Web Application Development of Payra at

IT World

An Undergraduate internship report submitted by

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Spring, 2021

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Independent University, Bangladesh
January 20, 2021

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

Web development of “Payra” at It world

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Has been approved on

Fahad Monir

Internship Supervisor and Lecturer

Department of Computer Science and Engineering

School of Engineering & Computer Science

Independent University, Bangladesh

Signature Date : 20.01.2021

Sweety **Barua**

Acknowledgement

First and foremost, I would like to thank Almighty Allah for giving me the endurance and the ability to work hard. It is my privilege that I had the opportunity to do an internship in It world. I would like to express my gratitude to all the people on whom I carry out my internship.

I would also like to express my sincerest gratitude and appreciation to my internal supervisor Fahad Monir, Lecturer, Department of Computer Science and Engineering, Independent University, Bangladesh (IUB), who gave me all support by taking his time out to guide and keep motivating me to complete the project patiently.

I express my deep gratitude to external supervisor and my mentor Parvez Ahmed, for appointing me as an Intern and including me to be a part of this company. Without his extreme energetic support and guidance, I could not finish the project successfully. Last but not the least, I would like to thank my parents and other family members for their eternal support given to me.

Sweety Barua
January 2021
Dhaka, Bangladesh

Letter of Transmittal

20 January, 2021

Md. Fahad Monir

School of Computer Science and Engineering

Independent University Bangladesh.

Subject: Submission of Internship Report.

Dear Sir,

This letter is written to kindly inform you that I, Sweety Barua, have completed my Internship program and its report. The Internship was conducted from 20th october 2020 to 20th january 2021. I completed my internship in IT WORLD which is a Software and Technology Company. The following report is based on my experience and the work I did in the development sector of this company. I was assigned to work as a Junior Web Developer for front and back end. I tried my best to communicate and learn about the work in the software department.

I hope that you will be kind enough to consider any mistakes in preparing this report and accept it.

Sincerely,

Sweety Barua

Id - 1721150

Evaluation Committee

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Signature

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Name

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Supervisor

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Signature

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Name

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Name

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External Examiner

Engr. Parvez Ahamed

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Signature

Abstract

Nowadays online communication is a very effective way to faster people's lives . It is being used in every sector like education,business etc. For everything people are dependent on different via online communication mode. Also, most of the time people don't prefer physical communication as it's time consuming and after this covid19 pandemic, we all have become dependent on online communication. As in the current era we almost spend our maximum time on the internet exchanging thoughts, ideas, different business deals using messaging platforms. So, having a secure data exchanging platform is very important. A lot of ways our data can be passed on if we don't use any secure platform which has no intention to use our data.

To overcome these problems, we at It world decided to work on a web application which is user friendly and online based. Users can use this platform to communicate. They can keep track of all of their commitments and words here.

In this report, the background, objectives, scope, company profile and other analytical points are briefly described.

Contents

List of Figures

List of Tables

1.Introduction

"Payra" is an online communication mode software. In every minute we send 16 million texts, 156 million texts we send through mail. For covid'19, almost all of our communication happened through different via of communication tools. Online communication system left us an option while the entire world stopped working for some moment. In any emergency we can do our work through an online communication tool. By using different communication tools we gradually step towards a normal yet busy life. 'Payra' provides its users with a smooth and user friend communication tool.

1.1 Background

'Payra' is the handy communication tool which helps the employees of 'it World' to communicate without any hassle. They can use this tool to have a safe communication mode.Rather using the other social media app for communicating, they can use this payra software to send texts. In this payra app they will have a personalized profile section to update their personal information. Using 'payra', users can create their personal profile to communicate with friends. They can keep the details of what has been said and use this information later on for any complication. This software enables users to add friends on their profile which will ensure a good work flow. The system will give the other added users updates like marital status, birthday reminder etc.

System of Payra

- Create a personal profile
- User information section
- Home section
- Messaging option
- User can add as many friends they wants
- This will provide the user a flexible communication mode

1.2 Objectives

In general, a project objective describes the desired outcomes of a project. Objective of a project is specific, measurable and must meet time, budget and most importantly meet the client's requirements. The main objectives of the system "payra" are described below :

1. Helps Users creating a personalized profile: The software will help users to create their profile and update their information like marital status, birthdate, hobby etc.
2. Enables adding friends: This software will allow adding friends to maintain a good social interactions
3. Provides messaging facilities: This messaging facility is the main attraction of the software. Users of 'it world' will have a secure messaging mode here. This messaging channel will help the employee to maintain a good work flow
4. Update profile: This messaging tool enables user to update their profile photos/ information anytime they want
5. Get notification: Users will receive notification if any messages come. A chat head will be popped.

1.3 Scope of the Project

Features available to user after developing this web system are :

1. Home or main page : This page will contain user information that a user will provide while opening this account. The mandatory information are user name, current position, dob etc.
2. Personal profile section: This page contains three menu edit details, change password, logout.
    a. Edit details user can edit the profile details
    b. Users can change their password by tapping the change password option. The system will ask for the old password to change it. If the old password doesn't match the system will not let the user change it.
3. Messaging option: Payra will enable users to chat with the connected people. Users can send text to their friends.
4. Connect friend: On this page users can find friends. By tapping this page users can see all the people who signed up for this account and send them friend requests.

Company Profile

Background of the organization

It World

About

IT World is an IT consulting and software development company in Bangladesh concentrating in customized ERP application and web-based solutions. IT WORLD is founded by Eng. parves Ahmmed. IT World offers elevated business automation with professional services of outstanding quality. IT WORLD provide 24/7 Domain & web hosting solutions all over the world. Web Develop Business Software for Bank, Govt. office, Private office, Media and Radio sector, Mobile Company, Real Estate Sector, Hospital & Clinic Multipurpose Company and also made shoppers websites for publishing their product. IT WORLD do every kind of IT work. This company is Bangladeshi by origin but international in terms of quality, commitment and professionalism standards. They have lots of experience and Top class programmers in their team[1].

Mission and Vision:

IT WORLD provides exciting, game-changing software products to clients around the globe. We believe real innovation stems from implementing relevant high tech solutions to actual business problems.IT WORLD aspire to developing employees who are seen as tech industry

thought leaders and who produce leading edge technology. Our vision is to unleash the full potential of the amazing pool of software engineers in Bangladesh by providing world class outsourcing services.

Address and Contact Information of IT WORLD

Address: 28/C kabi jasim uddin Road, North Kamlapur, Motijheel Dhaka

Telephone: +8801615759783

Email: mail@itworldbd.net

Website: http://www.itworldbd.net/

2. Literature Review

The recent decade has seen an enormous growth in information technology (IT). In the rapid growth of information technology, communication plays an important role. We use different tools to communicate for different purposes. Some popular vias of communications are whatsapp, Messenger, signal etc.

In january 7, 2021 Elon musk tweeted to use 'signal' for better communication as it provides somewhat comparatively better security. The idea of making a secure communication channel came from the company's urge. The company wants to create a secure communication channel of their own.

2.1 Relationship with undergraduate studies:

CSE-303 Database Management

In this course I first got introduced about designing and planning on a project. It covered planning and strategy practices such as SDLC, Rich picture, Entity Relationship diagram, Business Process Model and Notation Diagram and many other things.

CSE-307 System Analysis

While creating a system we always need to keep in mind about the person who will use it- the User. When I was creating the User Interface, I always reminded myself of this statement. I had to assure myself whether the Interface will be too difficult to use for a non-technical user. In addition, from this course I also learned about the standard colors that are used for UI, avoiding colors like plain red and light green, which might look unpleasant to the user. As this course deals with the methodologies, techniques, tools, and perspectives essential for systems analysts. So, I could apply my knowledge about which techniques, methodologies to use and why we should use those.

CSE-309 Web system

In this course I got introduced for the first time to PHP language. For this reason, this course has been of great help. In the meantime, I got acknowledged on GitHub from this course, that I had to use extensively in my Internship Program.

2.2 Related works

Whatsapp: Whatsapp is one the most popular communication apps. This has an end to end encryption method in order to prevent any middle man attack. However, this doesn't secure them once they are decrypted on device. There are 5 major threats that a user needs to know about: WhatsApp Web Malware,Unencrypted backup, Facebook data sharing, Spreading fake news, Whatsapp status[2].

Fig2.1: Whatsapp logo

Signal: You might know that Signal is a popular messaging app that bills itself as being very secure, offering end-to-end encryption for a very high level of privacy. It offers many more facilities to the user[3].

Fig 2.2: Signal logo

Messenger: Messenger having some serious issues with its security. Though they are trying to bring a better version of it but it still lacks behind at this security purpose than other messaging platforms. The amount of security they are planning to work on will take years[4].

Fig2.3: Messenger Logo

3. Project Management and Financing

3.1 Work Breakdown Structure

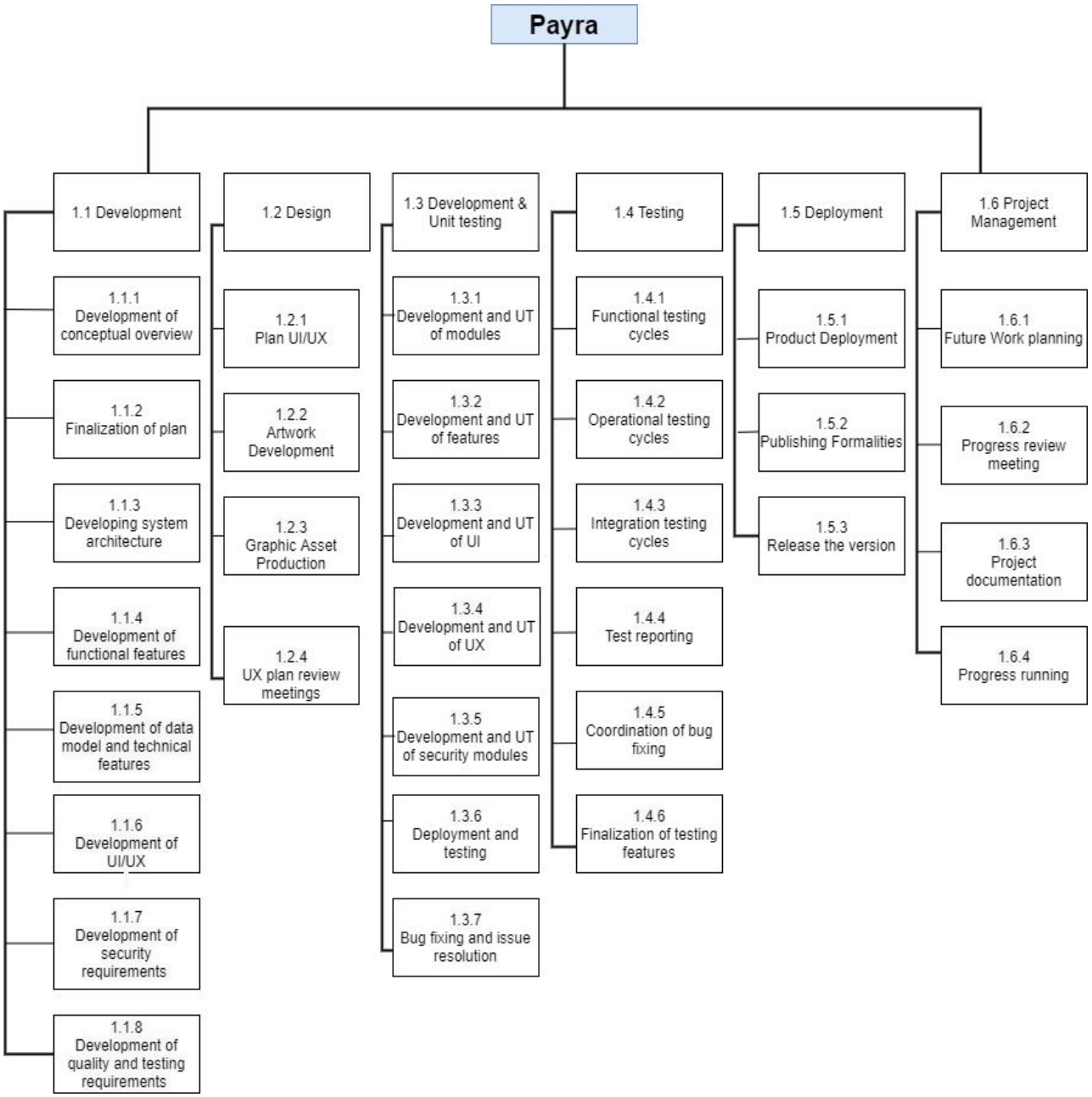

Fig 3.1: Wbs for Payra

3.2 Process/Activity wise Time Distribution

	Activity wise days of work distribution			
			Expected days	Considered Days
	Project Management	10%	8.8	9
	System Analysis	20%	17.6	18
	Design	15%	13.2	13
	Coding	30%	26.4	26
	Testing	15%	13.2	13
	Implementation and Deployment	10%	8.8	9
		100%		

Fig 3.2: Activity Diagram Of payra

3.3 Gantt Chart

Gantt charts provide a standard format for displaying project schedule information by listing project activities and their corresponding start and finish dates in a calendar format. It helps to determine how long the project should take, which resources are needed and plan tasks.

The Gantt chart was helpful to use and keep track of the progress of our project. It was also helpful to plan and schedule the work. It helped us to measure the progress of the project. Also because of the pandemic situations it was very effective for remote teams.

In this Gantt chart the project activities are listed according to start and finish dates. Here the dark gray color represents the offshore responsibility and light purple color represents the deadline date of the activity. This Gantt chart includes Activity wise time distribution and Activity wise resource allocation. The Gantt chart diagram is given below:

Task	Start date		Days to complete
Developing the SRS of the system			
Development of the conceptual overview	21-Oct		6
Development and finalization of monetization plan	27-Oct		9
Design and development of system architecture	7-Nov		8
Development of functional features	15-Nov		4
Development of finalization of UI/UX	19-Nov		2
Development of finalization of security requirements	21-Nov		4
Signing off of SRS	25-Nov		1
Design and resources gathering phase of the system			
Gather UI and IX ideas and plans of the system	26-Nov		4
Art works development, paper prototyping	30-Nov		5
UX plan review meetings	1-Dec		3
Finalization of User Interfaces	4-Dec		5
Signing off of UI	9-Dec		2
Development and unit testing of the system			
Development of User Interface	10-Dec		15
Deployment for testing	26-Dec		7
Bug fixing and issue resolution	27-Dec		2
Testing of the system			
Functional Testing cycle	30-Jan		2
Operational testing cycle	2-Jan		2
Integration testing cycle	4-Jan		2
Test reporting	6-Jan		2
Coordination Of bug fixing	8-Jan		2
Finalization of the testing features	10-Jan		2

Fig 3.3: Gantt Chart (1)

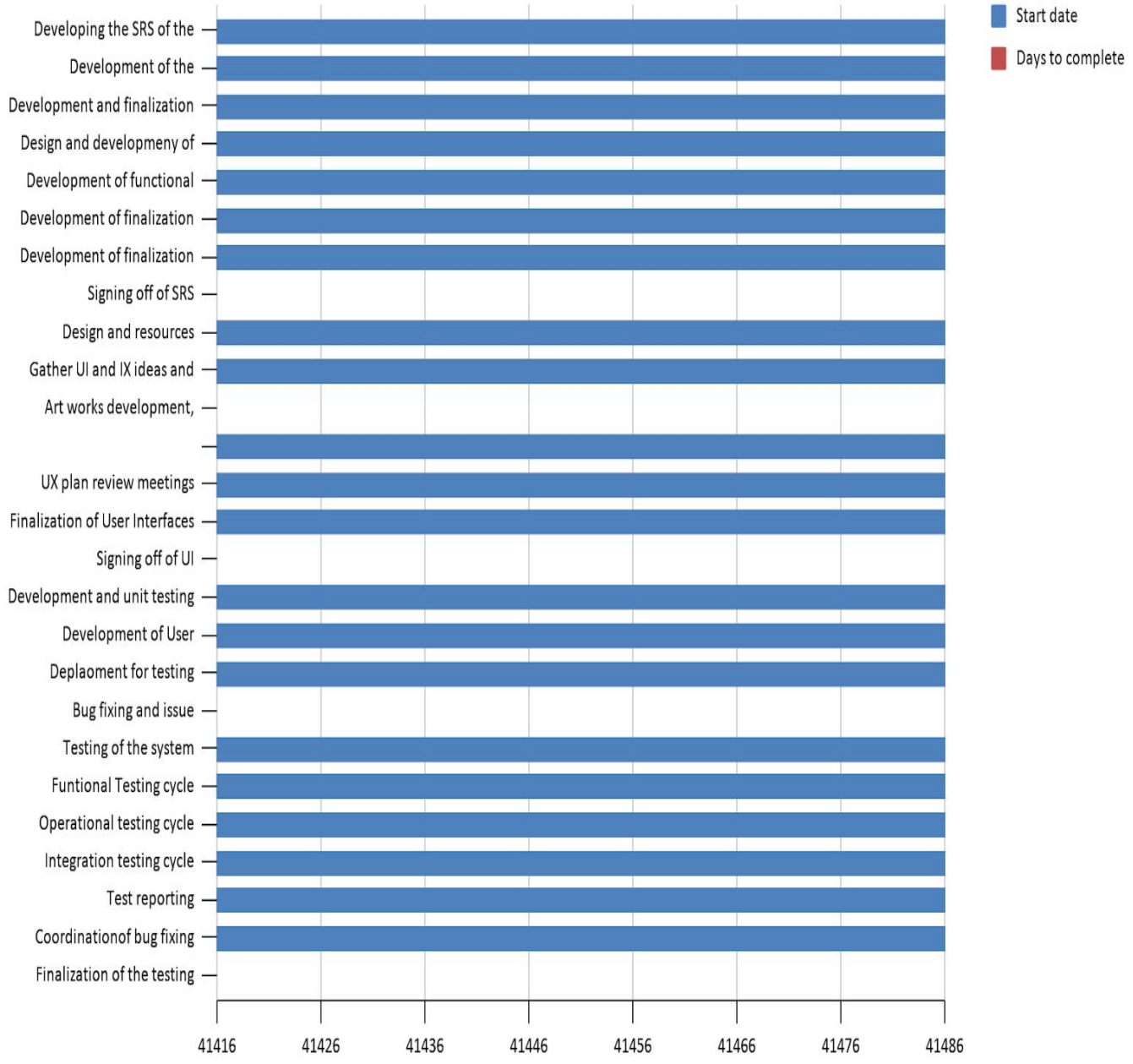

Fig 3.4: Gantt Chart (2)

3.4.Estimated Costing

Costs				Totals
Direct Costs	Labor			
	Research			2000
	Layout			1000
	Design			1500
	Total direct labor			4500
	Travel	200miles	200BDT	2000
Administration cost				2000
Overall cost				9500

4. Methodology

Software Development Methodology

In software engineering, a software development process is the process of dividing software development work into different phases to improve design, product management and project management. It is also known as a software development life cycle (SDLC). We can define SDLC as a framework that describes the activities performed at each stage of a System Development Project. So, it has some basic stages to be followed during the development phase. In detail, the SDLC methodology focuses on the following phases of software development[5]:

- Planning
- Analysis
- Software design such as architectural design
- Software development
- Testing
- Development

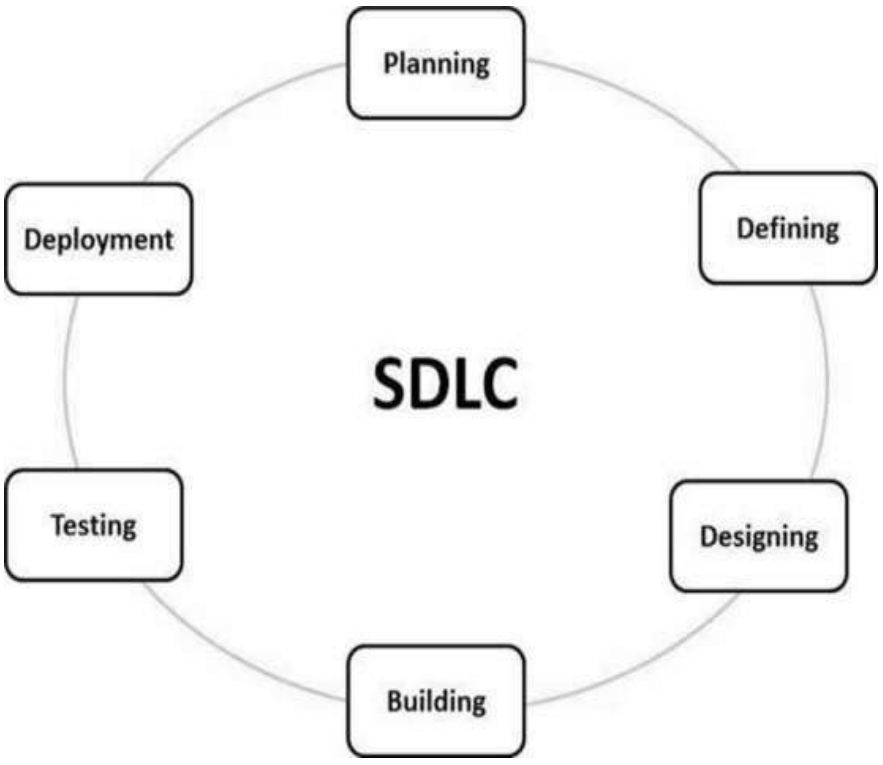

Fig 4.1: System Development Life Cycle

SDLC or the Software Development Life Cycle is a process that produces software with the highest quality and the lowest cost in the shortest possible time. SDLC provides a well-structured flow of phases that help an organization to quickly produce high-quality software which is well-tested and ready for production use. The methodology may include the pre-definition of specific deliverables and artifacts that are created and completed by the project team to develop or maintain a system. Basically, software or system development methodology is a framework that is used to structure, plan, and control the process of developing an information system[6].

There are several software development methodologies or models that are used in development: among them we have used the Agile method to develop my project.

Agile software development refers to a group of software development methodologies based on iterative development, where requirements and solutions evolve through collaboration between self-organizing cross-functional teams. The Agile Methodology is based on iterative and incremental development instead of a linear approach. It does not build an entire system at once, but rather develops incrementally. Agile is a flexible software development methodology, involving a large number of various iterations. The most widely used Agile methodologies are: [7]

1. Agile scrum methodology
2. Lean Software Development
3. Kanban
4. Extreme Programming (XP)
5. Crystal
6. Dynamic Systems Development Method (DSDM)
7. Feature Driven Development (FDD)

To develop the project, we followed Agile Methodology because Agile Methodology is a type of project management process, mainly used for software development, where demands and solutions evolve through the collaborative effort of self-organizing and cross-functional teams and their customers. The Agile SDLC model separates the product into cycles and delivers a working product very quickly. Agile has a faster development approach and speeds up the development process in an effective and efficient manner. For this project we used Extreme Programming(XP) to develop this software.

Extreme Programming

Extreme Programming (XP) is an agile software development framework that aims to produce higher quality software, and higher quality of life for the development team. The goal of XP is to write high-qualitative software quickly and be able to adapt to customers' changing requirements. In XP, the customer works closely with the development team to define and

prioritize user stories. The development team estimates, plans, and delivers the highest priority user stories in the form of working, tested software on an iteration-by-iteration basis. In order to maximize productivity, the practices provide a supportive, lightweight framework to guide a team and ensure high-quality enterprise software. XP has simple rules that are based on 5 values. The five values of XP are Communication, Simplicity, Feedback, Courage and Respect. They are described in more detail below[8]:

Communication: Software development is inherently a team sport that relies on communication to transfer knowledge from one team member to everyone else on the team. XP stresses the importance of the appropriate kind of communication – face to face discussion with the aid of a white board or other drawing mechanism.

Simplicity: Simplicity means "what is the simplest thing that will work?" The purpose of this is to avoid waste and do only absolutely necessary things such as keep the design of the system as simple as possible so that it is easier to maintain, support, and revise.

Feedback: Through constant feedback about their previous efforts, teams can identify areas for improvement and revise their practices. Feedback also supports simple design. When the team builds something, gathers feedback on their design and implementation, and then adjusts their product going forward.

Respect: The members of the team need to respect each other in order to communicate with each other, provide and accept feedback, and to work together to identify simple designs and solutions.

Courage: Courage is needed to raise organizational issues that reduce a team's effectiveness. It is needed to stop doing something that does not work and try something else also to accept and act on feedback, even when it is difficult to accept.

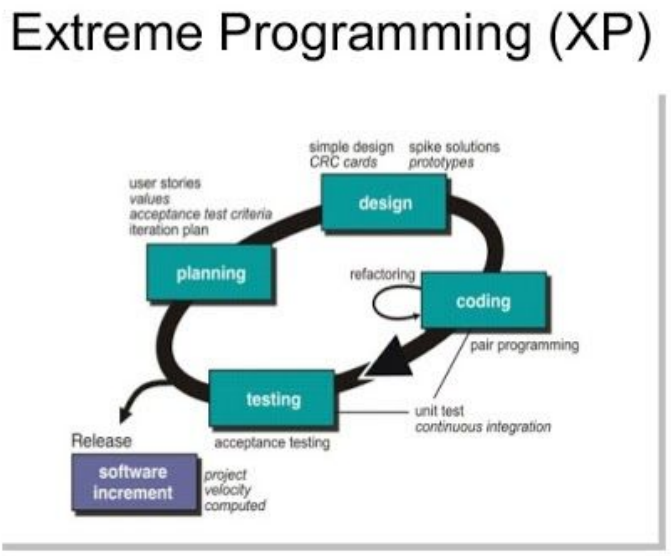

Fig 4.2: Diagram of Extreme Programming

Advantages of Extreme Programming

There are several reasons for choosing Extreme programming. The advantages of choosing extreme programming are given below:

● The main advantage of Extreme Programming is that this methodology allows software development companies to save cost and time required for project realization.

● The whole process is visible and accountable. Developers commit what they will accomplish and show progress.

● Simplicity is another advantage of Extreme Programming projects. The developers who use this methodology create extremely simple code that can be improved at any moment.

● Constant feedback is also a strong side of this methodology. It is important to listen and make changes according to the feedback.

● XP assists to create software faster, thanks to the regular testing at the development stage.

● XP helps to increase employee satisfaction and retention.

● Teamwork is another advantage of XP. Team members can work together on everything from requirements to code. Developers can work in pairs and pair programming helps to analyze and solve problems faster.

Software Development Process of 'IT world'

● Tech Exploration: Getting acquainted with new technology and implementing a demo. In my case, I have learnt advanced PHP, SQL and clean code.

● Team Collaboration: Getting familiar with Version control systems like Git. Using communication tools like Slack.

● SDLC practices: Getting familiar with agile/ XP practices.

● Effective Teamwork: Learning practices that make teams work effectively and efficiently, like pair programming and code reviews. Attending regular feedback meetings.

● Storyboarding/Estimation: For software development projects, Using Trello as a tool on a regular basis.

● Customer Feedback Cycle: Weekly iterations of development and delivery.

● CI/CD: Push-merge and Test on a regular basis. Giving APK to client.

● Documentation: Documenting Learning progress by writing blog articles for the company.

Planning

Planning is the most fundamental and critical organizational phase. In this stage software development plan is decided for a specific project. In the planning phase, project goals are determined and a high-level plan for the intended project is established. For "Payra" the plan

starts with a feasibility study which will help to find out whether this project is feasible or not. Then all the requirements will be gathered. Both functional and nonfunctional requirements will be gathered which will help us to find the scope and out of scope of the project. And then we will go for design and coding.

Development tools

From my 3-months experience with It world, I got introduced to several technologies that are used in the Software Engineering industry to boost up the work of the organization. Listed below are those technologies that we have used extensively in the learning and developing process. For developing 'Payra" the tools we used are described below :

Fig 4.3: PHP Logo

PHP is a general-purpose scripting language especially suited to web development. It was originally created by Danish-Canadian programmer Rasmus Lerdorf in 1994. The PHP reference implementation is now produced by The PHP Group. PHP files can contain text, HTML, CSS, JavaScript, and PHP code[9].

- PHP code is executed on the server, and the result is returned to the browser as plain HTML
- PHP can generate dynamic page content
- PHP can create, open, read, write, delete, and close files on the server
- PHP can collect form data
- PHP can send and receive cookies
- PHP can add, delete, modify data in your database
- PHP can be used to control user-access
- PHP can encrypt data

Fig 4.4: SublimeText Logo

Sublime Text is a shareware cross-platform source code editor with a Python system programming interface. It natively supports many programming languages and markup languages, and functions can be added by users with plugins[10].

5. Body of the project

5.1.Description of the work

During the initial phase of this Program, I was entitled to operate systems like Slack and sublime text. Later, I was trained to upskill on GitHub.
In It world, I have been working with senior Developers to learn about how to write neat and clean code in order to remove widgets. During this three-month program, I was entitled to learn about how SEO works, how to analyze the system to meet any business requirement .
During the second phase of this program, I was trained on how to work with data using SQL. I have been entitled to work on my version of a system that will later be published in the Play Store. The system that I have been working on is named “payra”.
The primary purpose of this company based software is to create an indoor and secured communication channel. There surely exists other platforms of communication. But the company’s aim is to build their own secured communication channel.
Main Features:

1. Personalized profile
2. User friendly interface
3. Chat box
4. User can add as many friends they want
5. A real time friend list

General:

1. This is an online based software, So user need to have a good internet connection
2. User need to login/signup first to enter the system and get updates

5.2.System Analysis

The process of studying a procedure or business in order to identify its goals and purposes and create systems and procedures that will achieve them in an efficient way". The word System is derived from Greek word Systema, which means an organized relationship between any set of components to achieve some common cause or objective. A system is “an orderly grouping of interdependent components linked together according to a plan to achieve a specific goal.

5.2.1.Six Element Analysis

Process	System Roles					
	Human	**Non-computing hardware**	**Computing hardware**	**Software**	**Database**	**Comm. &Network**
Login/Sign up	User	User login to the system	PC/Laptop	Chrome, Internet explorer etc.browser	SQL	N/A
Create personalized profile	User	User creates their profile using photos and details	PC/Laptop	Chrome, Internet explorer etc.browser	SQL	N/A
View profile	User	Profile created by user	PC/Laptop	Chrome, Internet explorer etc.browser	SQL	N/A
Update profile	User	Profile created by user	PC/Laptop	Chrome, Internet explorer etc.browser	SQL	N/A
Delete / Remove Profile info	User	Profile created by user	PC/Laptop	Chrome, Internet explorer etc.browser	SQL	N/A
View friends	User	Profile created by user	PC/Laptop	Chrome, Internet explorer etc.browser	SQL	N/A

Table 5.1: Six Elements of Payra

5.2.2 Feasibility Analysis

Feasibility study is one of the very important phases for any requirement analysis model. A feasibility study decides whether or not the proposed system is worthwhile. It is a short, focused study that checks, If the system contributes to organizational objectives, If the system can be engineered using current technology and within budget and If the system can be integrated with other systems used by them. If the proposed system is acceptable to the management, the next phase is to examine the feasibility of the system. These are categorized as: Technical Feasibility, Operational Feasibility, Economic Feasibility, Schedule Feasibility. The main goal of feasibility study is not to solve the problem but to achieve the scope. In short, following decisions are taken in different feasibility study:

1. Technical Feasibility: Technical feasibility is about the technical teams who are working in this project. It world is a known software company in Bangladesh having technical expert and system developer team. They are highly qualified to make any software and reach any requirements to its goal. The company has a lot of resources to create this kind of software. So, making this software is technically feasible. "Payra" is built using PHP. PHP is a famous scripting language and by making this software I sharpened my skills while making this. So, it can be said that this project is Technically Feasible.

2. Economic Feasibility : Development of this software is highly economically feasible. "Payra" is cost effective in the sense that it helps to keep all the business details regarding any economical issue.

3. Operational feasibility : Operational feasibility is about meeting the requirements of the solution and about how the solution changes the users work environment. Remembering so many details is a difficult work. There is a lot of information that needs to be maintained. Users require no special training for operating the system. So we can say that this project is operationally feasible.

4. Schedule Feasibility : Schedule feasibility is about the time taken for designing and implementation of the solution. It makes an estimation about the project will deliver within an acceptable time period. This project has to be delivered to the company within the deadline. So, according to estimation this project has scheduled feasibility.

5.2.3 Problem solution Analysis

Payra is in its basic state of development. As I have developed it within 3months. It sends texts from the user's profile. It has no direct messaging option. If a user wants to send any text, first visiting the user's profile is an option. Our future goal is to make this more vibrant in order to keep the system user friendly.

5.2.4 Effect and constraints Analysis

The motto of making Payra was to create a secure communication channel. I am at the very early stage of it. Users can send text through it. As I had time constraints, I couldn't work on the end to end encryption process.

5.3 System Design

Design provides representations of software that can be assessed for quality. Design is the only way to accurately translate a customer's requirements into a finished software product. Software architecture provides an abstract representation of the overall structure of software. In my Project 'Payra' we are using Rich Picture, Use case diagram,. The diagrams are given below:

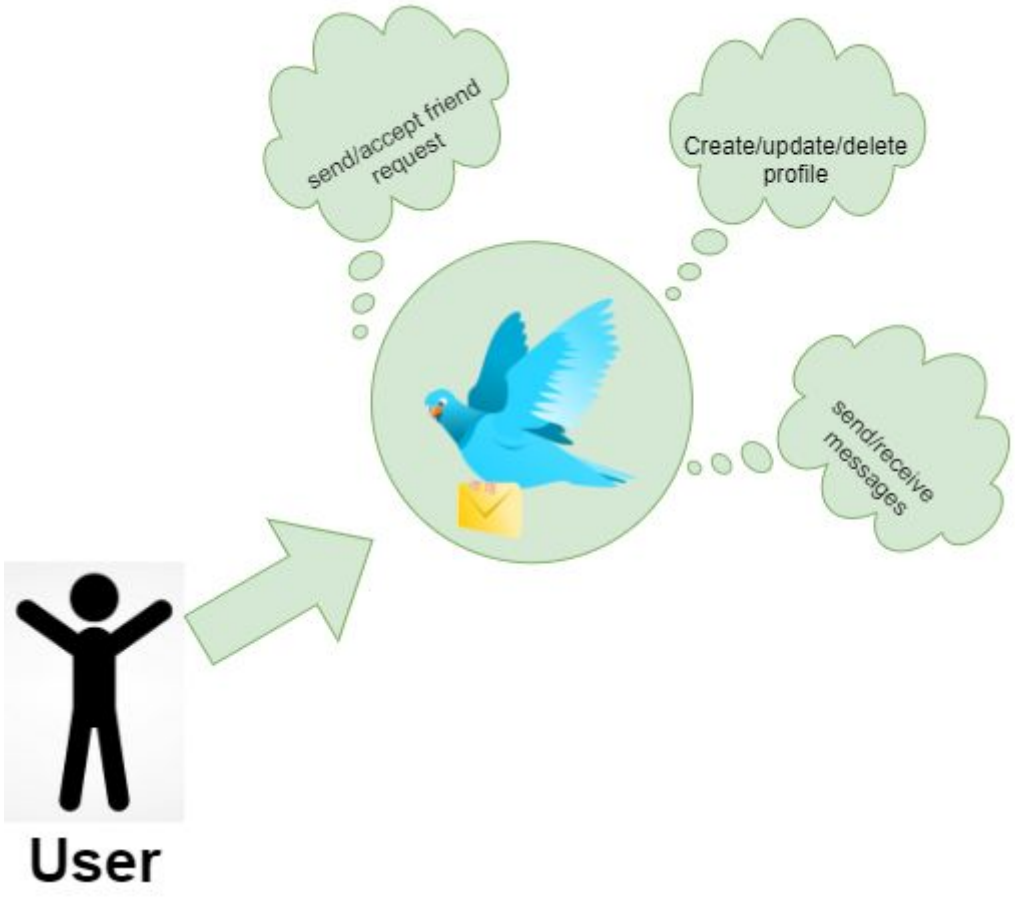

Fig 5.1: Rich picture of Payra

Description of Proposed system

We use different modes of communication these days. We are much more dependent on online communication mode rather than physical meetings. A lot of popular via of communication we use these days, considering having something ‘it world’s own I have designed a communication mode tool. Which helps users to communicate without any hassle.
Users can login to the system with their email and password. The initial motivation was to create such a platform for users which will not store their data keeping the security issue in mind.
As I have built the platform within three month. So I am presenting a very basic version of a communication tool.

5.3.2. UML diagrams

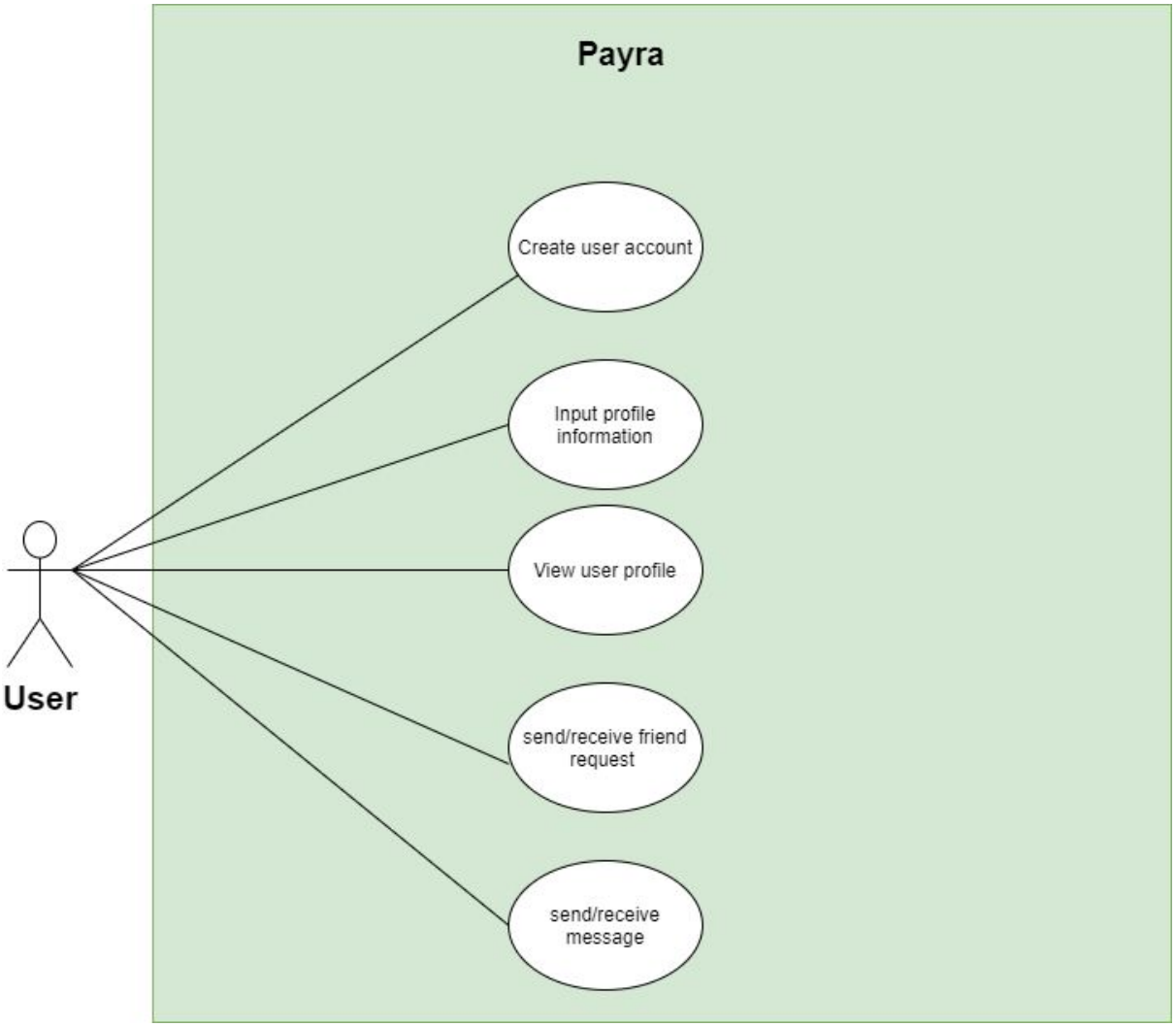

Fig 5.2: Use case Diagram of Payra

This is the use case diagram of payra. Here we can see only one user. This diagram sums up what the actor’s activity is.

Data Model Diagram

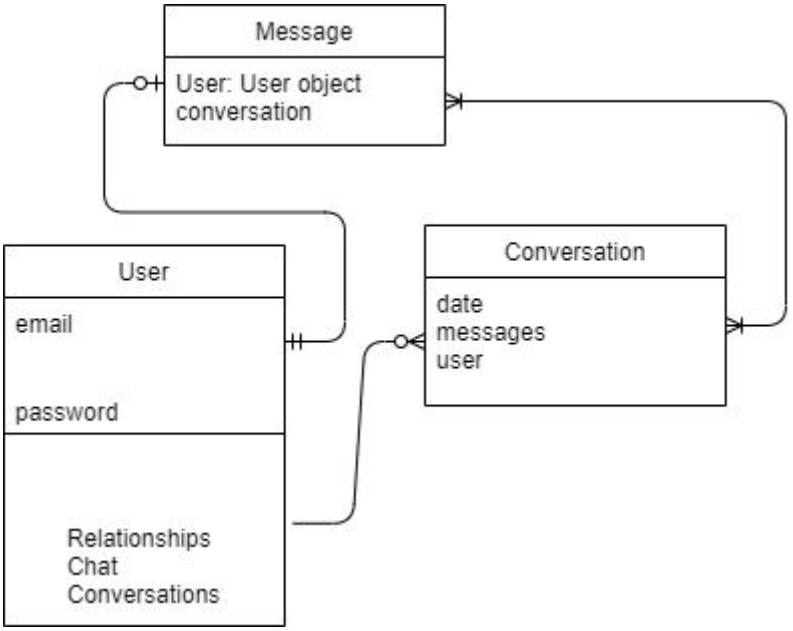

Fig 5.3: Data model diagram

5.3.3 Functional and Nonfunctional Requirements

Functional requirements define the basic system behavior. A functional requirement is a function or feature that must be included in an information system in order to satisfy the business need and be acceptable to the users. The functional requirements of the system are discussed below:

Function: Must be compatible with all types of browsers.		
Input: N/A	**Process:** System must be developed in a common development environment	**Output:** System must be accessible from all sorts of devices
Precondition: Users must have a smart device with internet connection.		
Postcondition: Everyone can use this system		

Table 5.1: Functional Requirement 01- Compatibility

Function: Every user can create their profile		
Input: Have to provide details e.g. name,dob etc.	**Process:** Go to the profile section page and Add information.	**Output:** Profile updated
Precondition: User must login to the system		
Postcondition: The updated information(s) has to be on profile		

Table 5.2: Functional Requirement 02- Update profile

Function: Enable friend request send option		
Input: Have to send request to other user in order to send message	**Process:** Go to the "connecting friends" page and add friends.	**Output:** A new friend will be added to the list
Precondition: User must login to the system		
Postcondition: Friend list will be update		

Table 5.3: Functional Requirement 03- Add friends

Function: User can view friend's profile		
Input: User will click on the friend's name and it will direct to their profile	**Process:** Go to the "Friends" page and view existing friend's information	**Output:** Users can view friend's information on this page.
Precondition: The system must allow the user to add people		

Postcondition: Existing friend's information will be shown to the profile

Table 5.4 Functional Requirement 04- View friend list

Function: Every user can view other people's profile		
Input: User selects other people's profile from the connecting people list	**Process:** Go to the "connecting people" page and view existing member of the system	**Output:** Users can view people's account
Precondition: Users must have an account		
Postcondition: Existing people list should be visible		

Table 5.5 Functional Requirement 05- View other people

Function: Every user can update their profile		
Input: Have to provide updated information of the user	**Process:** Go to the user section of the system and update the information.	**Output:** Updated information is saved in the profile
Precondition: User must login to the system		
Postcondition: Updated information will be shown on the screen.		

Table 5.6 Functional Requirement 06- Update profile

Function: Every user can remove user/friend from the system		
Input: Have to select the user/friend from the list to delete it.	**Process:** Go to the "friend" page and delete	**Output:** Selected User is deleted from the friend list.
Precondition: User must login to the system		
Postcondition: Updated information will be shown on the screen.		

Table 5.7 Functional Requirement 08- Remove friend

Function: Every user can send message to their friends		
Input: Have to select the user to send text	**Process:** Go to the "Message box" page and send text	**Output:** Message will appear to the user's message box
Precondition: Users must have internet connection		
Postcondition: The text will get the sent message confirmation		

Table 5.8 Functional Requirement 09- Send Message

Function: View message		
Input: Tab the incoming message icon	**Process:** Tab to the message box to see the text	**Output:** Users will be notified Through a symbol when a new message arrive

Precondition: User must have a good internet connection
Postcondition: The message will be displayed

Table 5.9 Functional Requirement 10- View message

Non-Functional Requirements

Another type of requirement is non-functional requirements. The non-functional requirements are listed in this section to identify the major operations of the system. There are various types of non functional requirements like performance, security, scalability, information, efficiency which are listed in this section. Non-functional requirements are briefly described below:[11]

1. Availability: The system should be available online without having any trouble.

2. Information: Information requirements represent the information that is relevant to the users in terms of content, timeliness, accuracy and format. Information is about the necessary inputs and outputs and how it will be managed, types of the required data to be stored, how currently the information will be saved into the system, how the interfaces of external systems will work etc.

3. Backup: System should back up user's data.

4. Response Time: System should respond very fast.

5. Excellent UI Experience: All the interfaces of this system are easy to understand, clean and user friendly.

6. Performance: Performance describes the acceptable throughput rate & acceptable response time. Poor performance leads to poor user experience. The main reason to develop this mobile system is to let the users manage everything they used to handle manually before. This mobile system should provide all the medicine related help a user needs. So this system should have very good performance.

7. Efficiency: Efficiency requirements represent the system's ability to produce outputs with minimal waste. The system should use its resources in an efficient way.

8. Low Bandwidth: Users should be able to use the system in low bandwidth.

9. Scalability: The system should support multiple users working at a time.

10. Security: Security is always a concern. The system should have higher security as it will contain user information.

11. Extensibility: Users should be able to add, update and delete their data. The system can be expanded to accommodate many further modules without making any changes to the existing modules.

Advantages of Non-Functional Requirement

1. The nonfunctional requirements ensure the software system follows legal and compliance rules.

2. They ensure the reliability, availability, and performance of the software system

3. They ensure good user experience and ease of operating the software.

4. They help in formulating security policy of the software system.

5.4.Product Features

5.4.1.Input

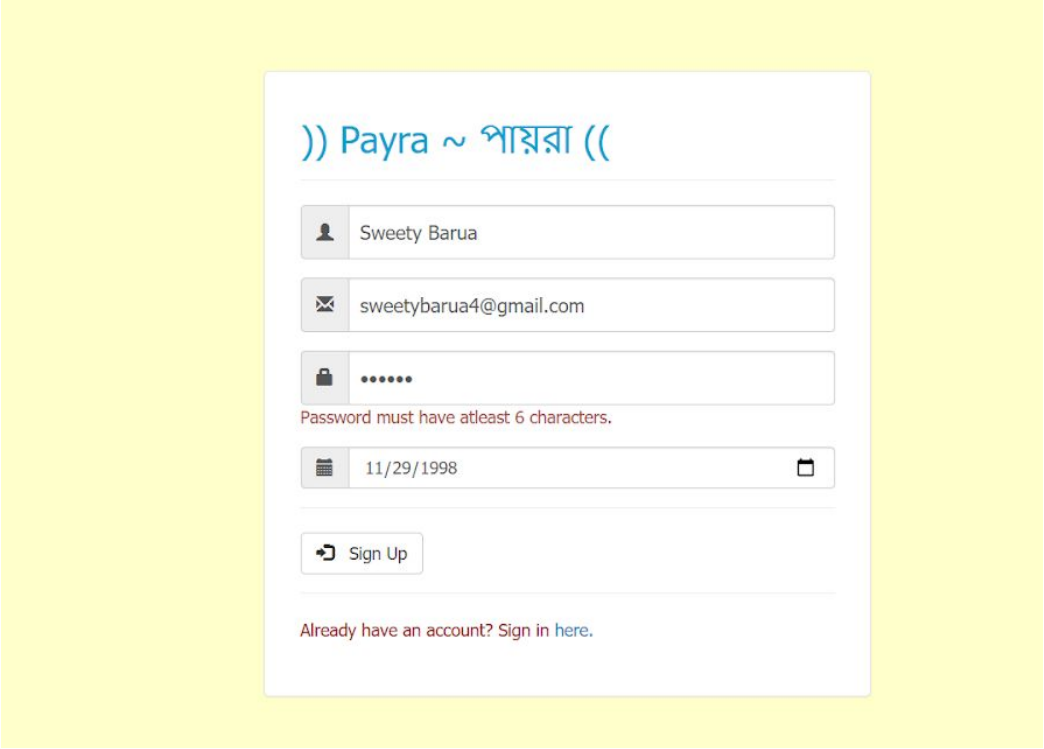

Fig 5.4: Screenshot of input(1)

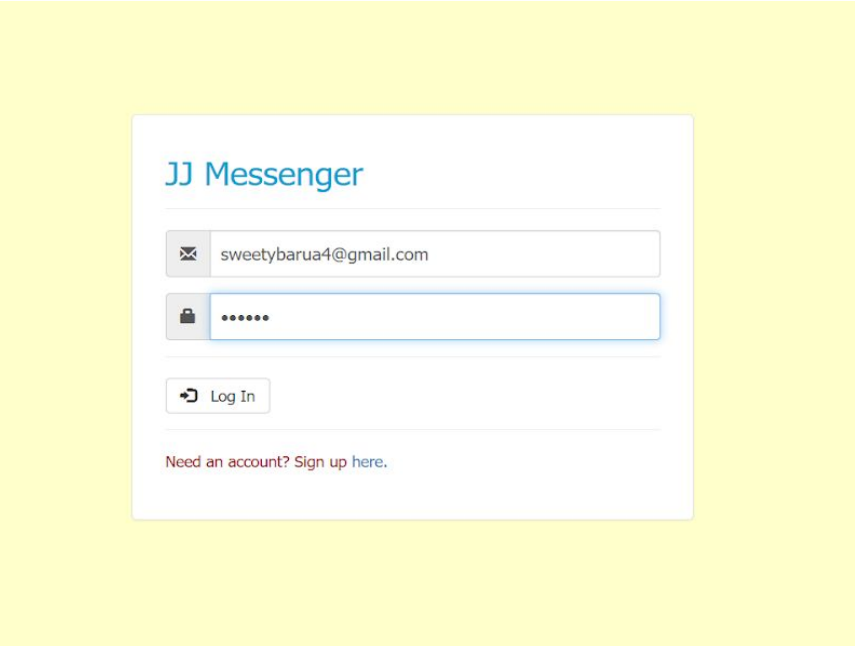

Fig 5.5: Screenshot of input(2)

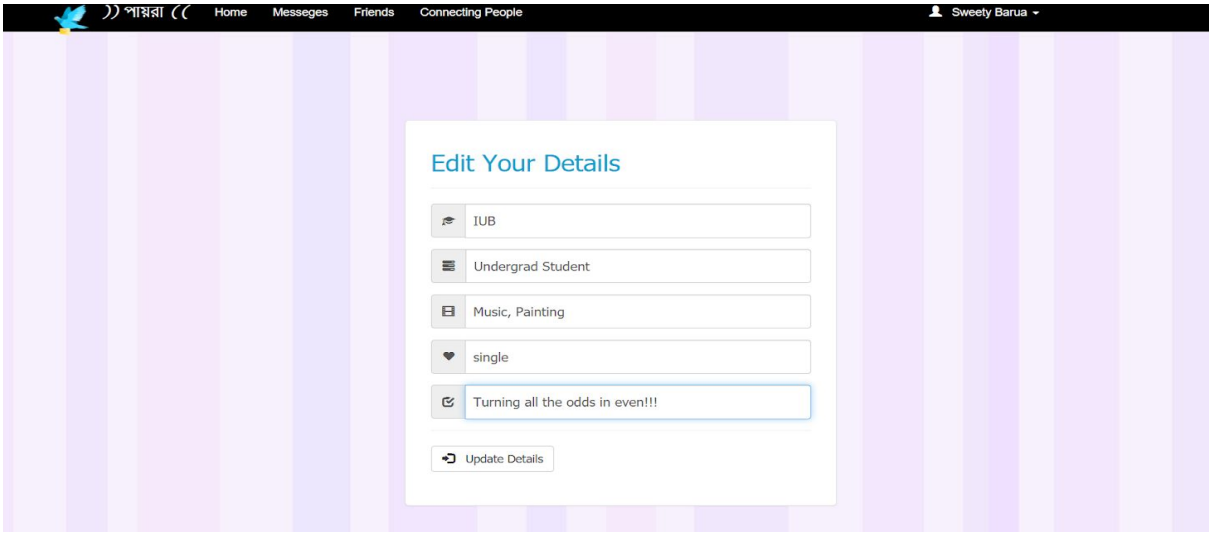

Fig 5.6: Screenshot of input(3)

5.4.2.Output

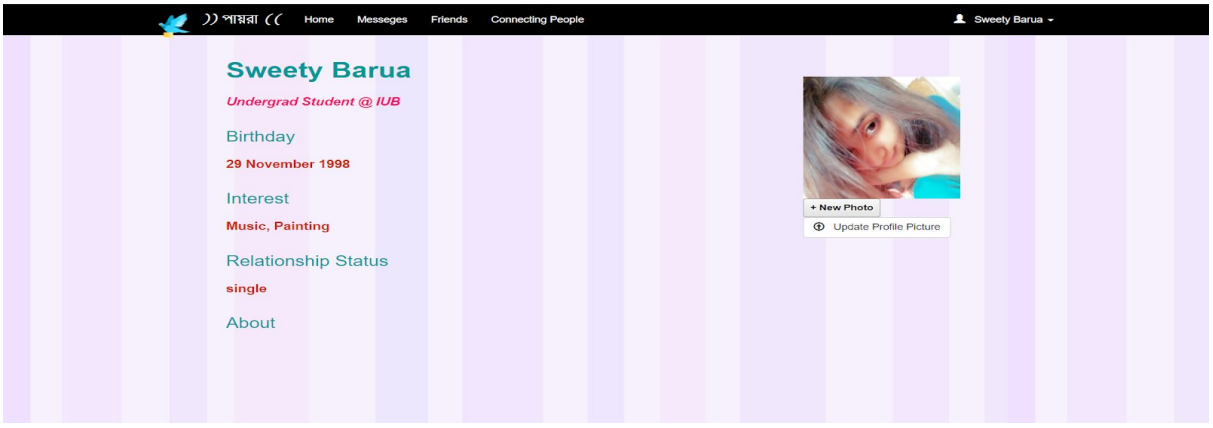

Fig 5.7: Screenshot of Output(1)

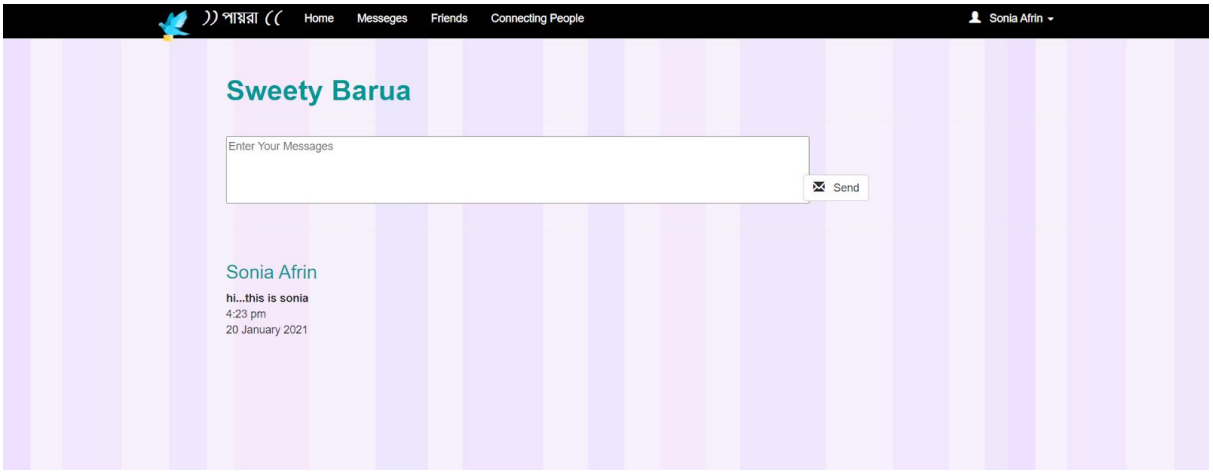

Fig 5.8: Screenshot of Output(2)

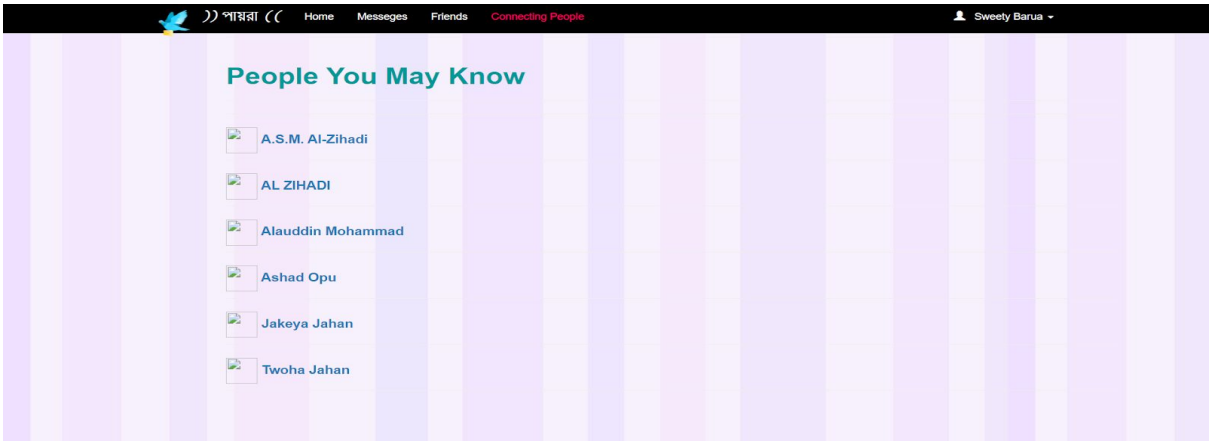

Fig 5.9: Screenshot of Output(3)

5.4.3 Architecture

Here we have used PHP for backend work. This is a scripting language. In any web hosting site PHP runs by default. To run this code we don't need a server locally. By enabling Apache and my sql module on XAMPP we initially run this piece of work. It has been hosted in a local site named php my admin. Here is the architecture:

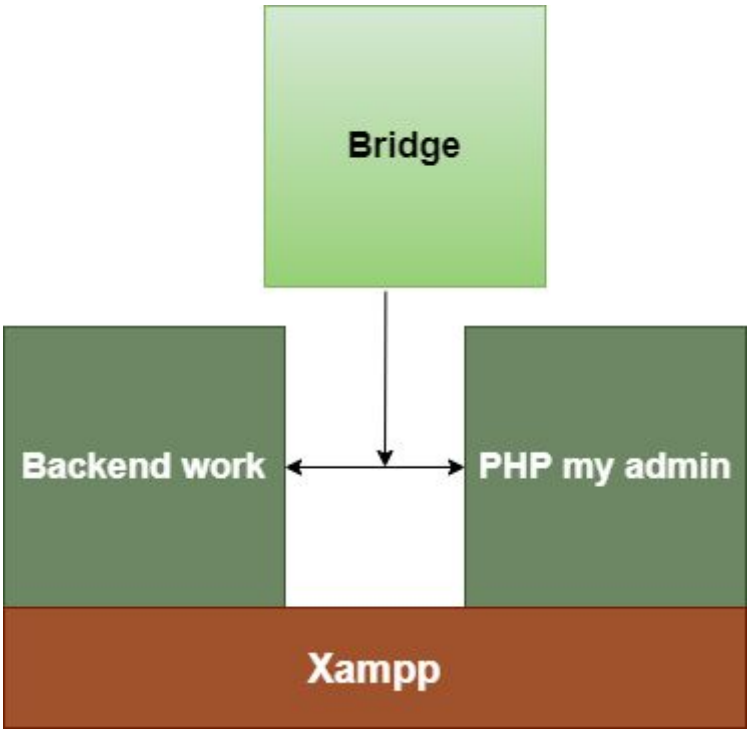

Fig 5.10: Architecture of Payra

6. Result & Analysis

For developing the system “payra” we have used PHP which is a scripting language for writing real, natively rendering web systems for browsers like chrome, firefox, internet explorer. It's a popular web scripting language to build user interfaces. We have used PHP because it is easier to develop a versatile web system. Also, we have planned to make an app on this platform to have a better and secure communication channel. This scripting language is open source to be compatible with other platforms and available to the whole community of developers. It allows writing native modules in a comparable language. On top of that, PHP has a number of open-source library functions of pre-built components which can help you further speed up the development process. Another reason to choose PHP to build this system was to use its versatile frameworks like laravel,cakePHP,codeigniter etc for further better development. Also, the system “payra” is a full stack and full functioned web system and enables users to communicate without having the fear of data piracy.

As initially it was designed for the employee of it world, using this platform they will have a guaranteed data security. After implementing further specifications e.g. app, encryption, versatile chat box users can communicate through this.

7. Project as Engineering problem Analysis

7.1.Sustainability of the project

Sustainability is the ability to be maintained at a certain level or growth. Eventually all the projects or work end at one point but the product impact should continue. A product can be sustainable in three categories: organization, financial and community sustainability. The details about the sustainability of a product are given below:

Community Sustainability: Community sustainability is how the product is carried out by the community. In this system "payra", the community sustainability will be achieved after deploying it and releasing its trial version. When the people will use it and realize the need of it then they will suggest this system to the people who they think can be helped by using it. As an example, after the trial version realizes when users will use it and understand how important it is for the tech based company to secure their data by using a reliable platform.

Financial Sustainability: Financial sustainability is how the financial support for a project or organization will continue after the grant of the project gets ended. For payra, the organization will get revenue by running ads in the app after we launch the app. Also, the organization can get sponsorship for further progress. Therefore, "payra" is financially sustainable.

Organization Sustainability: Organizational sustainability means how the organization itself will continue to function after the project. After the project ends the organization keeps updating the code base and maintains it by adding new features or fixing bugs. Also, the marketing team will promote the product in social media by advertising. So, we can say that "payra" has organizational sustainability.

7.2.Social and Environmental effect and analysis

Digital interventions, such as messenger, signal, whatsapp are becoming an increasingly common way to support communication adherence and leave a track of what has been said/addressed. The aim of this system is to create such a platform where users will have a data piracy free platform as this platform won't store any user's chat information.

Social Effect: After implementing the encryption method no third party will access this system.

Environmental effect: By using this system "payra" less paper will be used as communication will be saved in the phone. Also, people will not have to carry their notes to remember what has been said.

7.3 Addressing Ethics and Ethical issues

Consumers put a lot of trust in system developers as they are sharing their data to the system. That is why security is our first priority. As this is a communication tool all their profile information and interaction will be stored in the server. So, we have made sure that the data they are going to share will not be shared with anyone or won't be leaked. For security protocols, there are a couple of strategies we have found that enable a lot of data to be collected on users but minimize the threat of the data falling into the wrong hands. We are transparent with the user community. We have kept a clear privacy policy and the users will know why they are using their data in the system. Also, this system is completely malware free. So, users can use this app without getting worried about malware.

Ethical issues for an app are similar for most any marketing ethics [12]. Things like false promotion, price issues, age/gender/race issues, etc. Some of the ethical issues are described below:

Privacy concern: Privacy concern is one of the ethical issues. In "payra", we have taken care of the privacy of users. Also all the information of the user will be saved locally so the threat of data falling into the wrong hands is minimized.

Effectiveness and validation: Another ethical issue is the analysis of the system, which means if the system is effective and valid and if it has a real impact on desired outcome. "payra" is a communication tool, and it will have a great impact in the life of users. By the help of this tool the users can communicate easily. So, this system will be effective for users by creating a secured communication channel.

Visual Impact: Visual impact is the way the information of the system is represented. "payra" has been developed by keeping users of all ages in mind. We have kept the gui user friendly so that they don't face any major difficulty while using it.

8. Future work & Conclusions

8.1.Future Work

Since the project "Payra" is still in the development phase and there are many features that are planned to be added in the future if the proper advantage is taken into consideration. The following technologies can be applied for the future work:

- ❏ more dynamic chat features
- ❏ using encryption process
- ❏ Animation.
- ❏ Collaboration feature.
- ❏ making an app version of 'payra'

8.2.Conclusion

Achievements

My experience with It world was very pleasant & worthwhile. I have learned a lot about developing different kinds of web applications and also about myself more than I could have imagined. Working with cutting-edge technology like PHP is among the major takeaways from the Internship Program. Through this program I have been exposed to the working life.of developers Throughout my internship, I could understand more about the definition of an IT technician and programmer and prepare myself to become a responsible and innovative developer in future. During my project, I cooperate with my mentors and seniors to solve the problems. Moreover, the project indirectly helped me to learn independently, be patient, take initiative and the ability to solve problems. Besides, my communication skills are strengthened as well when communicating with others. I had also developed my programming skills through various programs that I had done. This also helps sharpen my skills in PHP,SQL. In conclusion, the activities that I had learned during training really are useful for me in future to face challenges in a working environment. Once again, I would like to thank my supervisor Parvez Ahmed for giving me the opportunity in her incredible company and people I have worked with.

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