Independent University **Bangladesh (IUB)**

IUB Academic Repository

Internship Reports Autumn 2022

2023-02-01

An Undergraduate Internship/Project on GRIP- Graduate Readiness for Industry Placement for OIR, SETS

Alam, Tafhimul

Independent University, Bangladesh

https://ar.iub.edu.bd/handle/11348/752

Downloaded from IUB Academic Repository



An Undergraduate Internship/Project on GRIP- Graduate Readiness for Industry Placement for OIR, SETS

By

Tafhimul Alam
Student ID: 1730091
&
Suraia Tanjum Rimi
Student ID: 1720441

Autumn, 2022

Supervisor:
Yusuf Mahbubul Islam, PhD
Professor
Department of Computer Science & Engineering
Independent University, Bangladesh

February 01, 2023

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

Department of Computer Science & Engineering
Independent University, Bangladesh

Attestation

I hereby attest that I, Suraia Tanjum Rimi, ID-1720441 an undergraduate affiliate of Independent University Bangladesh, have completed the report and submitted it in partial fulfillment of the requirement for the Degree of Computer Science and Engineering from Independent University, Bangladesh (IUB). I have been guided by my respected faculty Yusuf Mahbubul Islam, PhD. The sources of information used in this project and report have been duly acknowledged in it.



31/01/2023

Signature Date

Name: Suraia Tanjum Rimi

Acknowledgment

First and above all, I praise God, the Almighty for providing me this opportunity and granting me the capability of accomplishing my internship report timely. I express my gratitude to my internal supervisor, Yusuf Mahbubul Islam, PhD Department of Computer Science and Engineering, Independent University, Bangladesh (IUB), for his invaluable instructions, constant guidance, support and motivation during my internship period and preparation of this report. It has been a great privilege to work for

“Office of Industrial Relations, School of Engineering, Technology & Sciences, Independent University, Bangladesh” as an Intern. I have received so much support and encouragement from the individuals of ` Office of Industrial Relations. I would like to thank my supervisor for spending his valuable time and knowledge which was essential for the completion of this report. I would like to thank my classmates. They have always been helpful and provided valuable insights from time to time. Finally, yet importantly, I would like to thank my family. Their endless support has been unconditional. Their hopes and faith in me had me keep going even when days were challenging.

Letter of Transmittal:

Department of Computer Science and Engineering,

School of Engineering and Computer Science

Independent University, Bangladesh.

Subject: Submission of Internship Report

Dear Sir,

This is to inform you that with due honor and respect, we, Suraia Tanjum Rimi (ID-1720441) & Tafhimul Alam.(ID-1730091) from CSE 499, Internship Course of summer 2022 Semester, would like to submit my internship report. I have completed my internship program under the supervision of Omar Faruk. This report is based on my internship program and the project I have worked on at the Office of Industrial Relations tried to make this report as informative as possible with the experience I have gained during my internship period.

I have tried my best to deliver a good report. However, it might lack perfection. I shall be highly obliged if you are kind enough to receive this report and provide your valuable judgment. I hope the following report can achieve your approval and is adequate.

Sincerely,

Suraia Tanjum Rimi.

ID-1720441.

&

Tafhimul Alam.

ID-1730091.

Independent University, Bangladesh,

Department of Computer Science and Engineering.

Evaluation Committee

Signature .....

Name Subrata Kumar Dey

Panel Member-1

Signature .....

Name Dr. Saadia Binte Alam

Panel Member-2

Signature .....

Name YUSUF M ISLAM

Supervisor

Signature .....

Name Dr. Mahady Hasan

Head, Department of Computer Science & Engineering

Abstract

The "Graduate Readiness For Industry Placement" website provides the solution to make the internship placement process easier for the students and the industry personnel. It provides a platform for students to register for on-campus workshops to enhance their industry readiness and making it easier for the industry to sort potential interns according to their requirements. The website offers a user-friendly interface and easy registration process, contributing to the overall development of interns and making the placement process more efficient and time-saving.

Contents

Attestation i

Acknowledgement ii

Letter of Transmittal iii

Evaluation Committee iv

Abstract v

1. Introduction

1.1 Overview/Background of the Work 1

1.2 Objectives 1

1.3 Scopes 2

2. Literature Review

2.1. GRIP: Old and New ways 2

2.2. Relationship with Undergraduate Studies 2

2.3. Related works 4

3. Project Management & Financing

3.1 Work Breakdown Structure 4

3.2 Process/Activity wise Time Distribution 5

3.3 Gantt Chart 7

3.4 Process/Activity wise Resource Allocation 7

3.5 Estimated Costing. 8

4. Methodology. 9

5. Body of the Project

5.1 Work Description 12

5.2 Requirement Analysis 13

5.3 System Analysis 15

5.3.1 Six Element Analysis 15
5.3.2 Feasibility Analysis 17
5.3.3 Problem Solution Analysis 17
5.3.4 Effect and Constraints Analysis 18
5.4 System Design 19
5.5 Implementation 24
5.6 Testing 31

6. Results & Analysis. 32

7. Project as Engineering Problem Analysis

7.1 Sustainability of the Project/Work 36

7.2 Social and Environmental Effects and Analysis 36

7.3 Addressing Ethics and Ethical Issues 37

8. Lesson Learned

8.1 Problems Faced During this Period 38

8.2 Solution to those Problems 39

9. Future Work & Conclusion

9.1 Future Works 40
9.2Conclusion 41

Chapter-1:

Introduction

1.1. Overview/Background of the Work

Usually, getting an internship is quite difficult as the students are not ready for the industry nowadays. Students have to apply physically, have to submit it through a job portal or have to connect through email, which is not made for applying for internships. And the skill sets of an intern may not be as a job holder would have. So, this sorting also becomes quite difficult for the industry people as well. Moreover, we are moving towards the 4th industry revolution which is mainly based on digitalization.

The "Graduate Readiness for Industry Placement" website provides a valuable platform for interns to register for on campus interviews and workshops on interpersonal and various qualities that are needed for the industry. This will help them to be better prepared for the industry placement and enhance their chances of getting hired. The website's user-friendly interface and easy registration process has made it accessible for all students. This initiative will surely contribute to the overall development of the interns and help them to become industry ready. So, this website will help a long way to achieve those goals and will save a lot of time for the industry people and students as well. As on our website the industry or Admin can post their circular with their requirements. And interns will be able to apply in that section, the organization will be able to sort their interns according to their requirement and which will make the system effortless and time saving.

Scan to know more about GRIP program:

1.2. Objectives

Our project is completely concerned about making the internship system online as part of the GRIP project. As most of the selection and sorting work is done face to face, we want to shift some work to online, so it helps both the organization and the students. As we want to make a system which is new to the internship sector, we want all the stakeholders to get all the facilities which they want. Maximum universities and organizations don’t have any system for serving their patients and for their official work. Because it takes money and

manpower to support the whole system. But by implementing this the outcome can be great.

1.3. Scopes

The scope of the project is a necessity to ensure the accomplishment of a project. As we are making a new system. New means there is no existing system like our proposed system.
We are looking forward to:

1. Create a website where organizations can visit and post internship circulars.
2. Students can apply for internships
3. GRIP workshop registration.
4. Look at the reports on the program.
5. Go through interview events in future.
6. See the latest news and there will be a photo gallery.
7. Give feedback.
8. User Login panel with a dashboard

Chapter-2:

Literature Review

2.1. GRIP: Old and New ways

Many of our IUB students from "SETS" are not getting any internships from companies. For that "OIR" is arranging workshops. Informing those students of the workshops via mail and phone calls several times is a hassle right now. After that, monitoring them manually until getting an internship is also a tough Process. Also, OIR found some special cases of students' behavioral problems throughout the process. So, addressing all those issues is kind of a difficult task right now. That's where our main goal of our system relies. Our system will connect all the stakeholders and will make students engaged with the process. It will help students to show their ability to get an internship.

2.2. Relationship with Undergraduate Studies:

First and foremost, the university emphasizes teaching and learning and the process of learning in its commitment to the development of mature, responsible, well-educated citizens. The knowledge and skills that I gain from my undergraduate programs help me with the development of this "grip" project. It would have been more difficult if these courses had not been covered before working on this project. Besides those, the individual and group projects I have done in my undergraduate courses helped me with this project. Some of the courses are:

CSE 203 Data Structure: Data structures are specialized formats for organizing, processing, retrieving and storing data in different ways for specific purposes. Data structures make it easy for users to access and work with data, and frame the organization of information for better understanding by humans and machines. Choosing the right data structure is important for avoiding slow run times or unresponsive code. This course taught handling and manipulating complex data structures such as arrays, objects, classes, array of objects, objects of array, nested arrays, nested objects, etc. The knowledge gained from this course made handling complex data structures in the "GRIP" project easier.

CSE 213 Object-Oriented Programming: Object-oriented programming is based on the concept of objects. In object-oriented programming data structures, or objects are defined, each with its own properties or attributes. Each object can also contain its own procedures or methods. Software is designed by using objects that interact with one another. OOP can also be used in manufacturing and design applications, as it allows people to reduce the effort involved. It helped to write the real time system design that are used to develop the "GRIP "

CSE 303 Database Management: A Database Management System (DBMS) is software designed to manage data in a database by defining, manipulating, retrieving, and manipulating data, data format, field names, record and file structure. DBMS have evolved and now handle different types of data and relate them in more complex ways. This course taught the basic knowledge of project planning and strategy practices such as System Development Life Cycle, Six Element Analysis, Rich Picture, Requirement Analysis, Entity Relationship Diagram, Business Process Model, etc. These techniques have been applied in the development planning and strategy of "GRIP" and in writing a report.

CSE 309: Web Applications and Internet: This course serves as a comprehensive overview of web technologies and their usage. Essential topics such as OSI and TCP/IP architecture, Internet Routing, IP addressing, and Domain Name System were covered. Discussions on popular browsers, HTML and Cascading Style Sheet, HTTP, HTTPS, FTP, Client and Server-side scripts, Scripting (JavaScript, AJAX, XML) with jQuery libraries, Web Servers (IIS, Apache) helped me with my project. I learn to design dynamic websites using Django with SQL server and with MySQL.

CSE 307: System Analysis and Design: This tutorial focuses on System Analysis and System Design in Systems Development. It covers tools and techniques used in design and analysis, including Systems and models, Project management, Requirements determination, Data flow diagrams, Decision tables and trees, System Analysis with Systems Development Life Cycle models and Object Oriented Analysis with use-case modeling and UML. The tutorial also covers Feasibility analysis, Structured analysis, Systems prototyping, System design and implementation, Front-end and back-end design, Database design, Software management, and Hardware selection. The techniques discussed have been applied in the development of the "GRIP" and the writing of a report.

2.2. Related Works:

There are several other websites and resources that provide similar services, such as job portals like LinkedIn, Glassdoor, Indeed etc, career centers, and networking events that connect students with potential employers. Thai websites helped me to design my website according to those websites like “What would be the contents of the website?”, “Who are the stakeholders?”, “What database would this website have?” this type of questions. Which helped to build a feasible website for the users.

Chapter-3:

Project Management & Financing

3.1. Work Breakdown Structure

A Work Breakdown Structure (WBS) is a hierarchical outline of the tasks required to complete a project.[2] WBS is a tool used in project management that helps in breaking down a complex project into smaller manageable and achievable activities or processes. GRIP system has processes/Activities like Concept, Design, Development, Maintaining and Closing. Those processes are further broken into smaller tasks and sub tasks. Detailed sitemap, Project Timeline, Risk Analysis Cost Estimation are the sub tasks of Requirement Analysis. The Design Process has two sub-task Development Oriented Model and System Design. In a development-oriented model we break down our task on class diagram, use case diagram and UML design. For the system design we have tasks like rich pictures, flow charts, and system architecture. Frontend and backend are the two processes of development of the project. User Acceptance four tasks are System Testing, Bug Reports, Bug Fixes and client feedback. Review Deployment Deliverable, Documentation Formalities, Finalize Changes and Deploy Final Product tasks are under Deployment Process which is the activity of Closing. The goal of this WBS is to make a large project manageable.

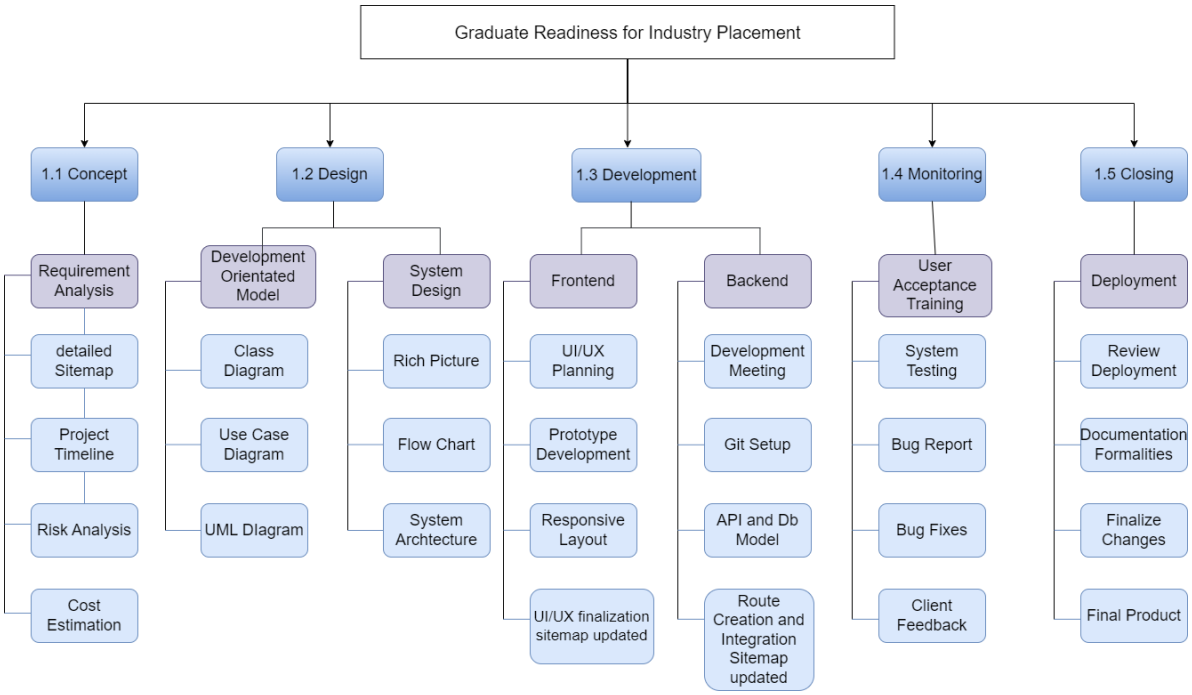


Figure 3.1: WBS of GRIP

3.2. Process/Activity wise Time Distribution:

Process/Activity wise time distribution is widely used by project managers and practitioners as the probabilistic form of the Critical Path Method (CPM). The critical path method is a technique that allows one to identify tasks that are necessary for project completion. The major problem faced by the project manager and the developers in correctly designing an application is time management. A critical path in project management is the longest sequence of activities that must be finished on time for the entire project to be complete. Any delays in critical tasks will delay the rest of the project. Critical Path Method provides a significant role in project management. CPM calculates the longest path of planned activities to logical end points or to the end of the project, and the earliest and latest that each activity can start and finish without making the project longer. This process determines which activities are critical.

Task	Days
Requirement Analysis	6
Design layout	12
Development	35
User Acceptance Testing	8

Deployment	9
Total	70

Here, we need 6 working days for requirement analysis, 12 days for design layout, and 35 days for development, 8 days for user acceptance and testing and 9 days for deployment. A Total 70 days for developing an online website.

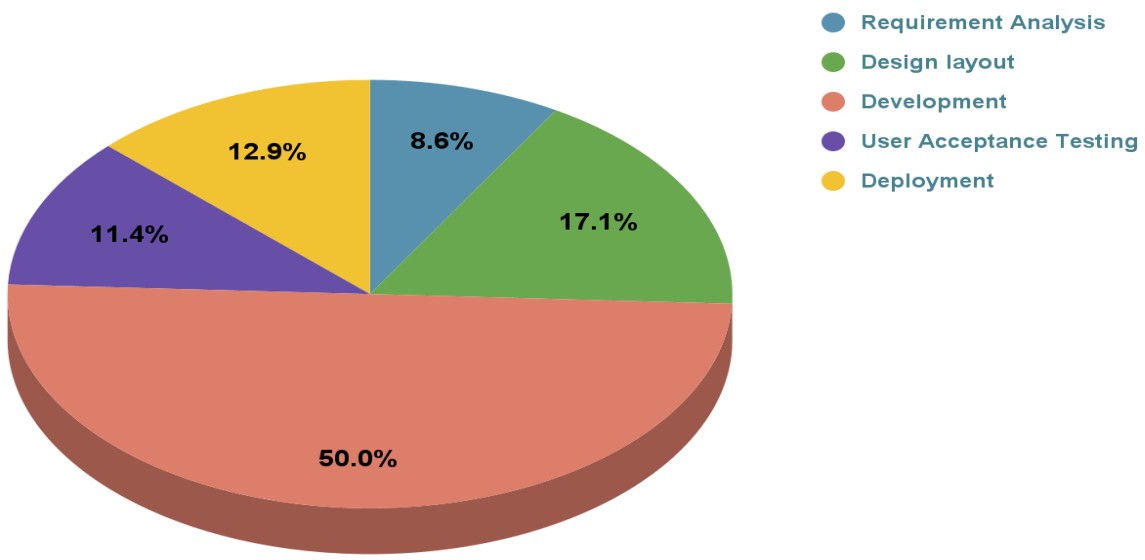


Figure 3.2 Figure 3.2 : Process/Activity wise Time Distribution Chart

In this chart previous process/Activity percentage wise time distribution are shown.

Requirement Analysis: Gathering requirements is a crucial task before the onset of any project. If the requirements are not properly gathered and analyzed, it can lead to project failure. Similarly, for the "GRIP system". We dedicated 9% of the entire work to Requirement Analysis.

Design Layout: The need for a good Design Layout is key. The main users will be all types of users. Therefore, the design of this system should be intuitive so that the user can easily understand what each component of the system is doing. We allocated 17% of the entire workload for this.

Deployment: At the very end we have Deployment. After checking everything, the system is hosted on the client's domain and handed over to them. Some training is also given to 13% allocated to this phase.

User Acceptance Testing: After everything is developed, some revisions must be done to the system to check for any underlying bugs before it is handed over to the client. Some documentation also needed to be done. About 11% of the workload was allocated to this phase.

Development: The most crucial part of any system is the development. If it is not developed properly, it will be received poorly by its users. From designing a good and responsive system to making it fast, reliable and fixing bugs is very important. For this phase, we allocated 50% of the entire workload.

3.3 Gantt Chart:

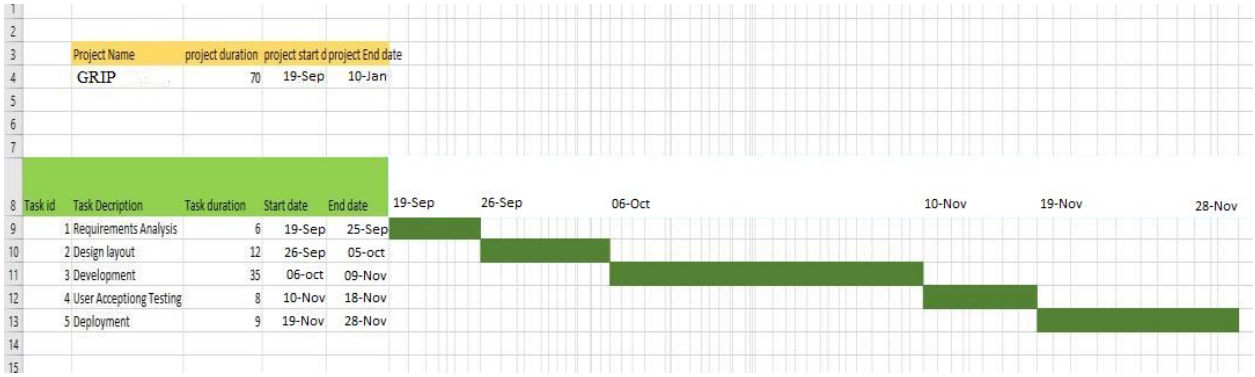


Figure 3.3: Gantt chart

3.4. Process/Activity wise Resource Allocation:

Resource allocation is the process of assigning assets in a manner that supports the team's goals. Having the right resource at the right time is critical to project success. The table is shown the staffs who are assigned for this project

Serial No	Position	Input(Months)
1	Project Manager	2
2	Business Analyst	0.5
3	Database Designer	0.5
4	Sr. Developer	1
5	Developer	2
6	UX designer	0.5
7	UI designer	0.5
8	QA Expert	0.5
9	System Administrator	0.5

Table 3.2 : Process/Activity wise Resource Allocation table

3.5 Estimated Costing:

The estimated cost of the "GRIP system" is associated with multiple of 10 services. The development of the project before handover to the client the estimated costing is around 320,000 BDT. An approximate cost of the system is given below. It can be expanded on the changes in the software and keeps up fetched.

Serial No.	Position	Staff Month Rate	Input (mont/ hs)	Sub Cost (BDT)
1	Project Manager	50,000	2	100,000
2	Business Analyst	30,000	0.5	15,000
3	Database Designer	30,000	0.5	15,000
4	Sr. Developer	40,000	1	40,000
5	Developer	25,000	2	50,000
6	UX designer	20,000	0.5	10,000
7	UI designer	20,000	0.5	10,000
8	QA Expert	35,000	0.5	17,500
9	System Administrator	30,000	0.5	15,000
Sub Total				2,72,500
Reimbursable Expenses				30,000
Total without VAT				3,02,500
VAT 4.5%				13,612.5
Total with VAT				3,16,112.5

Table 3.3 : Estimated Costing Table

Chapter-4:

Methodology:

While working on the project I worked on an Iterative and incremental development environment. In an iterative and incremental development process,To choose the Iterative and incremental development framework to adopt, we apply the Extreme Programming (XP) technique. The project is typically broken down into smaller chunks or increments, each of which is completed in a specific iteration. These increments may be based on functional features or deliverables, or they may be based on specific technical or business goals.

To fully understand the incremental and iterative development process, you must first split it into its two parts:

Incremental: Incremental development is a software development approach in which a software system or application is developed through the repeated addition of small, incremental changes. This approach is typically used when the requirements of the software system are not fully known at the outset of the development process, or when the development process itself is expected to be ongoing over a long period of time.

Iterative: Iterative development is a software development approach in which a project is developed through a series of iterations or cycles. Each iteration involves a certain amount of planning, development, and testing, and at the end of each iteration, the team reflects on what has been accomplished and identifies areas for improvement.

How to Apply: Iterative and incremental development (IID) is a software development methodology that involves repeating cycles of development, called "iterations," in which developers work on a portion of the overall project. Each iteration is a mini-project that involves the following steps:

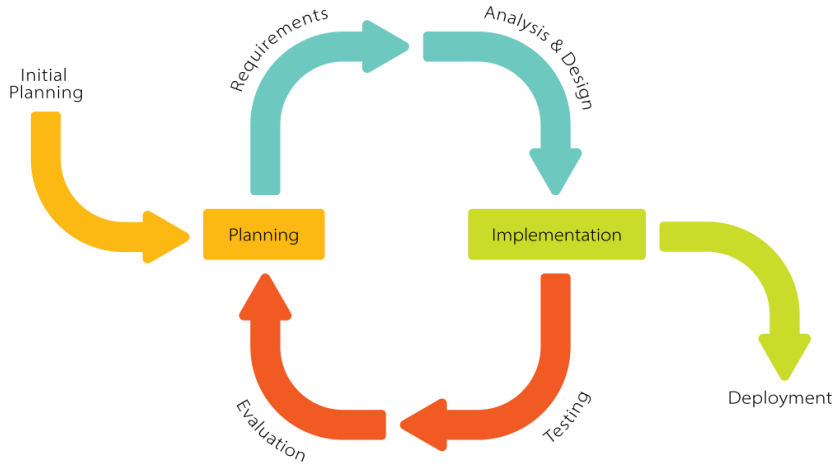


Figure 4 : Iterative and Incremental Development

Planning: Identify the goals and objectives for the current iteration.

Design: Create a design for the features to be developed in the current iteration.

Implementation: Write the code for the features specified in the design.

Testing: Test the features developed in the current iteration to ensure that they are working as intended.

Review/Evaluation: Review the work completed in the current iteration with stakeholders to get feedback and make any necessary changes.

Iterative and incremental development models are complementary in nature, which is why they are often used together to boost their efficacy and achieve project deliverables.

Iterative and Incremental Development in Agile: The incremental and iterative development process is closely associated with agile project management, most notably the Scrum methodology. This is because it aligns with one of the key pillars of Agile: responding to change over following a set plan.

Rather than adhering to a linear Waterfall method, software developers will react quickly to changes as their product evolves. They will build on previous versions to improve their product and repeat this process until the desired deliverables are achieved.

An example of iterative and incremental development in Agile could be the creation of a new e-commerce website. The project would be broken down into smaller increments, such as building a wireframe, uploading products, and creating advertising copy. As these steps are

unfolding, the software development team would repeat the cycles of prototyping and testing to make improvements to the website with each iteration.

There are several benefits to using an iterative and incremental development approach:

Improved quality: By delivering small increments of functionality, it is easier to identify and fix defects early in the development process. This can help prevent the build-up of a large number of defects that can be difficult and time-consuming to fix later on.

Increased flexibility: With an iterative approach, it is possible to make changes and adjustments to the project as it progresses, based on feedback and changing requirements. This can help ensure that the final product meets the needs of users more effectively.

Enhanced collaboration: An iterative development process encourages collaboration and communication between team members, as they work together to deliver small increments of functionality. This can help foster a sense of ownership and shared responsibility among team members.

Improved risk management: By breaking a project down into smaller pieces and delivering them incrementally, it is easier to identify and mitigate risks early in the development process. This can help prevent unexpected issues from arising and disrupting the project.

Overall, iterative and incremental development helps to improve the quality of the final product, increase flexibility, enhance collaboration, and manage risks more effectively. It is important to note that incremental and iterative development is just one of many software development methodologies, and it may not be the best approach for every project. It is important to carefully consider the needs of one's project and choose the methodology that is most appropriate for one's specific needs.

Chapter-5:

Body of The Project

5.1 Work Description

Many of our IUB students from "SETS" are not getting any internships from companies. For that "OIR" is arranging workshops. Informing those students of the workshops via mail and making phone calls several times is a hassle right now. After that, monitoring them manually until getting an internship is also a tough Process. Also, OIR found some special cases of students' behavioral problems throughout the process.

GRIP website will connect all the stakeholders and will make student engagement with the process. It will help students to show their ability.Management which we call as admin. From there we can add new users and information on the list. Admin can approve or delete users and can send mail to that specific user. Admin also has the option to Update every details of GRIP. This system consists of different modules. These are:

Homepage: This is the first page when a user visits. This page has details of the contract number, email and other important information of the website. For this page the user can see all notices and information, also can go to the registration form and many other options.

Registration and Login: There is the registration page. People have to register to the system before they can use it. In the registration page, the user has to input the usual information required to register, i.e., email address, a unique password, a username. After successfully registering, users need to login to use the system. Home screen can be viewed without login but for taking any service the user must login.

Previous sessions: In the homepage, there is a slide show showing some previous events with their description and from there the viewer can have a gist of previous programmes held.

Registration for Workshop: Users can register. For this user has to give his name, email, date that he/she wants to register, number and submit other info required through Google form.

Registration for Interview: Users can register. For this user has to give his name, email, date that he/she wants to register, number, cvs and submit other info required through Google form.

Admin panel: This is a different dashboard for the management of the website and only specific id will be able to log in to this dashboard. Admin panel has different pages like Add internship, Post notice, User, Notice, Registered companies, Post and update google form. Admin will be able to cancel or approve requests and send them mail for notification

Add users: Their admin will add new users. This will require Name, phone number, Specialty and image.

Update user: From here admin will be able to update user and user's information.

5.2 Requirement Analysis

Rich Picture

Rich picture helps to understand the complexity of the environment in which the development intervention is operating, providing a spatial overview of the situation. Below is the rich picture of our system

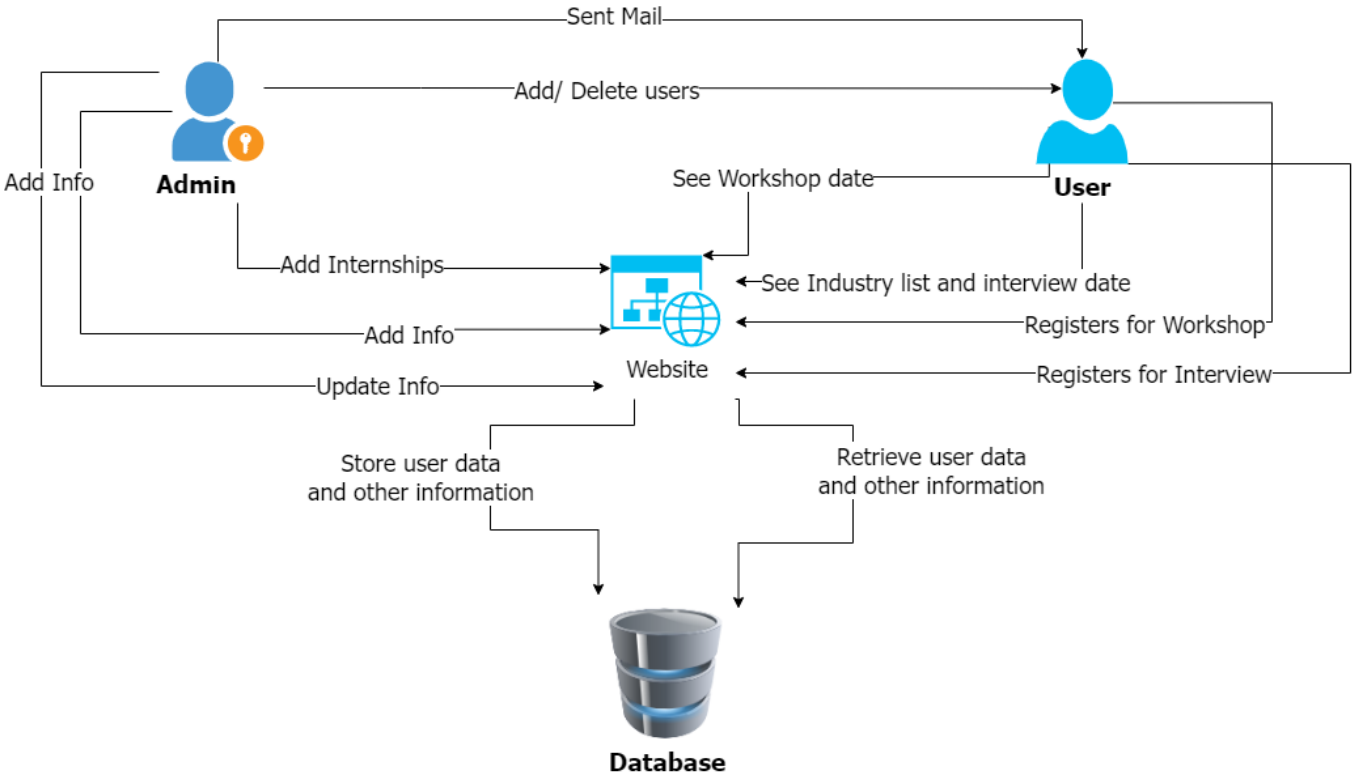


Figure 5.2.1 : Rich Picture

Functional and Non-Functional Requirements

Functional Requirements: GRIP System has the following functional requirements:

Function: Sign-Up		
Input: User Type Email, password.	Process: Save signup information to a database.	Output: A new user has been created and added to the database.
Precondition	Internet access is required.	

Table 5.2.2 : Functional Requirement Sign-Up

Function: Sign-In		
Input: User Type Email, password.	Process: Compatibility with the Database User group.	Output: Redirected to their dashboard page based on the user category.
Precondition	Internet access is required.	
Postcondition:	The user receives a confirmation message and is forwarded to the dashboard page.	

Table 5.2.3 : Functional Requirement Sign-In

Function: Reset password		
Input: User old and new password.	Process: Change the old password with the new one.	Output: The database will be updated with the new password.
Precondition	Only administrators may login and add to the system, and they must do it as administrators.	
Postcondition:	A popup-message will be sent.	

FigureTable 5.2.4 : Functional Requirement Reset password

Function: Add/Delete Internship		
Input: Add/Delete Company name, Job description, Email, Phone Number.	Process: Save internship information to a database.	Output: A new internship has been created and added to the database/ can be deleted from the database.
Precondition	Only administrators may login and add to the system, and they must do it as administrators.	
Postcondition:	A data table of the stored result will be sent.	

FigureTable 5.2.5: Functional Requirement Add Internship.

Function: Add/Delete Notice		
Input: Add Event name, Event description, Event date.	Process: Save notice information to a database.	Output: A new notice has been created and added to the database/can be deleted from the database.
Precondition	Only administrators may login and add to the system, and they must do it as administrators.	
Postcondition:	A data table of the stored result will be sent.	

FigureTable 5.2.6 : Functional Requirement Add Notice.

Function: View Company List		
Company name, Job description.	Process: View internship information from a database.	Output: The company data.
Precondition	All registered users may login to view the data.	

FigureTable 5.2.7 : Functional Requirement View Company List.

Function: View Notice Board		
Event name, Event description, Event date.	Process: View noticeboard Information from the database.	Output: The Notice data.
Precondition	All registered users may login to view the data.	

FigureTable 5.2.8 : Functional Requirement View Company List.

Non-Functional Requirements:

The system will have the following non-functional system requirements:

- User-friendly interface and easy registration process
- Accessible for all students
- Platform for interns to register for on-campus interviews and workshops
- Ability for industry/admin to post job openings and requirements
- Sorting feature for industry/admin to easily filter through intern applicants according to their requirements
- Time-saving for both industry/admin and students
- Contributes to overall development of interns and helps prepare them for industry placement.

It is a process of planning a new business system or replacing an existing system by defining its components or modules to satisfy the specific requirements. Before planning, you need to understand the old system thoroughly and determine how computers can best be used in order to operate efficiently

5.3 System Analysis

5.3.1 Six-Element Analysis

Process	System Roles					
	Human	Non Computer Hardware	Computing Hardware	Software	Database	Communication and Network
Sign-Up	Users: Users register with the system. Admins have already been pre-registered in the system.	For keeping track of needs and identifying difficulties, use a pen and paper a pdf.	Desktops, Laptops, Smartphones	Web Browsers, VSCode, Postman, Git, Notepad, Discord: To test the system, note taking, documentation, and collaboration with team	MySQL	WAN/LAN and Email: For work and communication
Login	Users: Admin Before users and administrators may utilize the system, they must first log in.	For keeping track of needs and identifying difficulties, use a pen and paper or a pdf.	Desktops, Laptops, Smart phones	Web Browsers, VSCode, Postman, Git, Notepad, Discord: To test the system, note taking, documentation, and collaboration with team	MySQL	WAN/LAN and Email: For work and communication
Registration	Users: The user will fill up the necessary information and registers into the Google form. Admin: Admin will approve or cancel it.	For keeping track of needs and identifying difficulties, use a pen and paper or a pdf.	Desktops, Laptops, Smart phones	Web Browsers, VSCode, Postman, Git, Notepad, Discord: To test the system, note taking, documentation, and collaboration with team	MySQL	WAN/LAN and Email: For work and communication

Add/update data	Admin: Admin can Add new data and update the existing Data. Also can delete users.	For keeping track of needs and identifying difficulties, use a pen and paper or a pdf.	Desktops, Laptops, Smart phones	Web Browsers, VSCode, Postman, Git, Notepad, Discord: To test the system, note taking, documentation, and collaboration with team	MySQL	WAN/LAN and Email: For work and communication

Figure 5.3.1 Six-Element Analysis

5.3.2 Feasibility Analysis:

A feasibility analysis for this project would involve evaluating the potential for the "Graduate Readiness for Industry Placement" website to be successful and to determine if it is a viable solution to the difficulties that students and industry people face in finding internships. So, here is points that shows the feasibility of the website,

- The website provides a valuable platform for interns to register for on-campus interviews and workshops on interpersonal and various skills that they need in order to join the industry.
- The website's user-friendly interface and easy registration process makes it accessible for all students.
- The website will help contribute to the overall development of the interns and help them become industry ready.
- The website allows the admin to post intern requirements from the industry and interns to apply directly to those as per requirements thus making the process efficient and time saving.
- The website will also make the intern sorting process effortless and time-saving for the organization.

Overall, the website seems to be a feasible solution for addressing the difficulties that students and industry people face in finding internships. Its user-friendly interface, easy registration process and the ability to match the intern's skills with the industry requirements will make it a valuable tool for both students and industry people.

5.3.3. Problem Solution Analysis

Utilizing established tools and strategies when designing the system aids in strengthening our strategy for resolving the issues that our team and business encounter. There are four fundamental steps to problem solving:

1. Outlining the issue.
2. Coming up with alternatives.
3. Assessing and choosing options.
4. Putting ideas into practice.

We had certain issues that were impeding our advancement. But using those four strategies, we brainstormed and solved these problems. The main issue was the software's budget, although later adjustments were made and several functions and workload were reduced to help the software stay within the budget.

5.3.4 Effect and Constraints Analysis

Constraints and risks specific to each project must be controlled to ensure the project's ultimate success. The three main restrictions facing project managers are time, scope, and budget. The three limitations are a common name for the project management triangle. For instance, increasing the project's scope will almost surely need more time and money, but limiting the scope and speeding up the timeline can both reduce costs.

Constraint 1 - Time: Time is crucial in the growth of any project. As part of our initiative, every employee delivered a daily update at the end of the day while working from home. As a result, there were no delays noted and our project continued as planned.

Constraint 2 - Cost: Both fixed and variable expenses, such as those for materials, permits, labor, and the financial impact of project team members, are included in the budget for a project. Because several evaluations for our project had already been conducted, the budget had previously been estimated.

Constraint 3 - Scope: The scope of the project establishes its bounds. It has requirements that the project and the company must meet. Both the deliverables and the processes for producing them are included in the scope. In our project, there was no backtracking because the scopes were established early on

5.4 System Design

Planning a new business system or updating an existing system involves identifying its components or modules to meet the necessary requirements. Before you begin planning, you must thoroughly study the previous system and identify how computers may be used most efficiently.

5.4. UML Diagrams

Use Case Diagrams

A use case diagram is a way to summarize details of a system and the users within that system

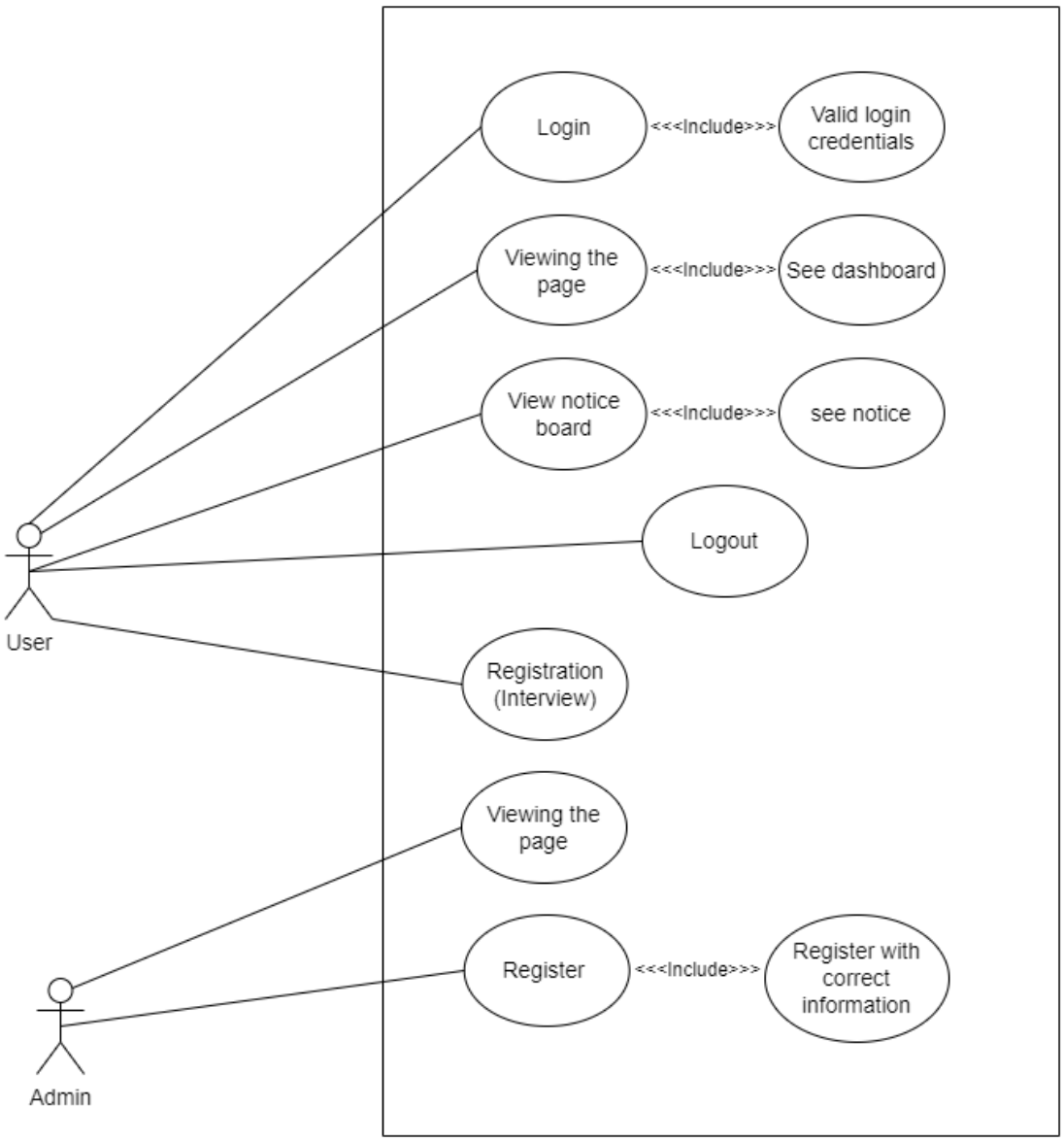


Figure 5.4.1 : Use case Diagram User

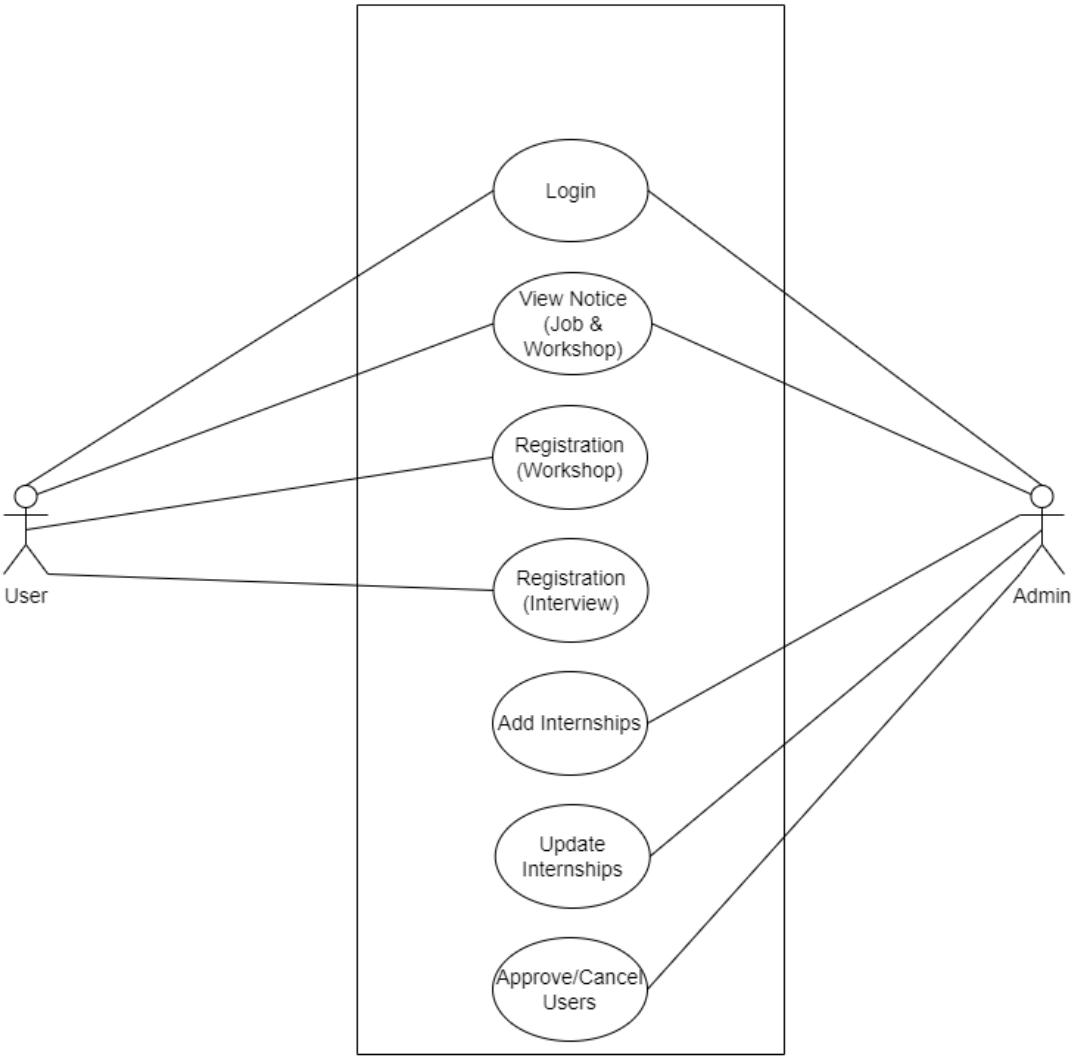


Figure 5.4.2 : Use case Diagram FunUsers Functionality

Activity Diagram

Activity diagram is another important diagram in UML to describe the dynamic aspects of the system. Activity diagram is basically a flowchart to represent the flow from one activity to another activity. The activity can be described as an operation of the system. The control is drawn from one operation to another. This row can be sequential, branched, or concurrent. Activity diagrams deal with all types of ow control by using different elements such as fork, join, etc.

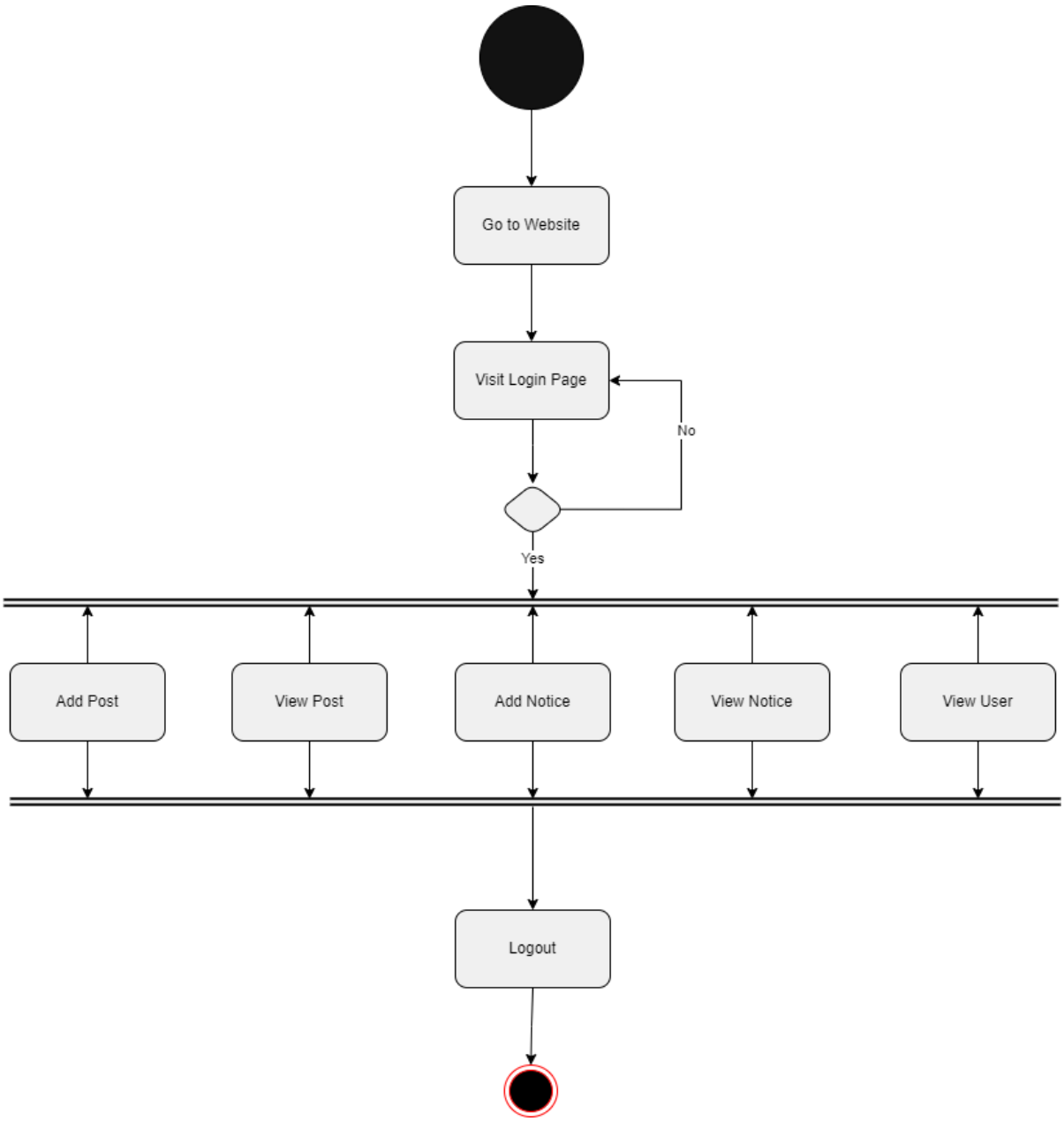


Figure 5.4.3: Admin Activity Diagram

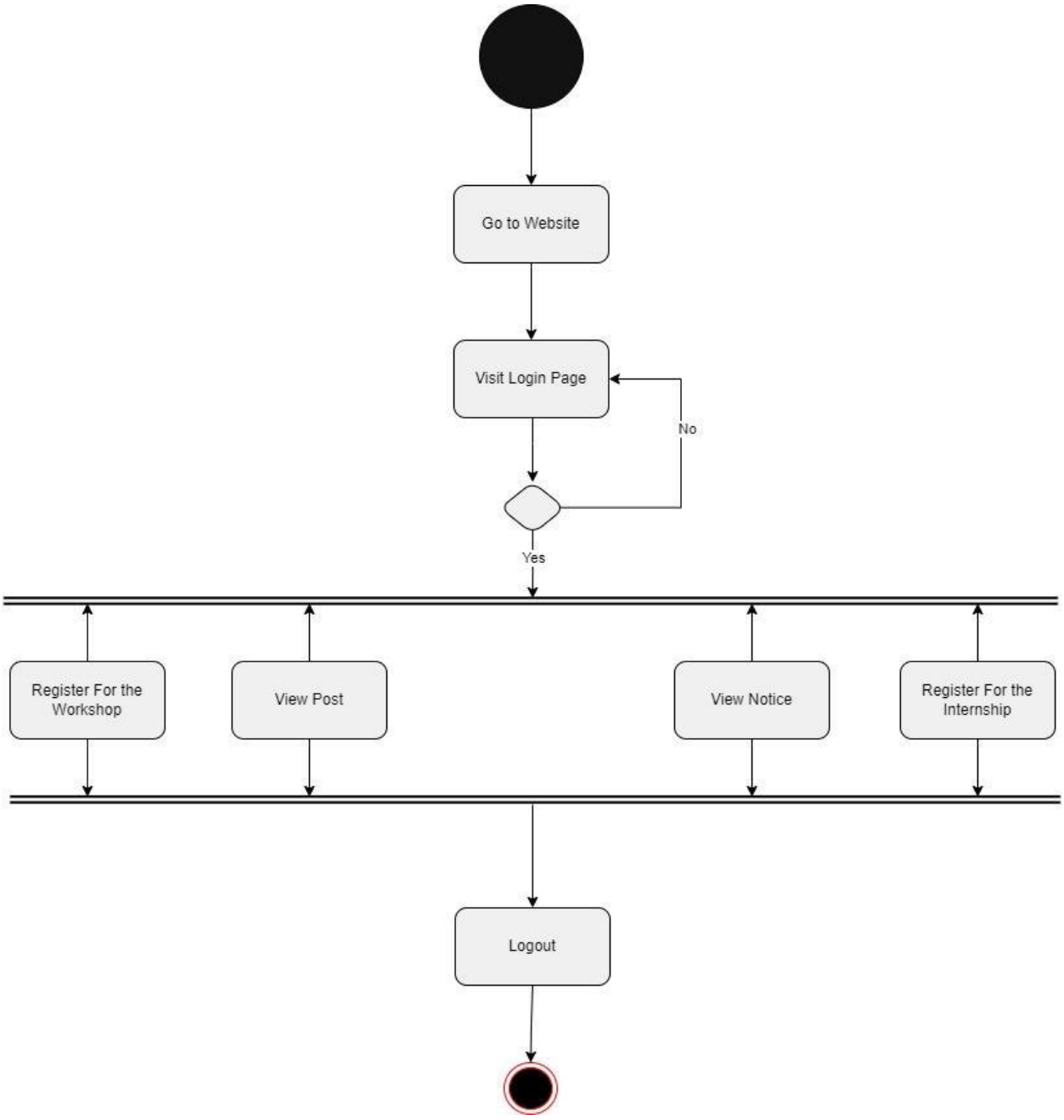


Figure 5.4.4: User Activity Diagram

Entity Relationship Diagram (ERD):

The entity relationship diagram depicts a static view of an application. It represents the types of objects residing in the system and the relationships between them.

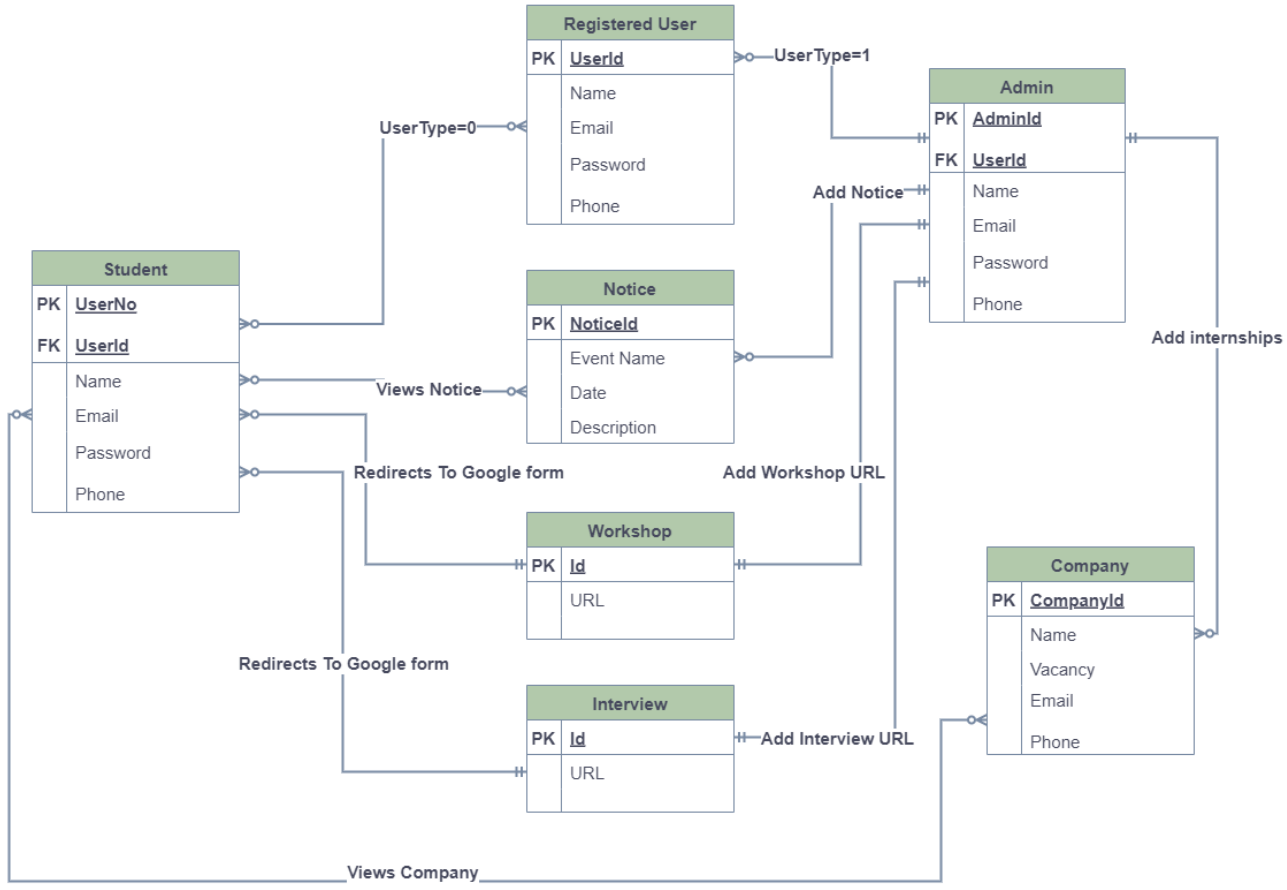


Figure 5.4.5**:ERD diagram**

5.5 Implementation:

This is the Landing page of our website,

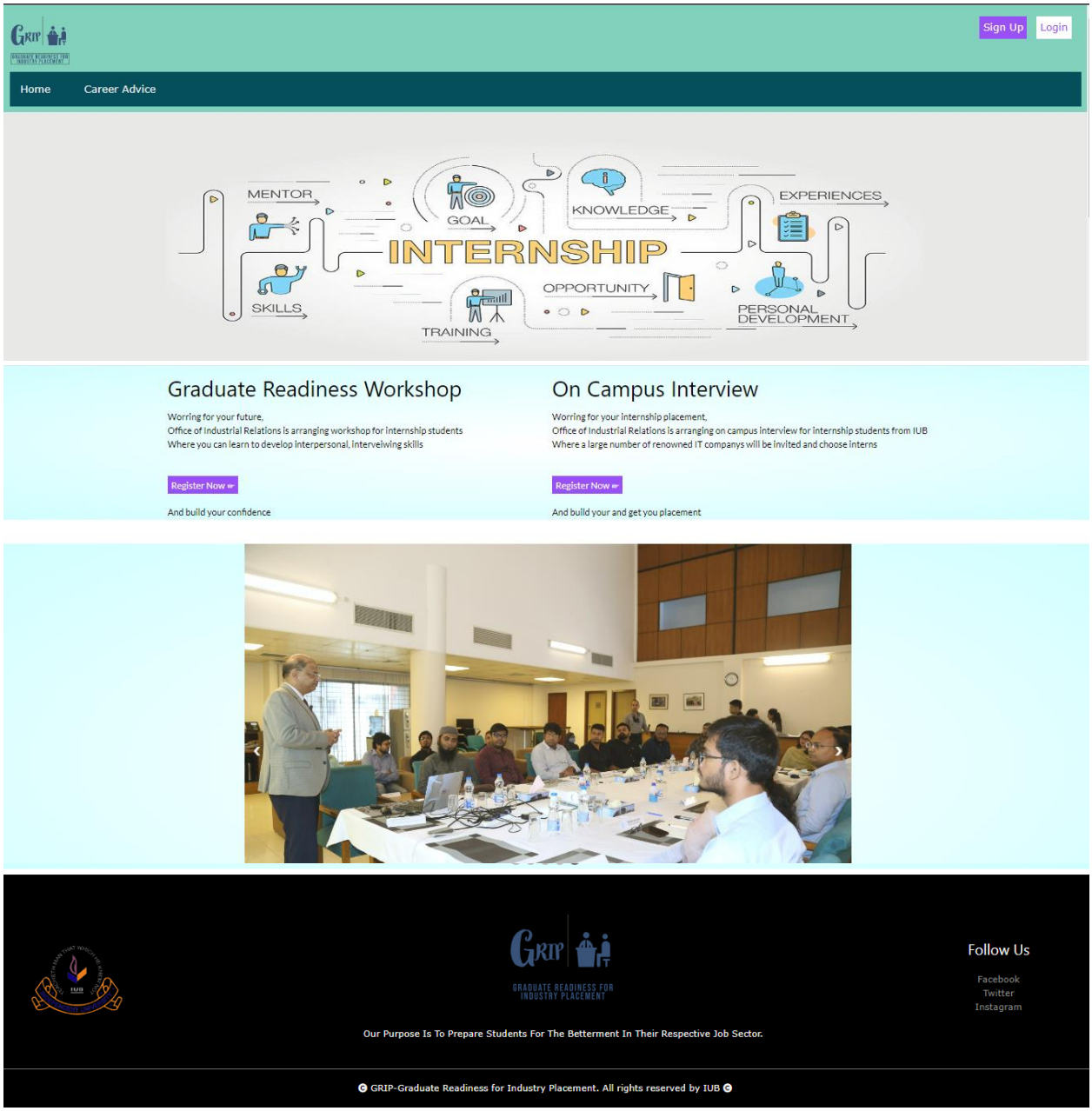


Figure-5.5.1: Landing Page 1

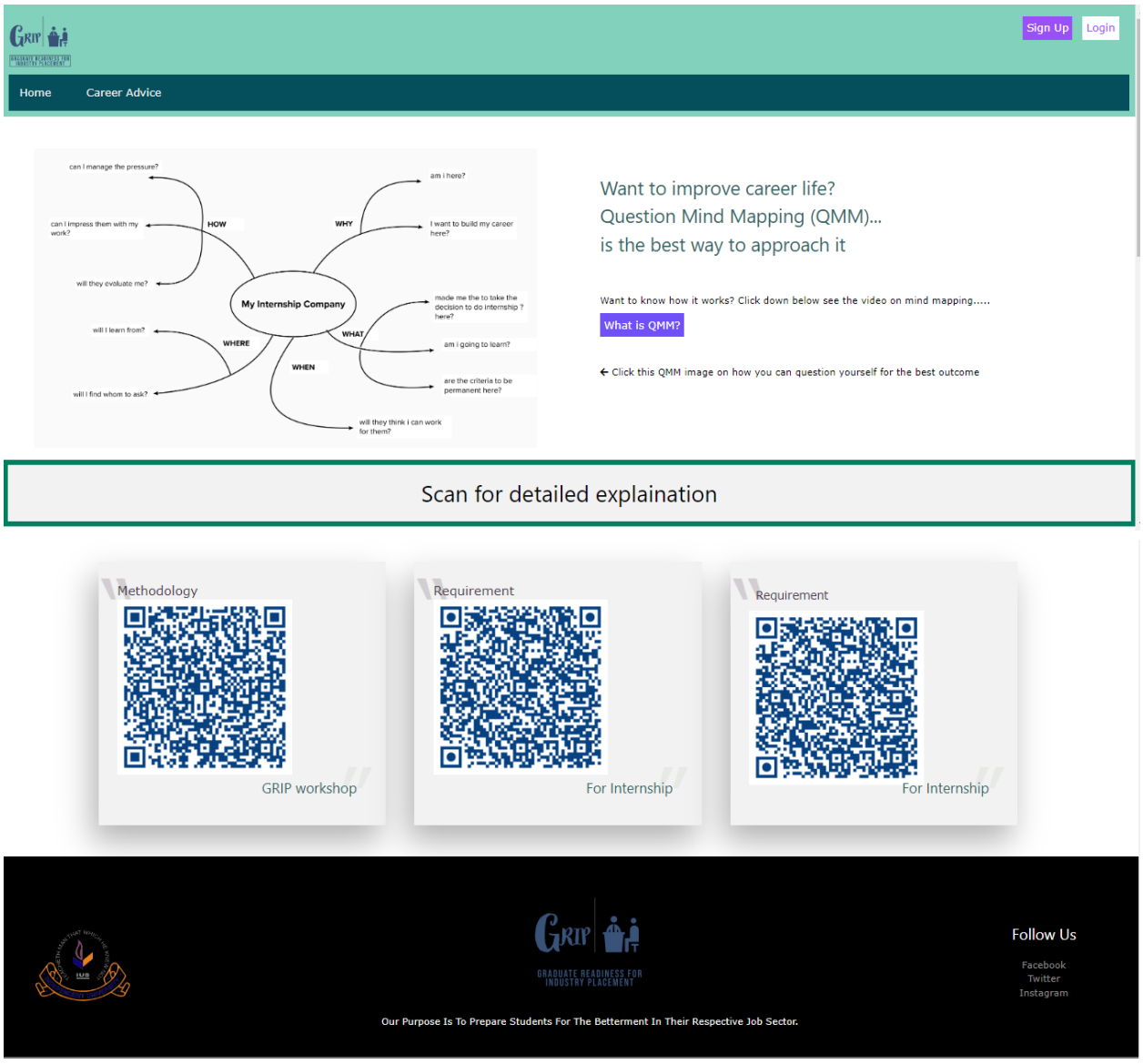


Figure-5.5.2: Landing Page 2

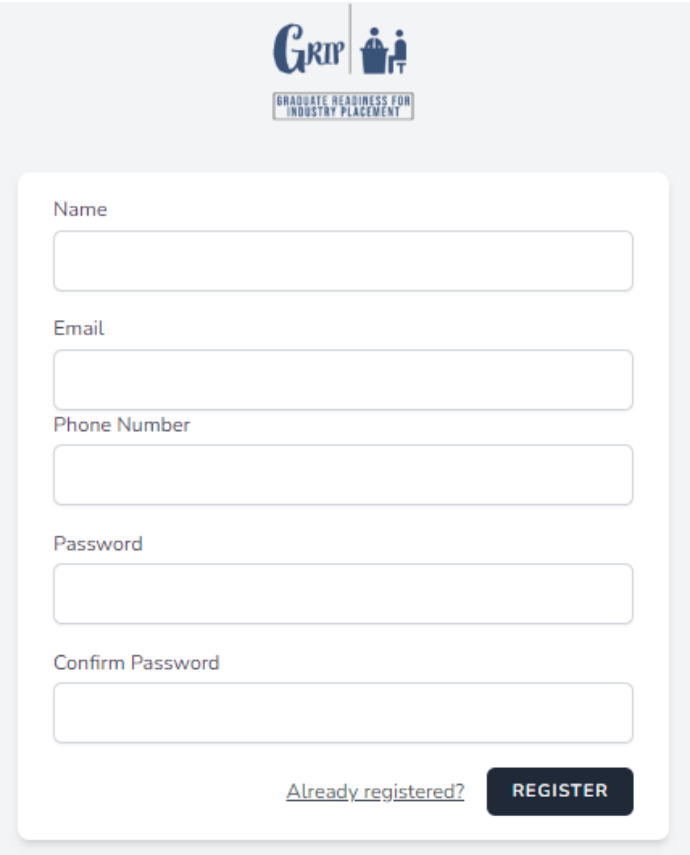


Figure 5.5.3: Registration Page

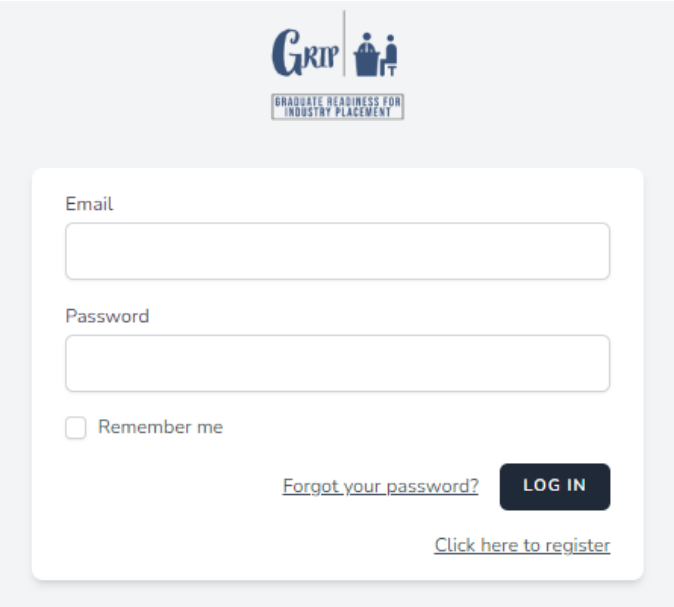


Figure 5.5.4:Login Page

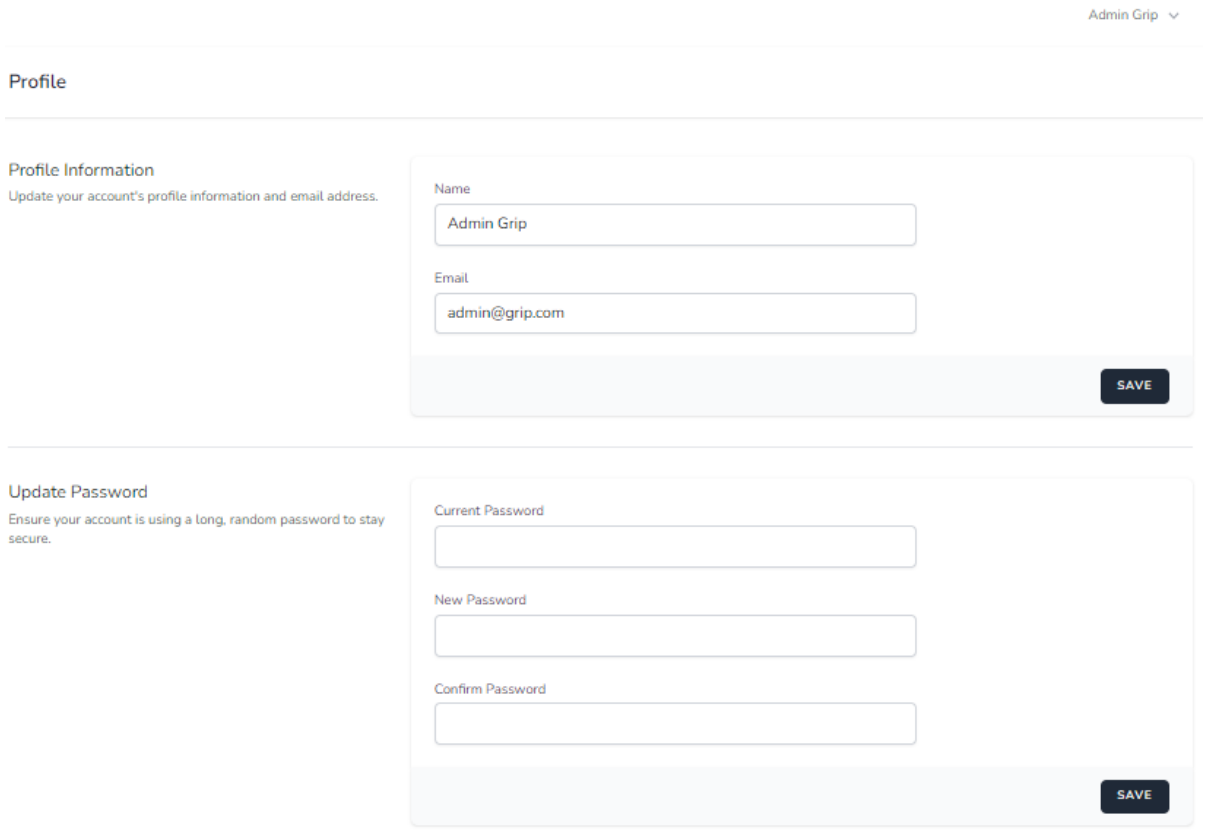


Figure 5.5.5: Update Name & Password

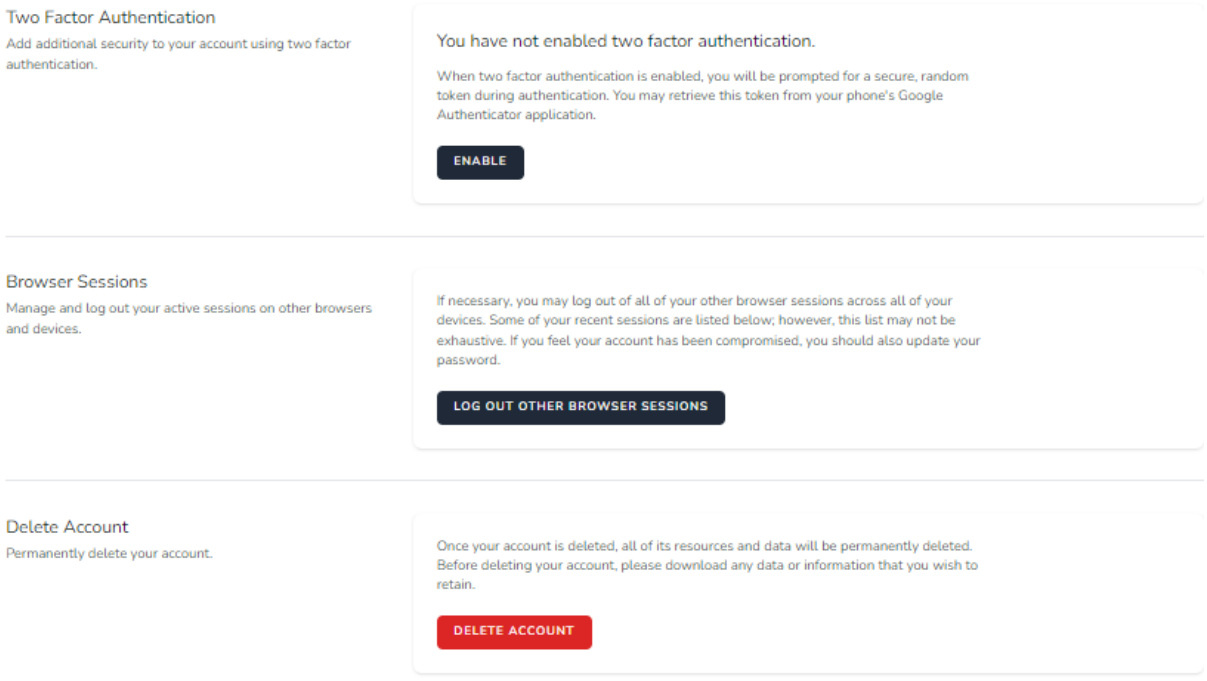


Figure 5.5.6: Functions

Admin Login:

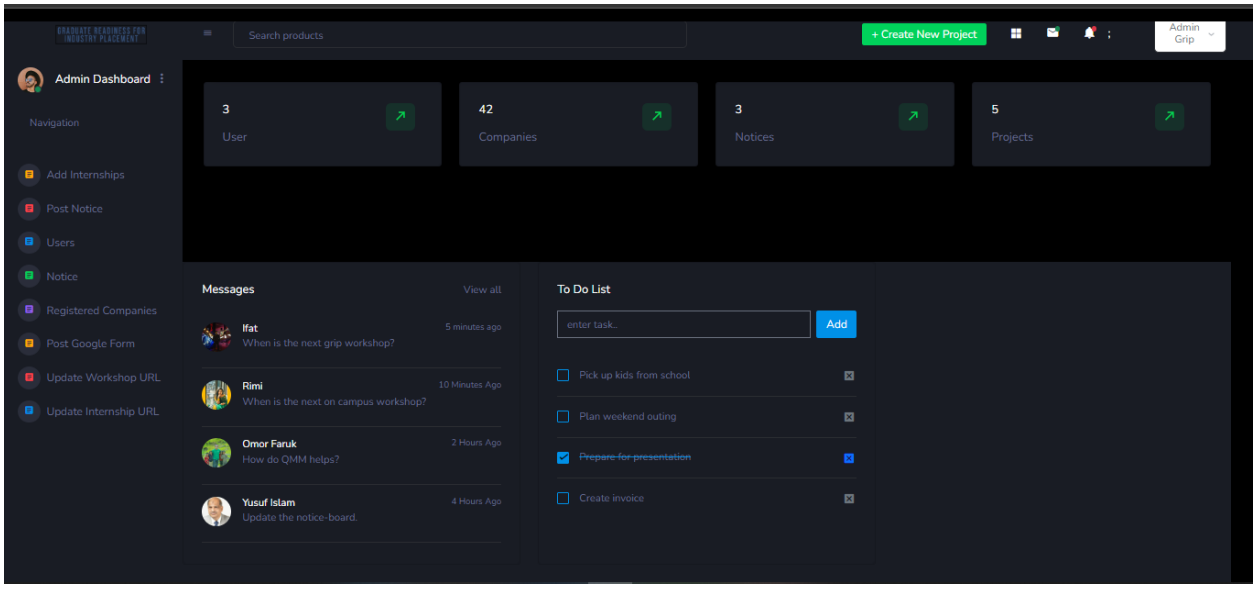


Figure 5.5.7:Admin Dashboard

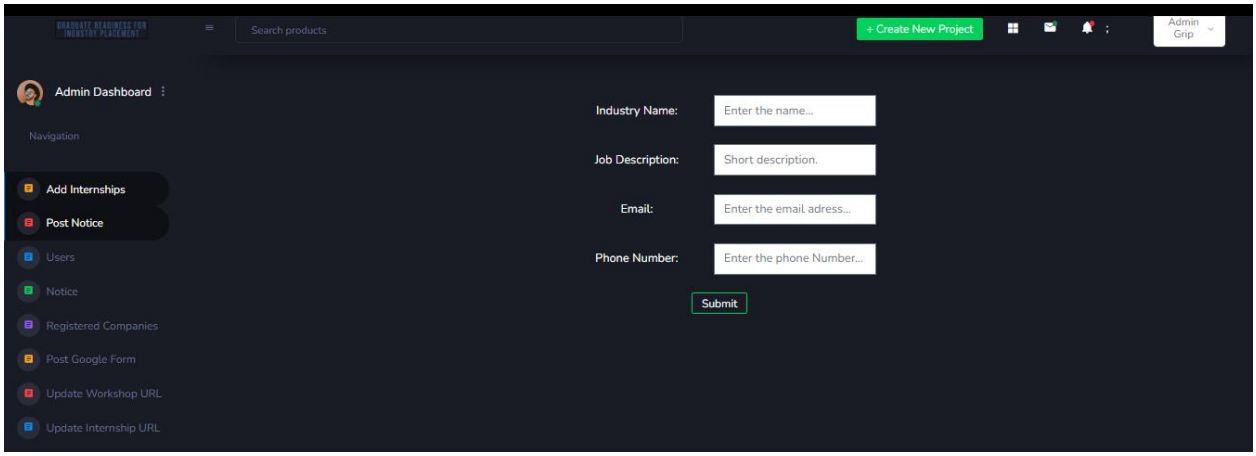


Figure 5.5.8: Adding Internships Function Page

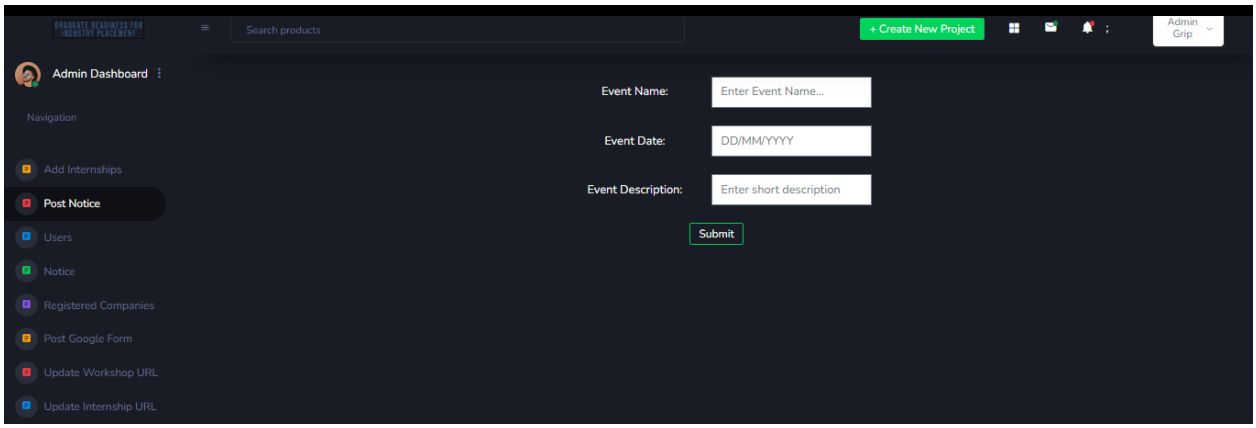


Figure 5.5.9: Adding Internships Notice Page

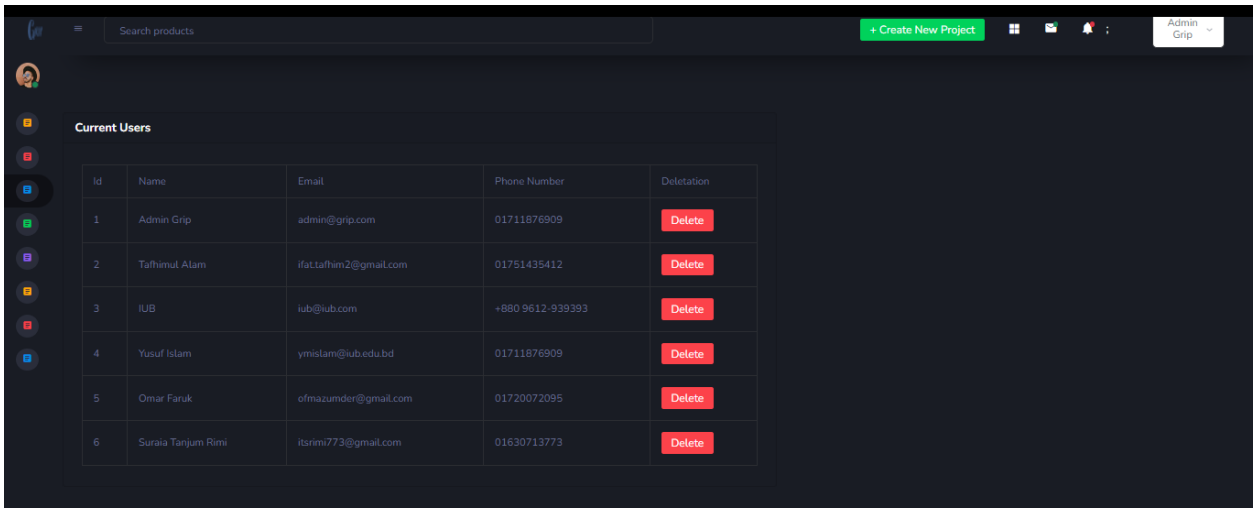


Figure 5.5.10: Viewing Users Page

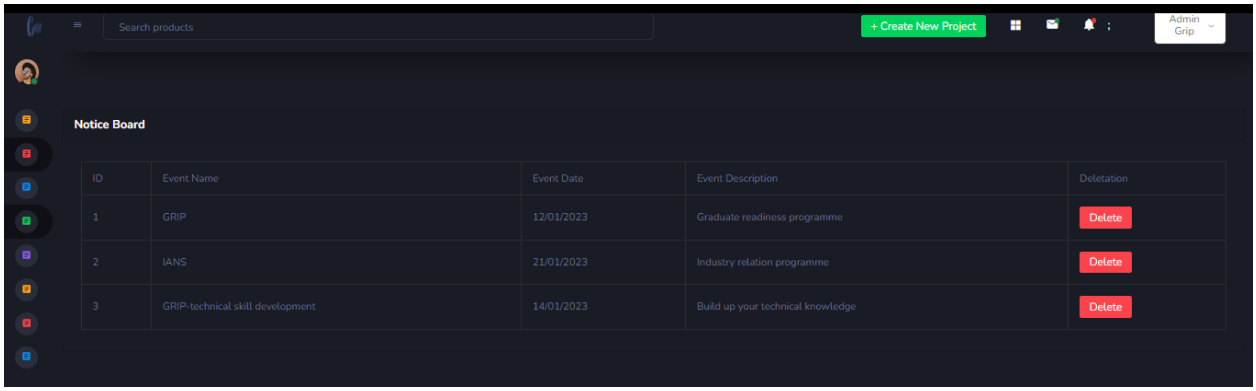


Figure 5.5.11: Viewing Notice Page

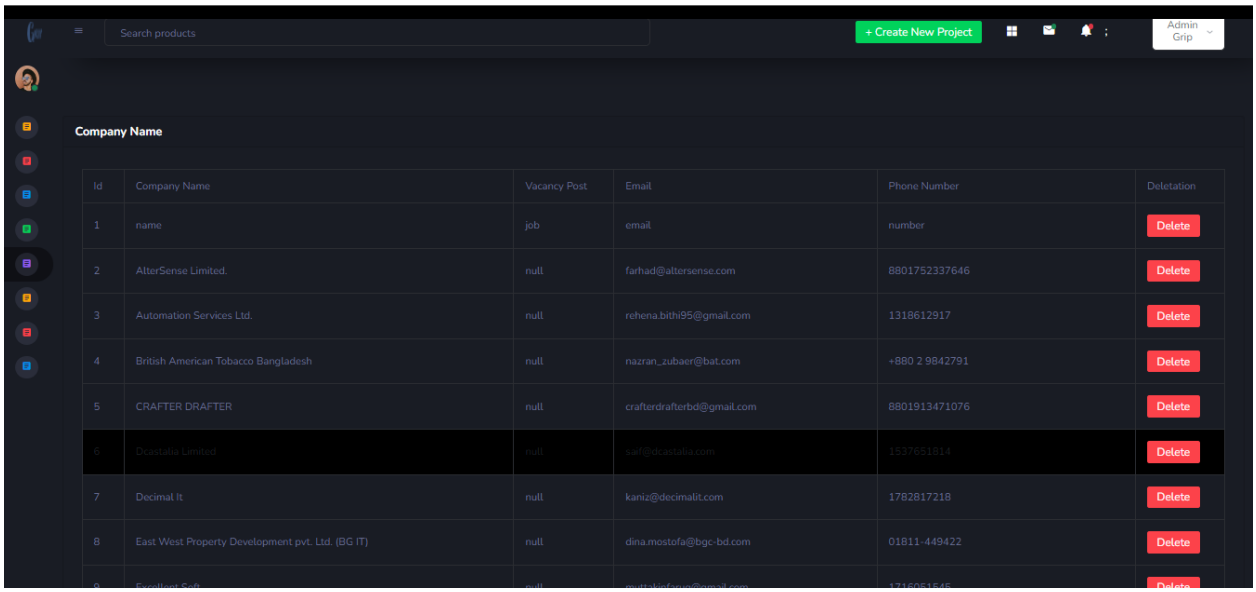


Figure 5.5.12: Viewing Company Registered Page

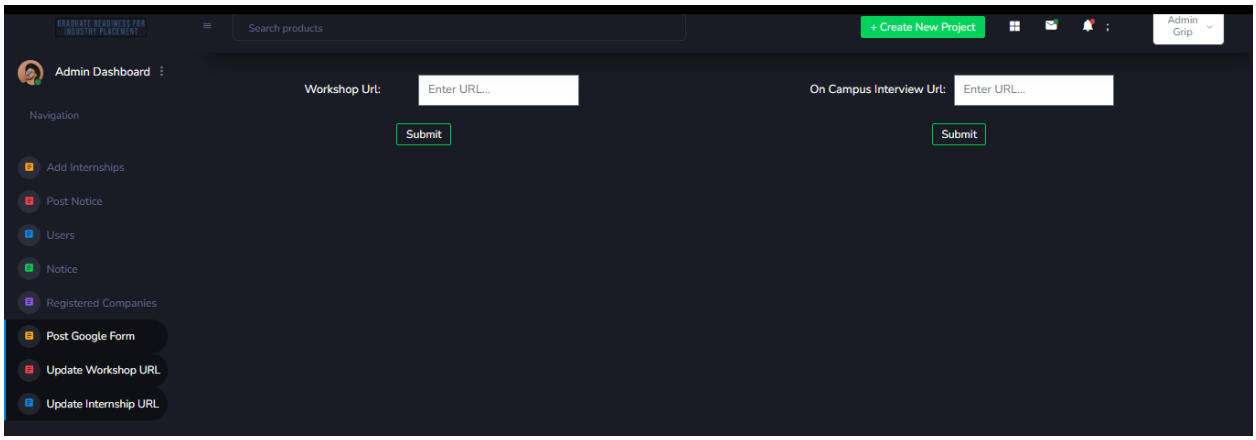


Figure 5.5.13: Google form Update

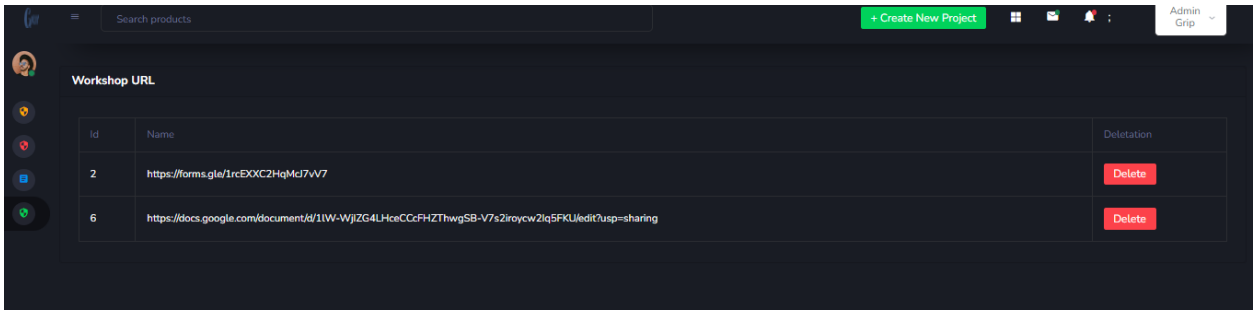


Figure 5.5.15: Workshop Google Form

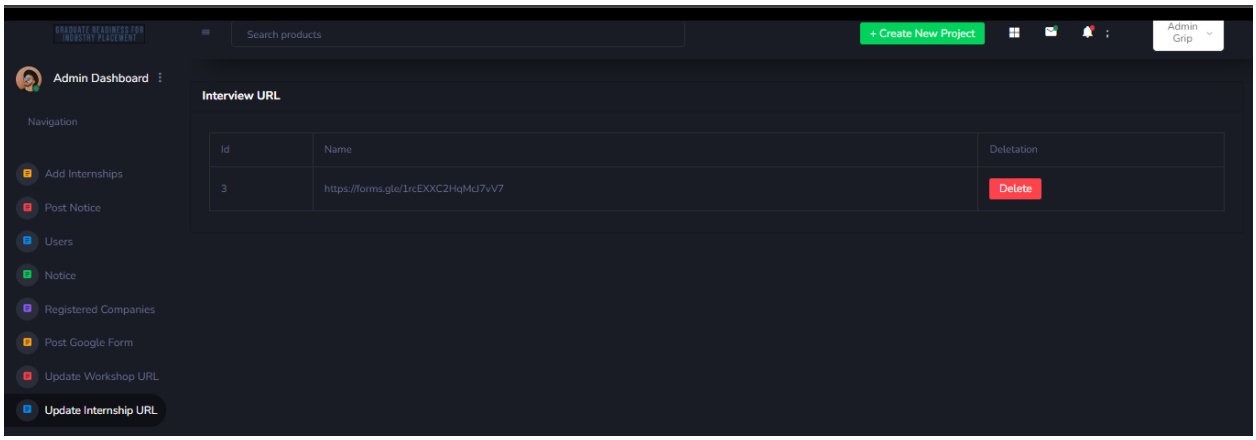


Figure 5.5.16: On-Campus Interview Google Form

User Login:

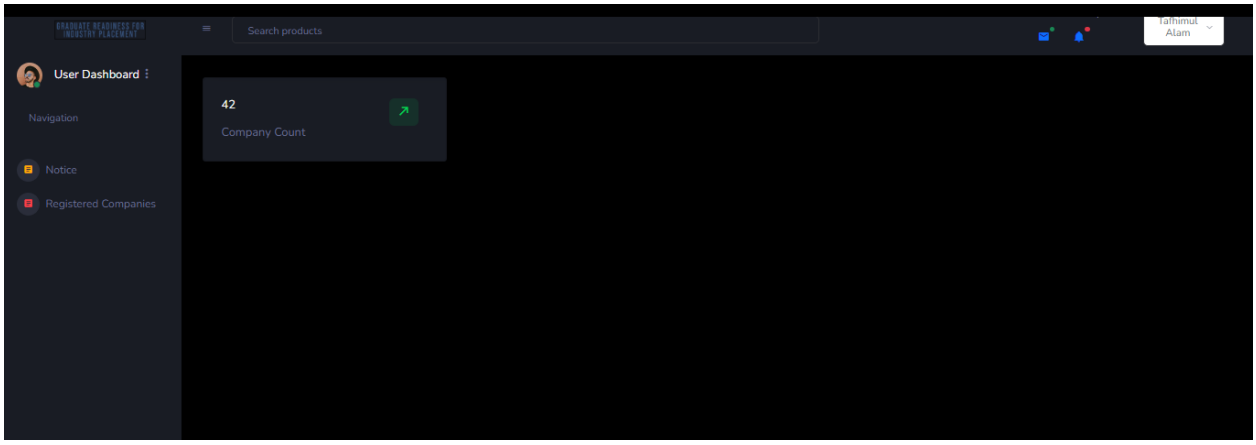


Figure 5.5.17: User Dashboard

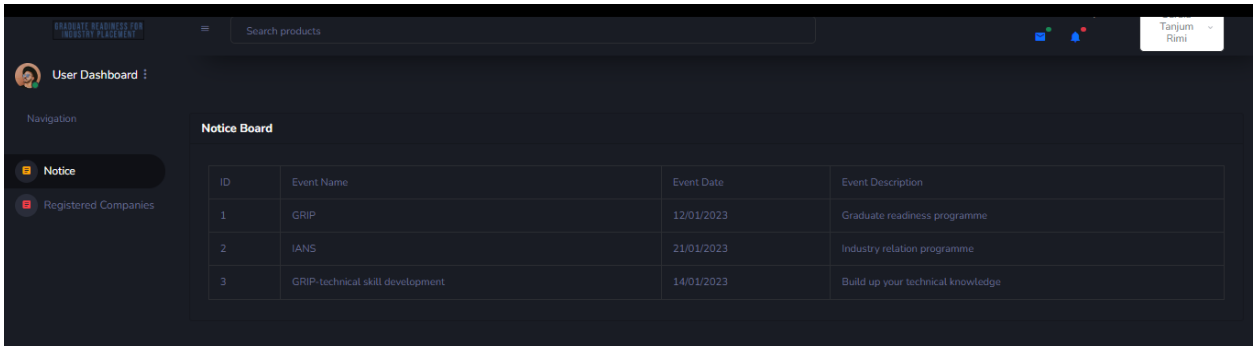


Figure 5.5.18: User Notice Board

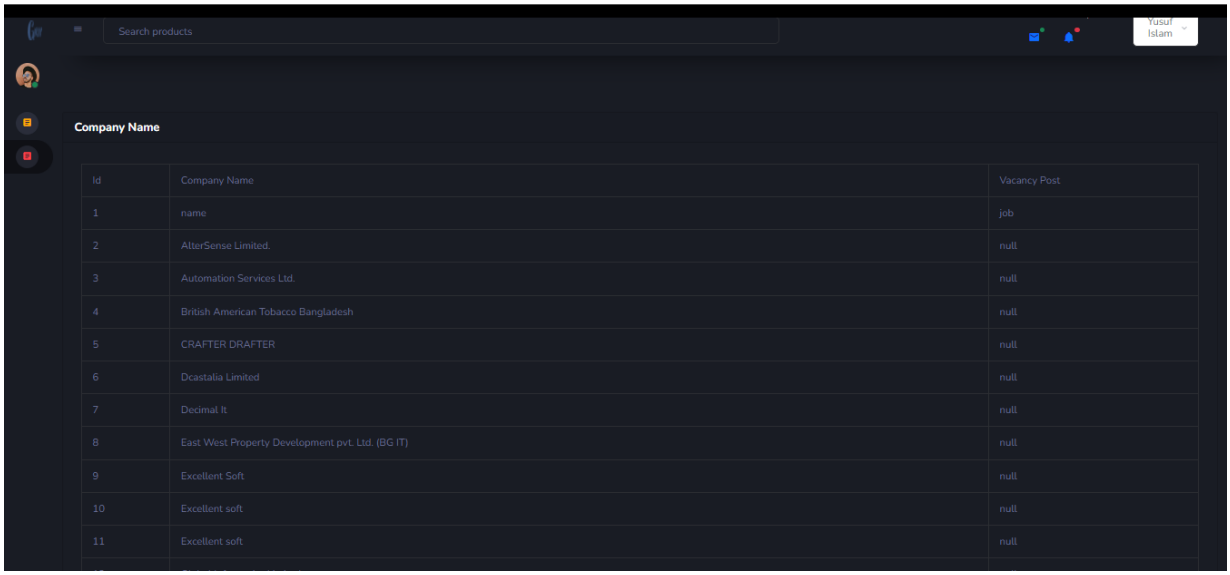


Figure 5.5.18: User Company List

Chapter 6:

Results & Analysis

The results part should endeavor to recount the findings without attempting to analyze or assess them, as well as give guidance to the research paper's discussion section. The results are given, and the analysis is revealed. The writer outlines what was done with the data discovered in the analysis section. To create the analysis section, it is necessary to know what the analysis consisted of, although this does not imply that data is required. The analysis should have already been completed before starting the findings section.

Several difficulties arose when testing the application. This was a small problem that we were able to fix. After these issues were resolved, test cases were documented. All test cases have been justified using testing approaches. We conducted our tests on a local server.

6.1 Software Testing

Software testing is a process of determining if the actual software product meets the expected criteria and ensuring that the software product is free of defects. It entails running software components through their paces using human or automated techniques to evaluate one or more attributes of interest. The goal of software testing is to find mistakes, gaps, or missing requirements in comparison to the actual requirements. The graph below depicts the outcomes of assignments on which I have worked. Each job is only offered if and only if it successfully fits the requirements.

User:

Test ID	Test Case	Description	Steps to be Executed	Expected Result	Actual Result	Data Passing	Pass/ Fail
T1	Student Register	To attend any sessions, the user must first successfully register.	1. From the Navbar users need to go register page 2. Input all the information. 3. Click on Sign In	The data will be saved in the database.	The data will be saved in the database.	1.Name 2.Email 3.Phone 4.Number 5.Password	Pass

Test ID	Test Case	Description	Steps to be Executed	Expected Result	Actual Result	Data 1. Passing	Pass/ Fail
T2	Sign In	The user must sign in using their registered email address.	1. From the navbar, navigate to the Login page. 2. Input all the information. 3. Click on Sign In	If the information is in the database, it will be redirected to the user's/admin's dashboard.	If the information is in the database, it will be Redirected to the user's/ admin's dashboard.	2. Email 3. Password	pass
T3	Notice board	All users can see the noticeboard. This will be shown in the Noticeboard. Anyone Can see this without login	Go to the website and slide down.	The information will be Shown from the database	They will know all information about workshops and sessions	1. Event Name 2. Date 3. Description	Pass
T3	Company List	All users can see the Company list. This will be shown in the Company List page. Anyone Can see this without login	Go to the website and slide down.	The information will be Shown from the database	They will know all information about workshops and sessions	1. Company name 2. Vacancy post	Pass

Admin:

Test ID	Test Case	Description	Steps to be Executed	Expected Result	Actual Result	Data Passing	Pass/ Fail
T1	Register	To attend an sessions, the user must first successfully register.	1. From the Navbar users need to go register page 2. Input all the informatio n. 3. Click on Sign In	The data will be saved in the database.	The data will be saved in the database.	1.Name 2.Email 3.Phone 4.Number 5.Password	pass
T2	Sign In	The user must sign in using their registered email address.	1. From the navbar, navigate to the Login page. 2. Input all the informatio n. 3. Click on Sign In	If the informatio n is in the database, it will be redirected to the user's/adm in's dashboard.	If the information is in the database, it will be redirected to the user's/ admin's dashboard.	1.Email 2.Password	pass
T3	Noticeboar d Update	Admin can update the notice board, see the noticeboard . This will be shown in the Post Notice and Noticeboard page.	Go to the website and slide down.	The informatio n will be Shown from the database	They will know all information about workshops and sessions	1.Event Name 2.Date 3.Descripti on 4.Delete button	pass

Test ID	Test Case	Description	Steps to be Executed	Expected Result	Actual Result	Data Passing	Pass/ Fail
T4	Company Update Update	Admin can update the company list, see the company list This will be shown in the Post internship and Registered Company page.	Go to the website and slide down.	The information will be Shown from the database	They will know all information about workshops and sessions	1. Company name 2.Vacancy post 3..Delete button	pass
T5	Google form update for Register button on Index Page	Admin can update the URL, see the URL. This will be shown in the Post Gform and Update Google form page.	Go to the website and slide down.	The information will be Shown from the database	The google form link will be added to redirect	1.URL	pass

Chapter 7:

Project as Engineering Problem Analysis

7.1 Sustainability of the Project/Work

Most engineering issues can be solved in more than one way. The engineer's goal is to find the best answer he or she can using the tools at hand. Engineers are held formally accountable for the reliability and effectiveness of their creations. The goal is to find the best straightforward, secure, and economical solution to a given problem. Of course, one of the applied sciences is engineering. The engineer's individual tasks fall under a broad category. From the position of a pure scientist to that of a sales or applications engineer,

which deals more with people-oriented topics like psychology and economics, they span both categories.

A product can be sustainable in three main categories:

• **Community Sustainability:**. It is anticipated that "GRIP" will build a significant user base following its development and formal release, and that a user community with shared interests will develop from it.

• **Financial Sustainability:** Early on, the system intends to be completely free to use. Through targeted advertisements, it will make money. Because the majority of the cost of 'GRIP' maintenance will be for domain hosting and database storage, running advertising on the system will be able to cover the costs at first.

• **Organizational Sustainability:** It concerns how the company will carry on doing business following the application's release. The company typically uses its current team, a tended team, or a brand-new team to maintain an application after it has been released. Organizations also update their projects by including newer features in them, and they may switch to other projects, grow their teams, form new teams, etc. Numerous additional features for GRIP are scheduled to be developed and released. Since there are further plans for the application, it will be upgraded and maintained once it is released in addition to receiving premium services. So, the project is organizationally sustainable, it may be concluded.

7.2 Social and Environmental Effects and Analysis

Technology is increasing at a very fast pace. To keep with technology, people are in need of computers. Be it schools, work, home or any other aspect in life

Social Effect: An internship website is that it can help bridge the gap between students and employers. Many students may have difficulty finding internships or learning about opportunities that are available to them, but an internship website can make it easier for them to find and apply for internships that align with their interests and skills. Overall, an internship website can play an important role in facilitating connections between students and employers, and can help to promote career development and workforce development.Again, The website can be a bridgeway for individuals with the tools and knowledge they need to succeed in job interviews, which can lead to increased employment opportunities and higher salaries. Additionally, this could also help to reduce unemployment rates by equipping job seekers with the skills they need to secure employment.

Environmental Effects: The main environmental factors that may impact the website's performance include technological advancements, changes in user behavior, and shifts in industry trends. For example, as technology continues to evolve, the website may need to adapt to new platforms and devices in order to remain accessible to users. Additionally,

changes in user behavior, such as an increase in mobile usage, may also affect the website's design and functionality. Furthermore, shifts in industry trends, such as a growing focus on virtual internships, may also have an impact on the website's offerings and user base. It's important for the website to continuously monitor and adapt to these environmental factors in order to stay competitive and relevant to its users.

7.3 Addressing Ethics and Ethical Issues

Ethics is rooted in the ancient Greek philosophical inquiry of moral life. It refers to a system of principles which can critically change previous considerations about choices and actions. It is said that ethics is the branch of philosophy which deals with the dynamics of decision making concerning what is right and wrong. Scientific research work, as all human activities, is governed by individual, community and social values. Research ethics involve requirements on daily work, the protection of dignity of subjects and the publication of the information in the research. We, as the developers, adhered to all codes of conduct and privacy as we respect the user's privacy.

- **No Sharing or Selling of User Data:** The system will not compromise any user data to any one nor will it allow purchasing of any data.

- **Data Security:** Only the owner, admin(s) and lead developer of `*GRIP'* website will have access to the database of the system to limit the chances of data compromise.

- **Clean Ads:** The advertisement that will be run on `*GRIP'* website will be the ones that are clear and clean. No sort of spam, scam or fussy ads will be allowed on the system. Keeping those ads relevant and being specific about the system will be managed under advertising policy.

- **No discrimination Policy:** Apart from certain age restrictions, no one shall be discriminated against in `*GRIP'* website. It does not discriminate against any kind of users based on race, sexuality, gender, religion, color, beliefs, political, be it national or international, birth or status.

Chapter 8:

Lesson Learned

My experience working as an intern at the *"Office of Industry Relationship, SETS"* has really opened my eyes. I experienced numerous hurdles, which I overcame by devising workarounds or solutions to those problems.

8.1 Problems Faced During this Period

Apart from all these, I have faced lots of challenges while working on this Project. Some of these are listed below

• **Work Environment:** At work, I also faced some difficulties. I had to show up on time and go to every meeting. I had to make sure I complied with all the rules and regulations that I needed to abide by precisely. I had a very short time to become accustomed to their workplace culture. I was unfamiliar with the idea of a full-stack web application, and on top of that, I had to learn Laravel for the back end and a whole new JavaScript library called Bootstrap.

• **Adapting to New Technologies:** I had to learn and adjust to new company technology because this was the first time I had ever worked on a web application in an office setting. It was possible to acquire the skill set, but it was challenging to put those skills to use in real life scenarios.

• **Identifying and Fixing Bugs:** Some bugs were very difficult to locate, and even when they were, fixing them was a significant challenge. Some faults were so challenging to resolve that it would take about a week to address them.

8.2 Solution of those Problems

I've learned a lot during the last few years as an undergraduate student. It assisted me in discovering the majority of the answers to this difficulty. Solution for those problems is listed below:

- **Work Environment:**I gained the essential skill of time management from my university courses. As a result, I was able to arrange my schedule appropriately so that I could fulfill the deadlines while studying for my other courses as well.
- **Adapting to New Technologies:** In the beginning it was a difficult situation for me to adapt with new technologies. But after some days I got used to the entire process with the help of my supervisor.
- **Identifying and Fixing Bugs**: I frequently use the website "Stack overflow" for assistance, and a friend of mine who is a developer helped me to resolve certain problems. I had to change my code in order to fix an issue that I was unable to resolve.

Chapter 9:

Future Work & Conclusion

9.1 Future Works

The 'GRIP' is currently in development. Before they can be built, some features still need to be developed. It is the system's initial design. It has numerous areas for improvement. Among them some are:

- Built in registration form for workshop.
- Built in registration form for on campus interview.
- Add a live chat system to help with student problems
- Engage with broader types of users.
- Improve the existing system.

9.2 Conclusion

One of the prime reasons that online systems are gaining popularity in recent days is that this kind of system provides an easier facility to the general users. This paper has proposed an online system built on the web service architecture. The web service architecture would provide an appropriate paradigm for students who want to apply for internship interviews and want to join the workshops in a single place without having to go through the hassle of previous implications. This system integer's technology of bootstrap and Laravel. This system is designed to achieve maximum user satisfaction. I got first-hand experience of what it is like to work in a professional environment. I learned state of the art technology in web development like Laravel. I always had an interest in becoming a full-stack engineer. Working on such an exciting project like *the ' Graduate Readiness For Industry Placement '* project boosted my self-confidence. I also learned how to collaborate with other colleagues, and consequently improved my interpersonal skills such as communication, teamwork, edibility, working calmly under pressure and how to maintain an affinity with my co-workers. I am very grateful for an experience like this. I feel like working and applying my skills in actual development is really rewarding and self-satisfying. And it helped me to gain confidence to work on more projects like this.

In conclusion, I would like to thank both my supervisors whose guidance and encouragement Persuaded me to strive for the success in this project and for the endless project to come my way in future.

Bibliography

• [Online]. Available: https://www.ecpi.edu/blog/reasons-why-information-systems-are importantfor-business-today

• M. Mong, M. M. is a Vice President for Adeaca, and is on a mission to create the Project Business Automation category in the market. He leads Adeaca's thought leadership in project business. He has significant experience in high-growth ventures, "What is a work breakdown structure?" Apr 2021. [Online]. Available: https://www.adeaca.com/blog/faq-items/what-is-a-work-breakdown-structure/ • What is the system's development life cycle." [Online]. Available:

https://www.veracode.com/security/ what-systems-development-life-cycle • What is scrum?" [Online]. Available: https://www.scrum.org/resources/what-is-scrum • Updates to the scrum guide: The 5 scrum values take center stage." [Online].

Available: https://www.scrum.org/resources/blog/5-scrum-values-take-center-stage • Online]. Available:

https://www.tutorialspoint.com/system%20analysis%20and%20design/system%20analysis%20and%20design%20overview.htm

• B. Donald, \Uml basics, part ii: Activity diagram," Accessed online at http://www. ibm. com/developerworks/rational/library/content/RationalEdge/sep03/f uml basics db. pdf, 2003.

• Research paper writing: 9. reference." [Online]. Available:

https://wiu.libguides.com/c.php?g=295539& amp;p=1970529

• M. C. Shaw, \1 - what engineers do," in Engineering Problem Solving, M. C. Shaw, Ed. Norwich, NY: William Andrew Publishing, 2001, pp. 1{10. [Online]. Available:

https://www.sciencedirect.com/science/article/pii/B9780815514473500029

An Undergraduate Internship/Project on Website for The Graduate Readiness for Industry Placement (GRIP)

By

Suraia Tanjum Rimi

Student ID: **1720441**

Autumn, 2022

Consent from Supervisor

The student modified the internship final report as per the recommendations made by his/her academic supervisor and/or panel members during and/or before final viva, and the department can use this version for archiving as well as the OBE course material for CSE499.

(Signature)

Yusuf Mahbubul Islam, PhD
Professor
Department of Computer Science & Engineering
Independent University, Bangladesh