An Undergraduate Internship/Project on Partex Group Website Design & Development

By

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April 21, 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 this whole report was completed by Mohammad Junayed Hossain (ID-1721552) 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 Raihan Bin Rafique (Internal Supervisor) and Masud Kaisar (External 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 have been duly acknowledged in it.

4/21/2022

_____   _____

Signature   Date

Mohammad Junayed Hossain

_____

Name

Acknowledgement

Firstly, I would like to thank my parents and my family members. Without their accomplishment and support, I would not have come this far to achieve what I have now. They taught me to be kind and respectable to my surroundings and treat everyone with compassion and love. They also taught me to learn every day, because knowledge maketh man.

I would also like to acknowledge the support and guidance of my faculty members and peers at my university, Independent University, Bangladesh. I would also like to thank my respected supervisor, Raihan Bin Rafique, Lecturer, Department of Computer Science and Engineering, for his advice and suggestion to complete the report and my internship project throughout the semester.

Furthermore, I would like to acknowledge and thank the CEO of Dcastalia Limited, Mr. Khairul Hasan, for providing me the opportunity to work with his company. Thanks to Mr. Kazi Sarowar Turzo & Mr. Masud Kaisar for guiding and supporting me to complete the project under their team.

It was a learning journey and a fantastic journey with Independent University, Bangladesh. My regards and respect to all of my faculty and company members. Everyone was a crucial and vital part of my journey in completing my Bachelor's Program in Computer Science (CSC).

Letter of Transmittal

April 21, 2022,

Raihan Bin Rafique (Lecturer)

Department of Computer Science & Engineering

Independent University, Bangladesh (IUB)

Bashundhara R/A Dhaka 1229, Bangladesh.

Subject: Report Submission for Internship

Dear Sir,

With due respect and honor, I would like to submit my internship report for the purpose of completing my Bachelor of Computer Science and Engineering Degree. I prepared this report following the experience and what I have learned during my internship period at Dcastalia Limited, starting from February and ongoing. I was assigned as a web developer intern in the development team. I still have a month of internship left to serve with Dcastalia Limited, which is projected to be completed at the end of May.

In Dcastalia Limited, I worked under the supervision of Mr. Masud kaisar, Project Manager & Team Lead. This report is based on my assigned project for the internship at Dcastalia Limited, where I was assigned a project for Partex Group's Website Design & Development. I was assigned as the frontend developer and had been instructed and guided to implement a few backend developments as well. My experience as a web developer intern with Dcastalia Limited has been a journey of fulfilling experiences in the corporate world and a source of knowledge. I got the opportunity to enhance my skills and knowledge regarding various factors of the real world, which will always stay with me and benefit me in the

long run. I would also like to acknowledge your immense guidance and advice throughout my journey in the internship program which has helped me to complete my project.

I pray and hope to have given a thorough content in this report which will elaborate clarification of information and fulfill your expectations. I would also like to thank you for giving me the opportunity to submit my report successfully.

Sincerely yours,

Mohammad Junayed Hossain

1721552

Evaluation Committee

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Signature

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Name

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Supervisor

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Signature

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Name

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Internal Examiner / Panel Member

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Signature

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External Examiner / Organizational Supervisor

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Signature

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Name

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Head of the Department / Convener

Abstract

Bangladesh has been growing in the aspect of digital advancement all throughout every industry. The number of internet users is increasing day by day because the internet enables fast communication amongst people and makes life easier. Therefore, it demands and requires that the businesses shift to a digital platform so they can reach a greater audience and communicate with them much easier and showcase their services and products on a more convenient platform. Hence, this has created a big potential for businesses to market themselves online. PARTEX Group, like every other company sector, has seized the opportunity to expand its business and raise its brand awareness. Dcastalia Limited has previously teamed up with many major companies and firms to assist them in developing their online platform and raising their online presence. The following report is based on the development of a website for such a firm, PARTEX Group. The core intention behind the development of the website is to showcase and provide essential information about the company's division & products and services to a greater audience and potential customers. The report also elaborates on my experiences and collaboration with the firm Dcastalia Limited, a well-known digital marketing and software development agency in Bangladesh. Dcastalia Limited was founded in 2009 and since then it has been flourishing and prospering with its services and expertise to its customers. I am glad to be a part of their team and honored to have been in their development team as a web developer.

The report is divided into 9 major parts explaining the project and the process of its 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 to my bachelor's degree. In the third chapter, project management, and finance, I covered the planning that went into the project which includes a breakdown of time, resources, and cost to carry on the development. Then in the fourth chapter, the methodology that is followed for the project is described and how that methodology helped us in planning and development. The fourth chapter titled body of the project, in fact, is the most important part of the report. Here the system analysis is discussed with a thorough discussion of different techniques of analysis and diagrams. The next chapter, Results, and analysis cover the result we obtained after the development and analyses 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.

Contents

Chapter 1

Introduction

An internship at a company, enables the students to gain expertise and learn the ways of the real-life actions that actually take place in a corporate world. These learnings allow the students to prepare their understanding accordingly and make it easier when applying for jobs right after graduation. It is an opportunity that comes with a high level of advantage in one's professional life.

At the moment, I am a final year student at Independent University, Bangladesh (IUB) & doing my major in Computer Science and minor in Human Resource Management. And currently in order to graduate we have to complete a mandatory course, which is the Internship Program (CSE499). This course provides the students to implement the knowledge & skills which they have acquired in their undergrad in the real-life situation by collaborating and providing their services to a company or firm which specializes in Software Development or IT.

1.1   Overview/Background of the Work

The company where I am doing my internship is called Dcastalia Limited. This firm specialized in developing web applications and software systems for renowned companies in Bangladesh over the last decade. It is my absolute pleasure and a great opportunity to be doing my internship under this firm and getting the proper training that I need in order to prosper in the field of work that I want to proceed as my career.

The project that I have been assigned by my firm is for PARTEX Group's website design & development. As we all know, PARTEX Group is one of the most popular and known groups of industries in Bangladesh and it is also known internationally, so being a part of their website development gives me a greater opportunity to showcase that in referral to my works.

PARTEX Group did not have any dedicated and properly managed website over these years and now they are trying to develop a website that will showcase the services and products that they are associated with to their consumers and clients. The website is dedicated to their products and services, the members associated with the industry since its inception, the methods of their production & manufacturing, their environmentally green adaption of processing their products, and the history of their industry. Moreover, the website enables the consumers to look through their news & events over the years and the achievements they have acquired along the way. And finally, a contact form, where the consumers will be able to contact them personally for any related queries & concerns.

1.2 Objectives

- Developing a web-based & mobile-based Application
- User-Friendly system where the clients/consumers will be able to navigate their way easily
- A website where the consumers will know the history & learn about PARTEX Group's products & services.
- An attractive portfolio (Website UI) that will mesmerize the viewers (consumers/clients).
- Learn about the Division of PARTEX Group.
- Get updated with their news & events and as well their achievements.

1.3 Scopes

The website will be designed in such a way when the clients/consumers enter the site, they will have a clear picture of where the modules are accordingly, and as per the menu which features will take them where and what information will be shown. They can check the products/services of the company and view information on the wider aspect of their insights on manufacturing and divisions of their industry.

 Landing Page: The landing page is basically the home page; at the beginning of the landing page a slider will feature images & slogans of PARTEX Group. Then as the users scroll down, they will see the information about what PATEX Group stands for and its motto. Below that the divisions of PARTEX Group will be featured, it will be visualized as sliders with images of each industry and besides that a description of that particular division. Message from the MD will be shown & subsidiaries of PARTEX Group will be shown with their specific logos. Below, the news & events section will be there for the users to click and which will redirect them to the latest events of the company.

 About Us: This page will enlist all the values & mission and vision of PARTEX Group. The history of PARTEX Group in the industry since its inception till now, hat achievements they have succeeded. The page will also showcase the Board of Directors & the management team of PARTEX Group.

- **CSR:** The page will enlist the social responsibilities they have done for society.
- **Memorial:** This page will focus on the thoughts & messages from the employees of PARTEX Group for their MD.
- **History:** The Page will focus on the details about their HISTORY, according to dates
- **Gallery:** The page will showcase the Images & Videos of their divisions and achievements.

 Divisions: The page will concern all the divisions of the company in the vastness of the industry, it will appear in a box-like clickable feature and upon clicking the consumers (users) will be redirected to the dedicated divisions page.

News and Events: This page will enlist all the news & events for the company, here the users will be able to get detailed insights about their achievements.

Contact: This will be a basic contact us page, with a form where the users will be able to express their concerns or if they want to contact the company, it will allow them to contact them through that form. The contact number & email address will also be enlisted along with their main branch address.

Chapter 2

Literature Review

2.1 Relationship with Undergraduate Studies

The courses I have taken and enrolled in during my undergrad years have been enlightening me along the way and I can relate my academics to my work in a practical way, which has been helping me achieve many tasks and understand them in a better way.

- **System Analysis and Design (CSE307):** This course has taught me the analytics of a Software Development Life Cycle (SDLC) and also helped me learn a great deal about the Functional & Non-Functional Requirements and taught me about the UML Diagram which has helped me understand the backbone of designing and structuring a system.

- **Web Application and the Internet (CSE309):** This has been the most important course I have taken in my undergrad since I aspire to become a full-stack web developer, this course has taught me the basics of how to develop a website from scratch & which tools are the most necessary to develop a system. The fundamentals of HTML, CSS, Bootstrap, JavaScript, & JQuery, the understanding has enabled me with the ease of implementation in real-life projects.

- **Software Engineering (CSE451):** The basics of software engineering start from gathering requirements & understanding the scope of work and how every requirement will align with each other to build a successful system to know all the steps & methods of the SDLC, this course helps me relate all my understanding and knowledge in the real-life situations.

- **Software Testing and Quality (CSE458):** This course has enabled me to think that how quality testing of any system is important for the usability of the system and how impactful it is with respect to a smooth software system or a website taught me the application of Testing Tools.

2.2 Related works

The work of building a website for the purpose of portraying the client's organization's products and services & their values are something that needs to be compelling and extraordinary to the targeted customers. For such motive, Research & Development in that particular industry is necessary to gather the relevant and trending features that will flourish the purpose of the system to its users.

A few of the notable websites in Bangladesh which represent a group of industries are listed below:

1. **Union Group:** The website showcases the divisions & products and services of Union Group and their values in the industry. The website is trendy in nature and enables the consumers to get mesmerized by the ease of navigation and lets them understand the contents easily and in an interesting way.

2. **United Group:** It consists of one of the most ultramodern web designs for one of the most multifaceted groups of industries in Bangladesh. It focuses on the company's multi-dimensional business division and its contribution to the Real Estate, Healthcare, Educational sectors, and many more. It is an enterprise-level website design with the most interacting UI out there.

Chapter 3

Project Management & Financing

3.1   Work Breakdown Structure

  A Work Breakdown Structure (WBS) is a strategic approach where it represents a sort out a plan for completing a project which has various complex steps. It is an approach or a method, where the company implements into their projects to break down the works and steps into chunks and complete the whole project effectively and efficiently. The purpose of this approach is to ease a project's complexity so that it is easily managed and executed. The breakdown of the working process helps other team members to work on different parts of the project simultaneously.

  For the project, we have also processed a WBS approach and broke down the steps and working procedures into smaller portions. This allows the team who are associated with the project to complete each task effectively and without taking longer hours, enables efficiency in the project. We have divided our work into 7 Processes, they are as follows:

1. Technical Understanding
2. Design Documents
3. Layout Finalization (Frontend Development)
4. Core Development (Backend Development)
5. Content Development
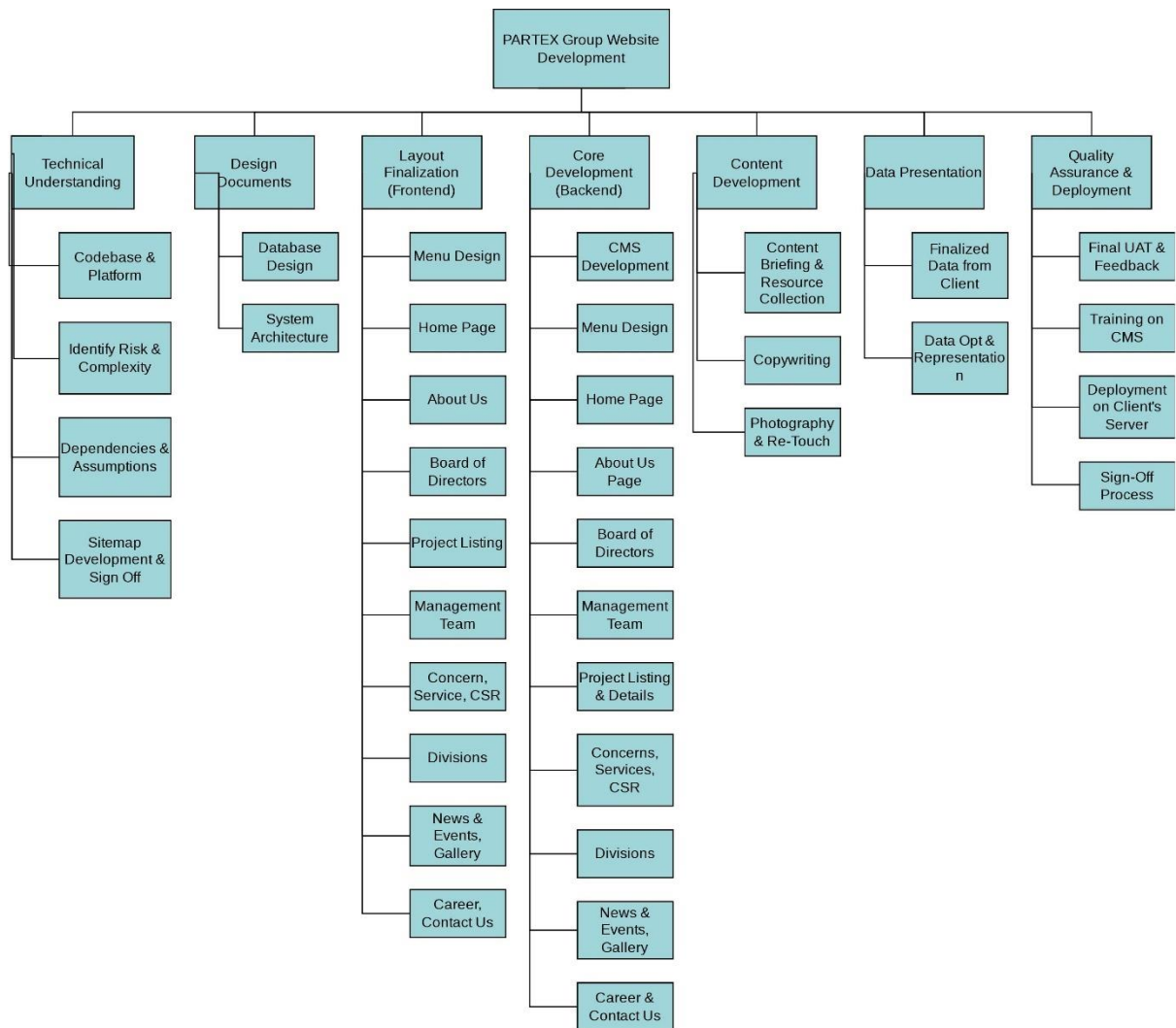6. Data Representation
7. QA & Deployment

Figure: Work Breakdown Structure

3.2 Process/Activity wise Time Distribution

As we can see, that in the WBS that was created for the project, it consists of Seven Processes. And for each process, has been given a specified time frame, in which time frame the workings will be completed and efficiently. If there is no time range given, the process would take an unnecessary time to finish and it will lose alignment and ultimately delay the project's deployment and completion.

Activity	Days
Technical Understanding	5
Design Documents	5
Frontend	10
Backend	20
Content Development	30
Data Representation	10

QA & Deployment	10
TOTAL	90

The table above shows how many days are distributed to each process to complete the project without any delays and issues. Technical Understanding and Design Documents are each distributed within 5 days, respectively. Frontend Development is given 10 days and Backend Development is given 20 days. After the structure is completed, the Content Development can start and it is distributed within 30 days. After that Data Representation

would be done and it is given 10 days. The last stage of the project is distributed within 10 days, for QA of the projects and Deployment. It is with time and previous experience to complete a project; the time frame has been set.

3.3 Gantt Chart

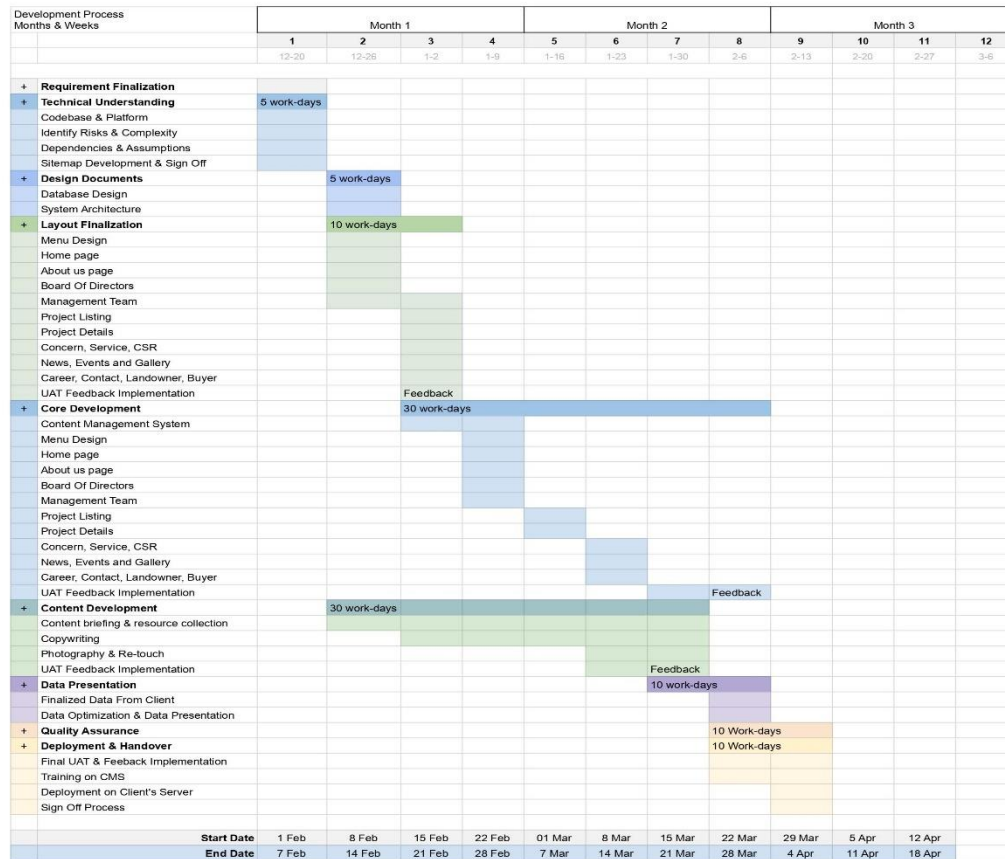| Development Process Months & Weeks	Month 1				Month 2				Month 3			
	1	2	3	4	5	6	7	8	9	10	11	12
	12-20	12-26	1-2	1-9	1-16	1-23	1-30	2-6	2-13	2-20	2-27	3-6
+ Requirement Finalization												
+ Technical Understanding	5 work-days											
Codebase & Platform												
Identify Risks & Complexity												
Dependencies & Assumptions												
Sitemap Development & Sign Off												
+ Design Documents		5 work-days										
Database Design												
System Architecture												
+ Layout Finalization		10 work-days										
Menu Design												
Home page												
About us page												
Board Of Directors												
Management Team												
Project Listing												
Project Details												
Concern, Service, CSR												
News, Events and Gallery												
Career, Contact, Landowner, Buyer												
UAT Feedback Implementation			Feedback									
+ Core Development			30 work-days									
Content Management System												
Menu Design												
Home page												
About us page												
Board Of Directors												
Management Team												
Project Listing												
Project Details												
Concern, Service, CSR												
News, Events and Gallery												
Career, Contact, Landowner, Buyer												
UAT Feedback Implementation								Feedback				
+ Content Development		30 work-days										
Content briefing & resource collection												
Copywriting												
Photography & Re-touch												
UAT Feedback Implementation							Feedback					
+ Data Presentation							10 work-days					
Finalized Data From Client												
Data Optimization & Data Presentation												
+ Quality Assurance								10 Work-days				
+ Deployment & Handover								10 Work-days				
Final UAT & Feeback Implementation												
Training on CMS												
Deployment on Client's Server												
Sign Off Process												
Start Date	1 Feb	8 Feb	15 Feb	22 Feb	01 Mar	8 Mar	15 Mar	22 Mar	29 Mar	5 Apr	12 Apr	
End Date	7 Feb	14 Feb	21 Feb	28 Feb	7 Mar	14 Mar	21 Mar	28 Mar	4 Apr	11 Apr	18 Apr	

Figure: Gantt Chart

The table above, is known as the Gantt Chart, and Gantt Chart is one of the most crucial and widely used method in project management. It has gained popularity, since it shows a thorough display of the project's activities and processes and the time allocation of individual activities, and the start date and end date of the project. Hence, this Gantt Chart was created prior to the project and given to the client, and kept for the team working on the project, this is to navigate the individual working process from both ends, to be aware of the project's work and timetable.

In the Gantt Chart above, the first 4 Weeks, will be distributed for Technical Understanding, Design Documents and finalizing the design from the client. After the design gets frontend development will begin, by that time after 70% of the frontend development is completed at the end of the 1st Month, the Backend Development will commence and along with it, the Content Development will start too. All throughout the 2nd Month, the first Three Weeks, it will be invested into backend development and content development. After taking the feedback on the completed frontend & backend development and the content development will continue to work for the 3rd Month's first week. After that Data Representation, QA & Deployment will take up the last 3 weeks of the project.

3.4   Process/Activity wise Resource Allocation

The resource defines an important factor in a project's development. With the necessary and proper resources that are available, the project takes a shorter time than expected and can be successfully completed without any issues arising along the way and much more efficiently.

A table is shown below, where it is showcased the salary of each team member involved in the project.

Work Distribution	No. of Team Members	Salary (Approx. Figure)
Project Manager & Lead	1	45,000/=
UI/UX Designer	1	30,000/=
Developer	1	35,000/=
Marketing & Sales Team	3	45,000/=
Content Writers & Strategists	3	45,000/=
Maintenance Team	3	45,000/=
Interns	4	25,000/=

3.5   Estimated Costing

The estimated costing for the project is a set of services by the firm and what services are chosen by the clients depends upon the work order.

The table below consists of the list of services the clients have availed of for the project and their costs.

Services	Cost
UX Research & Strategy	15,000/=
UI Design	35,000/=
Design Implementation	40.000/=
TOTAL OF UX/UI DESIGN	90,000/=

Cost of Web Modules & Functionalities Development	190,000/=
Total	280,000/=
VAT (5%)	14,000/=
Net Total	**294,000/=**

So, the Web Modules and the Functionalities include all the list of pages for the website and it also includes the content writing, data representation & maintenance of the Website.

Chapter 4

Methodology

In any modern software development firm, the ideology of breaking down tasks & processes are something which is implemented in order to enable the company to deliver a product quickly and with the best of the outcome. The breaking down of the phases improves the design of the system & improves the project management for that particular system. There are mainly 7 phases in a Software Development Life Cycle (SDLC), they are as follow,

1. Planning
2. Analysis
3. Design
4. Development
5. Testing
6. Implementation
7. Maintenance

The most commonly used methodologies in the software development firms are:

● Agile Methodology
● Waterfall Methodology
● DevOps
● Spiral
● Iterative
● V-Model

The Software Development Life Cycle (SDLC) Methodology that we are going to implement in our project is Agile Methodology, as this methodology breaks down the phases into numerous phases within them and this enables the tasks to be executed faster and with the efficient result. As all the features don't require to be developed or executed one after the other, so this enables the tasks to be executed whenever it is needed and the client's feedback is gathered upon that execution and if it needs changes, it will be implemented as it will be quick on acting on the feedback. This helps the developers and project managers have better control of the project and doesn't lose grasp.

Chapter 5

Body of the Project

5.1   Work Description

   PARTEX Group is one of the most renowned conglomerates in Bangladesh. The inception of the company took place in the year 1959 and has been in the business till date, with their grasp in almost every industry out there starting from real estate to beverages. The main goal of PARTEX Group to create their website is to be able to communicate with their clients and consumers in an easy manner and make their concerns and divisions highlighted amongst their consumers. The main focus of the client was to endorse an attractive-looking website with user-friendly attributes for the users to be able to navigate and find the features easily and know all about the company's history and products and enable the consumers and clients to get in touch with PATEX group for business communications or customer queries.

   My work within the project is to be able to assist in developing the front-end of the system with my assigned team of web developers, for which we have used HTML, CSS, JS, Layer Slider, GSAP, SASS & Bootstrap and I have been assigned to assist with the backend of the system and learn from experience. In the backend, we will be using PHP and Yii 2.0 Framework, and My SQL for the system's database.

5.2 Requirement Analysis
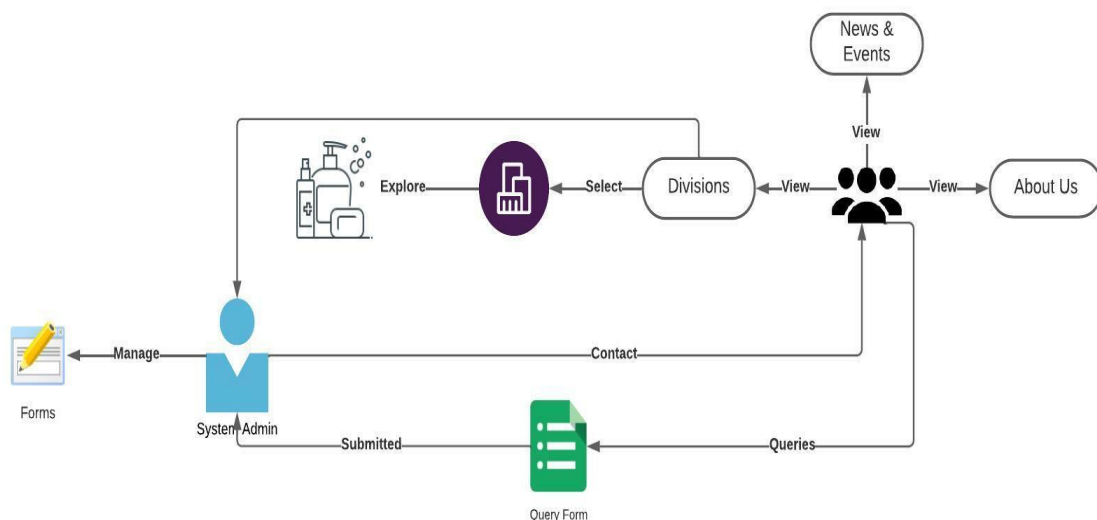
Figure: Rich Picture

Functional Requirements:

The functional requirement means the software system and its functional components. A function, simply put, is the input that users give to the system to get the expected output.

Function: Exploring Partex Group's Divisions		
Input: Select Type of Division	Process: Visit Partex Website & Select Division from Header Menu	Output: User can explore the selected division and view products images
Pre-condition: User must have an internet connection and a computer or mobile device		
Post-condition: User selects division and explores the products of their choosing		

Function: Contact Partex Group		
Input: Select the input boxes, type in the name, email, phone number, and query message	Process: Visit Partex Website and select "Contact Us" form the header Menu	Output: Query form is submitted
Pre-condition: User must have an internet connection and a computer or mobile device		
Post-condition: User selects division and explores the products of their choosing		

Function: Generating Monthly User Query Report		
Input: Select the input boxes, type in the name, email, phone number, and query message	Process: Visit Partex Website and select "Contact Us" form the header Menu	Output: Query form is submitted
Pre-condition: User must input a valid phone number & email address		
Post-condition: System admin collects the queries and manages a report for further inquiry		

Non-Functional Requirements:

Non-functional requirements are the characteristics of the system that defines its attributes such as usability, availability, security, compatibility, the response time of the system, and many more. They serve as the blueprint of the system which makes the system perform every task in a better way and more user-friendly way.

Performance: Performance plays an important role when it comes to user satisfaction, hence the website is developed as per it should perform 100% when its users are interacting and enable them to navigate easily and understand the functions without any hassle.

Security: Being on the internet, security is the major concern of users and the website embeds higher security measures taken in the development phase so that valuable information of users is not getting leaked on the internet.

Usability: Usability defines responsiveness and user satisfaction with thorough and easy navigation throughout, for that purpose the website has been designed and developed meticulously to ensure a user-friendly UI/UX.

Compatibility: The system's user-friendliness comes within the design phase and whether it has been designed and developed to be compatible with every modern device or not, hence to ensure the website would be responsive in the most higher quality resolution we assured cross-platform compatibility to run in mobile devices and the most popular web browsers out there.

Availability: The system has been curated in such a way to keep it functioning and running up at all times, even if it's a critical fact for an online-based system to be available to the users. It's all in the efforts put to maintain and make it available to users without any lags or functional bugs.

Scalability: The system is designed to support multiple users at once so that there are no traffic issues and ensure it from not get slowed when the users are interacting with the system.

5.3 System Analysis

It is the method of figuring out and narrowing down basic elements of a project and deciding how to make it more aligned accordingly and combining them to solve the problem.

5.3.1 Six Element Analysis

The six-element analysis is generated to assist the team working behind the project to assist them in determining the system's objectives. System analysis is a method or a problem-solving technique, which enables the identification of the goals and purposes of the project to develop a suitable plan which efficiently guides to completion of the development.

	Human	Non-Computer Hardware	Computer Hardware	Database	Software	Communication
Submit Forms	Users	N/A	Computer	My SQL	Web Browser	Internet
Manage Forms	System Admin	Pen, Paper	Computer	My SQL	Web Browser	Internet
Create Division	System Admin	Pen, Paper	Computer	My SQL	Web Browser	Internet
View Division	Users & System Admin	N/A	Computer	My SQL	Web Browser	Internet
Update Division	System Admin	Pen, Paper	Computer	My SQL	Web Browser	Internet
Delete Division	System Admin	N/A	Computer	My SQL	Web Browser	Internet

5.3.2 Feasibility Analysis

After the requirement analysis of the client is conducted the feasibility study is carried out. At our firm, Dcastalia Limited, we carry out the feasibility study by analyzing and keeping five types of feasibility study and if a client has an issue with any of the types of the feasibility study, the project will be terminated with that client.

The relationship of the feasibility study with the project we are working on, are listed down below:

Technical Feasibility: Firstly, an evaluation is done to check whether the required technical resources are available or not to continue with the project. Then the technical team overviews if the organization will keep the maintenance and up-gradation of the project using our existing techs. Our firm ensures to complete the project based on the years of experience doing a similar type of project.

Economic Feasibility: Secondly, an evaluation of cost is carried out, of whether the project will bring in the expected profit or not, and a margin is already set at our firm. If we fail to reach the minimum profit margin from the project, we will terminate and reject the project.

Legal Feasibility: We are concerned about whether the project falls under the rules and regulations of Bangladesh's government, if it fails to fall under it we reject the project.

Operational Feasibility: We analyze and evaluate whether all the requirements proposed by the client are covered or not.

Scheduling Feasibility: Lastly, we set the timeline of the project, in this timeline various tasks are taken under consideration. Development, data presentation, quality assurance, testing, and deployment, so we set two different deadlines, one is external and another one is internal. The internal deadline is set for the completion of the project for the teams under the project and an external deadline is given to the client so that if we run into any problem, we could cover is given on the internal deadline.

5.3.3 Problem Solution Analysis

As this is my first time working on a live and real-time project in the real world, it has caused me to face many challenges and difficulties but I am learning by making mistakes from my team members and project manager by observing and learning from their actions and guidelines.

Some of the problems I initially faced:

- Working with a team
- Handling clients and listing down requirements
- Following a company procedure
- Learning JS and working with Backend Development

5.3.4 Effect and Constraints Analysis

The system that is being developed is mainly for showcasing the history, divisions, and products of PARTEX Group to connect with more consumers and clients and increase growth and also to get in touch with the audience through query forms and contact details. The system is made attractive and innovative with a focus on user-friendliness so that the system could get navigated and understood easily and it is intended for everyone.

5.4 System Design

5.4.1   UML Diagrams

Figure: Use Case Diagram
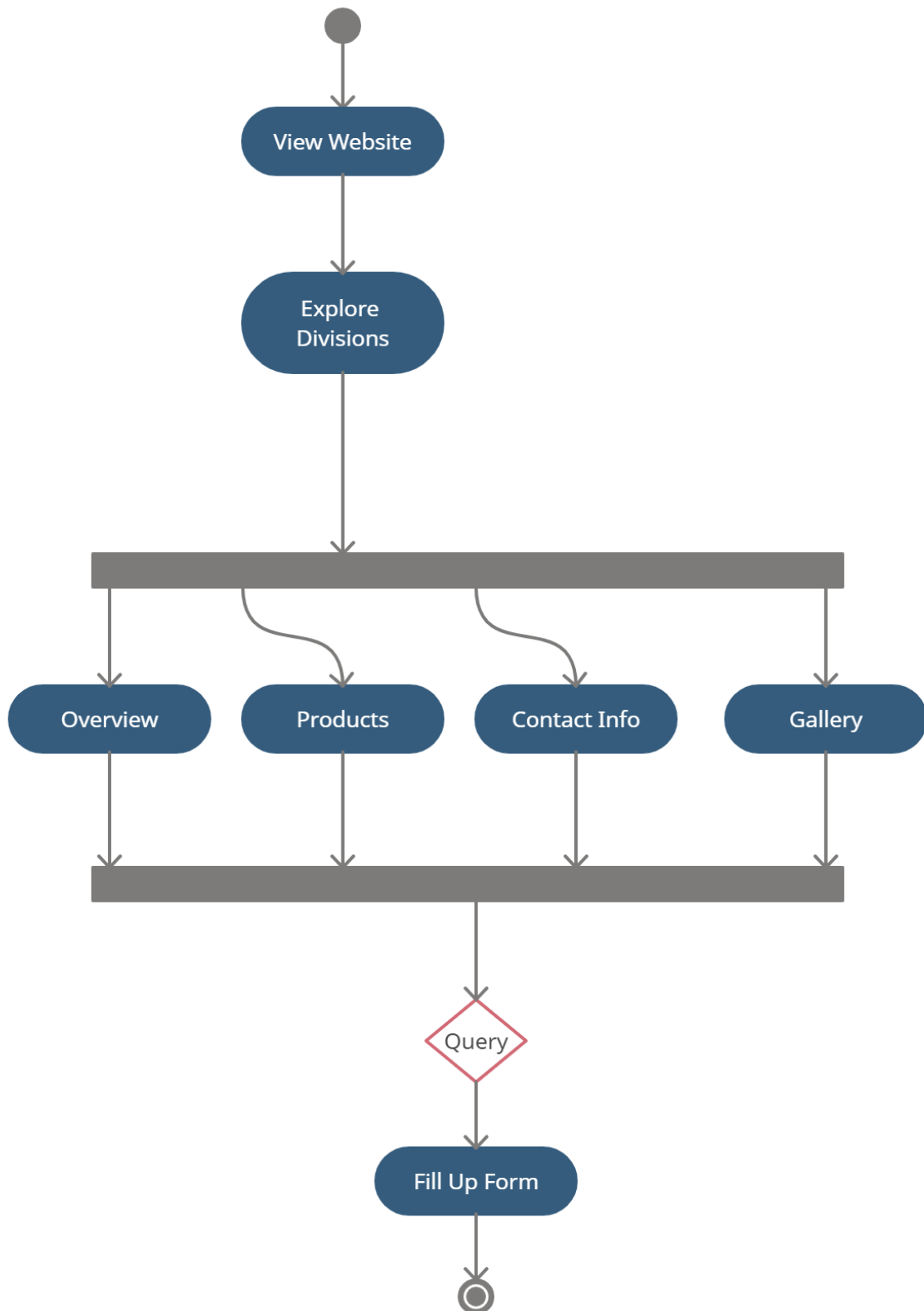
Figure: Activity Diagram for Users
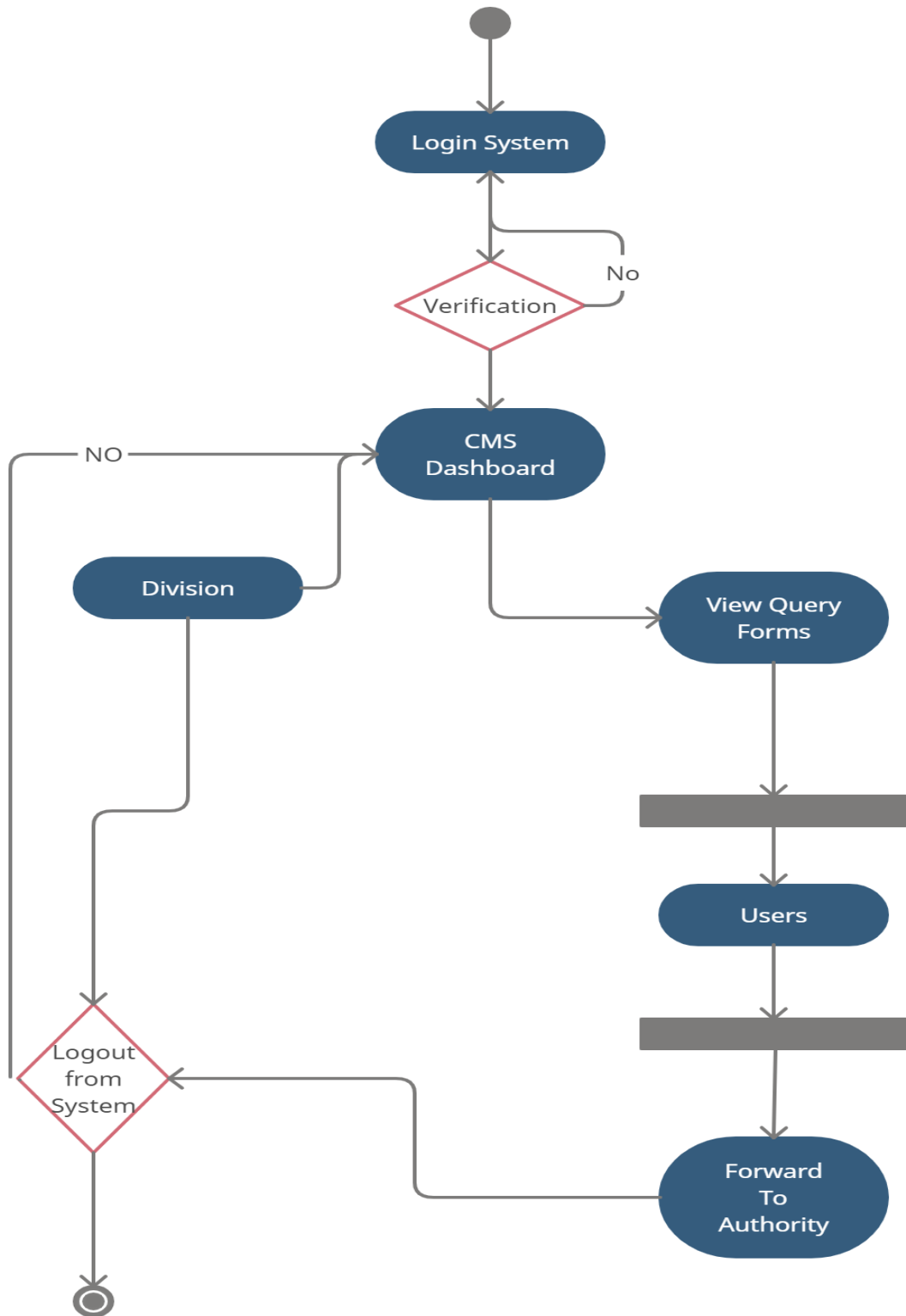
Figure: Activity Diagram for Admin

5.4.2 Architecture
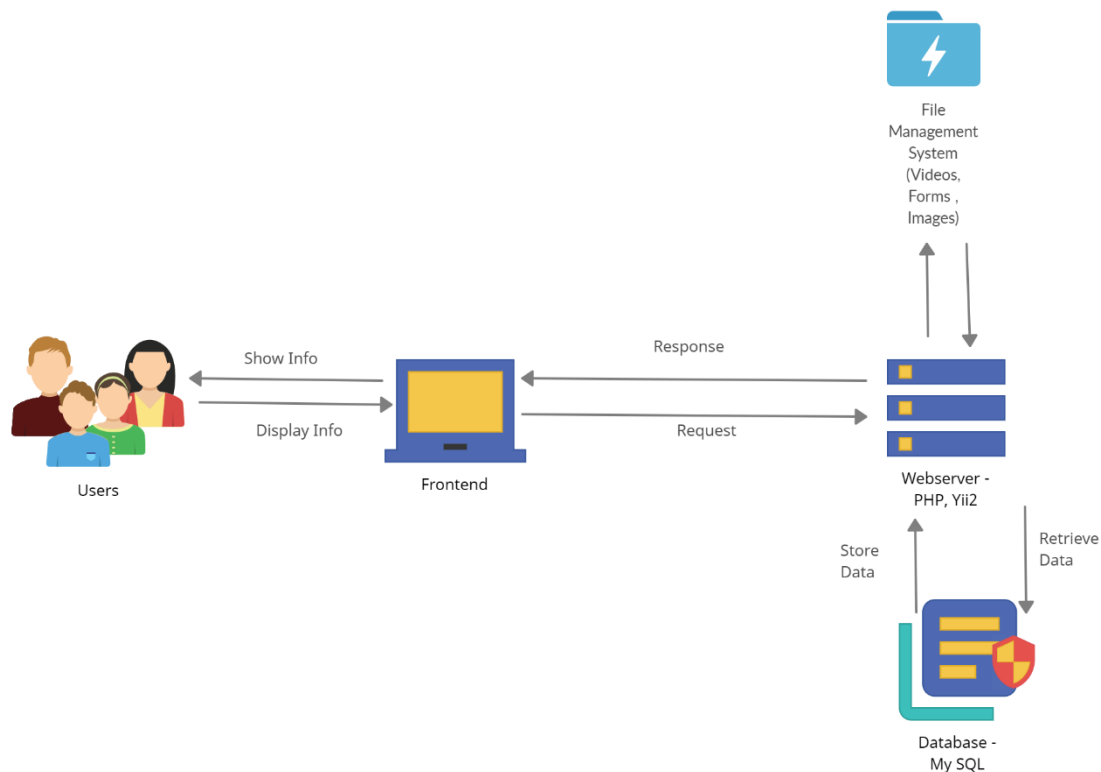
Figure: Software Architecture

5.5 Implementation

The implementation of the Six Element Analysis, UML Diagrams, Rich Picture & Architecture Diagram has enabled us to understand the problem and list them down and provided us with a bigger picture to assist us with a thorough and full spectrum of design and development phase. It makes the work easier to complete and gives a clear understanding of what measurements should be taken for the betterment of the project and the development of the system.

5.6 Testing

5.6.1 Input

When a user enters the website, they will be able to navigate and understand the features and explore them, which is considered to be input.

1. <u>View News & Events Page</u>: Users when they enter the website will be able to navigate the menu and click on the "News and Events" feature from the menu and be able to view the page hence the users are inputting to the system by view the page.

2. <u>Contact Form:</u> The users when they need to ask for any query, if they have any from the company, they will be able to go to the website and click on the "Contact Us" menu from the menu bar and will be redirected to the page and they will find contact info and a query form, they will input their name, phone number, email address and message, they must make sure the phone number and email are valid or else the message won't be sent.

3. <u>Ask for Queries from Divisions Page:</u> The users when they enter the website will be able to view the division's page and browse through the categories of the divisions of PARTEX and if they have any queries related to the individual division, they will be able to find a query form under the page and fill it up with their inputs, the name, phone number, email address, and their query message.

5.6.2 Output

When a client navigates and clicks on different features on the menu is considered to be an output and where the system can keep a track of those users who submits a query form and analyze and retrieve it, some of the outputs are mentioned below:

<u>Division Categories of PARTEX Group:</u> When a user clicks on the division from the menu, the user will be redirected to a dedicated divisions page from there the user will be able to navigate the divisions and different categories from it and explore and know about the company's products, only if the user has an access to

<u>A Query form for Users under each Division:</u> The users will be able to navigate down to each division page to further find contact details and information about that particular division category and a query form will be under it for the users to send any queries, if they have any, to ask the company and the system admin will be able to retrieve and see it and forward it to the authorities for further actions, only if the user provides a valid email address and phone number it will be submitted.

<u>Contact Query Form submitted by Users:</u> If the user/audience has any query, they can directly click on the contact us feature from the header menu and be redirected to the contact us page, and the users will be able to fill up the contact form with their issues and submit it where the submissions will be retrieved by the system admin and they can forward their queries to the authorities, only if the user provides a valid phone number and email address.
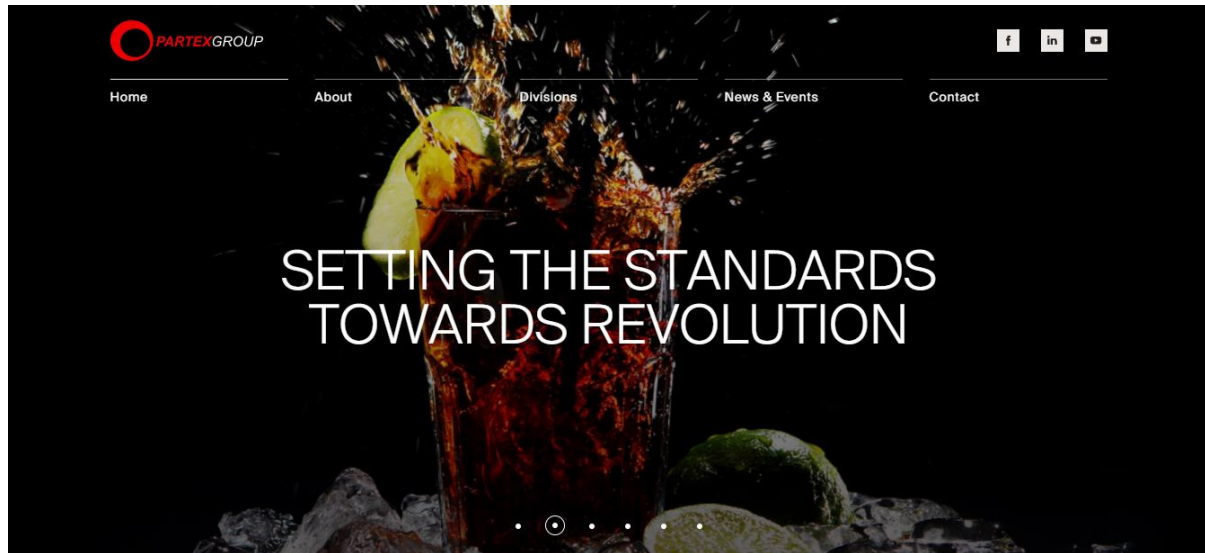
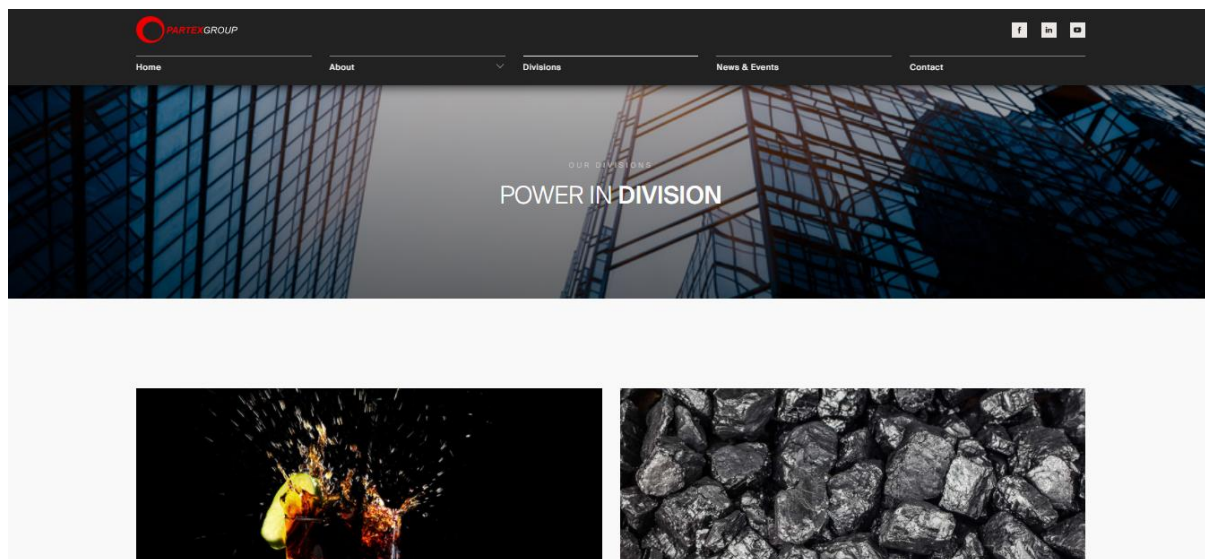### 5.6.2 Designing Test Cases

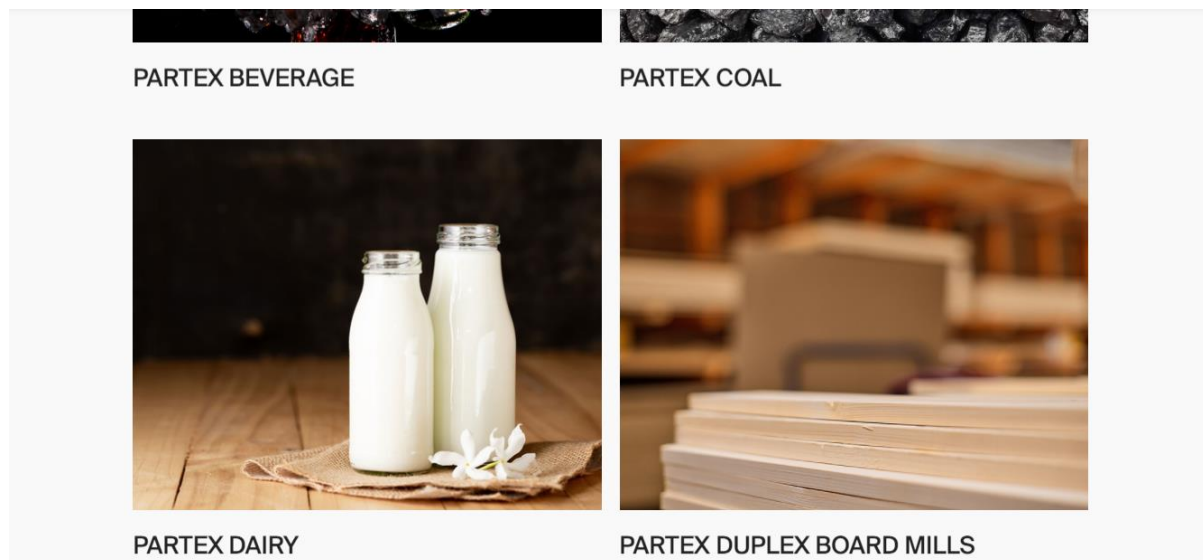Figure: Landing Page

Figure: Divisions Page

Figure: Division Categories

5.6.4   Test Results

Figure: Individual Division Page Query Form

Figure: Contact Page Query Form

Chapter 6

Results & Analysis

The website for PARTEX Group was created primarily to focus on the divisions and industries PARTEX is engaged with and caters to. And the key factor was to bring all the divisions of PARTEX Group to bring on one website so that clients and consumers would be able to know about the sections and contact them for further proceedings or if they have any concerns or queries. Furthermore, the website focuses on giving insights to the audience about their rich history in the industry and showcases the messages and commitment of the group's leaders and members.

Below is a rundown of what we have achieved and accomplished so far in the project and how it would be beneficial to the audience or visitors of the website.

Homepage or Landing Page: The homepage contains a header logo of the company and the company's social links and the header menu where the users would be directed to dedicated pages mentioned on the menu upon clicking and would be able to see their details. Besides, the homepage consists of a slider banner, where few images will be shown within a given timeframe. Below that there's text, where it talks about the company, PARTEX Group. Going down, we could see divisions of the company in a slider bar, and each division is clickable and would take to their dedicated division's page and on hover a few texts explaining the concerning division to give the audience insight about it. Below that, a short "About Us" description is given and a read more button, upon clicking it will take the users to the "About Us" section. Going down, we could see the Message from the company's Late MD, and upon clicking read more, it will take to a dedicated memorial page with more text.

It shows the company's sister concerns and news and events section also their dedication toward a sustainable environment. Lastly, below the landing page, there's a footer menu.
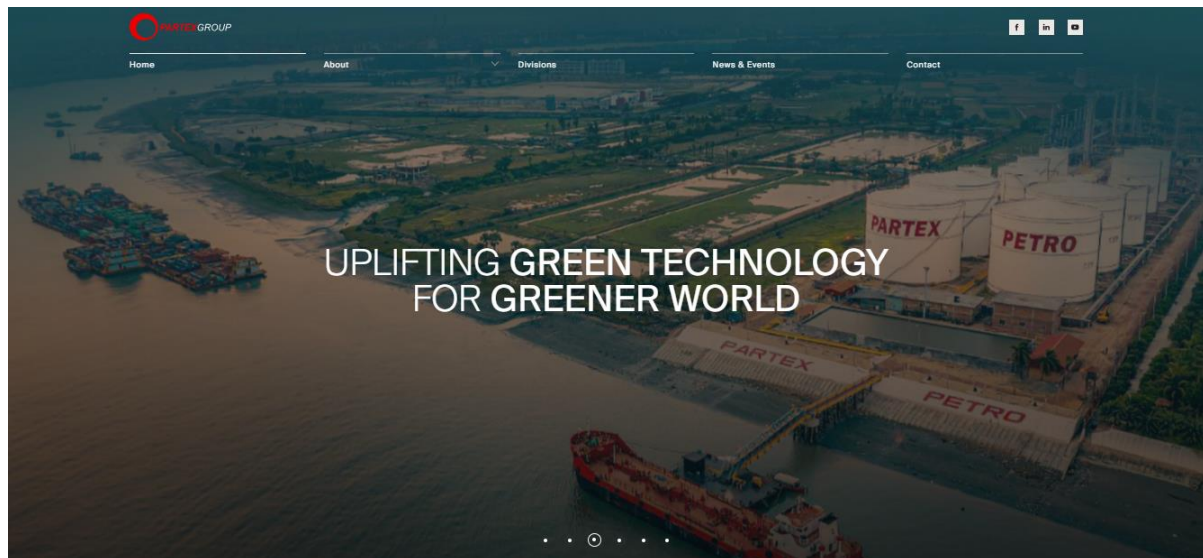

Fig: Homepage of PARTEX Group

About: About section consists of 5 sections within, "About Us", "CSR List", "Memorial", "History", and "Gallery". This section highlighting messages and the company's rich history is elaborated with images and texts and their social responsibilities to the community.
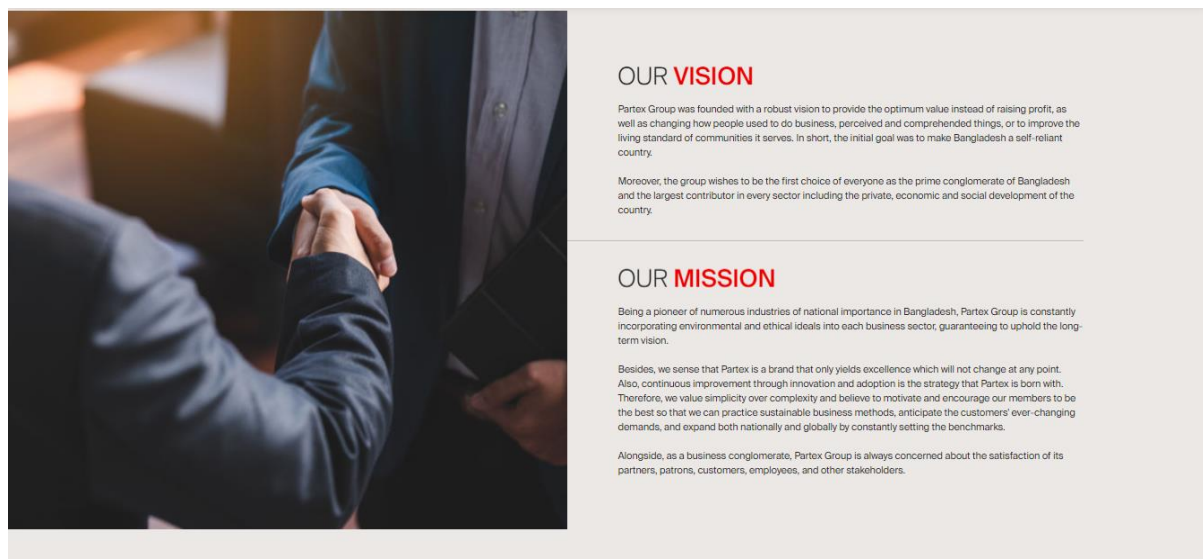

Fig: About Us Page for PARTEX Group
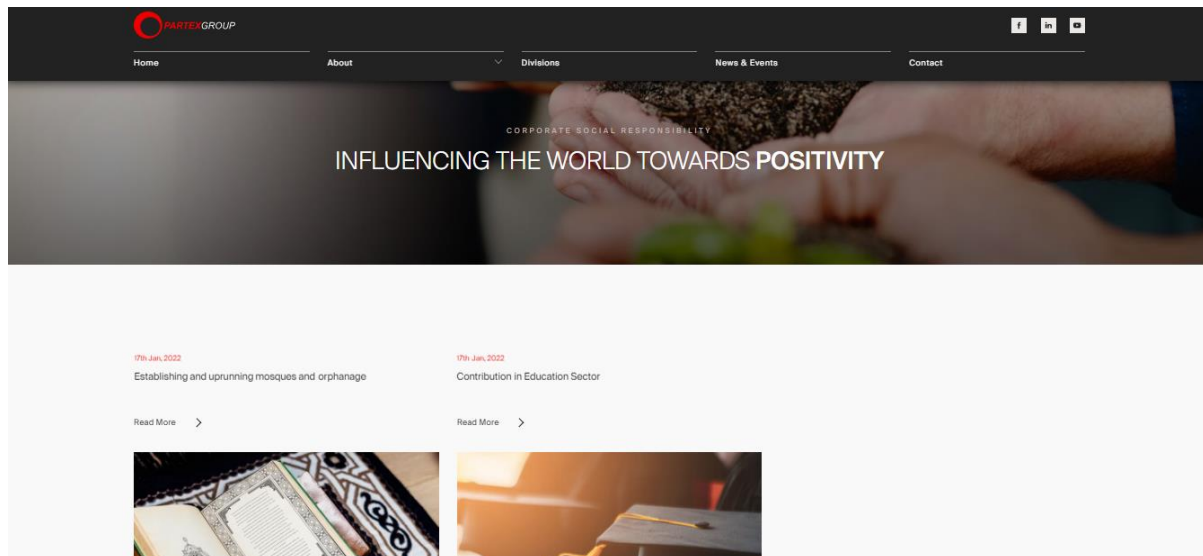
Fig: CSR List from "About" Menu

Divisions: The division section consists of PARTEX Groups divisions in the industry, basically how many types of industry they are a part of, like dairy, real estate, beverage, coal, and many more.
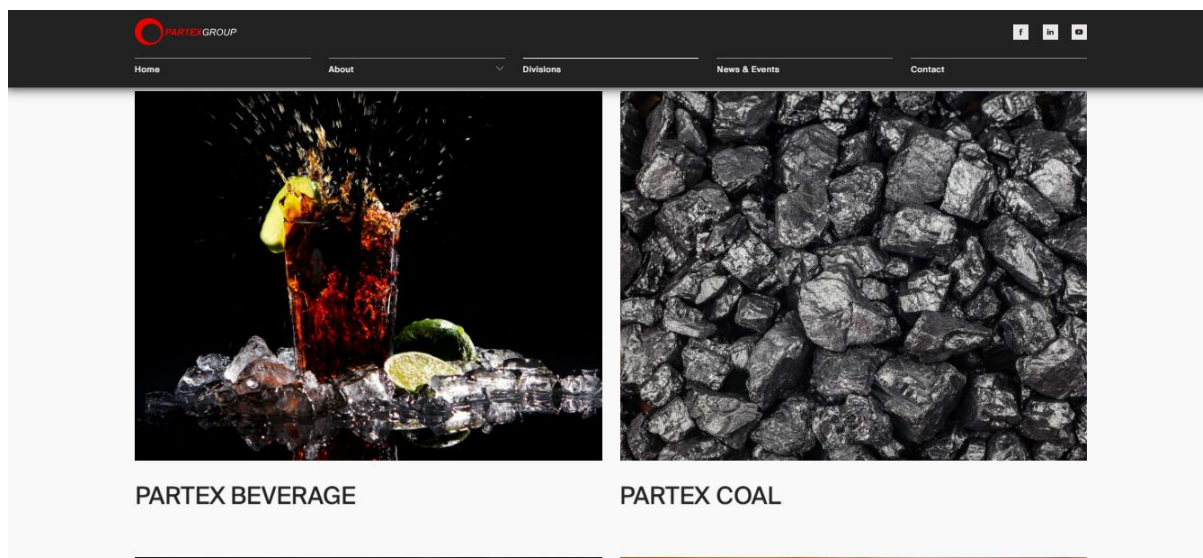

Fig: Divisions Page for PARTEX Group

News & Events: Here, every other detail about the company's news and events would be showcased with the date and features images of that particular event or news.

Contact: Here is the section, where the audience or users would be able to contact the company via email or by calling on their business numbers, as it has been listed in those sections. It has been made as easier and user-friendly as possible since the goal is to make the users be able to contact the company easily for any concerns or queries, they must fill up the contact us form.

Fig: Contact Us Form

Query Forms: Query forms are designed to ensure every division has the form for the audiences or users to easily contact that particular division for specific feedback from the company, and the query form must be filled and sent out with valid information.

Fig: Query Form for Users

Chapter 7

Project as Engineering Problem Analysis

7.1   Sustainability of the Project/Work

In modern times, the world drives towards a competitive edge fulfilling the sustainability a system requires to survive and sustain. Sustainability plays a vital role to ensure validity and reliability in the long run for the system, it is the essence between knowledge and implementation. While developing a web system or software, a sustainable approach guarantees a smooth user experience for the owners and the users. And to maintain and ensure the sustainability of our website, it is designed so that the website could be accessed from any environment of the user's machine. The website will not be dependable on the user's computers or device's specification, it will run on every device or computer with the use of internet browsers.

The key factor to sustainability is the maintenance of the website and its server and the tools used to develop the system, for our project we have optimized the frontend and backend development with proper implementation of tools and knowledge. By reducing codes that get repeated, minifying various scripts that are used, and maintaining a proper standard for code implementation so that website performs smoothly regardless of the user's device's specification.

The design and layout aspect of the website defines user-friendliness and gives importance to the UX factors, the users will grasp the easier understanding of the website and can navigate the features with ease. The media files and videos are all optimized to ensure the speed of the website and ensure less loading time when the user is accessing the website.

7.2   Social and Environmental Effects and Analysis

The website seeks to achieve excellent customer service through satisfying content and a thorough knowledge of the industry and grasp of the market. The online platform would enable the business to connect to users and clients by showcasing their years f experience in a common platform, which would encourage the consumers to notify their concerns and appreciation by communicating with the company directly, which would ultimately benefit the company's customer services.

The online platform, like the company's website, eases the consumer's effort to gain knowledge about their industry and rich history. The website saves time and efficiently lets the consumers avail the knowledge that they require or desire.

7.3 Addressing Ethics and Ethical Issues

Dcastalia Limited is a sophisticated software firm that ensures the privacy agreement of their client, which includes the agreement deal, project documents, and codebase documents. This helps us grow by gaining the trust of our clients by keeping their documents as confidential as possible.

We, the skilled developers, ensure that the project data is secured enough from any unethical hacking. We also made sure that no sensitive information is collected through the website, only using the queries form. In a cloud, storage data is securely stored and critical information such as passwords are encrypted. Only the team leader has the ability to access those data with valid credentials, this ensures data security.

Chapter 8

Lesson Learned

8.1   Problems Faced During this Period

I have been faced with a few challenges and problems during my period of internship in this firm since it has been a new experience for me and there is the structural process of every step which was difficult to process at the beginning for me but eventually, with observation and understanding of the corporate world I have come over the challenges and my colleagues and project manager have been an inspiration to me while my learning period.

Problems that occurred during Financing and Client Handling:

Understanding the client's requirements was the trickiest part, eventually, I had firsthand experience attending the client meetings, which was a great opportunity. The meetings went challenging as understanding the clients was very tricky and incorporating some of the requirements was out of scope and obsolete, so we had to make them understand the design's feasibility to them and how it would benefit the users. Secondly, clients were very reluctant about the project's financing and understating the quotation that was given as necessary and according to the scope of work that will be done.

Understanding the Methodology:

Understanding the software development life cycle's methodology's implementation on real-life projects was interesting and far more difficult to process and implement for me. Understanding the methodology was important and difficult for me since it's the whole cycle process to develop the system, and understanding how to make it process faster was a task assigned to everyone.

Problems that occurred during understanding the Body of the Project:

The UML diagrams were a tough task for me to understand and creating the Sex Element Analysis was a tough challenge for me as well. I was unaware of the feasibility analysis and how I would need to implement it and analyze the results. The rich picture of the project was recreated several times to conclude the project with a successful outcome.

8.2 Solution of those Problems

The solution to the Problems that Occurred During Financing and Client Handling:

During these meetings, keeping note of the meeting minutes helped a generous amount moreover continuous connectivity with the client was the most beneficial way to tackle this problem. And finally making them understand them the quotation of the budget was assisted by the sales and marketing team's head and the senior management who worked behind the project.

The solution to Understanding the Methodology:

Research and development were the keys to solving the problem, after analyzing various similar domains of websites and online discussion and tutorials finally agile scrum method was fixed to be followed for our project since it showed results in theory for faster development. The project manager assisted to make us understand how its implementation would be beneficial for the development team and the clients as well.

Solution of the Problem that occurred During Understanding the Body of the Project:

For me, watching online tutorials on YouTube and other coding and software development platforms had benefitted me understand the technicalities and their usage and importance. Because of it, I had been able to put the knowledge into use and see the results for myself. I took help from my previous course's knowledge to do sex element analysis and draw a rich picture and the feasibility analysis I had to learn from scratch and construct it myself, surely my colleagues were a very big inspiration and motivation to me during this learning period.

Chapter 9

Future Work & Conclusion

9.1   Future Works

As the feature for giving the query form, the website must not only collect the replies but also contact users later to answer their concerns. When a user, be it a consumer or a client, must be able to understand the work ethics and their industry's grasp, with authentic images and content.

Most importantly, a website must have a career section, where the job postings would be posted for the potential candidates to get aware of that position and apply depending on their qualifications and enthusiasm.

9.2   Conclusion

In my lifetime, I have never experienced such a brilliant and wonderful experience that I have felt being a web developer intern at Dcastalia Limited. The company has influenced me to break the barriers and stand differently to put out my talent and understand the way how a corporate world works. Despite facing various difficulties and problems, I was always guided and enlightened by my project manager and teammates. The company inspired me to focus on different aspects of my life and that I could become more if I put my dedication into it, for which I will be forever grateful for the firm.

The project assigned to me helped me learn many things about web development, such as JavaScript, HTML, CSS, and many other tools. The internship program enabled me to handle clients as well, asking for their requirements and understanding the client to bring out the perfect end product to their satisfaction. I would definitely focus on pioneering towards making a diver change in me, becoming a full stack web developer and account management.

Dcastalia limited has made me learn and motivate myself, which will forever live within me. I'd like to express my gratitude to the team and everyone at the firm for letting me have the opportunity to be amongst them.

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