

2022-09-13

An Undergraduate Internship on Nazif Agro

Ahmed, Hasan

Independent University, Bangladesh

<https://ar.iub.edu.bd/handle/11348/792>

Downloaded from IUB Academic Repository



An Undergraduate Internship on Nazif Agro

By

Hasan Ahmed
Student Id: **1610266**

Summer, 2022

Supervisor

Mohammad Noor Nabi

Internship Supervisor and Senior Lecturer

Department of Computer Science & Engineering
Independent University, Bangladesh

Sep 13, 2022

Dissertation submitted in partial fulfillment for the degree of
Bachelor of Science in Computer Science Department of
Computer Science & Engineering

Independent University, Bangladesh

Attestation

This is to certify that the report titled "Nazif Agro" was completed by Hasan Ahmed (ID-1610266) submitted in partial fulfillment of the requirement for the Degree of Computer Science from Independent University, Bangladesh (IUB). It has been completed under the guidance of Md. Noor Nabi (Internal Supervisor). I also certify that all my work is original and has not been submitted earlier to this university or any other institution. All the sources of information used in this Project Report has been duly acknowledged in it.

Signature:

Date: 14/09/22.....

Hasan Ahmed

Acknowledgement

I would like to begin with expressing my gratitude and thanking the Almighty Allah for His blessings and giving me the ability to work hard and the opportunity to complete this report.

I would like to thank my honorable faculty Mohammad Noor Nabi, Senior Lecturer, Department of Computer Science Engineering, Independent University, Bangladesh, for his continuous guidance and providing with advice and suggestions which helped me to complete my project and the report successfully.

I would also like to thank everyone who helped me with information, advice and suggestions for making this report. My thank goes to the Department of Computer Science and Engineering, Independent University Bangladesh for helping me to gain essential knowledge and skills during my Bachelor's in CSE.

My endless thank goes to Mr. Hasibul Islam, CEO, Spanwide for giving me the opportunity to work for Spanwide. as an intern. My experience in Spanwide was nothing but wonderful and I thoroughly enjoyed working and learning here. I would also like to thank Mr Fahim Abdullah Sajid, Head of Development, for his guidance and brilliant mentorship throughout the internship period. Last but not least I would like to thank all my colleagues in Spanwide who welcomed me in their team and provide their continuous support to carry out my project and the report, it would not have been possible without them.

Finally, I would like to thank Independent University Bangladesh, and all the respected faculties and staffs who were a vital part of my bachelor's program in CSE. My respect and heartfelt gratitude go to my faculties and mentors who shared their knowledge with me to teach and prepare me to achieve success in my future.

Letter of Transmittal

September, 2022
Mohammad Noor Nabi
Senior Lecturer
Department of Computer Science & Engineering
Independent University, Bangladesh (IUB)
Bashundhara R/A, Dhaka 1229, Bangladesh

Subject: Report submission of the internship

Dear Sir,

With due respect and honor, I would like to submit my report of Internship for the completion of my Bachelor of Computer Science and Engineering degree. I prepared this report based on my internship experience in Spanwide starting from 1st of July, 2022 till date. I was assigned in the development team as a Front-end Developer intern. I successfully served my internship period in Spanwide.

In Spanwide I worked under the supervision of Fahim Abdullah Sajid, Head of Development. This report is based on my project in Spanwide. I was assigned with the project Nazif Agro website, where I worked as the front-end developer with the team. My experience in Spanwide was great. The main objective of the internship is to learn and gain knowledge and enhance our skills and get the first taste of the corporate world, which I believe I have achieved by working here. I would also like to thank you Sir, for your continuous support and guidance which helped me to complete the project.

I pray and hope this report will be informative and fulfil your expectations. I have tried my best to avoid my deficiencies and hope that my report will be of satisfactory standard. I would also like to thank you again for giving me the opportunity to submit this report.

Sincerely,

Hasan Ahmed
ID – 1610266

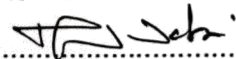
Evaluation Committee



Signature

MOHAMMAD JOOR NABI

Name



Supervisor



Signature

Md. Asif Bin Haled

Name

Internal Examiner-1 / Panel Member-1

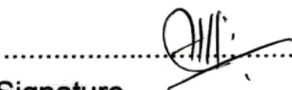


Signature

Md. Raihan Bin Rafique

Name

External Examiner / Organizational Supervisor / Panel Member-2



Signature

Mahady Hasen

Name

Head of the Department / Convener

Abstract

Bangladesh has been evolving as a digital nation where we have a very high number of people using internet and the number keeps rising. Internet is easy to get now and has reached every corner of the country. This also demands business, different platforms, organization to evolve and get digitalized. This opens a huge opportunity for business organization to promote themselves online. Like every other business sector, Agro business have also taken this opportunity to grow their business and reach more people. Spanwide has partnered with lot of prominent agro companies to help them make their online platform to promote their business and increase the brand value. The following report is based on the development of such a company's website, Nazif Agro. The website aims to help their customers and interested buyers with important information, easy solution to contact or book a meeting and also promote the brand to the local community to establish them as one of the prominent Agro Company.

The report also describes my internship experience with Spanwide, a well-known digital agency based in Dhaka, Bangladesh. Spanwide was found back in 2019 and since then serving their customers with their expertise. I am glad to join them and work with them in the development team as a front-end developer intern.

The report is divided into 8 major parts explaining the project and the process of the development. It starts with the introduction of the project in the first chapter focusing on the overview and the objective of the project and the scopes of work we had. The second chapter is about the literature review where I covered how the project is related with my bachelor's degree. In the third chapter, project management and finance, I covered the planning that went into the project which includes breakdown of time, resources and cost to carry on the development. Then on the fourth chapter, the methodology that is followed for the project is described and how that methodology helped us in planning and development. The fifth chapter titled body of the project, in fact is the most important part of the report. Here the system analysis is discussed with thorough discussion on different techniques of analysis and diagrams. The next chapter, Results and analysis, covers the result we obtained after the development and analyzed what we achieved. Chapter seven is the discussion on the sustainability of the project, social and environmental effects and the Ethical aspects. Finally, in the last chapter, along with the conclusion of the report, I discussed the scope of future works.

Table of Contents

Attestation.....	2
Acknowledgement	3
Letter of Transmittal	4
Evaluation Committee	5
Abstract.....	6
List of Figures & Tables.....	9

Chapter – 1: Introduction

1.1 Background of the Work.....	10
1.2 Objectives	10
1.3 Scopes.....	11

Chapter – 2: Literature Review

2.1 Relationship with Undergraduate Studies.....	12
2.2 Related Works.....	12

Chapter – 3: Project Management & Financing

3.1 Work Breakdown Structure	14
3.2 Process/Activity wise Time Distribution.....	16
3.3 Gantt Chart.....	17
3.4 Estimated Costing	18

Chapter – 4: Methodology

4.1 Our Approach.....	19
-----------------------	----

Chapter – 5: Body of the Project

5.1 Work Description.....	21
5.2 System Analysis.....	22
5.2.1 Six Element Analysis.....	22
5.2.2 Feasibility Analysis.....	22
5.2.3 Problem Solution Analysis	23
5.2.4 Effect and Constraints Analysis.....	25
5.3 System Design	26
5.3.1 Rich Picture.....	26
5.3.2 UML Diagram.....	27
5.3.3 Functional and Non-Functional Requirements.....	31
5.4 Product Features.....	33
5.4.1 Input	33
5.4.2 Output	33
5.4.3 Architecture.....	34
5.5 Implementation	35

Chapter – 6: Results & Analysis

6.1 Results.....	36
6.2 Introduction to Test Case	38
6.2.1 Issue Tracking and Reporting System	38
6.3 Test Case Analysis.....	38
6.3.1 Test Table.....	39

Chapter – 7 Project as Engineering Problem Analysis

7.1 Sustainability of the Project/Work.....	41
7.2 Social and Environmental Effects and Analysis.....	41
7.3 Addressing Ethics and Ethical Issues	42

Chapter – 8: Lesson Learned

8.1 Problems Faced During this Period	43
8.2 Solutions of those Problems.....	43

Chapter – 9: Future Work & Conclusion

9.1 Future Works	44
9.2 Conclusion	44

Bibliography

References.....	45
-----------------	----

Appendix

UI Images (Screenshots).....	46
------------------------------	----

List of Figures & Tables

Figure 1: Work Breakdown Structure (WBS)	15
Figure 2: Gantt Chart	17
Figure 3: Agile Model.....	20
Figure 4: Gallery Slider	24
Figure 5: Product Card.....	24
Figure 6: Rich Picture.....	26
Figure 7: Activity diagram for buyers	27
Figure 8: Activity diagram for Admin	28
Figure 9: Use Case Diagram.....	29
Figure 10: ER Diagram.	30
Figure 11: Website Architecture.....	34
Figure 12: Menu UI	45
Figure 13: Footer UI	45
Figure 14: Homepage UI.....	46
Figure 15: About us UI	47
Figure 16: Product page UI.....	48
Figure 17: Contact UI.....	49
Figure 18: Product detail UI.....	50
Figure 19: Admin panel (CMS).....	51
Table 1: Activity wise resource & time allocation	16
Table 2: Cost Estimation.....	18
Table 3: Six Element Analysis.....	22
Table 4: Functional Requirement to find Product	31
Table 5: Functional Requirement to Contact.....	31
Table 6: Test Table.....	38.

Chapter 1: Introduction

1.1 Background of the work

We, people of Bangladesh are on the era of digitalization and adopting new technologies and systems. In the span of last 10 years, we have become heavily dependent on the internet for our day to day lives. Using this opportunity every business is trying to make their mark on the internet and making their business more available online. We are seeing the blooming growth of e-services and marketplaces on the internet. We have seen the rise of many e-commerce and online business which includes different types of good, consumables, services, properties etc.

The concept of searching for farm animals and products on the internet is relevantly new for the people of Bangladesh. But in this era of digitalization where people are more dependent on the internet to search for their needs, agro business are also ensuring their presence on the internet to be found by its customer with ease.

The need for housing is increasing day by day in our society as urbanization is spreading throughout the country. People now a days have shifted from the conventional way of searching and adopted towards newer system and technologies. Edison Real Estate saw this opportunity to build an establishment for online connection with potential clients to promote and sell items and services. Showcasing their products and services would also help their investors to make a decision on whether they find them suitable and trustworthy to make an investment or not.

Nazif Agro sought the help of Team Spanwide to make a website for their agro business to ensure strong presence on the internet. Through their website they wanted to showcase their products in a beautiful organized way for their visitors. The visitors would be able to select a product from the list of products on display which are shown with photos. All the detailed necessary information related to the selected product will be displayed to the visitor. A detailed view of the product will be catered for the visitors through photos and videos which will give them a good idea on the animals and product without even visiting the farm location physically. The visitors will also be able to contact with Nazif Agro in case they want any further details through a contact form.

1.2 Objectives

The main objective of the project is to reach more clients through their online presence which will also provide the visitors an easy solution for communication through the web platform. Given the current pandemic situation of Bangladesh and also the traffic condition in Dhaka, moving from one place to another has become very challenging and time consuming task. It has also become difficult for people who are interested in buying farm fresh food. As a solution the website of Nazif Agro would serve the purpose of making peoples life easier and finding farm fresh food online.

1.3 Scopes

- I. **Landing Page** – The index page of the website where users will get a summary of the full website.
- II. **About Page** – A detailed page to highlight on who Nazif Agro is.
- III. **Product Page** - List of Product that Nazif Agro provides provides
- IV. **Gallery Page** – Different images of Nazif Agro to give the viewers and idea how Nazif Agro operates.
- V. **Contact Pages** – Dedicated contact page and contact form for general visitors, potential customers.

Chapter 2: Literature Review

2.1 Relationship with Undergraduate Studies

CSE 213, Object-oriented Programming: Through this course I learnt the concept of treating data as an object and also modular code structure which made codes shorter but more efficient. The concept of using functions and class was very helpful and was widely used in my project.

CSE 303, Database Management: This was a basic core course which focused on teaching us how to plan and design a project. In this course I have learnt the basics of a database and how it works, database languages, Rich Picture, ER Model, Converting ERD-Relations, Introduction to Normalization and Structured Query Language. All these knowledges were useful while I designed and planned the project. Knowledges of MySQL, PHP and use of local server was also useful in my project to make it dynamic.

CSE 307, System Analysis and Design: This course gave a brief idea on Software Development Life Cycle which helped me to plan all the steps and phases of the project. It helped me to identify the goals and challenges. Through the 7 stages if SDLC analysis we formed a plan which made the work easier for me and the whole team at Dcastalia.

CSE 307, Web Application and Internet: This was the most important course for my project where the course covered the important parts of developing a web application. Here I learnt HTML, CSS, Js, Jq, PHP, MySQL etc. which was directly implemented in my project.

2.2 Related Works

Agro business on the internet is not a brand-new idea, rather it's a very common thing to portray this business online worldwide. But for Bangladesh the idea is relatively new and business owners now a days are more inclined towards marking their online presence.

Spanwide has worked previously with few Agro business companies to cater their need of a strong online presence on the internet and create a way of smooth communication with its customer. Some of the highlighted projects are:

Aheli Agro: Their Project was designed to incorporate all the aspects of their products on the platform: Aheli Agro was started in 2020, with the aim of producing and supplying safe, quality, hazard-free sacrificial(qurbani) animals and antibiotic-free chickens / eggs from the village. This small effort of ours was formed in the village of Nijtularand of Ishwarganj thana in Mymensingh.

Chapter 3:

Project Management & Financing

3.1 Work Breakdown Structure

Work Breakdown Structure is defined as a deliverable-oriented hierarchical decomposition of the work to be executed by the project team to accomplish the project objectives and create the required deliverables. It organizes and defines the total scope of the project. We have also created a WBS so that our project is managed smoothly and more efficiently in an organized way. We have used a top-down approach to produce our WBS and a phase based WBS.

The 5 elements in our Level 1 and how the phases are followed is described briefly below:

- i. **Requirement Analysis:** Clients Requirement is taken and accordingly a sitemap is produced. Project timeline is produced, risk factors are analyzed and costing is estimated.
- ii. **Design Layout:** Through various techniques of system analysis the design layout is produced like, UML diagram, Rich Picture and Activity diagrams. Then User interface is designed based on the analysis.
- iii. **Development:** Starts with the front-end development and proceeds to backend development. Both the developments start with separate development meetings and then followed by different phases which includes number of audits to ensure quality, making the site mobile response, CMS setup and versioning, data entry etc.
- iv. **User Acceptance Testing (UAT):** This phase starts when the site is functional and the site is taken through testing and fixing and showed to the client to obtain their feedback and further revisions are done.
- v. **Development:** In this final stage upon client approval the site goes live.

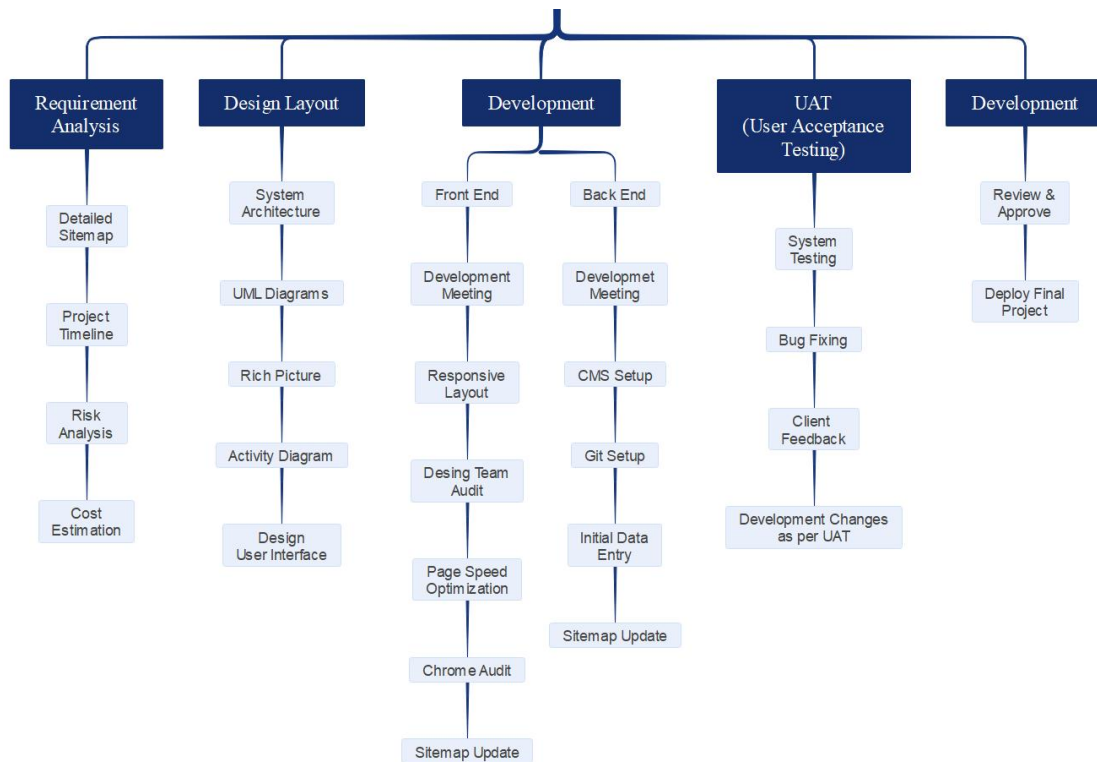


Figure 1: Work Breakdown Structure (WBS)

3.2 Process/Activity wise Time Distribution

According to our WBS, we produced a table to demonstrate ideally what percentage of work should be completed in given time. The total time estimated for the project completion was 60 days. The total task is divided into 5 major tasks which sums up to 100% of the total work. The five major tasks are:

i. **Requirement Analysis:** In this we talked with the client and take a list of all the requirements like functionalities, design and security was discussed. Further in-house analysis of the requirements helped us to decide the costing and time needed for the project. This takes around 10 days and considered 10% of the total work.

ii. **Design Layout:** UI/UX design is done using adobe XD according to the sitemap and a mockup us produced to show the client to portray how the site will look like. This takes around 10 days and considered 10% of the total work.

i. **Development:** The most important part of the project where the whole project gets life. The frontend and backend coding are done in this phase. This is the largest phase of the project and takes around 25 days and considered 47% of the total work.

ii. **User Acceptance Testing:** After the above 3 phases the project is shown to the client by arranging a meeting. All the functionalities and options are explained from our team. Then a detailed feedback is asked from the clients and revisions are done to the project as per the feedback. Quality assurance is also taken care in this phase. This takes around 10 days and considered 18% of the total work.

iii. **Deployment:** Finally, after the approval from the client, the project is hosted on the client's domain and hosting and the CMS is handed over to the clients and necessary training is provided to the client. This takes around 5 days and considered 5% of the total work.

Task	Days	Work Percentage
Requirement Analysis	10	10%
Design Layout	10	20%
Development	25	47%
User Acceptance Testing (UAT)	10	18%
Deployment	5	5%
Total	60	100%

Table 1: Activity wise resource & time allocation

3.3 Gantt Chart

A Gantt chart is a project management tool assisting in the planning and scheduling of projects. Project management timelines and tasks are converted into a horizontal bar chart, showing start and end dates, as well as dependencies, scheduling and deadlines, including how much of the task is completed per stage and who is the task owner.

We made a Gantt Chart which helped us to plan and schedule all the activities of the project in details.

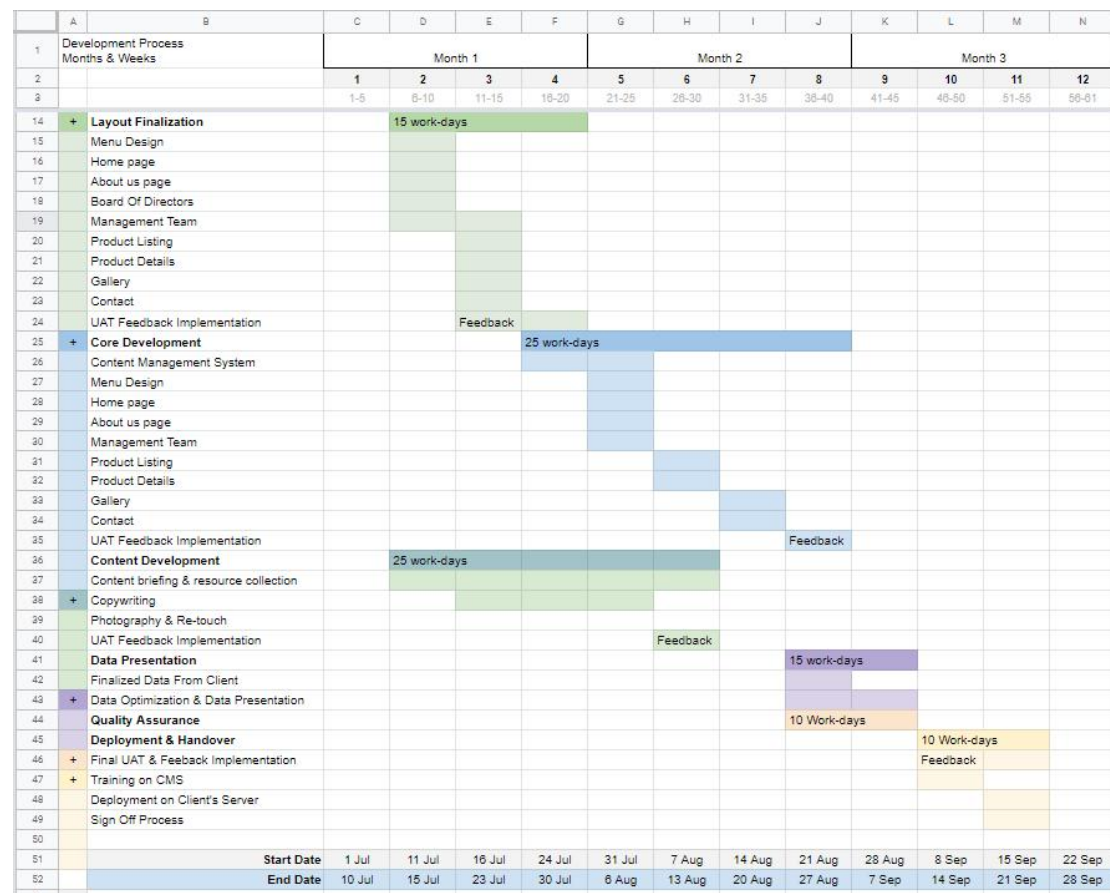


Figure 2: Gantt Chart

3.4 Estimated Costing

The costing of a web app project depends on several factors like size of the project, functionalities, design of the website and any additional feature demands by the client. Below is the estimated costing table we have where we have considered all the cost which includes design service like, theme, logo, icons, the cost for custom home page slider, live chat option, social media connection, SSL Certificate, SEO and other plugins and services provided. The cost of official resources used are also taken into consideration. The total costing was estimated at BDT **1,70,000** with domain and hosting and the possibility of additional charges if any additional service is required within 1 year of the deployment of the website.

Work Distribution	Costing in BDT
UX Development	30,000
Front End Development	60,000
Content Management System (CMS)	60,000
Domain and Hosting	20,000
Total	1,70,000

Table 2: Cost Estimation

Chapter – 4: Methodology

A system development life cycle (SDLC) is a commonly used method for project management to define the various stages of the project from start to finish. Through various phases of SDLC like planning, creating, developing, testing and deployment clear roles and responsibilities are defined and goals that is supposed to be achieved after each phase.

There are a number of methodologies and models available for SDLC, for example:

- Agile
- Lean
- Waterfall
- Iterative
- Spiral
- DevOps

Each of these models are different in some way, but all of them serves the same purpose of organizing a project and helping the team working on the project to work more effectively and efficiently.

4.1 Our Approach

For our project of Edison Real Estate website, we decide to use the Agile Model.

Agile model allows every project to be handled differently and modify old methods according to the requirement of the project. The tasks in agile are divided in small phases to deliver different features.

Iterative approach is taken and working software build is delivered after each iteration. Each build is incremental in terms of features; the final build holds all the features required by the customer. [3]

Here is a graphical illustration of the Agile Model: [3]

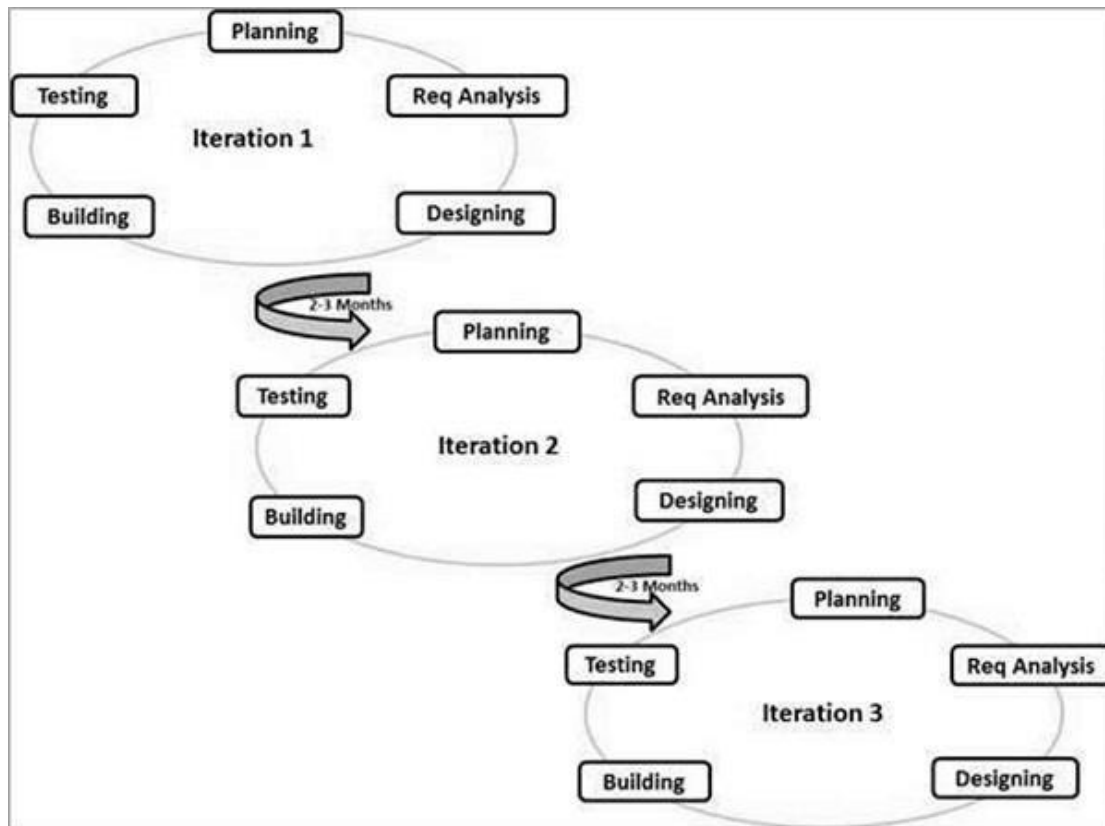


Figure 3: Agile Model

The principles of Agile model are:

- **Individuals and Interactions:** Self-development by organizing and self-learning is an important part of Agile model and also at the same working and learning from the team and co-workers.
- **Working Software:** For clear communication and understanding the customers need a working software model is important besides planning documents.
- **Customer Collaboration:** Interaction with customers, taking their feedback after every phase is a vital part to gathering every tiny bits of customer requirements which is a little difficult to gather at the beginning of the project.
- **Responding to Changes:** Changes are made as soon as feedbacks are received in agile development.

We used agile development model to improve our productivity by organizing and planning the project properly. This also increased our efficiency and better communication between the team. It also ensures a better relation with customer since we are always on contact with the customer showing them demo and getting their feedback. This also helps to build confidence in customer and we also get all the necessary requirements done, reducing the risks. This model saves time and gives the best possible outcome of any project.

Chapter 5 :Body of The Project

5.1 Work Description

Nazif Agro is a Agricultural farm and product based company. Nazif Agro is focused on expanding their business of Farm Animals and Animal Products. Their goal is to reach their customers easily in order to sell their product, through their website. The clients will be able to choose from the number of product as per their need. This website will also help investors so that they can approach with their proposals.

Overall the aim is to grow business in terms of sales and marketing and make a platform that will be an easy way of communication for clients and investors from anywhere.

My job here was to build the web application focusing on the front-end development, system designing and building some parts in the back-end part.

The languages used for the front-end are:

- **HTML/CSS**
- **Bootstrap**
- **JavaScript**
- **jQuery**
- **Ajax**

Languages and frameworks use in back-end are:

- **PHP**
- **Yii2 (framework)**
- **MySQL (Database)**

5.2 System Analysis

A system analysis is carried out in order to help us to identify the goals of the system. System analysis is defined as a problem-solving technique which helps to identify our targeted goals and purposes to achieve the whole project efficiently and in time.

5.2.1 Six Element Analysis

	Human	Non Computing Hardware	Computing Hardware	Software	Database	Communication
Create Product	Admin	Pen, Paper	Computer	Web Browser	RDMS	WAN/LAN
View Products	User	Admin	Computer	Web Browser	RDMS	WAN/LAN
Update Products	Admin	Pen, Paper	Computer	Web Browser	RDMS	WAN/LAN
Delete Products	Admin	Pen	Computer	Web Browser	RDMS	WAN/LAN
Submit Form	User	N/A	Computer	Web Browser	RDMS	WAN/LAN
Manage Forms	Admin	Record Books	Computer	Web Browser	RDMS	WAN/LAN

Table 3: Six Element Analysis

5.2.2 Feasibility Analysis

A feasibility study evaluates the project's potential for success; therefore it is an important factor in the credibility of the study for potential investors and lending institutions. Generally, feasibility studies help us in the technical development and project implementation. Thus we estimate the cost required and value to be attained.

Five feasibility studies are conducted for the project, which are discussed below:

1. **Technical Feasibility:**

Technical feasibility is the assessment of whether the existing resources and technologies owned are sufficient for the development of the project. This assessment helps to identify if the requirement in terms of the technical skill of the team, technology used, hardware and software used are good enough to complete the project and also provide support in the future.

2. Economic Feasibility:

This analysis is conducted to find the cost and the benefit of the project. A detailed cost for the website development is estimated, which includes all the cost breakdowns. This cost is then generally compared to whether the company will be economically beneficial from the website. Since there is no charge for the visitors of the website, Nazif Agro only aims to benefit from their website visitors and turn them into potential customer. The goal is to generate profit from selling their Products to these potential customers.

3. Scheduling Feasibility:

The project was planned very well before starting which will help to complete the project in due time. Spanwide is very strict on deadlines so the working process is designed accordingly without any obstructions.

5.2.3 Problem Solution Analysis

At this stage I have faced number of problems during project management and financing part. There are several types of diagrams and charts has to be drawn which takes a lot of time and method. Also there is some planning and meetings regarding which part of the work will be divided into several person, after that ,whole work is transformed into work hour which then is converted to money per hour. So there are many kinds of obstacles in many areas of the project that I have been facing.

Developing the properties slider with interactions :

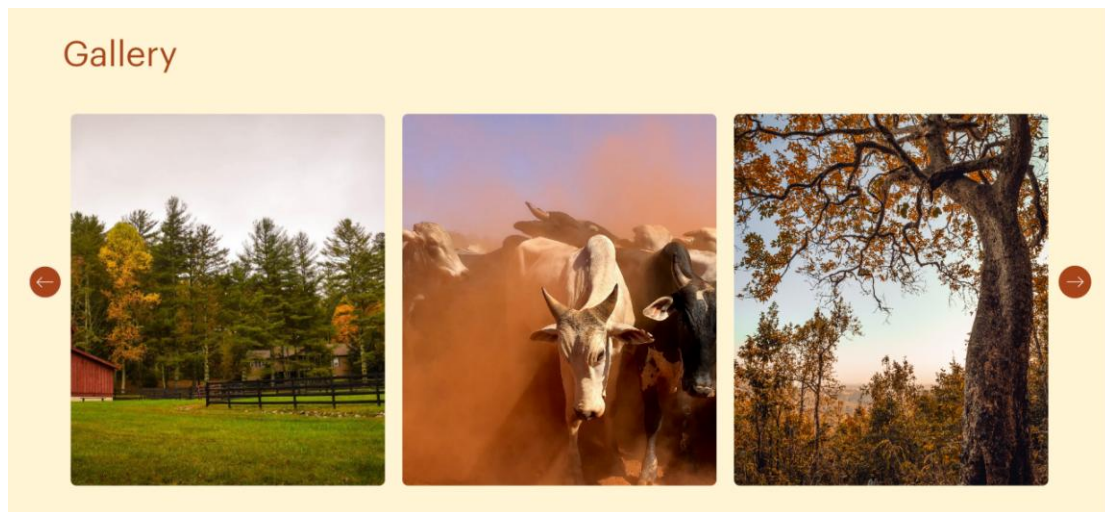


Figure 4: Gallery Slider

- I. We have planned for a slider that will look elegant and user friendly. But we are facing a lot of problem when we are trying to make it responsive for all devices. But there is a problem on how we can show that on a mobile device that will look as good as desktop view.

Product card:

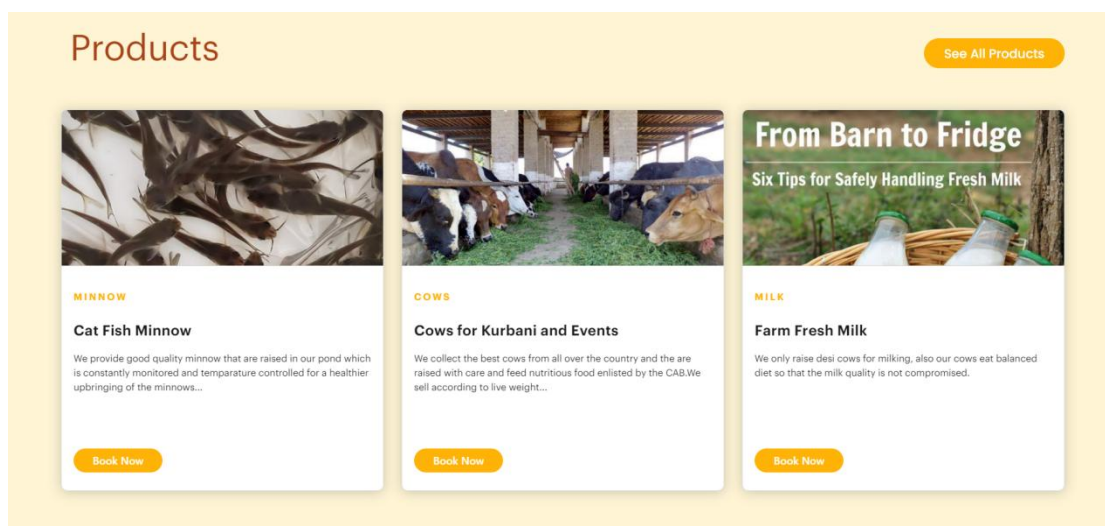


Figure 5: Product Cards

- II. We are using a jQuery plugin 'Splitting' in the for the animation in the card. Card were design in such a way its displays an image,title,description and book now button.Problem we faced was new product was not being able to connect and the booking was not not registered. We are solving the problems by doing RND and configuring the codebase.

iii. SMTP mailer issue:

We faced issues configuring the SMTP mail server which resulted in failure of sending email. We configured the SMTP mail server again and did some RD prior to configuring and the new configuration seemed to work.

5.2.4 Effect and Constraints Analysis

The website is built with the aim to provide its visitor with the option to view projects and easily decide on which property they want to buy. The goal is to make peoples life easier for property shopping. The website also provides easy contact solution with the company for the visitors, interested buyers or investors. The website also has the option for prospective employees to view job openings and apply directly.

Though buying properties online is not the traditional way for people but we are hopeful that in near future more technological features like, 360° walkthrough options inside the apartments could be added and people would practically be able to check and buy their desired properties online.

5.3 System Design

5.3.1 Rich Picture

A Rich Picture is a way to explore, acknowledge and define a situation and express it through diagrams to create a preliminary mental model. We created a rich picture to create a model to map the significant journey of different kind of users.

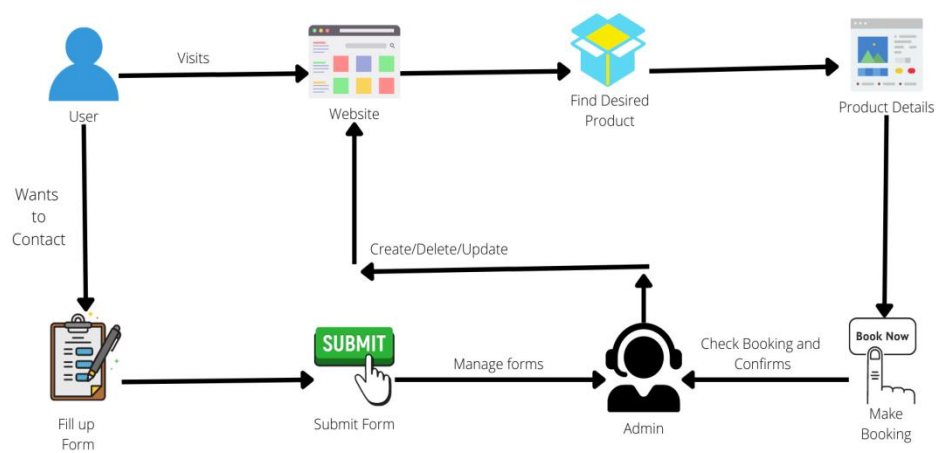


Fig: Rich Picture

Figure 6: Rich Picture

5.3.2 UML Diagram

UML, or Unified Modeling Language, is a specification language that is used in the software engineering field. It can be defined as a general-purpose language that uses a graphical designation which can create an abstract model. This abstract model can then be used in a system. This system is called the UML model. There are different types of UML Diagram that can be produced for a project. We did activity diagram and the most important of all UML.

Activity Diagram: The workflow of a system can be illustrated by an activity diagram. The activity diagram for the user is drawn for 2 kinds of user:

- Prospective Buyer
- Prospective Employee

This diagram illustrates the journey of the users. We have designed the follow activity diagrams:

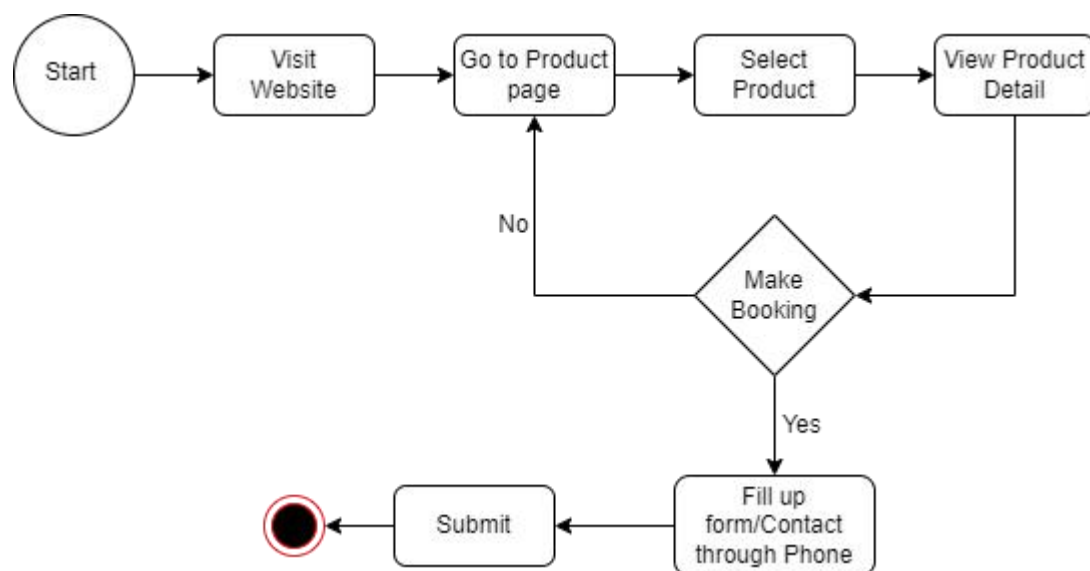


Figure 7: Activity diagram for buyers

Activity Diagram for Admin: The activity diagram for the admin. This diagram illustrates the journey of the admin where he is in control of the admin panel (CMS).

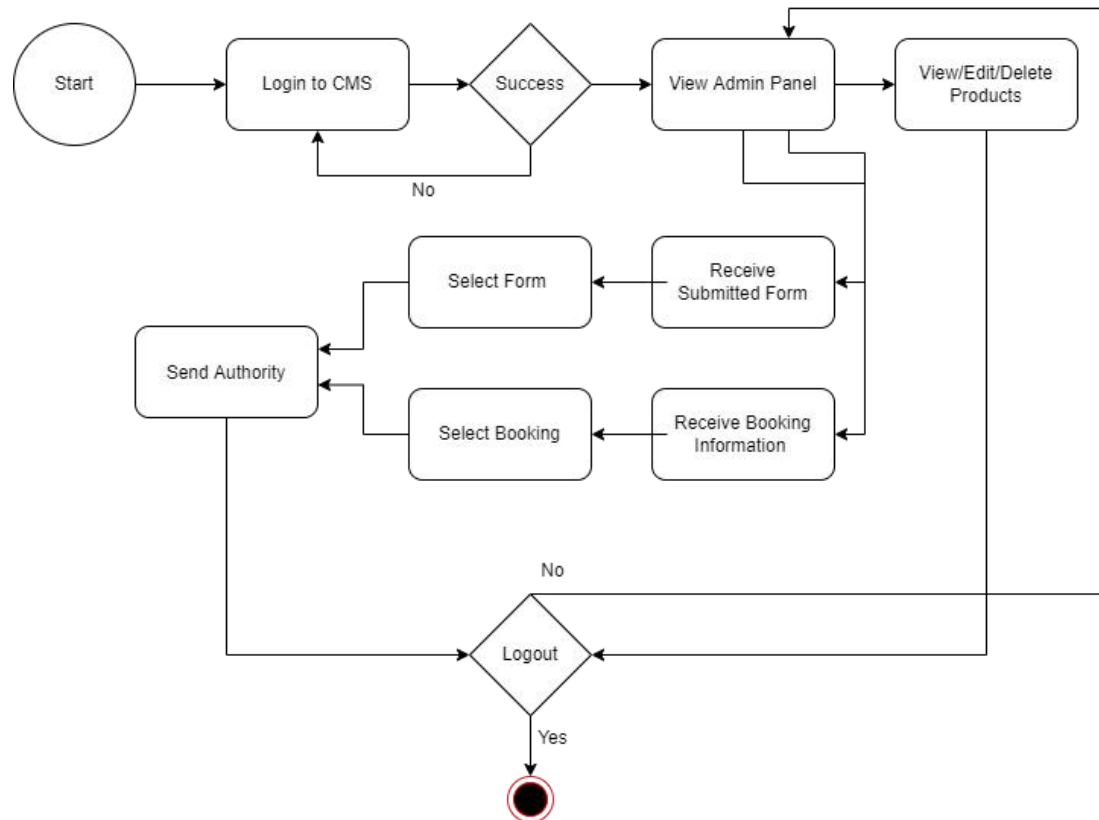


Figure 8 : Activity diagram for Admin

Use-Case Diagram: As the most known diagram type of the behavioral UML types, use-case diagrams give a graphic overview of the actors involved in a system, different functions needed by those actors and how these different functions interact.

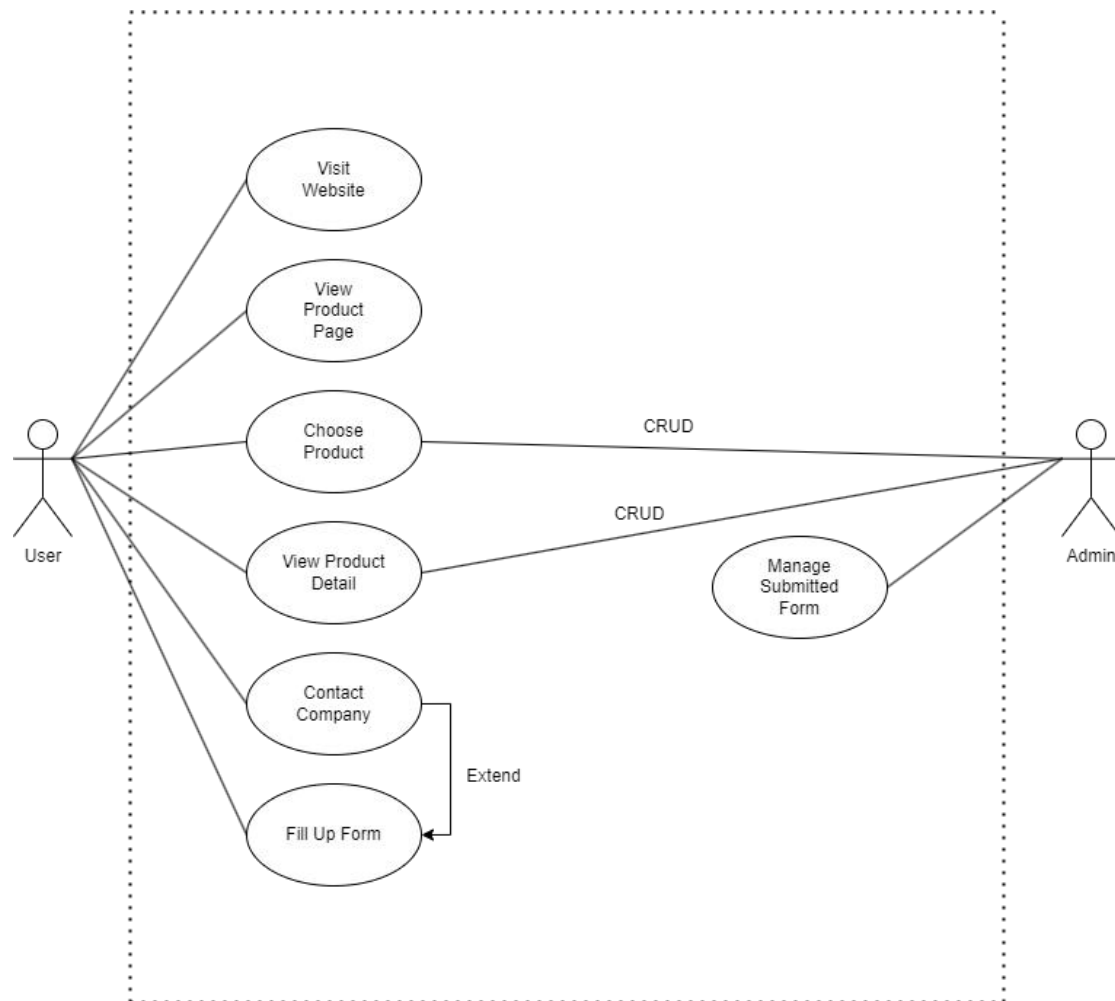


Figure 9: Use Case Diagram

ERD Diagram: An Entity Relationship Diagram is drawn to illustrate the structure and connection of the system with the database. It shows the entities which will be the tables in the database and the attributes of the entities. It also demonstrates the relationships of the entities with each other.

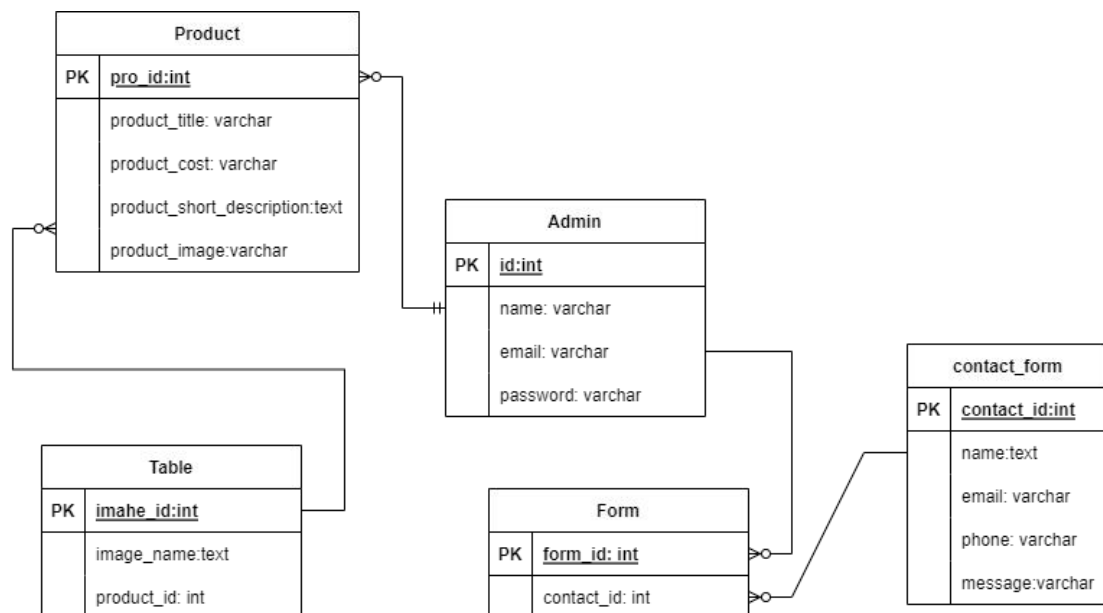


Figure 10: ER Diagram

5.3.3 Functional and Non-Functional Requirements

Functional Requirements:

Function:	Finding Desired Product	
Input:	Process:	Output:
Select Product	Visits the website	Can view all product details
Pre-conditions:	User must have a device with internet connection	
Post-conditions:	User views the desired product as per choice	

Table 4: Functional Requirement to find Product

Function:	Contact with the company	
Input:	Process:	Output:
Name, number, email, message	Visits Contact Page	Form is submitted
Pre-conditions:	User must have a valid email id & phone number	
Post-conditions:	Admin collects the form and forwards to authority	

Table 5: Functional Requirement to Contact

Non-Functional Requirements:

The non-functional requirements of the project are discussed below:

- **Performance:** Performance defines how fast or slow the system will respond. In our project, we gave our focus on the loading time and also handling the traffic of the website at a time. Through following best practices in using good code and content optimization. Also configuring the server so that we can make sure a smooth experience for the visitors ensuring better loading time and traffic handling of the system.
- **Portability and Compatibility:**
We made a very user-friendly design for the system and made it responsive for maximum range of devices from mobile to desktop to large tv. Ensuring that the website will be responsive in those resolutions. We also ensured cross-platform compatibility to make sure that the website runs on commonly used browsers and minimum specifications needed to run the system without any issues.
- **Security:** The system is secured at both client end and server end. SSL certification, form validation through CORS – cross origin resource sharing is ensured to protect from unauthorized access and malware attacks. Also we use some security plugins inside the website to secure it more.
- **Availability Requirements:**
It's very important to keep running the system 24/7 for our client. So we need to ensure and support our system and server running properly without any issues.
- **Maintainability Requirements:**
The maintenance of the website has been made very straightforward so that client can easily work and any changes can be easily done through the admin panel with our custom CMS. In case of any issues occurred, it can be easily fixed by updating from our part to resolve the issue.
- **Usability:**
The whole system is designed in mind of accessing this website and browse through it and find necessary information and straightforward to everything that our client's targeted people needs. User interface and user experience design has been done with time so that we can ensure a user-friendly and easy to access design. The admin panel is also designed so the admin can easily maintain the website.

5.4 Product Features

Product features defines the functionality of the product and how that will benefit the users. Here are the features of our website below:

5.4.1 Input

Whatever resource is needed for the system is known as input. This includes resources used in the production stage like time, people, money, skills, efforts, documents, machines and hardware used. As we worked and developed everything using a computer, as an input, these resources also will be included like computer we have used, the processor, ram, hard drive space, internet, devices like phone and laptops are all included in the input.

5.4.2 Output

In context to our project all the services, features and products of the company that is gained from the website is considered as an output. Here are the outputs given below:

Online Consultation:

The live chatbot can be used to consult with the company online and also the form will be used to reach them, also using form, one can submit their CV's for the job posts. Consultation can be done instantly on the website.

5.4.3 Architecture

An architecture defines the structure of any project. It is designed to show how a structure will work for a website. A website architecture defines the structure of the website that is, how the website will work and how the data will be transferred and where they will be stored. If we see into the diagram below for details, we can see that the architecture we designed for the project where the diagram clearly demonstrates that user will see and interact with the front-end of the website. Request or commands received from the front-end part from the users and transfer it to the web server where all the data is stored on a server, which then retrieves data from the file system and database accordingly and sends it back to the front-end for the users as a view and response.

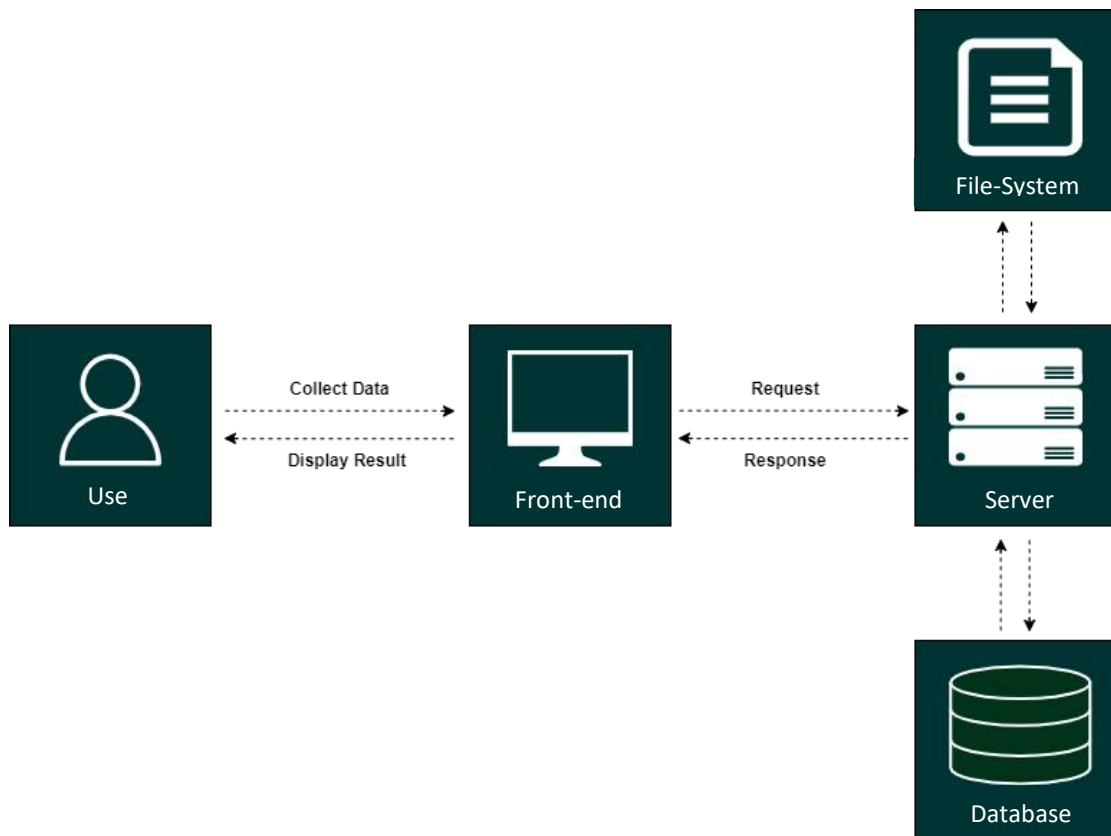


Figure 11: Website Architecture

5.5 Implementation

In our project to build a website for Nazif Agro, we used a number of web languages, frameworks and scripts.

▪ HTML/CSS:

HTML is a hypertext markup language that is specifically used to design the main skeleton of the website. It uses Cascading Style Sheets(CSS) properties and integrating with our HTML codes, we ensure a modern, user friendly User Interface of the a website.

- **Bootstrap:**

Bootstrap is a CSS framework used to develop responsive websites. We used Bootstrap to make the website responsive and mobile friendly. We also used media queries for specific devices to present our website best in all sizes of devices.

- **JavaScript:**

JavaScript programming interpreter. We used JavaScript in our website along with React.js for the animations, effects and reducing loading time.

- **YII2:**

YII2 is a component-based PHP framework, known for its high performance. PHP is an open-source scripting language. We used Yii2 framework for our back-end code.

- **MySQL:**

MySQL is a relational database management system. We managed our Database and back-end through SQL queries.

Chapter 6: Results & Analysis

6.1 Results

The project of Nazif Agro was done to with aim to create a modern website and to promote the marketing and selling of property online. Nazif Agro wanted to increase the exposure on their company and attract more clients and grow their business. They believed a strong online presence will help them in their cause, as people will be easily able to find their desired product from their website. We catered to their need and built a website for them meeting most of the requirements given by the client. Below is an overview of what we have achieved in the project and how that will help the visitors of the website:

Menu: A global menu is used in the Navigation Bar. The menu is accessible through the hamburger icon, which gives a Fullscreen menu to access different pages of the website. The background of the menu changes with hover on each options of the menu. The menu can be access from all the pages at any time since the navigation bar is made sticky.

Footer: A global footer is there, accessible from all pages with contact details and social media links. Also Contact details so that a people can scroll down and see all the details without going back to search contact details again.

Landing Page: The landing page or the index page is first page that a visitor is able to see in the website. This page is designed to give an overview of the whole website.

First section,A relatable image have been used along with bold title that says the moto of the company along with a button that leads to about page and two social icon to redirect to companies social pages.Next is the about section briefly letting people know about the company.After that is the section stateing different values of the company,Then there is a video section that shows their farm animal and its environment, A slider is used with gallery to improve user interaction with the website.

Next is the Product section, visitors can select from the type of products here and view specific products. Last section with a contact form to easily contact with the company for any queries.

About Us Page: The about us page is designed in such a way that it gives a detailed overview on the company. Starting from a summary on the company history with the option read in details. There is also a video section with it to show the visitors a video introduction of Nazif Agro. The video section is developed with the help of plugin – Light Gallery.

There are sections for the companies Vision and Mission followed by a message from their Team. There is not much interaction for the visitors on this is an informative page focusing on introducing the visitor with the company.

Product Page: The product page is designed and developed to showcase all the products of the company and help the visitors and prospective buyers to search for their desired property. Visitors of the site can easily view all the projects and can see the details of the product by clicking on each of the cards. The user will be redirected to the product detail page. The UI is made user friendly so visitors can easily access the products.

Product Details Page: These pages show the details of a specific product. Starting with a picture of the product with its description. Visitor have the option to book a particular product.

Contact Page: The purpose of the page is to allow visitors of the website to contact the company with ease. Details on the companies contact information are given as well as a contact form is given to reach Nazif Agro with any queries. Users will need to fill up the form with necessary information and their query as a message.

There is also Frequently Asked Question section developed as an Accordion to help visitors find the common questions asked.

6.2 Introduction to test case

A test case is a document, which has a set of test data, preconditions, expected results and postconditions, developed for a particular test scenario in order to verify compliance against a specific requirement. Test Case acts as the starting point for the test execution, and after applying a set of input values, the application has a definitive outcome and leaves the system at some end point or also known as execution post condition.

We have conducted a test case for Nazif Agro to assure quality and the functionalities of the website.

6.2.1 Issue Tracking and Reporting System

The project will be uploaded in Spanwide's test server and the URL will be shared among the development team and a specialized QA tester. The testing phase by the QA tester will start in the midst of the development along with the development team members. All the modules and functionalities will be tested. Once a problem is found, the issue will be noted down in a share google sheet with detail comment on the issue. The developer will fix the issues once fixed will mark the issue as fixed in the sheet. After the initial development is done the system is rechecked again by the Spanwide team and the QA tester for issues. Issues are reported and fixed once again before the test server url of the project is shared with the client for testing. Feedback is received from client and issues are fixed if needed after that before the final deployment of the project.

6.3 Test Case Analysis

The following functionalities has been tested for this particular website:

- Admin login to CMS
- Add product
- Delete product
- Update product
- Change password
- Logout
- Mobile Responsiveness
- Contact forms

6.3.1 Test Table

#	Case	Action	Precondition	Steps	Expected Result	Result obtained	Status	Remarks
1	Login	Admin login	i. Connected to the admin panel through internet. ii. Valid login credentials.	i. Add admin information to the users table in DB. ii. Fill up the fields and Press login button.	i. Logins in to the database and view the dashboard interface. ii. Wrong credentials give an error message: "Login failed".	Login successful.	Pass	N/A
2	Add Product	Admin can add new projects of the company	Must be logged in to the admin panel	i. put relevant project informations in the appropriate fields ii. Clicks on Save button to add new project	New project will be added	New project added successfully in the DB and visible in the website	Pass	N/A
3	Delete Product	Admin can delete a project from the DB	Must be logged in to the admin panel	i. Goes to the list of projects ii. Selects the project to be deleted iii. Press on the delete icon iv. Confirms to delete by pressing confirm button	Project deleted from the system and website	Project successfully deleted	Pass	N/A

4	Update Product	Admin can edit the project details	Must be logged in to the admin pane	i. Goes to the list of projects ii. Selects the project to be edited iii. Press on update icon iv. Edits required fields to update v. Saves the changes by pressing Save button	Existing project will show updated informations of the project	Data were updated successfully except the Project Description field	Failed	Check codebase
5	Change Password	Admin can update password	i. Access to the admin panel ii. Logged in as admin	i. Login to the admin panel ii. Click on the user's icon and selects change password iii. Input old existing password iv. Input new password v. Confirms new password vi. Clicks Save to change password	i. A message to confirm that password has been changed successfully is shown ii. Changes not saved message is shown if passwords don't match	Password change is successful and new password can be used to login	Pass	N/A
6	Logout	Admin can successfully log out	i. Needs to be logged in to the admin pane	Click logout from user menu in profile icon	Logs out from the admin pane	Successful logged out	Pass	N/A
7	Mobile Responsive	The design and layout is responsive to the commonly used screen size	i. Any user with internet connection can view the responsiveness	Visit the website URL	Design is responsive without breaking the layout	The website isn't perfectly responsive to all common screen size	Failed	Check Bootstrap implementation and Media query code.
8	Forms	Fill up the contact form and submit	Connected to internet	i. visits the website ii. Fill up the form and click submit button	A success message is shown upon submission	Success message received and the message is received by admin	pass	N/A

Chapter 7: Project as Engineering Problem Analysis

7.1 Sustainability of the Project/Work

As days go by in this modern era, every system needs to give attention to sustainability. To survive in a long run ensuring that the purpose of the system is served to the consumers, sustainability is essential and plays a vital role keeping in mind it is really difficult to maintain. But if it can be established, the future of the project will be better in this competition technology era.

In software and web development, The systems are intended to be lengthy so how they can serve both the owners and the users indefinitely with no problems. To ensure the long-term viability of our project, the website has already been created to still be accessible regardless of the user's machine's environment.

The website we developed is unaffected by the user's computer configuration, operating system, resolution, or internet speed. All computers and smartphones will be able to access the internet using the most popular browsers.

The website's long-term sustainability will be ensured through regular maintenance of the website and its server. The website's HTML, CSS, JS, and backend code are all efficiently optimized. It is ensured that the website works as intended and is easily accessible by users regardless of the device's specification by minimizing repetitive codes, minifying different scripts that are utilized, and maintaining proper coding standards.

In terms of style and layout, the website is user-friendly, with such a strong emphasis on the User Experience. Visitors with only rudimentary computer skills will be able to quickly access and navigate the website. The media files, such as photographs, videos, symbols, and logos, have all been optimized to ensure that the pages load quickly, allowing visitors with low-end devices and poor connections to browse the site.

7.2 Social and Environmental Effects and Analysis

The Nazif Agro website lists all of its product, and consumers may quickly access the site to learn more about a certain product. This allows users to save time by gathering information.

Instead of visiting various websites to make a decision, you can use the information available on the internet. This is something that anyone can do. Rather than spending hours stuck in city traffic, they may do it from the comfort of their own homes. saves gasoline, and fewer cars on the road equals less pollution from automobiles..

In addition, considering the recent pandemic crisis, it is recommended that people stay at home and have minimal physical contact. The website also aids this cause greatly because buyers do not have to physically visit the farm locations. The website was created with the goal of maximizing efficiency while conserving resources.

We made every effort to make our programming and media material as efficient as possible. The website is ad-free, has fewer redirections, and only uses basic plugins, all of which contribute to overall optimization, resulting in less power consumption and energy savings.

Our office is totally digitally operated and equipped with energy-saving machinery and equipment. In our office, we are constantly conscious of the importance of avoiding wasting electrical energy. This allows us to be more energy efficient while also reducing our use of paper, which has a positive impact on the environment.

7.3 Addressing Ethics and Ethical Issues

The more technologically advanced our world becomes, the more necessary it is to address ethical challenges and follow accepted ethical principles and guidelines. Sensitive data is constantly sent over the internet via numerous systems, and it must be verified that the data is not compromised in any way.

We ensured that our project data was secure enough to prevent hacking or breaches. We ensured that no extremely sensitive data is gathered via the website, and that only data that is required is saved, such as name, phone number, email address. To secure sensitive data from any form of leak, proper security procedures are taken. Data is securely stored in the cloud, and critical information such as passwords is encrypted. These data can only be accessed by our team's Lead Developer with valid credentials, and no one else on our team has access, ensuring the data's security. Spanwide keeps all project-related papers, negotiations and agreements, and coding secret to protect the company's and our clients' privacy.

Chapter 8: Problem Faced

8.1 Problems faced during this period

Since this was my first attempt to a big real time project, I did face a number of problems and issues. Most of them were some issues where I have lacking of understanding for example, customizing the jQuery plugins for animation, maintaining the grid and responsiveness, writing SQL queries for the forms. Understanding how javascripts will work in a specific part of the project. Also we were having a problem regarding how to configure with the server as I am very much new to these new technology used to developing the website which I have not done before. As a team, with our supervisor, we were having several meetings to rectify all the problems we are facing or we will face in future.

It was also challenging to learn so many new technologies at such a short time. I didn't get to learn the technologies in depth as much as I would have liked given the fact that I was on a deadline. So, the learning had to be rushed. It was very stressful to learn and implement the knowledge at such a short time. It was difficult for me to cope up with the pace of the experienced developers in the team.

8.2 Solution of those problems

The solution to the next problem is to keep learning and practicing the technologies more in depth. Spending more time with these technologies will surely make me an expert like the other developers in the team in near future.

Chapter – 9: Future Work & Conclusion

9.1 Future Works

A proper Agro business website should not only be utilized to gather company information, but also to allow users to purchase products through the system. Although this is a bold idea, and many people are still unaccustomed to and unwilling to accept a new manner of purchasing agro product rather than the traditional one, it is a viable option. We intend to improve the website's functionality by adding a walk-through farm option, which will allow customers to see a farm and how its it maintained to gain more trust in its products. To summarize our future plans, we intend to do the following in the near future:

- Add e-commerce functionalities.
- Add “Walk Through the farm” option.
- Develop an android application
- Add multiple language option
- Update animations using jquery

9.2 Conclusion

Nazif Agro’s project has been implemented effectively. My organization and our clients are pleased with the final result. We believe there are still areas where we can improve, which we will address over time. Now that Nazif Agro has established a presence on the internet, we believe that the website will assist them in growing as a brand and a business.

Spanwide provided me with a fantastic internship opportunity. Working at an IT firm with a skilled staff was a really rewarding experience for me. I learnt and implemented new skills and strategies, which enabled me not only to create a good website, but also to broaden my skill set. Thanks to Spanwide, my professional skills, communication skills, and, last but not least, technical skills have all improved. They led me through each stage and assisted me whenever I needed it. I've also learned how to work under pressure and to meet tight deadlines. My team mates, on the other hand, played an important part in making my job easier by offering advice and suggestions, and I never felt like a newcomer in the firm. This internship has also provided me with an introduction to the website building industry, and I am confident that I will learn and grow as a result of it.

Bibliography

References

- [1] Brotherton, S. A., Fried, R. T., Norman and E. S., "Project Management Insitute," PMI® Global Congress 2008, 2008. [Online]. Available: <https://www.pmi.org/learning/library/applying-work-breakdown-structure-project-lifecycle-6979>.
- [2] "APM," [Online]. Available: <https://www.apm.org.uk/resources/find-a-resource/gantt-chart/>.
- [3] "SDLC - Agile Model," Tutorialspoint, [Online]. Available: https://www.tutorialspoint.com/sdlc/sdlc_agile_model.htm. [Accessed 25 March 2021].
- [4] M. H, "Business Management Ideas," 04 September 2018. [Online]. Available: <https://www.businessmanagementideas.com/feasibility-analysis/feasibility-analysis-meaning-importance-report-types-process-objectives-and-advantages-business/18196>.
- [5] K. Stevens, "Better Evaluation," 07 July 2020. [Online]. Available: <https://www.betterevaluation.org/en/evaluation-options/richpictures#:~:text=A%20Rich%20Picture%20is%20a,shared understanding%20of%20a%20situation>.
- [6] Y. Waykar, "A Study of Importance of UML diagrams: With Special Reference to Very Large-sized Projects," in International Conference on Reinventing Thinking beyond boundaries to Excel, FARIDABAD, INDIA, 2013.
- [7]"CreatelyBlog,"09May2021.[Online].Available:<https://creately.com/blog/diagrams/uml-diagram-typesexamples/#UseCaseDiagram>.
- [8] "Tutorialspoint," [Online]. Available: <https://www.citationmachine.net/ieee/cite-a-website/confirm>

Appendix

UI Images (Screenshots)

Figure 12: Menu UI



Figure 13: Footer UI

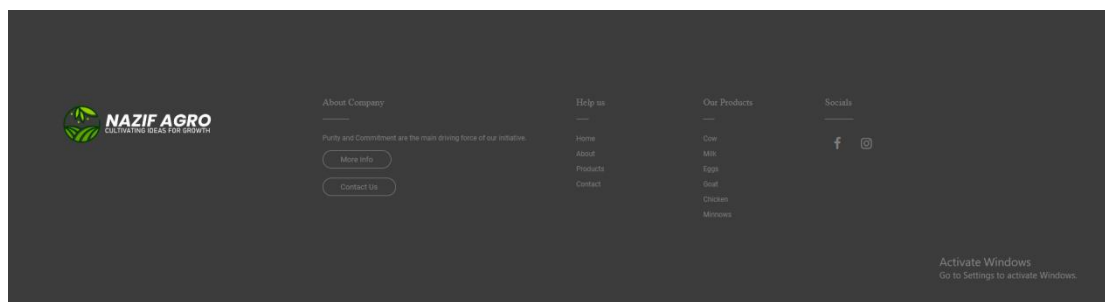


Figure 14: Home page UI

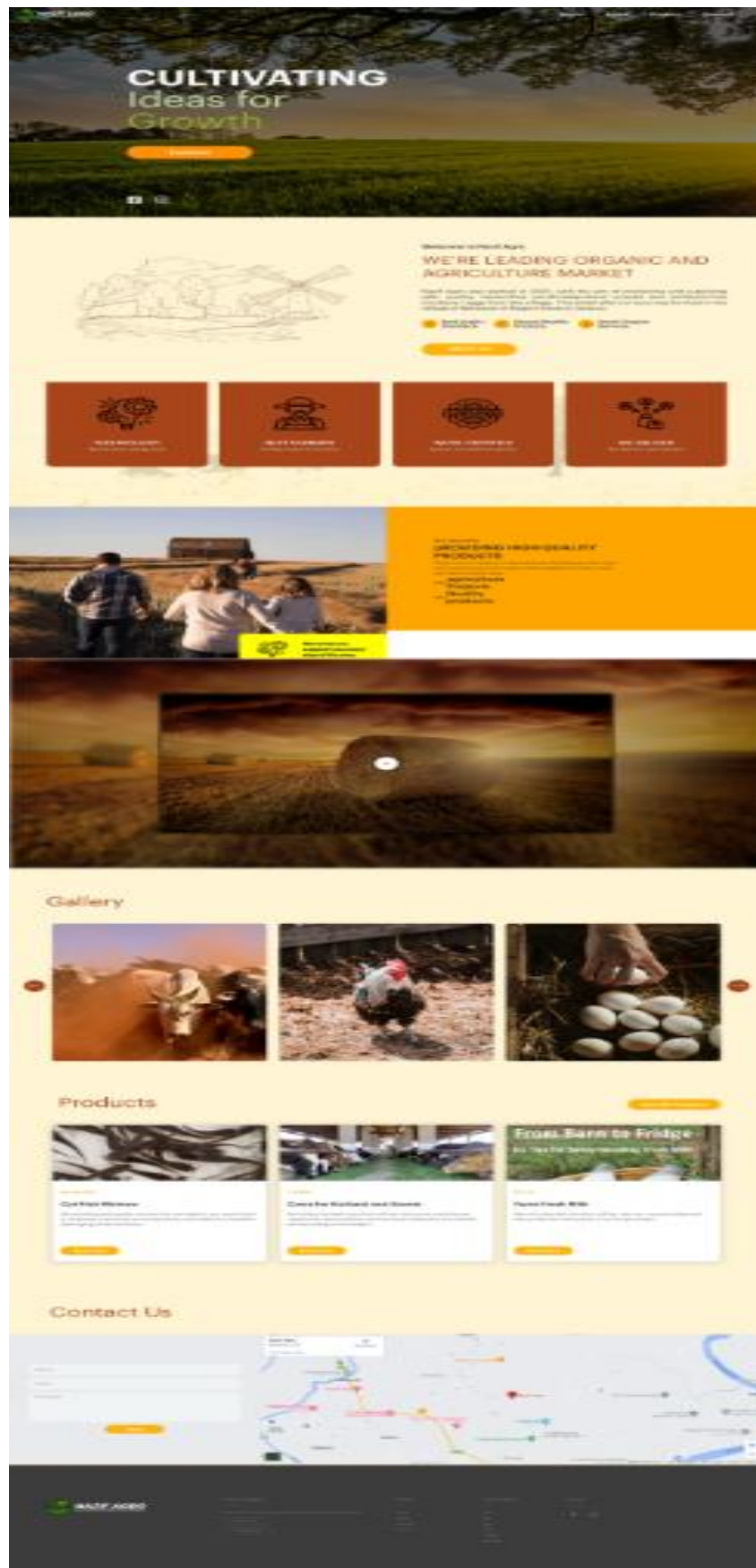


Figure 15: About page

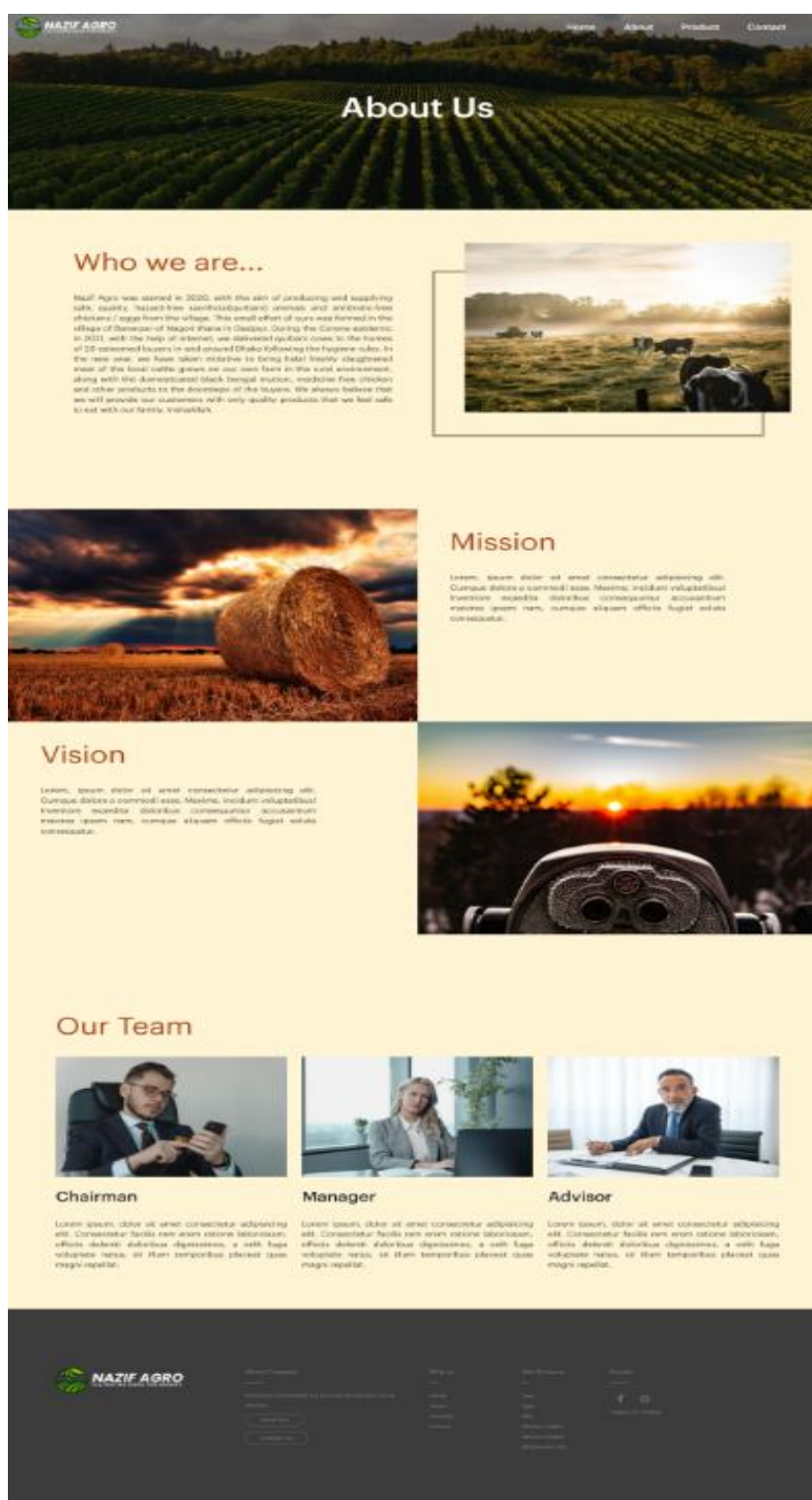


Figure 16: Product page

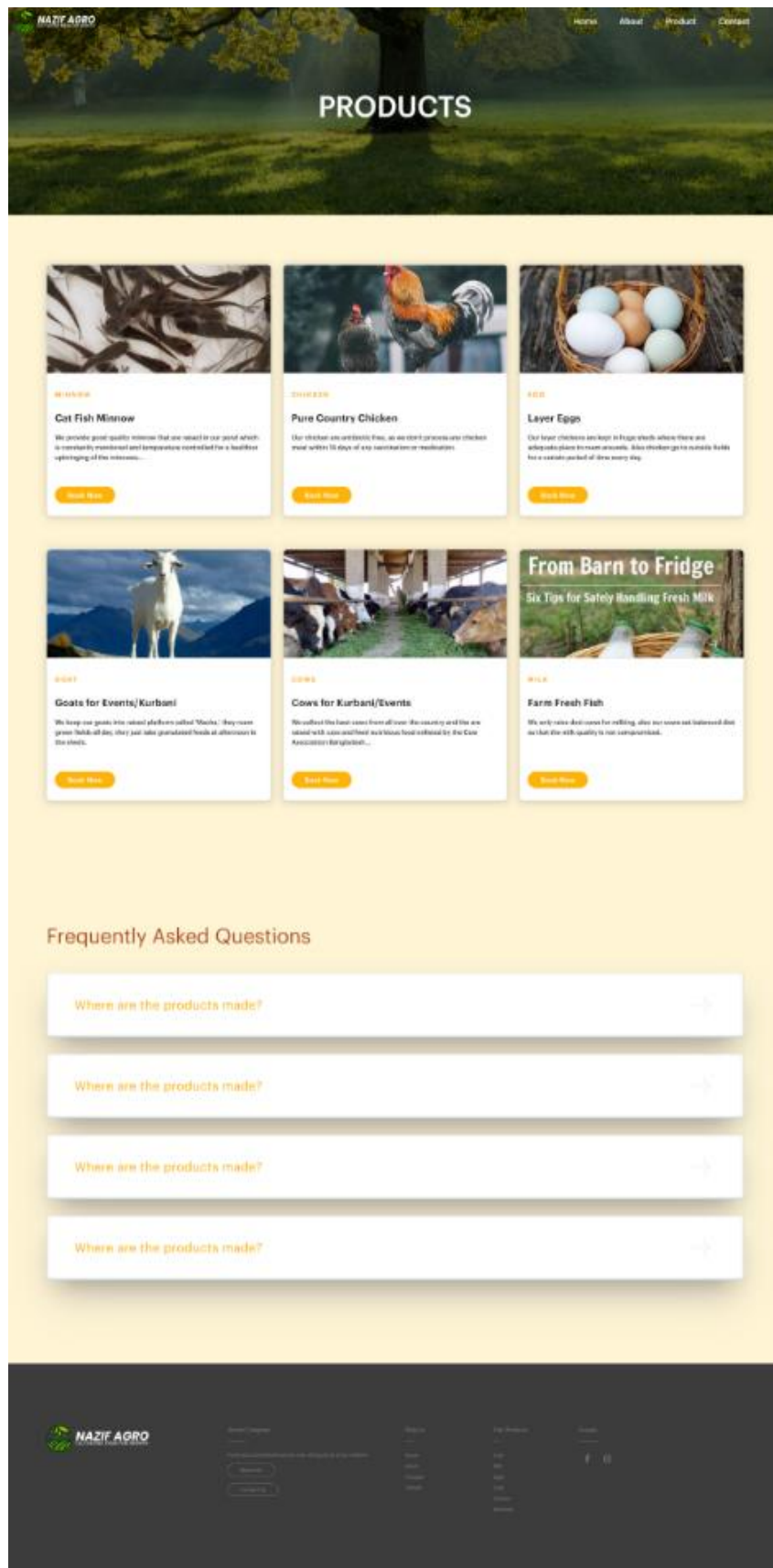


Figure 17: Contact Page UI

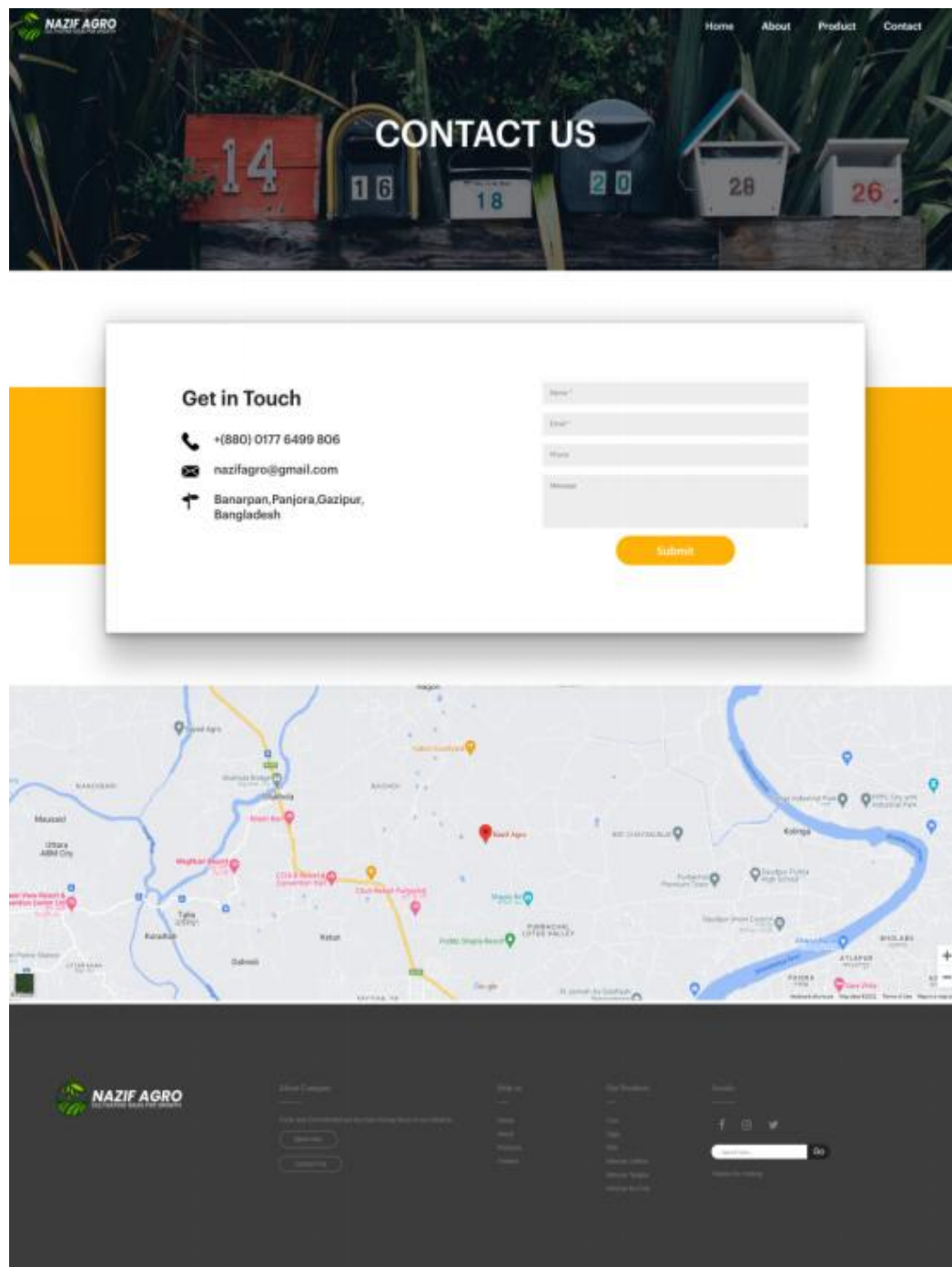


Figure 18: product detail page UI

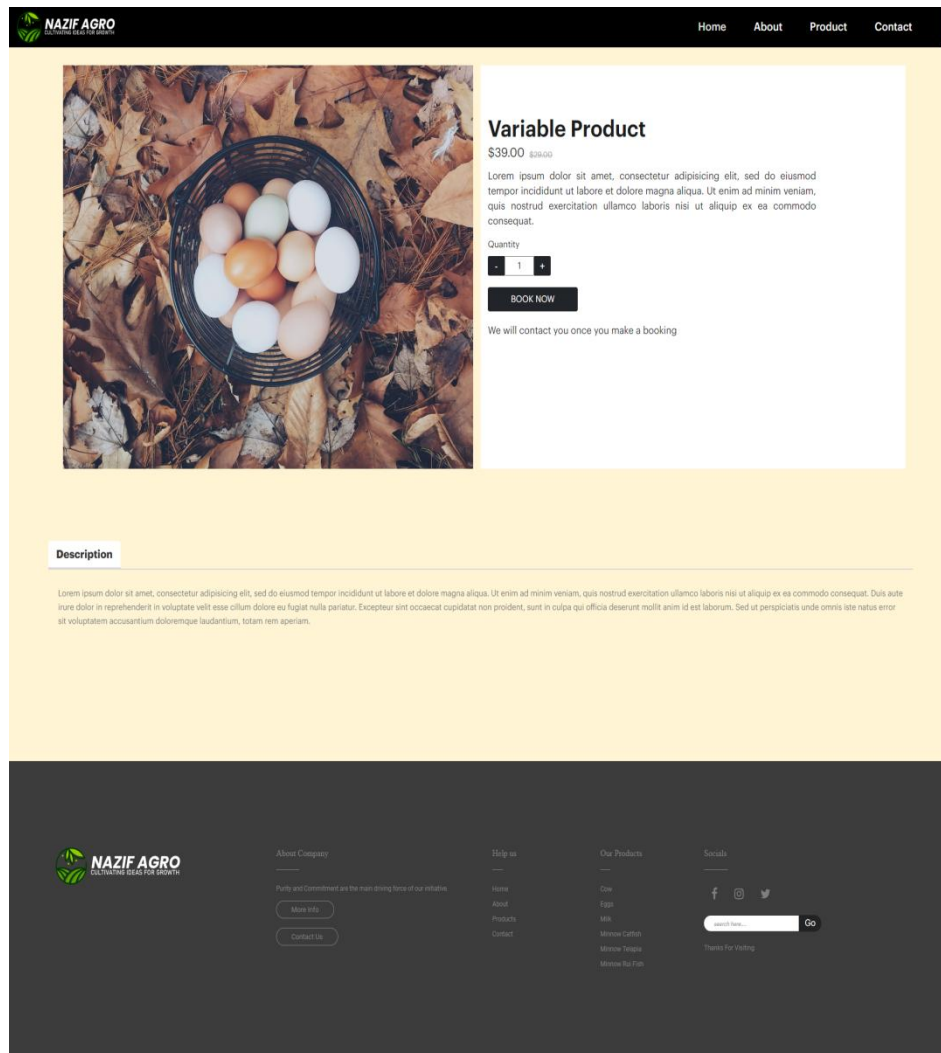


Figure 19: Admin panel UI

Figure 19: Admin panel UI

