Title: Peace Life - Web-based telemedicine system for Mental health care.

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This Report is Presented in some Fulfillment of the Requirements for the Degree of Bachelor of Science in Computer Science & Engineering.

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APPROVAL

This project, titled "**PEACELIFE,**" submitted by MD. AHSAN FARUQUE, RIFADUL ISLAM KHUSHNOBISH SIAM, TASIN AL MAJED to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and endorsed as to its style and contents. The presentation will be held on the 30th of October 2021.

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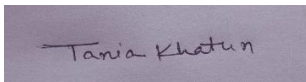Department of Computer Science and Engineering (CSE)
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DECLARATION

We hereby make a declaration that we have done this project under the supervision of **Tania Khatun, Sr. Lecturer & Department of CSE, Daffodil International University.** We also declare that neither this Project nor any part of this Project has been submitted elsewhere to award any degree or diploma.

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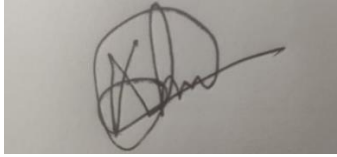**Amit Chakraborty Chhoton**
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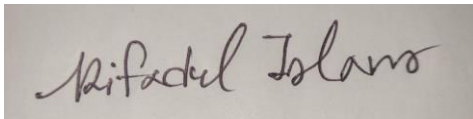Daffodil International University

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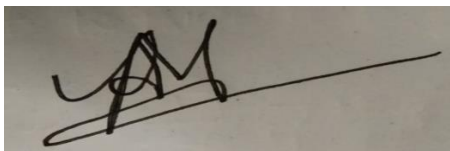Daffodil International University

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ABSTRACT

In this pandemic we have already seen that how much mental pressure a men or woman can get. People need to do a lot of things for living. In this case we have to maintain a lot of things as well and by doing that we get so much mental pressure. Especially the young people face many problems through mental health, eventually some of them get so much stress and make some serious bad decisions. They get addicted or start doing many unethical works as well. And it has been a serious problem in our country. In this type of situations, they need to go on a psychologist but the main problem is in our country it's not an appreciable approach to visits a psychologist or this type of doctors for taking mental health counselling. But students are the most affected audience through the situation.

In the circumstances, we have made up a solution through our website. We are giving a platform for people like them so that they can make an appointment for this kind of situation. People can choice their counselling doctor as their own so that they can choice accordingly to their needs.

We have also created proper environment for people where they can get proper guiding. There are some premium features where people can do chat with the doctor trough video calls, eventually they can use with the chatbot. We created the chatbot using dialogflow which is a natural language understanding platform that integrate a conversational user interface. Besides all of the features we have tried our best to design an easy & understandable user experience in our website so that people will not get confused and they will be able to get their desirable support.

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CHAPTER 01

INTRODUCTION

1.1 Introduction

As we know most people are going through the problem of their mental health, clinical depression, anxiety and they cannot share their problem with their surroundings, PeaceLife website is web-based telemedicine service to mental health support. PeaceLife website offers mental health professionals with highly experience background. PeaceLife website offers online and offline appointment, automated chatbot, online counselling through chatting system in the website that provides text and video chatting.

They can read blogs, chat with our bot and share their problems. Our chatbot will reply to them automatically, suggest treatment base on our data, share blogs, videos, that can be inspirational, motivational, or even funny video or content.

This website has different subscriptions package, like they want to buy subscription package for different type of users. Buying subscriptions, they can use automated chatbot special features, one professional for each user and online counselling with professionals.

1.2 Motivation of this Project

Most of us in this generation are facing mental health problems and we are not getting enough help in this situation whether it can destroy a person and turn them to do something like suicide. Our motivation behind a website or chatbot for mental health, that it will help the people who are going through some mental disorder, anxiety or facing some stress or if they are clinically depressed. We want to develop a website where people can interact with doctors, get appointment, get online counselling, can chat with doctors. Moreover, we are a busy generation who don't have enough to hear someone else's problem and that makes someone stay alone when even they are facing some mental stress. With this motivation, we want to develop this platform, when a person will go through some mental health problem and share their problem with someone and need to get counselling from mental health professionals, they can interact with our website. They can fix appointment online or offline, counselling from doctor, our chatbot will reply to them, share some blogs, videos, regarding mental health, share some funny stuff to make the person smile, help them to relax and get a proper treatment.

1.3 Objectives

Our purpose is to deliver the best support to the people so that they can make the best use of it. And we are working on the user experience of our website where they can make their appointment according to their needs. And also the whole ecosystem will be affordable for all people comparing to others.

The principal aims of the project are as follows :

- ❖ Ensuring treatment.
- ❖ Connect medical services.
- ❖ To maintain a proper interaction with the user & professionals.
- ❖ Help them to figure out their problems.
- ❖ Share staff that will help them.
- ❖ Help them to interact with the mental health specialists.
- ❖ Develop a site that will provide all kinds of mental health support.
- ❖ Online counselling.
- ❖ Online chatting with the doctors.
- ❖ Online appointment.
- ❖ Provide mental Health Support.
- ❖ Develop a web-based chatbot

1.4 Tools and Techniques

This Project is an internet web development-based project. Used tools and technology is following bellows -

- User-Centered Design – UX Design Process.
- Figma- used for UI design & Prototyping.
- HTML5- All pages are designed using HTML layout.
- CSS3- 30% designing parts covered by this.
- Bootstrap 4- 70% of designing parts are covered by this.
- JavaScript- All validation responsibility and animation tasks are generated by JavaScript.
- JQuery- Usually handles events, performs more actively, has a lot of efficiencies, and adds Ajax support in web applications.
- Python - Programming Language.
- Django- All the logic is implemented in Python web Framework, which uses Python Language.
- SQLite Database- Sqlite3 has been used as a database of the project.
- SSLCommerz- SSlCommerz use for payment method.
- WebSocket & channels - WebSocket & channels are python packages Used to implement a chatting system

- Dialogflow - used to implement a chatbot
- Visual Studio Code for code editor Development Environment

1.5 Features

There are some features for a student

- Online & Offline Appointment.
- Online Text chat and video chatting counseling.
- Offline Appointment booking system.
- Users can read blogs written by experts.
- Users can use a chatbot for online support.

1.6 Expected Outcome

PeaceLife can create a revolution in mental health support. After the Covid pandemic started all over the globe, we felt the importance of our mental health. It is as important as our physical health; sometimes, it's more important. PeaceLife website offers mental health treatment, online & offline appointments, online Counseling, and mental health support chatbot.

This website will make mental health counseling more accessible and easily reachable. Without any physical interaction, people can book online appointments and get Counseling from professionals. Moreover, they can have subscriptions that will offer mental health experts connected with them to support them mentally.

Our goal is to even up education by ensuring mental health support to all the people around the globe who are facing mental health issues and cannot share their problems with others. In addition, this will help them interact with doctors or professionals without any physical interaction.

1.7 Report Layout

There are 4 types of roles in our Project (PeaceLife) is following bellow-
- ❖ Users
- ❖ Users with Subscriptions
- ❖ Doctors or Professionals
- ❖ Administration

The main possibilities available in this Project are
- ● Online Counselling.
- ● Online Appointments.
- ● Video and Text Chatting with Professionals.
- ● Dialog flow for an online chatbot.
- ● Live Sessions.
- ● Offline Appointment Booking.

In this Project, users can get an online and offline appointment for Counseling, and they can buy subscriptions that will offer mental health expert support for the duration of subscriptions.

CHAPTER 02

BACKGROUND

2.1 Terminologies

Our platform aims to provide a mental health telemedicine solution through the high-quality mental health professionals and an automated chatbot that will interact with the User.

Our platform is accessible, flexible, and affordable for the User and consists of gamification in the user experience to give the users an energetic vibe when they visit our platform

Virtually anyone with an internet connection and a determination of self-learning can get benefited using PeaceLife, master an array of skills, and start working to pursue his dreams.

We are providing features are as follows:

- ❖ Online-based mental health solutions.
- ❖ Online & offline appointments.
- ❖ Online Counseling.
- ❖ Online live sessions.
- ❖ Blogs and resource sharing.
- ❖ Centralized Social Resources
- ❖ Mental health support.

2.2 Related Work

All over the world, there are so many websites on medical services or based on telemedicine. But they are not enough or very few websites providing mental health treatment online and offline with Counseling. In this case, we are here to concentrate on growing the efficiency of our mental health in the best and friendly styles. But we have a well-designed & facilitated website using gamification that provides and gives the User an energetic environment throughout the experience. We have also focused on building up communication between users and professionals.

2.3 Comparative Studies Analysis

From separate research, we have learned that innovations depend heavily on their acceptability. Therefore, we tested several systems but initially focused on three representatives. The first one is the most popular representative of the commercial system - Maya, the second one is Monosheba. For their usability, we will present some feature-based comparative analysis on the default variables. The study was conducted in mental health telemedicine.

2.4 Scope of the Problem

We all face mental health problems like depression, clinical depression, anxiety, frustration, stress. But in our society, people don't want to prioritize mental health problems like they prioritize physical health issues in our lives. But this is causing a huge concern over time. The victims of mental health issues cannot share their problems with their family, or even if they share with the family, they sometimes don't understand. So, it's becoming difficult to access mental health experts physically. Using this website, they can fix appointments from anywhere and get Counseling and professionals.

2.5 Challenges

The biggest challenge will be making people aware about their mental health. As we have said earlier that in our generation people is not much concern about their mental like as they are concern about their physical health, but mental health is sometimes more important than physical health, mental health is important because it also helps to ensure the physical health of a person of different age. So, making them aware about their mental health and ensuring them a complete support online that is much accessible.

CHAPTER 03

REQUIREMENT SPECIFICATION

3.1 Software and Hardware

3.1.1 Software:

1. XAMPP
2. Visual Studio code
3. WebStorm
4. Browser

3.1.2 Hardware:

1. Laptop
2. Keyboard
3. Mouse

3.2 System Model

Agile prepare demonstrates it alludes to a program improvement approach based on iterative advancement. Each cycle includes a group working through a full computer program advancement life cycle counting arranging, necessities examination, plan, coding, and testing some time recently a working item is illustrated to the client.

Fig: Agile Method

The Agile SCRUM model accelerates repetitive programming and fixed-cycle models by accelerating work programming projects, emphasizing standard flexibility and consumer loyalty.n SCRUM is an agile improvement strategy that concentrates particularly on overseeing assignments inside a team-based advancement environment. Scrum accepts in enabling the improvement group and advocates working in little groups (say- 5 to 6 individuals). Agile and Scrum comprise of three parts, and their obligations are clarified as takes after:

Fig: Scrum Method

Scrum Master: Ace is mindful of setting up the group, sprint assembly, and expels impediments to progress.

Product Owner: The Item Proprietor makes item excess, prioritizes the accumulation, and is dependable for conveying the usefulness at each cycle.

Scrum Team: Group oversees its claim work and organizes the work to total the sprint or cycle.

Reason for choosing a model

❖ Customers are happy if useful applications are unit delivered on an associate everyday basis.

❖ Instead of systems and tools, individuals and relationships are a unit stressed. Constant contact between shoppers, developers & testers.

❖ Software is commonly provided.

❖ Cooperation between firms and developers is on the point of and frequent.

❖ Consistently focus on technology innovation and smart vogue.

❖ Daily adaptation of conditions to vary.

❖ We welcome even late amendments to the specifications

❖ When new modifications are needed. Agile independence is necessary for progress. Because of the pace of recent rises, new enhancements are introduced at the low associate expense.

❖ The developers wish to only lose the work for a few days, or maybe only a few hours, to feature a replacement feature.

3.3 Requirement Collection and Analysis:

This Project is a web-based application that is hosted on a server. Three types of users use this Project:

- **Online users**
- **Professionals**
- **Administrators**

Users can sign up & sign in online. After that, they can make their online appointment according to their requirement.
There will be an option where users can create their profiles by giving some basic information. And the users will register through the profiles that they have already created. Once the patient has logged in to the website, they will ask for an appointment. Then, they will be able to see the full information, conducting the history of a doctor. Normal users will have the opportunity to access the public interface to read this doctor's information.

Users can see the schedule of any doctor that when the doctor will be available for an appointment. There will be a fixed time that how much time they can get for each appointment & the rest of the users will see the availability throughout the previously confirmed appointments.

And there will be a Professional sign-up panel for Doctors. Where they will give all of the information that a patient might ask for. Doctors will be registered users of this website. Once they log in, they will see whether a patient has booked an appointment or not.
Users will also be able to book an offline appointment through the one-time payment system.

And there will also be a sign-up panel for Administrators where users will have the luxury to get a subscription. We have used SSLCommerz for subscriptions. Users will get some extra features after subscriptions as like chatbot facilities, will be able to unlock the chatting system with doctors. There will be different packages for subscriptions. Each User will get one professional to get Counseling.

Functional Requirements:

The main functional requirements are listed below. This mainly includes some fixes in the existing system. The backlog should have them in detail.

Admin:

- System statistic
- Doctors list
- Create and modify Profile
- Payment withdraw request and admin can approve or deny withdraw request
- Category list
- Admin can search course
- Event create and modify page and also show event registrar people list
- Manage all settings from the admin panel
- Create and modify team member
- Admin profile
- Password change option
- Contact information if anyone request for contact list
- Subscription list

Professional:

- Profile
- Password change option
- Course list page
- Course create and modify the course
- Request for payment withdraw
- Appointment review

User:

- Profile
- Password change options
- Payment history
- Download invoice
- Give profile review
- Book Appointment
- Cancel Appointment
- Buy Subscriptions
- Cancel Subscriptions
- Payment
- Chatting with professional
- Chatbot

Non-functional requirements:

Usability goals

We have tried to give a proper user guide throughout our design. We started from scratch to reach out to the possible problems that a user might face. We focused a lot on UX (User Experience), especially to solve users' problems & visualize the core functionalities so that a patient can easily understand how they will complete their user journey to get their appointment.

We will also do the testing phase properly so that a user can get the best experience when they use our website to reach their goals.

Performance goals

Some mechanisms may use some refactor, which might lead to a shorter execution time and increased performance.

Security goals

We are so much aware of all the security issues that a user might face.

3.4 Use Case Modeling and Description

Its easy-to-use diagram presents user interaction with the method that shows the User and the users connected in different uses. The image can be categorized for different types of users and different uses of a method, usually followed by other images. It was previously stated that "images are the blueprints of your approach to using." The method applies a simplified and graphical description of what needs to be done. Due to their short nature, case diagrams can be a good conversation tool for stakeholders. The presentations try to mimic the real world and leave the partners to learn how the method will be designed. What was noticed was that the use case diagrams made the system plan more clear to the stakeholders and they were "performed more efficiently than the class images." The purpose of the diagrams is to give a high-level view of the method and pass on the terms of the general person to the stakeholders. Additional images and documentation can be used to give the system a fully functional and professional perspective.
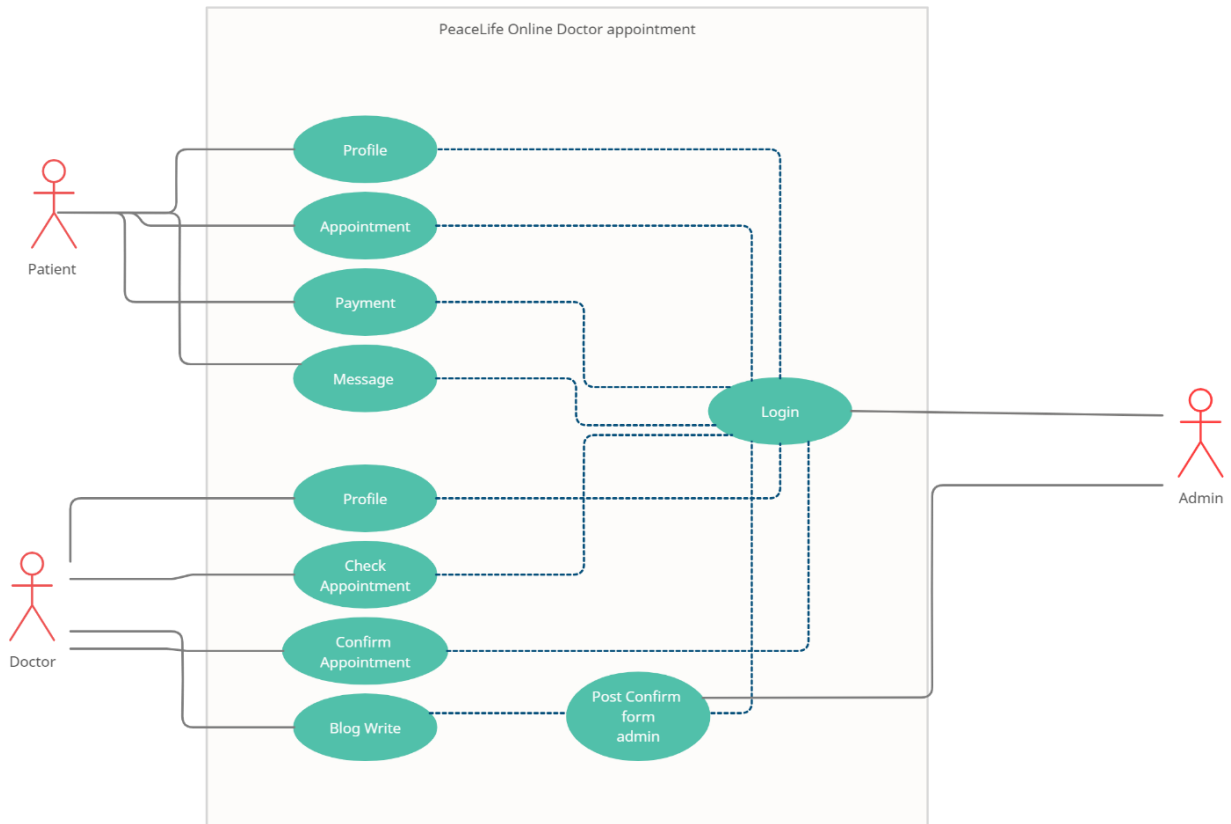
Fig 1: Use case

3.5 Flow Chart:

A type of diagram that represents that illustrates that a workflow or process works. A flowchart is a schematic representation of an algorithm, or a step-by-step procedure for completing the task. The flowchart shows the steps as varying sorts of boxes, with arrows joining the boxes to indicate their order**.**
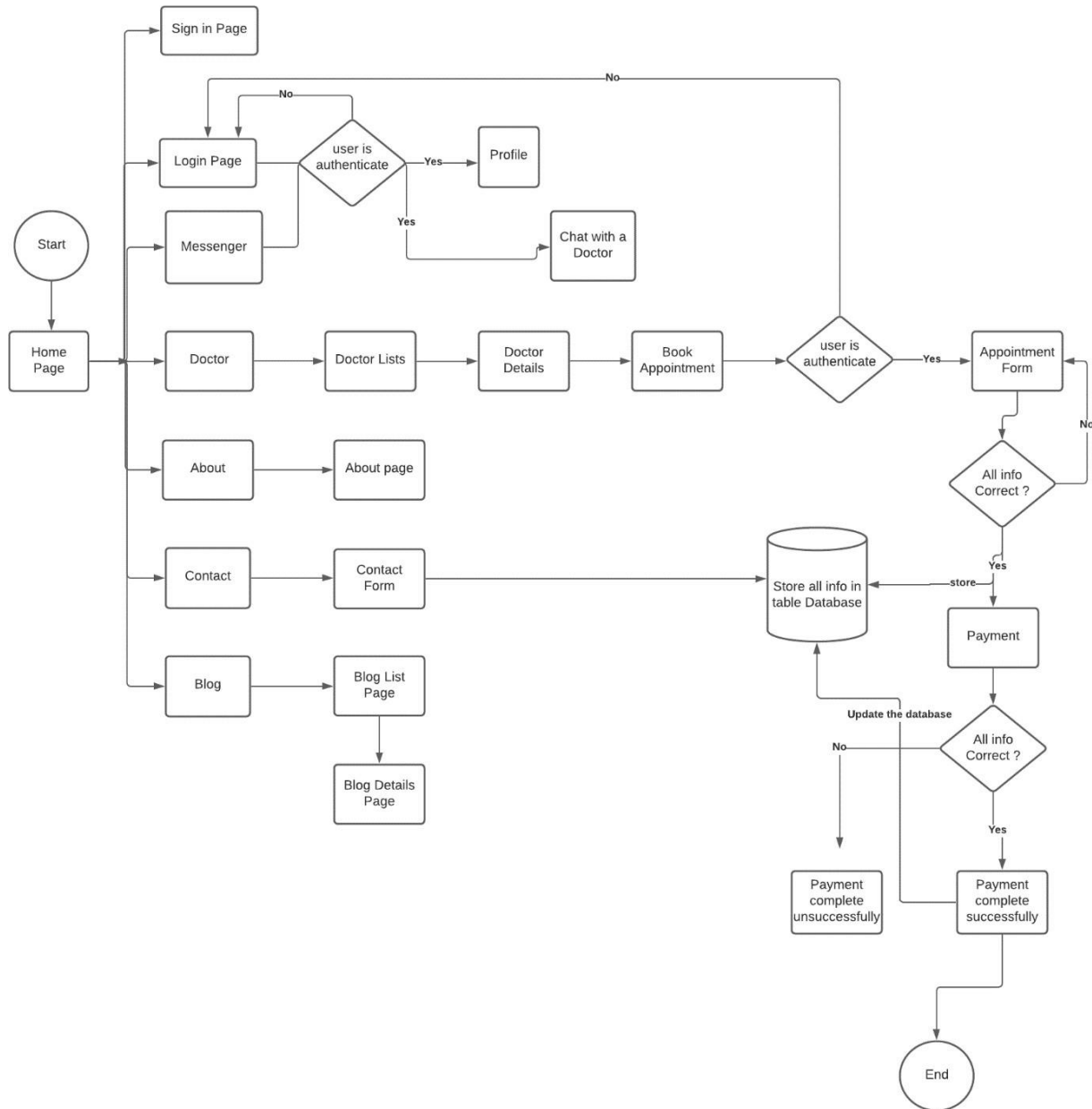
3.6 Component Diagram

A component chart, too known as a UML component graph, depicts the organization and wiring of the physical components in a framework. Component graphs are frequently drawn to assist in demonstrating usage of subtle elements and double-check that each perspective of the system's required capacities is secured by arranged improvement.
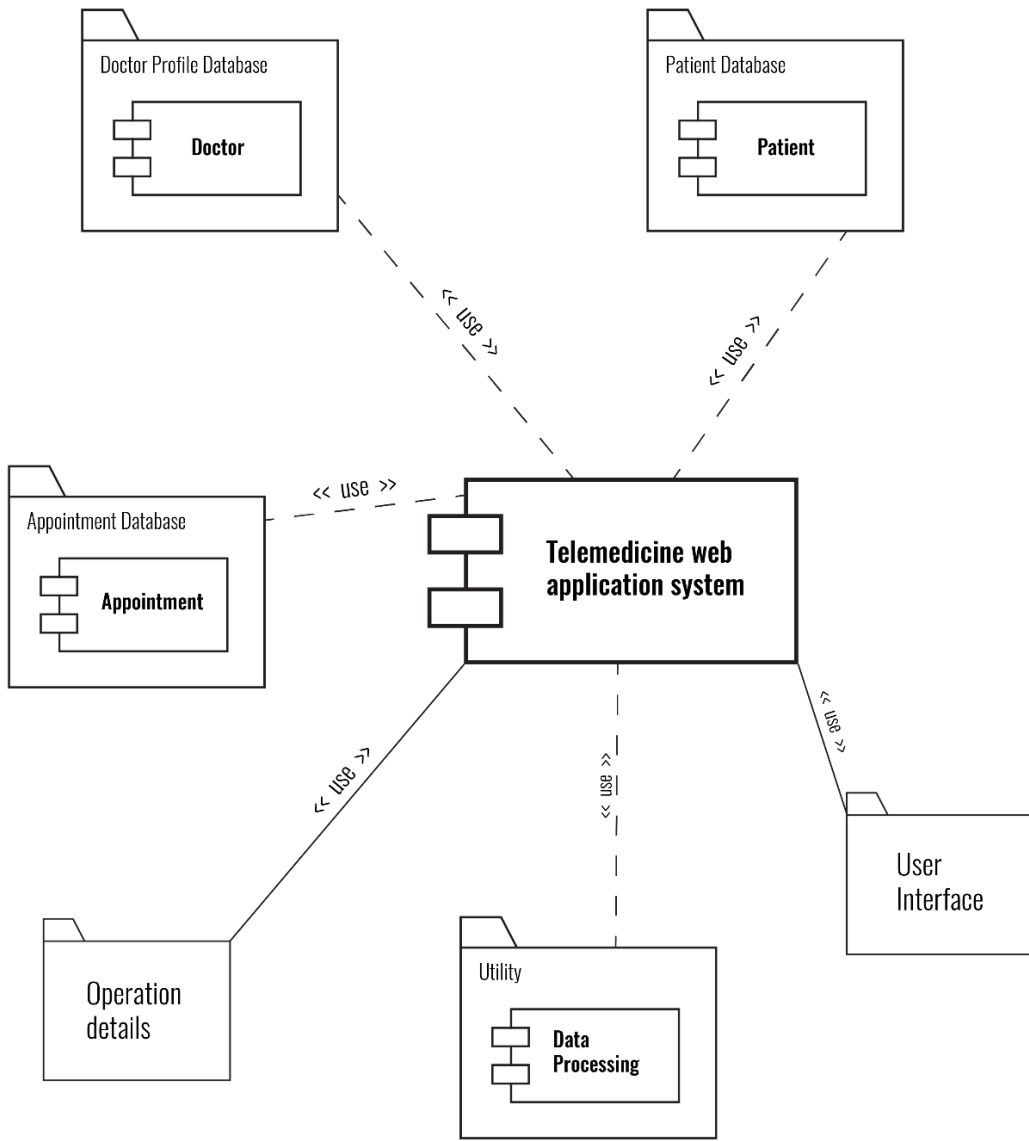
3.7 UML Diagram

A sending chart could be a UML graph that displays a framework's execution design, counting hubs such as equipment or computer program execution situations, and the middleware connecting them. Arrangement graphs are regularly utilized to imagine the physical equipment and computer program of a framework.
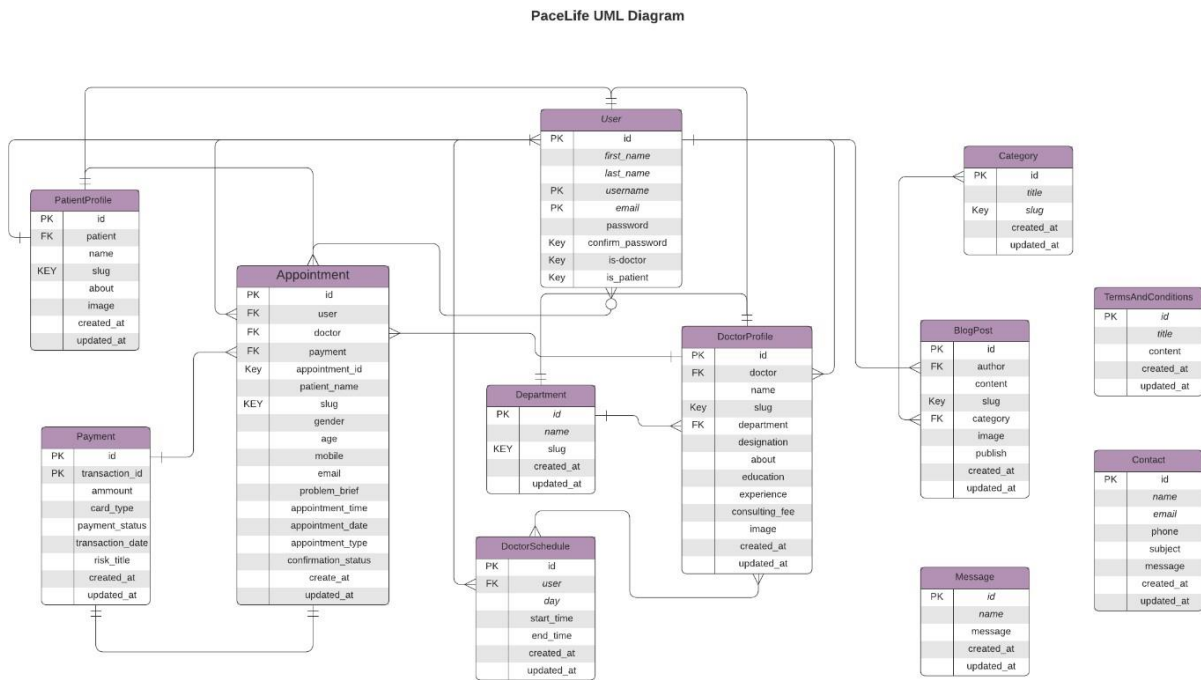
Fig: UML Diagram

CHAPTER 04

Design Specification

4.1 Admin Dashboard

- System statistic
- Professional list
- Create and modify Professional
- Appointment list
- Create and modify student
- Payment withdraw request and admin can approve or deny withdraw request
- Admin can search course
- Manage all settings from the admin panel
- Admin profile
- Password change option
- Contact information if anyone request for contact list
- Subscription list

4.2 Professional Profile

- Profile
- Password change option
- Appointment list page
- Appointment create and modify
- Appointment review page

4.3 User Profile

- User statistic
- Profile
- Password change options
- Payment history
- Download invoice
- Book appointment
- Cancel appointment
- Edit profile

4.4 Support Page

- Show Available doctor list
- Available times
- Booked appointments
- Different professionals
- every course has a final exam
- Every chapter has one video, one audio, one pdf, one ppt file, one resource file
- Students can download ppt and resource file
- When a student completes a lecture, quiz, MCQ quiz, and final exam, they show the right sign

4.5 Main website

❖ **Home page**

- Category list
- When clicking upon a category, then they show category wise course
- Search option
- Featured cause list
- Popular course list
- New course list
- Contact information
- Subscription option

❖ **Contact page**
- Contact form
- Google map location

CHAPTER 05

Implementation

5.1 Implementation

Home page: Home page containment navigation bar, a banner section for search course, slider section, popular course section, featured course section, new course section, some statistics, subscription section, top footer section and last footer section.
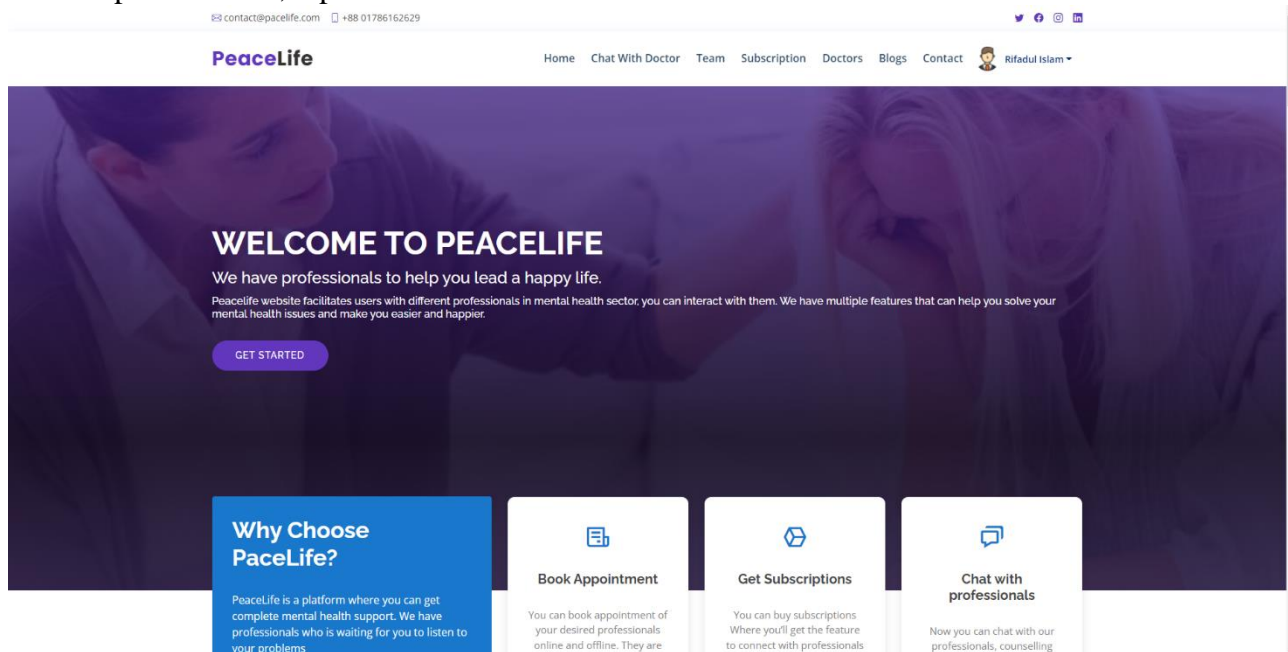
Fig: 5.1 : Home page (Navigation & category)

Fig: 5.2: Home page (Appointment Section)

Fig: 5.3: Home page (Account registration & Login section)

Fig: 5.4: (Contact Page)

Fig: 5.5: (About Section)

Fig: 5.6: (Services Section)

Fig: 5.7: (Department Section)

Frequently Asked Questions

(?) What does our website do ? ^

It's a platform that supports complete mental health service that was necessary for our generation. That's what we feel, we want people to smile and live. Our goal is to make their life easy and happy, and have the easiest way to access their mental healt

(?) How does it work? ^

(?) Can we select a doctor of our own choice? ^

(?) Is my data secure? ^

(?) How do I get a prescription for my consultation? ^

(?) Can I get consultation if I am outside Bangladesh? ^

Fig: 5.8: (FAQ Section)
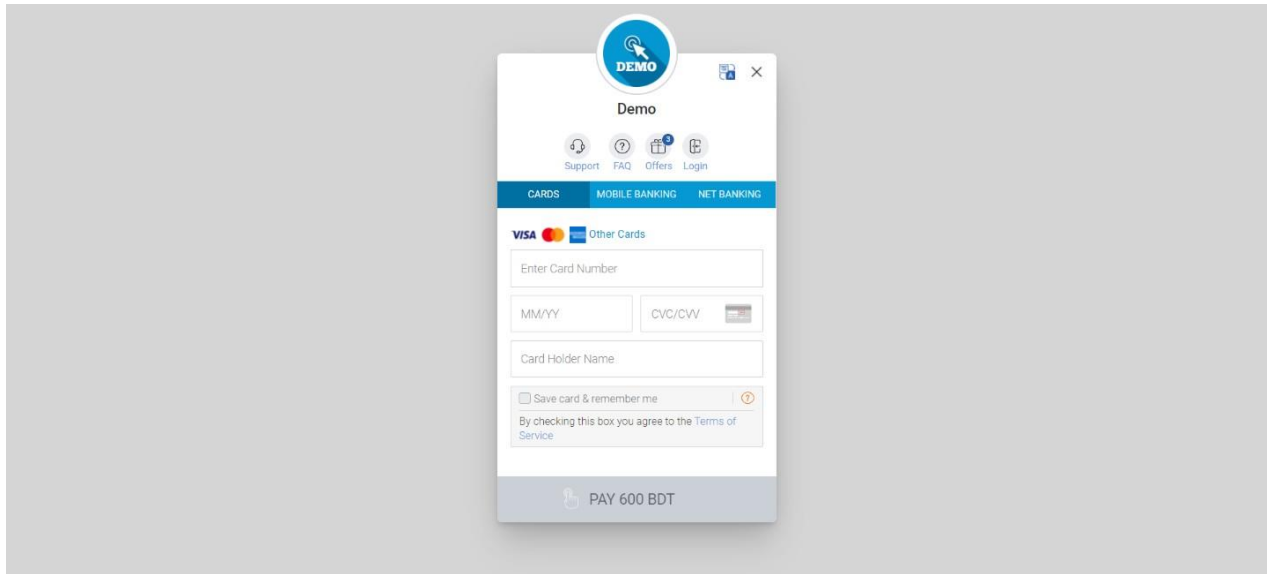
Fig: 5.9: (Payment gateway section)
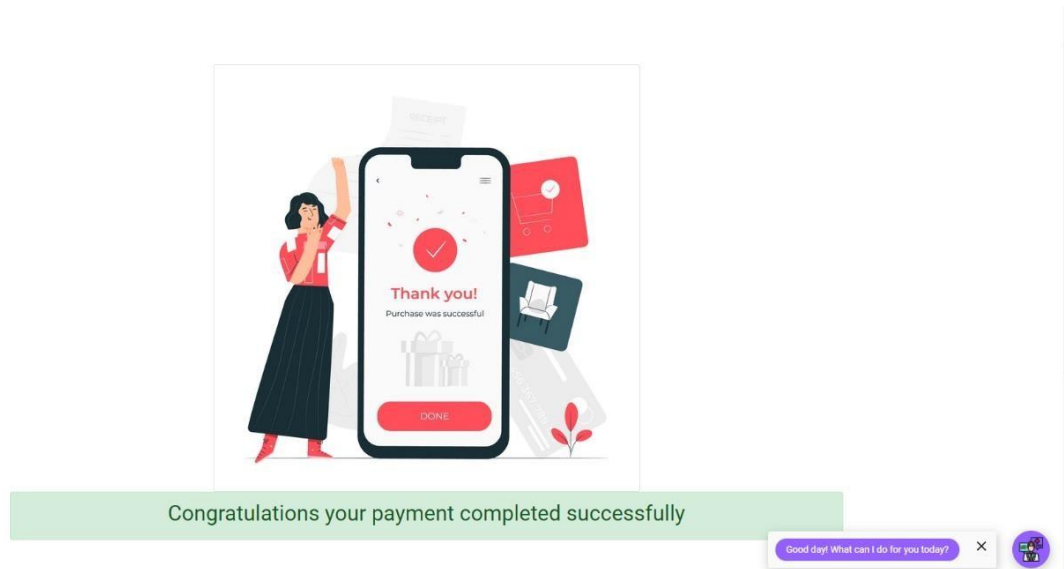
Fig: 5.10: (Payment Successful)
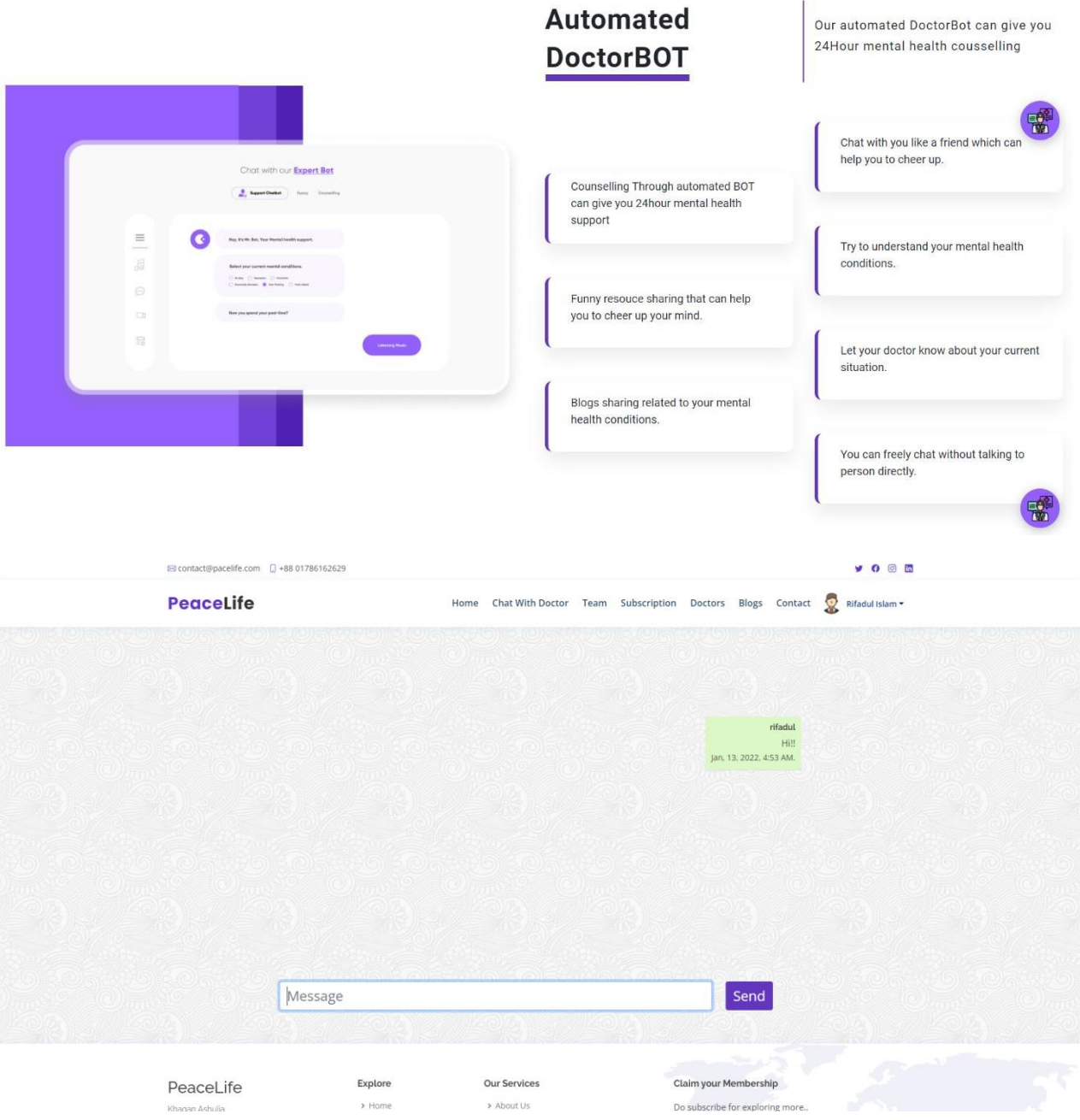
Fig: 5.11: (Footer Section)

Fig: 5.12: (Premium membership page)

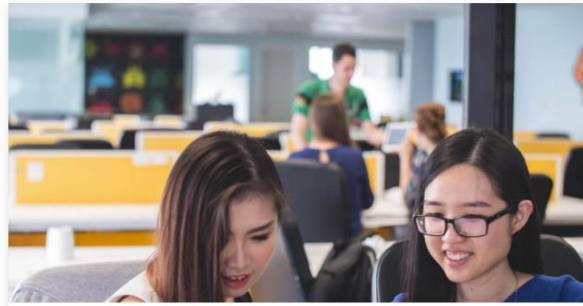**Fig: 5.13: (Automated Docbot)**
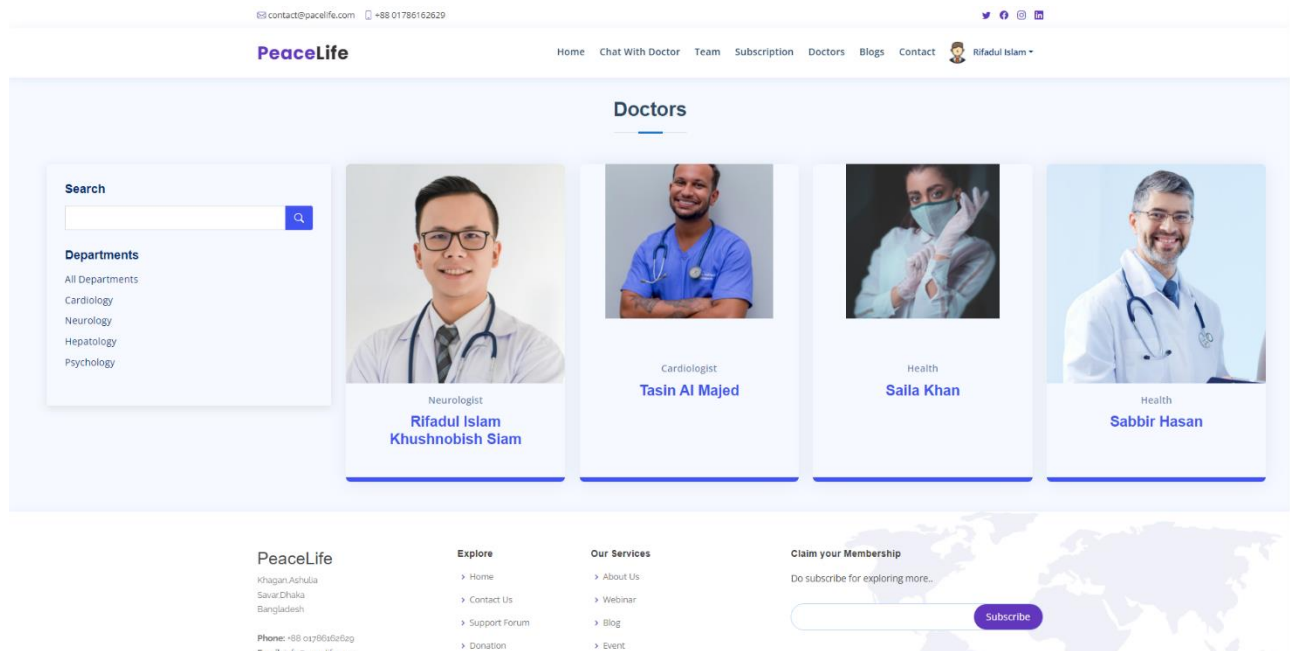
Fig: 5.14: (Doctors Page)

Fig: 5.15: (Doctor Profile)

Fig: 5.16: (Blog)

Fig: 5.17: (Team Members)

CHAPTER 06

Impact on Society, Environment, and Sustainability

6.1 Impact on Society

We are hopeful that it will keep a very good impact in our society. Usually we can see that not everyone is able to visit a doctor. We are developing a telemedicine website where people can remotely connect with the doctors through video calls & tell them everything that they need to express to a doctor. Besides we are not that much aware of our mental health & in our society it's kind of unusual that people went to a doctor for their mental health. So, in this case people won't think twice if they need or they want to make an appointment to a doctor all they need is to follow some rules & make the appointment.

So, it will give a comfortable space to our young generations who are mostly facing many mental issues.
Also, people can book their offline appointment too using this website.

6.2 Impact on Environment

Peacelife website is a method where doctors can consult a patient's medical care remotely through video chat. It's a very good effective solution for both patients & doctors. Especially for patients who usually can't go for a mental health treatment.
This website allows people to connect with the doctor from anywhere in the world so in our environment it will make a good impression & will solve many problems as well.
Mostly the fees for consulting a doctor will be cheaper than as usual offline fees which will allow all kinds of people to come to our website and make an appointment according to their needs.

6.3 Ethical Aspects

In our society we can see that visiting a doctor for mental health is not an appreciable approach. That is why many of us don't want to go for a consultation unless the situation becomes worse than before. So, there is a huge ethical communication gap where we need to change our thoughts and start working for the solution.

And in our Peacelife websites we tried to solve this problem properly so that people can easily make an appointment if they need to. Here we developed a system where people can book their appointments by watching a doctor's profile so that they can understand which doctor could be more effective for them according to their needs. Also, patients will be able to make appointments at cheaper fees than outside.

Sometimes we can see that a patient's situation isn't that good but they need to go to the doctor because the doctor will prescribe them & the patient will follow them. Going to the doctor's

chamber is not always possible and, in this condition, particularly if a patient is affected with a virus or something then it can be a good solution as the virus won't affect others around. It allows a man or woman or a child to take their comfortable place at home and after that they can easily communicate with the doctor.

6.4 Sustainability Plan

For sustainability we have been doing a lot of research to solve people's problems.
In this era, we are bound to do a lot of things for our livelihood like jobs, studying, teaching or something else. After doing this, usually people cannot get that much time to visit a doctor's chamber. Besides, nowadays people are facing more stress and they are getting more pressure from their daily life. In this case people need to overcome these situations. That's why they need to visit a doctor for their treatment but it's always not possible to visit physically so we have developed a platform where people can make their appointment remotely anywhere anytime in the world.

Besides, we have developed some beneficial features for them so that users can communicate with the doctor directly through a chat box. We also developed a chatbot through Dialogflow where people can send their queries and will get feedback accordingly.

CHAPTER 07

Conclusion and Future Scope

7.1 Conclusion

In this special part, I would like to start giving thanks from my bottom of my heart to our honorable supervisor Tania Khatun ma'am. Her immense support and help to develop our project and also as well as our friends and some teachers who help me to give real data and so much appropriate advice.

A platform that support complete mental health service was necessary for our generation that's what we feel, we want people to smile and live. Our goal is to make their life easy and happy, and have the easiest way to access their mental health treatment and become aware of their life.

We need a higher quality full telemedicine platform. So, from that idea, we try to make this project. I believe that it will help our life much easier. We also take part to develop the system because if in the future this project got some problems, we can update this project on users' needs.

7.2 Scope for Further Developments

Our future website model and personalized support system will enable an unimaginable degree with our visitors & professionals. And, we'll ensure the best support for them at every stage of difficulties. We will continue our user research for sustainability & betterment of our project. We will work for the betterment of our chatbot system where people can be tracked on the basis of their mental condition. And our users will have a supervisor for their own so that they can get the proper guideline for betterment of their mental health.

Our priority is always to maintain a healthy environment through our project.

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