

DIU Facilities : A Web Based Application

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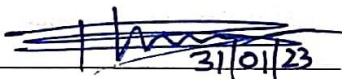
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APPROVAL

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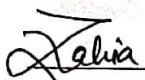
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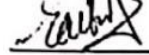


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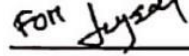
We hereby declare that, this project has been done by us under the supervision of **Mr Saiful Islam**, Assistant Professor, Department of CSE Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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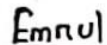


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ABSTRACT

DIU Facilities (DIUF) is an online platform specially developed for the students and faculties of the Daffodil International University. This project is an online website from where multiple services like transport, medical, hostel, canteen, gymnasium, clubs and more are given to the students. Daffodil International University is well known education institute all over the world. The facilities this university provides must be very good and it must maintain their reputation around the world. That's why DIU Facilities has been introduced. This online platform will help the teachers and students to gain knowledge about any facility in an instant they want whether it is transport they seek to go to the university in time, or looking for something to eat in the campus and much more. This report describes the analysis, design, implementation and testing of DIU Facilities. In this website we have worked with six particular facilities within Daffodil International University which are Transport, Canteen, Hostel, Medical, Gymnasium and Clubs. The website consists of 2 particular modules, one is User module and the other one is Admin module. Here, the users are students of teachers of Daffodil International University who have to register for any enquiry related to the desired facilities. They can gain information about the bus routes, canteens or restaurant locations and menus and book foods with in campus, hostel rooms booking system, medical and pharmacy information near university and gymnasium information. The admin module contains access of admin page on the website. The admin can change everything on the website. He or She will have the ability to add, delete and update any information or any facilities.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Education institutes are the most important places for a child to grow up as a complete human being. One of those institutes are universities which ensures a student's increased career stability and the ability to make an impact on the society. Universities don't only give book lectures, the authorities also try to give the students every facilities so that their university journey can be peaceful and fruitful. Daffodil International University is one of the best in Bangladesh in providing both education and also giving outside facilities to the students. As we know, today's age is the age of technology and DIU is also going toe to toe with the era of technology. But there are some facilities in the university which are hard to get or very much time consuming in getting those information. That's why we have decided to create a bridge between the authorities of DIU and the students so that they can easily provide and also enjoy the facilities the university is giving within the prefecture. So we created an online website platform 'DIU Facilities' to act as a medium between the authorities and students. 'Diu Facilities' provide multiple facility functionalities such as transport, clubs, canteen, hostel, gymnasium, medical and much more. Students can gain information about transport routes, buses, driver numbers, medical associates detail and contacts, clubs information within the university campus through our website. Students also can book foods through our website from the canteens in the university campus. Students also can register in the gymnasium of the DIU easily. Students will have the ability to see if a hostel room is available or not to book them as many students come outside Dhaka to study and want to stay within the campus. DIU has the most beautiful hostel system and we want to make sure that hostel system can be implemented through online. This report is about the design, implementation, testing and official recognizing of 'DIU Facilities'.

1.2 Motivation

According to independent government rankings, Daffodil International University (DIU) is one of Bangladesh's best universities. Daffodil International University was established on January 24, 2002, by the Daffodil Group with the Ministry of Education's approval in accordance with the Private University Act of 1992 and its amendment in

1998. The university now combines impressive modern facilities, a dynamic approach to teaching and research, and its proud heritage of service and accomplishment with its impressive modern facilities.

Daffodil International University Daffodil International University maintains very good teaching quality with professional and renowned teachers. It cares for its students and teachers collect feedback from its students so they know the progress their students are making. Now for academic activities and student enrollment, DIU has already created the most beautiful campus DIU Ashulia Smart City at Savar in Bangladesh. The campus is quiet, green and liberated from the city's commotion. Administrative infrastructures, a residence hall for faculty and staff, a library, a cafeteria, a TSC, an auditorium, a playground, a swimming pool, a prayer room, a transport pool, a gymnasium, departmental faculty, a research center, and an ICT center are all present.

Now DIU already have an official website from where people can know about academic information, history and campus infrastructure. Also DIU have its own library website DIU Library from where students and teachers can gain information about the library. But there are so many facilities that not have been included and also some facilities which are included but not that detail in DIU official website. For the new admitted students, the campus is very new and they don't know about the prefecture so well. They don't know where they can find foods or what the menus have. They have to search for them. If someone gets hurt they cannot find near pharmacy or they don't know who to contact with within the campus. If someone wants to stay in the DIU hostel, they can't gain information about the hostel rooms same goes for gymnasium admissions. They have to go there personally to know about them which is a hassle. Transport information and routes like bus numbers, which bus is going from where are also not that much clear. That's why we have decided to build a platform from where this information will be easy to find and students can also book foods from the canteens through online also book hostel rooms through our system.

1.3 Objectives

In the age of ICT, individuals specially students want to know any kind of information or wants any facilities using mobile phone rather than going outside or going in person staying in line. That's why the goal of this website is to develop a platform or a web based interface for students to enjoy facilities within the university campus with their mobile phone. The main goals of this website are:

- To develop an easy web based interface from where DIU students can easily find about food canteens and within the campus and book foods through our system. They also can see menu and prices of the foods.
- Students can find the information about transport such as information about bus, bus drivers, routes, time of departure of the buses etc.
- Students can find information about medical personnel within the campus and also about pharmacies near the campus.
- Students can book rooms and also can get information about hostel rooms whether any hostel room is available or not.
- Students can learn more about the Daffodil International University's various club.
- Students can register in DIU gymnasium through our system also.

1.4 Expected Outcomes

More than twenty thousand students and hundreds of faculties are there in Daffodil International University and if we have come to successfully create the project we have dreamt of, then it will be very much helpful for them in various us. After the completion of the project, the things we will be able to achieve:

- The students will be able to check menus and price of DIU canteens within campus and book foods.
- They will be able to find out transportation schedule, number of buses with their bus driver numbers, routes etc.
- Students will be able to book rooms on DIU hostel through the platform and also find any kind of information related to hostel rooms whether rooms are available or not.
- Students will be able to find information about medical personnel within the campus and also about pharmacies near the campus.
- Students will be able to get information about the different clubs of the Daffodil International University.
- Students will be able to register in DIU gymnasium through our system also.

1.5 Project Management

To deliver the project on schedule and aligned with the goals we have come up with is the most competitive thing for the ungraduated students. As our team members are undergraduate students it was very difficult to continue the project between our other academic studies. So we needed a very suitable project management model to continue the project so that we can submit it on pre-defense on schedule.

Project Model: We chose to use the "Waterfall Project Management Model" to begin the work on our project. It is the simplest method of project management. We decided that this model was the best option because we had plenty of time to finish the project. This concept divides a project into discrete, logical phases, with each phase starting only after the last one is finished. The waterfall model contains five stages of operation. As a result, the waterfall management model follows the conventional approach to project management, in which team members' work linearly towards a predetermined end goal. The five steps of the waterfall model were then divided among our team's three members. The following list of five project development management phases includes:

- **Requirement and Planning:** In the first phase of the model member 1 identified what the project should do. Here, the project requirements, assumptions, dependencies, timeline are identified, analyzed and documented for the project.
- **System Design:** On the second phase, member 1 designs the project's workflow model. Here, all solutions are have been developed to solve the project requirements we have gathered.
- **Implementation:** On the third phase, member 2 started working on the development of the project depending on the requirements and roadmaps that has been clarified by the above through phases.
- **Testing:** On the fourth phase, member 3 tested and verified that the platform our team developed in the implementation phase fulfilled the entire project's requirements.
- **Maintenance:** In the maintenance phase member 2 and member 3 worked into the minor modifications to improve the system that has been developed during implementations phase. Here we also identified many error that we missed during the testing phase and solved those.

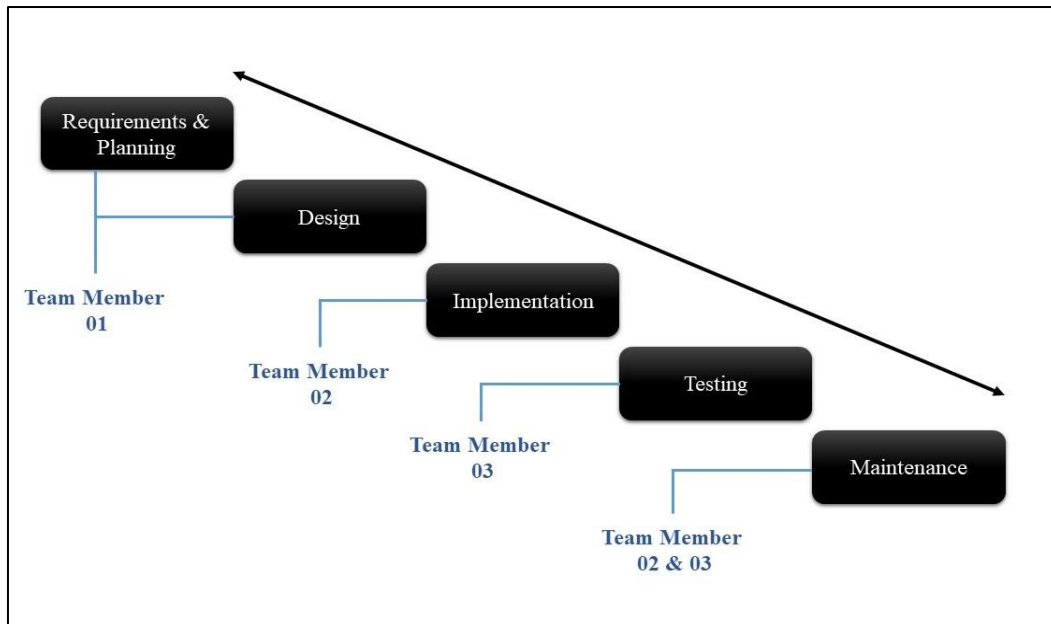


Figure 1.5.1: DIU Facilities project model processes (waterfall model)

1.6 Report Layout

This paper details the DIU Facilities project's analysis, design, and implementation process. There are seven distinct chapters, and each chapter is divided into smaller sections.

- The project's motivation, objectives, expected outcomes, project management, finances, and report layout are all included in the first chapter's introduction.
- The second chapter covers the project's background, including terminology, related works, comparative analysis, the scope of the issue we are attempting to solve, and hurdles.
- Chapter Three describes the specifications required for the project including BPM, Requirement collection and analysis, Use case model and description, Logical data model and Design Requirement.
- Chapter Four describes the specifications of design of the project including Front-end design, back-end design, Interaction Design and User experience, Implementation Requirements.
- Chapter Five contains Implementation and Testing such as Implementation of database, Implementation of Front-end design, Testing implementation, and Test results and reports.

- Chapter Six discusses about what kind of impacts this project causes into the environment and also in social life. It also discusses about the ethical aspects of the project and sustainability of the project.
- Chapter seven contains conclusion and final discussion about the project and the scope for further developments.

CHAPTER 2

BACKGROUND

2.1 Preliminaries & Terminologies

As the foundation for carrying out numerous tasks like teaching, research, and community activities, Daffodil International University has been playing a key role in advancing technical advancement and social transformations. University has created many facilities for the students in DIU smart city. Newly admitted students do not know about many of these facilities and also many facility that the university campus have. Even they know them, they have to search for them physically going buildings to buildings which is a much hassle and time consuming. Students who travel distance to attend classes in DIU smart city needs to know the transport routes and the bus times to catch the buses early otherwise they miss the buses and they have to go to the campus with outside transports or buses which is much expensive and time consuming. Students who have classes have to stay on the campus for long time specially those who come from long distances like Dhanmondi, Narayanganj, Uttora etc. So for their long day they have to eat healthy foods and the university have made sure by creating canteens like 'Bonomaya' and 'Green Garden'. But the problem is newly admitted students do not know about the price range of the foods on these food courts also what type of foods they are serving. On the other hand many students don't get the desired foods they want after finishing their classes as they are sold too quickly. So, they go outside of the campus to eat unhygienic foods from the local hotels. Students get injured sometimes one the campus while they are playing or for any other accidents. When they faces these kind of situations they do not know who to contact or where the pharmacy is. But there is a DIU medical center within the campus with experienced doctors. As many students come from outside Dhaka to only study on university they need shelter to stay closer to the campus and DIU has given them hostel facility with rooms and others. But most the rooms get booked as DIU is very famous and every year thousands of students get admitted here. Students have to go personally to the office to get information whether a room is booked or not and it is very time consuming and tiring. Students who are away from campus have to come to the campus personally to see if there in hostel room available or not. Students also need to know about the information of clubs available on the university and their contacts which are not available on anywhere near hand. Also, there is a DIU gymnasium in the campus where students get admitted to keep

themselves fit. But there is no online platform for that also from where students can easily get admission or register for the gymnasium packages.

Solution we have come up with:

After determining and analyzing all the problems we have mentioned in problem statement, our team decided to build an online platform which will help the students to find all the related information about the mentioned facilities of the university in one place. The online platform is an online website which we have name DIU Facilities. All the necessary implementations have been done to the website and it will help the students to:

- Students will be able to check menus and price of DIU canteens within campus and book foods.
- They will be able to find out transportation schedule, number of buses with their bus driver numbers, routes etc.
- Students will be able to book rooms on DIU hostel through the platform and also find any kind of information related to hostel rooms whether rooms are available or not.
- Students will be able to find information about medical personnel within the campus and also about pharmacies near the campus.
- Students will be able to get information about the different clubs of the Daffodil International University.
- Students will be able to register in DIU gymnasium through our system also.

Studies required for the implementation of the project:

Web Development: Web development is the work involved in developing a website for the Internet (World Wide Web) or an intranet (a private network). Web development can range from developing a simple single static page of plain text to complex web applications, electronic businesses, and social network services. A more comprehensive list of tasks to which Web development commonly refers, may include Web engineering, Web design, Web content development, client liaison, client-side/server-side scripting, Web server and network security configuration, and ecommerce development. Website development encompasses every task you do to make a website and get it up and running smoothly. This process usually includes: Planning, Mapping, Design, Coding, Review and Launch.

Website: A website (also written as a web site) is a collection of web pages and related content that is identified by a common domain name and published on at least one web server. Examples of notable websites are Google, Facebook, Amazon, and Wikipedia. All publicly accessible websites collectively constitute the World Wide Web. There are also private websites that can only be accessed on a private network, such as a company's internal website for its employees. Websites are typically dedicated to a particular topic or purpose, such as news, education, commerce, entertainment or social networking. Hyperlinking between web pages guides the navigation of the site, which often starts with a home page. Users can access websites on a range of devices, including desktops, laptops, tablets, and smartphones. The app used on these devices is called a Web browser.

Webpage: A web page (or webpage) is a hypertext document on the World Wide Web. Web pages are delivered by a web server to the user and displayed in a web browser. A website consists of many web pages linked together under a common domain name. The name "web page" is a metaphor of paper pages bound together into a book. The core element of a web page is a text file written in the HyperText Markup Language (HTML) that describes the content of the web page and includes references to other web resources. A web page is a structured document that primarily consists of hypertext, text with hyperlinks. Hyperlinks point the user to other web resources, primarily other web pages, and to different sections of the same web page. Multimedia content on the web, such as images, videos and other web pages, can be directly embedded in a web page to form a compound document. An HTML document can include Cascading Style Sheets (CSS) documents to describe the presentation of content on a web page. It can also include JavaScript or WebAssembly programs, which are executed by the web browser to add dynamic behavior to the web page. Web pages with dynamic behavior can function as application software, referred to as web applications.

HyperText Markup Language (HTML): The HyperText Markup Language or HTML is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets (CSS) and scripting languages such as JavaScript. Web browsers receive HTML documents from a web server or from local storage and render the documents into multimedia web pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document.

Cascading Style Sheets (CSS): Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language such as HTML or XML (including XML dialects such as SVG, MathML or XHTML). CSS is a cornerstone technology of the World Wide Web, alongside HTML and JavaScript. CSS is designed to enable the separation of content and presentation, including layout, colors, and fonts.[3] This separation can improve content accessibility; provide more flexibility and control in the specification of presentation characteristics; enable multiple web pages to share formatting by specifying the relevant CSS in a separate .css file, which reduces complexity and repetition in the structural content; and enable the .css file to be cached to improve the page load speed between the pages that share the file and its formatting.

JavaScript: JavaScript often abbreviated as JS, is a programming language that is one of the core technologies of the World Wide Web, alongside HTML and CSS. All major web browsers have a dedicated JavaScript engine to execute the code on users' devices. JavaScript is a high-level, often just-in-time compiled language that conforms to the ECMAScript standard. It has dynamic typing, prototype-based object-orientation, and first-class functions. It is multi-paradigm, supporting event-driven, functional, and imperative programming styles. It has application programming interfaces (APIs) for working with text, dates, regular expressions, standard data structures, and the Document Object Model (DOM).

Bootstrap: Bootstrap is the most popular HTML, CSS and JavaScript framework for developing a responsive and mobile friendly website. It is absolutely free to download and use. It is a front-end framework used for easier and faster web development. It includes HTML and CSS based design templates for typography, forms, buttons, tables, navigation, modals, image carousels and many others. It can also use JavaScript plugins. It facilitates you to create responsive designs.

Server Side Scripting: Server-side scripting is a technique used in web development which involves employing scripts on a web server which produces a response customized for each user's (client's) request to the website. The alternative is for the web server itself to deliver a static web page. Server-side scripting is distinguished from client-side scripting where embedded scripts, such as JavaScript, are run client-side in a web browser, but both techniques are often used together. Server-side scripting is often used to provide a customized interface for the user.

PHP: PHP is a server side scripting language that is embedded in HTML. It is used to manage dynamic content, databases, session tracking, even build entire e-commerce sites. It is integrated with a number of popular databases, including MySQL, PostgreSQL, Oracle, Sybase, Informix, and Microsoft SQL Server.

MySql: MySQL creates a database for storing and manipulating data, defining the relationship of each table. Clients can make requests by typing specific SQL statements on MySQL. The server application will respond with the requested information and it will appear on the clients' side.

2.2 Related Works

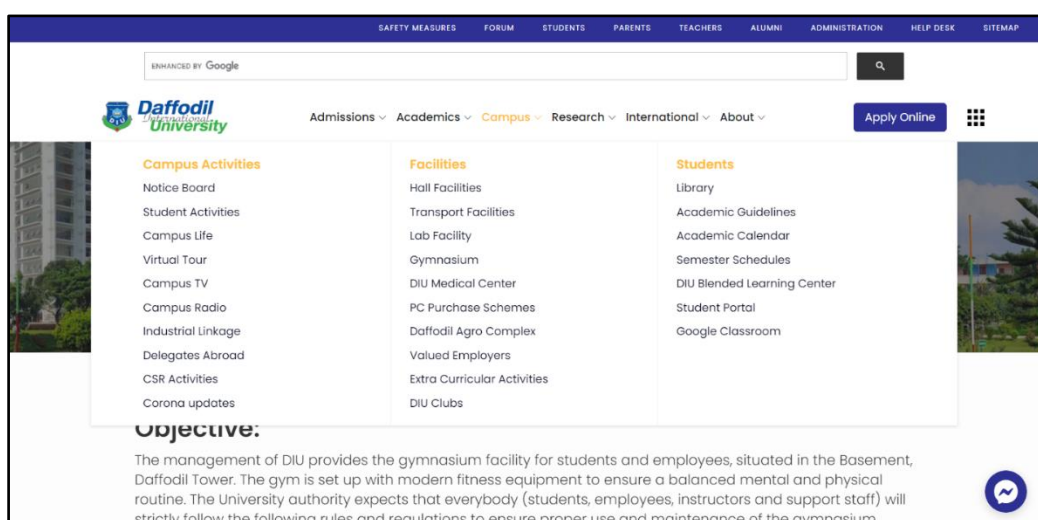


Figure 2.2.1: Daffodil International University's website homepage

The sole motivation of DIU Facilities is to create an online website from where students can enjoy multiple facilities from one place. Now Daffodil International University has already an official website which can be considered as our competitor or which is close to the project we are doing.

The official site of Daffodil International University provides all kinds of information starting from Admission, Academics, Campus, Research, International and About the History and Achievements of the university. On the Campus part, there is a subpart where some multiple facilities information has been shown which we can see from Figure 2.2.1.

2.3 Comparative Analysis

As we have mentioned earlier our only sole competitor is the official site of Daffodil International University which also carries a portion where the information facilities that the university is giving are added. But in this website only the information are given

rather than building an entire portion for the facilities part. Here are the things what we are different from them:

- We are building an official facilities website where the sole purpose of the platform is surrounded by only the facilities the university is giving. The admin can add newly formed facilities in the university in an instant through our platform.
- There is no canteen information added to the current website which we are offering including booking foods in the canteen through our platform.
- We are offering hostel booking system through our platform which is not added in the current official website.
- We are adding nearby pharmacy information including the DIU medical center.
- We are offering gymnasium registration through our platform which is completely new.

So the main comparison between our and the current system is we are solely focusing on the facilities the university is providing.

2.4 Scope of the Project

The main customers who will get the benefit by using our platform is the students of Daffodil International University. As we are only building this platform for our lovable university, we have considered no other customers in desire and it will be solely dedicated to the DIU authorities for the admin panel and for the user side only the official students of the university will be able to enjoy this platform.

Platform Selection: The platform we are building is an online website rather than a software or an android program. The reason why we chose this platform to be an online website is to build a user friendly, instantly accessible from anywhere platform. If we create an android program the customer will not be able to access it from the personal computers. If we create a pc software the customer will not be able to use it from mobile phones. That's why we have chosen a website where only internet connection will be needed to access the platform from any desired device the user wants.

Outcomes to be desired: The desired outcome of our project is to give the students of Daffodil International University a single platform from where they can enjoy multiples of facilities in one go. After successfully implementing the project, Students will be able to check menus and price of DIU canteens within campus and book foods. They will be able to find out transportation schedule, number of buses with their bus driver

numbers, routes etc. Students will be able to book rooms on DIU hostel through the platform and also find any kind of information related to hostel rooms whether rooms are available or not. Students will be able to find information about medical personnel within the campus and also about pharmacies near the campus. Students will be able to get information about the different clubs of the Daffodil International University. Students will be able to register in DIU gymnasium through our system also.

2.5 Challenges

Challenges are part of every human's life. Whenever people have tried to invent something or make something or do something they face many challenges. Same goes for our project implementation. There are many aspects of challenges that we have to overcome to complete our project whether it is ethical issues or technological issues.

- Knowing what kind of interface or design will be comfortable for the consumer to use on the website without reliable data to support your ideas, it's challenging to imagine yourself in their position.
- Studying the web development process was totally new for our team. We actually didn't have the experience working with web environment. So we had to learn from the scrap to gain skills for programming, databases, servers, and web-building tools.
- Every step of the process, from design to development, presents a difficulty in finding the right balance between speed and usefulness or content. User attention is captured and maintained on your page with appealing graphics, videos, and animations. However, having too many media assets will slow down your page's loading time, which irritates users.
- Making sure the site appears well and loads quickly across all browsers and devices is one of the main problems of responsive web design. Users anticipate that a website will perform effectively and appear expert across all platforms. On mobile, however, misplaced or distorted graphics and text can diminish the credibility of a website.
- Academic dishonesty is another challenge for us. As example, if someone book a food through our system and don't come to receive the food then it will be a poor situation as that food is booked for a particular person and the shopkeeper cannot give that food to other.

- Keeping the institute's and student's data safe is another challenge for us as now a days hacking, bugs, viruses, and phishing attacks have become more active.
- As the platform expands, more users have an impact on speed and performance. The website has to work harder to process more user transitions, and updating data and real-time information display is also more challenging. This poses a significant challenge for an industrial site with facilities that are continually changing or being added.

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 Business Process Modeling

On Business Process Model we have shown the graphical representation of the DIU Facilities workflow processes and its related sub-processes. Our project has different facilities and multiple modules including user, admin and canteen editor. Here we have shown the events and activities that occurs within a workflow, the individuals who initiates those events, different decision points and paths in the workflows based on the outcomes. We have divided our Business process model into three parts depending on the actors:

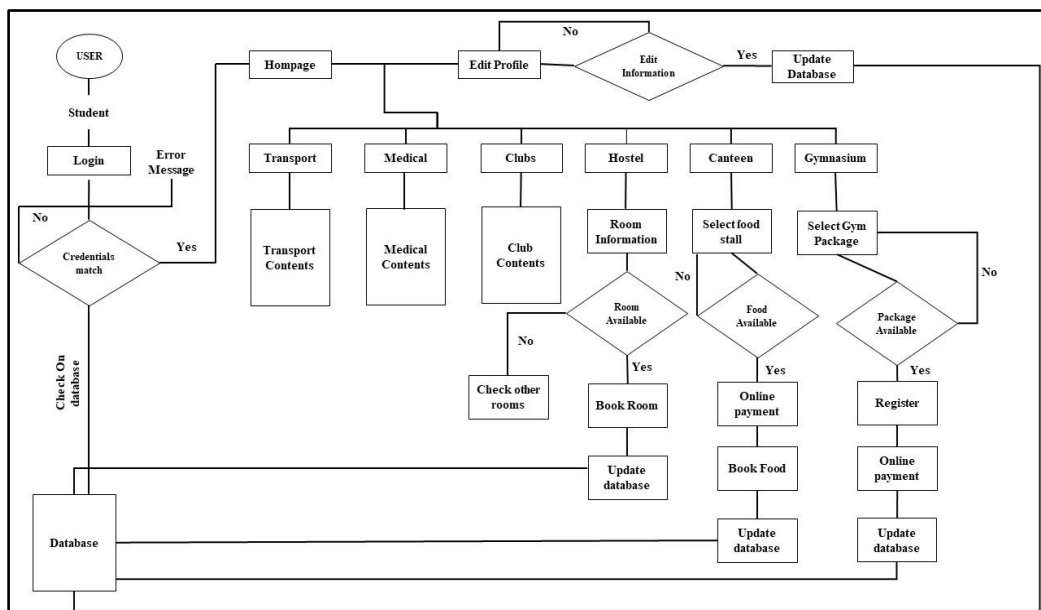


Figure 3.1.1: BPM of DIU Facilities actor student

Figure 3.1.1 shows the Business Process Model of Diu Facilities actor student. Students are the main consumer of the website. They will enter the site with a login information on the login form and the system will check whether the information is valid or not. If the information they have given is valid then they will enter the homepage and if the information is wrong then an error message will be shown. After entering the homepage, the student can select facility they want to enter. They can select transport facility to see information about the transport (routes, bus driver, departure and starting time). Same goes for clubs and medical contents on the university. The club’s website links will be added into the club webpage also for the medical information with interactive and user-friendly design. They can book room from the hostel facility. After entering into the facility’s page, they can check which rooms are available. If books are

available they can book room and the data will be updated on the database. They can cancel room booking also. Canteen facility works as same as the hostel facility. Student can also select canteen facility then choose a specific food stall. In the food stall if there is any food available then student can book and then confirm order by paying through online. If there is no available food then they can go look into different stall. In gym facility, student enters the facility to see if there is any package available or not. If there is any package available then student can register if not then check for other packages.

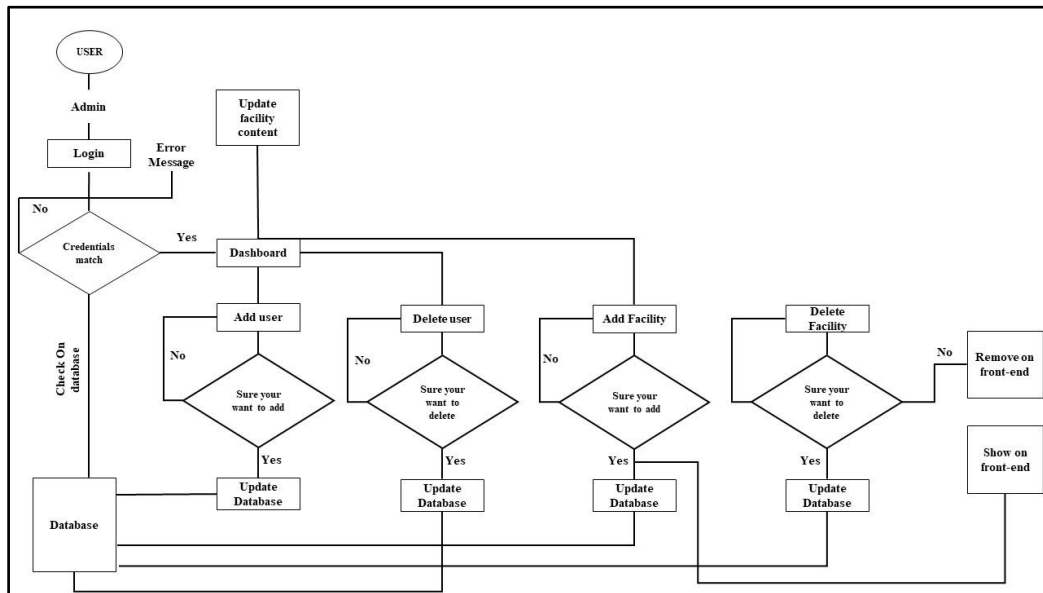


Figure 3.1.2: BPM of DIU Facilities admin actor

Figure 3.1.2 shows the Business Process Model of Diu Facilities actor admin. Admin can log into the admin page by logging in their information which is saved on the database. The system checks if the information is valid or not. If the information is not valid then an error message will be shown. If the information is valid then they will enter the admin dashboard section. From the dashboard admin can add, delete or update any facility or user information they want which will be immediately updated on the system database also.

Figure 3.1.3 shows the Business Process Model of Diu Facilities actor canteen owner. Canteen owner or editor can login into a part of the dashboard where the admin will give them the access of the canteen facility part so that they can organize their food menu, booking information, accept or reject booking information. They will not have the ability to see other features of the dashboard or edit them. They can add food item to the stalls or delete item from the stall. As there are different canteens there will be

different stalls and multiple editor. Multiple user will be able to edit their stall menus, see their customer information on the dashboard also.

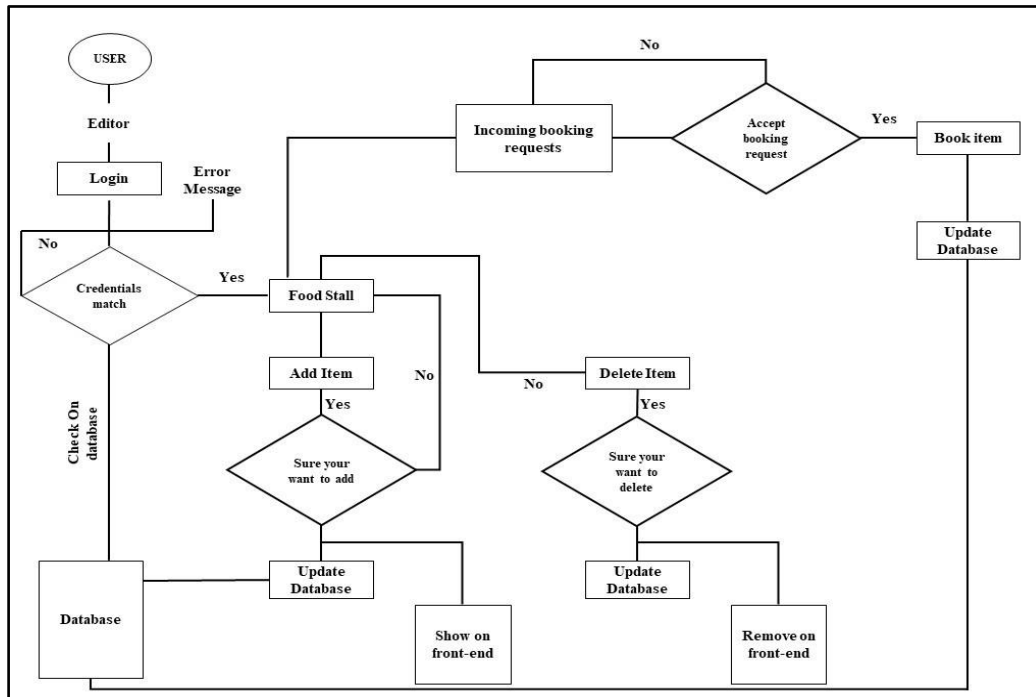


Figure 3.1.3: BPM of DIU Facilities canteen owner actor

3.2 Requirement Collection and Analysis

The project focused on three particular actors where the ‘user’ is students of the university, the ‘admin’ is the authorities of the university who will control the site. The third one is the ‘canteen stall owner’ from whom the students will buy foods. After targeting our consumers or actors, we researched about our objectives, motives and outcomes to collect further requirements to build the system. We observed every student user requirements, canteen stall owner requirements, and they were fulfilled by this project. Necessary admin requirements were fulfilled also by giving them full control and report generation methodology.

The functional requirements of the system and its annalistic description are given below in a tabular form:

Table 1: DIU Facilities Requirement Collection table

SL No:	Actor	Requirement Collection	Requirements Analysis
1	User	Registration, login, edit profile, booking foods, online payment, booking hostel rooms, select facilities.	<ul style="list-style-type: none"> - A user who is the student of the institute needs to log in to go to the home page to select facilities from the page. If the user don't have an account then he/she has to create one where the data the user uses are stored into our database securely in order to access the website. - After logging in, the user will be on a homepage where multiple facilities option will be given. Then the user will choose any facility they want to access. - To book food from the site the user needs to click on Canteen facility and select the stall from where he wants to order food. After selecting the food user needs to do online payment to confirm the order. - To book rooms in hostel, the user have to select hostel facility from where he can see if there are any room available or not. If available, user can select that room to give information about himself so that admin can check and verify the room book process. - Register for gymnasium with the gymnasium facility and see information about the gymnasium.
2	Website Administrator	Login, managing	<ul style="list-style-type: none"> - An admin will login directly to the dashboard or backend of the website.

		database, add or delete facilities, managing dashboard, editing facility information.	From there he will have the ability to add or delete facilities, manage the dashboard, edit facility information. He will also manage the database.
3	Canteen Stall Owners	Login, manage food list, book foods for customer, manage customer purchase information, add or delete food items from menu.	- Canteen stall owners will have different sections on the website. The student will choose any of the stall to book foods for buying. Canteen stall owner can edit their foods on the menu such as add or delete foods, edit prices. They also can book items for customers and manage customer purchase bills.

3.3 Use-case modeling

We have created the use-case modeling of our project which shows how the users are interacting or working with the developed website. We have three actors who will interact with the website, the user, admin & canteen stall owner. The interaction or relation of these actors with the website's options has been shown into two states. One is 'include' and the other one is 'exclude'. Include on the graph shows the relationship between the actor and website such that, if any option with the actor is included it means that the actor must do that work. The actor cannot avoid it to go to the next work. On the other hand if one function of the website is having exclude relation with the actor it means, the actor can avoid the function if it's not necessary at the current moment and go to the next one. As example, Figure 3.3.1 shows the Use-case diagram of Diu Facilities. Now there are three actors for the website. Student or canteen stall owner

will be the user of the website. To use the website the user needs to log in to the website and it's mandatory. The user cannot go to the next step without logging in. On the other hand, if the user gets the password or username wrong, then an error message will show. But this error message is not shown every time. It's shown when it is necessary like when the password or username is wrong only. Another example, we can see from the figure that to book from the canteen it is necessary to pay for the food. That's why book food is in include relation with the payment for food. This is how rest of the entities are related with each other within the figure if we carefully observe.

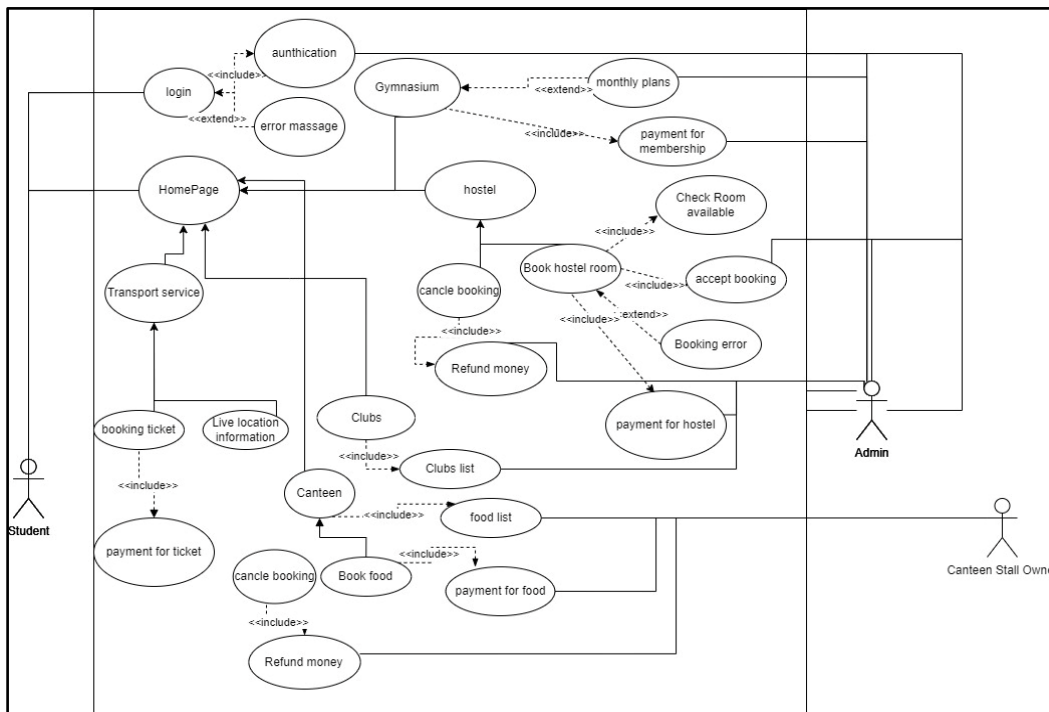


Figure 3.3.1: DIU Facilities Use case diagram

3.4 Logical Data Model

A sort of data model known as a logical data model (LDM) diagram also known as Entity Relationship Diagram (ERD) is used to create visual representations of data items, properties, keys, and relationships. On Figure 3.4.1, we have presented DIU Facilities Logical Modelling Diagram. Here, user, hostel, transport, Hostel Room, Food, Gymnasium, Canteen, Medical center, Club, Medical Services, Medical personals are different entities of the diagram. In the entity boxes the data items with properties has been given. The relationship between the consumer which is the User entity and the facility entities has been list shown. There are four types of relationship shown into the diagram which are one to one, one to many, many to many and many to one. User entity has one to one relation with Hostel Room entity as one user can only

book one hostel room. Hostel Room has many to one relationship with the entity hostel as many hostel rooms are there in one hostel. User entity has one to many relationship with Food entity as one user can order multiple foods. Food entity has many to many relation with Canteen entity as many foods can be in different canteens. User entity many to one relationship with Transport entity as in one transport can carry many users. User entity have one to one relationship with Gymnasium entity as one individual can only register one id in gymnasium system. User entity has many to many relation with Club entity as multiple clubs can have multiple students or multiple user can participate in multiple clubs. User entity have one to many relationship with Medical Services entity as one individual can have multiple services. Medical Services entity has many to many relationship with Medical personals entity as many medical personals can give many services to the consumers.

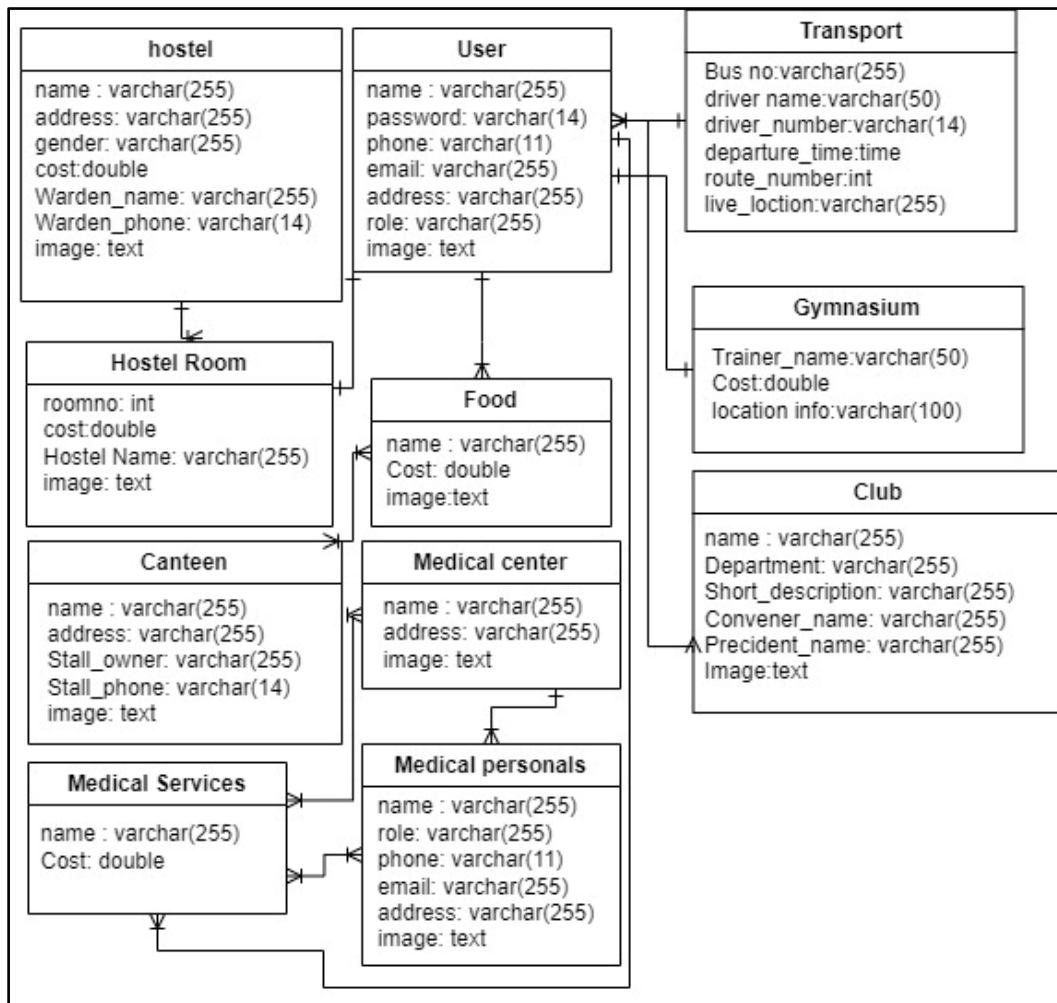


Figure 3.4.1: DIU Facilities Logical Modelling diagram

3.5 Design Requirement

In order to design our project website, we analyzed and defined the suitable designs that will go along our website content and determine what colors and fonts will look on the final website. We have gathered multiple requirements after studying different angles from the perspectives of the consumers which is most important. Because if they cannot use understand the design of the platform, then they will not be able to use the website. As there is less time to complete the project then we will not be able to fulfill all the requirements. That's why we have prioritized these requirements with 1-5 numerical numbers where 1 is the highest priority.

Table 2: 'DIU Facilities' Design Requirement table

No.	Priority Level (1-5) 1=Highest	Requirement Descriptions
1	1	Developing database for user registration and facility data storage
2	1	Design registration and log in page of the website
3	1	Design homepage with different facility options
4	1	Design transport facility page with suitable contents
5	1	Design medical facility page with suitable contents
6	1	Design canteen facility page with different stall sub sections with their menu information. An additional page for booking foods
7	1	Design Clubs page with suitable content
8	1	Design hostel page and extra additional pages to books hostel rooms
9	1	Design gymnasium page with additional pages to register for gymnasium packages.
10	2	Design logo of the official site
11	1	Design backend interface for the admin
12	1	Give admin the power to control the website

CHAPTER 4

DESIGN SPECIFICATION

4.1 Implementation Requirements

After collecting and analyzing all the design requirements, we started requirement analysis to define the implementation methods, technical tools needed to start creating the website. In order to start implementing the website work, we need lots of different technologies and requirements that's need to be in consideration. We prioritize these requirements with 1-5 numerical numbers where 1 is the highest priority.

Table 3: DIU Facilities Implementation Requirements table

No.	Priority Level (1-5) 1=Highest	Requirement Descriptions
1	1	Learning HTML scripting language which is necessary to show web documents in the internet and to create the architecture of the website
2	1	Learning CSS and Bootstrap to make the website more beautiful and interactive
3	1	Learning MySQL in order to create the database for the website
4	1	Learning PHP scripting language to make the website dynamic, managing and connecting database with the website
5	1	Ensuring consistent navigation
6	2	Maintaining good color scheme
7	3	Correct use of CSS, Java script
8	1	Well-structured code
9	2	Eye catching font and colors
10	2	Accessible pages and forms
11	1	Alignment of images and texts
12	1	Give admin the power to control the website
13	4	Accessible from different devices on different window size
14	1	Uploading the webpages to a hosting provider to test them

15	1	Connecting and managing front –end contents using back-end.
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4.2 Back-end Design

The back-end design of the full project is done with html, JavaScript, PHP and bootstrap. The whole coding of the back –end is done with raw PHP coding. No framework has been used in implementing it. From the back-end, the admin will be able to control all the features of the full website.

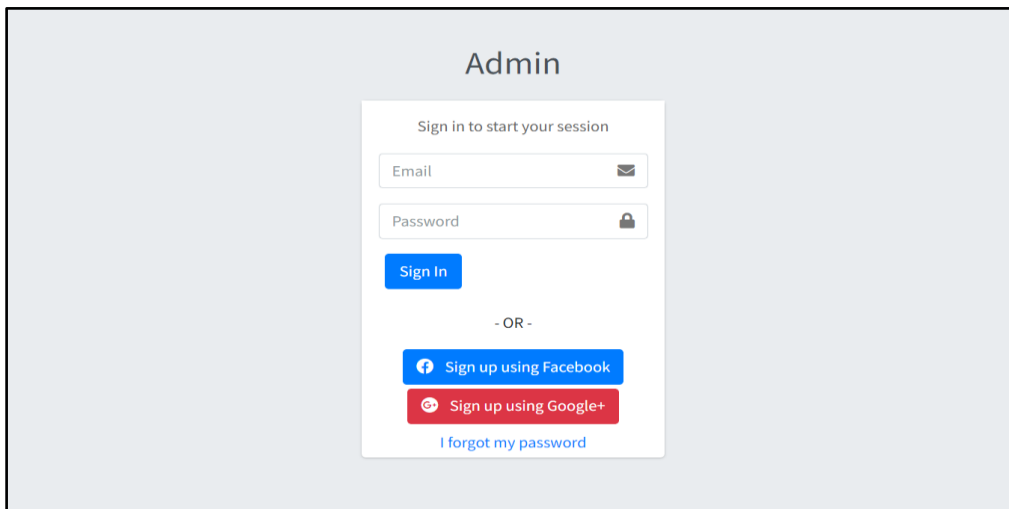


Figure 4.2.1: DIU Facilities admin login

Figure 4.2.1 shows the login page where the admin must put correct username or password to enter the other panels. If password or username is wrong then an error message will show and they will not be able to enter without the correct password or username.

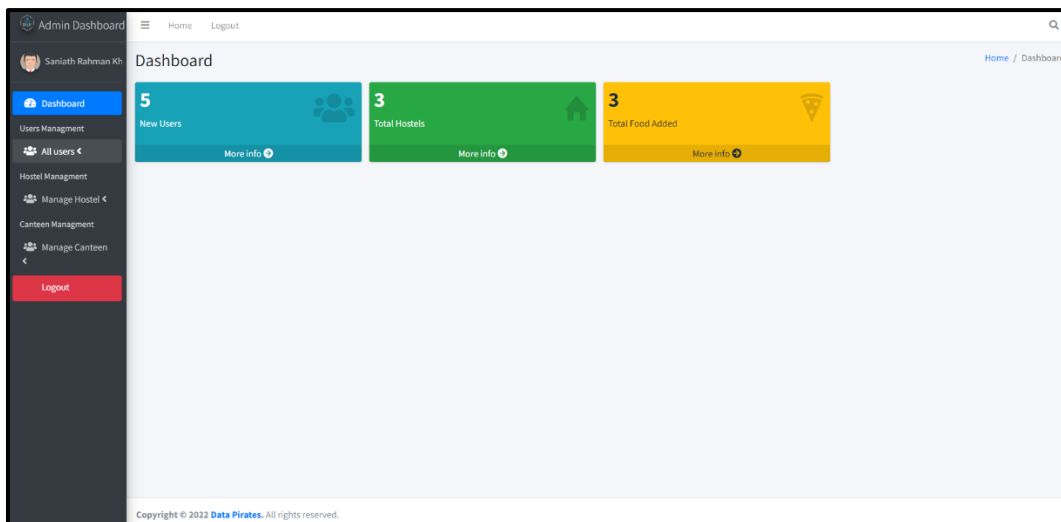


Figure 4.2.2: DIU Facilities admin dashboard

Figure 4.2.2 shows the dashboard from where the admin will control the website users, editors, information. Here number of total number of new users, total foods added, total hostels added, new users and all user information are shown. Admin can easily maintain user information, manage hostel information and canteen information here.

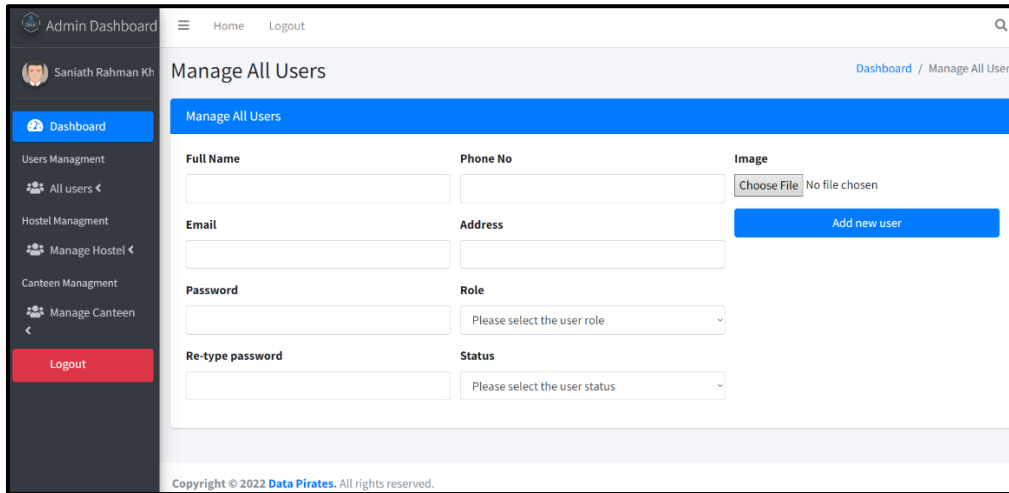


Figure 4.2.3: DIU Facilities new user add page

In Figure 4.2.3, admin can include new user to the system by completing the above form. It will directly save the information given into the text field onto database table. The form demands user name, email, password, phone no address and status which can be active or inactive. Active means the user is currently accepted to the system and inactive means the user is on hold and will be added later when the admin wants.

SL	Image	Full Name	Email Address	Phone No	Address	User Role	Status	Join Date	Action
1		Adnan	adnan@gmail.com			User	Inactive		
2		Arif	arif@gmail.com			User	Inactive		
3		Emrul Hasan	emrul@gmail.com			Editor	Active	2022-12-30	
4		Emrul hasan	emrul@gmail.com			User	Active	2023-01-07	
5		Jahirul Islam	jahir@gmail.com			User	Inactive	2022-12-31	

Figure 4.2.4: DIU Facilities user list and edit option page

In Figure 4.2.4, the list of total registered user has been shown with different role and status. Admin can easily edit information of an existing user easily from here by

clicking the green edit button. The user who has the role of editor can edit a part of the dashboard only as example the canteen stall owners. The status active means the individuals are part of the live system now. The inactive users are yet to be accepted by the admin to be the part of the system.

The screenshot shows a web interface for managing users. At the top, there are navigation links for 'Home' and 'Logout', and a search icon. The main heading is 'Manage All Users'. Below this, there is a blue bar with the text 'Manage All Users'. The form contains several input fields: 'Full Name' with the value 'Adnan', 'Phone No', 'Email' with 'adnan@gmail.com', 'Address', 'Password' (masked with asterisks), 'Re-type password' (masked with asterisks), 'Role' (a dropdown menu showing 'User'), and 'Status' (a dropdown menu showing 'Active'). There is also an 'Image' field with a 'Choose File' button and the text 'No file chosen'. A blue 'Save Changes' button is located at the bottom right of the form. At the bottom of the page, there is a copyright notice: 'Copyright © 2022 Data Pirates. All rights reserved.'

Figure 4.2.5: DIU Facilities edit user info form

Figure 4.2.5 shows the edit existed user information page. If the admin clicks on the green edit button then it will drop to a form from where he can edit existing user information which will be replaced by new information into the database.

The screenshot shows an 'Admin Dashboard' on the left side with a sidebar menu containing 'Dashboard', 'Users Management', 'Hostel Management', and 'Canteen Management'. The main heading is 'Allocate Hostel Room'. The form contains several input fields: 'Name', 'Warden Name', 'Image' (with a 'Choose File' button and 'No file chosen' text), 'Type' (a dropdown menu with the text 'Please select the user role'), 'Warden Phone', 'Address', and 'Cost'. A blue 'Add new hostel' button is located at the bottom right of the form. At the bottom of the page, there is a copyright notice: 'Copyright © 2022 Data Pirates. All rights reserved.'

Figure 4.2.6: DIU Facilities hostel allocation form

Figure 4.2.6 shows the hostel room allocation form from where admin can allocate a room in the hostel for a certain user. When the form is filled up with necessary information, a room will be allocated for the user and the data will be saved into the database and also into the allocate hostel section of the admin site.

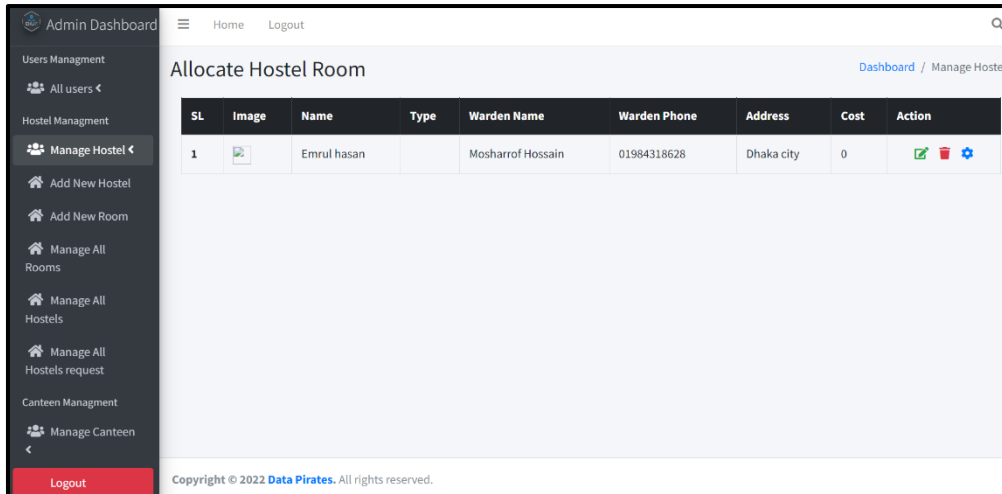


Figure 4.2.7: DIU Facilities hostel allocated student list

Figure 4.2.7 shows the hostel room allocation list where all the information of the students who have been added by the admin and given a room are shown as a list.

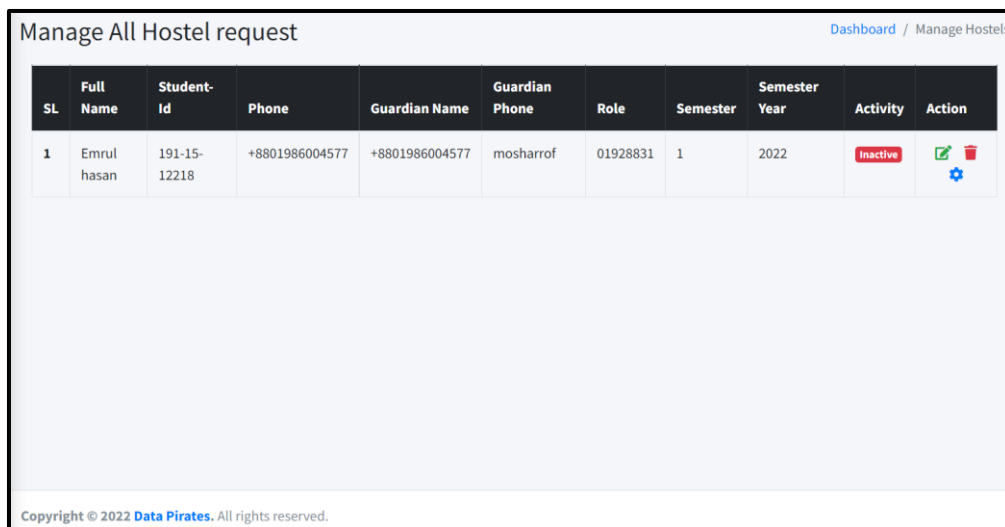


Figure 4.2.8: DIU Facilities hostel pending requests page

Figure 4.2.8 shows the pending requests for a hostel room which has been sent by the user using form on the front-end form which will be discussed later in the report.

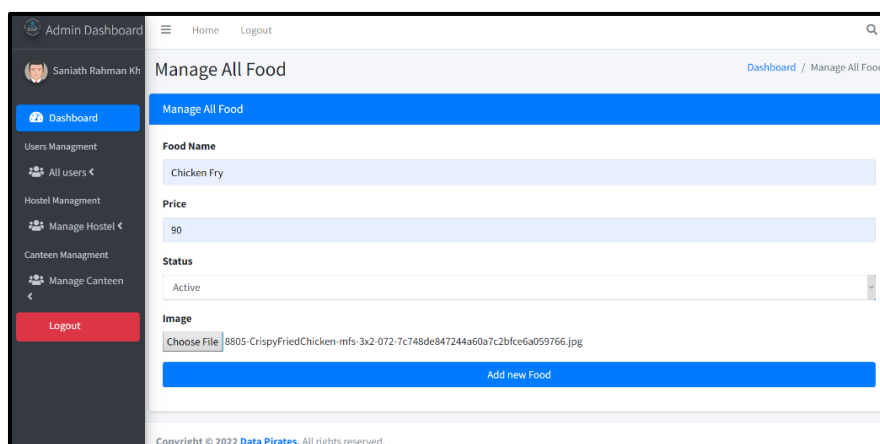


Figure 4.2.9: DIU Facilities add new food form

Figure 4.2.9 shows a form from where admin can easily add new foods on the canteen menu by giving necessary information on the form which will be saved on the database and will be shown dynamically into the front end.

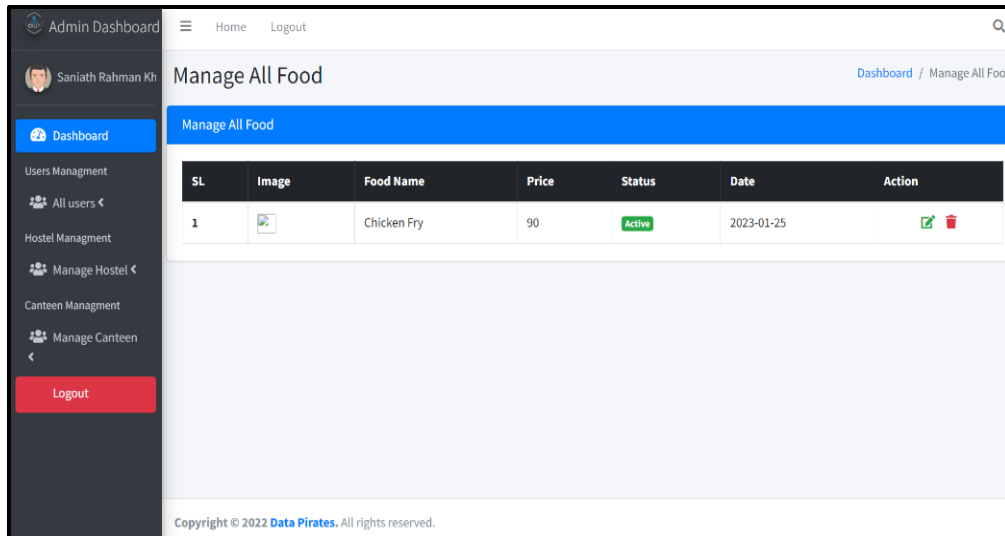


Figure 4.2.10: DIU Facilities food menu list and edit

Figure 4.2.10 shows the food list that has been added by the admin and he can easily update price picture availability of the food from here.

4.3 Front-end Design

For the implementation of front-end design we have used basic html programming language. Html has created the structure of the webpages where CSS and Bootstrap has been used to make the webpages more interactive for the users.

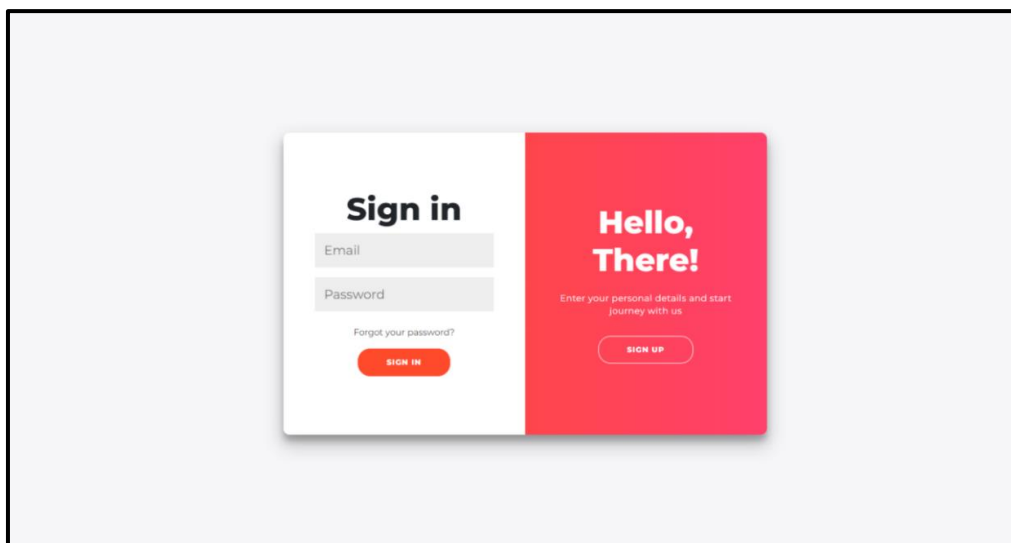


Figure 4.3.1: DIU Facilities sign in page

Figure 4.3.1 shows the sign in page of DIU Facilities from where the admin, user and editors can easily sign in to the desired page they want by giving valid information into the sign in form.

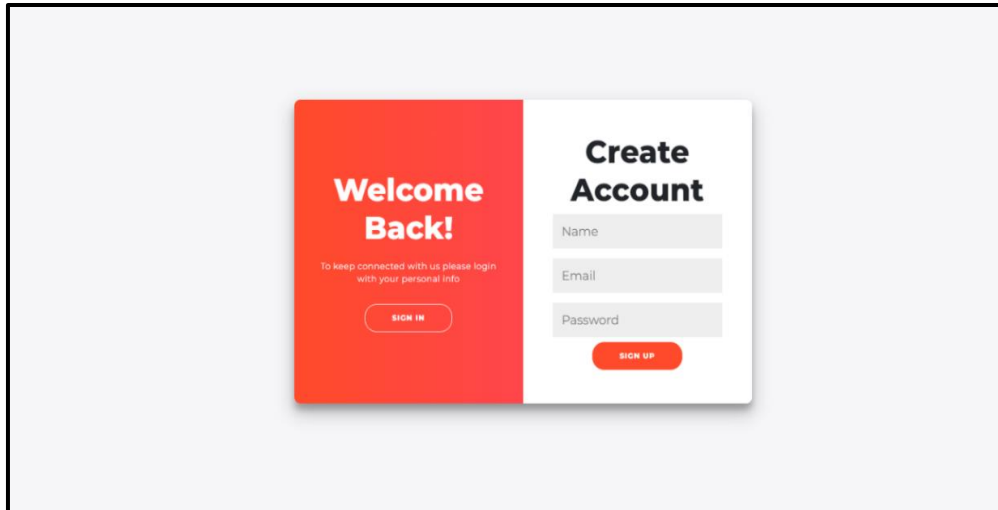


Figure 4.3.2: DIU Facilities sign up page

Figure 4.3.2 shows the sign up page of DIU Facilities from where the user and editors can create account by giving information into the form which will be then stored into the database.

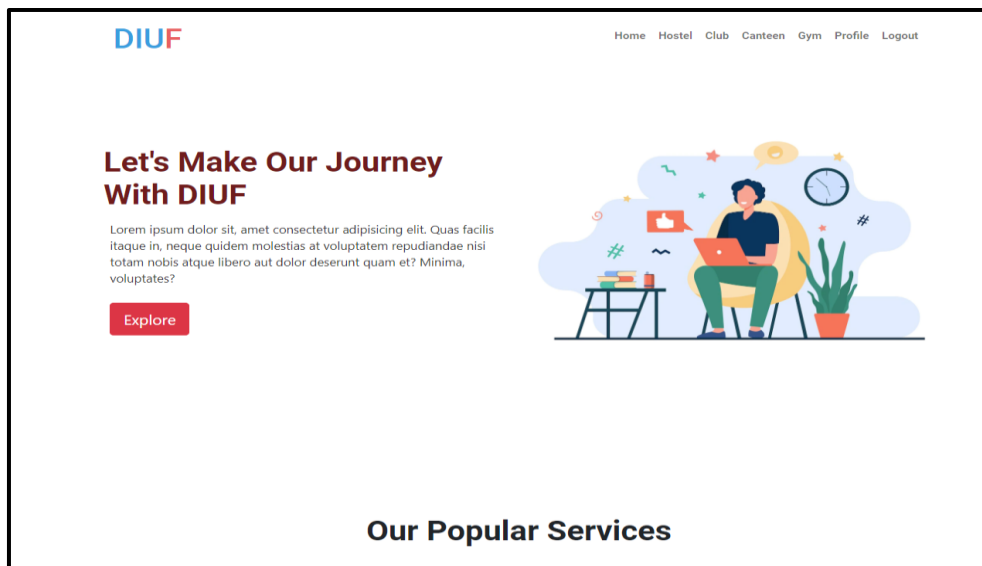


Figure 4.3.3: DIU Facilities homepage

Figure 4.3.3 shows the homepage of DIU Facilities. Students can easily navigate through different pages of the website from here. The homepage has been designed simply so that the consumers can easily scroll through the site and can understand the facilities we are providing from the get go.

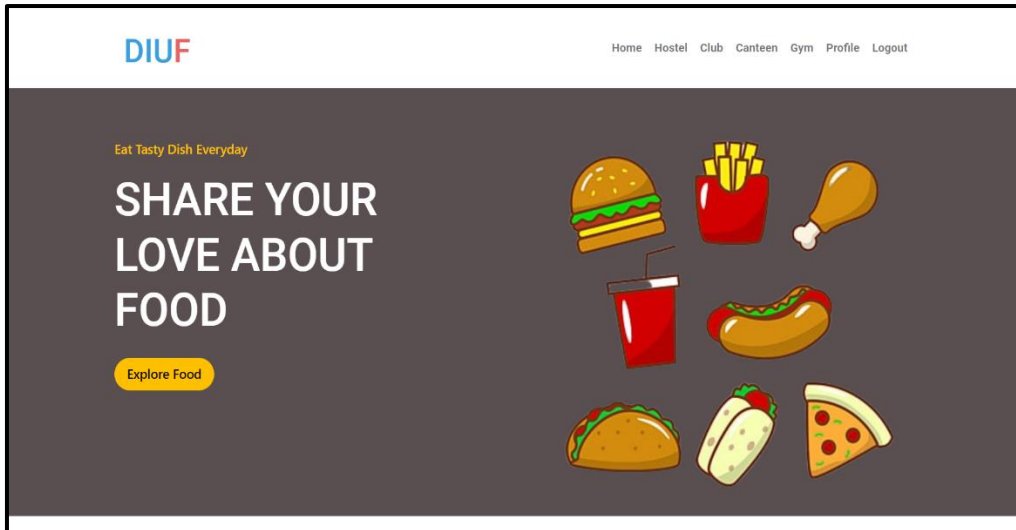


Figure 4.3.4: DIU Facilities canteen page

Figure 4.3.4 shows the canteen page where all the menus will be added from the back end which are stored by the admin dynamically with picture, price and availability.

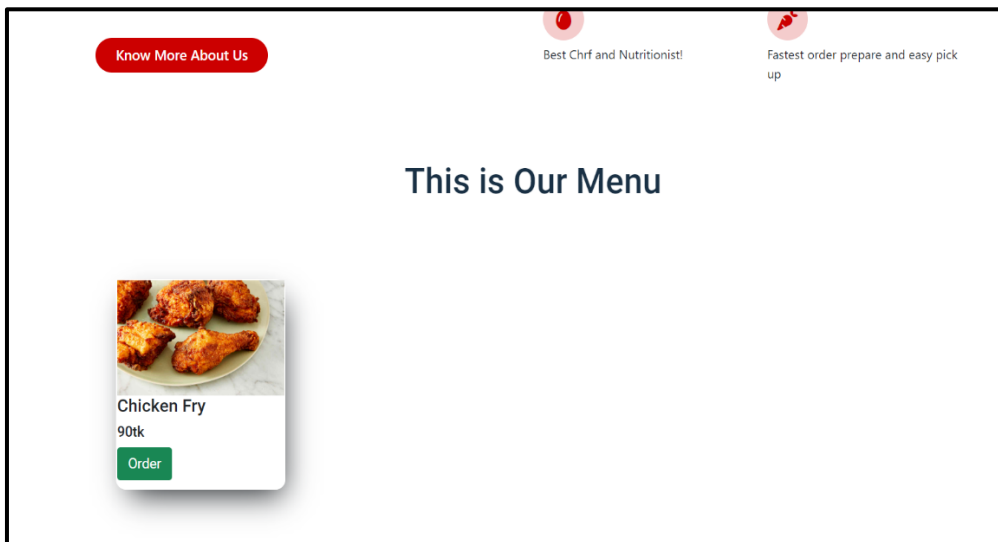


Figure 4.3.5: DIU Facilities canteen menu

Figure 4.3.5 shows the canteen page menu which is dynamically fetch from the database stored earlier by the admin which show the picture price and name of the food. By clicking order now student can easily order foods from the canteen. When the admin adds more foods on the back-end site, the information of those foods will be quickly shown here.

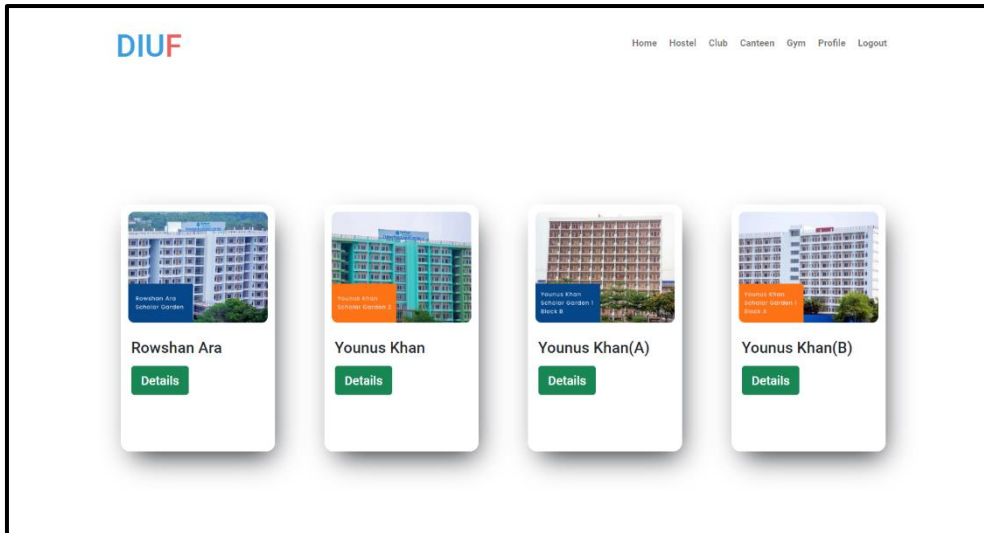


Figure 4.3.6: DIU Facilities hostel homepage

Figure 4.3.6 shows the homepage of DIU Facilities. When admin adds a new hostel, that will be dynamically added to this page as a new hostel as with its picture and name showing into the interface. As there are four hostels in our university campus, we have already created four of the hostels.

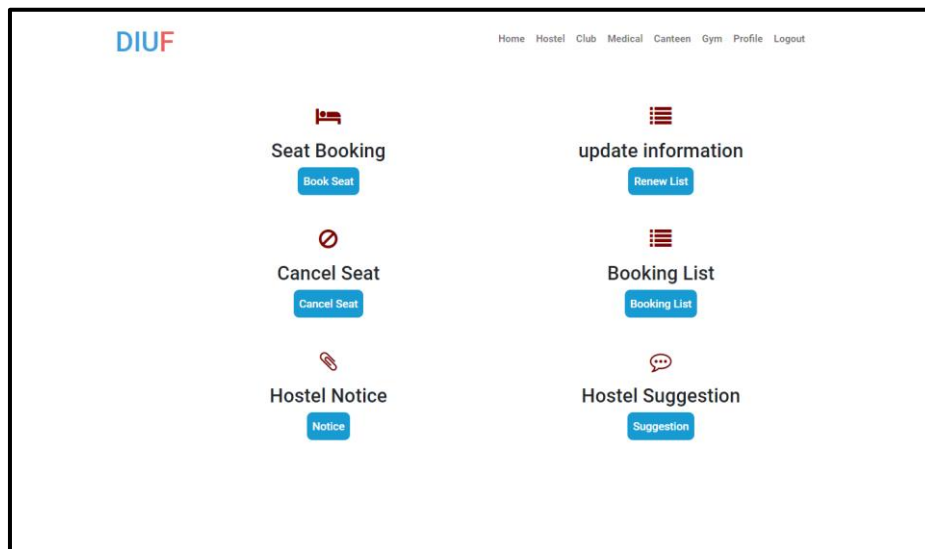


Figure 4.3.7: DIU Facilities canteen menu

Figure 4.3.7 shows the hostel dashboard of DIU Facilities. After clicking in on the hostel on the hostel page, the consumer will land on this page from where he can easily book available seats. They can also cancel any previously booked hostel rooms from here. Consumers will have the ability to navigate through seat booking, cancel seat, hostel notice, hostel suggestions, booking payment from this page.

Figure 4.3.8: DIU Facilities hostel booking form

Figure 4.3.8 shows the hostel booking form. Students can easily book form by completing the above form. Form contains students name, Id, phone no, guardian no, guardian name, semester which are necessary to full up. After filling up the form the data will be sent to admin portal from where admin will check and then active the user.

Figure 4.3.9: DIU Facilities club page

Figure 4.3.7 shows the club page of DIU Facilities. This is an static page where all the clubs of the institute has been added with a beautiful design. From here students can find the information of the clubs they want to get easily. If they click on one club it will directly lead them to the official page of that particular club.

CHAPTER 5

IMPLEMENTATION & TESTING

5.1 Implementation of Database

On the requirement analysis we have analyzed that we needed a database system because without database system we cannot record the facility information and also user information. So after studying about many databases we decided to use 'MySQL' database system as we are using PHP scripting language.

Why MySQL:

- It is very fast than other databases.
- It is ideal for both small and large applications.
- It is reliable.
- It is very easy to use for the people who are new to web development.

Creating Table:

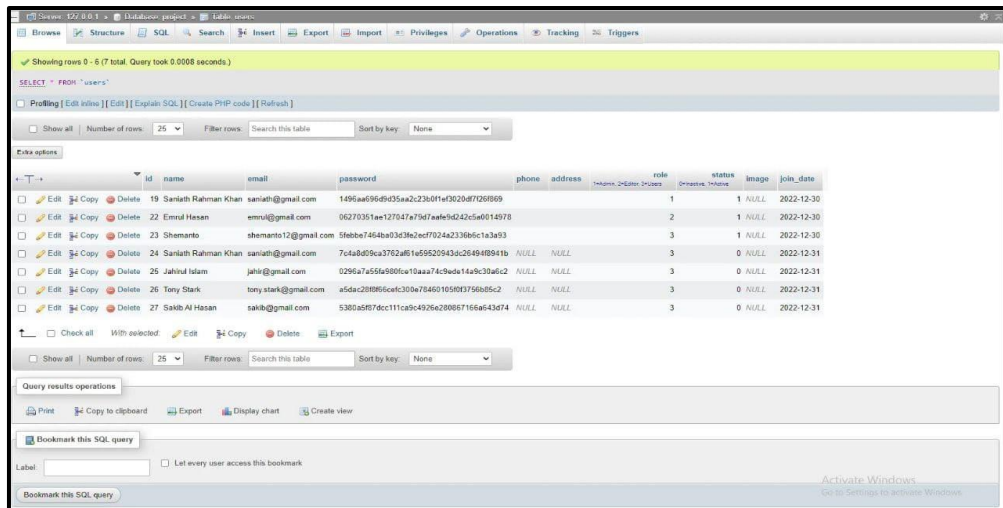


Figure 5.1.1: DIU Facilities database table for user

Figure 5.1.2 is the database table where all the canteen food menu information added by the admin in the back-end is stored. Here, food picture, pic availability, food price, food name are stored and then these data are dynamically shown into the front-end.

Showing rows 0 - 2 (3 total, Query took 0.0005 seconds)

SELECT * FROM `food`

Number of rows: 25 Filter rows: Search this table Sort by key: None

id	food_name	price	image	status	f_date
4	Chicken Fry	60	8603575-img-crispy-fried-chicken-wooden-cutting-bo...	1	2023-01-26
5	Cheese Pizza	90	7297773-img-pizza-5175939_340.jpg	1	2023-01-26
6	Fried Rice	120	7927840-img-american-shrimp-fried-rice-served-with...	0	2023-01-26

Query results operations: Print, Copy to clipboard, Export, Display chart, Create view

Bookmark this SQL query

Fig 5.1.2: DIU Facilities database table for canteen menu

Figure 5.1.3 is the database table which stores the hostel creation information. When admin creates a new hostel with the hostel form, those data are stored here as a table and these data are dynamically shown into the front-end page.

Showing rows 0 - 2 (3 total, Query took 0.0005 seconds)

SELECT * FROM `hostel`

Number of rows: 25 Filter rows: Search this table Sort by key: None

id	name	address	gender	cost	warden_name	warden_phone	img
18	Rowshan Ata	Ashulya, Savar, Dhaka		1200	Mosharof Hossain	01984318628	9801484-img-hostel-1.png
19	Younus Khan	Ashulya, Savar, Dhaka		1200	Mosharof Hossain	01984318628	9105718-img-hostel-2.png
20	Younus Khan (A)	Ashulya, Savar, Dhaka		1200	Mosharof Hossain	01984318628	5563108-img-hostel-3.png

Query results operations: Print, Copy to clipboard, Export, Display chart, Create view

Bookmark this SQL query

Fig 5.1.3: DIU Facilities database table for hostel

Figure 5.1.4 is the database table which stores the hostel room information in all hostels provided by admin. Admin can add rooms with the hostel room form, where he has to add information in the form which will be added into the database as seen. After that, this data will be dynamically added into the front end from where consumer can easily see the details of the rooms and can book a room.

Showing rows 0 - 4 (5 total, Query took 0.0005 seconds.)

SELECT * FROM `hostel_room`

Options: Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

	id	name	hostel_id	cost	gender	img	Capacity
<input type="checkbox"/>	46	Room 101	18	1200	2	0	4
<input type="checkbox"/>	48	Room 102	18	600	2	0	4
<input type="checkbox"/>	49	Room 103	18	1000	2	0	2
<input type="checkbox"/>	50	Room 201	19	600	1	0	4
<input type="checkbox"/>	51	Room 202	19	600	1	0	4

Query results operations: Print | Copy to clipboard | Export | Display chart | Create view

Bookmark this SQL query

Label: Let every user access this bookmark

Bookmark this SQL query

Fig 5.1.4: DIU Facilities database table for hostel room

5.2 Testing Implementation

DIU Facilities is an online website platform which will be used by the students of the institute itself. They will use this platform to access any facility they want from the website directly without going to the campus which is time consuming. As we have almost finished our implementation of the website the final exam awaits for the website which is 'testing'. The development of the web page for DIU Facilities and its supporting infrastructure are included in the scope of this testing activity. The documentation for "DIU Facilities," such as the requirements and design specification or problem statement, will not be tested. Features to be tested:

- Functionality
- Usability
- Coding Standards
- Interface
- Compatibility
- Database
- Security

Test Priorities: The sole purpose of the testing is to overcome all the risks cause damage to the website. That's why we have prioritized the test cases as High, Medium or Low.

Features that will not be tested: The decision of the team is to perform every individual test cases contained in the test plan but if as the time doesn't permit, some of the low priority tests will be dropped from the plan.

Test suspension & testing plan resumption requirements: As we are trying to test a website, the only way that can stop the testing process is when the website becomes unavailable during the testing process. If the testing process is suspended in the midway of testing due to unavailability of the website, testing process will resume after the access to the website is reestablished.

Testing risks and contingencies:

- Testing will be delayed if the website becomes unavailable.
- If there are several flaws or incidents, it becomes functionally impossible to perform all the test cases.
- There won't be enough time to finish all the test cases, and if it doesn't get extended, each test case will be skipped according to priority.

Test Plan

Functionality Test Cases

FC1: High – Checking internal, external, mail and broken links used in the website

FC2: High – Checking data validation and the fields of the forms used in the website

Usability Test Cases

UC1: Low – A user-friendly and easy to use website

UC2: Low – Instructions should be provided

UC3: Medium – Main menu provided into every page

UC4: Medium – Facility page contents should be clear

UC5: Low – Colors used should be viewed by color blind viewers

UC6: High – Site Navigation should be tested

Coding Standards Test Cases

CSC1: High

- Each unit of code must be inherited or copied from the most appropriate object class
- HTML code must obey the World Wide Web Consortium (W3C) standard HTML and validated by the validation service
- Error messages will not describe the internal workings of the program

Interface Test Cases

IC1: High: Application interface check

IC2: High: Web server interface check

IC3: High: Database server interface check

Compatibility Test Cases

CC1: Low: Website should be with any device and can resize itself perfectly

Database Test Cases

DC1: High: Checking error in the queries

DC2: High: Maintaining data integrity

DC3: High: Data retrieved from the website is shown accurately on front- end

Security Test Cases

SC1: High – Testing unauthorized access to secure pages that should not be permitted

SC2: High – Testing log in and registration page

SC3: High – Testing web directories

SC4: High – Monitoring log files

SC5: High – Checking whether sessions are killed after user inactivity

5.3 Testing Results and Reports:

After creating test cases for the website we have tested all the high prioritized test cases have generated reports for those tested test cases. The reports are given as a table below for the tested test cases:

Functionality Test Report

Table 4: DIU Facilities functionality test report table

Test case Id	Test Actions & description	Outcome	Comment
FC1	<ul style="list-style-type: none">- Engaging outgoing links from all the pages to a specific domain- Engaging links to jump on same pages- Engaging all internal links- Engaging links to send emails to admin or other users from web pages	All test actions are Working	Passed

FC2	<ul style="list-style-type: none"> - Give default values in the form fields to check validation - Put wrong inputs in the form fields to check validation - Engage options to create forms 	All test actions are Working	Passed
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Usability Test Report

Table 5: DIU Facilities usability test report table

Test case Id	Test Actions & description	Outcome	Comment
UC6	- Menus, buttons and links to different pages	Visible and Consistent	Passed
UC4	- Facility and other web page content creation	Legible and no grammatical errors	Passed

Coding Standards Test Report

Table 6: DIU Facilities coding standard test report table

Test case Id	Test Actions & description	Outcome	Comment
CSC1	Source Code Validation	Each unit of code is an inherited or copied from the most appropriate object class and HTML code obeys the World Wide Web consortium (W3C) standard HTML and validated by the validation service	Passed

Interface Test Report

Table 7: DIU Facilities interface test report table

Test case Id	Test Actions & description	Outcome	Comment
IC1	- Facility choose action, edit profile, book foods or rooms requests	Requests sent correctly to the database and output is shown at the client side	Passed
IC2	- Web server request service	Handling all requests without any service denial	Passed
IC3	- Applying queries to the database server	Gives expected results	Passed

Database Test Report

Table 8: DIU Facilities database test report table

Test case Id	Test Actions & description	Outcome	Comment
DC1	- Executing different queries	Gives expected results	Passed
DC2	- Create, delete and update data	Maintains data integrity	Passed

DC3	- Fetch test data from the database to show on front end	Data shown accurately	Passed
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Security Test Report

Table 9: DIU Facilities security test report table

Test case Id	Test Actions & description	Outcome	Comment
SC1	- Pasting internal URL directly into the browser address bar without login	Internal pages didn't open	Passed
SC2	- Putting invalid inputs in input fields such as username, password, input text boxes	Error messages are shown 'Username or password doesn't match'	Passed
SC3	- Attempting to download or access files from web directories without permission	Cannot attempt such action	Passed
SC4	- Attempting some test transactions, error messages and security breach	Attempts are Saves on web server log files	Passed
SC5	- Creating user sessions and suddenly go inactive and then try to go to that session again	Sessions are killed after the inactiveness of the user	Passed

CHAPTER 6

IMPACT ON SOCIETY, ENVIRONMENT & SUSTAINABILITY

6.1 Impacts on Society

Education is the foundation of a nation, as we all know. It is a potent change agent that enhances livelihoods and health, promotes social stability, and builds a peaceful country. There are no restrictions on what an educational institution can accomplish today in terms of sharing knowledge and education. Universities assist students in acquiring the information and skills necessary for future jobs. It is a key player as leaders in education, research, and technology as well as in teaching and learning. One of such institutions that has consistently adhered to its commitment to student development in order to create a better society is Daffodil International University.

Students can significantly contribute to the development and enlargement of society. We stand stronger together than apart, and that is a basic reality. The pupils are a member of the society, which is a representation of that shared existence. As a result, people of all ages and occupations should try their best to assist the community. So to make the society better the students that educational institutes are raising should be healthy, intelligent and well educated. To do this, the institutions must take care of the students by giving them facilities to ease their hard work to future. ‘Daffodil International University’ has been continuously thinking and inventing new facilities which they can give to the students to make their university life better. In this situation, our project will bear a great responsibility. It will help as a bridge between the students and the facilities that are the university is trying to give them. By using our system, students will be able to use the facilities of the university easily which will help their universities four year journey easier. Then, the university will be able to raise more healthy, educated and intelligent students which will be the key to create a better and peaceful society.

6.2 Impacts on Environment

Website’s Carbon Footprint: The invention of technology is good or bad has always been a controversy depending on the environment. According to Website Carbon, which is an online carbon calculator the typical website emits 1.76g of CO₂ for every page view, or 2,112kg of CO₂ annually, for every 100,000 page views. A website's

energy consumption and environmental effect increase with its complexity. To put this into perspective, consider that the internet accounts for 4% of all greenhouse gases and is the world's seventh-largest emitter of CO₂ emissions.

As we will be running a website we have to make sure our website is a Green Website which means we have to keep limit to the Website's Environmental Footprint. To do this we have took the below steps:

- We have compressed and reduce the images to rescue server space
- We have trimmed clunky javascript, which increased the website loading speed.
- We have kept our website scripting in order and the code limited as it takes energy to run applications and transmit data, so inefficient and bloated code can add up to a significant environmental impact.
- We have ensured that our website is optimized and easy to use which will help direct users straight to the content they are looking for without needlessly browsing other pages saving energy on server interaction.

6.3 Ethical Aspects

The design and implementation of our project has been done within moral and ethical practices. No dishonest and irrelevant subjects or products has been shown or used in the project development.

- We have make sure to keep the data privacy of the user and institute safe by using https, respecting user tracking preferences, provided user with clear confirmation about how their information is used.
- We have designed the website within design ethics maintaining contents plain English and easy to understand without sneaky tricks.
- We have used fonts that are easy to read for individuals with visual impairment.
- We have kept the color simple keeping individuals with color blindness in mind.
- The whole idea, features and code behind is done by us.

6.4 Sustainability Plan

We have worked on this project in order to help 'Daffodil International University' to manage some of the facilities which will be able to help the students throughout their university life. Now to make our project sustainable we had to make sure who our community is and are we making our community happy with our project. The project

is to help in advertising 'Daffodil International University' and the facilities they are giving. So there is no financial sustainability here.

So, the community our team is dealing with are the students and authorities of 'Daffodil International University'. To make them happy we have to make sure our project is giving them what they have hoped for and new things to make the project livelier every day.

- We will evaluate customer reviews to check if anything they want more or something needs to be changed.
- We will make sure our system has the capability to adapt efficiently fast enough to changing circumstances.
- Continuous updates and new facilities will be added to the website in the near future.
- We will evaluate the future facilities that the university will give the students or any changes into the facilities has been done so that we can change upon their requests.
- The booking system for the hostel and foods will be evaluated regularly so that we can make them better in the future.

CHAPTER 7

CONCLUSION & FUTURE SCOPE

7.1 Discussion & Conclusion

After implementing, analyzing and testing we have officially finished creating ‘DIU Facilities’. After the release of our website with proper restrictions and rules we will be able to help thousands of students of ‘Daffodil International University’ with the facilities the university is giving them. Our website will act as the bridge between the university and students. The university will be able to create more facilities and our website will be helping the university to deliver those facilities to the students. The university authorities will be able to easily maintain the hostel booking process now. The canteen owners will be able to manage orders through phone which was not possible earlier. This project will make the university life of students easier. There will be much more room to grow this system adding new facilities whenever the authorities wants which will be a great asset for the university.

7.2 Scope for Further Developments

- We have worked with some of the facilities that ‘Daffodil International University’ is giving. In the future we will be adding more of the facilities that the institution is offering next.
- For the transport facility, we have only gave information about the routes, drivers and schedule. In the future we will add bus tracking system on each bus so that students can see though map where the current bus are at.
- We will also add ticket system for the transport system.
- In future, canteen foods will be delivered in the hostels around campus or outside.
- Online medicines delivery system from the pharmacies is another vision we are thinking of.

References

- [1] BLOG, available at << <https://elementor.com/blog/website-legal-requirements/>>>, last accessed on December 2022, 3.30 pm
- [2] MbSoft, available at << <https://mobisoftinfotech.com/resources/blog/web-development-challenges/>>>, last accessed on December 2022, 3.40 pm
- [3] Creativebloom, available at << [https://www.wired.co.uk/article/internet-carbon-footprint](https://www.creativebloomrocks.com/marketing-blog/impact-of-websites-on-the-environment#:~:text=The%20use%20of%20the%20internet,of%20CO2%20in%20the%20environment.>>, last accessed on December 2022, 3.50 pm[4] Wired, available at << >, last accessed on December 2022, 4.10 pm
- [5] Ethicalweb, available at << <https://www.ethicalweb.org>>>, last accessed on December 2022, 4.20 pm
- [6] Expertmarket, available at << <https://www.expertmarket.com/uk/web-design/ethical-responsibilities-web-developers-have>>>, last accessed on December 2022, 4.30 pm
- [7] Fastercapital, available at << <https://fastercapital.com/technical-startup-web-design.html>>>, last accessed on December 2022, 5.00 pm
- [8] PHP, available at << <https://www.php.net/download-logos.php>>>, last accessed on December 2022, 5.00 pm
- [9] Font Awesome, available at << <https://fontawesome.com>>>, last accessed on December 2022, 5.00 pm
- [10] Google Fonts, available at << <https://fonts.google.com/knowledge>>>, last accessed on December 2022, 5.00 pm
- [11] W3school, available at << <https://www.w3schools.com/php/>>>, last accessed on December 2022, 5.00 pm
- [12] W3school, available at << <https://www.w3schools.com/html/>>>, last accessed on December 2022, 5.20 pm
- [13] W3school, available at << <https://www.w3schools.com/css/>>>, last accessed on December 2022, 6.00 pm
- [14] W3school, available at << <https://www.w3schools.com/bootstrap/>>>, last accessed on December 2022, 5.00 pm
- [15] Wikipedia, available at << https://en.wikipedia.org/wiki/Web_page>>, last accessed on December 2022, 7.00 pm

[16] Wikipedia, available at << <https://en.wikipedia.org/wiki/Website>>>, last accessed on December 2022, 7.00 pm

[17] Wikipedia, available at << <https://en.wikipedia.org/wiki/SQL>>>, last accessed on December 2022, 7.00 pm

[18] Wikipedia, available at << <https://en.wikipedia.org/wiki/SQL>>>, last accessed on December 2022, 7.00 pm

[19] Daffodil International University, available at << <https://daffodilvarsity.edu.bd>>>, last accessed on December 2022, 7.00 pm

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