details

Important information and links(গুরুত্বপূর্ণ তথ্য এবং লিংক সমূহ)

Figure 39: Warehouse Page Interface

Chapter 10 – Deployment

10.1 Core Module Coding Sample:

For the front-end development of the AMS, I used HTML5, CSS, and JavaScript. And for back-end development, I utilized MySQL as a database management system and PHP Laravel 7. Here are some of the most crucial portion code examples.

```

() composer.json  index.blade.php ×
resources > views > website > customer_login > register > index.blade.php
1  @extends('website.website_master')
2  @section('website')
3  <div id="contents" class="sixteen columns">
4      <div class="twelve columns" id="left-content">
5          <div class="row mainwrapper">
6              <h3 style="padding: 15px 30px;">Registration</h3>
7              <div class="row">
8                  <div class="webform">
9                      <div class="body">
10                         <form class="frm-bldr" method="POST" action="{{ route('storeWebsiteRegister') }}">
11                             @csrf
12                             <div class="form-group">
13                                 <label for="name">Name: </label>
14                                 <input type="text" class="form-control" id="name" name="name"
15                                     aria-describedby="emailHelp" placeholder="Enter Your Name" required>
16                             </div>
17                             <div class="form-group">
18                                 <label for="email">Email address: </label>
19                                 <input type="email" class="form-control" id="email" name="email"
20                                     aria-describedby="emailHelp" placeholder="Enter Your Email(Email Must be unique)" required>
21                             </div>
22                             <div class="form-group">
23                                 <label for="password">Password: </label>
24                                 <input type="password" class="form-control" id="password" name="password"
25                                     aria-describedby="emailHelp" placeholder="Enter Your Password" required>
26                             </div>
27                             <div class="text-center">
28                                 <button type="submit" class="btn btn-info">Submit</button>
29                             </div>
30                             <p>Already Registered? <a href="{{ route('websiteLogin') }}">Click Here</a> </p>
31                         </form>
32                     </div>

```

```

() composer.json  index.blade.php ×
resources > views > website > customer_login > register > index.blade.php
35  }
36  .frm-bldr input,
37  textarea {
38      width: 100%;
39      padding: 12px 20px;
40      margin: 8px 0;
41      display: inline-block;
42      border: 1px solid #ccc;
43      border-radius: 4px;
44      box-sizing: border-box;
45  }
46
47  button[type=submit] {
48      width: 100%;
49      background-color: #4CAF50;
50      color: white;
51      padding: 14px 20px;
52      font-size: 16px;
53      margin: 8px 0;
54      border: none;
55      border-radius: 4px;
56      cursor: pointer;
57  }
58
59  input[type=submit]:hover {
60      background-color: #45a049;
61  }
62
63  </style>
64  </div>
65  <div class="footer"></div>
66  </div>

```

Figure 40:Complain sample for the users

```

resources > views > website > complain > index.blade.php
1  @extends('website.website_master')
2  @section('website')
3  <div id="contents" class="sixteen columns">
4      <div class="twelve columns" id="left-content">
5          <div class="row mainwrapper">
6              <h3 style="padding: 15px 30px;">Complain/Comment Box</h3>
7              <div class="row">
8                  <div class="webform">
9                      <div class="body">
10                         <form class="frm-bldr" method="POST" action="{{ route('store.complain') }}">
11                             @csrf
12                             <div class="form-group">
13                                 <label for="name">Name: </label>
14                                 <input type="text" class="form-control" id="name" name="name"
15                                     placeholder="Enter Your Name" required>
16                             </div>
17                             <div class="form-group">
18                                 <label for="email">Email address: </label>
19                                 <input type="email" class="form-control" id="email" name="email"
20                                     aria-describedby="emailHelp" placeholder="Enter Your Email" required>
21                             </div>
22                             <div class="form-group">
23                                 <label for="message">Complain: </label>
24                                 <textarea class="form-control" id="message" name="message" rows="3" required></textarea>
25                             </div>
26                             <div class="text-center">
27                                 <button type="submit" class="btn btn-info">Submit</button>
28                             </div>
29                         </form>
30                     <style>
31                         form{
32                             margin-left: 15px;
33                     }
34                     .frm-bldr input,
35                     textarea {
36                         width: 100%;
37                         padding: 12px 20px;
38                         margin: 8px 0;
39                         display: inline-block;
40                         border: 1px solid #ccc;
41                         border-radius: 4px;
42                         box-sizing: border-box;
43                     }
44
45                     button[type=submit] {
46                         width: 100%;
47                         background-color: #4CAF50;
48                         color: white;
49                         padding: 14px 20px;
50                         font-size: 16px;
51                         margin: 8px 0;
52                         border: none;
53                         border-radius: 4px;
54                         cursor: pointer;
55                     }
56
57                     input[type=submit]:hover {
58                         background-color: #45a049;
59                     }
60                 </style>
61             </div>
62         </div>
63     <div class="footer"></div>
64 </div>

```

Figure 41:Complain sample for the users

```

() composer.json  index.blade.php X
resources > views > website > product > buyer > index.blade.php
1 @extends('website.website_master')
2 @section('website')
3 <div class="twelve columns" id="left-content">
4     <div class="row mainwrapper">
5         <h3 style="padding: 15px;">Product Lists</h3>
6         <div class="row" style="padding-left: 15px;">
7             @foreach($products as $product)
8                 <div id="box-1" class="three columns service-box products">
9                     
10
11                     <div class="product-details">
12                         <h6 class="product-title"><strong>{{ $product->product_name }}</strong></h6>
13                         <p><strong>Rate : </strong> Tk. {{ $product->product_price }}/KG</p>
14                         <p><strong>Quantity : </strong> 1 + KG</p>
15                     </div>
16                     <div class="product-footer">
17                         <form action="{{ route('store.product.cart') }}" method="post" style="margin-bottom: 10px !important;">
18                             @csrf
19                             <input type="hidden" name="product_id" value="{{ $product->id }}">
20                             <button type="submit" style="background-color: green; color: white">Add To Cart</button>
21                         </form>
22                     </div>
23                 </div>
24             @endforeach
25         </div>
26     </div>
27 </div>
28 <style>
29     .products{
30         margin-right: 45px;
31     }
32     .products img{
33         width: 100%;
34         margin: 0 auto;
35         border-bottom: 5px solid #dedede;
36         box-shadow: 0 1px 2px 0 rgba(0, 0, 0, 0.2), 0 1px 3px 0 rgba(0, 0, 0, 0.19);
37     }
38     .products .product-details{
39         text-align: center;
40         padding-bottom: 10px;
41     }
42
43     .products .product-footer{
44         text-align: center;
45         font-weight: bold;
46     }
47
48 </style>
49 @endsection
50

```

Figure 42: Product Buyer

```

{} composer.json  index.blade.php X
resources > views > website > product > seller > index.blade.php
1 @extends('website.website_master')
2 @section('website')
3 <div id="contents" class="sixteen columns">
4     <div class="twelve columns" id="left-content">
5         <div class="row mainwrapper">
6             <h3 style="padding: 15px 30px;">Product Create</h3>
7             <div class="row">
8                 <div class="webform">
9                     <div class="body">
10                        <form class="frm-bldr" method="POST" action="{{ route('store.website.product') }}" enctype="multipart/form-data">
11                            @csrf
12                            <div class="form-group">
13                                <label for="seller_name">Seller Name</label>
14                                <input type="text" id="seller_name" class="form-control" name="seller_name"
15                                    placeholder="Seller Name" required>
16                            </div>
17                            <div class="form-group">
18                                <label for="city">City</label>
19                                <input type="text" id="city" class="form-control" name="city" placeholder="City" required>
20                            </div>
21
22                            <div class="form-group">
23                                <label for="address">Address</label>
24                                <input type="text" id="address" class="form-control" name="address"
25                                    placeholder="Address" required>
26                            </div>
27                            <div class="form-group">
28                                <label for="number">Phone Number</label>
29                                <input type="text" id="number" class="form-control" name="number"
30                                    placeholder="Phone Number" required>
31                            </div>
32
33                        <div class="form-group">
34                            <label for="product_name">Product Name</label>
35                            <input type="text" id="product_name" class="form-control" name="product_name"
36                                placeholder="Product Name" required>
37                        </div>
38                        <div class="form-group">
39                            <label for="product_details">Product Details</label>
40                            <textarea name="product_details" id="product_details" rows="2" required>Product Details</textarea>
41                        </div>
42
43                        <div class="form-group">
44                            <label for="product_price">Product Price</label>
45                            <input type="number" id="product_price" class="form-control" name="product_price"
46                                placeholder="Product Price" required>
47                        </div>
48                        <div class="form-group">
49                            <label for="discount">Discount</label>
50                            <input type="number" id="discount" class="form-control" name="discount"
51                                placeholder="Product Discount" required>
52                        </div>
53
54                    </div>
55                </div>
56            </div>
57        </div>
58    </div>
59 </div>

```

Figure 43:Product Seller

```

resources > views > website > recent_price > index.blade.php
175         color: white;
176     }
177
178     /*.market_price tr td[rowspan] , .market_price tr:nth-child(4n) td[rowspan] {background-color:#009900; color:#ffffff;} */
179     .market_price td b {
180         font-size: 18px
181     }
182
183 </style>
184 <script type="text/javascript" src="{{ asset('frontend/marketing/js/bamis/easingTicker/jquery-1.8.0.min.js') }}"></script>
185 <script type="text/javascript">
186     $(document).ready(function () {
187
188         var rowcount = 0;
189         $('table td[rowspan]').parent().each(function (index) {
190             if (rowcount % 2 == 0) {
191                 $(this).css('background-color', 'green');
192                 $(this).next('tr').css('background-color', 'green');
193
194                 if ($(this).next('tr').find('td[rowspan]').length == 1) {
195                     $(this).next('tr').css('background-color', 'ffffff');
196                     index++;
197                 }
198             }
199             rowcount++;
200         });
201
202         var table_ticker = setInterval(function () {
203             var content = $('#example tr:first');
204
205             if (content.next('tr').find('td[rowspan]').length) {
206                 content1 = null;

```

Figure 44:Recent Price

```

resources > views > website > warehouse > index.blade.php
1  @extends('website.website_master')
2  @section('website')
3      <div class="twelve columns" id="left-content">
4          <div class="row mainwrapper">
5              <h3 style="padding: 15px;">Warehouse</h3>
6              <div class="row">
7                  @foreach($warehouse as $item)
8                      <div id="box-16" class="six columns service-box box">
9                          <h4>{{ $item->place }}</h4>
10                         
11                         <ul class="caption fade-caption" style="margin:0">
12                             @foreach($item->info as $row)
13                                 <li><a href="#">{{ $row->info }}</a></li>
14                             @endforeach
15                         </ul>
16                     </div>
17                 @endforeach
18             </div>
19         </div>
20     </div>
21 @endsection
22

```

Figure 45:Warehouse

10.2 Possible Problem Breakdown

The entire project must be divided down into discrete jobs to make system development easier and more effective. The following are some breakdowns for the planned project's prospective breakdowns are as follows:

- Database design and analysis
- Admin panel management development
- Complain/Comment Box module management
- Recent Price & Warehouse module development
- Agriculture Officer module development
- Product Seller & Buyer module development

➤ Database design and analysis

- Determine and complete the prerequisites.
- Assemble the information you'll need to cope with the situation.
- Normalize the data you've obtained.
- Create an ERD and a data dictionary.
- Create the schema using the data dictionary as a guide.

➤ Admin panel management development

- Create the necessary pages.
- Develop a mechanism for manipulating admins, as well as a method for manipulating product sellers and buyers.

- Develop a complaint response tool, and have the agricultural officer respond by email.
- Develop the most recent pricing, news, and warehouse management

➤ **Complain/Comment Box module management**

- Front-end design
- Registration and login system
- Manipulation of the complaint box
- Management of the complaint response

➤ **Recent Price & Warehouse module development**

- Design of the front end, as well as the registration and login mechanism.
- Manage the most recent price.
- Warehouse Management is a term that refers to the management of a warehouse.

➤ **Agriculture Officer module development**

- Development of a front-end and authentication system.
- Set the most current price.
- Submit a complaint response.

➤ **Product Seller & Buyer Module development**

- The registration and login mechanism, as well as the front-end.
- Seller Product details management.
- Buyer product order and delivery

10.3 Prioritization while Developing the Solution

To assess the system's functioning, we've already prioritized the criterion list. Now is the moment to prioritize activities during the development phase, which is critical since haphazard development may leave certain key capabilities undeveloped. The following is a list of development tasks that have been prioritized:

- Database development, as well as analysis and database design.
- Implementation of a registration and login system for the required users.
- Complain about a problem and put a solution in place.
- Implementation of a new price.
- Implementation of the warehouse.
- Installation of the Agriculture Officer number.
- The most recent news, as well as the development of a notice board, are available here.
- Finally, the creation of the admin panel.

Chapter 11 – Testing

11.1 Test Plan Acceptance

Testing is essential for the development of a successful software product. During the analytical phase, a testing strategy should be devised. Both the user and the developer must agree to this arrangement. The project's test strategy will guarantee that the user's testing needs and acceptance criteria are met. There are two forms of testing: internal and external.

Functional Testing

The three forms of functional testing are as follows:

Unit Testing

- Validation of input fields on the form.
- Farmer Problem or Complain box.
- Farmer Problem Approval.
- Approved, pending, rejected & Send Solution by agriculture officer list filtering form the farmer's problem list.

Module Testing

- Filling out the registration and login forms without entering any information
- Incorrect information on the registration form.
- By completing a form with complete and correct information

Integration Testing

I'm going to use four different sorts of non-functional testing in this project:

- Using proper credentials, log in to the system.
- Seller adds a successful product.
- Buyer successfully placed an order for a product.

Non-functional Testing

I'll use four sorts of non-functional testing in this project:

Acceptance Testing

- After approving a request, the answer to the request appears.
- Recent Product Price information updating.

Security Testing

- Dashboard and page access based on role.
- An attempt to log in using an incorrect credential.

Accessibility Testing

- Testing for user friendliness.
- A color blind user does color and contrast testing.

Usability Testing

- Testing of the admin panel.
- Experimenting with the farmer's dilemma and anything linked to farmers.

11.2 Test Case

Following the completion of the test acceptance plan, test cases must be developed. The following are the test cases for the AMS system:

Unit test – test case:

Name of the test case	Unit testing		
Test Class			
Description of the test			
Source of Data	Steps in the Testing Process	Expected Outcome	Actual Outcome

Module Test – test case:

Name of the test case	Module Test		
Test Class			
Description of the test			
Source of Data	Steps in the Testing Process	Expected Outcome	Actual Outcome

Integration Testing – test case:

Name of the test case	Integration Testing		
Test Class			
Description of the test			
Source of Data	Steps in the Testing Process	Expected Outcome	Actual Outcome

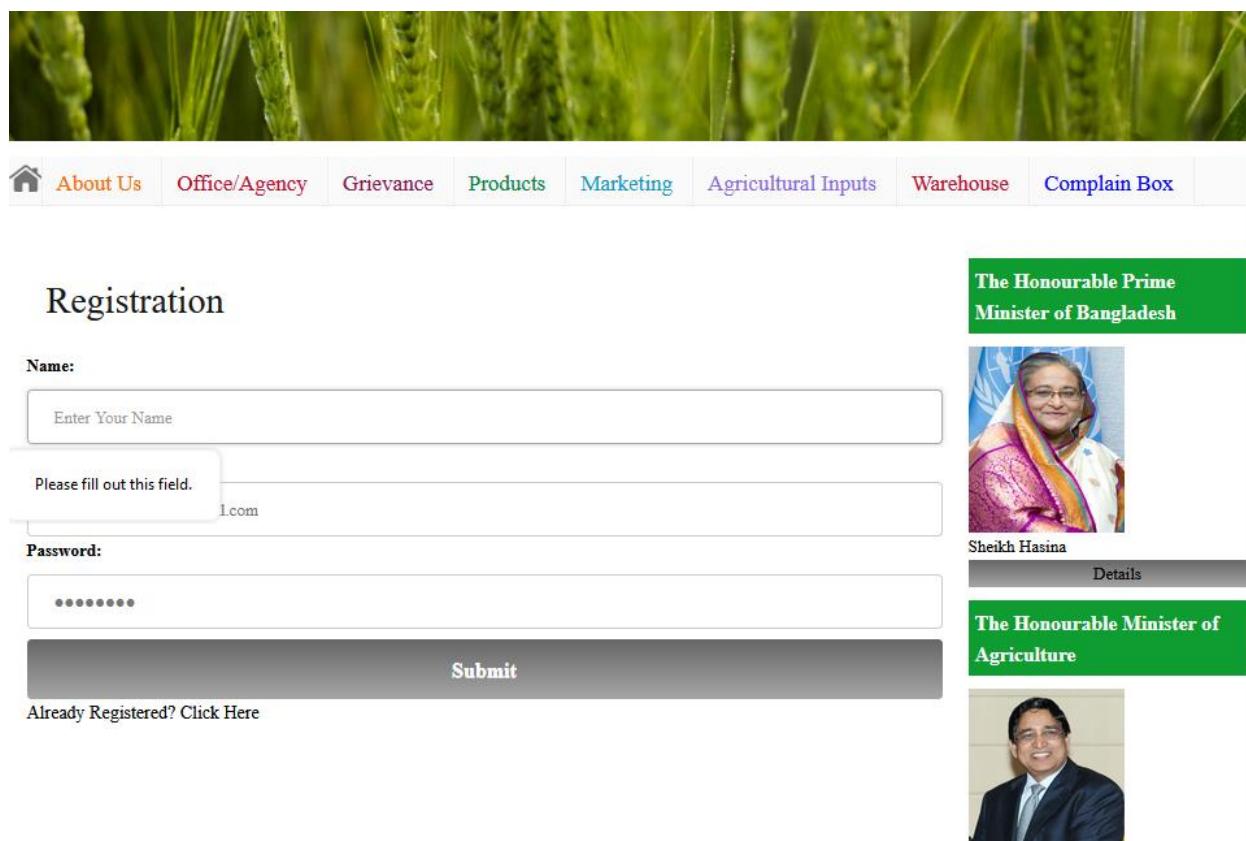
11.3 Unit Testing**Unit Test one****Test Case**

Name of the test case	Unit testing		
Test Class	Farmer/Product Buyer register controller		
Description of the test	Farmer/Product Buyer validation of names for registration		
Source of Data	Steps in the Testing Process	Expected Outcome	Actual Outcome
	1. Complete all required information except for the Farmer/buyer's name.	The farmer/buyer's name must not be empty, according to an error notice.	A notification appears stating that the Farmer/ buyer's name is necessary in order to register.

	2. Fill up and submit the form		
--	--------------------------------	--	--

Figure 46:unit test one test case

Farmer/Buyer name validation



Registration

Name:

Enter Your Name

Please fill out this field.

.com

Password:

.....

Submit

Already Registered? Click Here

The Honourable Prime Minister of Bangladesh

Sheikh Hasina

Details

The Honourable Minister of Agriculture

Figure 47:Unit test one result

Unit Test two

Test Case

Name of the test case	Unit testing		
Test Class	Admin controller		
Description of the test	All features validation.		
Source of Data	Steps in the Testing Process	Expected Outcome	Actual Outcome
Test Class	1. Login as admin 2. Check all things. For Example (Product, Customer, Warehouse & Complain). All control by admin	All Function should display.	The result is as expected and showing Function.

List of Features control by admin

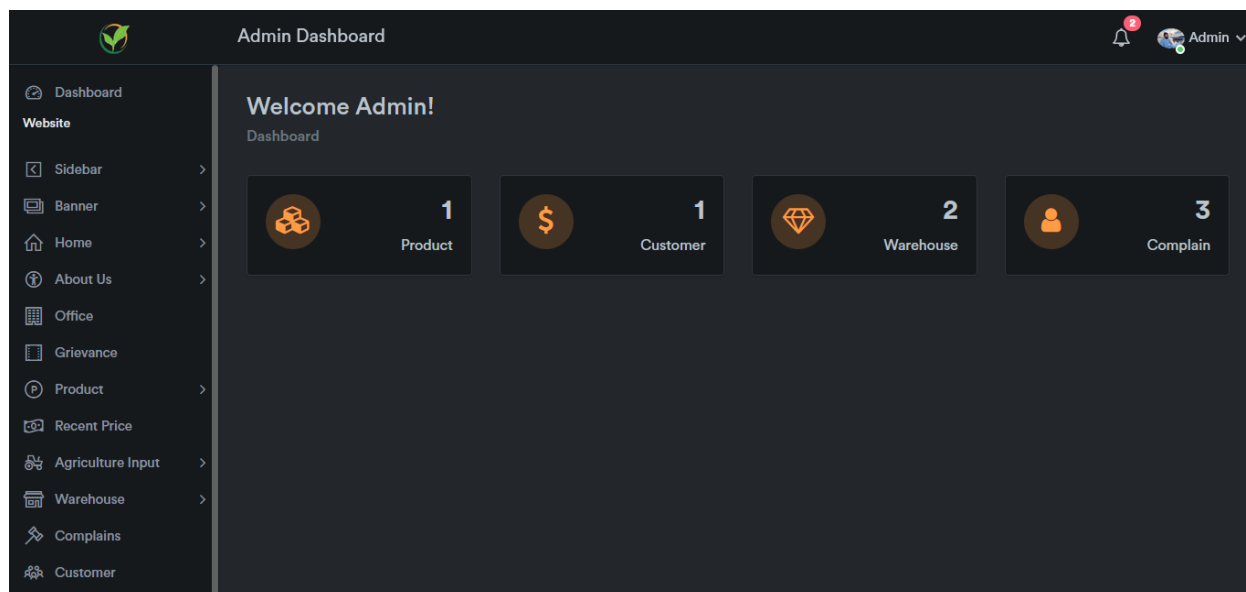


Figure 48:Unit Test two

Unit Test three

Test Case

Name of the test case	Unit test		
Test Class	Agriculture officer problem/complain controller		
Description of the test	Validation of the Complain Box is pending.		
Source of Data	Steps in the Testing Process	Expected Outcome	Actual Outcome
	1. Login as Agriculture officer 2. Check the current Complaint provided	Pending complain should displayed.	The result is as expected and showing pending complain or problem.

	by Farmer Complain Box page.		
--	------------------------------	--	--

Pending complain for solution

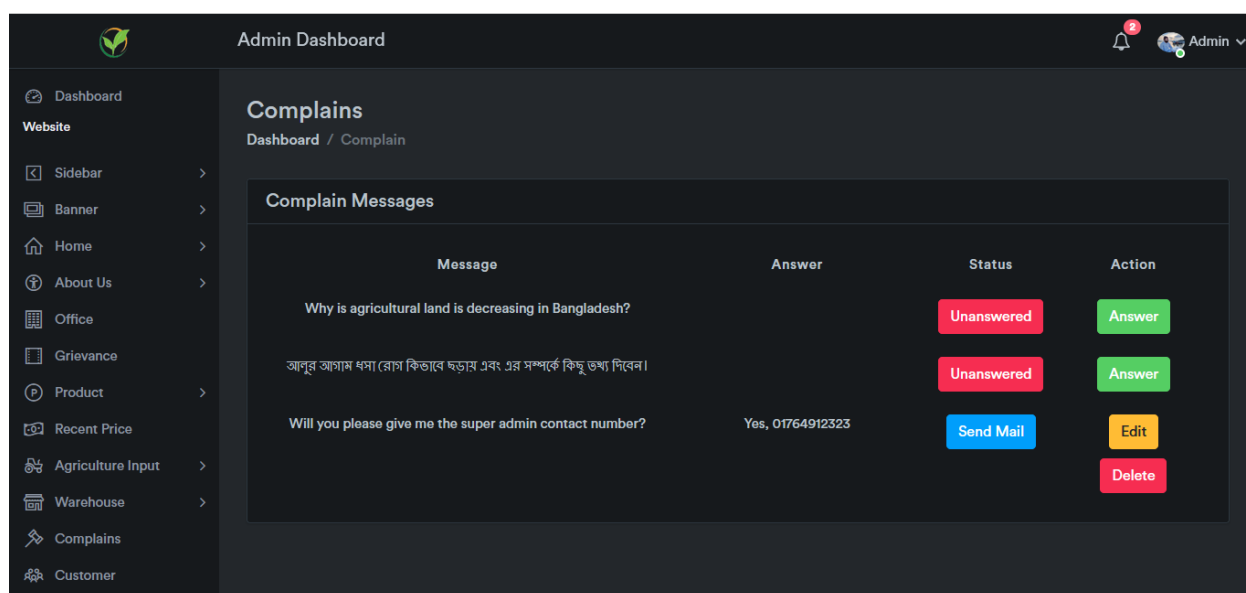


Figure 49:Unit Test three

11.4 Module Testing

Module Test one

Test Case

Name of the test case	Module Test		
Test Class	Admin Controller		
Description of the test	Admin can input all latest thing like add sidebar add latest banner.		
Source of Data	Steps in the Testing Process	Expected Outcome	Actual Outcome

	1. Login as Admin in system 2. After that click on add sidebar. 3. Without providing the form any value, press the submit button.	For all essential fields, an error notice should be displayed.	The real output, which shows that the Sidebar name, picture, and Link can't be left blank.
--	---	--	--

Add Sidebar checking for the admin.

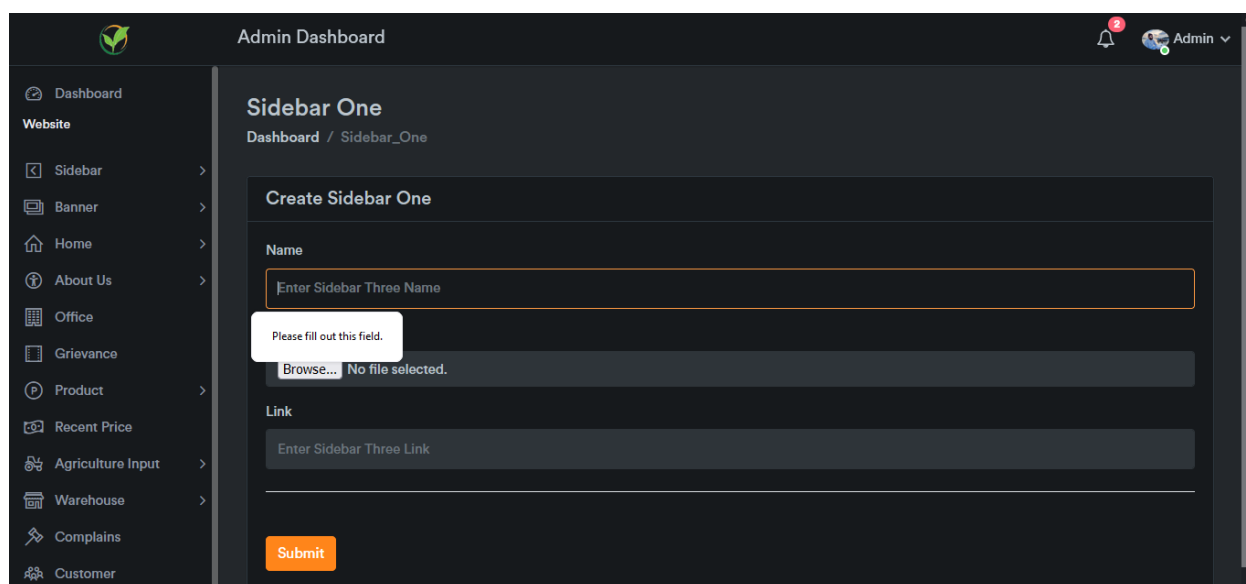


Figure 50:Module Test one

Module Test two

Test Case

Name of the test case	Module Test
Test Class	Agriculture Officer Controller

Description of the test	The agriculture officer of a separate division can input the current prices of agricultural products in that division		
Source of Data	Steps in the Testing Process	Expected Outcome	Actual Outcome
Test Class	1. Login as agriculture officer. 2. Click on add recent price. 3. Without providing the form any value, press the submit button.	A warning should be displayed if the input field includes invalid data.	It indicates that the product names and pricing for all divisions are incorrect.

Recent with wrong input

The screenshot shows the 'Admin Dashboard' with a sidebar on the left containing links like Dashboard, Website, Sidebar, Banner, Home, About Us, Office, Grievance, Product, Recent Price, Agriculture Input, Warehouse, Complains, and Customer. The main content area is titled 'Recent Price' and 'Dashboard / Recent Price'. It features a 'Create Recent Price' form with the following fields and values:

- Product Name:** A text input field with the placeholder 'Enter Product Name'. A validation error message 'Please fill out this field.' is displayed below it.
- Price:** A numeric input field with the value '20'.
- Chittagong Price:** A numeric input field with the value '7'.
- Chittagong Price:** A numeric input field with the value '31'.
- Price:** A numeric input field with the value '17'.

Figure 51:Module Test two

11.5 Integration Testing

Integration Test one

Test Case

Name of the test case	Integration Testing		
Test Class	Login Controller		
Description of the test	The login attempt was successful, and the dashboard was redirected.		
Source of Data	Steps in the Testing Process	Expected Outcome	Actual Outcome
	1. Please go to the login page. 2. Provide proper identification. 3. Click the Login button.	The Farmer/user should be authorized and routed to their home after successful login.	It's a sign that the email address is wrong.

Login system integration test

Login

Email address:

Password:

[Don't have account? Click Here](#)

Submit

Agriculture Management System

0 Asif Mahmud Logout

Agriculture Management System

[Home](#)
[About Us](#)
[Office/Agency](#)
[Grievance](#)
[Products](#)
[Marketing](#)
[Agricultural Inputs](#)
[Warehouse](#)
[Complain Box](#)



The Honourable Prime Minister of Bangladesh



Figure 52: Integration Test one

Integration Test two

Test Case

Name of the test case	Integration Testing		
Test Class	Complain solution by agriculture officer controller		
Description of the test	Complain from farmer and send them solution successfully integration test.		
Source of Data	Steps in the Testing Process	Expected Outcome	Actual Outcome
	1. Visit Complain Page. 2. Check Complain. 3. Click the Login button.	A message of success should appear.	The system indicates that Give Answer was successful, which means that the solution was sent.

Complain answer input integration testing

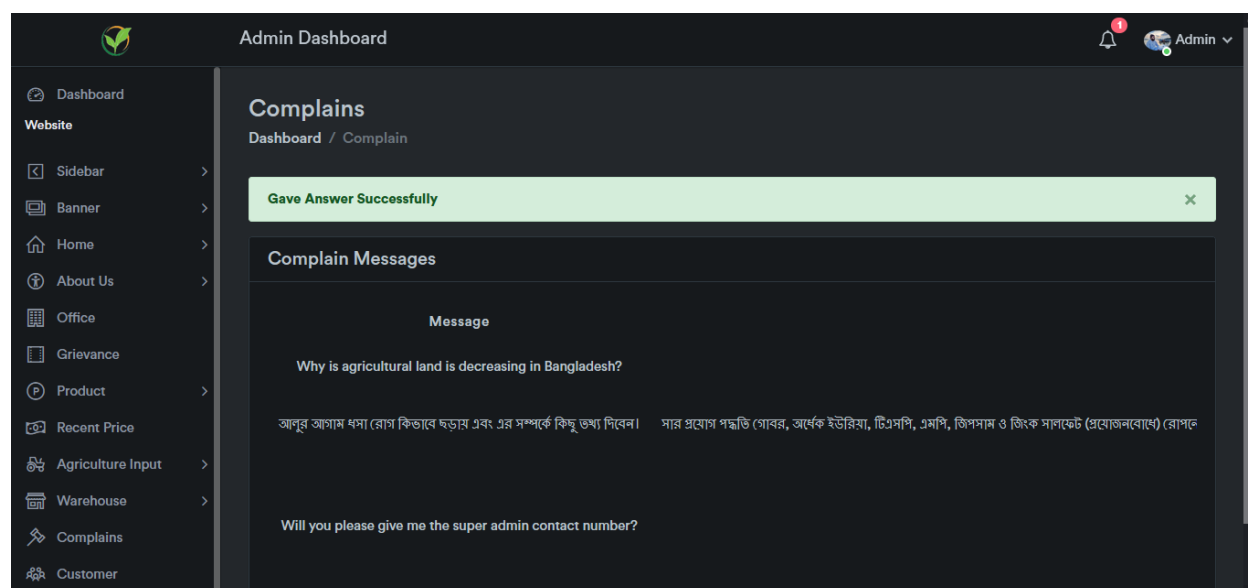


Figure 53: Integration Test two

11.6 Acceptance Testing

Acceptance Test one

Test Case

Name of the test case	Acceptance Testing		
Test Class	Solution Send Via Email Controller		
Description of the test	Complain from farmer and send them solution successfully using Email Acceptance Testing.		
Source of Data	Steps in the Testing Process	Expected Outcome	Actual Outcome
	1. Visit Email. 2. Check Answer.	The email solution to the farmer's problem should be updated and shown to the farmer.	The end outcome is exactly what you'd anticipate.

Answer found acceptance testing

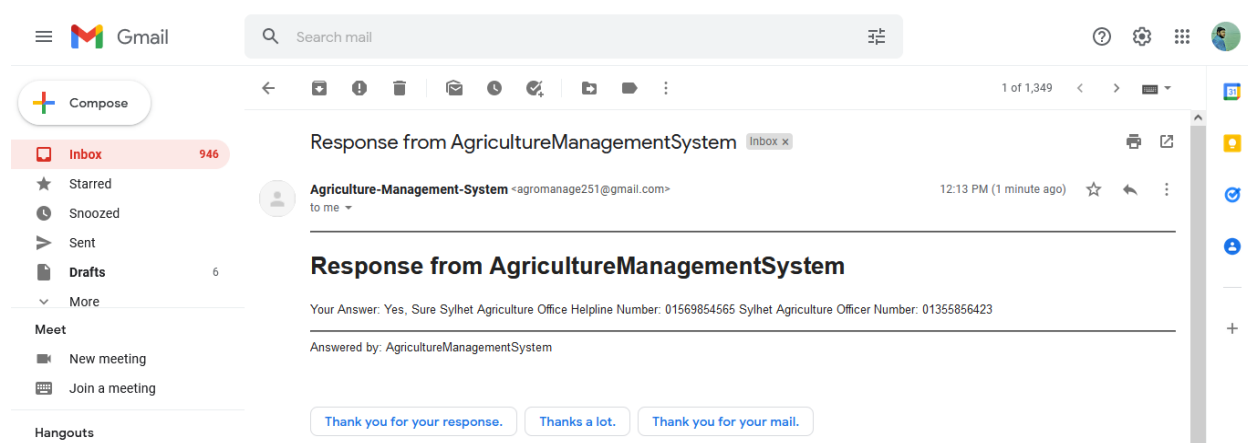


Figure 54:Acceptance Test

11.7 Security Testing

Security Test

Test Case

Name of the test case	Security Testing		
Test Class	Auth\Login Controller		
Description of the test	Security testing of an invalid login attempt.		
Source of Data	Steps in the Testing Process	Expected Outcome	Actual Outcome
	1. To begin, go to the login page. 2. Enter an incorrect credential and attempt to log in.	Agriculture officers can enter current agricultural produce prices.	The result is as expected.

Email address:

Password:

Submit

[Don't have account? Click Here](#)

↓
Email or password is not valid

Figure 55: Security Testing

11.8 Accessibility Testing

Accessibility Test

Test Case

Name of the test case	Accessibility Testing		
Test Class	Admin Controller		
Description of the test	Testing for user friendliness.		
Source of Data	Steps in the Testing Process	Expected Outcome	Actual Outcome
	Allowing an administrator to utilize the system.	The system is simple to use.	The result is as expected.

Table 24:Accessibility Testing

Chapter 12 – Implementation

12.1 Training

Training is required to familiarize users with the newly designed system. The team must guarantee that the users or operators are capable of handling activities through the system once it is fully functional. Below is a chart that depicts the training methods.

SL	User	Training Scope	Time Period	Comment
1	Farmer or General User	Posting of agricultural problems by farmers, Know the current market prices of agricultural products, All problems are solved from this system.	2 Hours	The Farmer and General users are grasping the procedures accordingly.
2	Product Seller and Buyer	Registering as a seller, Update your Product and product price, details, Registering as a buyer, Update email, order agriculture product, Ensuring proper delivery.	3 Hours	The Product Seller and Buyer are grasping the procedures accordingly.
3	Admin or Agriculture Officer	Add database for the farmer problem solution, Add database for product buyer (As a Customer) and seller, Control system, adequately validating their activities	1 hours	The activities are simply understood by the administrator.

Table 25:User training

12.2 Implementation Scheme

Big Bang

Big Bang works by turning off the old system and turning on the new one immediately. Because it employs the new system as soon as the test is completed, this technique is substantially faster than the others. Data loss and system instability may result from the data transfer from the prior system, since data may be lost and the new system may crash. It is executed on a single site with human resources from that place.

12.3 Scaling

Because this is an academic study, no preparations were made to take application scalability into account.

12.4 Load Balancing

Load balancing refers to the optimization of a system against the effect of its users. The number of users struck indicates how many people are using the system at the same time and how long it has lasted. Load balance and load equalization are terms used to describe this. It distributes the demand over several servers, allowing the system to keep running smoothly. A appropriate load balancing technique must be established because there are six distinct types of users and a big number of hits each day.

Chapter 13 – Critical Appraisal and Evaluation

13.1 Objective Could be Met

The goals that were announced at the outset are given below.

- User registration system (Farmer, Product Buyer and Product Seller, Agriculture Officer).
- Farmer's Problem Solution Management.
- Product Buy and Sell Management
- Agriculture Department Officer Solution and recent price update management
- Delivery record management

- Previous Record of farmers problem solution management.

Objective-1

Achievement rate and others

For all user kinds, the registration and login mechanism has been successfully deployed. Farmer, Agriculture Department official, Product Buyer, and Product Seller can complete the registration procedure and then log into the system. After logging in, the user is sent to their intended dashboard, where they may only browse sites that they have been granted access to. For authenticating and authorizing users to the system, I utilized the standard Laravel authentication mechanism. A hundred percent of the time, it works.

Objective-2

Achievement rate and others:

The farmer problem and agriculture officer solution management system is completely functional and operational. Where a farmer submits an issue to the system and the system notifies the nearest Agriculture officer, the problem can be solved by an agriculture officer. They have the ability to change the course of history. Following the Agriculture Officer Send their response email can be used to notify the farmer. They will receive an email with their solution.

Objective-3

Achievement rate and others:

The product buys and sells have been done successfully. If the product is done, the seller record might be changed. Otherwise, the product seller would be unable to add the item.

Objective-4

Achievement rate and others:

The Buyer can see the product and order the product. The system asks for allowing to delivery via email address or local address and access by phone number. This method has a perfect track record of success. A few highlights are not connected as a result of the project's short delivery deadline. Because it is a scholastic assignment, the central usefulness is primarily increased.

13.2 Objective that totally don't meet of touched

Practically the entire article is consulted for the activities. Regardless, there is just one target that has not been approached.

The reasons why it could not be touch

The main reason for not being contacted about the aim is a lack of time to complete the tasks. It would be quite difficult due of the short time frame, and another issue is the requirement for a continual facilitating server, which is also highly difficult for the work. Because the program cannot function without a live server, it cannot evolve.

What could have been done

To contact the highlights, the time frame must be rescheduled, requiring more time to complete the component. It must also learn how to create hybrid applications.

Chapter 14 Lessons Learned

14.1 Pre-Project-Review-closing

I must follow a predetermined structure from the beginning to design the Agriculture Management System, which is mostly a web-based application, which involves project proposal submission, project title defense, development, and documentation. The system is primarily concerned with resolving farmer issues, ensuring that all possible new and product buy-sell arrangements are checked, and centralizing the entire process.

14.2 What I have Learnt

A large number of critical components of structure construction have been altered by me. In numerous areas, such as structure, organization, and database, I've found out how to cope with a structure. My project management and testing abilities (black and white box, unit and acceptability, usability and accessibility) have also improved, which will help me in my future profession. It also aids in the development of my programming abilities. I've learnt how to utilize the PHP framework Laravel, which has multi-level authentication and authorization, as well as the Haversine distance calculation technique. The project has forced me to collect a great deal of basic information that will help me achieve in my life.

14.3 The problems I have faced

Throughout the project lifespan, I've encountered several obstacles and hurdles. I have to face and conquer challenges iteratively since I used the Agile DSDM process, which ensures iterative development. Means that an issue occurs in one timebox and is addressed by another problem occurring in a different timebox and task. Extracting geographical coordinates and computing distance between two locations were two of the most difficult challenges. Implementing real-time feedback or a problem-solving mechanism was another issue. I've also had trouble implementing multi-level authentication with Laravel. Finally, the most vexing issue was sticking to the timeframes.

14.4 What Solution Occurred

Whenever an issue was presented to me, I sought to find a solution. On my project, I utilize email authentication to solve the coordinates. I utilized a bespoke authentication system, which included

a controller and middleware, to implement multi-auth. To stay on schedule, I worked really hard and closely adhered to the deadline.

Chapter 15 – Conclusion

15.1 Summary of the Project

Agriculture Management System is a web-based tool that assists farmers in resolving issues and learning what they need to know. It also allows them to buy and sell agricultural products. The designed system takes care of all elements of the Farmer, Product Seller, Product Buyer, Agriculture Department, and Agriculture Officers. The method allows agriculture authorities to confirm that the problem is eligible for a remedy. It is now feasible to automate the notification of a farmer's problem solution to the accessible solution. Product submit for sale, product order, warehouse, and recent price of product details are created by the system, which uses essential information to determine the best farmer. The system was created using the PHP Laravel framework, as well as HTML, CSS, and JavaScript are the three languages that make up the web. The docs contain all of the necessary diagrams and charts.

15.2 Goal of the project

The project's goal was to create a centralized system that would provide a secure, safe, and timely answer to agricultural problems. The project's key objectives are as follows:

- The entire system is monitored from a central location.
- Farmer Problem and Solution management and automated notification system.
- Warehouse management along with owner of organization management.
- Recent price of agriculture product eligibility and reports checking by the agriculture officer.
- Product Buy and Sell Management and notified via system using email authentication.
- Ensure that deliveries are made safely and that the farmer's history is preserved.

15.3 Success of the Project

The goal of project development has been met since the objectives have been met in accordance to the target. Users/farmers can submit a problem request, and agricultural officers will utilize the system to determine the available remedy and tell the farmer. The system's agricultural officer can look into the problem's history and determine whether the agriculture concern is eligible. The software fits all of the project's basic requirements, making it a success.

15.4 What I have done in the documentation

I have accomplished all of the duties that the documentation has needed since the beginning. I did time boxing, multiple graphics, and analysis, among other things. The document also provides a number of objectives that are adequately addressed. This report contains all of the information required to finish a project.

15.5 Value of the Project

Manual labor and manual procedures will always lose out to technology. This agriculture management system will improve the experience of gathering appropriate issue solutions in a timely manner without requiring additional work or transportation. Depending on how it will be used, this project will have a distinct market value. The expertise gained from completing this assignment in such a short amount of time will benefit me in future professional endeavors.

15.6 My Experience

To put this system in place, I had to perform a lot of study. I've conducted a variety of online and offline research projects. Bug repair was the most tough task. Finally, after overcoming all challenges, I was able to execute my technique. Throughout this endeavor, I have gained a great deal of experience. I faced a number of challenges and overcame them, gaining valuable experience. I learned how to manage a full project and meet all of the project's objectives in a short amount of time, which provided me with invaluable experience.

Appendices:

Test Scripts:

User guide:

1. Create Farmer/General User Register
Brief Description: Farmer/General User fill out the online registration form and submit it..
Actors: Farmer/General User
Preconditions: Submit all information as a farmer or in general. Users can also submit their own professional case and be eligible to register. And as a user, you're qualified to register.
Basic Flow of Events: ➤ In the registration form, the farmer and general user must fill in all of the required information. ➤ All blanks in the form must be filled up by the actors. ➤ The system accepts both farmers and casual users. ➤ When the registration is completed, the actors depart.
Post-Conditions: All queries are inserting.

2. Candidate and farmer are login
Brief Description: When completing an effective registration, log in to the system.
Actors: All User
Preconditions: Submit all information as a farmer or in general. Taking a break and completing registration.
Basic Flow of Events: ➤ Providing an email address and a password, followed by a system validation check.

➤ If all information is correct, all users are allowed to log in. ➤ If information is incorrect, they receive an alert message.
Post-Conditions: Go to the dashboard after logging in.

3. Admin login
Brief Description: It is not necessary to register.
Actors: Admin/Agriculture Officer
Preconditions: It's already in the database.
Basic Flow of Events: ➤ Admin provides email and password, and the system does a validation check. ➤ If all of the information is correct, admin can log in. ➤ If the information is incorrect, the administrator receives an alert message.
Post-Conditions: Go to the dashboard after logging in.

4. Complain Box
Brief Description: Famer upload their complain and get answer from agriculture officers.
Actors: Agriculture office
Preconditions: Farmer Post their complain.
Basic Flow of Events: ➤ Officer provides answer after watch farmer complain. ➤ If problem of the complaint is already given previous, then farmer can get answer in previous complain answer.

➤ Answer sends via email.
Post-Conditions: Farmer can upload complain and get answer by officers via send email.

5. Recent Price
Brief Description: Seven divisions product recent price upload by agriculture officers.
Actors: Agriculture Officer
Preconditions: Officer Post their product recent price.
Basic Flow of Events: ➤ Officer provides recent price of product of agriculture. ➤ User of system can know about recent price.
Post-Conditions: Officer upload recent price.

6. Agriculture Input
Brief Description: Admin can upload the agriculture crop inputs.
Actors: Admin
Preconditions: Admin upload a pdf format agriculture input.
Basic Flow of Events: ➤ Admin provides PDF format of product of agriculture inputs.
Post-Conditions: Admin upload agriculture inputs.

7. Product Seller
Brief Description: A Seller sell their agriculture product.
Actors: Seller
Preconditions: Admin manage product seller.
Basic Flow of Events: ➤ Seller set the product name. ➤ Seller set product price and details ➤ Seller set address
Post-Conditions: Admin can monitor the product seller.

8. Product Buyer
Brief Description: A Buyer Buy their agriculture product in system.
Actors: Buyer
Preconditions: Admin manage product buyer.
Basic Flow of Events: ➤ Buyer Watch the product name. ➤ Buyer can order product ➤ Buyer can place their order ➤ Watch delivery status ➤ Make partial payment.
Post-Conditions: Admin can monitor the product order from buyer.

9. Warehouse
Brief Description: A find store or warehouse for store their product in system.
Actors: admin
Preconditions: Admin manage warehouse.
Basic Flow of Events: ➤ Warehouse place name. ➤ Warehouse information. ➤ Warehouse space
Post-Conditions: Admin can update and manage the warehouse.

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