

A WEB APPLICATION ON DIU AIR ROVER SCOUT GROUP

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This Report Presented in Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science in Computer Science and Engineering

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APPROVAL

This Project titled “DIU AIR ROVER SCOUT GROUP WEB APPLICATION”, submitted by Nur Mohammed to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 29-01-2023.

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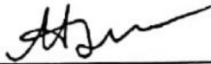
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DECLARATION

I hereby declare that this project has been done by me under the supervision of **Md. Abbas Ali Khan, 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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ABSTRACT

Scouting, also known as the Scout Movement, is a worldwide youth movement employing the Scout method, a program of informal education with an emphasis on practical outdoor activities, including camping, woodcraft, aquatics, hiking, backpacking, and sports. Daffodil International University has had a Rover Scout Group under the Air Region since 2011. But the official website is not sufficient for students to meet their queries to join the group. This website will help to learn more about Daffodil International University Air Rover Scout Group and will make the joining process easier. I have been an active member of Daffodil International University Air Rover Scout Group since 2018. I have developed this Website because sometimes due to lack of information and proper way to contact, students couldn't join this voluntary organization. Some of the students don't even know what actually can be done through scouting. Also they should know the success stories of the Rover Scouts. Our hon'ble Chairman Dr. Md. Sabur Khan Sir is also a scout since his school life. I'm saying 'is', because once a Scout is always a scout. Students should know the positive things and if anyone likes it they can join this voluntary, non-political organization. The application can be further extended in the future using Web Programming.

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CHAPTER 1

INTRODUCTION

I'll start off this chapter with an introduction to my project, then go on to the motivation, problem description, anticipated results, and report format.

1.1 Introduction

The Scout method, a program of informal education with a focus on practical outdoor activities including camping, woodworking, aquatics, hiking, backpacking, and sports, is used by the international youth movement known as Scouting, sometimes known as the Scout Movement. Daffodil International University has had a Rover Scout Group under the Air Region since 2011. But the official website is not sufficient for students to meet their queries to join the group. This website will help to learn more about Daffodil International University Air Rover Scout Group and will make the joining process easier. I have been an active member of Daffodil International University Air Rover Scout Group since 2018. I have developed this Website because sometimes due to lack of information and proper way to contact, students couldn't join this voluntary organization. Some of the students don't even know what actually can be done through scouting. Also they should know the success stories of the Rover Scouts. Our hon'ble Chairman Dr. Md. Sabur Khan Sir is also a scout since his school life. I'm saying 'is', because once a Scout is always a scout. Students should know the positive things and if anyone likes it they can join this voluntary, non-political organization. The application can be further extended in the future using Web Programming.

To make this project, I have studied related work of Web Design & Development application. I also have analysis about some registration portals in Bangladesh, for scouting purposes. Technically, I have learned HTML, CSS, JavaScript, Bootstrap, MySQL, Oracle Database Management by doing this project.

1.2 Motivation

When I was admitted to Daffodil International University, I saw Rover scouts during our foundation day. I felt interested in joining them. But when I visited the official website, I was disappointed. Because there was not sufficient information to represent why should anyone join Scout? As I was a scout since my school life, I already knew about it. But the

newcomers may lose their interest to join this very positive voluntary, non-political organization just because of a lack of proper representation. So, I have developed & designed this website so that students can easily get motivated about Scouting. Instead of electronic addiction, they could live a sound life by involving themselves in voluntary & self development works.

1.3 Objectives

- Representing Scouting, specially Daffodil International University Air Rover Scout Group
- Make the joining procedure easier
- Make the contacting procedure easier

1.4 Expected Output

- Students can know easily about Daffodil International University Air Rover Scout Group
- They can done the primary joining process easily
- The success story of Daffodil International University Air Rover Scout Group will spread worldwide if it can be merged with the official website of Daffodil International University Air Rover Scout Group

1.5 Report Layout

This report is divided into six chapters. The chapters are summarized below:

- (i) The first chapter provides an overview of my project and the inspiration for it. Here, objectives and projected results are also provided.
- (ii) The problems of my endeavor are discussed in chapter two, along with some prior comparable initiatives and a survey of the literature.
- (iii) The use case design is primarily covered in Chapter 3 along with the project's design criteria.
- (iv) The design specification for the front-end and back-end designs, together with my implementation needs, is in chapter four.
- (v) The specifics of my project's implementation and testing are covered in Chapter five.
- (vi) The last chapter, chapter six, contains the project's conclusion and its potential futures.

CHAPTER 2

LITERATURE REVIEW

I will provide an overview of the data I have learned regarding student enrollment and various clubs in this chapter, followed by some illustrations of relevant work done in this area. I also talk about the difficulties I had and how I overcame them.

2.1 Introduction

I've suggested the "AN WEB APPLICATION ON DIU AIR ROVER SCOUT GROUP" webpage. It is a website that draws visitors and is based on the internet. I'll attempt to make it a responsive website in the future. An online presence consists of a number of web sites and related material. I read a piece of writing. Regardless of the target object, we should take the following general factors into account when grading usability (or designing for high usability):

- Could everyone (i.e., every person in the target user base) utilize the product for what it was designed for?
- Could they easily operate it?
- Does it negatively impact the (primary) activity in any other manner or does it only slow it down?
- Does the "usability approach" in any way advance the (primary) objective?

These are universal usability characteristics, therefore they apply to website usability just as much as, for example, the design of a kettle or a fan heater,[1].

I have also studied the literature of Renza Campagni, Donatella Merlini, Renzo Sprugnoli (Department of System & Information) on Analyzing paths in a student database,[2]. It helps me to manage the data of students after registration.

2.2 Similar Works:

There are a few websites available regarding this concept. I have studied these websites. Here, I talk about the most useful Website and similar to my application,[3].

Dhaka University Rover Scout

‘Dhaka University Rover Scout Group’ is one of the best Scout groups in Bangladesh. They actively participate in many volunteer activities. Their website has 6 webpages named: HOME, ABOUT US, OUR ACTIVITIES, BLOG, PAGES, PEOPLE. But It is a matter of sorrow that none of them are updated nor working properly. But a glance of their activities

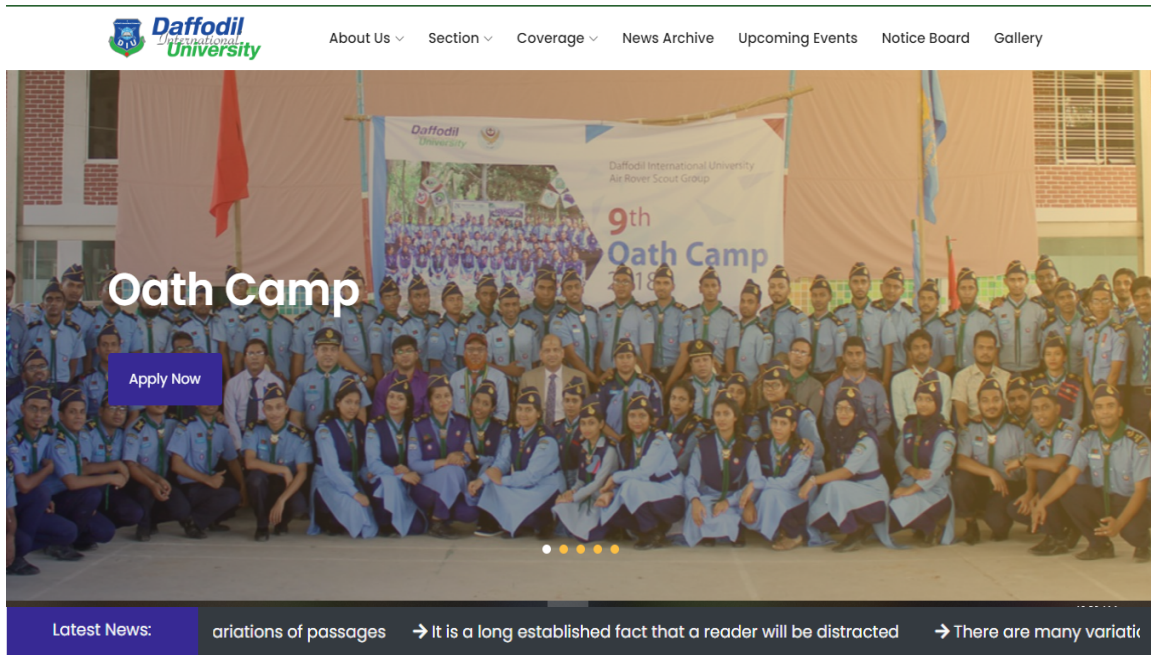
is shown on their home page. But there is no way to register online.



Fig. 2.1: Home Page of Dhaka University Rover Scout Group

Daffodil International University Air Rover Scout

Daffodil International University Air Rover Scout group, [4] has their official website. The website is nicely decorated & designed. The website has 7 webpages: About Us, Section, Coverage, News Archive, Upcoming Events, Notice Board, Gallery. Each page is wonderfully designed. But there is a lack of proper information.



About Us

There are more than 28 million Scouts, young people and adults, male and female, in 160 countries and territories. Some 300 million people have been Scouts, including prominent people in every field. This is impressive considering that Scouting began with 20 boys and an experimental camp in 1907. It was held during the first nine days of August in 1907 at Brownsea Island, near Poole in Dorset, England. The camp was a great success and proved to its organiser, Robert Baden-Powell, that his training and methods appealed to young people and really worked.



Fig. 2.2: Home Page of Daffodil International University Air Rover Scout

But most of them are blank. In fact There is no registration form. So, students face difficulties to find the respective person for joining.

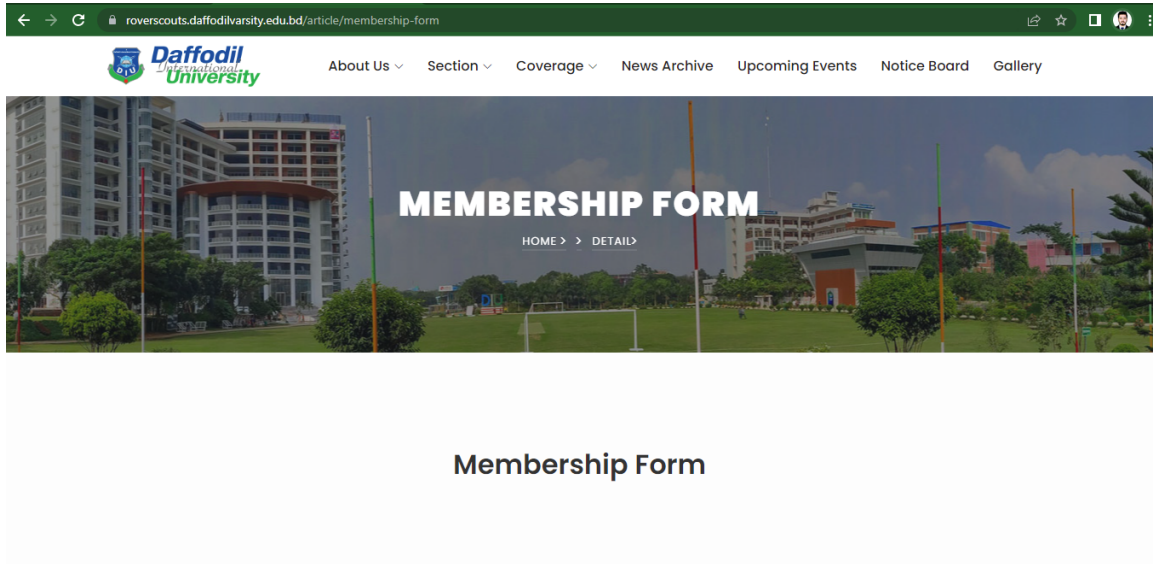


Fig. 2.3: Membership form of Daffodil International University Air Rover Scout

2.3 Comparative Study

I have studied some websites regarding the concept of Student registration.. Most of them are developed and designed finely. None of them use a registration form and proper guideline to join the group. It will take time to find a contact person & know the procedure to join. But my website has the proper registration form & contact information.

2.4 Scope of the Problem

My website has several unique characteristics that set it apart from other sites and offer solutions to issues. One or more unique elements of my application are:

- Specific registration form
- Proper representation of Scouting activities
- Proper guideline for joining
- Updated Notice & Events pages
- Easy to find contact information
- UI design that is easy to use
- High performance and rapid loading.

2.5 Challenges

I encountered a few difficulties as this project progressed through its various stages. I was able to triumph over such difficulties. My struggles included:

- Making a real-time database has presented hurdles for me. Google Firebase has helped me overcome this obstacle.
- It was difficult for me to design and build a user-friendly, interactive user interface utilizing HTML, CSS, JavaScript, and Bootstrap.
- Using HTML, CSS, JavaScript, and Bootstrap to create a dynamic, user-friendly user interface was challenging for me.
- Using PMIS, timelines, requirements analysis, the quality of the code, performance, and system effectiveness were some additional frequent problems.

CHAPTER 3

REQUIREMENTS SPECIFICATION

I'll go through every prerequisite that will be necessary to finish the suggested system in this chapter. Use the case diagram and explanation; the chapter's other criteria are covered.

3.1 Use Case Model

A use case diagram displays all of a system's activity flows as well as its major and secondary users. Whereas secondary users are inventions based on technology and main users are often human users.

The use case diagram is attached.

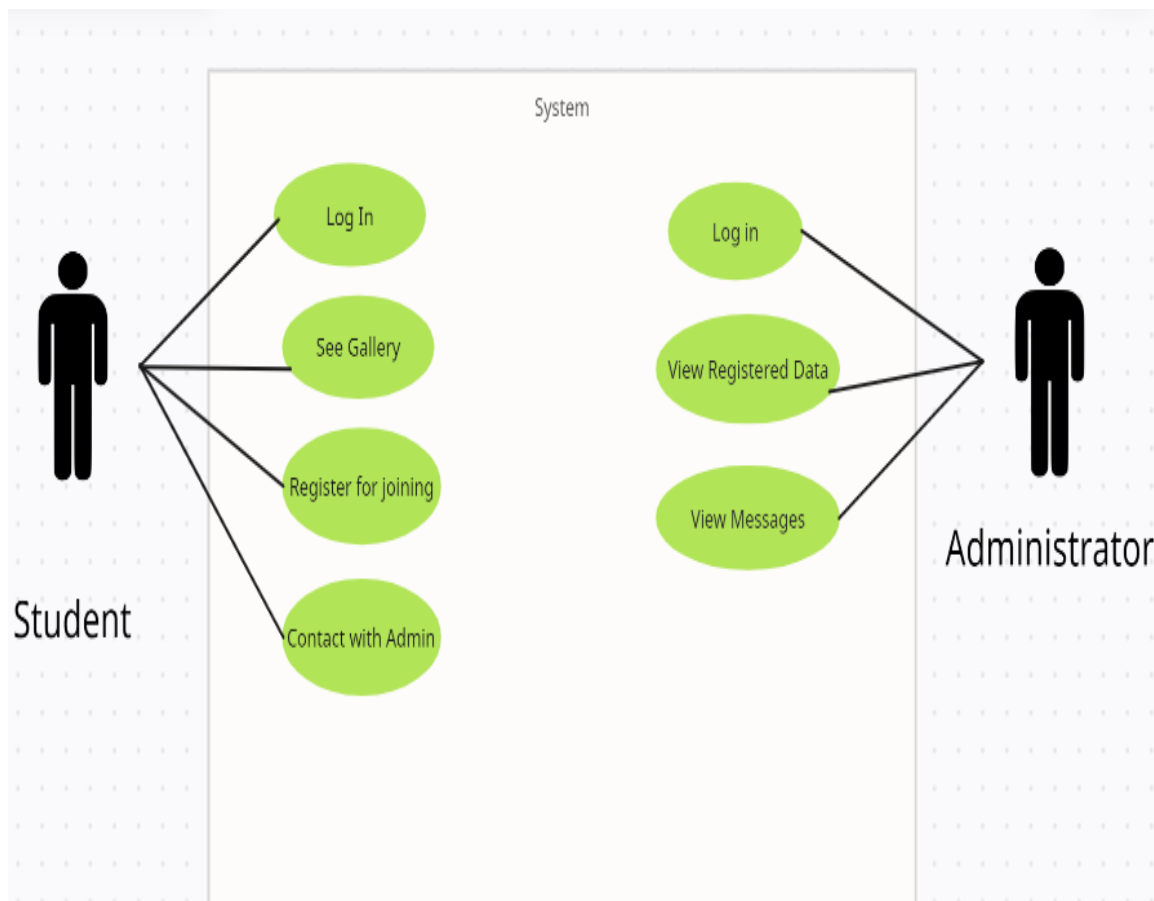


Fig. 3.1: Use case Diagram

3.2 Use Case Description

To make the actions shown in the use case diagram clearer, use case descriptions are created. The use case description explains the preconditions and postconditions of an action that is executed. An explanation of my suggested system's use cases. With their student portal login information, only DIU students may log in. They can send messages to the administration and register for membership.

Table 3.1: Description of Use Case for Student

Use case	Login
Primary Actor	Student
Secondary Actor	Server
Actor's Goal	To register for joining
Pre-condition	Provide registered phone number & Email
Post condition	Registration Done

Administrators can view the joining data. Also can view the data filtering by date.

Admins can view the messages sent by the students.

Table 3.2: Description of Use Case for Admin

Use case	Login
Primary Actor	Admin
Secondary Actor	Server
Actor's Goal	To see the registration for joining
Pre-condition	Provide registered id & password
Post condition	View data

3.3 Design Requirements

Design requirement for Student

- See history of DIU Air Rover Scout Group
- Can watch photo gallery
- Need to be a student of DIU bearing a valid ID
- Need to have a valid mobile number & email address of DIU

CHAPTER 4

DESIGN SPECIFICATION

4.1 Front-end Design

The user interface is created using front-end design. Users can only see the front-end design when they launch the program. Therefore, user-friendly and straightforward front-end design is necessary to draw in users. As a result, I worked to make my front-end design as user-friendly and straightforward as I could.

JavaScript, HTML, CSS, and PHP are the key languages used in the front-end design of my project (Hypertext Preprocessor). I have used Adobe Photoshop too.

HTML : Hyper Text Markup Language

The preferred markup language for content intended to be read in a web browser is called Hypertext Markup Language (HTML). Scripting languages like JavaScript and technologies like cascading style sheets (CSS) can support it. The web browser converts an HTML file into a multimedia web page after receiving it from a web server or local storage. HTML originally contained suggestions about the look of the content and semantically explains the structure of a web page.

A part of an HTML page is the HTML element. Other items, such as graphics and interactive forms, can be included in the produced page using the HTML framework. By displaying the structural semantics of text components like headers, paragraphs, lists, links, citations, and other elements, HTML offers a mechanism to build organized texts. Tags contained in angle brackets are used to divide HTML components,[5].

Adobe Photoshop:

For macOS and Windows, Adobe Systems has created and released Adobe Photoshop, a raster graphics editor. Thomas and John Knoll invented Photoshop in 1988. Since then, it has emerged as the de facto industry standard for raster graphics manipulation, with phrases like "to Photoshop a picture," "photoshopping," and "photoshop contest" using the word "photoshop" as a verb even though Adobe opposes use. It supports masks, alpha compositing, and a variety of color models, including RGB, CMYK, CIELAB, spot color, and duotone. It can also edit and composite raster pictures in several layers. Although Photoshop utilizes its own PSD and PSB file formats, which allow all the aforementioned functions, it also has extensive compatibility for other graphic file types. It can only partially edit or render text,

vector graphics (particularly by clipping path), 3D graphics, and video in addition to raster images. Photoshop plug-ins, applications created and released separately from Photoshop that may operate inside of it and give new or improved functionality, can expand its feature set.

4.2 Back-end Design

The server, application, and database's operation, upkeep, and maintenance are essentially handled by the back-end design. The end consumers are not able to see it. However, it functions to support the application's front end. Therefore, the most crucial aspect of a project is back-end design. XAMPP on Windows, JQuery, Apache, phpmyadmin, and MySQL were used to create the website. It was running Windows 8.1.

JQuery:

jQuery is a JavaScript library created to make event handling, CSS animation, Ajax, and DOM tree navigation and manipulation easier. It is open-source software that is available for free under the MIT License. As of May 2019, 73% of the top 10 million websites utilize jQuery,[6].

phpmyadmin:

Free PHP-coded program called phpMyAdmin is designed to manage MySQL administration on the Internet. Numerous MySQL and MariaDB operations are supported by phpMyAdmin. While you can still directly execute any SQL command, you may perform frequently used actions (managing databases, tables, columns, relations, indexes, users, permissions, etc.) via the user interface.

Users are invited to amend our wiki pages to offer thoughts and how-tos for different procedures, and phpMyAdmin comes with a wealth of documentation. If you encounter any issues, the phpMyAdmin staff will make every effort to assist you; you may seek assistance through a number of support channels..

The book Mastering phpMyAdmin for Effective MySQL Management, published by one of the developers, has extensive documentation on phpMyAdmin and is available in English and Spanish.

phpMyAdmin is being translated into 72 languages and supports both LTR and RTL languages to make it easier for a variety of users to use,[7].

In addition, PHP may be used for a wide range of programming activities outside the context of the web, including the operation of robotic drones and standalone graphical apps. Additionally, the command line may be used to execute PHP code directly.

XAMPP Server:

The Apache HTTP Server, MariaDB database, and interpreters for scripts written in the PHP and Perl programming languages are the core components of XAMPP, a free and open-source cross-platform web server solution stack bundle created by Apache Friends. Updates to the most recent versions of Apache, MariaDB, PHP, and Perl are routinely applied to XAMPP. A lot of other modules are included with it as well, such as OpenSSL, phpMyAdmin, MediaWiki, Joomla, WordPress, and more. On a single computer, XAMPP may run independently in numerous instances, and each instance can be transferred from one machine to another. There is a complete version and a standard version of XAMPP available (Smaller version),[8].

4.3 Interaction Design and UX

A crucial component of the vast field of user experience (UX) design is interaction design. User experience (UX) design focuses on developing products that offer meaningful and personally relevant experiences, whereas interaction design explicitly explores the interaction between a system and its users through an interface. the act of making. It could also incorporate design, a subset of "information design" that focuses on how information is displayed in such systems so that people can comprehend it. also frequently recognized as Our software is really engaging. The UI of this program has been designed to be highly user-friendly and easy to grasp.

4.4 Implementation Requirements

I employed a variety of tools, qualities, and components to properly create my website, which was a huge benefit to us. I must keep every piece of equipment and component in C-Drive according to the implementation criteria.

Chapter 5

IMPLEMENTATION AND TESTING

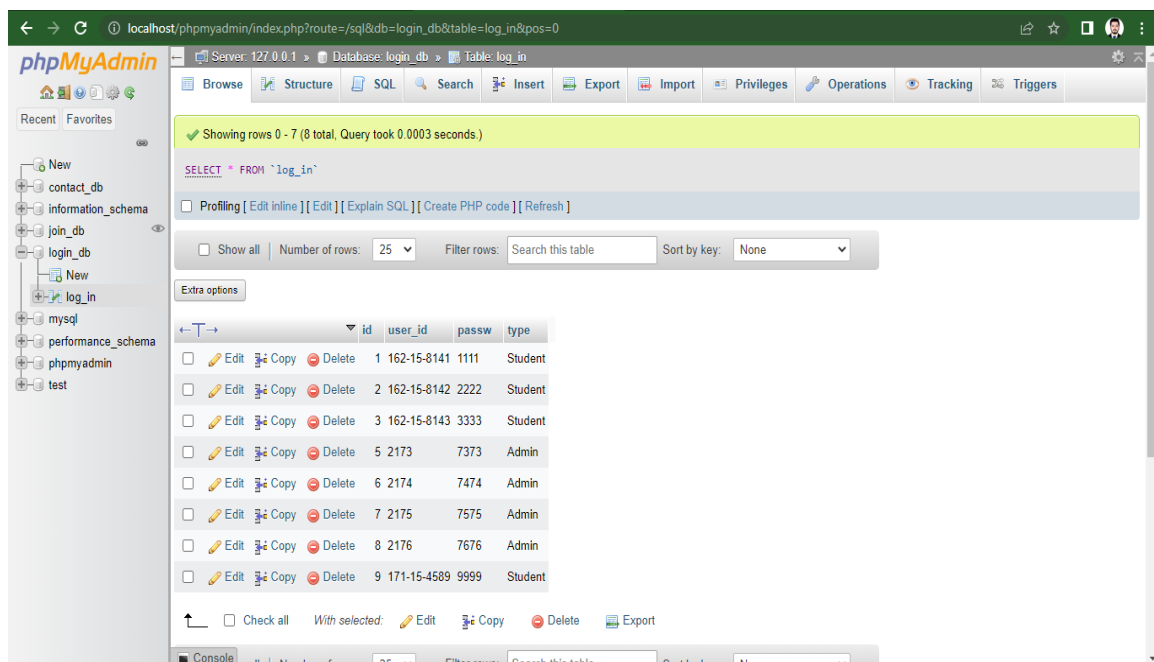
I will provide a sample implementation of my idea in this chapter and assess the project as a whole for efficiency.

5.1 Implementation of Database

A database management system is installed by developers during the implementation process (DBMS). Create the database, load the data into the needed hardware, and tune the database to function optimally with that hardware and software platform. The output data might either be brand-new data that is directly retrieved or old data that is imported from a DBMS. Developers can tailor database security to their needs and offer access to various people that they have identified.

Database Design:

In my web application, I've utilized phpMyAdmin as a data manager to store data. I have used 3 databases named 'login_db', 'join_db' and 'contact_db'. When a user processes to log in the system will check if the login information matches with the data stored in 'log_in' table in the 'login_db' database. If it matches, users can log in to their respected page (Admin/Student).



The screenshot shows the phpMyAdmin interface for the 'login_db' database, specifically the 'log_in' table. The table contains 9 rows of data. The columns are 'id', 'user_id', 'passwd', and 'type'. The data is as follows:

id	user_id	passwd	type
1	162-15-8141	1111	Student
2	162-15-8142	2222	Student
3	162-15-8143	3333	Student
4	5	2173	Admin
5	6	2174	Admin
6	7	2175	Admin
7	8	2176	Admin
8	171-15-4589	9999	Student
9			

Fig. 5.1: log_in table in login_db Database

If the user is a student and the user wants to process a joining request, it immediately checks if the student id & email matches to the student portal data. As I don't have the real student portal database, I have created a demo database with little information & stored it in the 'id_check' table of 'join_db' database.

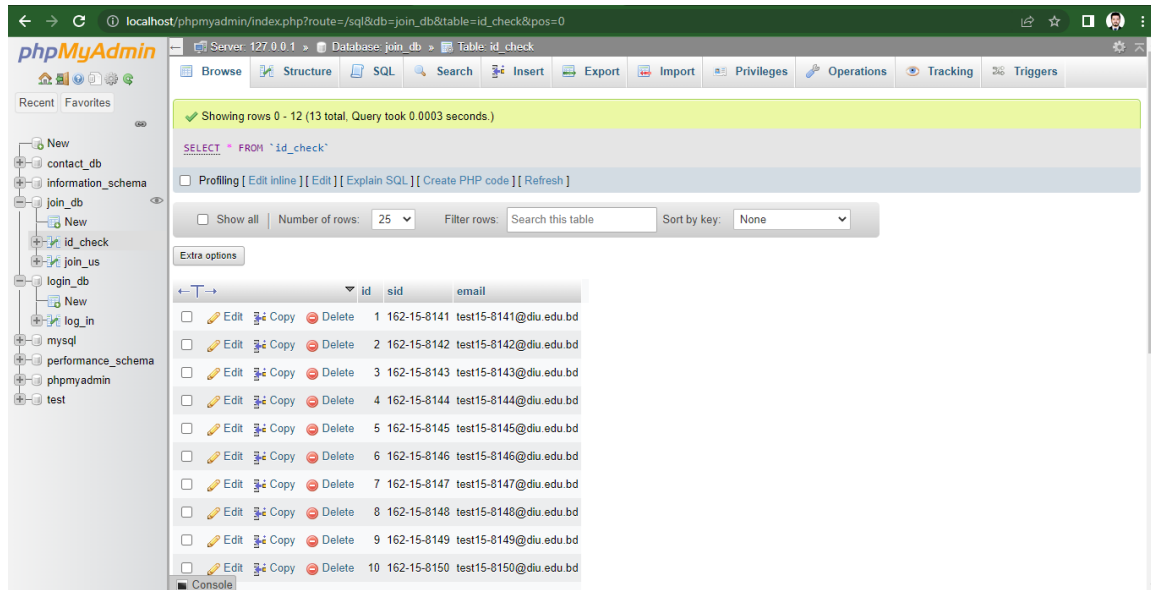


Fig. 5.2: id_check table in join_db Database

After a successful submission of a joining request, the data is immediately stored to the 'join_us' table in 'join_db' database. When the admin wants to view the data of registered students the respective page will fetch data from this database.

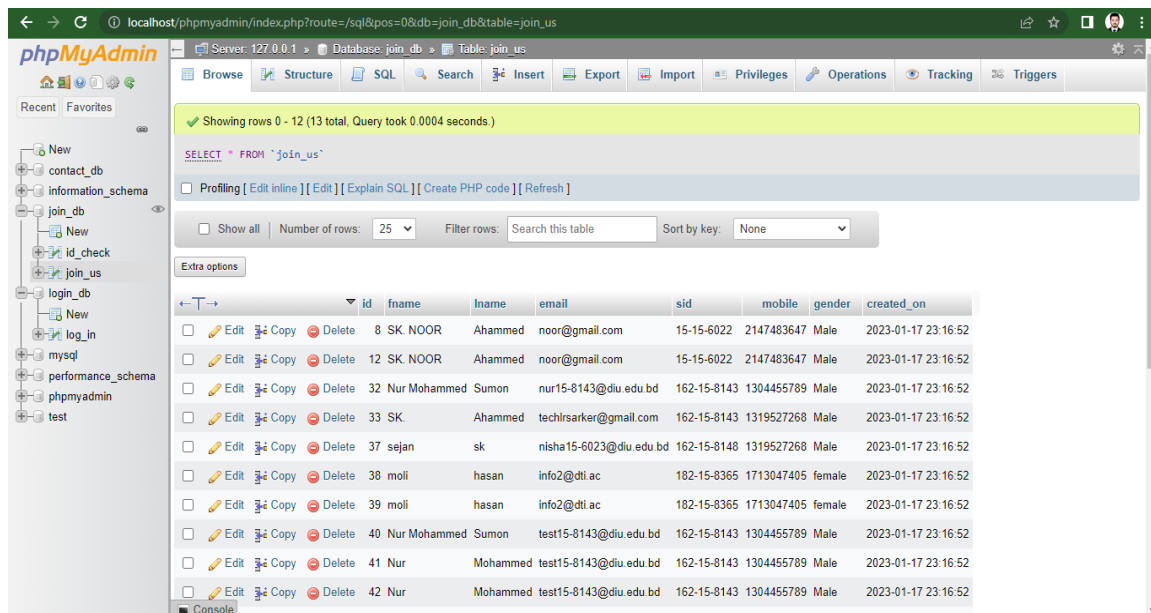


Fig. 5.3: join_us table in join_db Database

If the user is a student and the user wants to send a message to the admin team, he/she fills up the fields in the ‘Contact Us’ page. After a successful submission of a message, the data is immediately stored to the ‘contact_us’ table in the ‘contact_db’ database. When the admin wants to view the data of messages from the students the respective page will fetch data from this database.

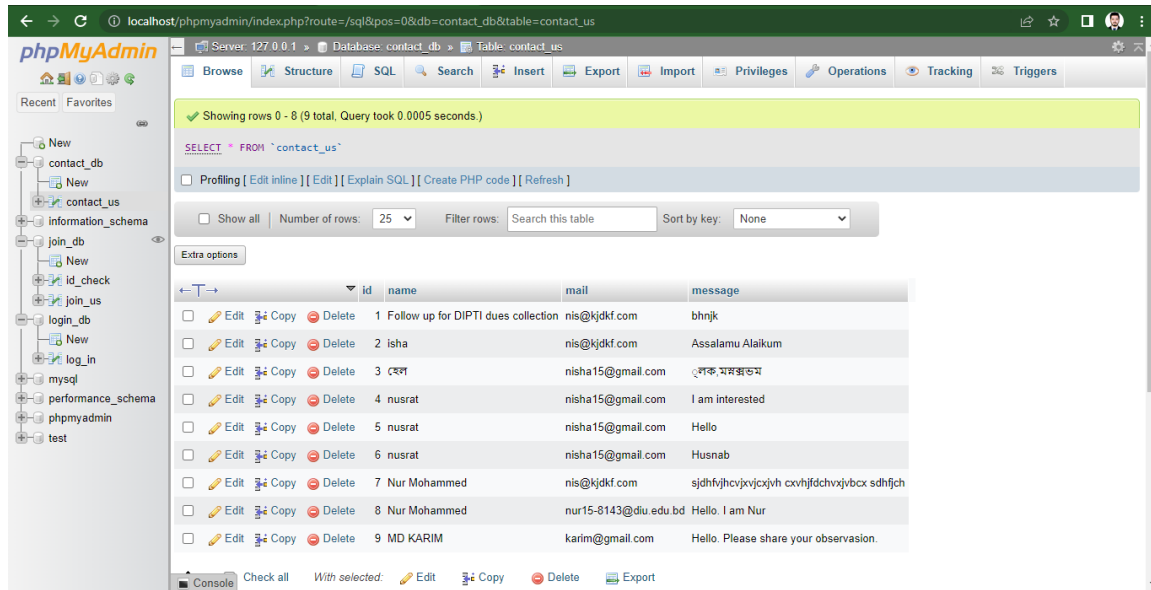


Fig. 5.4: contact_us table in contact_db Database

5.2 Implementation of front-end design

Coming up with a beautiful front-end design that appeals to users has been a real challenge. For interactive design, we have always tried to keep the interface design of our Android application simple and simple, so that any user can easily understand the display of information. Some page users her interface is attached below.

In figure 5.5, I have attached the screenshot of the general home page. This is the starting page of my application with the login system. When a user processes to log in the system will check if the login information matches with the data stored in the ‘log_in’ table in the ‘login_db’ database. If it matches, users can log in to their respected page (Admin/Student). From this page the user will be redirected to the admin page if he/she is an admin and to the student page if the user is a student of Daffodil International University.

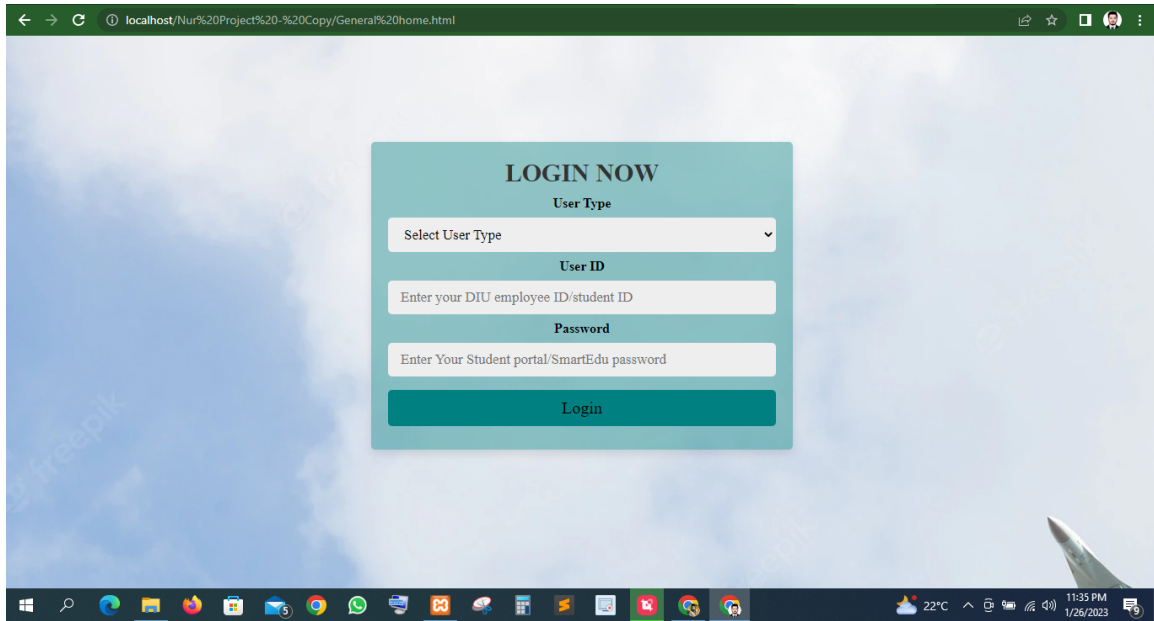


Fig. 5.5 : General Home Page

If the user is a student, he/she can see the home page which is attached to the fig. 5.6.

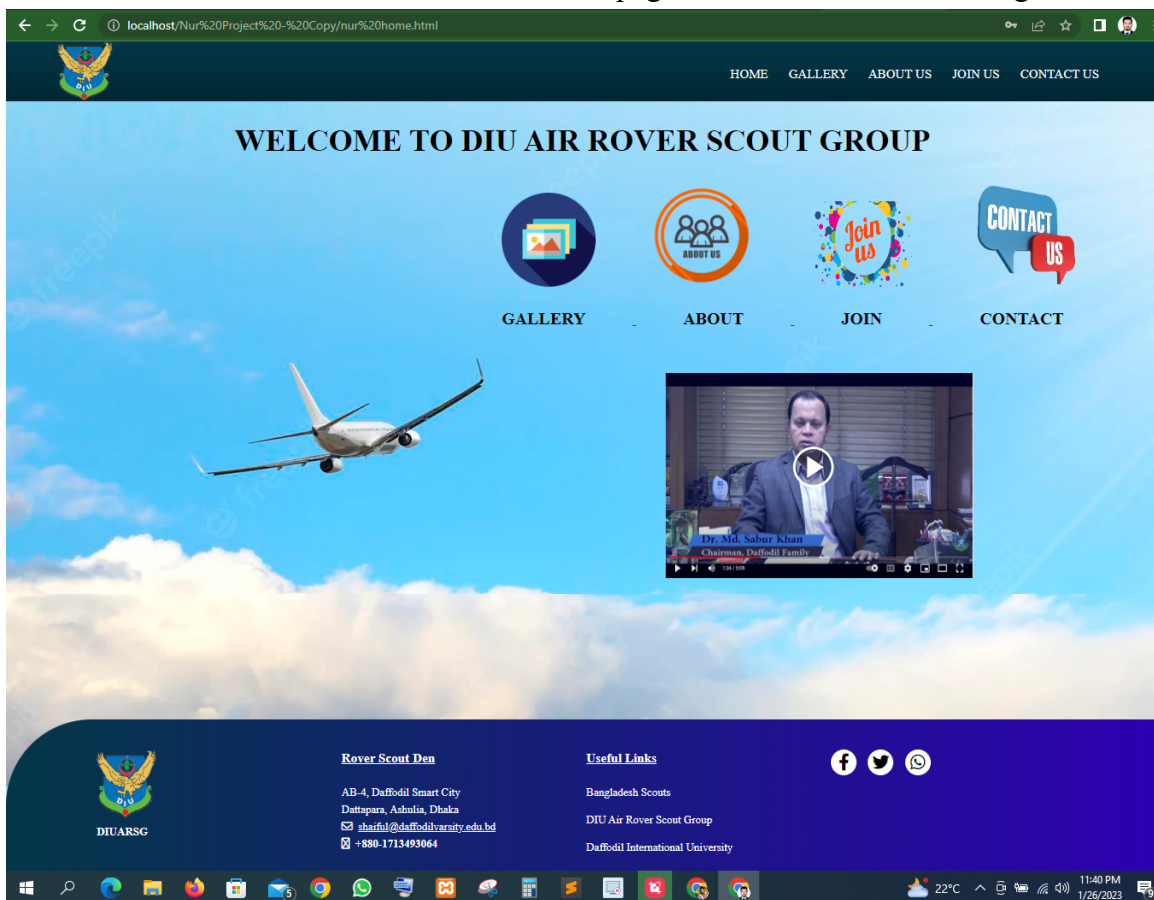


Fig. 5.6 : Student Home Page

Photo gallery page is attached in figure 5.7. From this page one can see the pictures of the activities of Daffodil International University Air Rover Scout group. The top portion will rotate continuously and this makes the page more attractive & unique. Users can view any picture by clicking on picture. I use the hover option so that when a user moves the cursor on any picture it becomes colorful.

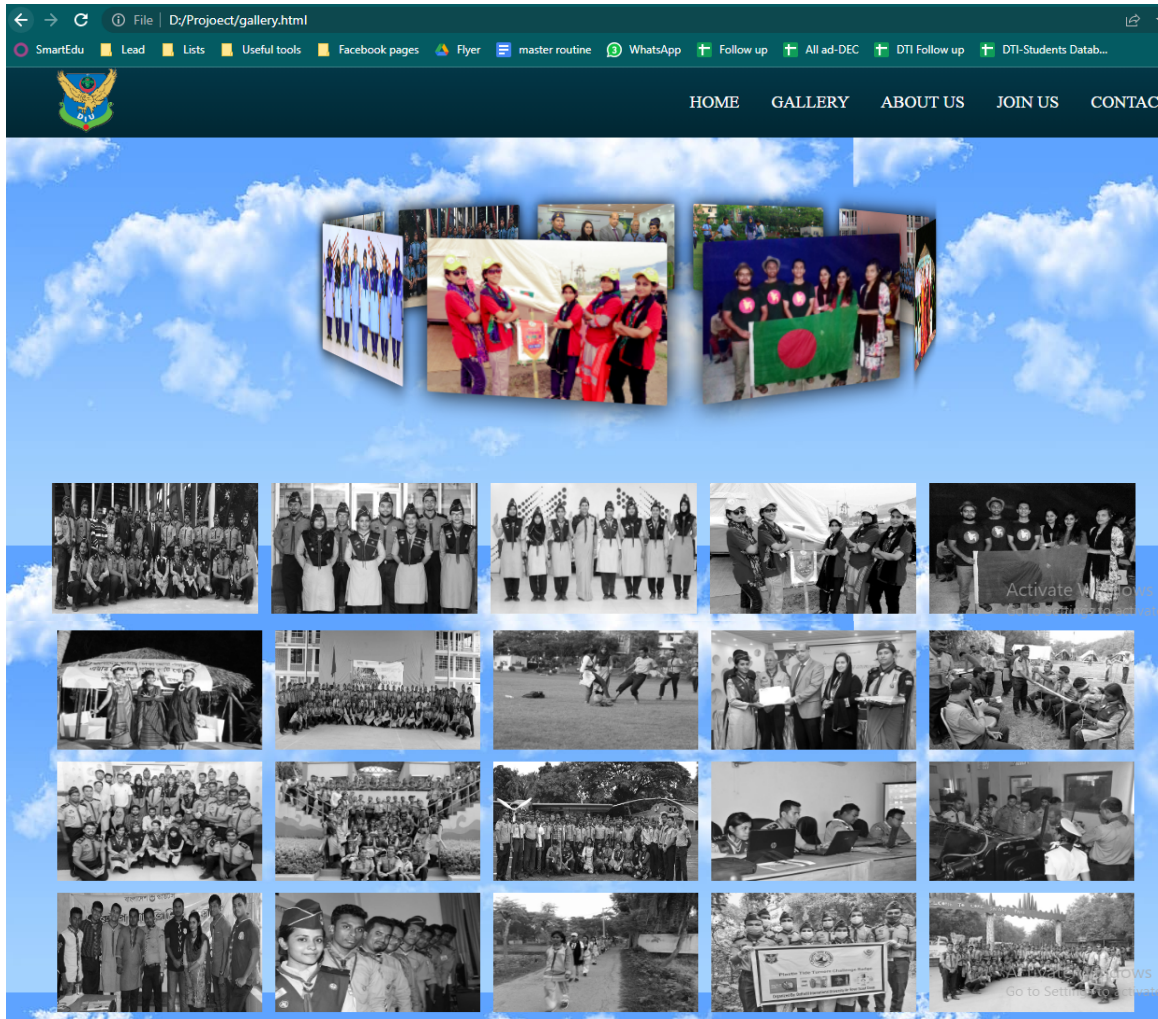


Fig. 5.7 : Gallery Page

In figure 5.8, I have attached the screenshot of the 'About us' page (1st half). Where anyone can know about the special members of DIU Air Rover Scout Group. In the below picture we can get knowledge about the special members of Daffodil International University air rover scout group.



Fig- 5.8: About Us Page (Part-1)

In figure 5.9, I have attached the screenshot of the ‘About us’ page (2nd half). From the picture in figure 5.9, anyone can know about the top management of DIU Air Rover Scout Group.

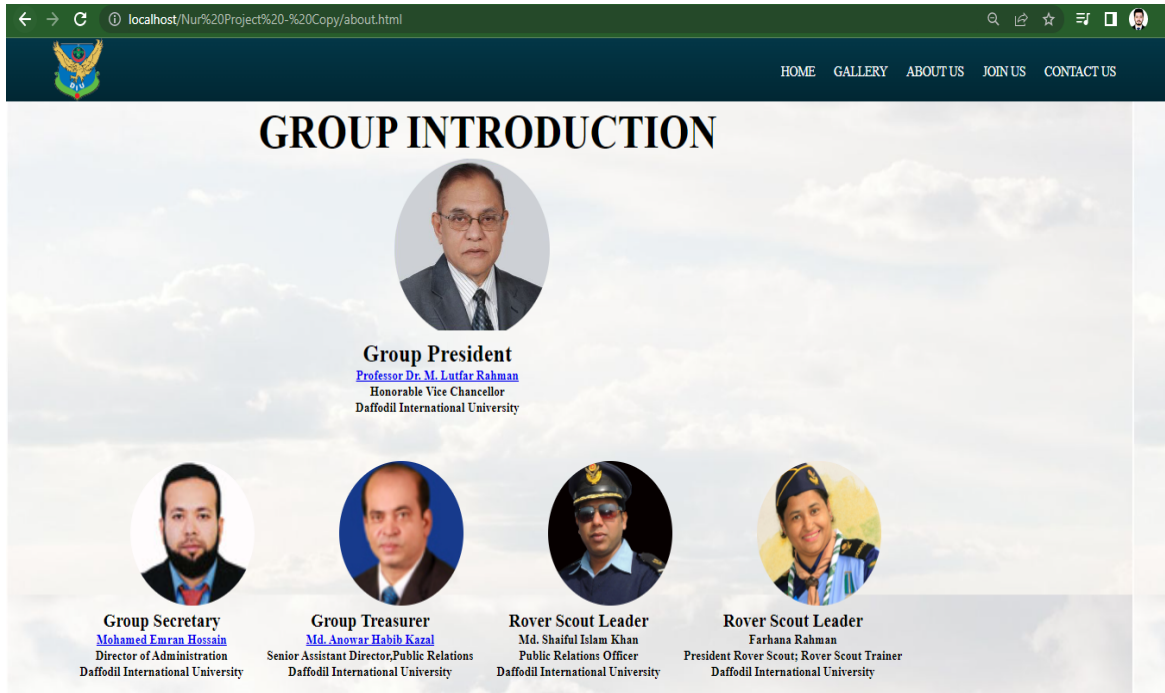


Fig- 5.9: About Us Page (Part-2)

In Figure 5.10 I have attached the ‘Join us’ page. Here a student can apply primarily to register themselves. After filling up the fields, you need to click the submit button.

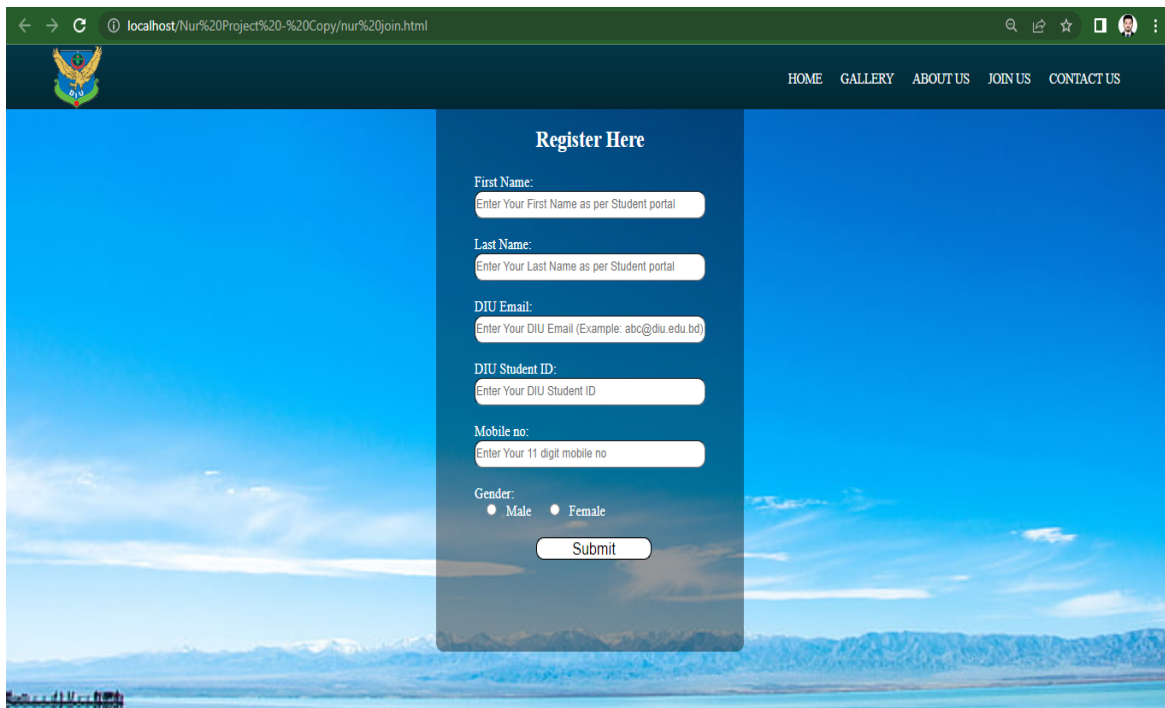


Fig- 5.10: Join Us Page

In Figure 5.11, I have attached the screenshot of the ‘Contact Us’ page. From the page users can redirect themselves to any contact media to contact with DIU air rover scout group.

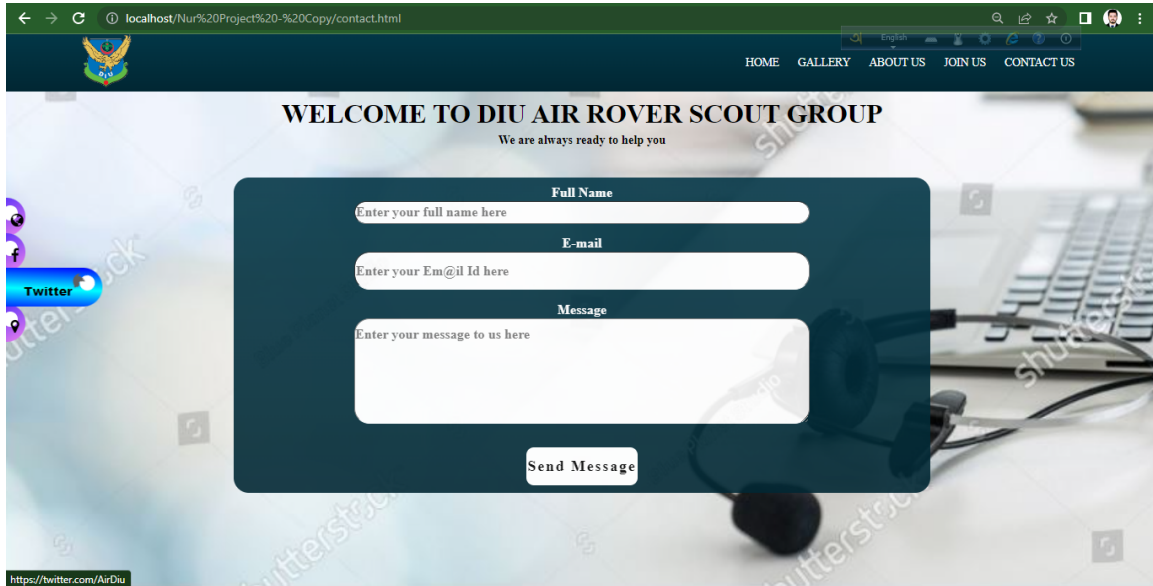


Fig- 5.11: Contact Us Page

For example, when we click on facebook the website redirects us to the facebook of DIU air rover scout group like figure: 5.12.

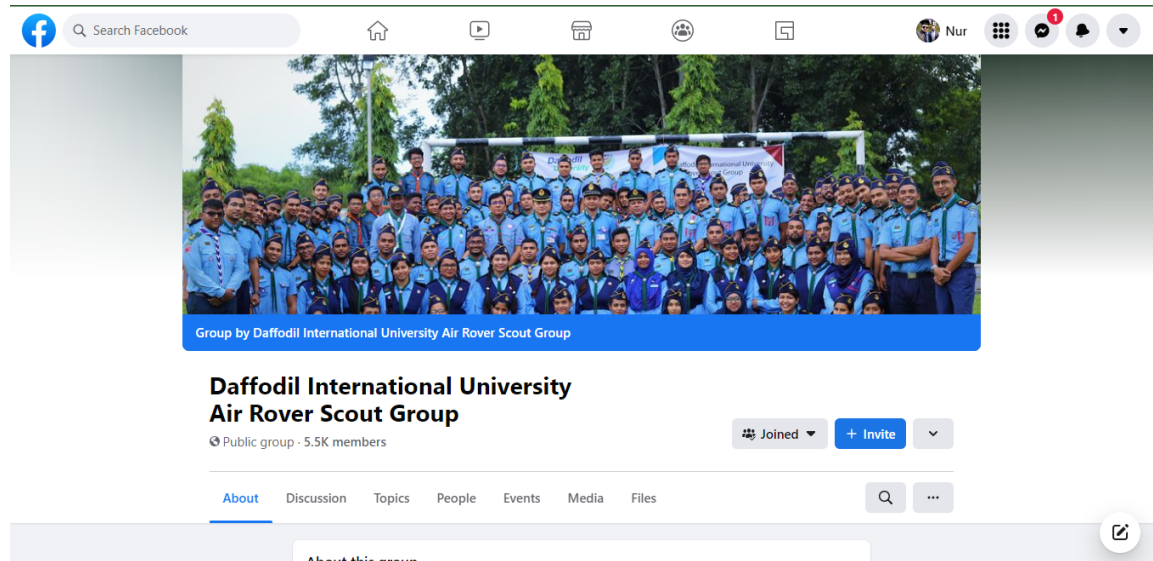


Fig- 5.12: Facebook Page

When we click on the Location button the website redirects us to the google map location of Daffodil International University (Daffodil Smart city) like figure: 5.13.

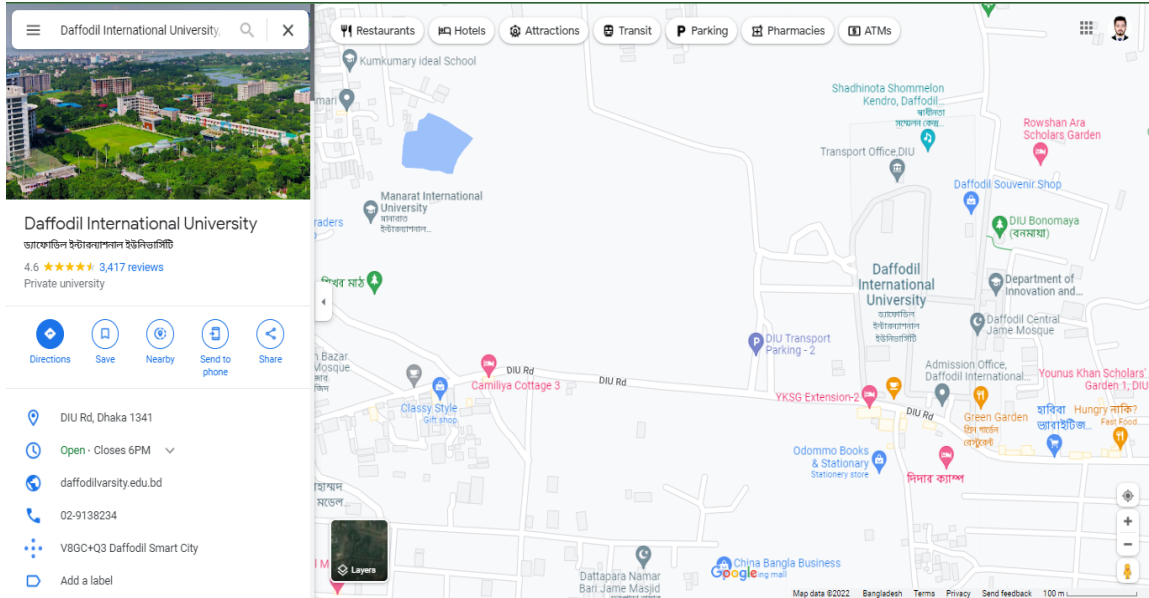


Fig- 5.13: Google Map Location

In figure 5.14 we can see the screenshot of the admin home page. When someone logs in as admin he/she can see the following page.

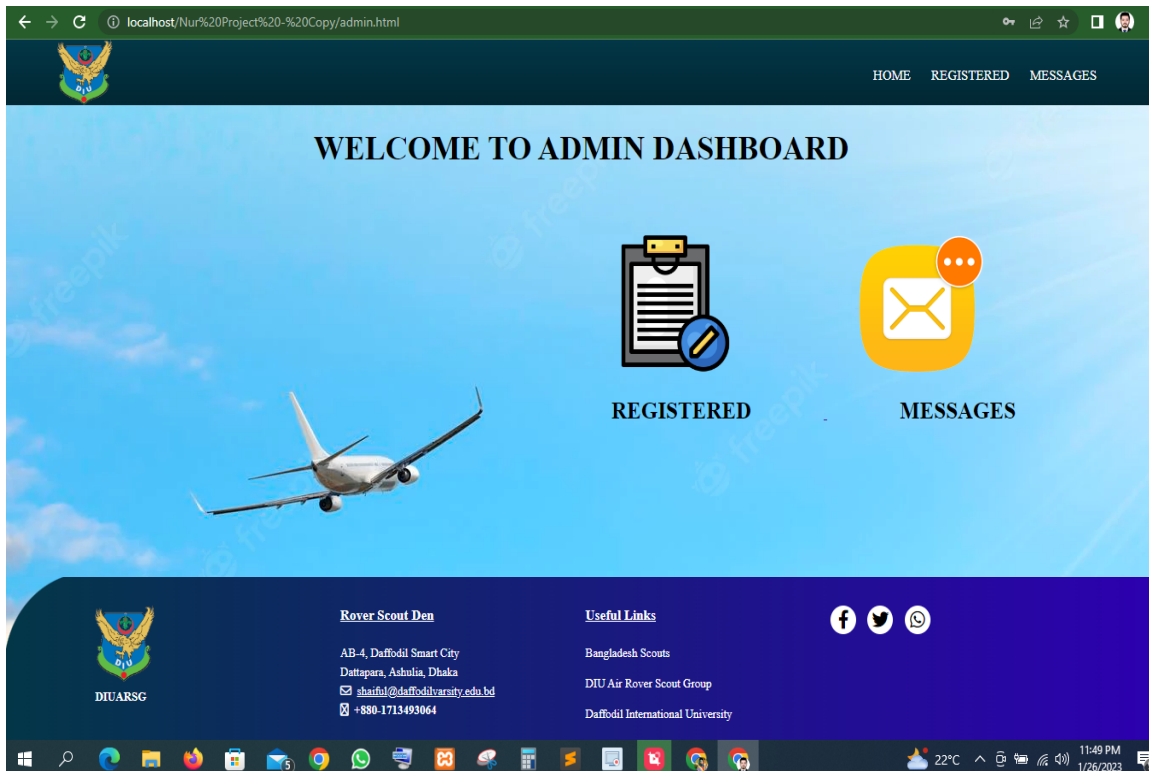


Fig- 5.14: Admin Home Page

In figure 5.15, we can see the registered page where the data of the registered students are shown. We can also filter by date the data in this page.

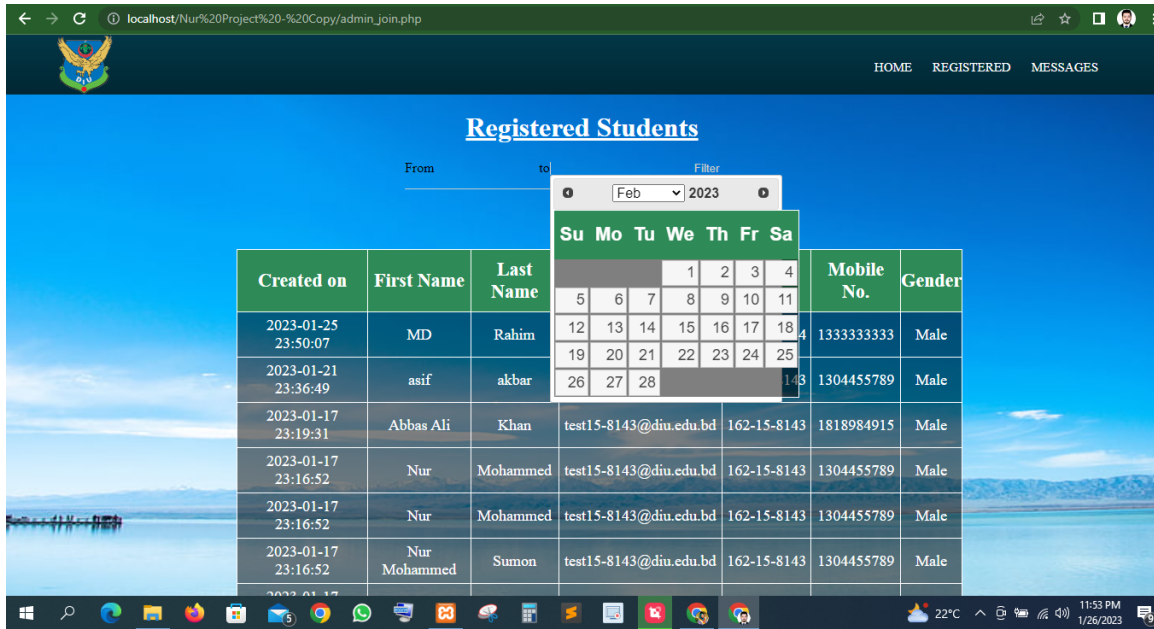


Fig- 5.15: Registered Page

In figure 5.16, we can see the attached screenshot of the messages page. This page shows the data which are stored from the 'Contact Us' page.



Fig- 5.16: Messages Page

5.3 Implementation of interaction design

Users can engage with our website. You may readily submit the information you want because the information is shown in an understandable manner. Some of its key components and the creation of interactive apps have been explored.

No registration or sign-in is required. The page is simple for users to access. By entering some information about themselves, they may discover more about the Daffodil International University Air Rover Scout Group and complete the first registration process to join the group. The contact gateways make it simple for them to get in touch and discover more about the organization or the application process.

5.4 Testing Implementation

A project test was implemented. All functions work fine during development. In this case, the unit tests are said to be complete. I tested the interaction between pages while part of the project was being developed. From intent to intent. All requirements will be arranged by us as we don't have professional testers.

So we know our users' requirements very well, we've written down their expectations and tested their expectations. Therefore, we can say that all kinds of tests such as unit tests, integration tests, acceptance tests, etc. are done on our side.

I have inserted some data manually to my database so that the application matches the student Id number with the existing data.

5.5 Test Results and Reports

Every endeavor must have a final product. According to our testing history, we have obtained all anticipated outcomes. Every user may visit the pages with ease. The admin panel obtains the data from the database store once a user completes the first registration.

CHAPTER 6

CONCLUSION AND FUTURE SCOPES

6.1 Conclusion

The inspiration, design patterns, thorough implementation, and testing procedures for my website are all included in this document. While working on the project, I encountered a lot of problems. I have improved my understanding of modern technologies like JavaScript, Bootstrap, HTML, CSS, and database management by solving each of them. The Website functions well both online and offline.

6.2 Future Scope

I want to make this a responsive website in the future. The term "responsive web design," or RWD, refers to a contemporary web design methodology that enables websites and pages to render (or display) across all devices and screen sizes by automatically changing to the screen, whether it's a desktop, laptop, tablet, smartphone, or even a smart TV. Also want to add a payment gateway option so that students can pay the registration fees for joining easily and the payment system will be under observation of the corporate office of Daffodil Group. I can sell the template of this web application to the scouting groups also. I will also arrange a digital marketing campaign via this web application to join Rover Scout group so that Instead of electronic addiction, students could live a sound life by involving themselves in voluntary & self development works.

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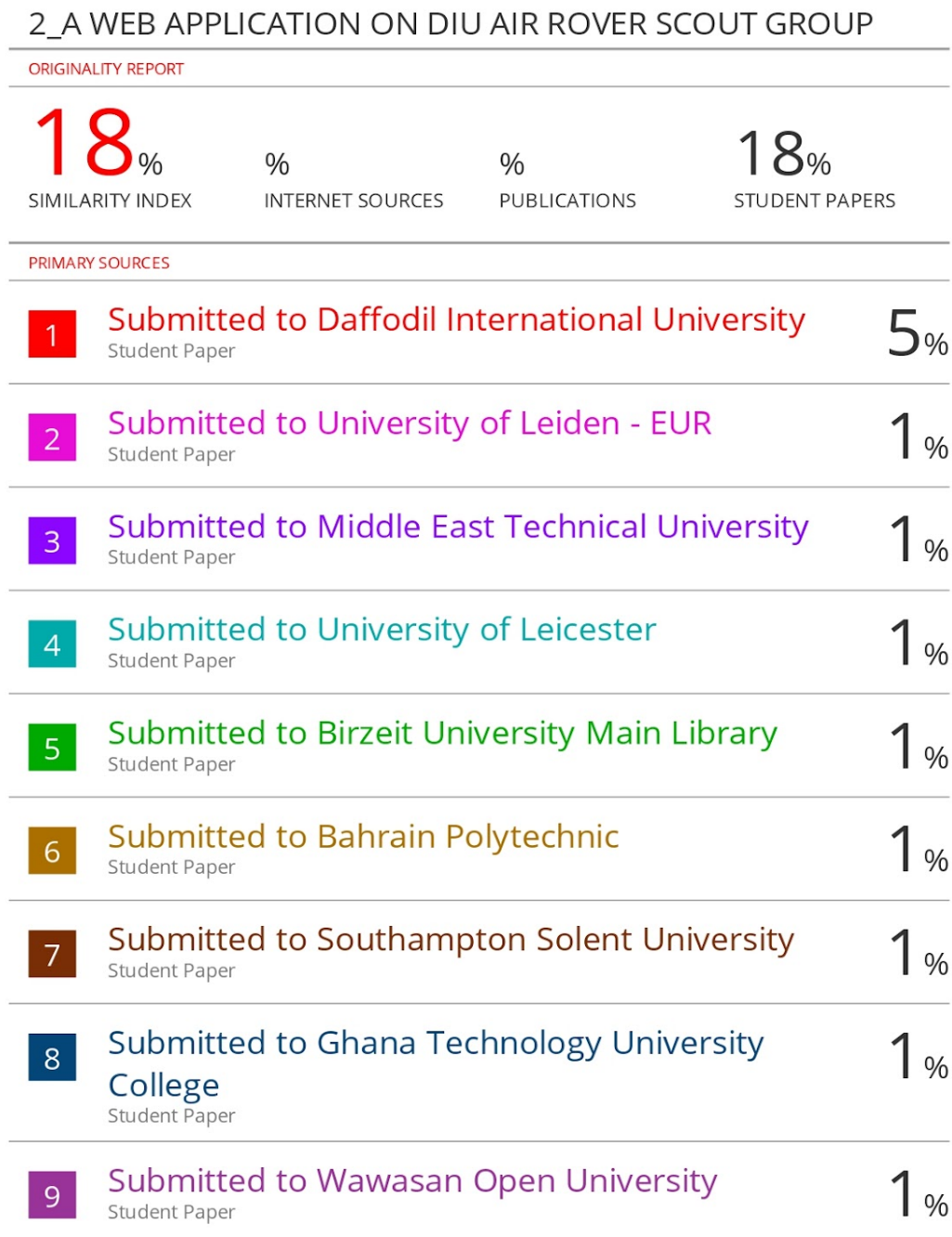


Fig 6.1: Plagiarism Report (Part-1)

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Fig 6.2: Plagiarism Report (Part-2)