



An Undergraduate Project on Impact Hub Dhaka (IHD)

By

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May 12, 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 I, Khandaker Nabiul (1610880), have completed the "IHD" report, which was submitted as part of the prerequisites for the degree of Computer Science and Engineering from Independent University, Bangladesh (IUB). Mohammad Noor Nabi oversaw the completion of the project (Supervisor). I also confirm that everything of my work, which I learned throughout my internship, is entirely unique. All sources of information used in this study and report have been appropriately acknowledged.

11/05/2022

Signature

Date

Khandaker Nabiul

Name

Acknowledgement

Above all, I want to thank Allah Almighty for giving me this opportunity and for making me physically and mentally capable. It worked out well for me when ResNova Tech Ltd recruited me.

Mohammad Noor Nabi, Lecturer, Department of Computer Science and Engineering, Independent University, Bangladesh, is my director, and I am grateful for his invaluable advice, constructive criticism, and, most importantly, one-of-a-kind mentoring that has enabled me to face real-world problems and focus on the growing challenges of the professional sector. Wahida Akter (ResNova Tech Ltd' Product Manager) and Mamun Or Rashid (Aveneur Solutions' Project Manager) deserve particular mention. Similarly, I'd want to express my thanks to all ResNova Tech Ltd employee who assisted me in completing my job report.

Last but not least, I'd want to thank my parents and other members of my family for their constant support.

Khandaker Nabiul
May 11,2022
Dhaka, Bangladesh

Letter of Transmittal

May 12, 2022

Mohammad Noor Nabi

Senior Lecturer, SETS

Department of Computer Science and Engineering

Independent University, Bangladesh

Dear Sir,

It is a privilege to submit my Impact Hub Dhaka Internship report under your supervision. I've endeavoured to present my project work, my experiences, and my successes in this report.

I worked as a Full Stack Web Developer intern at ResNova Tech Ltd from February 1, 2021 till the present. I've obtained real-world employment experience and knowledge in a range of fields over this period. This report summarizes all of my project work, experiences, and learning from my internship.

I'd want to thank you for your unfailing support, guidance, and kindness. I've made every effort to do so with sincerity and honesty. I really hope and pray that this report fulfills all of your requirements and expectations.

Sincerely,

Khandaker Nabiul

Evaluation Committee

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Signature

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Name

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Supervisor

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Internal Examiner

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External Examiner

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Name

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Convener

Abstract

Bangladesh is a fast expanding country that is swiftly transforming into a digital nation. Over the last decade, the massive expansion in Internet usage has had a significant impact on the lives of millions of individuals across the country. Our communication skills, instructional approaches, and learning opportunities are rapidly evolving as a result of new technology. Businesses and other platforms began offering their services and products online as the need for internet access grew.

Impact Hub Dhaka is an interactive, functional, and revenue-generating website for a co-working space provider named IHD. IHD motivates and assists businesses and organizations in being more impactful and long-lasting. This application also helps the organization show a certain amount of co-working spaces on their website.

There are hundreds of Co-working space websites on the Internet, but the purpose of this project is to build something unique, innovative, design-oriented, and efficient using cutting-edge technologies like as React.js and JavaScript. The primary focus is on developing a user-friendly website that effectively shows the expected findings via a graphical user interface.

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Chapter 1

Introduction

1.1 Overview of the Work

Impact Hub Dhaka wants to see a Bangladesh where everyone flourishes when enterprising, caring, and dedicated people work together for a common goal. A membership, co-working space, and event space package are also available.

Customers must complete out a form with all relevant information before making a final purchase, and then an administrator will call the buyer to process the payment personally.

1.2 Objectives

By making the vendor site the primary and primary object, business development may be accomplished. Their commercial relationship will be strengthened in the middle of direct interaction between the company and the customer. As a result, the market might expand.

The most critical objective is to have an internet presence and attract more clients. Companies are under increasing pressure to expand their client base, which may be accomplished by providing value-added services while maintaining high standards. As a result, one of the key goals of businesses is to provide impetus for strong sales and profit growth.

1.3 Scopes

The project's scope of work is specified using thorough technological research into various website development options.

1. **Develop User Interface** - Create reusable react components that can be reused throughout the project.
2. **API Integration** - Integrate APIs (both the projects own and 3rd party APIs). Make HTTP requests to the server and change the UI as needed based on the server's response.
3. **Perform Optimization** - Optimize the app to make it run quicker. The following are examples of optimization:
 - Minifying Code
 - Optimizing images (reduce size)
 - Delete unnecessary codes

Chapter 2

Literature Review

There are various co-working space online information service providers that provide a selection of working spaces and service plans to meet the company's national and local needs. In Bangladesh, the vendor online application is Impact Hub Dhaka. Their purpose is to encourage local and national buyers to select from a variety of service categories.

2.1 Relationship with Undergraduate Studies

We built a solid programming foundation during our studies, which allows us to break down a difficult problem into tiny organized sections and solve them.

We covered the fundamentals of database management, including creating queries and retrieving and publishing data from and to the database.

Web Applications was created to educate us the fundamentals of web applications and technologies such as HTML, CSS, JavaScript, and PHP. We discovered how the many components of a program communicate with one another.

Object-oriented programming basics were taught (OOP). The entire project is organized in an object-oriented manner. We even utilized TypeScript instead of JavaScript for the project because it is type safe and offers an object-oriented approach.

2.2 Related works

The procedure of booking a coworking space was formerly done manually. This made the operation slow and inconvenient. Impact Hub Dhaka came up with the notion of digitizing the process; customers may check their space, pricing, and fill out a form on their application.

Because we rebuilt their application from their old application, we didn't have too much

trouble planning to construct this application. Only the designer needed to rebuild their UI/UX and was in need of a lot of inspiration, but we also provided a few websites as references. needs[1]. The websites that we looked into the most for references are:

- <https://www.coworkingnomads.com/>
- <https://www.firstofficehub.com/>
- <https://hubblehq.com/>

A lot of similar functionalities exist between these websites and ours. And a lot of ideas were given shape by following these websites.

Chapter 3

Project Management & Financing

3.1 Work Breakdown Structure

A work-breakdown structure shows the breakdown of the project into smaller components.

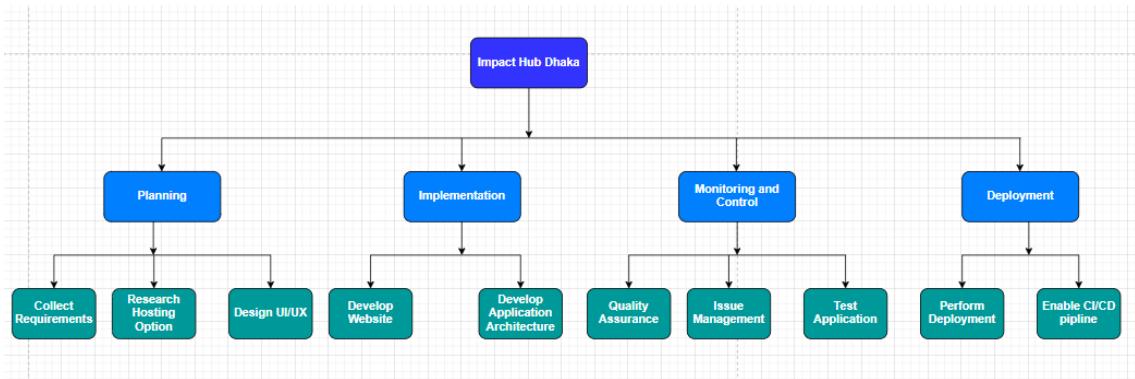


Figure 3.1: Work Breakdown Structure

The project was chosen to be completed in stages, with four major phases:

Planning

The team will gather requirements, choose the technology to be utilized, explore hosting possibilities, and design the UI/UX depending on the needs during the **planning phase**.

Implementation

Coding is required during the **implementation phase**. First and foremost, the project's architecture must be chosen. The MVC was chosen as the architecture for Impact Hub Dhaka. The team will then begin concurrently constructing the website, frontend, and backend.

Monitoring & Control

The **monitoring and control phase** follows. It is necessary to do quality assurance, issue management, and testing.

Deployment

The **deployment phase** is the last step. After the project has been deployed, the CI/CD pipeline should be set up to handle any future updates.

3.2 Activity wise Time Distribution

Estimating the time required to finish the project is an important step as it provides the developers a guide as to how to efficiently they need to work in order to meet the deadlines.

Activity	Time
Architecture Planning	3 days
Database Design	7 days
UI/UX	7 days
UI Implementation	30 days
API Development	45 days
Deployment	3 days

Figure 3.2: Time distribution of IHD

3.3 Gantt Chart

The Impact Hub Dhaka project will last three months, according to the schedule. The Gantt Chart below depicts the expected time required for each job.

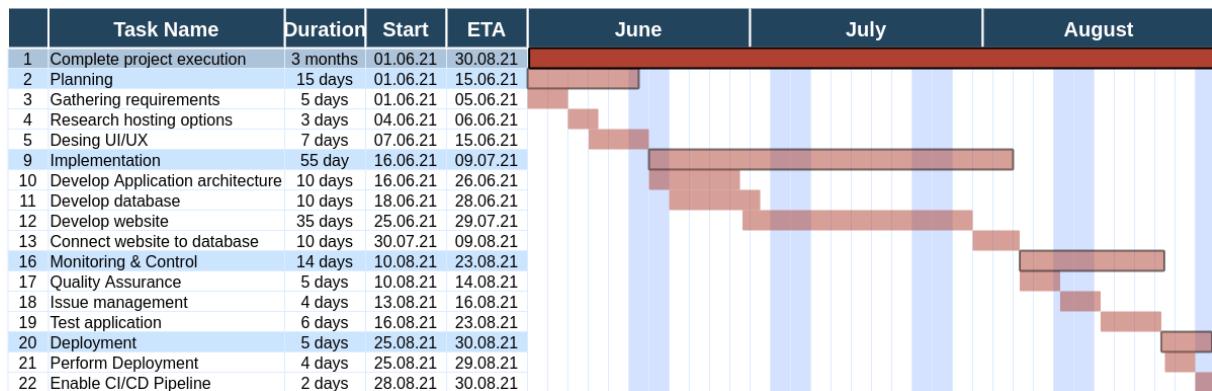


Figure 3.3: Gantt Chart of IHD

To make optimal use of time, each step of the project was allotted a time period. According to the graph, coding takes the most time throughout the website implementation process.

It's simpler to describe the overall schedule, highlight the timing of essential actions and their dependence on other tasks, or convey the status of project activities across time with the Gantt chart.

3.4 Activity wise Resource Allocation

Resource Type	Name	Description
HARDWARE	Desktops/Laptops	Platform needed to work
	Routers	Assigned to the team to get maximum speed
	Hard Disks (HDD/SSD)	Needed to store the projects and its relevant files
	USB Drives	Offline data transfer
NETWORK	Internet	Connection to the web
	Hosting	Making website available via World Wide Web
	Domain	Website identification string
HUMAN	Project Manager	Organizes and allocates work
	UI/UX Designer	Designs website interface
	Developers	Code and develop the project
	DevOps	Optimizes the flow of data and automates infrastructure
SOFTWARE	Visual Studio Code	Text Editor and Development environment
	Windows	Operating systems preferred by developers
	Linux	
	MacOS	
	Postman	Test APIs

Table 3.1: Resource allocation table

The resources required for the projects are given in order of their categories. The resource kinds are as follows:

- **Hardware** - every type of hardware that we need, from laptops to USBs.
- **Network** - it includes the domain, hosting and everything required to make the website accessible from anywhere in the world.
- **Human** - the people that would be working on different roles of the project.
- **Software** - operating system and software of developer's choice.

3.5 Estimated Costing

The company, IHD, was charged 2 lakhs for the project. This price was based on the cost model of the ResNova Tech Ltd expenditure. The cost model along with the projects cost is provided below:

Resource Type	Name	Price
HARDWARE	Desktops/Laptops	Tk. 480,000
	Routers	Tk. 10,000
	Hard Disks (HDD/SSD)	Tk. 10,000
	USB Drives	Tk. 5,000
NETWORK	Internet	Tk. 2,000/month
	Hosting	Tk. 4,995/year
	Domain	Tk. 1,000/year
HUMAN	Project Manager	Tk. 40,000/month
	UI/UX Designer	Tk. 10,000/month
	Developers	Tk. 35,000/month
	DevOps	Tk. 25,000/month
SOFTWARE	Visual Studio Code	Free
	Windows	Tk. 22,999
	Linux	Free
	MacOS	Not provided
	Postman	Test APIs

Table 3.2: Estimated costing

Chapter 4

Methodology

A software development methodology is a technique or set of methods used in the creation of software.

Agile methodology, which incorporates iterative development and prototyping, is frequently employed in a wide range of industry projects as a lightweight development process that can adapt to changing needs. The agile approach was the technique of choice in our project.

The Homeland application has been deployed on a test location to keep our clients informed of our progress. Meetings are held at regular intervals so that we may receive input from clients and make required improvements.

Agile is a project management method that involves breaking a project down into stages, frequent dialogue with stakeholders, and continuous improvement and iteration at each stage.

Reasons for choosing agile methodology

1. **Faster time to market** - Rather than taking months to provide anything to clients, it is preferable to show progress and have the product online as soon as feasible.
2. **Customer satisfaction** - The ability to add fresh highlights on a regular basis based on client feedback makes them delighted. This assists us in developing positive relationships with our consumers, in which we collaborate to address difficulties.
3. **Early risk reduction** - By consulting early with the clients and getting their feedback, we reduce our chance of building an inappropriate product. Changes needed can be handled early, which saves both time and money.
4. **Higher quality product** - Project phases could also be so filled with features that developers have to rush to finish them and very little time is left for testing. As a

result, they'll not have the time needed for correct mobile application testing. On an Agile project, the team does not work on all features at once. Instead, the team assigns a smaller subset of features to every teammate. That way, the developers have longer to perfect those items before release.

Chapter 5

Body of the Project

5.1 Work Description

Impact Hub Dhaka is a website that rents co-working spaces. The co-working space booking form and new design will have to be created and implemented by the website's developers.

Some of the roles and responsibilities include:

1. Work with the Web Development team to determine the system's requirements and solutions.
2. Configure, design, and create solutions, including 3rd-party library integrations.
3. Demonstrate and instruct business users how to utilize the system properly.
4. To verify that project requirements are satisfied, monitor and track system processing and performance KPIs.
5. Create the webpage and make the required adjustments.
6. To generate updated material, collaborate with several departments (product management, graphics, and sales).
7. Make the website so that it doesn't need to be reloaded.
8. Ability to multitask and fulfill deadlines while keeping a high level of attention to detail.

5.2 System Analysis

System analysis is carried out to determine a system's aims and to investigate its components. This is a problem-solving procedure that determines how well the system

is performing its functions. This section covers steps such as planning, analysis, design, deployment, and maintenance. It is a method of assessing and gathering data, identifying faults, and dismantling the system into its constituent parts.

5.2.1 Six Element Analysis

Process	Human	Non-Computing Hardware	Computing Hardware	Software	Database	Network and Communication
Access Website	All users	n/a	PC, Laptop, Smartphone, Tab	Browser	SQL Server	WAN
Login/Registration	All users	n/a	PC, Laptop, Smartphone, Tab	Browser	SQL Server	WAN
Place order	All users	n/a	PC, Laptop, Smartphone, Tab	Browser	SQL Server	WAN
fill up form	All users	Payment Card	PC, Laptop, Smartphone, Tab	Browser	SQL Server	WAN
Add new co-working space	Admin	Unit information	PC, Laptop, Smartphone, Tab	Browser	SQL Server	WAN
Update co-working space	Admin	Unit information	PC, Laptop, Smartphone, Tab	Browser	SQL Server	WAN
Delete co-working space	Admin	Unit information	PC, Laptop, Smartphone, Tab	Browser	SQL Server	WAN
Upload images	Admin	Images	PC, Laptop, Smartphone, Tab	Browser	SQL Server	WAN
Change password	Admin	n/a	PC, Laptop, Smartphone, Tab	Browser	SQL Server	WAN
View customer info	Admin	n/a	PC, Laptop, Smartphone, Tab	Browser	SQL Server	WAN

Table 5.1: Six element analysis

5.2.2 Feasibility Analysis

The purpose of a feasibility study is to assess if a proposed project is viable and should be pursued. This process is known as feasibility analysis [2]. The major goal of this study is to confirm the design, plan, and strategy. Assumptions, restrictions, decisions, and methodologies may all be validated using this method. The following are some of the components of a feasibility analysis:

1. **Technical feasibility** - Technical feasibility is evaluated for the proposed system's software, hardware, and other technical requirements. This section outlines our strategy for delivering a product or service to a consumer. It assists companies in analyzing if the technical resources available meet their requirements and whether the technical team is capable of translating thoughts into practical solutions.

Impact Hub Dhaka was built utilizing Larabel and the Reactjs framework. The combination of JavaScript components and standard HTML, CSS, and JS resulted in a significantly more efficient and speedier website. Furthermore, these technologies are quite common in current industry and are widely employed in many businesses.

2. **Operational feasibility** - The operational feasibility test examines and decides if the project can meet the needs of the company. Operational feasibility studies can assess how effectively a project plan adheres to the criteria established during the requirement analysis phase.

Impact Hub Dhaka has been designed in such a way that it is incredibly simple to use. It's a well-thought-out system. This system underpins the organization's whole business strategy. To use this system, users do not require a lot of technical skills. The users can understand every instruction. We are hopeful that this system will be able to meet the needs of the users.

3. **Economic feasibility** - This economic feasibility research contains a project cost/benefit analysis, which helps firms determine the project's costs and benefits before committing financial resources. It also acts as a third-party project review and increases project credibility. This aids decision-makers in calculating the project's financial advantages to the company.

The business of the current project will entirely depend on the proposed system. If this system can reach the users it will definitely bring benefits. It will reduce the need for manpower and the cost of manual documentation.

5.2.3 Problem Solution Analysis

Despite the advantages, a company that uses an online system as a platform has its own set of obstacles. Some of the issues and their remedies are as follows:

1. **Competitor analysis** - There are other rivals in this competitive business industry who offer the same product and services. This makes it difficult for our platform to gain traction.

Solution: Perform a thorough competition study to determine the services they provide. Determine which services are in great demand.

2. **Customer loyalty** - A company strives to expand its consumer base by acquiring new customers. Existing clients, on the other hand, should be prioritized. Getting new clients might cost up to five times as much as keeping existing ones. Selling to an existing customer has a considerably greater success rate than selling to a new one.

Solution: Excellent customer service should be provided to sustain client loyalty. Customers must be given positive experiences in order to acquire their trust. Customers who are satisfied are more inclined to buy from you again or refer others.

3. **Data security:** Technical difficulties with vendor web applications might be one of the most difficult to overcome of all the vendor business concerns today. The most serious technological problem is one involving data security. Attackers have the ability to not only infect the website with viruses, but also to reveal private information.

Solution: Backend data security for Impact Hub Dhaka was handled utilizing the Laravel technology.

5.3 System Design

5.3.1 Rich Picture

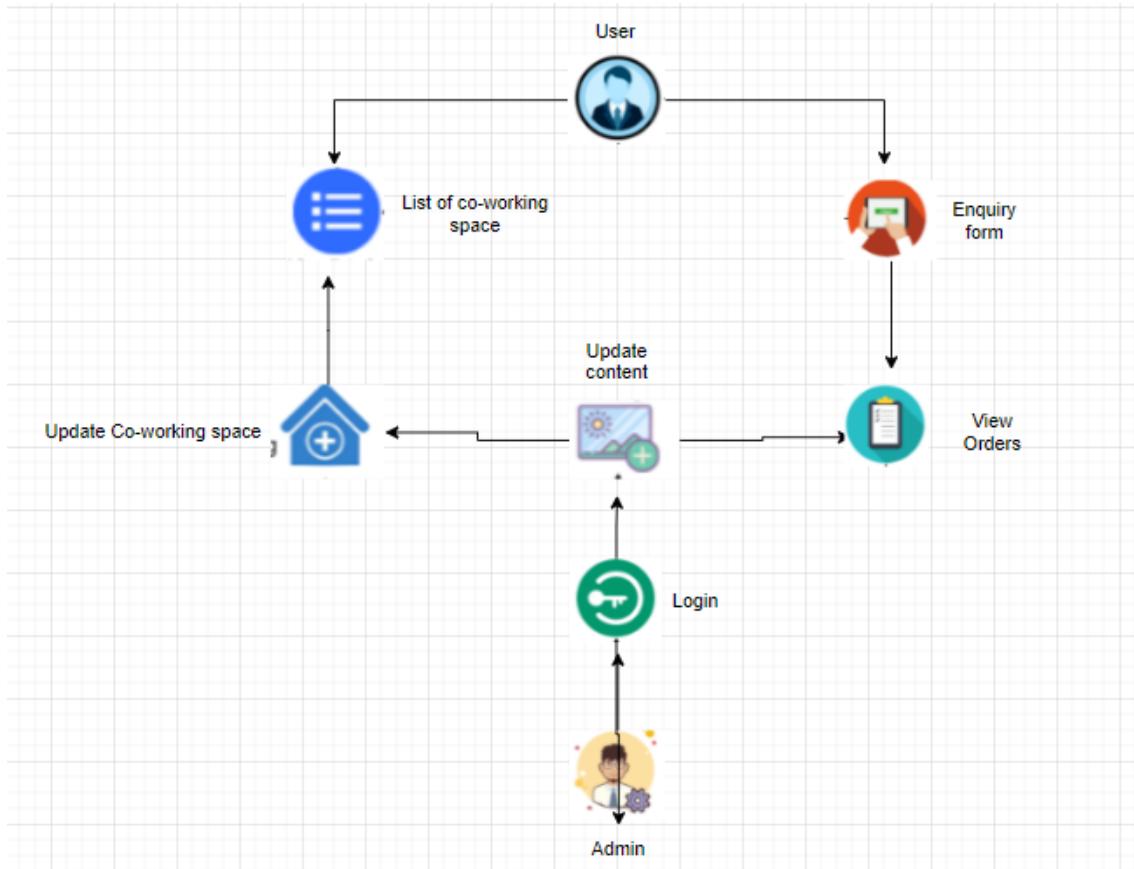


Figure 5.1: Rich picture of Homeland

A Rich Picture is a method of exploring, acknowledging, and defining a situation, and then expressing it using diagrams to form a rough mental model. A detailed graphic aids in having a discussion and reaching a broad, common knowledge of a topic.

The provided rich picture of Homeland summarizes the project and defines all the major processes.

5.3.2 UML Diagrams

A UML Diagram is used to represent the model of an application. UML diagrams are diagrams that can be efficiently translated to object-oriented languages and are thus often used in the construction process.

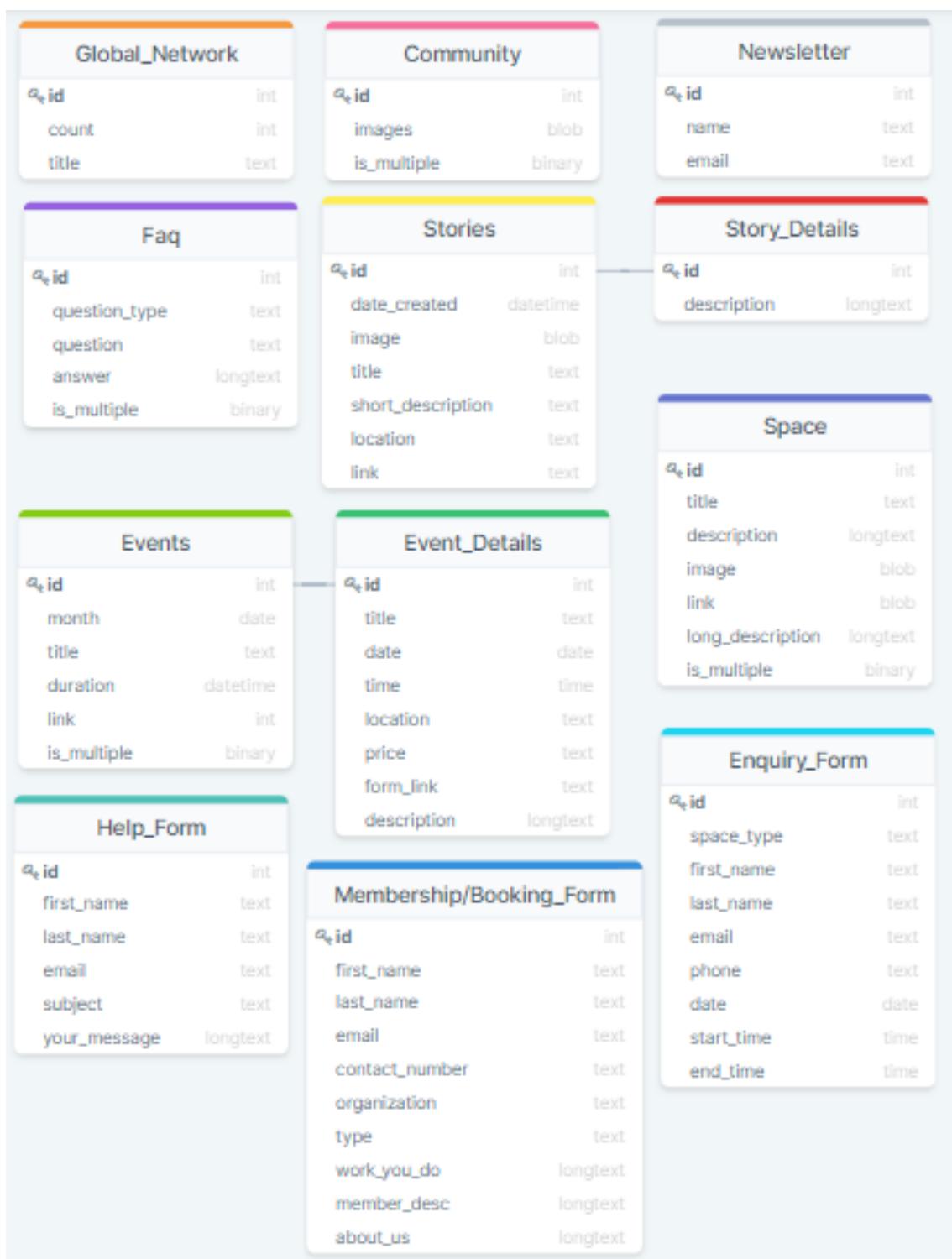


Figure 5.2: UML class of Homeland

5.3.3 Functional and Non-Functional Requirements

Functional requirements

Functional requirements describe the core system behavior. They explain what the system does or does not do, and may be thought of as how the system responds to inputs. Functional requirements, which describe the if/then behaviors, usually involve calculations, data input, and business processes.

Functions	Input	Process	Output
Login	Fill up form and submit	Logs in	Redirects to the admin page
Place order	Fill up place order form and submit page	Process pending	Redirects to previous page
Add/update/delete co-working space	Enter necessary information	Updates the co-working space and content	Redirects to the list of updated units
Change password	Provide new password	Updates the password	Notify the user password has been changed

Table 5.2: Functional requirements

Non-functional requirements

Simply expressed, a non-functional requirement is a specification that lays out the system's operating capabilities and constraints in order to improve its functionality. Speed, security, and dependability are examples of these.

- **Performance and scalability** - This affects how quickly the system produces results and how well it performs as workloads grow. After it is started, we will test our system using GTMetrix and Google Page Speed to evaluate how quick and responsive it is.
- **Portability and compatibility** - This decides which operating systems, browsers, hardware, and versions are supported by the website, as well as if it interferes with other processes in these environments.
- **Security** - This identifies how the system and its data are secured against assaults. JWT Authentication has been incorporated in our system to avoid attacks such as SQL Injection.
- **Usability** - It refers to how simple the system is to utilize for our users. Homeland was designed with all types of users in mind. It's an interactive website with simple features built with ReactJS. It is consequently user-friendly and has a high usability.

5.4 Product Features

5.4.1 Input

Some input features are listed below with pictures.

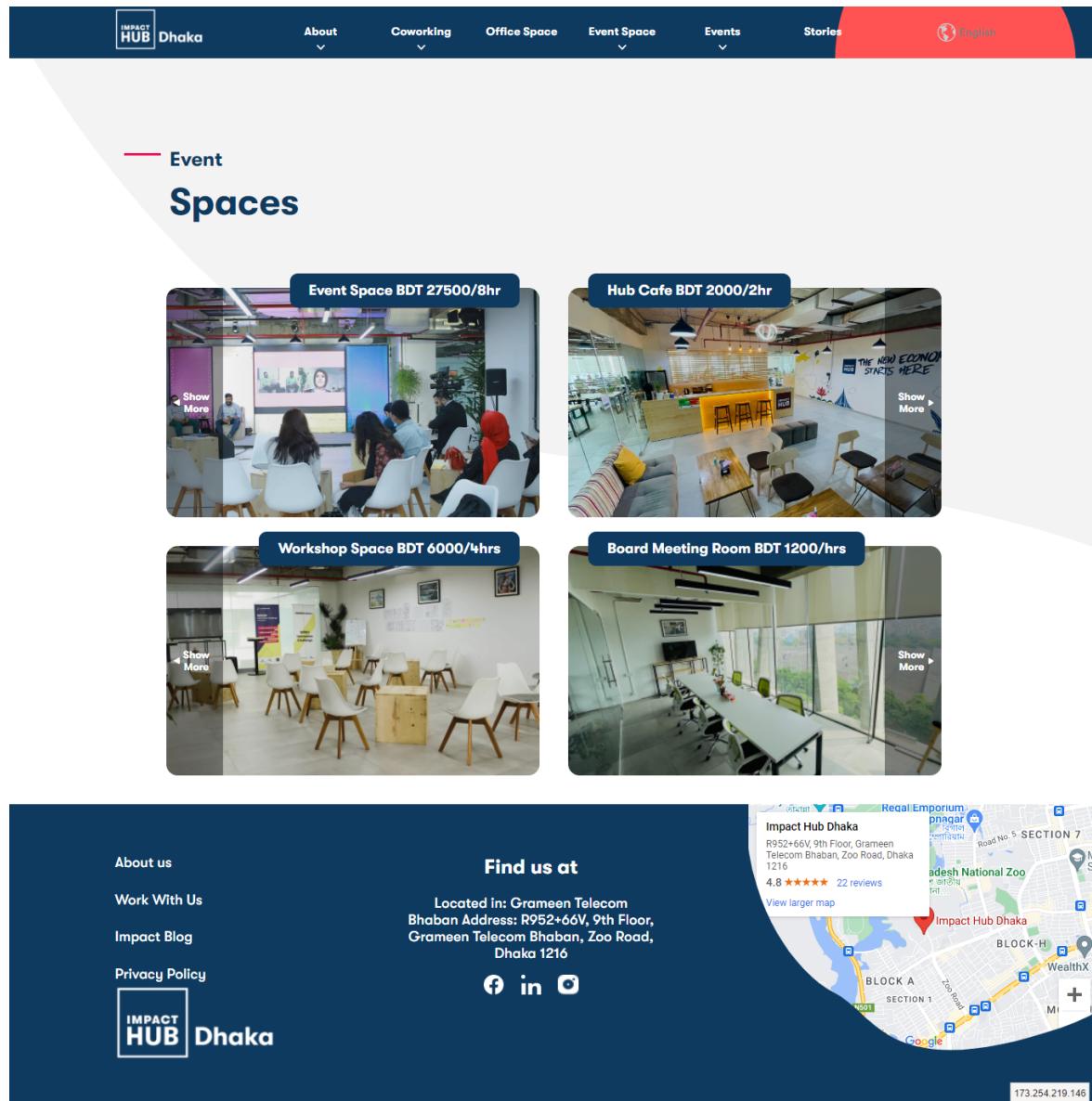


Figure 5.3: Event space List

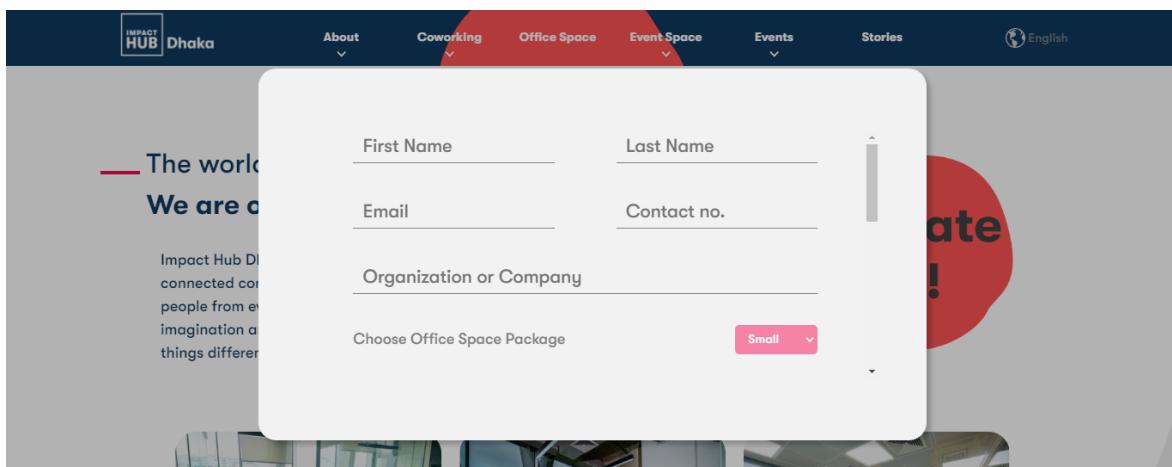


Figure 5.5: Office space booking form

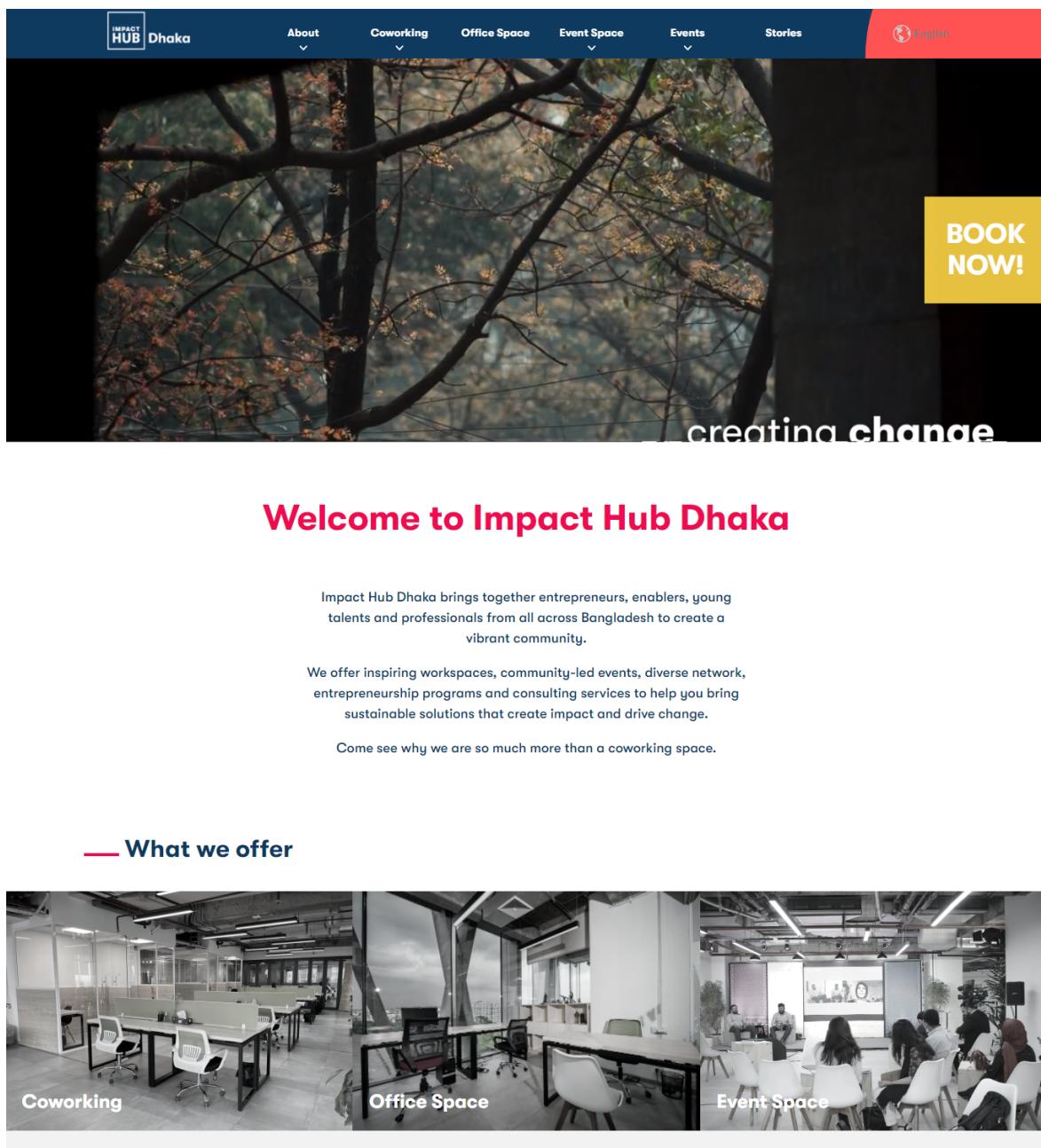


Figure 5.7: Landing page

5.4.2 Output

Some of the features that are outputted to the users are provided below.

CHAPTER 5. BODY OF THE PROJECT

The screenshot shows the Impact Hub admin interface. The left sidebar has a dark theme with white text and icons. It includes links for Dashboard, Authentications, CMS, Bookings, and Other Forms. The main content area has a light background. At the top right, it says "Hi Mr. Admin" and has a profile icon. Below that, it shows "Dashboard / Event Space". The main title is "Event Space Enquiry/Bookings". There is a search bar with a placeholder "Search..." and a "Find" button. A table lists 15 bookings. The columns are: #, Space Type, Name, Email, Phone Number, Date, Start Time, End Time, and Created At. The "Created At" column contains blue buttons with dates and times. The last booking in the list has a value of "173.254.219.146" in the "Created At" column. At the bottom of the table, there are navigation buttons for page 1, 2, and 3.

#	Space Type	Name	Email	Phone Number	Date	Start Time	End Time	Created At
1.	Workshop_space	Patrick	team@tenbillionstrong.org	14152908064	2022-07-25	09:00:00	17:00:00	2022-04-27 15:01:08
2.	Event_space	farhan	farhan@email.com	549623	2022-03-15	10:00:00	18:00:00	2022-03-31 10:31:33
3.	Event_space	farhan	farhan@email.com	4146652	2022-03-15	10:00:00	18:00:00	2022-03-31 10:30:51
4.	Event_space	farhan	farhan@email.com	52622622	2022-03-14	10:00:00	18:00:00	2022-03-31 10:28:17
5.	Hub_space	farhan	farhan@yy.ventures	478523	2022-03-14	08:00:00	16:00:00	2022-03-30 09:30:30
6.	Event	farhan	farhan@yy.ventures	5454	2022-03-09	08:00:00	16:00:00	2022-03-30 08:28:48
7.	Event	farhan	farhan@yy.ventures	456263263263	2022-03-09	08:00:00	16:00:00	2022-03-30 09:32:41
8.	Event	Shanto	shantokumar@yy.ventures	01923391079	2022-03-14	05:37:18	05:37:18	2022-03-28 10:32:13
9.	Event	Shanto	shantokumar@yy.ventures	01923391079	2022-03-14	05:37:18	05:37:18	2022-03-28 10:23:40
10.	Event	Shanto	shantokumar@yy.ventures	01923391079	2022-03-14	05:37:18	05:37:18	2022-03-24 10:16:29
11.	Event	John	johnq@gmail.com	04236589	2022-03-23	13:00:00	15:30:00	2022-03-24 08:32:23
12.	Event	121	shantokumar@yy.ventures	wefwf	2022-03-14	05:37:18	05:37:18	2022-03-21 09:21:28
13.	Event	Shanto	shantokumar@yy.ventures	wefwf	2022-03-14	05:37:18	05:37:18	2022-03-21 09:21:07
14.	Event	Shanto	shantokumar@yy.ventures	01923391079	2022-03-14	05:37:18	05:37:18	2022-03-21 09:20:56
15.	Event	Shanto	shantokumar@yy.ventures	anancjsndj	2022-03-14	05:37:18	05:37:18	2022-03-21 09:13:27

Figure 5.9: event space Bookings enquiry list in the admin panel

#	Package	Feature	Availability	Created By	Updated By	Action
1.	Large	160 sq ft. + Common Area	Yes	Mr. Admin 2022-04-11 08:38:43	Mr. Admin 2022-04-12 09:30:45	Deactivate Edit
2.	Large	Suitable for 5 people	Yes	Mr. Admin 2022-04-11 08:38:33	Mr. Admin 2022-04-11 08:39:33	Deactivate Edit
3.	Regular	115 sq ft. + Common Area	Yes	Mr. Admin 2022-04-11 08:34:49	Mr. Admin 2022-04-13 08:30:30	Deactivate Edit
4.	Regular	Suitable for 3 people	Yes	Mr. Admin 2022-04-11 08:34:32	Mr. Admin 2022-04-11 08:34:32	Deactivate Edit
5.	Small	50 sq ft. + Common Area	Yes	Mr. Admin 2022-04-11 08:33:54	Mr. Admin 2022-04-13 08:30:19	Deactivate Edit
6.	Small	Suitable for 1/2 people	Yes	Mr. Admin 2022-04-11 08:33:39	Mr. Admin 2022-04-11 08:33:39	Deactivate Edit
7.	Hub Unlimited	Receive mail at Impact Hub (+1000 Tk/month)	Yes	Mr. Admin 2022-03-22 09:04:10	Mr. Admin 2022-03-22 09:04:10	Deactivate Edit
8.	Hub Unlimited	Private locker	Yes	Mr. Admin 2022-03-22 09:04:00	Mr. Admin 2022-03-22 09:04:34	Deactivate Edit
9.	Hub Unlimited	Meeting Room booking discount	Yes	Mr. Admin 2022-03-22 09:03:50	Mr. Admin 2022-03-23 09:03:50	Deactivate Edit
10.	Hub Unlimited	Event space booking discount	Yes	Mr. Admin 2022-03-22 09:03:42	Mr. Admin 2022-03-22 09:03:42	Deactivate Edit
11.	Hub Unlimited	Complimentary tea and coffee	Yes	Mr. Admin 2022-03-22 09:03:35	Mr. Admin 2022-03-22 09:03:35	Deactivate Edit
12.	Hub Unlimited	Impact Hub Passport	Yes	Mr. Admin 2022-03-22 09:03:27	Mr. Admin 2022-03-22 09:03:27	Deactivate Edit
13.	Hub Unlimited	Discounted access to events	Yes	Mr. Admin 2022-03-22 09:03:20	Mr. Admin 2022-03-22 09:03:20	Deactivate Edit
14.	Hub Unlimited	Invitation to member-only	Yes	Mr. Admin 2022-03-22 09:03:08	Mr. Admin 2022-03-22 09:03:08	Deactivate Edit
15.	Hub Unlimited	Receive internal newsletter	Yes	Mr. Admin 2022-03-22 09:03:02	Mr. Admin 2022-03-22 09:03:02	Deactivate Edit

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Figure 5.11: Package feature list in admin panel

5.4.3 Architecture

Clean Architecture

MVC is a software architectural approach for creating computer user interfaces. It separates an application into three pieces that are all related. This is done to distinguish

internal information representations from how information is presented to and accepted by users.

Model: Database operation such as fetch data or update data etc.

View: End-user GUI through which user can interact with system, i.e., HTML, CSS.

Controller: Contain Business logic and provide a link between model and view.

The screenshot shows the membership page of Impact Hub Dhaka. At the top, there is a dark blue header bar with the "IMPACT HUB Dhaka" logo on the left and navigation links for "About", "Coworking", "Office Space", "Event Space", "Events", "Stories", and "English" on the right. Below the header, a large red circular graphic contains the text "Come create with us!". To the left of this graphic, there is a section with two lines of text: "The world is changing." and "We are on the transitioning team.". Below this text is a paragraph about the Impact Hub's global network and mission. To the right of the text, there are five colored boxes representing different membership plans: "Hub Connect BDT 999" (red), "Hub 25 BDT 1499" (green), "Hub 50 BDT 2999" (yellow), "Hub 100 BDT 4999" (orange), and "Hub Unlimited BDT 7999" (teal). At the bottom of the page, there is a footer section with links to "About us", "Work With Us", "Impact Blog", and "Privacy Policy". It also features the "IMPACT HUB Dhaka" logo and social media icons for Facebook, LinkedIn, and Instagram. On the right side of the footer, there is a map showing the location of Impact Hub Dhaka at R952+66V, 9th Floor, Grameen Telecom Bhaban, Zoo Road, Dhaka 1216. The map includes a red marker indicating the hub's location and shows nearby landmarks like Regal Emporium, Bangladesh National Zoo, and WealthX G.

Figure 5.4: Membership page

The screenshot shows the Impact Hub application interface. On the left is a dark sidebar with a red header containing the 'IMPACT HUB' logo. The sidebar has a tree-view navigation with the following items:

- Dashboard
- Authentications
- CMS
- Bookings
- Other Forms

On the right, the main content area has a white header with 'Hi, Mr. Admin' and a blue 'M' icon. Below the header is a button labeled 'Package List'. The main form is titled 'Package Update Form'. It contains three input fields: 'Select Package Type' (dropdown menu showing 'Office Space'), 'Package Name' (text input showing 'Large'), and 'Package Price' (text input showing '35000'). At the bottom of the form is a blue 'Update' button. In the bottom right corner of the form area, there is a small text box containing the IP address '173.254.219.146'. At the very bottom of the page, centered, is the text '2022 © YY Ventures'.

Figure 5.6: Package Update form

The screenshot shows the Impact Hub admin panel interface. The left sidebar contains navigation links: Dashboard, Authentications, CMS, Bookings, and Other Forms. The main content area is titled "Package Features List". It includes a search bar, a "Find" button, and a "Create New" button. A table lists 15 package features, each with columns for #, Package, Feature, Availability, Created By, Updated By, and Action. The table rows are numbered I. through II. The last row, I.5, has a note "173.254.219.146" next to it. The bottom of the table has a navigation bar with pages 1 through 5.

#	Package	Feature	Availability	Created By	Updated By	Action
I.	Large	160 sq ft. + Common Area	Yes	Mr. Admin 2022-04-11 08:35:43	Mr. Admin 2022-04-13 08:30:48	Deactivate Edit
2.	Large	Suitable for 5 people	Yes	Mr. Admin 2022-04-11 08:34:33	Mr. Admin 2022-04-11 08:35:33	Deactivate Edit
3.	Regular	115 sq ft. + Common Area	Yes	Mr. Admin 2022-04-11 08:34:49	Mr. Admin 2022-04-13 08:30:30	Deactivate Edit
4.	Regular	Suitable for 3 people	Yes	Mr. Admin 2022-04-11 08:34:32	Mr. Admin 2022-04-11 08:34:32	Deactivate Edit
5.	Small	50 sq ft. + Common Area	Yes	Mr. Admin 2022-04-11 08:33:54	Mr. Admin 2022-04-13 08:30:19	Deactivate Edit
6.	Small	Suitable for 1/2 people	Yes	Mr. Admin 2022-04-11 08:33:39	Mr. Admin 2022-04-11 08:33:39	Deactivate Edit
7.	Hub Unlimited	Receive mail at Impact Hub (+1000 Tk/month)	Yes	Mr. Admin 2022-03-22 09:04:10	Mr. Admin 2022-03-22 09:04:10	Deactivate Edit
8.	Hub Unlimited	Private locker	Yes	Mr. Admin 2022-03-22 09:04:00	Mr. Admin 2022-03-22 09:04:34	Deactivate Edit
9.	Hub Unlimited	Meeting Room booking discount	Yes	Mr. Admin 2022-03-22 09:03:50	Mr. Admin 2022-03-22 09:03:50	Deactivate Edit
10.	Hub Unlimited	Event space booking discount	Yes	Mr. Admin 2022-03-22 09:03:42	Mr. Admin 2022-03-22 09:03:42	Deactivate Edit
II.	Hub Unlimited	Complimentary tea and coffee	Yes	Mr. Admin 2022-03-22 09:03:38	Mr. Admin 2022-03-22 09:03:39	Deactivate Edit
I2.	Hub Unlimited	Impact Hub Passport	Yes	Mr. Admin 2022-03-22 09:03:27	Mr. Admin 2022-03-22 09:03:27	Deactivate Edit
I3.	Hub Unlimited	Discounted access to events	Yes	Mr. Admin 2022-03-22 09:03:20	Mr. Admin 2022-03-22 09:03:20	Deactivate Edit
I4.	Hub Unlimited	Invitation to member-only	Yes	Mr. Admin 2022-03-22 09:03:08	Mr. Admin 2022-03-22 09:03:08	Deactivate Edit
I5.	Hub Unlimited	Receive internal newsletter	Yes	Mr. Admin 2022-03-22 09:03:02	Mr. Admin 2022-03-22 09:03:02	Deactivate Edit

1 2 3 4 5 >

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Figure 5.8: package list in the admin panel

The screenshot shows a web application interface for 'IMPACT HUB'. On the left, a dark sidebar menu lists 'Dashboard', 'Authentications', 'CMS', 'Bookings', and 'Other Forms'. At the top right, there's a 'Hi, Mr. Admin' greeting and a teal 'M' icon. The main content area is titled 'Package Update Form' and contains three input fields: 'Select Package Type' (set to 'Office Space'), 'Package Name' (set to 'Large'), and 'Package Price' (set to '35000'). A blue 'update' button is at the bottom left, and a small text box at the bottom right displays the IP address '173.254.219.146'. The footer of the page reads '2022 © YY Ventures'.

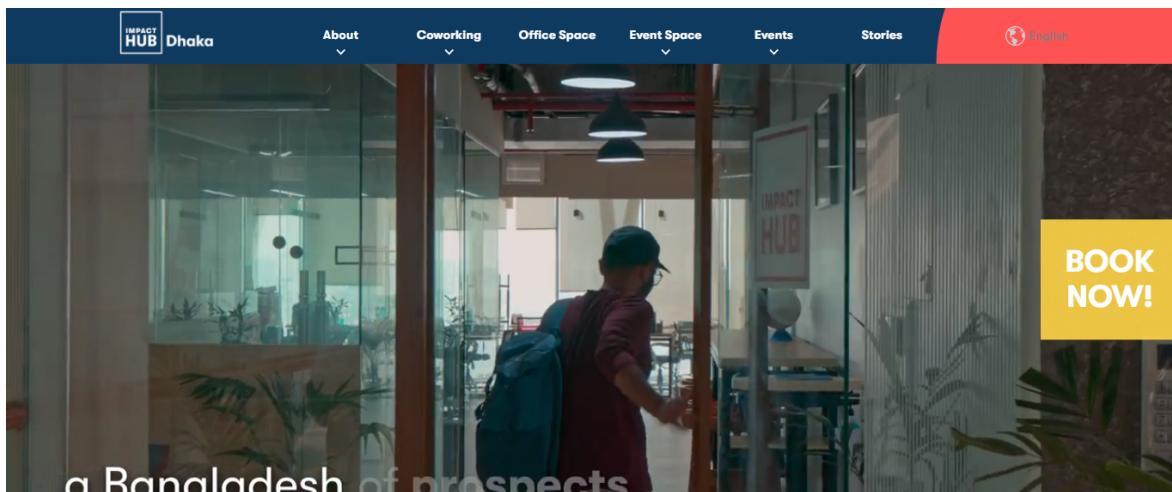
Figure 5.10: Membership package update

Chapter 6

Results & Analysis

The Impact Hub Dhaka concept was primarily created to make purchasing co-working space simple. The major objective was to combine all of the project specifics onto a single website so that potential purchasers could access everything they needed without having to physically come into the co-working space to make a reservation.

Here's a quick rundown of what we've done so far and how it will benefit website visitors:



Welcome to Impact Hub Dhaka

Figure 6.1: Homeland landing page

This is the **landing page** of our project. The requirement was to display the motto in a creative way.

The screenshot shows the Impact Hub Dhaka website's "Events" section. At the top, there is a navigation bar with links for "About", "Coworking", "Office Space", "Event Space", "Events", and "Stories". A language selection dropdown shows "English". Below the navigation, a heading "Past Impact Hub Dhaka Events" is followed by a sub-section title "Events". The main content area displays three event cards for September 2020:

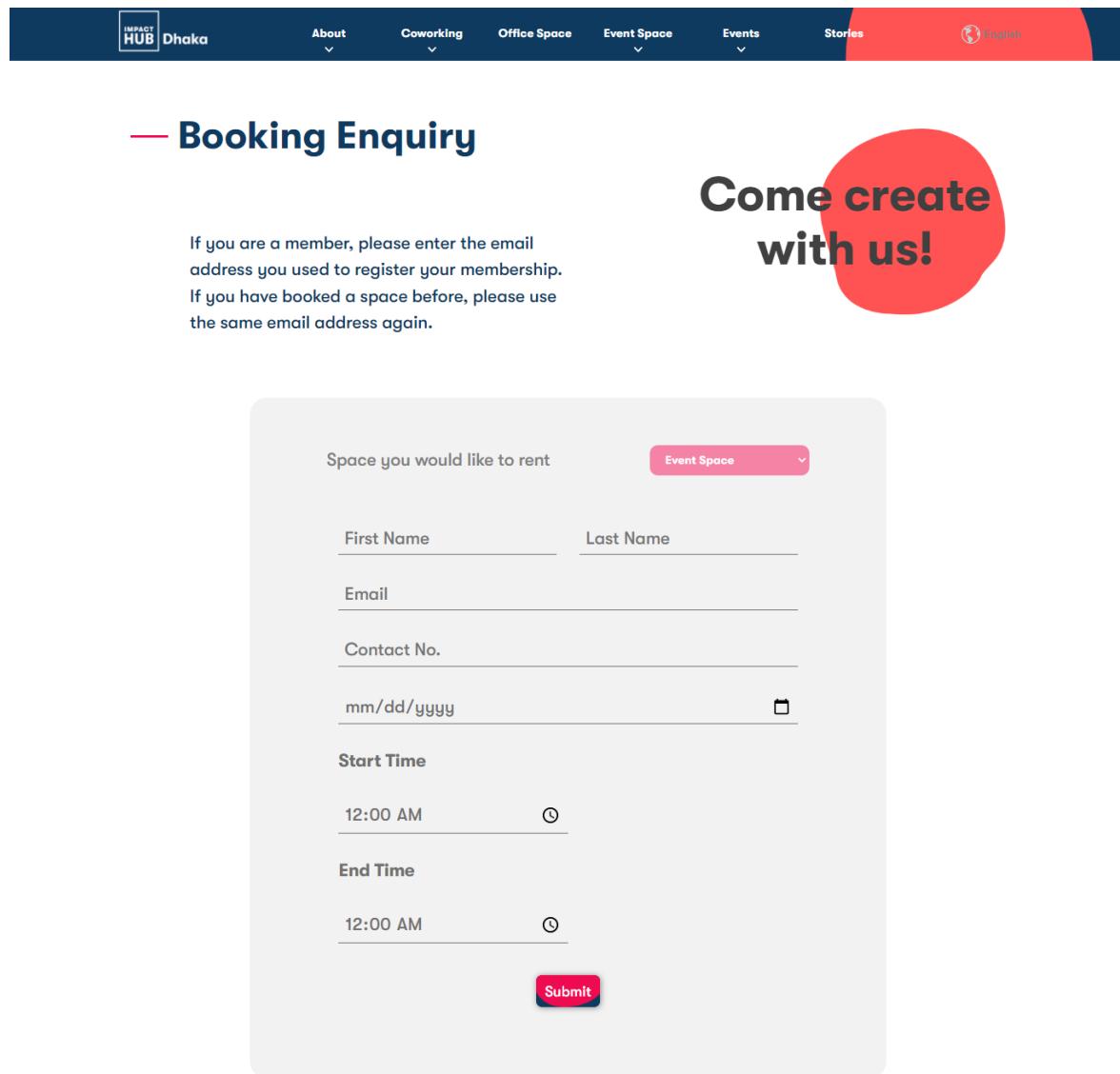
- Deep Dive into Entrepreneurial Society** (16 & 17th September): A two-day virtual event from 3:00 PM - 5:00 PM. It includes sessions like "Design Thinking" and "Innovation Hacking".
- Community Event: Masterclass on 'The Art of Networking'** (18 September 2020): A masterclass by Shareer M. Khanul Islam from 11:30 AM - 1:30 PM.
- Movers Workshop on SDG 5: Gender Equality** (19 September 2020): A workshop featuring Clara Donadello from UN Volunteers Cambodia from 2:00 PM - 4:00 PM.

Each event card includes a "View" button at the bottom.

Figure 6.2: Upcoming events

It's a website for forthcoming events, where we may scroll through all of the events by clicking the arrow button.

The following image shows the other pages



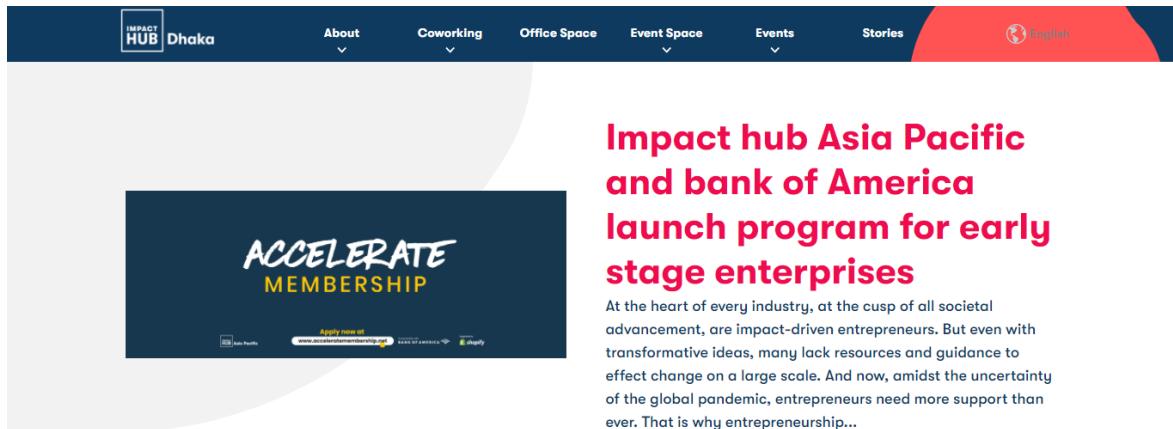
The image shows a screenshot of a website for 'IMPACT HUB Dhaka'. The header includes navigation links for 'About', 'Coworking', 'Office Space', 'Event Space', 'Events', 'Stories', and a language selector for 'English'. A large red circular graphic on the right side contains the text 'Come create with us!'. The main content area is titled 'Booking Enquiry' and contains instructions: 'If you are a member, please enter the email address you used to register your membership. If you have booked a space before, please use the same email address again.' Below this, there is a booking form with fields for 'Space you would like to rent' (set to 'Event Space'), 'First Name', 'Last Name', 'Email', 'Contact No.', 'mm/dd/yyyy' (date input), 'Start Time' (set to '12:00 AM'), 'End Time' (set to '12:00 AM'), and a 'Submit' button.

Figure 6.3: booking enquiry form

The screenshot shows the Impact Hub Dhaka website's "Stories" page. The header includes a logo for "IMPACT HUB Dhaka" and navigation links for "About", "Coworking", "Office Space", "Event Space", "Events", and "Stories". A language selector for "English" is also present. The main content area features four news items:

- Creating a Bangladesh where everyone thrives** (Dhaka)
A photograph of the Impact Hub Dhaka interior. A red sign on the wall reads "IMPACT HUB".
[Read More](#)
- Impact Hub Dhaka hosts its first event of the movers programme** (Dhaka)
A graphic for the "MOVER" programme featuring icons related to SDGs and entrepreneurship.
[Read More](#)
- Deep dive into entrepreneurial society: Impact Hub Dhaka hosts its first outreach event in Chattogram** (Dhaka)
A graphic for the "START CHATTOGRAM" event showing a group of people.
[Read More](#)
- ACCELERATE MEMBERSHIP** (Dhaka)
A graphic for the "ACCELERATE MEMBERSHIP" program by Impact hub Asia Pacific and Bank of America, featuring the Bank of America logo.
[Read More](#)

Figure 6.4: Impact Hub Story page



At the heart of every industry, at the cusp of all societal advancement, are impact-driven entrepreneurs. But even with transformative ideas, many lack resources and guidance to effect change on a large scale. And now, amidst the uncertainty of the global pandemic, entrepreneurs need more support than ever. That is why entrepreneurship network Impact Hub Asia Pacific, in collaboration with the Bank of America, is launching the Accelerate Membership in the Asia-Pacific region.

The mission of the Accelerate Membership is to empower early-stage enterprises to scale up and thrive in our new reality. Members of Accelerate will leverage Impact Hub's unparalleled global reach and expertise through a guided and personalized journey. They will then get connected to the wide-reaching community to continue on their path to success. Through this, Impact Hub continues its support of the United Nations (UN) Sustainable Development Goals (SDG) to promote industry, innovation, and infrastructure (SDG 9), as well as create sustainable cities and communities (SDG 11), with entrepreneurs and changemakers leading the way towards a sustainable future.

The six-month program runs from July to December of this year. Applications are open from May 21 to June 25 for early-stage enterprises operating in at least one country in the Asia-Pacific region where an Impact Hub is located including Impact Hub Dhaka.

What should you expect?

The Accelerate Membership has two stages. There is the five-month Elevate Phase. This then culminates in a month-long Community Showcase.

Right from the beginning, mentors will work with each member to understand their enterprise. Together you will design a personalized development plan. This will set the foundation for a curated training track so you can get the most out of the program.

During the Elevate Phase, members take part in a specialized curriculum. Included are masterclasses and workshops grounded in business realities. From entrepreneurial leadership in times of uncertainty to the digitization of your product or service. Impact Hub Asia Pacific is developing these sessions alongside trailblazing global partners including Bank of America and leading e-commerce

Figure 6.5: Individual story page

Chapter 7

Project as Engineering Problem Analysis

7.1 Sustainability of the Project

ReactJS was used for the Impact Hub Dhaka project. React.js is one of the most popular Javascript frameworks. Training developers on a new technology takes a lengthy period. React, on the other hand, is simple to learn and use. The codes are similar to Javascript's fundamentals. React components make it simple to construct beautiful front-end designs for users, ensuring that they get the greatest possible app experience. The framework is very lightweight, allowing for speedy page rendering.

- **JSX and Components** - JSX is a JavaScript syntactic extension that makes it much easier to create your own components. It supports HTML quoting and makes subcomponent rendering easier.

While JSX is controversial, it may be beneficial in designing high-volume apps or bespoke components, eliminating errors in large tree structures, and making the transition from HTML mockups to ReactElement trees easier. It also provides valuable warning and error signals to React developers, as well as helping in the prevention of code injections.

- **Faster Rendering** - It's vital to consider how the structure will effect the app's overall performance while creating a high-load application. Because the DOM (document object model) is tree-structured, even little changes at the upper layer can produce significant waves in the interface, even the most contemporary platforms and engines cannot ensure the absence of annoying bottlenecks. To solve the problem, the Facebook development team created Virtual DOM, which is now one of the benefits of using React for massively loaded and dynamic software.

Because it's a virtual version of the document object model, all changes are first applied to the virtual DOM, and then the lowest scope of required DOM operations is calculated using the diff approach. Finally, the real DOM tree is updated to reflect the changes, minimizing the amount of time consumed. This method guarantees a better user experience and increased app speed.

- **Stable code** - ReactJS only uses downward data flow to ensure that minor changes in the child structures have no impact on their parents. Developers just make changes to the state of an object, and only certain components are updated after that. This data binding approach ensures code consistency and app efficiency.

Three characteristics spring to mind when considering the benefits and drawbacks of React js: non-risky, responsive, and sophisticated. It allows programmers to work with a virtual browser (DOM) that is much quicker and easier to use than the real one. All of these advantages help to ensure the project's long-term viability. This ensures the project's long-term viability.

7.2 Social and Environmental Effects and Analysis

Impact Hub Dhaka simplifies the lives of purchasers by allowing them to acquire co-working space without needing to be there at the time of purchase. This also means they may shop whenever they want without interrupting their everyday routine. The service is available at all times.

The majority of businesses produce waste paper. When information is shared digitally, physical paper is no longer required in the workplace. The carbon footprint of an organization can be lowered by reducing (or eliminating) paper waste. Paperless business models provide a number of benefits and may be achieved using e-commerce expertise.

7.3 Addressing Ethics and Ethical Issues

We spend a lot of time talking about subjects like SEO and data analysis that help us build our business. Most individuals who conduct business online, on the other hand, neglect some of the most fundamental ethical considerations.

Sellers, on the other hand, have a responsibility to their customers. They must guarantee that their transactions do not result in data theft or security breaches. In order to complete a transaction, customers supply us with a considerable number of personal information, such as:

- Personal information
- Credit card numbers
- Email addresses and a password, which they may share across many accounts

With that information, hackers may cause a lot of harm to customers. We don't want to jeopardize your consumers' confidence. Here are some of the things that should be considered:

- Use HTTPS/SSL, especially on pages that collect sensitive information
- Add further levels of security, such as a web application firewall
- Only keep the customer information that is needed
- For financial transactions, data storage, and other purposes, use trustworthy platforms

Chapter 8

Lesson Learned

Through this project I learned a lot of new technologies and methods. The most important things that I learned are:

- **Github** - To work efficiently with other co-workers, using platforms like github is a must. It is important to know the essential commands of github in order to increase productivity.
- **Fetch** - fetch is a promise-based HTTP Client for node.js and the browser. It is used to make api calls. It has easier syntax and better error handling than JavaScript's out-of-the-box fetch function.
- **Redux** - Redux is a JavaScript library that makes state management in a React app simple and scalable. It makes it simple to connect the reactive data of your application with the UI.

8.1 Problems Faced During this Period & their Solutions

I faced a problem when selecting multiple events and view the selected events in a slide. However, this introduced a bug. In the "past event" page, if the page is reloaded the states reset and there are no events to show. The `selectedUnits` array becomes empty.

To resolve this issue, I saved the `selectedUnits` array into the browser's **localStorage**. This makes the array persist even on reload. The localStorage and the array gets cleared when unmounting the "past event" component.

Chapter 9

Future Work & Conclusion

9.1 Future Works

I'm not sure what will be added to this project in the future, but I believe they will include a payment gateway, a user support chat system, and cloud migration.

1. **User support chat system** - Customers will be able to communicate directly with the management party without having the need to call them. A real-time chat system implemented with **SignalR** will provide the users an easy way of communication with the sellers.
2. **Cloud migration** - As a result of the worldwide pandemic, more and more organizations are moving to the cloud, redefining their products, and becoming more cost-effective, flexible, and inventive in their operations.

9.2 Conclusion

Working at ResNova Tech Ltd as an intern was a great experience. My coworkers have taught us a lot. They put me at ease dealing with technology about which I had little knowledge. Despite the fact that I was having so many difficulties finishing my project work, the others did their best to help me. The group helped me gain confidence and professionalism, which helped me transfer smoothly into my professional position.

The IHD project taught me how to read and write codes while collaborating with others. I am currently thinking about pursuing a career as a React.js developer.

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