An Undergraduate Internship/Project on Topic

By

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Attestation

This is to certify that the report titled "**Gossip**" is completed by me, **Jenat Afrin Akhi (1722098)**, submitted in partial fulfillment of the requirement for the Degree of Computer Science and Engineering from Independent University, Bangladesh (IUB). It has been completed under the guidance of **Mr. Bijoy Rahman Arif** swir (Supervisor). I also make sure that all my work is the first one I learned during my Internship. All sources used for this project and report are duly accepted into it.

Akhi

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Signature   Date

Write Your Name Here

           Jenat Afrin Akhi
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Name

Acknowledgement

Letter of Transmittal

Mr. Bjioy Rahman Arif

Lecturer

Department of Computer Science and Engineering

School of Engineering and Computer Science

Independent University, Bangladesh

Subject: **Submission of Internship Report for the completion of Graduation.**

Dear Sir,

I am submitting my Reading report, which is part of the Bachelor Program Computer Science and Engineering curriculum. It is a great achievement to work under it your effective monitoring. The report is based on, "AnandaSoftBD Internship". I had the opportunity to work at AnandaSoftBD for three months, under surveillance of Md. Mukhlesur Rahman, Head and Chief Executive Officer, AnandaSoftBD. This training has given me both academic and operational exposure. The internship has has given me the opportunity to improve the network and business environment. I tried to make this report as informative as possible with the information I have gained during my internship. In order to prepare a formal internship report, I follow the guidelines and explain the required fields in sufficient detail, however, I sincerely believe that this report will serve the purpose of my learning program.

I will be very responsible if you are kind enough to receive this report and provide yours important judgment. It would be my great pleasure if you found this report helpful too information to have a clear view of the matter.

Sincerely Yours,

Jenat Afrin Akhi

ID: 1722098

Department of Computer Science and Engineering

Independent University, Bangladesh

Evaluation Committee

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Abstract

Internship is defined as the acquisition of practical information for various organizations-contributes to the building of a connection between theory and practice information. It is very important because this is the first time you have a student the ability to do something information from various organizations. When given i An internship at AnandaSoftbd, I had the opportunity to work and study with him a team of engineers. The purpose of this project was to create a web application using laravel framework with livewire technologies enabling the framework to have the ability to work in real-time basis. This report covers every project I learned during my study period. I had to complete my study periods before working on any project, and this time lesson, I was assigned to improve the landing page, dashboard, the action of different parts and certain background codes. It was almost like a skill check before one real shared project. Give me details and information I what I have gained and the work I can do as a qualified student at AnandaSoftbd, in this port. I have worked on an app website where most of my work involves development the whole place.

Contents

Chapter 1

Introduction

Internship is a learning experience as a professional job. It offers mostly practical work based on real life scenario related to the student's (internee's) major subject or career interest. Also, an internship provides a student an opportunity to relate their theoretical knowledge with the tough real world environments. Through internship, a person can gain enough skill for getting a job related to that field in the future. For me, it also game me the opportunity to observe, learn and practice under a professional's supervision of that field. Being a student of Independent University, Bangladesh (IUB), I must complete my internship from a reputed company on a respect field so that I can get job in future on that same field or other. I worked for around 3 months.

1.1 Overview/Background of the Work

As an intern, I faced multiple challenges other than learning new programming languages. For example, managing time for every tasks and report it to my supervisor. I started my internship at AnandaSoftbd on 12th January 2022 as a junior software engineer and was given the task to develop a single page web application called 'Gossip'.

This application is unique on the way of creating account by using only email and password. The user can then easily chat with all other different users.

1.2 Objectives

Project objectives are what we plan to reap by the cease of our undertaking. The goals of a assignment are particular, measurable and should meet time, finances and most importantly meet the customer's necessities. the principle goals of this software are described beneath:

- **Creating account using email:** The following user can create his/her account using only email and password.

- **Messenger Dashboard:** The user's front page will display the users available for chat on the left, main message on the right side. The message list will also show a pop up showing total number of unread messages.

- **Messenger Interface:** The main message will consist of the name of the user on the left of the following user who is texting from the other app (second person), the background color of the message will be ash, the logged in user's message will have background color of blue. And the whole background color will be white.

- **Main Messenger Interface:** There will be a text box on the middle button of the page with a "send" button on the right. All the messages will contain the time and date of the sent message.

1.3 Scopes

This web application will have user authentication for the people who have active account on it. This means that only the user will be their designated account only.

The entire application will load its contents dynamically i.e. the information will be updated in real time basis. The information includes: User's primary information (User name, account email, password, primary messages and secondary messages).

There will be no chance of secondary login, if any, as the user must need to logout from the following logged in account and then log in on different account.

Chapter 2

Literature Review

2.1 Relationship with Undergraduate Studies

Literature review is a short summary of a studies paper primarily based at the same subject matter. It encompass numerous varieties of books, papers, article, and so on. which means it is basically explains the modern-day take a look at with the vital records that might be useful for the ongoing venture of that equal subject matter.

Similarity with the undergraduate education:

- **Database management system(CSE303):**The following web application requires database to store and manipulate various types of important data that is needed to run the application. This course help me to design the entity relation diagram (ERD) and enhanced entity relation diagram (EERD), relational database and, if needed, normalize the relational schema to simplify the database and make it more efficient.

- **Object oriented programming(CSE213):** To build the database, the data first need to be created. And this is done with the concept of object oriented programming. CSE213 or Object oriented programming is a course that teaches students how to create data types (classes) and use inheritance, polymorphism, etc. to implement real world system into efficient programming. This course taught me how a user can become a datatype and use inheritance to build multiple users that fall under the same type of users. Also how to implement each type of users' ability as method of a class.

- **Web application(CSE309)**: The following system is a web based application system. This means that this course is the main course that helped me and will throughout my entire internship. This course taught me how build a web application from scratch. "Gossip" web application uses most of the concept from this course.

2.2   Related works

Most of the related system are developed as a windows software for their development. This software are mostly designed using C# programming language and .NET framework. As our goal for this project is develop the web server, we used different development frameworks that is made for designing web applications. It is challenging to find a related website that has used similar web technologies to our project. Therefore, some software that are similar to our projects are:

- **Messenger:** Messenger is a non-free instant messaging app and platform developed by Meta Platforms. Originally developed as Facebook Chat in 2008, the company revamped its messaging service in 2010, released standalone iOS and Android apps in 2011, and released standalone Facebook Portal hardware for Messenger calling in 2018. Later, Facebook launched a dedicated website interface, Messenger.com, and separated the messaging functionality from the main Facebook app, allowing users to use the web interface or download one of the standalone apps. The service also supports voice and video calling. The standalone apps support using multiple accounts, conversations with optional end-to-end encryption, and playing games.

- **WhatsApp:** WhatsApp Messenger, or simply WhatsApp, is an internationally available American freeware, cross-platform centralized instant messaging (IM) and voice-over-IP (VoIP) service owned by Meta Platforms. It allows users to send text messages and voice messages, make voice and video calls, and share images, documents, user locations, and other content. WhatsApp's client application runs on mobile devices but is also accessible from desktop computers.[16] The service requires a cellular mobile telephone number to sign up.[17] In January 2018, WhatsApp released a standalone business app targeted at small business owners, called WhatsApp Business, to allow companies to communicate with customers who use the standard WhatsApp client

- **Viber:** Viber, or Rakuten Viber, is a cross-platform voice over IP (VoIP) and instant messaging (IM) software application owned by Japanese multinational company Rakuten, provided as freeware for the Google Android, iOS, Microsoft Windows, Apple macOS and GNU/Linux platforms. Users are registered and identified through a cellular telephone number, although the service is accessible on desktop platforms without needing mobile connectivity. In addition to instant messaging it allows users to exchange media such as images and video records, and also provides a paid international landline and mobile calling service called Viber Out. As of 2018, there are over a billion registered users on the network.

Chapter 3

Project Management & Financing

3.1 Work Breakdown Structure

A sequential structure that shows the division of the project into smaller parts is called a Work Breakdown Structure (WBS). In this project, we have produced WBS so that our work is integrated. WBS covers views of all scopes, risks, points communication, obligations, costs and guarantees that do not exceed value delivery. By combining mindfulness and collaboration, it is the right tool for the team. In this case, the WBS was used the way to the top.
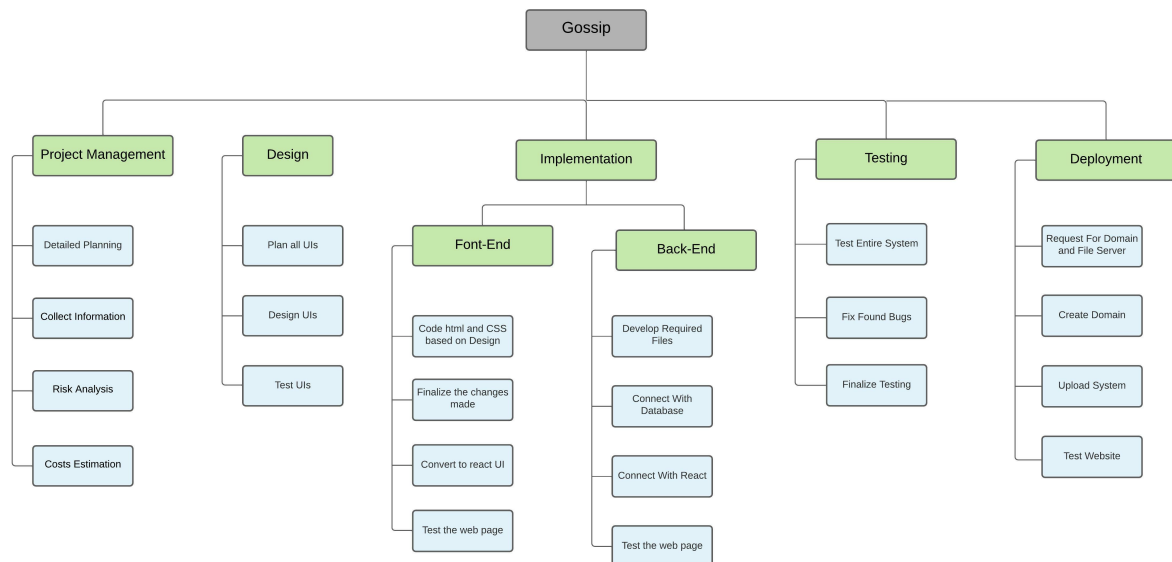

Fig 3.1: Work Breakdown Structure

3.2 Process/Activity wise Time Distribution

In order to complete a project within the estimated time needs a process/activity wise time distribution. This distribution will help to organise all task as it will be divided into sections to make it work more efficiently. Besides, a person can work with more flexibility and easily when the entire project is divided into sub groups. The most important challenge in designing the right way application time management. Therefore, the content should fixed, and progress must be based on this context. A better time management can lead to take less time to complete a task related to project. The critical path method for "Gossip" is given bellow:
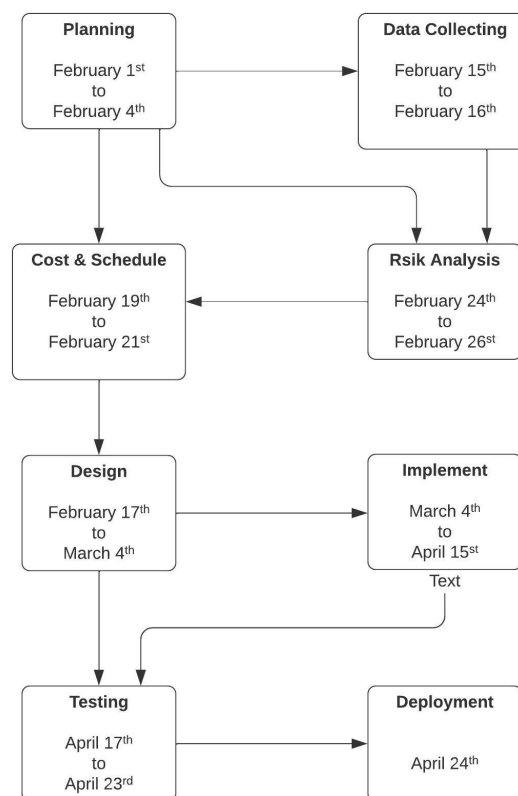

Fig 3.2: Critical Path Method for 'Gossip'

Here we can see that 4 days are required to plan the entire project of what type of project it is, what languages and framework(s)(if any) is/are needed to build it and how. This project consist of little date comparatively and so 2 days is enough. Cost schedule has been collected by the supervisor within 2 days. Designing the front end took 18 days.The most extensive work is implementing as all the design and back-ends will be implemented in a framework, in this case laravel and react. Finally, after implementing, testing will start and 7 days is needed for testing the whole application and finalizing it for public release. The following project will be deployed by 24th April 2022 and released by 26th April 2022.

3.3   Gantt Chart

The Gantt chart is a project management tool that assists planning and organizing projects of all sizes, though especially useful in making complex projects. Project management times and tasks are converted to a horizontal bar chart, showing the start and end dates, as well as dependencies, planning and end dates, including most of the work is completed in each category and who owns the work. This helps keep activities on track where there is a large group and more participants where the scope changes.

Gantt charts are used for the following purposes:

- It helps the entire project to be broken down into small tasks.

- A person can know when a project will start and end.

- Monitor and report progress.

- Display milestones and show key events.

- How long a task is suppose to continue.

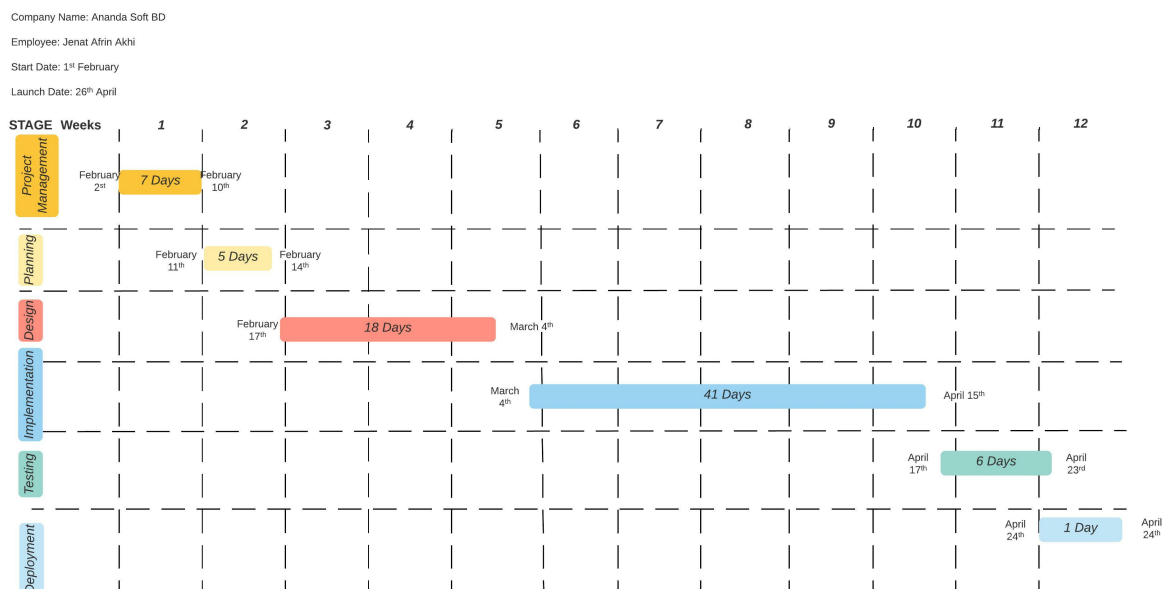The gant chart for 'Gossip' is as follows:

Fig 3.4: Gantt Chart of 'Gossip' project.

On the section 3.2, we have seen the time distribution of project. On the following gantt chart above, it is clearly visible that implementation and design took most of the time of the entire project. Abstractly it is clear that most of the time, in building the entire project, was taken by the design and implement section.

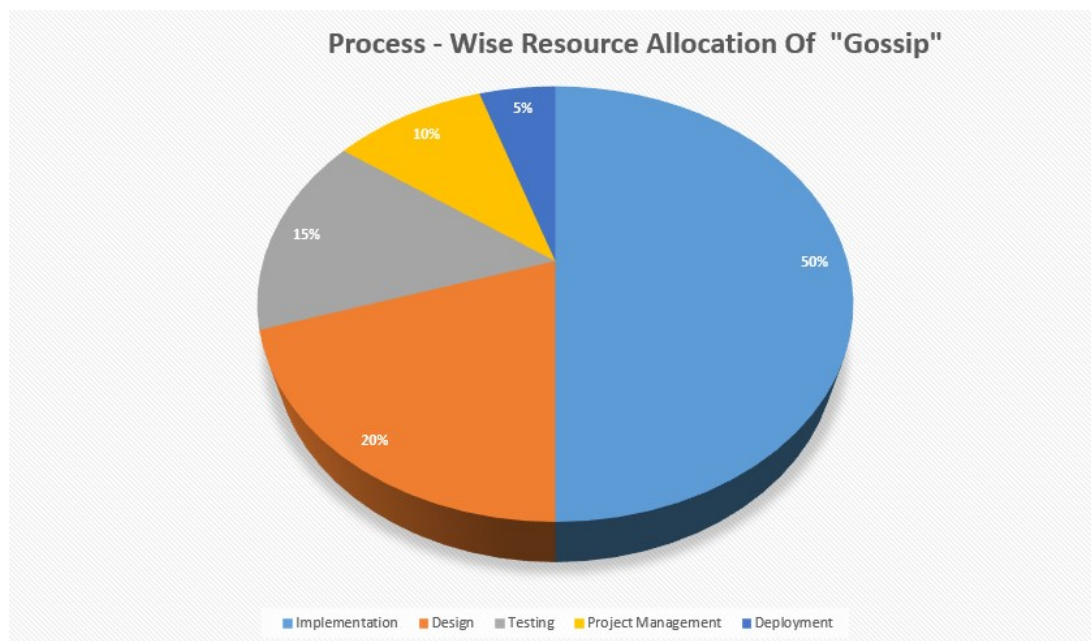## 3.4 Process/Activity wise Resource Allocation

Fig 3.5: Process wise Resource Allocation

Distributing assets in a particular way that supports my own team goals is known as resource sharing. For this project, CS/CSE engineers is the main individuals followed by office computers and servers for airing the application. All company work is considered a resource, which is why everyone has it assigned a specific task with specific deadlines. With respect to the gantt chart of section 3.4, we need of total 77 days for building the entire system. Details of every step of the project are as follows:

- **Project Management:** The first stage or task is project management. This is where the main idea of the project and what it is made for, everything in details is explained. For this project, it took 7 working days or a week to manage all the attributes so that the project could get start build as soon as possible. The tasks of every person for the project management are divided. During the first couple of days, the senior developers and CEO were discussing about how the project should be created i.e. what language(s) will be used from top to bottom. Then the project is divided into sub tasks so that time distribution can be planned. Thus setting goals and other deadlines making the project easier for the employees to arrange and complete their tasks. This following part consumed 10% of the total work.

- **Design:** This is the second stage where the user interface of the following web application is created. For this project, the CEO of Limmex Automation gave freedom to the designer to use any UI/UIX designing tool and so 'Figma' UIX

designing tool was used to design a prototype of the front-end of 'Gossip'. This following part is one of the most consuming part and consumed 20% of the total work.

- **Implementation:** In this stage, all the planning and designing is done. Now the entire application is implemented into framework and test hundreds of times step by step to verify each and every changes that are made to the application. Both the front-end and the back-end are developed and tested as the changes are made. At first the front-end is build using React (javascript library) and then is connected with the Laravel 8(PHP framework) which is going to handle the back-end task of the application. Then the Laravel routing and the authentication is made on 'web.php' file and middleware section. Finally all the logic of every front-end page are written down in PHP using Laravel and tested on every changes. This implementation is a long process and it consumed 50% work of the entire project. Also it took 41 days or around 325 working hours to complete this task.

- **Testing:** Although many testing was made by the developer as per the implementation; however, a finial testing of the project must be done by the head of the project. This testing will be done on all conditions that are necessary for the testing. If problems are found during this test, the project will be send back to the developers along with the errors found for correcting it and further implementing if necessary. Testing consumed 15% work and time of the entire project.

- **Deployment:** The deployment is where the project will be put down for practical use by the client. There are different types of deployment depending on the type of project. For this project, since it is a web based application, the deployment will be a website that can be accessed internationally from anywhere in the world. In order to do this, the following project is need to be uploaded on a server that has public IP. Then a domain is need to be bought with a similar name: 'gossip.com'. Then database is also needed since the application has login features for different types of user. For this project, database is provided by the company's server. If all above are done, the application should be able to start giving service from that moment. Deployment takes only couple of days to finish.

3.5 Estimated Costing

Costing is calculated by the requirements and features that is going to be offered by the following project ordered by the client(s). The requirements and features of the project depends on the size, functionalities and design of the website including prototype(s) of the project, designing necessaries(themes, logo designs, custom pictures, etc.), total number of pages, SEO(search engine optimization), database, authentication, etc. Also the cost of developer and resources used have been taken into account. For the entire project, the final estimated cost was 90, 000, ninety-five thousand, BDT.

Table 3.1: Estimated Costs for 'Gossip'

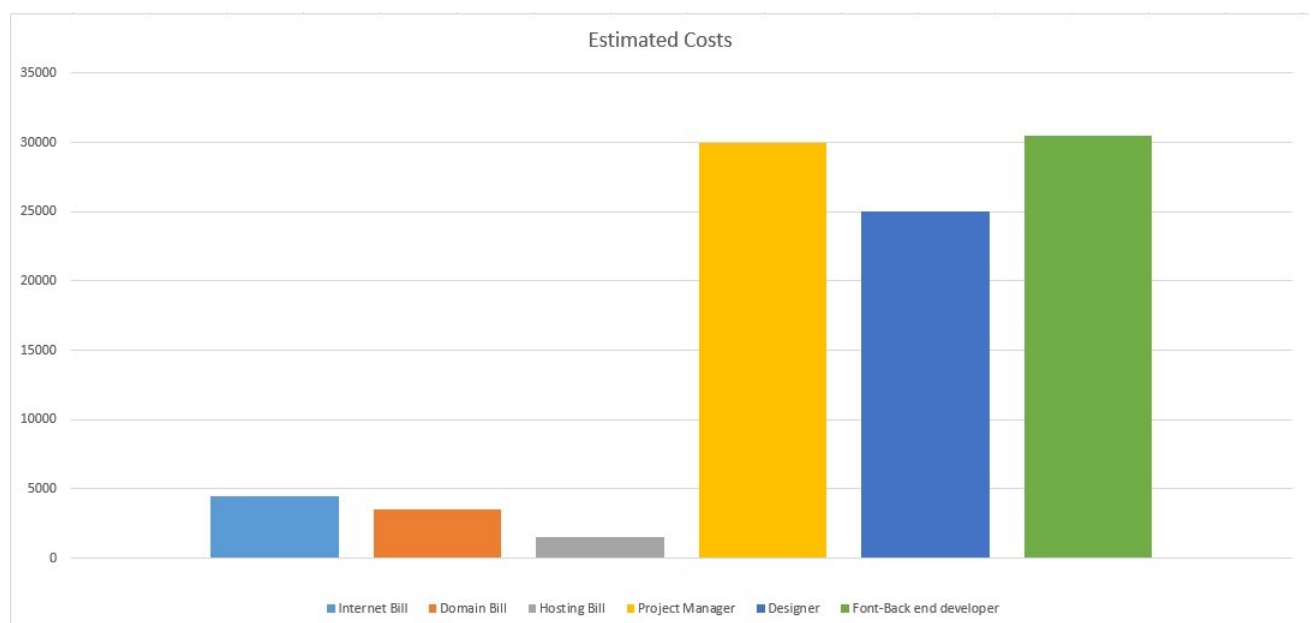| Features	Costs in BDT
Internet Bills	4500
Domain Bills	3500
Hosting Bills	1500
Project Manager	30, 000
Designer	25, 000
Frontend and Backend Developer	30, 500
Total Costs	95, 000

Fig 3.6: Estimated Costs

Chapter 4

Methodology

Methodology is an in depth little by little method that identifies, technique and examine diversity of facts approximately particular subjects. It involves analyzing the manner of how the proposed machine works and switch it to in a platform with more simplified efficient of that gadget. The web utility that i have been operating on, on my internship, used the concept of methodology to feature numerous features and functions to the internet site to make it extra bendy for the customers. the usage of the idea of methodology, I've first understood how the farming control works. Then I divided the device into many components on the way to understand them deeply in order that i can truly the device wherever I'm able to. thus converting it into extra simplified device that is simple to run. additionally the simplified system is easy to understand and put into effect as an internet software. As I need to make recognize how my utility goes to make my client's work easy, methodology helped me to make it clean to convert it into virtual utility.

Chapter 5

Body of the Project

The theme of the project in the report is a detailed discussion of the work of those students who want to know about the depth and completeness of something done. The body of the project shows what is being done, how it is done, what the results are, and what conclusions and recommendations can be made.

5.1   Work Description

Gossip is a system that can manage real time relation between then users that have account on "Gossip". This is a digital system that can maintain and send complete texts in real time. This means that the user can send and receive texts and read them without refreshing the web page.

There is no admin account as this is not a statistical web page and so there is no need of any controlling over the web application. The user can text freely without any complications.

The consists of four modules. These are:

- **Registration:** A person can register to "Gossip" to by using a username, email, and password. As soon as the person enters the following credentials, the person becomes a permanent registered user of the messenger web application called "Gossip".

- **Log In:** In order to log in to "Gossip", the person must need to enter the email id and password. If one of them gets failed to be completed, successfully log in cannot be performed. The user will therefore lose his/her account permanently.

- **Change Username:** A user of "Gossip" can change his/her username to any name the following user wants to.

- **Change Password:** A user of "Gossip" can change his/her password to any characters as long as it follows some conditions for creating password, for example, the password must be at least 8 characters long, must contain at least a symbol, etc.

5.2   System Analysis

System analysis is a problem-solving process that involves looking at a broad approach approach, segmentation, and finding out how they work to achieve a goal. It is used in information technology, where computer-based systems need to be configured once design analysis.

5.2.1   Six Element Analysis

Process	Human	Non-Computing Hardware	Computing Hardware	Software	Database	Network & Communication
1. Log in	In order to start messaging, a person must log in to the system using email and password.	Monitor, mouse, keyboard, al otther devices that are necessary to access and browse internet.	Desktop, Laptops or smart phones	Internet Browsers like: Firefox, Chrome, Microsoft Edge, Safari, Opera, etc.	MySQL	Internet Connection
2. Register	1. The initial page of "Gossip" 2. Fill up the form with Name, email and password.	Monitor, mouse, keyboard, al otther devices that are necessary to access and browse internet.	Desktop, Laptops or smart phones	Internet Browsers like: Firefox, Chrome, Microsoft Edge, Safari, Opera, etc.	MySQL	Internet Connection
3. Send Message	1. Log in to the system as user. 2. Select the person to send text to. 3. Write in the text box. 4. Write the message in the text box and click "Send" button.	Monitor, mouse, keyboard, al otther devices that are necessary to access and browse internet.	Desktop, Laptops or smart phones	Internet Browsers like: Firefox, Chrome, Microsoft Edge, Safari, Opera, etc.	MySQL	Internet Connection
4. View conversations	1. Log in to the system using email and password. 2. Navigate to messages section 3. Select a user to see the conversations.	Monitor, mouse, keyboard, al otther devices that are necessary to access and browse internet.	Desktop, Laptops or smart phones	Internet Browsers like: Firefox, Chrome, Microsoft Edge, Safari, Opera, etc.	MySQL	Internet Connection

Fig 5.2.1: Six elements analysis of "Gissip"

5.2.2   Feasibility Analysis

Possible studies show the functioning of the system vision, it will help: to explain the goals and objectives of building a system in the most efficient, developmental way the best plan and practice. Observation is used to determine which one mental functioning, which includes ensuring that the work is legal and professional possible in addition to economic forgiveness. We will be able to see whether or not what is being done is really worth the support — in a few cases, the business may not work.

The new work system needs to hear whether it is possible to think about it for a specific end purpose to produce a productive effect. This is advised on all issues that can be, in particular, performance or financial matters and how to resolve them by introducing new technologies, operations and financial skills in their project.The most important research feature is the possibility find out if the project has a good chance of success. Split spending compare client needs and more. There are many types of research possible such as operational, technical and economic aspects.

Some of the terms of feasibility analysis are as follows:

- **Technical Feasibility:** Technical Feasibility looks at small components of how to transfer the object or organization (i.e., equipment, work, delivery, the business will find out what areas, development needed, etc.). Think of a technical feasibility study such as strategic planning or strategy how your business will create, store, transfer, and track its products or services. Technical competency research is an incredible and long-term research tool harvest planning. With a few features, it completes as a framework for your product resources grow and you go about your business for your physical gain your market. Also, do not say that the performance of the technology is about how you will deliver product or service.

- **Operational Feasibility:** Potential Performance is part of the problem-solving problem with the support of another proposed program. It helps to use open doors and satisfies the condition as dividing the time between project development. It is important to know that management and clients support the work. There they are the six pieces of structure that can cause the division of performance issues to be resolved. They are performance, knowledge, economy, control, efficiency and resources with a clinical management plan the project must focus on something complete the goal of success.

- • **Schedule Feasibility:** Schedule Performance is indicated as a project opportunity completed during the allotted time. In case the project is of a high standard Chances of lust ending after a fixed date, at that time the possibility of a schedule it is thought to be high. The possibility of a schedule ensures that the project can be completed before a project or technology expires or has no purpose.

- **Economic Feasibility:** The id function of the economic feasibility study is shown the total benefit of the proposed project to tolerate or distribute electrical goods / benefits, to combine benefits and costs with the agency, in another case. offices, and the general public.

5.2.3   Problem Solution Analysis

Problem solving involves thinking and understanding. Although it may seem easy, identifying a problem can be a challenging process. One of the main problems is dealing with them top with a variety of changes in technology day by day. Troubleshooting is an act of to explain the problem; to find the cause of the problem; identification, prioritization, and choosing alternative solutions; and apply the solution. And so is the congress gaining additional needs is important

Solutions of a problem can be found by using the following methods:

- **Define the problem:** Check the situation to focus on the problem, not just its symptoms. Practical ways to solve problems include using flowcharts identify the expected process steps and cause-effect diagrams to be defined and analyze the causes. The sections below help explain how to solve important issues steps. These measures support the involvement of interested parties, the application of facts knowledge, expected comparisons and realities, and a focus on the causes of a problem

- **Evaluate and select an alternative:** Skilled problem solvers use a series of considerations when choosing the best option.

- **Implement and follow up on the solution:** Leaders can be called guide others to use the solution, "sell" the solution, or facilitate implementation with the help of others. Involving others in use is an effective way to gain acquisition and support and reduce resistance to subsequent changes.

5.2.4   Effect and Constraints Analysis

Effect: Without a real time messaging system, it is difficult to maintain communication between people very easily. Maintaining conversations and remembering them and never forget is not an easy task. Almost everyone forgets their conversation with others after a certain period of time. With the help of an online messaging system/platform, a person can never forget any conversation with other people as the conversations are recorded and kept private so that only the eligible users can view the conversations.

Constraints Analysis: Limitations can be used to determine the desired structure of web document, and embedded behavior of applets. Introducing the program formats in which both the author and the viewer can set the parameters of the page layout, some are required and some are optional. This is the last look of a web page the result of a dialogue between the author and the viewer, in which this dialogue takes place without

resolving a set of required and preferred barriers for both parties. We identify two sound system structures, based on different classification methods the task of resolving issues between a web server and a web client. Finally, we define i implementation of a prototype-based constraining web authoring system and viewer, viz and provides limited embedded applets.

5.3 System Design

Process or technique for defining hardware and software architecture, components, modules, interactions, and computer system data to meet specific needs. One can see it as the application of system theory to a computer. Some are scattered with system analysis instruction seems inevitable. Design tools like UML now fix some of the problems of computer systems and connectivity.

5.3.1 Rich Picture

The rich picture is a graphical tool that produces cartoon like representations of problem situations within organizations. Knowledge is gained from multiple stakeholders and differing viewpoints usually within a workshop context. A rich picture is used as one of the 3 primary tools in his soft system method maintaining that it must not be structured. The rich picture tool is popular amongst many analysts but has been increasingly criticized over the years for its lack of syntax, structure and rules.
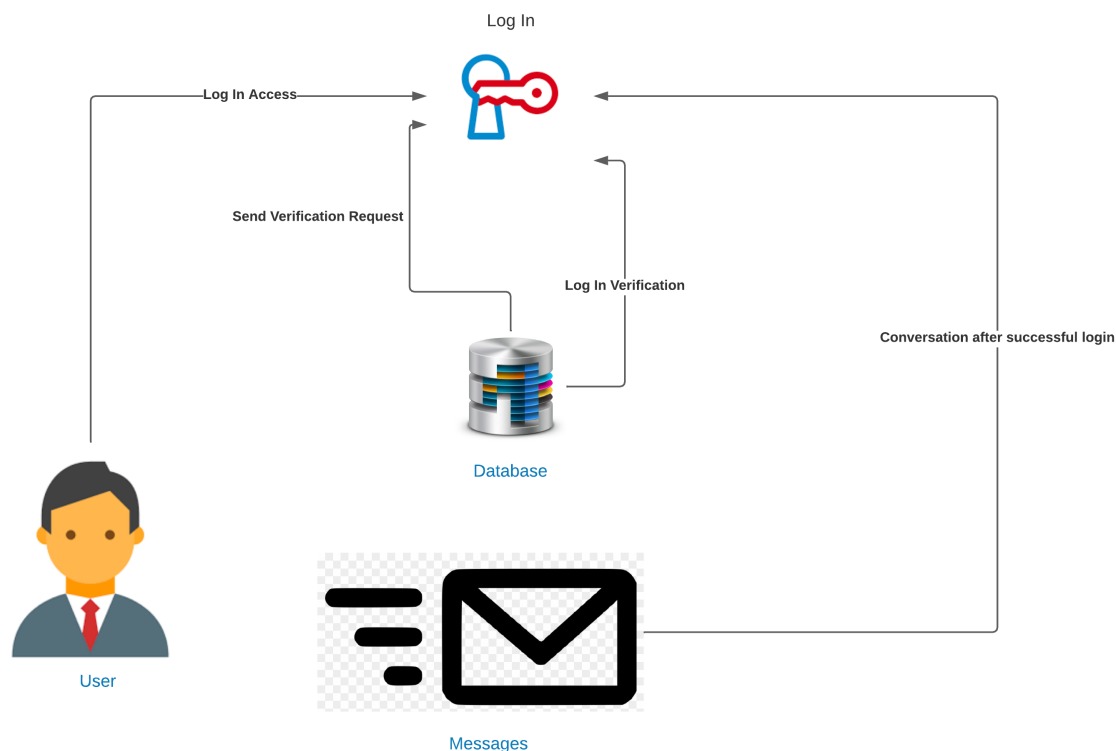
Fig 5.3.1: Rich Picture

5.3.2 UML Diagrams

Integrated Modeling Language (UML) is a common, evolving target language, which exemplifies the field of software engineering aimed at providing quality. how to detect system configuration. Any complex system is better understood to make some kind of drawings or pictures. These drawings have a better effect on us understanding. If we look around, we will see that paintings are not a new concept but it is widely used in different ways in different industries.

Use Case Diagram: A usage case diagram describes how to use it charges were made. For example, let's explain the charge for using a Withdrawal. This the process is done in many steps, such as Enter card, Enter PIN, Select value, take withdraw money and issue a card. Of course, all these services come from customers opinion - but this sequence should not be included in the use case diagram. Other drawings are recommended for that, like a work sketch. A working case diagram should describe the desired function of the system and associate it with the use of cases and characters. Thus it can represent the existing ideas of the system and how it is interpreted in a different way - only then can the needs be fully understood.

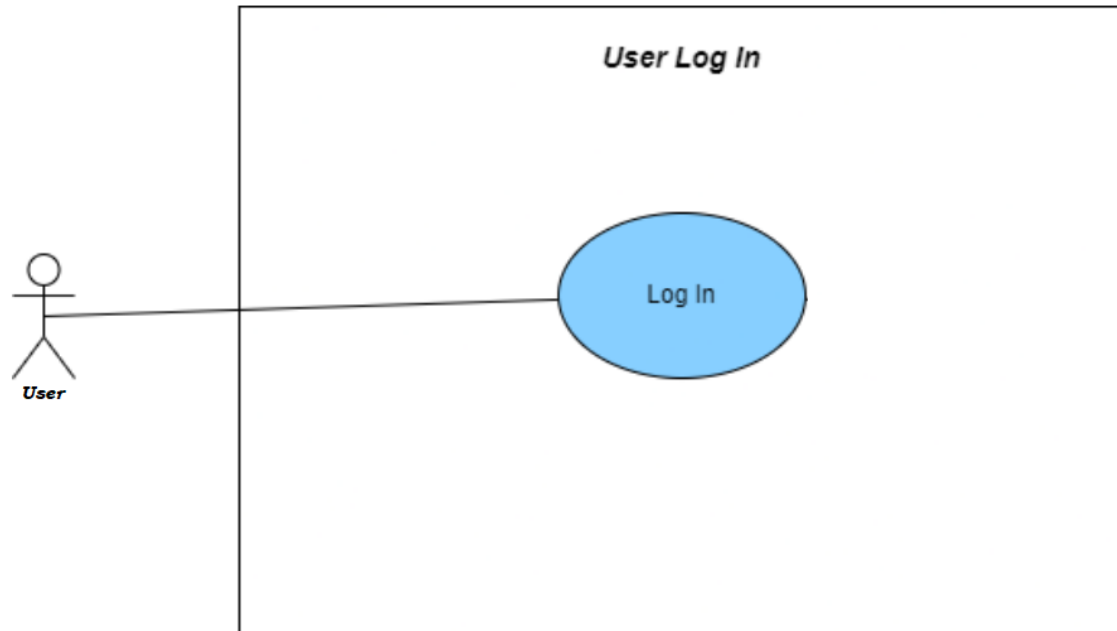Use Case diagrams of Gossip are given below:

Module 1: Log in

Actors: User

Description: The diagram below represents the log in process of "Gossip"
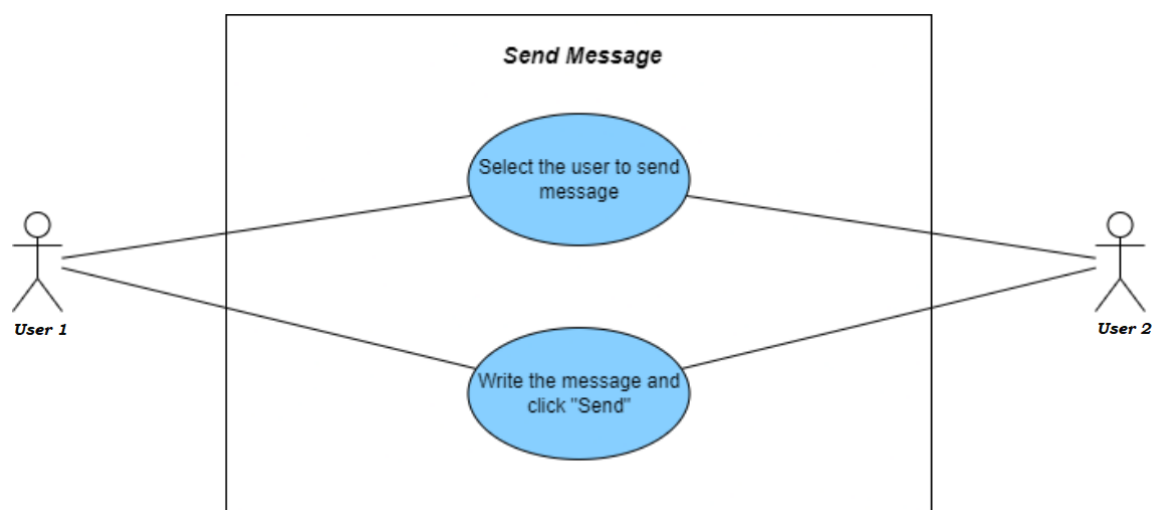

Fig 5.3.1: User Login

Module 2: Send Message

Actors: Sender (User 1) and Receiver(User 2)

Description: The diagram below represents the message sending process of "Gossip"
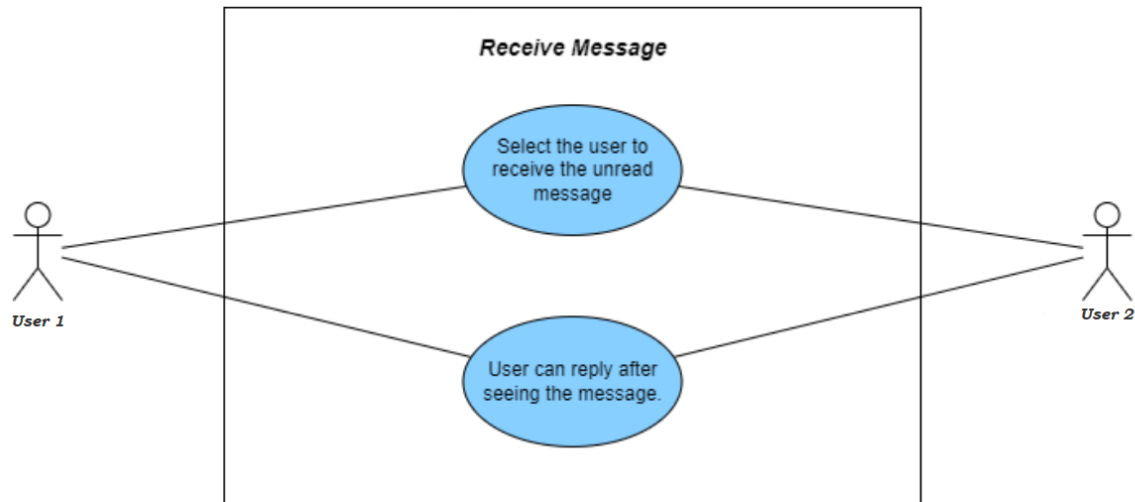

Fig 5.3.2: Send Message

Module 3: Receive Message

Actors: Sender (User 1) and Receiver(User 2)

Description: The diagram below represents the receive message process of "Gossip"

Fig 5.3.3: Receive Message

Activity Diagram:

In UML, an activity diagram provides a view of the behavior of a system by describing the sequence of actions in a process. Activity diagrams are similar to flowcharts because they show the flow between the actions in an activity; however, activity diagrams can also show parallel or concurrent flows and alternate flows. In activity diagrams, you use activity nodes and activity edges to model the flow of control and data between actions.

Activity diagrams are helpful in the following phases of a project:

- Before starting a project, you can create activity diagrams to model the most important workflows.

- During the requirements phase, you can create activity diagrams to illustrate the flow of events that the use cases describe.

- During the analysis and design phases, you can use activity diagrams to help define the behavior of operations.

The following topics describe model elements in activity diagrams:

- **Activities:** In UML, activities are container elements that describe the highest level of behavior in an activity diagram. Activities contain several activity nodes and activity edges that represent the sequence of tasks in a workflow that result in a behavior.

- **Actions:** In UML, an action represents a discrete unit of functionality in an activity. Actions have incoming and outgoing activity edges that specify the flow of control and data to and from other activity nodes. The actions in an activity start when all of the input conditions are met. Input pins and output pins can be added to specify values that are passed to and from the action when it starts.

- **Control nodes:** In activity diagrams, a control node is an abstract activity node that coordinates the flow of control in an activity.

- **Object nodes:** In activity diagrams, an object node is an abstract activity node that helps to define the object flow in an activity. An object node indicates that an instance of a classifier might be available at a particular point in the activity.

- **Activity edges:** In activity diagrams, an activity edge is a directed connection between two activity nodes. When a specific action in an activity is complete, the activity edge continues the flow to the next action in the sequence.

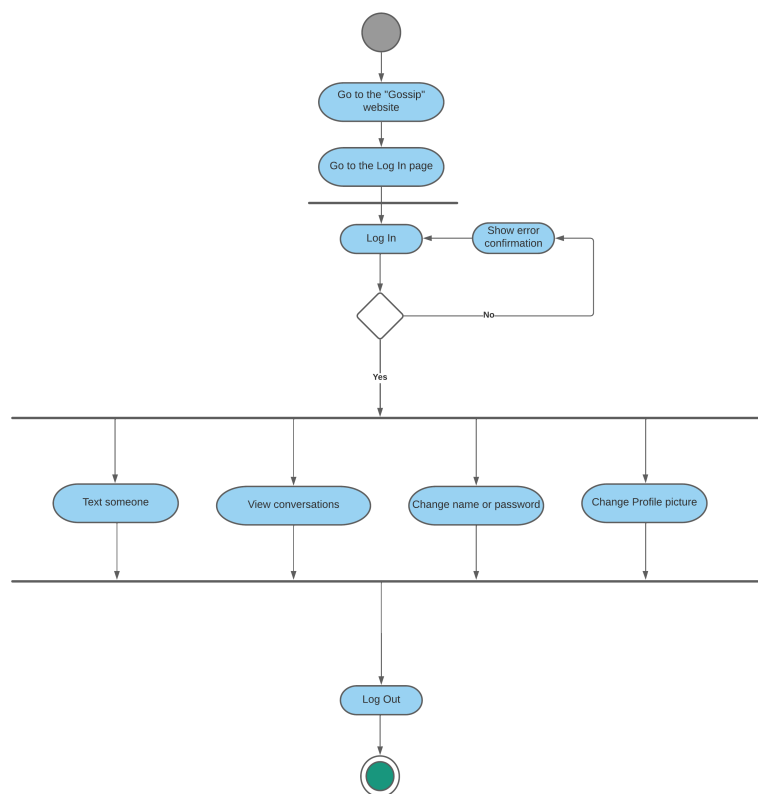The activity diagrams of "Gossip" are given below:

Fig 5.3.2.6: Activity Diagram of "Gossip"

Entity Relationship Diagram: An entity relationship diagram describes how entities relate to each other. In simple terms, it's a picture or a framework of your business or a certain business process. Entities are the things we need to store data about. It's an aspect of your business that needs to store data, such as a department – or sales, revenues, maybe clients. It also gives a snapshot of how these entities relate to each other. We can call it the blueprint that underpins your business architecture, offering a visual representation of the relationships between different sets of data (entities).

Fig 5.3.3: Receive Message

5.3.3 Functional and Non-Functional Requirements

Functional Requirements:Need a written description of a feature or strength that a new or improved product design should incorporate. It usually has a lot of details, and it explains what should be given, not how it will be provided. In other words, it does not include usage details. The requirements, as well as the documents from which it is made, are legally binding and therefore the language used in them is very clear.

Table 5.1: Functional Requirement – Log In

Function: Log In		
Input: User email, password.	**Process:** Check the log in credentials with the user database.	**Output:** Show as per the user main interface if successfully logged in.
Precondition: Must have internet access with internet browser.		
Postcondition: User gets error message and gets redirected to log in page.		

Fig 5.3.3: Log In

Table 5.2: Functional Requirement – Text a user

Function: Text another user		
Input: Enter text that needs to be sent.	**Process:** The text is then verified.	**Output:** Show the send text on the conversations body.
Precondition: Must have internet access with internet browser.		
Postcondition: Check whether the message is sent or not.		

Fig 5.3.3: Text a user

Table 5.3: Functional Requirement – Change Password

Function: Change Password		
Input: Enter the old password, then enter new password twice and wait for confirmation.	**Process:** Replace the existing password with the new password.	**Output:** Show confirmation about the updated password.
Precondition: Must have internet access with internet browser.		
Postcondition: The following user will get notification of password changed successfully.		

Fig 5.3.3: Change password

Non - Functional Requirements: Inactive requirements are a set of requirements that determine how well the system will work as opposed to operating requirements that focus on the specific business functionality applied for he does. How the app will work is nothing but a specified quality parameters such as accessibility, efficiency, reliability, usability, etc. on the basis of that app quality is rated.

Some of the attributes of non - functional requirements are as follows:

- **Usability :** Usability is defined as the measure of the degree to which an application can be easily used and operated. For example, in the case of a new application, the easier the flow of the application is for the user to operate it smoothly, the better will be the usability.

- **Scalability :** Scalability is defined as the ability of the system to cater to the growing usage of the application. It is of two types horizontal and vertical scaling. This horizontal scaling can be achieved more by adding more machines. Vertical scaling is provided by adding more CPU and RAM to the available machines.

- **Security :** Security is one of the most important attributes of non - functional requirements. It is the measure of the resilience of the application under any type of malicious attack.

- **Accessibility :** Accessibility is the ability of an application to cater to the needs of the user with special needs or disabilities using some assistive technology like screen readers.

- **Data integrity :** Data integrity deals with the integrity, consistency, and correctness of the data in the application.

- **Durability :** Durability is the measure of the ability of the application to cater to the requirements for a long period of time.

- **Maintainability :** Maintainability is defined as the ease with which an application can be restored to working conditions after a failure.

- **Performance :** Performance is a non-functional requirement that deals with the measure of the response time of the application under different load conditions.

- **Reliability :** Reliability of a software system makes use of the Mean Time Between Failure (MTBF) parameter that is the time elapsed between 2 failures. The longer the MTBF the more reliable is the application.

- **Robustness :** The robustness of a software application is the measure of the ability of a software application to deal with invalid or erroneous input effectively.

5.4   Product Features

A product is an object or service designed to meet the specific needs of people or firms. The product feature includes features and attributes that provide value customers and separate the product from the retail center. Manufacturing companies and selling a product or service should ensure that there are certain features like any other product on the market. This ensures that the business has a competitive advantage in the marketing world. In other words, the product feature says skills are usually provided by a software program that allows the user to do something accordingly.

5.4.1   Input

Inputs of "Gossip" are as follows:

Inputs of "Gossip"	
Process	Field Type
Log In	User email – string Password – string
Send Text	Text ID – integer Text – string Send Date – date

Fig 5.3.3: Change password

5.4.2 Output

Outputs of "Gossip" are as follows:

Inputs of "Gossip"	
Process	Field Type
Log In	On success – Redirect to the user home page. On failure – Show the following error message: "Please enter the correct email or password".
Send Text	On success – Show the sent text message to the conversation body. On failure – Show the following error message: "Unable to send text, there was an error".

Fig 5.3.3: Change password

5.4.3 Architecture

A web application is a program that uses an Internet browser to do something jobs. Comes with middleware and UI that connects both client, server, and details (domains). While backend scripting saves data, frontend transfers that data to consumers who support data exchange. In simple terms, the design of a web application is a way The system works during your daily browsing - enter the web address, view site, and communication - while the browser is transferring data to the server.
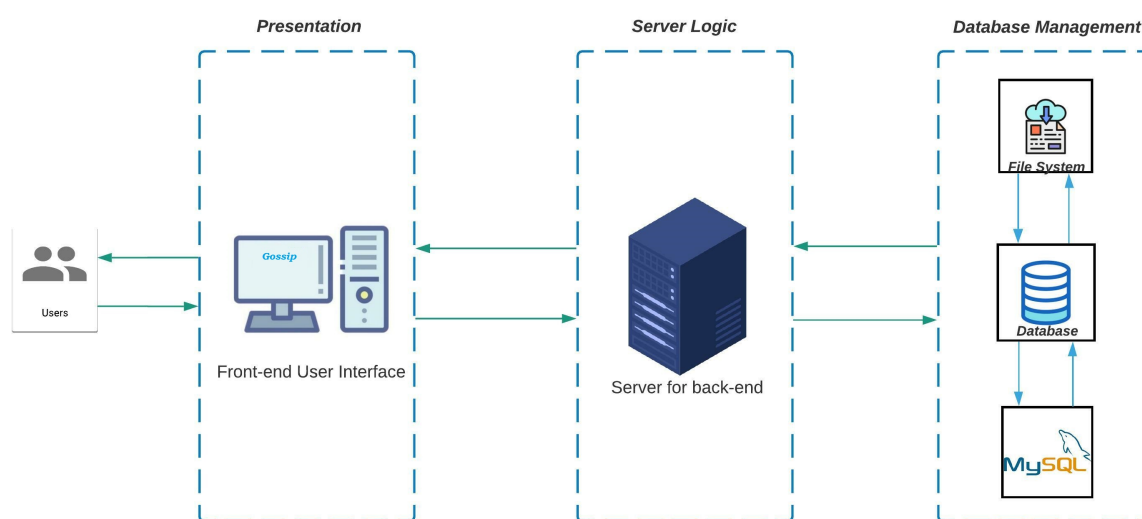

Fig 5.4.3: Architecture

Since the user submission interacts with the front-end, the front-end receives input requests and transfers it to a web server that handles that request using the required intelligence using the website and/or file system where required. And finally he came back feedback returns at the end where the user can see it as an output.

Chapter 6

Results & Analysis

On one web application page: "Gossip", all features once activities are analyzed and evaluated as well as progress that is passed step by step. Debugging the app has made a significant and significant change in both ends and application back-end enhancement. There were various cases to prove that they were done exactly as planned from the beginning. The project did not move further progressively developed until each test returns the expected output. Through this method, the application is made gradually and lively.

6.1 Software Testing

Software testing can be defined as a software verification process or the application has no interruptions, meets the technical requirements as directed structure and development, and meets the needs of consumers effectively and efficiently with help to manage all unusual situations and limitations.

The statistics below show the test and effect of all web application methods. The following tasks are provided if certain conditions are met successfully

Test ID	Test Case	Description	Steps to be Executed	Expected Result	Actual Result	Pass / Fail
T1	Log in	User must need to successfully sign in to start or see a conversation	1. Go to the sign in page 2. Enter user email and password 3. Click on "Log in"	The information of login will be authenticated with the database.	The email and password will be matched, and the result will be shown to the front end	Pass
T2	Send Text	Send a text to a user	1. Click on the user from the user list 2. Click on the message box 3. Write message 4. Click on "Send" button	The message will be stored into the message database	The send message will be now shown on the conversation history.	Pass
T3	Receive Text	View a text that is sent by another user	1. Successful log in 2. Click on user from the left side bar.	The following messages will be taken from the database.	The conversations will be displayed on the conversation box.	Pass

Fig 6.1 Test mode of Gossip User Panel

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Fig 6.2 Front Page

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Fig 6.2 Login Page

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Fig 6.3 User Home Page

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Fig 6.4 User Settings

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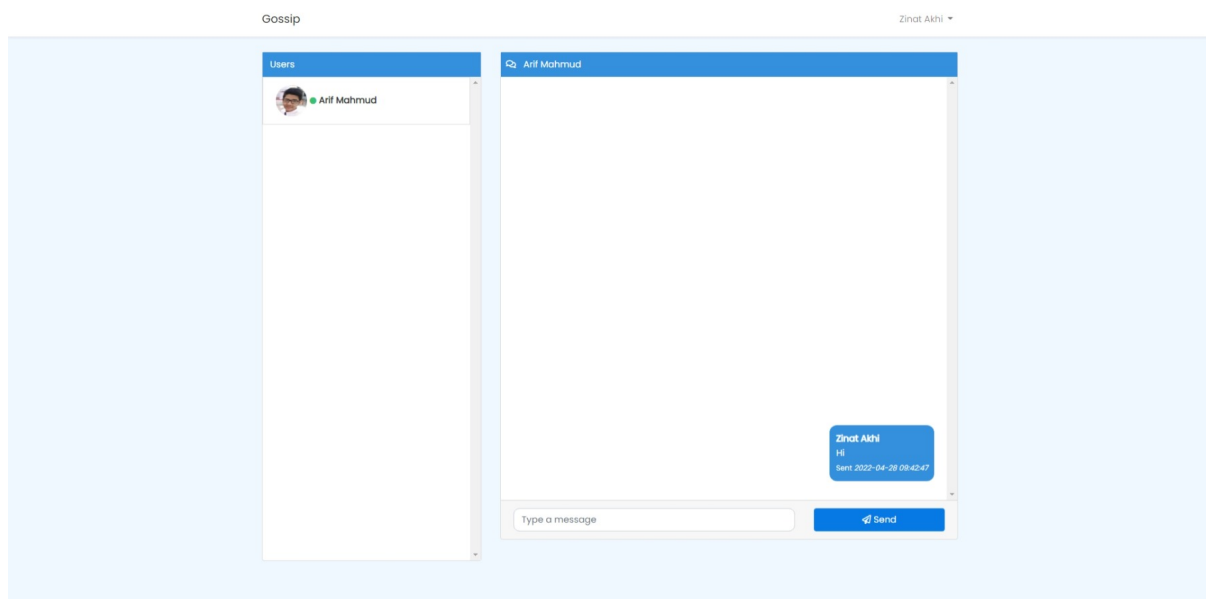
Fig 6.5 User Registration Page

Chapter 7

Project as Engineering Problem Analysis

The problem can be solved by carefully analyzing and producing but solutions to the problem and then deciding which one would be the most appropriate solution. Building a problem tree, identifying a major problem with cause and effect, and creating multiple functional solutions is known as engineering problem analysis.

Project sustainability is a business approach that balances the environmental, social, financial aspects of goal-oriented activities primarily to achieve the participants' best interests without compromising or burdening future generations.

This is a web application designed to work on a desktop or laptop computer. However, if necessary, it can be upgraded as a mobile app as most people in Bangladesh today have smartphones more than ever and will feel more flexible than using a computer application.

The following project can be sustainable in one of the main three categories:

7.1   Sustainability of the Project/Work

- **Social sustainability:**   Social sustainability is an effective way to manage and identify business impacts on employees, employees in value chains, customers, and local groups. Businesses that promote the importance of social sustainability understand the importance of their relationships with individuals, groups and communities. Social responsibility becomes part of their core business approach and they see how their activities affect people.

- **Financial sustainability:**   Financial stability is understood as the ability of government officials to continue with current and future policies without causing

an increase in debt. This means how the application costs will be managed after the application is issued. The operating costs of this application include: server, website an

- **Organizational Sustainability:** The leadership, talent, global awareness and transformational strategies needed to maximize the unique challenges facing organizations today are known as Organization Sustainability. The app **Gossip** has many features that are scheduled to be used in the future after release. As it has many programs, the application will be updated with minor changes with the following programs. We can therefore say that the following web application is invited by the organization.

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7.2 Social and Environmental Effects and Analysis

Environmental and social impact assessment involves an integrated approach, which includes assessing the economic components of a project - based on cost and benefit estimates - and the environmental impact of project implementation.

Social effect: Managing direct calls to people who might not be available is difficult. Message structure concerns primarily with how either the data or the claim are presented in per-suasive communication. The relative effectiveness of explicit versus implicit messages. Less intelligent receivers require an explicit conclusion for understanding (to be per-suaded), whereas more intelligent receivers can comprehend implicit conclusions. Another poten-tial moderator is involvement.

Environmental effect: The environmental impact is the result of the environmental impact on human health and well-being. The term is also used in a similar way to natural influence. For both theoretical and practical purposes, message feature definitions based on effects should be avoided in favor of definitions based on intrinsic features. To do this, the owner must be physically present and thus call on all other necessary requirements to support you. On one hand, variations in message effects variables are caused by the intrinsic features of the message. The relationships among these two types of variables and persuasion outcomes would thwart progress in under-standing of the effects of message features on persuasion, and understanding of the persuasion.

7.3 Addressing Ethics and Ethical Issues

The moral code in everyday life acts as a moral code, incorporating a moral code that describes behavior as right or wrong. The Web offers a great store of information as well as great communication power, and unscrupulous users can use these skills to gain personal and financial benefits by paying others. The Internet Code of Conduct provides an online guide to proper behavior, adjusting the general ethical standards to provide a framework for online navigation.

Moral issues are situations in which ethical conflicts arise and should be resolved. In other words, it is a time when moral standards are not being questioned.

Fraud and Identity Theft: Enabling third-party software is not included in these websites which can be very harmful to both the application and the application site. The order option prompts the customer to identify a contact number to place an order when needed. Therefore, no payment gateway is used in the system.

Data Security: All users are protected by guaranteed login. This means that without verifying the correct login, no user can access their desired information or perform any activity related to the site beyond their limit.

Chapter 8

Lesson Learned

Internship is something new to me. Although I have faced some challenges and problems; However, I have to find solutions to those problems. I learned a lot of new ways to solve problems in my training and enjoyed it.

8.1   Problems Faced During this Period

The problems that I have faced on my internship are as follows

Chat app working structure: There was not enough knowledge I had about messaging applications and how it works

Front-end Design: Did not know how to visualize the front end, i.e. how it will look like, formats, standard layouts, etc

Bootstrap: There was minimum knowledge about bootstrap, what it is and how it is used and where.

Synchronization with react and laravel back-end responses: Was unable to synchronize how to send and receive data from database using laravel to reactJS.

Identifying and Fixing Bugs: There were a lot of bugs that I encountered while using the end. For example, to provide an empty and value-added list, to detect the error of "Internal Server Error, Code: 500" which is an unexpected error encountered during retrieval of data to the end.

8.2   Solution of those Problems

Solutions of the above problems are given below:

Chat app working structure: Contacted with someone who have wide knowledge and experience on chat application. Understood how it works and how it can be improved and be more flexible to manage with a web application.

Front-end Design: Supervisor taught me the basic layout format of specific user's homepage, front page, user settings and what to use and when.

Bootstrap: Learned about bootstrap library and its fundamentals from tutorials and some past projects are given to me so that I can learn the structure and components of react and how to use them.

Synchronization with bootstrap and laravel back-end responses: There is a javascript package of bootstrap that handles all kind of animation based styling.

Identifying and Fixing Bugs: Each of the bugs are fixed by partially commenting out the codes that are believed to be working properly and keeping the codes that supposed to be the problematic.

Chapter 9

Future Work & Conclusion

The future of work describes changes in the way work will be done over the next ten years, have contributed to technological change, generation and society.

9.1 Future Works

Gossip is created with the minimum concept of chat/ message management. However, there are many features that can be added to it:

- **Add React features on texts:** Just like Facebook messenger, there will be a react option on every text for the user and the user and the sent message user can only see the reaction.

- **Add Customer Account:** Customers can have their own account to get notified on special discounts and can also place orders.

- **Add outgoing calls:** Extending to calls can lead to high success rate with this app.

- **Adding video call:** Also adding a video outgoing calls can even enlarge the success rate with this app to the highest level possible.

- **Improve UI:** Make the UI more user friendly.

9.2 Conclusion

My internship experience was one of my best work experience. The supervisor and all the other elders helped me whenever I needed help from them, especially in studying reactJS. At first I had very little idea about bootstrap and its libraries, but they taught me the basics and gave me their few project to learn the structure of the reaction code. As a professional trainee, I was supposed to work on using the react with laravel framework but because of my application, they gave me the opportunity to work as a full stack web developer.

Working as a web developer for full stacks for the first time for me. I have gained a lot of experience working in this field and working with such a wonderful team and coaches is a privilege for me. The concept of this web application seems simple, but when I started developing it, a lot of ideas started to emerge and when I shared with my coaches, they were happy and wanted me to use it if I could despite not being on the topic, for example to increase farmer visits.

In conclusion, I would like to thank both my internal and external managers whose guidance and inspiration have motivated me to strive for success in this career and fight for success.

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