

WEB-BASED MENTAL HEALTH SUPPORT NETWORK

BY

Md. Jannatun Nayem Riyad
ID: 201-15-3376

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

Supervised By

Shah Md. Tanvir Siddiquee
Assistant Professor
Department of CSE
Daffodil International University

Co-Supervised By

Mr. Mohammad Jahangir Alam
Lecturer (Senior Scale)
Department of CSE
Daffodil International University



DAFFODIL INTERNATIONAL UNIVERSITY

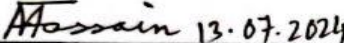
DHAKA, BANGLADESH

July 2024

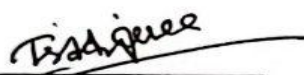
APPROVAL

This Project is titled “Mental Health Support Network”, submitted by Md. Jannatun Nayem Riyad 201-15-3376 to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 13 July 2024.

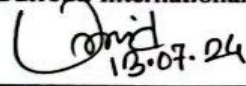
BOARD OF EXAMINERS


Dr. Md. Fokhray Hossin (MFH)
Professor
Department of CSE
Faculty of Science & Information Technology
Daffodil International University

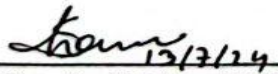
Chairman


Mr. Shah Md. Tanvir Siddique (SMTS)
Assistant Professor
Department of CSE
Faculty of Science & Information Technology
Daffodil International University

Internal Examiner 1


Mr. Md Umaid Hasan (MUH)
Lecturer
Department of CSE
Faculty of Science & Information Technology
Daffodil International University

Internal Examiner 2


Dr. Shamim H Ripon (DSR)
Professor
Department of Computer Science and Engineering
East West University

External Examiner

DECLARATION

I hereby declare that this project has been done by me under the supervision of **Shah Md. Tanvir Siddiquee**, Assistant Professor, Department of Computer Science Engineering, Daffodil International University. I also declare that neither this project nor any part of this project has been submitted elsewhere for the award of any degree or diploma.

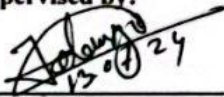
Supervised by:



Shah Md. Tanvir Siddiquee

Assistant Professor
Department of CSE
Daffodil International University

Co-Supervised by:



Mr. Mohammad Jahangir Alam
Lecturer (Senior Scale)
Department of CSE

Submitted by:



Md. Jannatun Nayem Riyad
ID: 201-15-3376
Department of CSE
Daffodil International University

ACKNOWLEDGEMENT

Firstly, I express my heartiest thanks and gratefulness to almighty Allah for His divine blessing in making it possible to complete the final year project successfully.

I am grateful and wish my profound indebtedness to my Professor **Shah Md. Tanvir Siddiquee, Assistant Professor**, Department of CSE Daffodil International University, Dhaka. Deep knowledge and keen interest of our supervisor in the field of “Web Application, Database, Multimedia Communication, Management System” to carry out this project. His endless patience, scholarly guidance, continual encouragement, constant and energetic supervision, constructive criticism, valuable advice, reading many inferior drafts, and correcting them at all stages have made it possible to complete this project.

I would like to express my heartiest gratitude to the **Head of the Department of CSE, Dr. Sheak Rashed Haider Noori** for his kind help in finishing this project and also to other faculty members and the staff of the CSE Department of Daffodil International University.

I would like to thank my all-course mates at Daffodil International University, who took part in this discussion while completing the coursework.

Finally, I must acknowledge with due respect the constant support and patience of my parents.

ABSTRACT

The “Mental Health Support Network” is a web-based project to help individuals facing mental health challenges. My goal is to make it easier for people to find support and resources. The main goal of this web-based project is to provide a user-friendly platform for individuals to connect with mental health resources. Users can easily navigate the website, accessing a variety of support materials and insights. The platform draws on a wealth of knowledge to empower users to find resources that align with their needs and personal growth objectives. The website will offer resources and support for individuals dealing with mental health issues. There will be three types of users: i) Normal Users ii) Therapists and iii) System Admin. Admin has all kinds of access such as providing videos, podcasts, and blogs, maintaining the group, uploading therapist information, adding questions and answers in the chatbot, maintaining events, etc. The users can watch videos, read blogs, and listen to podcasts by registering themselves or without authenticating. They can ask enquires related to mental health issues in discussion groups by authenticating and users also can comment in group discussions. In the group discussion section, user can express their problem and get support from therapists as well as experts and also can see other people how they get their solutions. Users also can get support from a chatbot and they can also chat with therapists and join events on mental health support. The therapist list will be available with proper information about them to contact with. There is some future scope in the project like video call support features directly with a therapist and integrated AI support for mental health problems. By providing resources and support, I aim to make it easier to find a solution linked to mental health issues.

TABLE OF CONTENTS

Contents	Page No
Approval	i
Declaration	ii
Acknowledgments	iii
Abstract	iv
 CHAPTER 1: INTRODUCTION	 1-6
1.1 Introduction	1
1.2 Motivation	2
1.3 Objectives	2
1.4 Expected Outcome	3
1.5 Project Management and Finance	4-5
1.6 Report Layout	6
 CHAPTER 2: BACKGROUND	 7-13
2.1 Preliminaries and Terminologies	7
2.2 Related Works	8
2.3 Comparative Analysis	9-10
2.4 Scope of the project	11
2.5 Challenges	12
 CHAPTER 3: REQUIREMENT AND SPECIFICATION	 13-22
3.1 Business Process Modelling	13
3.2 Requirement collection and analysis	14
3.3 Use Case Diagram and Description	15-16
3.4 Data Flow Diagram and Description	17-18
3.5 Logical Data Model	19
3.6 Entity Relationship (ER) Diagram	20
3.7 Design Requirements	21

CHAPTER 4: DESIGN SPECIFICATION	22-25
4.1 Front-End Design	22
4.2 Back-End Design	22-23
4.3 Interaction Design and User Experience (UX)	24
4.4 Implementation Requirements	25
CHAPTER 5: IMPLEMENTATION AND TESTING	26-48
5.1 Implementation and Database	26
5.2 Implementation of Front-End Design	27-36
5.3 Testing Implementation	37-46
5.4 Test Results and Reports	47
5.5 Chatbot Result and Answer Analysis	47
CHAPTER 6: IMPACT ON SOCIETY, ENVIRONMENT AND SUSTAINABILITY	48-51
6.1 Impact on Society	48
6.2 Impact on Society & Environment	49
6.3 Ethical Aspects	49
6.4 Sustainability Plan	50
CHAPTER 7: CONCLUSION AND FUTURE SCOPE	52-53
7.1 Discussion and Conclusion	52
7.2 Scope for Further Developments	52-53
REFERENCES	54
PLAGARISM REPORT	55-57

LIST OF FIGURES

FIGURES	PAGE NO
Figure 1.6.1: Report Layout of this Project	6
Figure 3.1.1: Business Process Modelling	13
Figure 3.3.1: Use Case Diagram	16
Figure 3.4.1: Data Flow Diagram for level 0	17
Figure 3.4.2: Data Flow Diagram for Level 1	18
Figure 3.5.1: Logical Data Modelling	19
Figure 3.6.1: ER Diagram	20
Figure 4.2.1: Spring Boot Flow Architecture	23
Figure 5.1.1: Database Tables	26
Figure 5.1.2: Database Indexes	27
Figure 5.2.1: Home Page	28
Figure 5.2.2: Profile	28
Figure 5.2.3: Admin add Blog	29
Figure 5.2.4: Chatbot Support for Users	30
Figure 5.2.5: User Payment Request Option	30
Figure 5.2.6: User-Therapist Message	31
Figure 5.2.7: Group Discussion Option	32
Figure 5.2.8: Group Discussion Query and Comment	32
Figure 5.2.9: Therapist Directories for User	33
Figure 5.2.10: Events for User	33
Figure 5.2.11: Event Details	34
Figure 5.2.12: Blog Option for User	34
Figure 5.2.13: Read Blog	35
Figure 5.2.14: Podcast for User	35

Figure 5.2.14: Videos for User	36
--------------------------------	----

CHAPTER 1

INTRODUCTION

1.1 Introduction

Welcome to the Mental Health Support Network project, where I'm building a website to help individuals facing mental health challenges. The project is about making it easier for people to find support and resources. We know that mental health is important, and sometimes it is hard to get the help we need. My website aims to change that. This initiative aims to create a safe space for individuals seeking emotional well-being, focusing on simplicity, accessibility, and future advancements in mental health care. It will provide information, tools, and connections to support people in managing their mental health and well-being. By creating a friendly online community, I hope it will reduce the feeling of being alone and the grief that often comes with mental health struggles. This website is a safe space for people to share their experiences and find the support they need. This web-based project's primary objective is to give people a convenient way to interact with information related to mental health. The website is simple to use and offers a wealth of information and insights. The platform leverages an abundance of knowledge to enable users to locate resources that correspond with their requirements and goals for personal development. The website will offer resources and support for individuals dealing with mental health issues. It will have features like virtual support groups, self-help tools, message support with therapists, chatbot support, and events on mental health. Virtual support groups users, and therapists to connect with others going through similar experiences. Therapist directories help users find professionals who can provide treatment and support. Self-help tools empower users to take control of their mental health with things like articles, blogs, podcasts, and videos. Chatbot support allows users to ask questions about mental health and my system will give them support by providing the answer. The message option is for communication with the therapists for support. The event option will increase awareness among people. I want this website to be a comprehensive and easy-to-use mental health support network. I wish to make the website even better by adding more features by using cool technologies in the future to make it even more helpful.

1.2 Motivation

The main motivation behind the creation of the Mental Health Support Network website is a deep understanding of the challenges individuals face in accessing mental health resources. Mental health issues affect people globally, yet there are a lot of barriers to seeking help. This project is motivated by the belief that everyone deserves accessible and supportive resources for their mental well-being. Traditional mental health services can be difficult to access due to various reasons. Many people around the world struggle with mental health, but getting help can be tough because of the lack of services, shyness, or monetary issues. My project is to create a website that breaks down these barriers. My motivation came from the desire to bridge this accessibility gap. I have realized that mental health is a crucial aspect of overall well-being, and my project seeks to make essential resources within reach for everyone. Another motivation behind this project is to create a judgment-free zone where individuals can explore resources, connect with others, and access professional help without fear of judgment. By doing so, I hope to contribute to breaking down the societal barriers that prevent people from seeking the support they need. In essence, the motivation behind the Mental Health Support Network project is rooted in a commitment to making mental health resources accessible, fostering community support, and empowering individuals on their unique mental health journeys. Through this project, I aspire to contribute to a world where mental health support is readily available, compassionate, and devoid of barriers.

1.3 Objective

The main goals of this Project are:

- ❖ Develop a user-friendly website that provides resources and support for individuals struggling with mental health issues. The website addresses barriers to accessing traditional mental health services.
- ❖ The system contains some features such as virtual support groups, therapist directories, chatbot support, messages with therapists, and self-help tools, events for mental health support.

- ❖ Virtual support groups for users to connect with others going through similar experiences and therapists for immediate support. User can post their query in this service.
- ❖ Therapist directories to help users find professionals for treatment and support.
- ❖ Message option for users to communicate with therapists. Here user has to pay to connect with a therapist.
- ❖ Chatbot option for questions and answers about mental health support.
- ❖ Self-help tools such as articles, blogs, podcasts, and videos for users to take control of their mental health.
- ❖ Features like events on mental health support to raise awareness among people.
- ❖ It is a comprehensive and accessible mental health support network to reduce isolation and stigma associated with mental health issues and improve mental health outcomes for users

Together, these objectives provide a strong, intuitive web-based mental health support network platform that satisfies the needs of users, therapists, and system administrators while revolutionizing the simplicity and efficacy of mental health care.

1.4 Expected Outcome

The probable outcome for "Mental Health Support Network (MHSN)" includes-

- ❖ User Registration: Users will be able to create profiles and accounts on the website. It should be possible for users to provide details such their name, age, address, phone number, email address, and so on.
- ❖ Profiles: Users can view their profile information as well as update their information in this option.
- ❖ Virtual Support Group: The website will offer a virtual support group where users can share feelings and discuss with others who have similar mental health issues. They can be advised here by therapists and experts in the comment section of every discussion on a specific topic.
- ❖ Chatbot Support: the website will offer users chatbot support where users can ask anything about mental health and the system will answer according to its training.

- ❖ Message with therapist: The website will provide a message option where users can communicate with experts and therapists for their needs.
- ❖ Self-Help Tools: The website will offer a variety of self-help tools, such as blogs, podcasts, and videos which will be provided by admin and expert therapists. These resources will provide information, tips, and tricks on coping with mental health issues, managing stress, and improving overall well-being.
- ❖ Crisis Support: The website will provide resources for users who are in crisis, such as hotlines and emergency services. Users will be able to access these resources quickly and easily from the website.
- ❖ Therapist directories: The website Mental Health Support Network will offer a therapist list where users can collect information, share experiences, and take support. Every therapist will be approved by the admin after verifying their certificates of specialization to ensure a safe and supportive environment.
- ❖ Event: The event is a feature that its users can attend to increase their awareness about mental health.
- ❖ Time Savings: The Mental Health Support Network's ability to save users a great deal of time through self-help tools, group conversations, and therapist directories is one of its main results.
- ❖ Confidentiality and Privacy: The confidentiality and privacy of its users shall be given top priority by the website. Every user's data and information ought to be safely kept and safeguarded.
- ❖ Continuous Updates and Maintenance: New features, resources, and security updates will be added to the website regularly. In order to keep it completely functioning and user-friendly, it would also undergo routine maintenance.

Together, these expected outcomes will totally change the mental health support industry by providing consumers with a seamless and agreeable service experience through efficaciousness, personalization, security, and flexibility.

1.5 Project Management and Finance

Project Management:

- ❖ Planning for this Project: I begin the project by drafting a comprehensive project plan that

includes information on the tasks, due dates, dates of completion, and distribution of resources.

- ❖ Team Formation: Since it is my final year project, I did all the work of development, testing, and design as well as the database handle on my own.
- ❖ Gathering Requirements: The project conducts in-depth research and gathers complete needs from users (such as system administrators, users, and therapists) to guarantee that the platform's features match their requests.
- ❖ Agile Development Methodology: For iterative development, I employ an agile technique that allows for adjustments and revisions in response to feedback obtained during the development process.
- ❖ Designing and Prototyping: I begin by visualizing the platform's functionality and interface using wireframes and prototypes to guarantee usability and user-friendliness.
- ❖ Testing and Development: I go through several testing procedures, including as unit, integration, and user acceptance tests, after developing and integrating features and functionalities to ensure functionality and quality.
- ❖ Monitoring and Maintenance: To ensure optimal performance and customer satisfaction following the official launch, I will put up a system for continuous monitoring, bug fixes, updates, and post-launch user support.

Finance:

- ❖ Budgeting: I could make a strategy similar to getting a bank loan for expenses related to development, people, software, hardware, infrastructure, and marketing.
- ❖ Resource Allocation: In terms of resource distribution, I'll spend money wisely over the course of the project.
- ❖ Cost Management: In terms of project cost management, I'll keep a careful check on expenditures to ensure that the spending plan is adhered to. I'll also point out places where expenses could be cut without compromising quality.
- ❖ Risk Management: Since the website is an unprofitable system, there are fewer risks. In a further development, the risk management of finances will be considered.

- ❖ **Funding Strategies:** Since money is essential to operating the system, I'll search for grants, bank loans, investors, and partnerships.

Within the allotted budget and strategic objectives, the development, launch, and sustainability of the "Mental Health Support Network" are guaranteed by striking a balance between prudent financial management and effective project management procedures.

1.6 Report Layout

Creating a comprehensive report layout for the "Web-based Mental Health Support Network (MHSN)" requires segmenting the document into many sections that emphasize the project's

details, features, development stages, and outcomes. Below is a layout outline for the

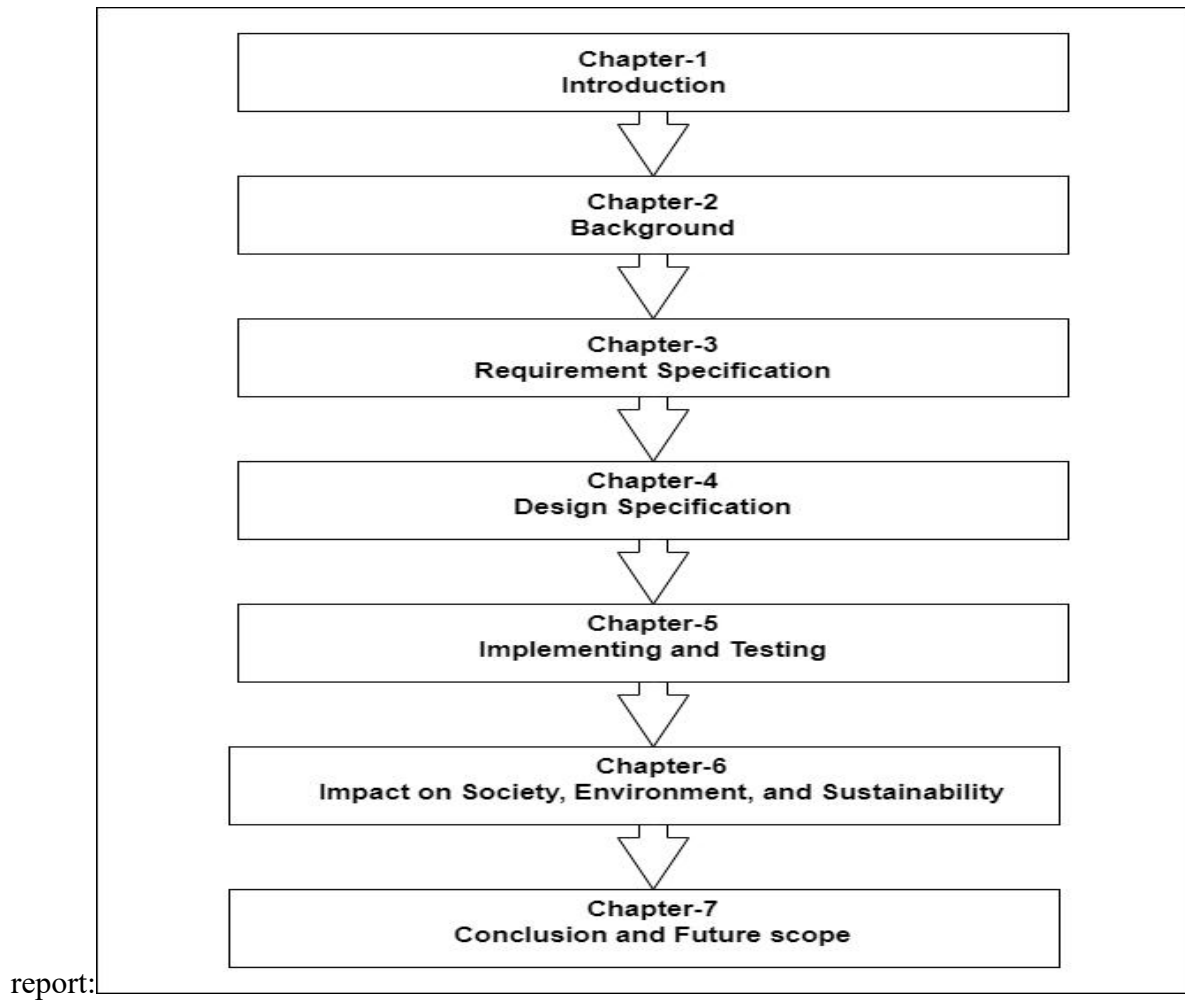


Figure 1.6.1: Report Layout of this Project.

CHAPTER 2

BACKGROUND

2.1 Preliminaries and Terminologies

Here are terminologies related to the “Web-Based Mental Health Support Network”.

- ❖ **Mental health Support network:** This project aims at the development of a user-friendly website designed to provide its users with mental health support and guidelines to stay fit physically and mentally.
- ❖ **System Administrator:** Managing user accounts, maintaining system integrity, and configuring system settings on the platform fall within the purview of the admin role.
- ❖ **User:** The “Mental Health Support Network” project focuses on helping those people who are mentally disturbed, introverted, and depressed which is a most commonly neglected subject in our country.
- ❖ **Therapist:** The therapist has an important role in the project. Users can get service from them, and users can communicate with therapists by message and event to get service.
- ❖ **User Interface (UI):** Users can interact with the platform using the graphical user interface (GUI), which consists of navigation, design elements, and user experience.
- ❖ **Admin Friendly:** By harnessing the power of the web, this project ensures effortless accessibility for its admin, therapist, and user, eliminating the need for software installation. Admin can easily upload media support like videos, blogs, and podcasts as well as maintain other services.
- ❖ **User Friendly:** Users can easily enter the discussion group to ask their queries and comment on another post, therapist can also reply to the post to give support to the victim. The media will be related to mental health based; It can be a video about physical and mental exercise, a blog about the importance of mental therapy, or it may be a podcast about someone who was a victim of this kind of problem and how he overcame it.
- ❖ **Agile Development:** Agile development is a software development methodology that emphasizes continuous improvement via collaboration, adaptability, and iteration.
- ❖ **Security protocols:** Measures taken to safeguard user data, thwart unauthorized access, and ensure the platform's data integrity and privacy.

2.2 Related Works

The linked research for "Mental Health Support Network" looks at comparable platforms, technologies, and studies that address user interfaces, security, and personalized services in relation to mental health networks. This is an overview of pertinent research:

- ❖ Facilities in Bangladesh: There are 50 outpatient mental health facilities in the nation at the moment, and most of them are found in cities. In Bangladesh, a few non-governmental organizations (NGOs) also support the delivery of mental health services [1].
- ❖ Government Support: The new Mental Health Act in Bangladesh was approved by the Parliament in 2018, according to the Who Special Initiative Country Report of Bangladesh. The Ministry of Health approved a new mental health policy in 2019 that emphasizes community-based services and support for individuals living with mental illness, decentralization, and a transition from a medical to a psychosocial treatment approach [2].
- ❖ Available Mental Health Support Websites: There are some related websites like “Esho Nije Kori” [3], and another I found named Fresh Hope [4]. These sites are overall good. In some cases, these websites are better than my website, but they provide only services, there is no self-help tool system like mine. So, I hope in the future after the full implementation of my full plan and some changes and updates my website will be a better mental health support website than others.
- ❖ User Interface and Experience (UI/UX): I discovered several web tools for mental health assistance that offer easy-to-use navigation, user-friendly UI, and higher user engagement. The designs are really accessible and easy to utilize. These websites provide several services along with a few extra features.
- ❖ Security Measures in Web Applications: Web applications employ industry-standard security protocols and encryption techniques, such as HTTPS (Hypertext Transfer Protocol Secure) and Content Security Policy (CSP), to safeguard sensitive information and ensure user safety.
- ❖ Academic Research in Mental Health Services: The American Journal of Orthopsychiatry published a journal named “Campus Mental Health Services: Recommendations for Change”. It describes the necessity of mental health services. The study discusses the rise in the number of college students with serious mental illnesses and the barriers they face in receiving services for mental health issues, especially in the wake of high-profile suicides on campus. It offers

recommendations to enhance campus-based responses to serious mental illness based on established service principles [5].

2.3 Comparative Analysis

In a comparative study, comparable current platforms or systems in the market are evaluated for the "Web-based Mental Health Support Network." Below is a summary for a comparative study:

❖ Features and functionalities:

- “Esho Nije Kori” is a leading mental health support service provider in Bangladesh, offering a wide range of counseling services such as individual and group counseling, corporate counseling, and various mental health programs like anxiety, stress, and depression management. The organization utilizes methods like cognitive behavioral therapy, solution-focused therapy, and mindfulness training to help individuals improve their mental health and offers corporate wellness programs and stress management training.
- Fresh Hope provides hope and support for individuals facing mental health challenges through peer support, faith-based guidance, and various programs like support groups, hope coaching, and learning communities.
- “Web-Based Mental Health Support Network” is also a mental health support service provider system for those people who need mental health. MHSN has some features like a chatbot, a virtual group for asking queries, events on mental health support, chatting feature with therapists which are different features from “Mental Health Support Network” from other websites.

❖ User Interface (UI) and Experience (UX):

- The website for Esho Nije Kori, a mental health support service provider in Bangladesh, features a clean layout with easy navigation through various sections like About Us, Services, Blogs, and Contact Us. The platform's UI/UX design is visually appealing, with clear images and concise content, making it user-friendly and intuitive for visitors seeking mental health support.

- “Mental Health Support Network” has a clean and simple layout with a sidebar through various sections like chatbot support, videos, podcasts, therapists, and virtual groups. The project is a beginner-level project with a simple UI/UX design as well as it is a very user-friendly system as compared to other industrial-level websites.

❖ Security and Privacy Measures:

- Some common security procedures and privacy safeguards employed by most websites are user authentication, HTTPS encryption, data encryption, regular software updates, patch management, user access controls, and role-based permissions to analyze personalization.
- The website “Mental Health Support Network” also used security and privacy safeguards. Secure user authentication with encrypted password, admin access to regular upgradation, user access controls and role-based permissions, etc security protocols are used to protect the privacy of users.

❖ Customer Support and Engagement:

- “Esho Nije Kori” contains many better features to engage users. To attract its users the website contains a detailed homepage with some relevant videos. The website offers customer service like live chat, FAQs as well and social media interaction which make the platform more relevant and helpful.
- The website “Mental Health Support Network” contains different customer services which will be so easy to access for its customers. It is an unprofitable system so users can easily interact with the system and get service on their own.

❖ Market Position and User Reviews:

- As per comparison the “Esho Nije Kori” and common websites are industrial-level websites that contain high ratings and well feedback. They have many upgrade features for user happiness and satisfaction.

- The website “Mental Health Support Network” is a simple user-friendly website. The website has some user services to help users mentally and give them support. Users can give their feedback in group queries and comments. The website has also many improvement options in comparison to serving better services and better user experiences.

After doing some comparative analysis, I discovered that the primary goal of both my work and the websites that are comparable to it is to assist those who are suffering from mental illness, despair, hopelessness, etc. The "Mental Health Support Network" website has undergone several changes and additions. Future updates and enhancements might make the platform a more competitive platform in this sector and a better website for mental health services providers..

2.4 Scope of the project

The creation of an online application that offers guidance to users on their mental health is included in the project's scope. The main goal is to give consumers an easy-to-use, self-help tool for maintaining their mental well-being. The project's first implementation does not make use of artificial intelligence and instead concentrates on front-end and back-end design. Both users and therapists will be able to log in and view their profiles on the website. They will also be able to access self-service content such as blogs, podcasts, and videos either through registration or without it. However, in order to join the discussion group, they must first register. Users and therapists have designated two distinct registration parts. Developing an intuitive user interface that makes it simple for users and therapists to explore and engage with the program is part of the project's scope. HTML, CSS, and Bootstrap will be used in the front-end design to provide a user interface that is both aesthetically pleasing and responsive. JavaScript and Spring Boot will be used in the back-end development to manage user authentication and store and retrieve data. I employ Thimeleaf as a foundation.

In the future, I will add some features like live chat with therapists and an online video conference system as well as I will add some AI features to better performance and user-friendly services. Scope of this project revolves around the development of some live service features, with future possibilities for integrating artificial intelligence to further enhance its functionality.

2.5 Challenges

This project presents several challenges which are faced during its development and implementation. Creating a user-friendly and intuitive interface is vital for a successful project. Ensuring the therapists and users could easily navigate through the application, register, and easily log in for users and also providing media support like videos, podcasts, and, blogs as well as creating a chatbot which was challenging. Growing the database and user base, optimizing the performance of the application as well as file handling from the database was also challenging work. Keeping up with evolving industry standards and technological advancements, guaranteeing real-time data synchronization, and preserving scalability to accommodate shifting user needs are some ongoing challenges. There is some future integration for this project like AI integration and a video call feature with a therapist. These implementations require expertise which will be challenging. As the application deals with user data, including login credentials and personal information, ensuring robust security measures to protect user privacy is crucial. Implementing proper authentication, encryption, and access control mechanisms is essential to prevent unauthorized access or data breaches. Overcoming these challenges will need meticulous planning, adaptable growth strategies, and constant modification to meet the needs of several stakeholders.

CHAPTER 3

REQUIRMENT AND SPECIFICATION

3.1 Business Process Modelling

The business model process of “Mental Health Support Network” describes the provided services business workflow of the system. Users can get overall all kinds of services free but for accessing services like messages with a therapist will cost them. The business process model shows the processes of payment to take service. This modeling simplifies processes by defining the connections between admin, users, and therapists. Because the functionalities of the platform are displayed, planning and streamlining workflows for improved user experiences is made simpler.

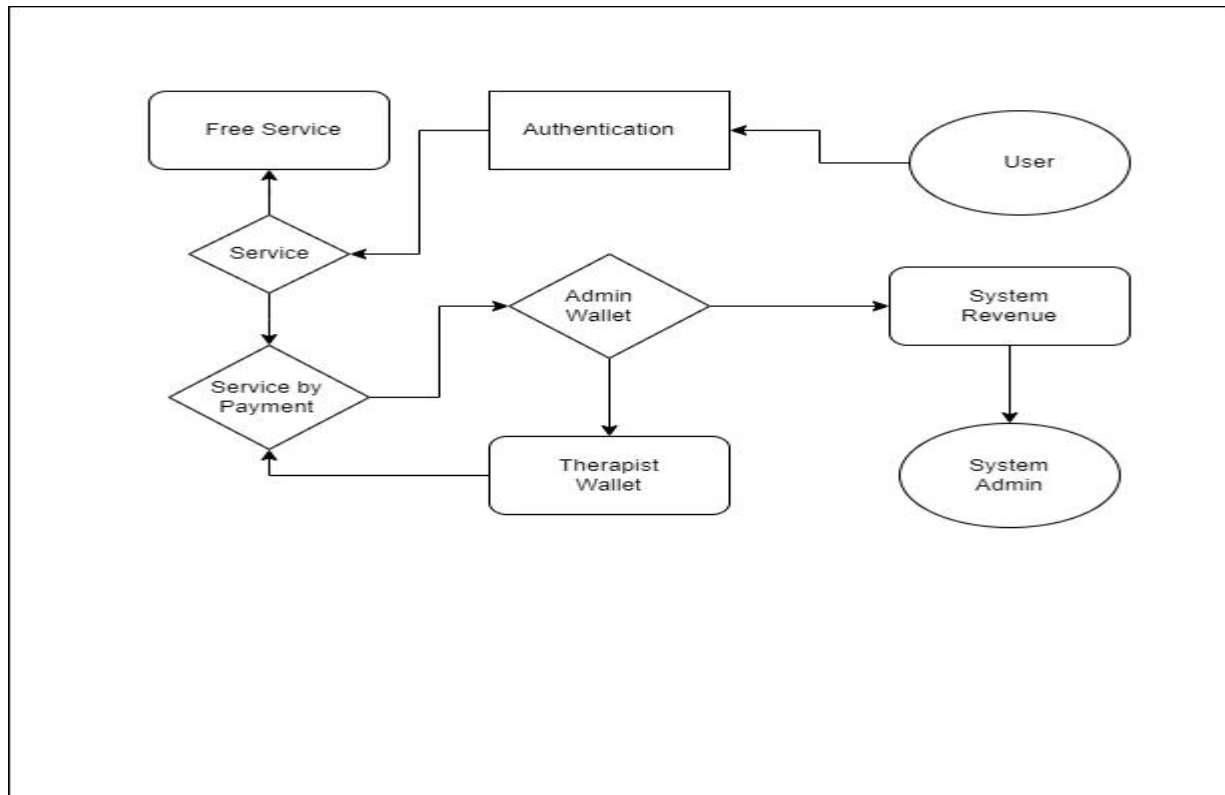


Figure 3.1.1: Business Process Modelling

3.2 Requirement collection and analysis

The "Mental Health Support Network" is a web-based platform focused on providing support to users through various media and group discussions, a chatbot as well as event facilitated. An overview of the methodical process for identifying and gathering system administrators', therapists', and users' needs is provided below:

- ❖ The platform's key players, including users, therapists, and system administrators. The platform must be managed and maintained by the system administrator, who is also in charge of adding and upgrading media content. In addition to offering professional advice and guidance, therapists and specialists offer support through group discussions and messaging services. The users are people who utilize the internet to look for mental health help.
- ❖ Conducting workshops to facilitate interactive sessions with stakeholders, allowing for in-depth discussions and feedback collection, interviews with key stakeholders to gain deeper insights into their specific requirements and expectations will help the project to gather needs, preferences, and pain areas.
- ❖ In the platform there are some inadequacies, and obstructions like future development of video call feature and AI integration as well as creating a responsive website. After overcoming this obstruction there will be lots of potential opportunities for the website.
- ❖ According to gathered requirements, there are different use cases like user, admin, and therapist. The features are different according to the role of the user. Users will find resources and support; therapists will provide support and admin will maintain the system.
- ❖ The necessary components for providing support are to enable users to post problems and receive responses from therapists, and content management like features for adding, updating, and categorizing media content (blogs, videos, podcasts). Non-functional requirements include safeguarding user privacy and secure communication, scaling to accommodate more users and media material, and providing quick and dependable access to resources and conversations.
- ❖ The implementation of the system is according to the gathered needs of relevant parties which makes it sure everyone agrees. The further improvement will be in response to criticism and new information.

- ❖ The gathered requirements are kept in a database together with features, use cases, and functional specifications. Prioritizing features, describing the use case, user story, and specs were all included in the paper.
- ❖ To ensure that the stated criteria accurately reflect the needs of all interested parties, discussions should be held. Obtaining consent from relevant parties is also crucial before proceeding with the development stage.

In order to meet user expectations, the "Web-based Mental Health Support Network" was built, and this requirement collecting and analysis method guarantees a thorough understanding of stakeholder requests.

3.3 Use Case Diagram and Description

A use case diagram may be used to visualize and plan a condensed list of tasks, activities, and interactions between actors (clients and authorities) and a system during a certain duration. It serves as a "connected display language," highlighting the duties, relationships, and roles of the individuals and groups that comprise a system. Actors are shown as entities executing different tasks within the system in a use-case diagram. Every performer participates in a variety of activities and plays a major role. The use-case diagram shows how the system works. It describes that users can get services by authenticating and some without. Admin will provide all kinds of services like uploading media, and approving payment as well as every service will create the system admin. The user will take service, access media, check on events, ask queries, and so on. Users have to make payment to talk with a therapist. The use-case model covers all systems and every instance describes how system admin, users, and therapists interact with one another.

Now, let's present the full use case diagram for the websites:

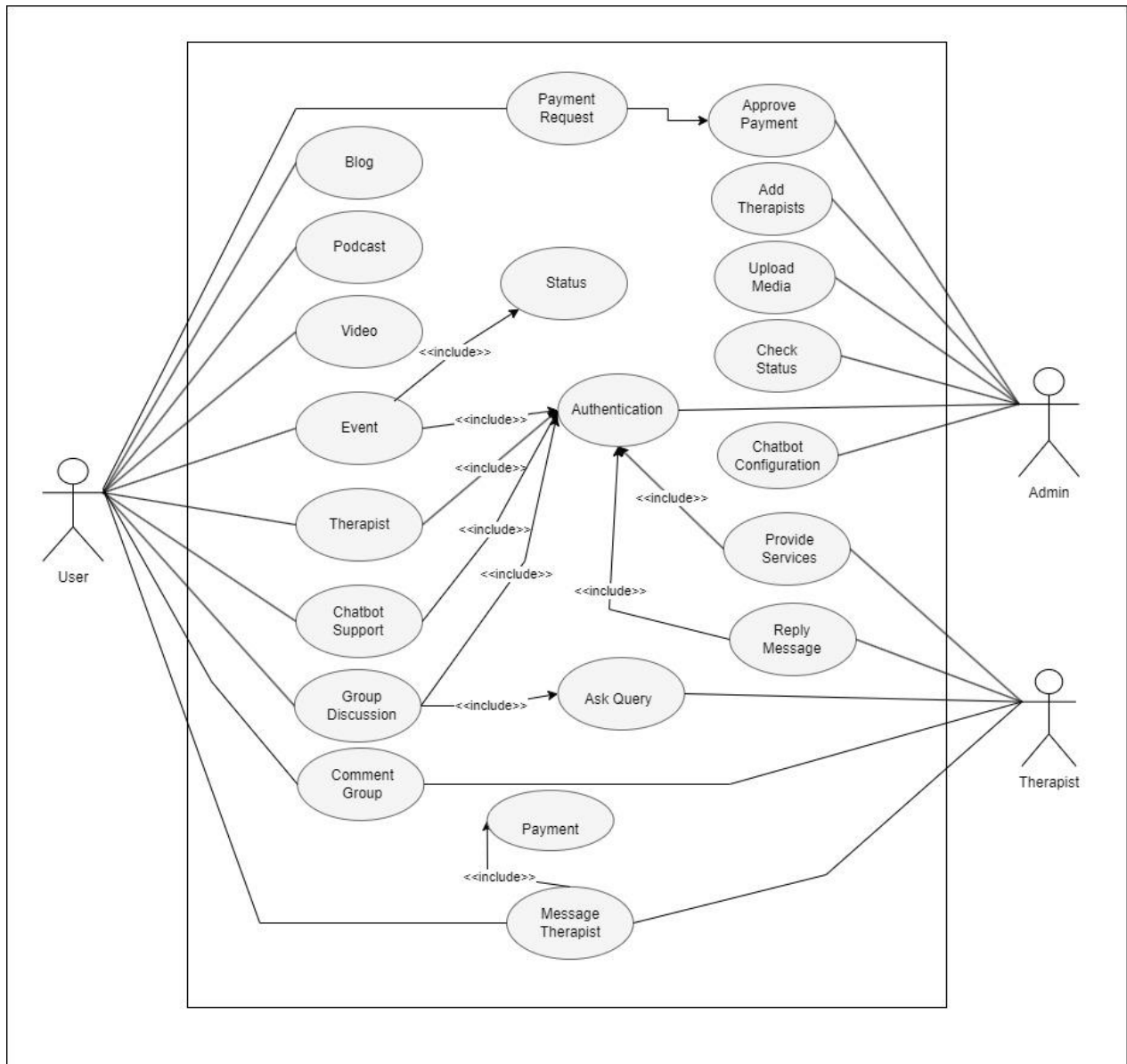


Figure 3.3.1: Use Case Diagram

3.4 Data Flow Diagram and Description

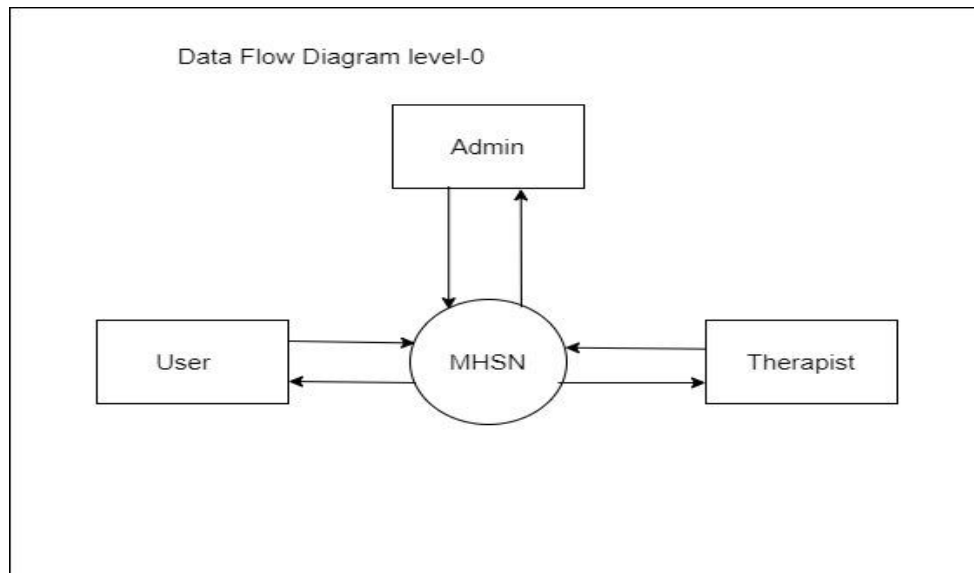


Figure 3.4.1: Data Flow Diagram for level 0

The figures show that the whole service has three types of users such as user, therapist, and system admin. Admin will moderate the whole system, the therapist has some access to upload media and provides support in the group in comments as well as messages with users. The user will take all kinds of services.

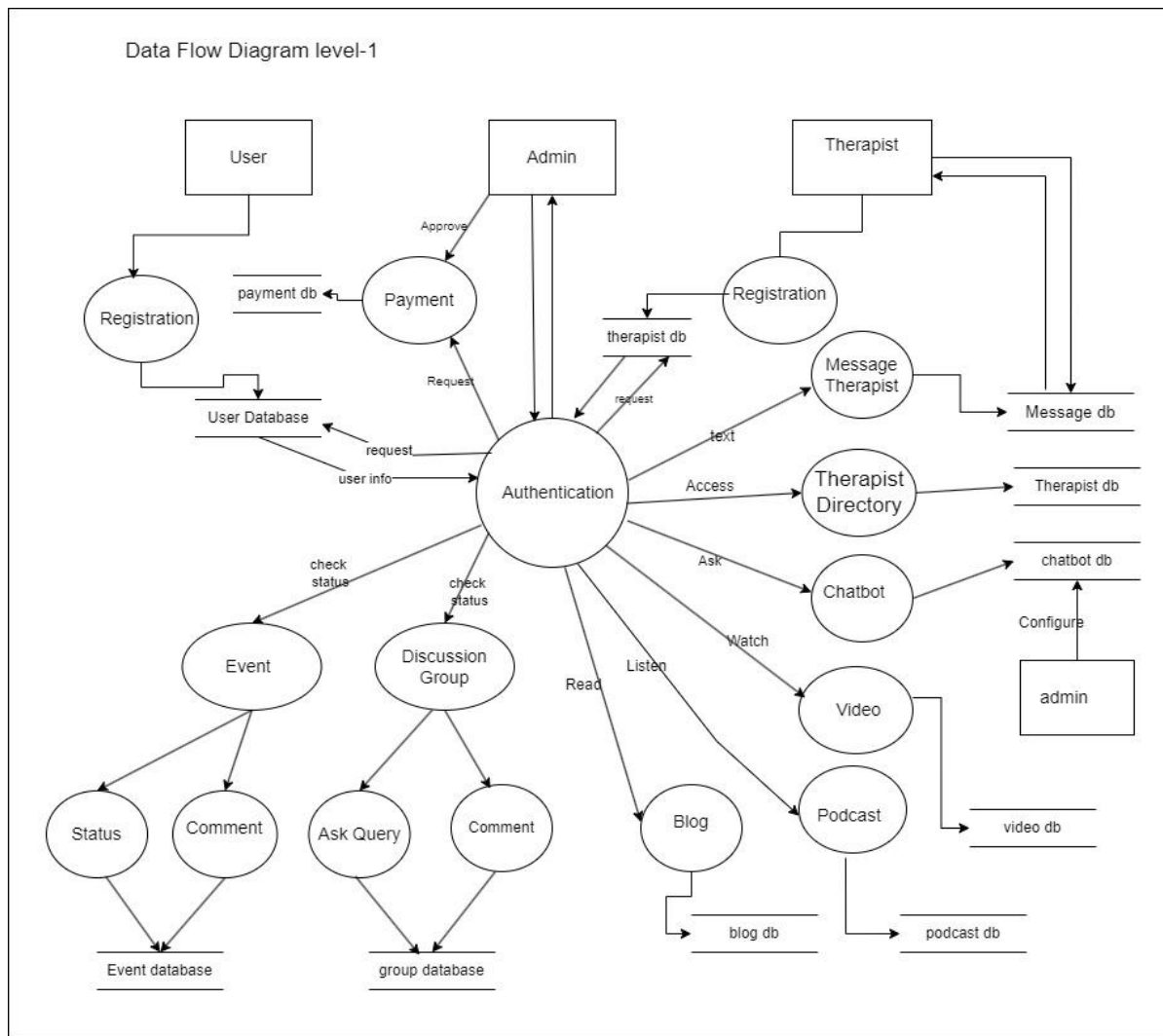


Figure 3.4.2: Data Flow Diagram for Level 1

In addition to users and moderators, the data flow diagram picture demonstrates that the system has several other operations and databases. Information on the user and the therapist will be kept in the respective databases, and the administrator will verify the information. Next, their database includes chatbot support, payment history, messages, podcasts, videos, blogs, therapist directories, and communications. Both therapists and users may access the media status by enrolling, or they can access group discussions without registering, albeit chatbot support requires authentication. A payment must be made in order for the user to message the therapist. The administrator will set up the chatbot and authorize the payment. The administrator may add information, see a variety of data, and be notified when someone registers.

3.5 Logical Data Model

“Mental Health Support Network” has a logical data model with many entities: User, Event, Event Comment, Participant, PaymentHistory, ChatBotQuestionAnswer, UserChatBotHistory, UserTherapistMessage, Discussion, DiscussionComment, NotAnsweredQuestion, Blog, Podcast, Video. User entities contain three types of users’ normal user, therapists, and system admin. The relationships between these entities define interactions; users can access all kinds of resources. Entity characteristics collect relevant information and build the foundation for a helpful website.

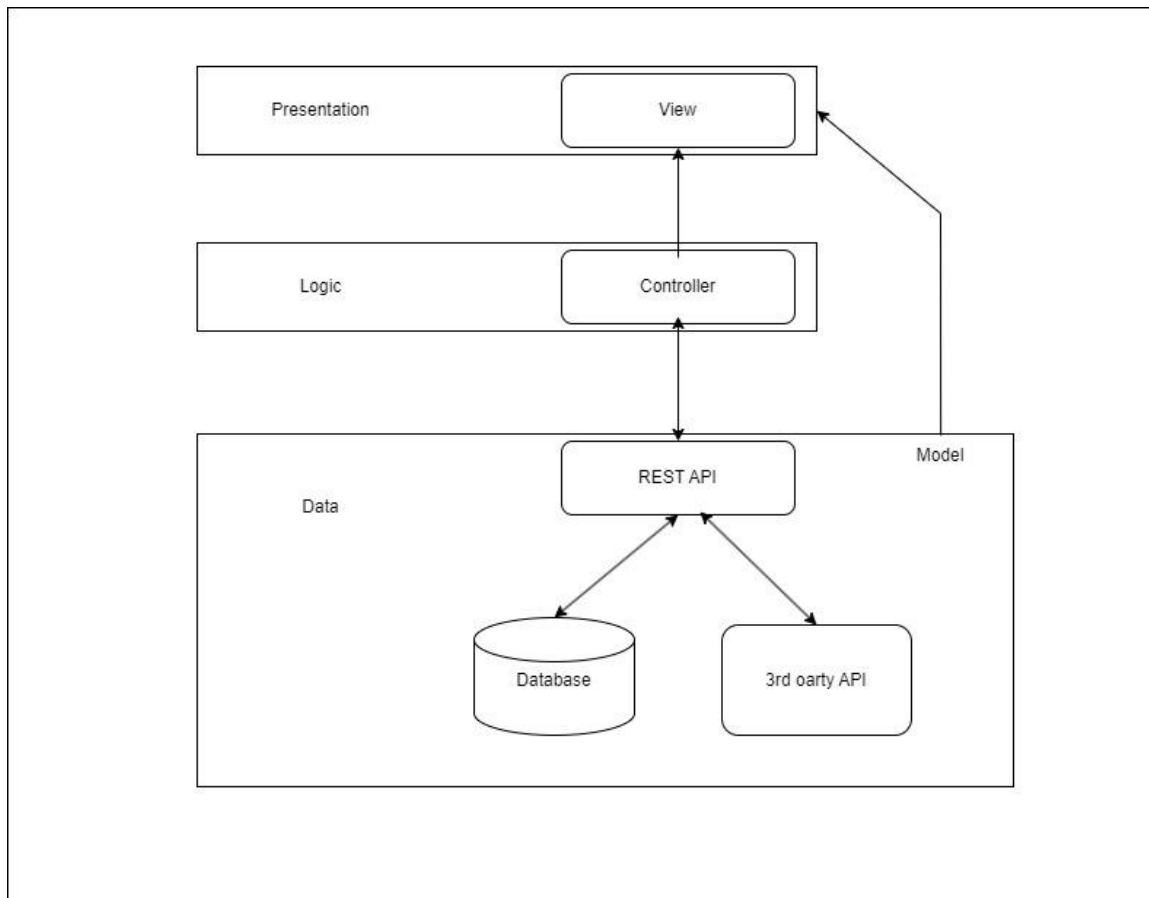


Figure 3.5.1: Logical Data Modelling.

3.6 Entity Relationship Diagram

The entity relationship diagram depicts the relationships and interactions that exist between the project's entities and primary classes. Here's the UML class diagram for my project:

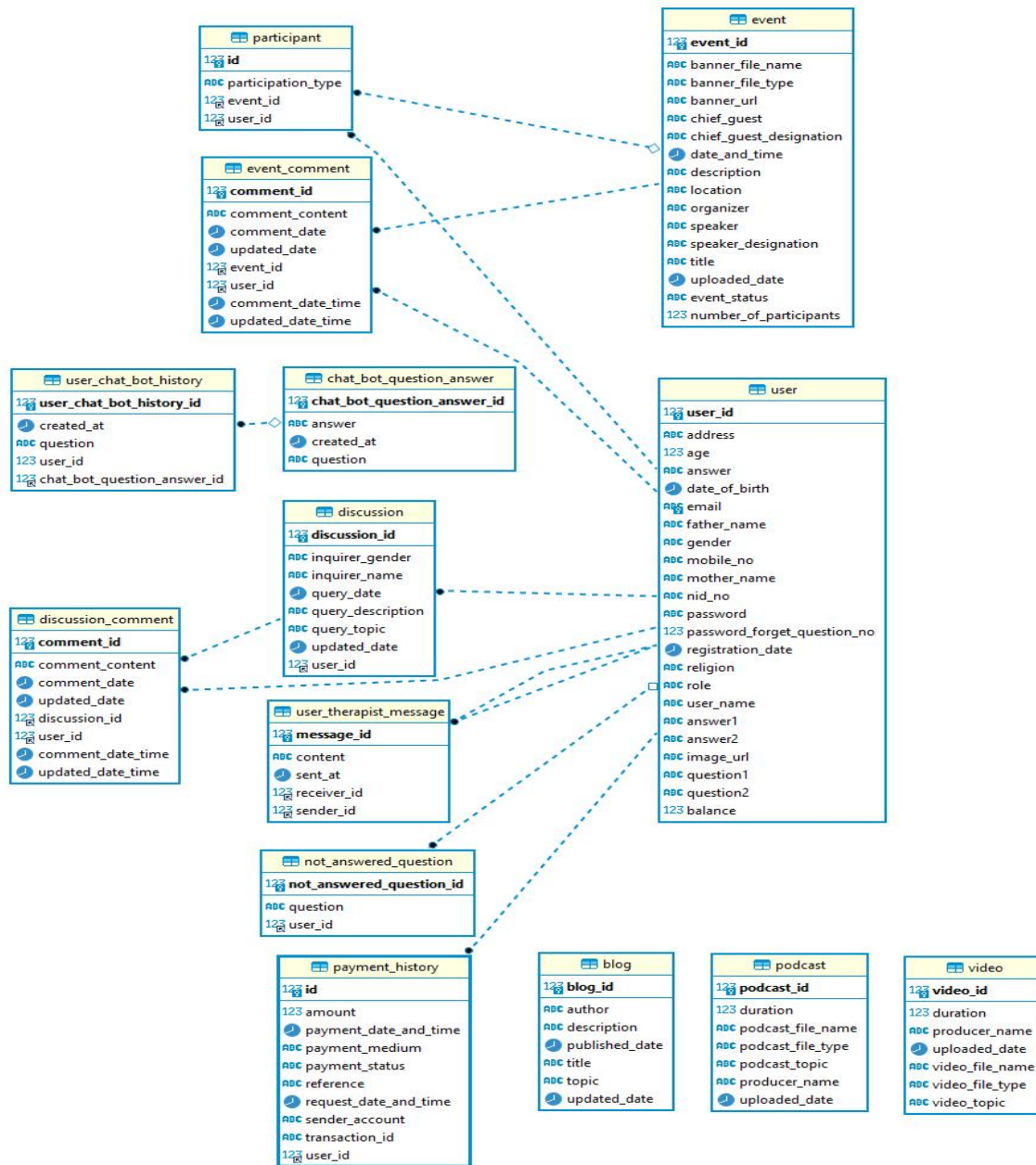


Figure 3.6.1: ER Diagram

3.6 Design Requirements

Design requirements for " Web-based Mental Health Support Network" include a range of elements to ensure a functional and user-friendly system.

- ❖ **User Interface/UX:** The system is easy to use and convenient for the user, administrator, and therapists since it is a web-based application that can be used from any device with an internet connection.
- ❖ **Security Measures:** Appropriate security measures are incorporated in the system to safeguard the stored data, which includes user and therapist information. Data encryption, user authentication, and safe storage techniques are a few examples of this..
- ❖ **Scalability and Performance:** Scalability was taken into consideration during design, enabling the system to manage a high volume of users and an expanding service database. Additionally, it puts performance first, making sure that the services are quick and offer a smooth user experience.
- ❖ **Customization and Personalization:** The website offers a customized layout with unique experiences, such as many layouts that the administrator may update and add information to. Users can select various services based on their needs.
- ❖ **Compatibility and Integration:** The platform will function with a variety of browsers and operating systems. The system's smooth contact with other services is made possible by the API integration.
- ❖ **Reporting and Analytics:** System administrators have the ability to monitor user behavior and system performance. In addition to adding therapists to the system, the administrator may upload media assets to enhance user-friendliness.
- ❖ **Accessibility:** The platform complies with its consumers' accessibility requirements. Without registration or logging in, users may readily access a variety of material, and by registering, users can access a wide range of services.
- ❖ **Support and Documentation:** Users of the system are able to both remark and ask questions. Admin has access to queries and comments and may answer them and offer the assistance they need.

These design standards work together to create a "Web-Based Mental Health Support Network" that is robust, trustworthy, and easy to use. It will meet the needs of those seeking mental health services by prioritizing user satisfaction, usability, security, and scalability..

CHAPTER 4

DESIGN SPECIFICATION

This chapter will go over all aspects of the front-end and back-end design of the "Web-Based Mental Health Support Network". The application is created utilizing a variety of languages. For the front end, I utilized HTML, CSS, and Bootstrap, while for the back end, I used Java, Spring Boot, and JavaScript. I utilized thymeleaf in conjunction with Spring Boot Framework, which applies a set of changes to template files to show data and text. These technologies work together to shape the application's design and functioning.

4.1 Front-End Design

The front-end design for the Mental Health Support Network project focuses on creating a user-friendly and visually appealing interface. It incorporates HTML, CSS, and Bootstrap to structure the content, style the elements, and enable interactive components. I use Thymeleaf which is a modern and server-side Java template engine for web and standalone environments. It is designed to work seamlessly with Java web frameworks, and it focuses on creating dynamic, HTML5-compliant views. The design ensures responsiveness across different devices, providing seamless accessibility for therapists and users. User input and feedback are integrated to enhance usability. While clear navigation guides users through the media and group access process effortlessly. Through thoughtful design choices, the front end seeks to optimize usability, encourage regular usage, and create a pleasant and engaging environment for users using the Mental Health Support Network.

4.2 Back-End Design

The back end of an application remains invisible to the user, but it is responsible for providing the majority of the services. It serves as the brain of the application, processing user input received from the front end. In the development of the back-end, technology Java Spring Boot is utilized, enabling the creation of a robust and efficient backend system.

Java Spring Boot is a powerful and widely used framework for building Java-based, enterprise-level applications. It is an extension of the Spring framework that simplifies the development of production-ready applications by providing a convention-over-configuration approach. Spring Boot eliminates much of the boilerplate code typically associated with Java development, allowing developers to focus on building robust and scalable applications. Spring Boot provides a set of defaults and conventions to streamline the development process. Developers can get started quickly with minimal configuration. It is well-suited for building microservices architectures, with features like Spring Cloud for distributed systems, service discovery, and configuration management. Spring Boot also seamlessly integrates with other components of the Spring ecosystem, such as Spring Data, Spring Security, and Spring Batch. Spring Boot is built on top core spring framework as well and it is an automated version of the spring framework. It follows a layered architecture in which each of the layers follows another layer. The framework follows the MVC architecture pattern to structure the code as well as make the website more organized and maintainable.

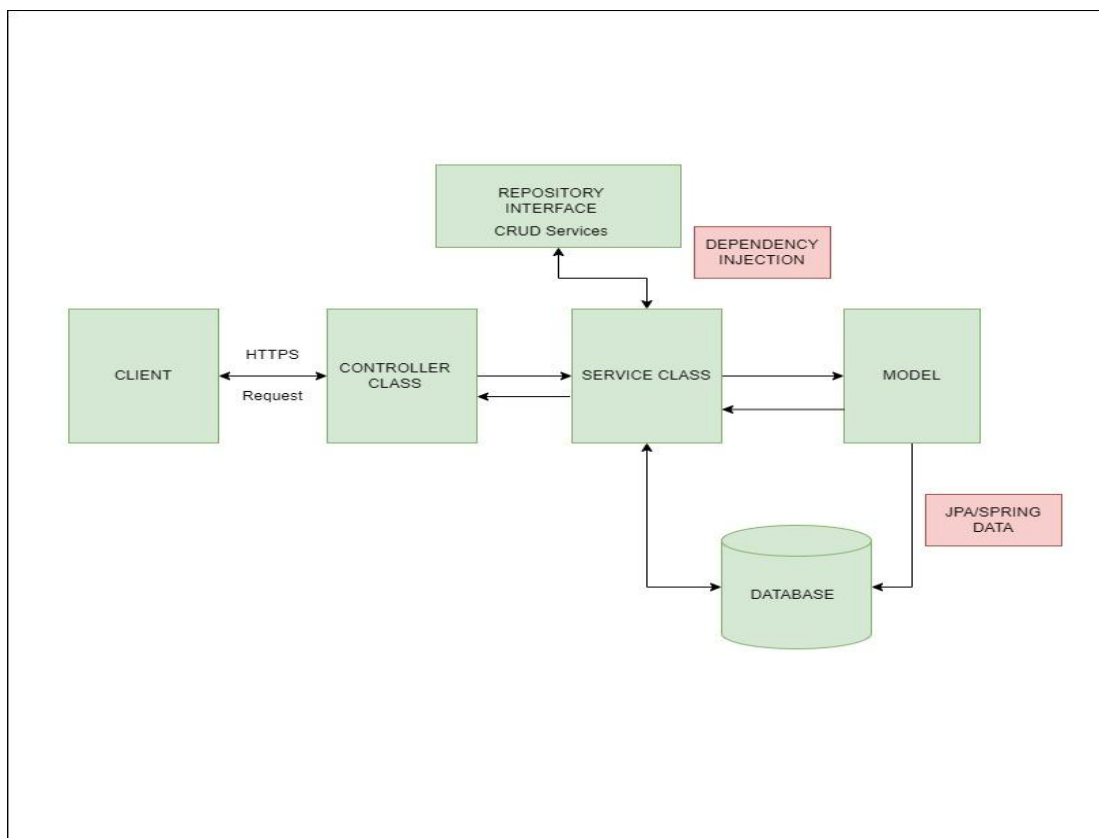


Figure 4.2.1: Spring Boot Flow Architecture

MySQL is an open-source relational database management system (RDBMS) that is widely used for managing and organizing structured data. It has many features such as MySQL follows a relational database model, supports SQL commands and also multiplatform, supports transactions, and with many securities features MySQL maintains its high performance. It is Developed by Oracle Corporation, MySQL is a popular choice for web applications and various software projects due to its reliability, performance, and ease of use.

4.3 Interaction Design and User Experience (UX)

The key goals of the interaction design and user experience (UX) for "Mental Health Support Network" are to optimize user interactions and create a consistent and intelligible experience throughout the whole platform:

Interaction Design:

- ❖ The system uses sensible navigation to make it easy for users to move between features and platform sections.
- ❖ Use clear and easy-to-understand buttons or prompts to assist users in completing desired tasks, such as accessing message options or participating in group conversations.
- ❖ Maintain a consistent layout, design, and language for the platform to reduce cognitive load and increase user comfort.
- ❖ In order to recognize user engagement, provide visual feedback for user activity (such as loading indications or success notifications).

User Experience (UX)

- ❖ Personalization: Various customizable layouts, tailored itineraries, and user-specific settings are provided by the system to enhance engagement and cater to diverse interests.
- ❖ Accessibility: The platform complies with accessibility criteria thanks to the system. It may be used by a variety of users.
- ❖ Usability Testing: Usability testing is done to ensure that the system's features are easy to use and that any pain points are identified and addressed.

- ❖ Visual Design and Aesthetics: This visually appealing design prioritizes readability, clarity, and an aesthetically pleasing interface to promote user interaction.
- ❖ Performance and speed: Loading times are reduced to minimize user annoyance and guarantee faultless performance across a range of devices.

Through the integration of these guiding principles into the design process, the "Mental Health Support Network" seeks to enhance user happiness and loyalty inside the web-based trip management system by providing an engaging, efficient, and user-focused experience.

4.4 Implementation Requirements

The implementation requirements for "Web-Based Mental Health Support Network" follow the technical, operational, and developmental elements which include:

- ❖ Front End Technology
 - HTML
 - CSS
 - Bootstrap
- ❖ Back End Technologies
 - Java Spring Boot
 - MySQL
 - JavaScript
- ❖ Tools
 - DBeaver
 - Web Browser
 - IntelliJ Community (*IDE*)
 - JAVA 17

IMPLEMENTATION AND TESTING

The implementation of the database for my project involves using MySQL and the JPA repository of Java Spring Boot framework. MySQL offers a flexible and scalable solution for storing and retrieving data. The database design should include collections for storing the data of users, therapists, posts from discussion groups as well as comments, and also some media like videos, blogs, and podcasts. CRUD (Create, Read, Update, Delete) operations should be implemented to allow for easy management of the data. Additionally, data validation and security measures should be implemented to ensure the integrity and confidentiality of the stored information. The database implementation should be seamlessly integrated with the back-end system. Database Tables and Indexes the application can store, manage, and retrieve data.

Properties | ER Diagram

Schema Name: SQL Path:

Default Charset: Database size:

Default Collation:

	Table Name	Engine	Auto Increment	Data Length	Partitioned	Description
	blog	InnoDB	1	16K	[]	
	chat_bot_qu...	InnoDB	48	16K	[]	
	discussion	InnoDB	1	16K	[]	
	discussion_...	InnoDB	0	16K	[]	
	not_answer...	InnoDB	1	16K	[]	
	podcast	InnoDB	0	16K	[]	
	user	InnoDB	7	16K	[]	
	user_chat_b...	InnoDB	6	16K	[]	
	user_therapi...	InnoDB	8	16K	[]	
	video	InnoDB	0	16K	[]	

Figure 5.1.1: Database Tables

Index Name	Column	Table	Index Type	Ascending	Nullable	Unique
PRIMARY	video_id	video	BTree	—	—	[v]
FK39evv8epdwu6dj90u8hlhpov1	receiver_id	user_therapist_message	BTree	—	—	[]
FK50a466hooppas2suopbxfi2w	sender_id	user_therapist_message	BTree	—	—	[]
PRIMARY	message_id	user_therapist_message	BTree	—	—	[v]
FK4xufx4vq4w850gokv0vjom05a	user_id	not_answered_question	BTree	—	—	[]
PRIMARY	not_answered_question_id	not_answered_question	BTree	—	—	[v]
PRIMARY	blog_id	blog	BTree	—	—	[v]
PRIMARY	podcast_id	podcast	BTree	—	—	[v]
FKqc5mt9q22kegiwkv160m1oan5	chat_bot_question_answer_id	user_chat_bot_history	BTree	—	—	[]
PRIMARY	user_chat_bot_history_id	user_chat_bot_history	BTree	—	—	[v]
FK3tlla7o4ar4gq36q5ygy6gs	user_id	discussion_comment	BTree	—	—	[]
FKgxxniud1i4tsehxyl7q1s7ph	discussion_id	discussion_comment	BTree	—	—	[]
PRIMARY	comment_id	discussion_comment	BTree	—	—	[v]
PRIMARY	user_id	user	BTree	—	—	[v]
UK_ob8kqyqqgmefl0aco34akdtpe	email	user	BTree	—	—	[v]
PRIMARY	chat_bot_question_answer_id	chat_bot_question_answer	BTree	—	—	[v]
FK2t0n9y82hsec0vpyll58gu4ph	user_id	discussion	BTree	—	—	[]
PRIMARY	discussion_id	discussion	BTree	—	—	[v]

Figure 5.1.2: Database Indexes

5.2 Implementation of Front-End Design

The implementation of the front-end design for this project involves using HTML, CSS, and Bootstrap to create a user-friendly interface. The design should include components such as login screens, media support options, directories of therapists, and a discussion section. HTML is used to structure the content and define the layout of the web pages, while CSS and Bootstraps are employed to enhance the visual appearance and styling of the elements. JavaScript is utilized to add interactivity and dynamic functionality to the user interface, allowing for smooth navigation and real-time updates. Responsive design techniques should be applied to ensure compatibility across different devices and screen sizes. The front-end implementation should prioritize usability and accessibility, ensuring that all kinds of users can easily interact with the system and access all kinds of services. The design should be visually appealing, with clear instructions and intuitive controls, enabling a seamless user experience.

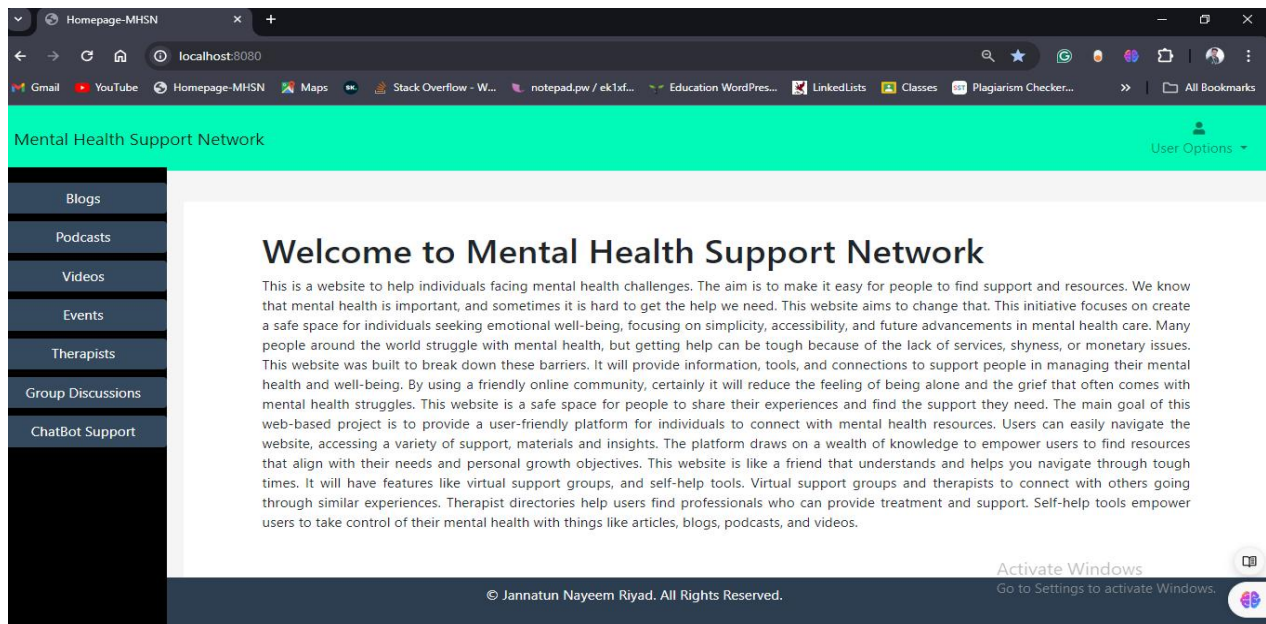


Figure 5.2.1: Home Page

This is the home page for the Mental Health Support Network website. Users can select here what kind of service they need. They can directly access some services like blogs, podcasts, and videos and the rest are after authenticate themselves.

Figure 5.2.2: Profile

This is the profile option for this project. Admin, therapists, and, users can see their profiles like this and everyone can update their information from here.

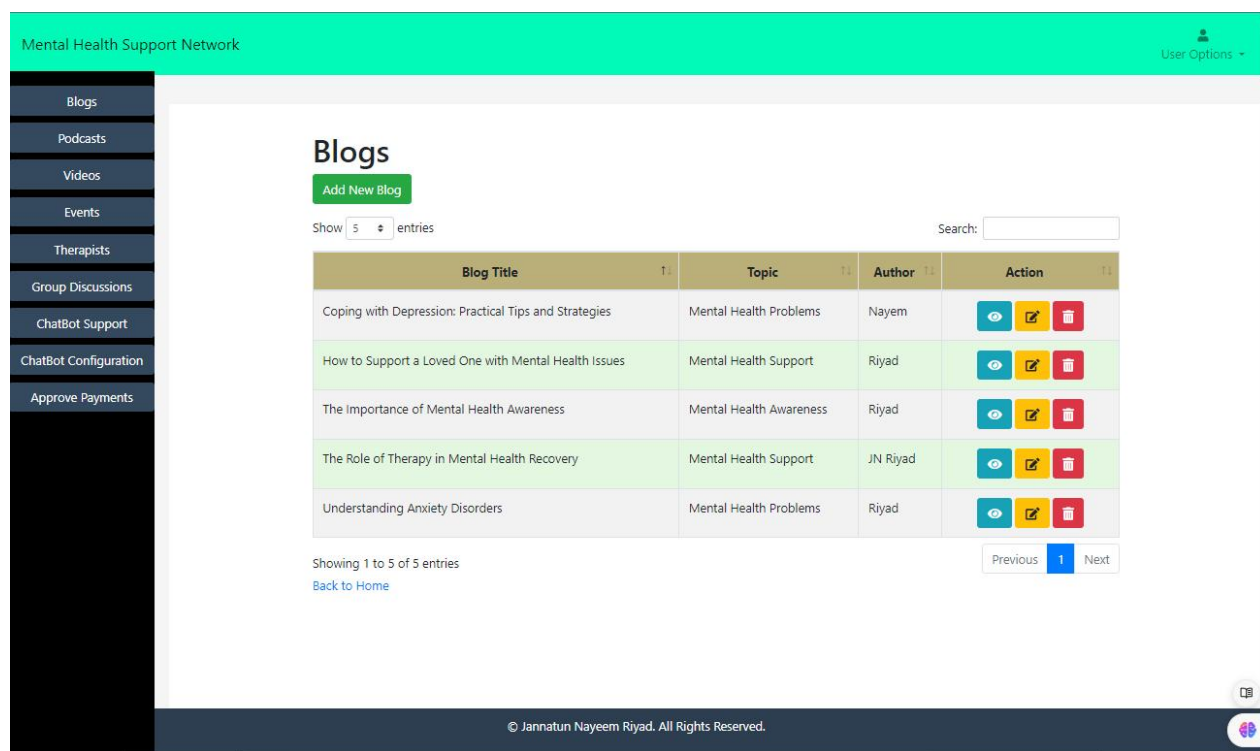


Figure 5.2.3: Admin add Blog

This is the blog option for admin. Here admin can add a new blog, view a blog, and delete a blog. Podcast, video, as well as, therapist's options are also the same as this. Admin has all kinds of access such as adding and deleting podcasts, adding and deleting videos, adding a therapist in the system, setting an event, viewing and editing group discussions, configuring chatbot support as well and approving payment from users.

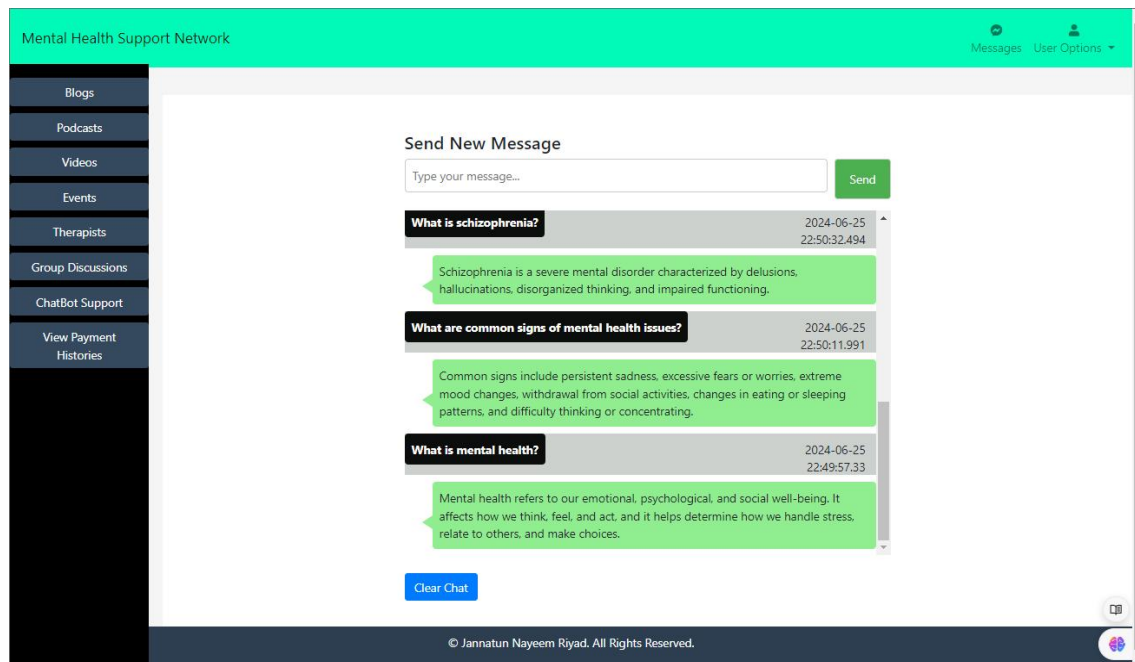


Figure 5.2.4: Chatbot Support for Users

This is the chatbot support option for users. The chatbot is trained by the admin with different questions about mental health, mental health problems, and their solution. The user can ask different questions here and he will get an answer.

The screenshot shows the 'Balance Adding Request' form within the 'Mental Health Support Network' interface. The sidebar is identical to the previous screenshot. The main area has a title 'Balance Adding Request' followed by a green instruction: 'Make payment to any of these following accounts then submit this balance adding request form below'. Below this are five bank account options: bKash: 01744330734, Rocket: 017443307345, Nagad: 01744330734, Upay: 01744330734, mCash: 01744330734, and SureCash: 01744330734. The form includes several input fields: 'Select Payment Medium' (a dropdown menu currently showing 'bKash'), 'Amount you have paid' (with a sub-field 'Enter amount you have paid'), 'Sender Account' (with a sub-field 'Enter sender account/mobile no'), 'Transaction Id' (with a sub-field 'Enter transaction id'), 'Reference(if any)' (with a sub-field 'Enter reference'), and 'Payment Date and Time' (with a date and time picker). A blue 'Submit' button is at the bottom of the form. The footer contains the copyright notice '© Jannatun Nayeem Riyad. All Rights Reserved.' and a small icon.

Figure 5.2.5: User Payment Request Option

Here User can make a payment request to the admin to access the chatting features with a therapist. Admin will approve the balance request.

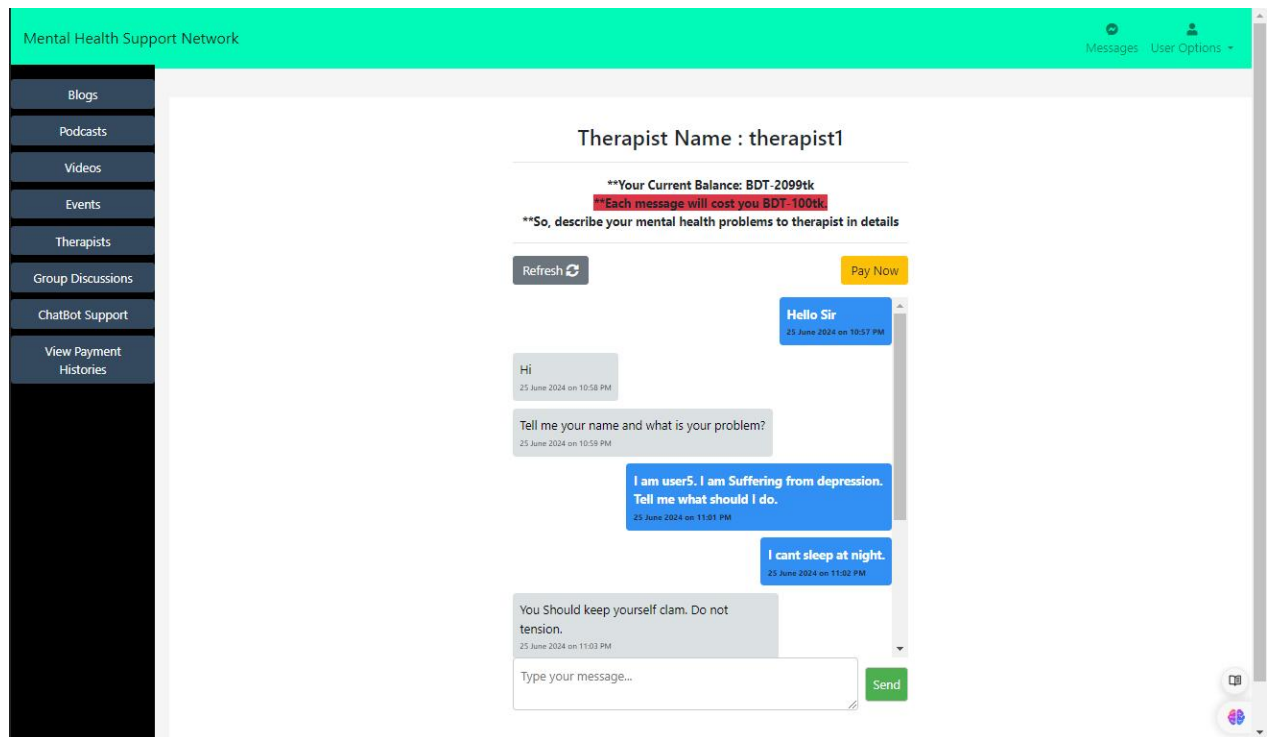


Figure 5.2.6: User-Therapist Message

This is the message feature for the user. Here users can view their balance and send messages to the therapist directly. By paying a fixed amount of taka for each message user can send a message to a therapist. If the balance is over user has to pay by making a balance-adding request.

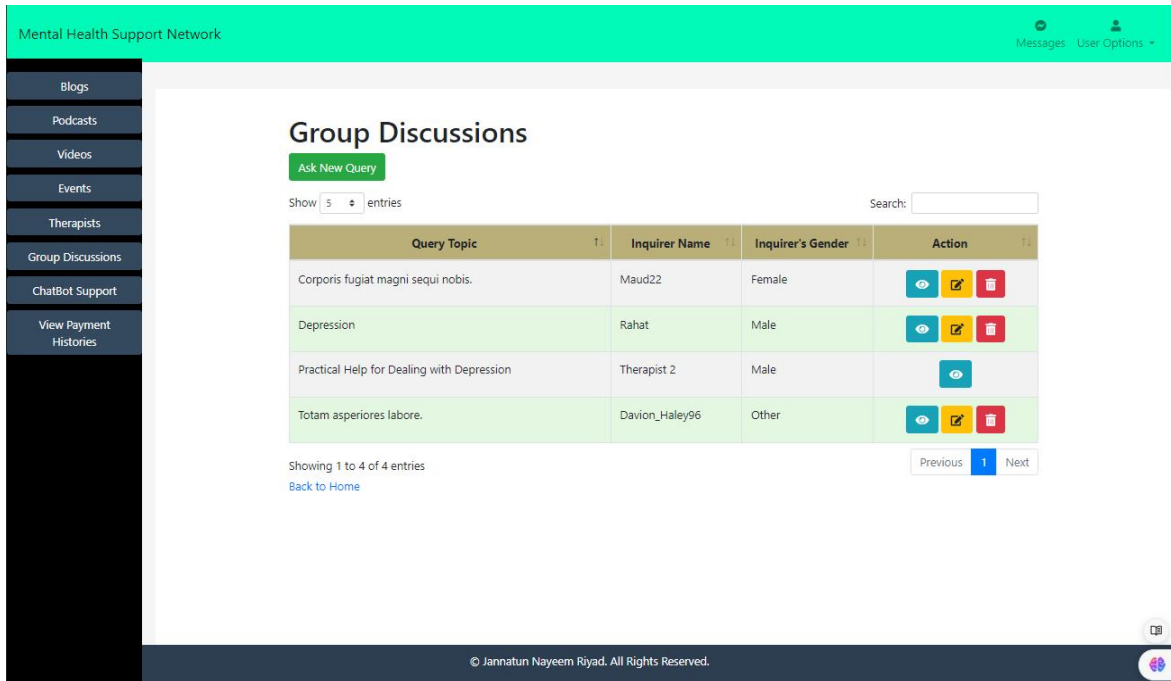


Figure 5.2.7: Group Discussion Option

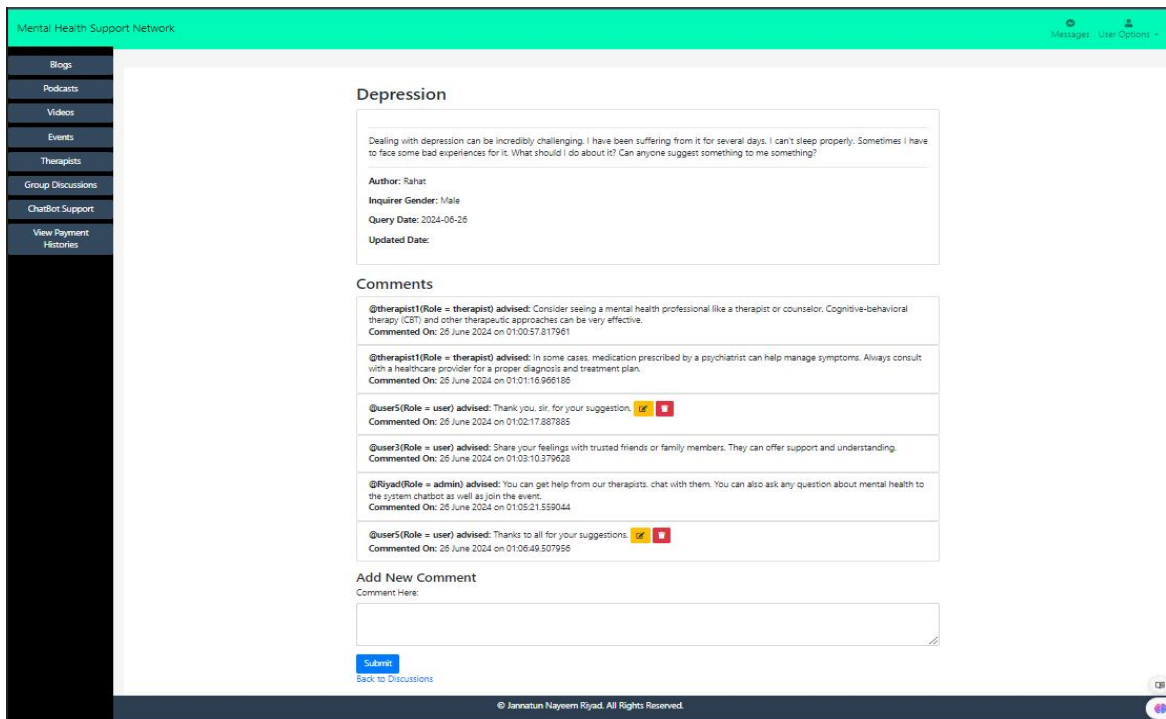


Figure 5.2.8: Group Discussion Query and Comment

The figure 5.2.7 shows the group discussion option for its user. Users will find the option to ask for new queries and view, edit, and delete options. The next figure shows the group discussion. Therapists as well as other users can join the group discussion and express their thoughts.

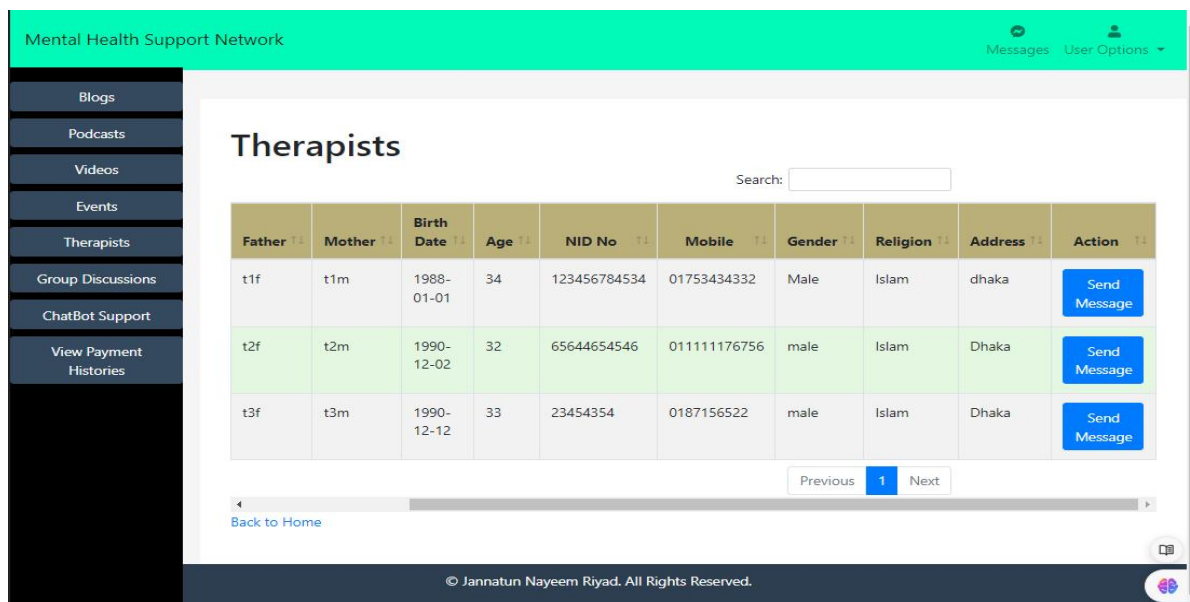


Figure 5.2.9: Therapist Directories for User

Users can find therapist directories here. They will find the therapist's description here as well as the message option.



Figure 5.2.10: Events for User

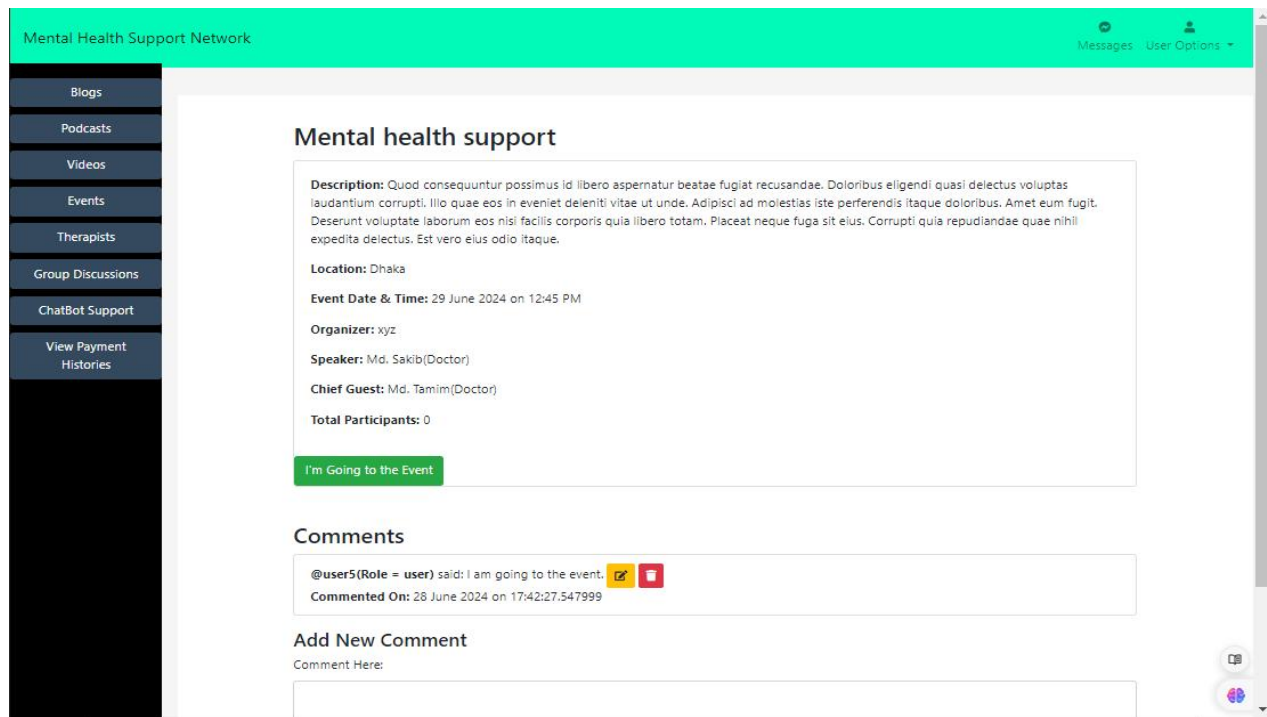


Figure 5.2.11: Event Details

Here is the event and event description option for users. The system admin can create an event and users can mark to whether he is going or not as well users can comment here.

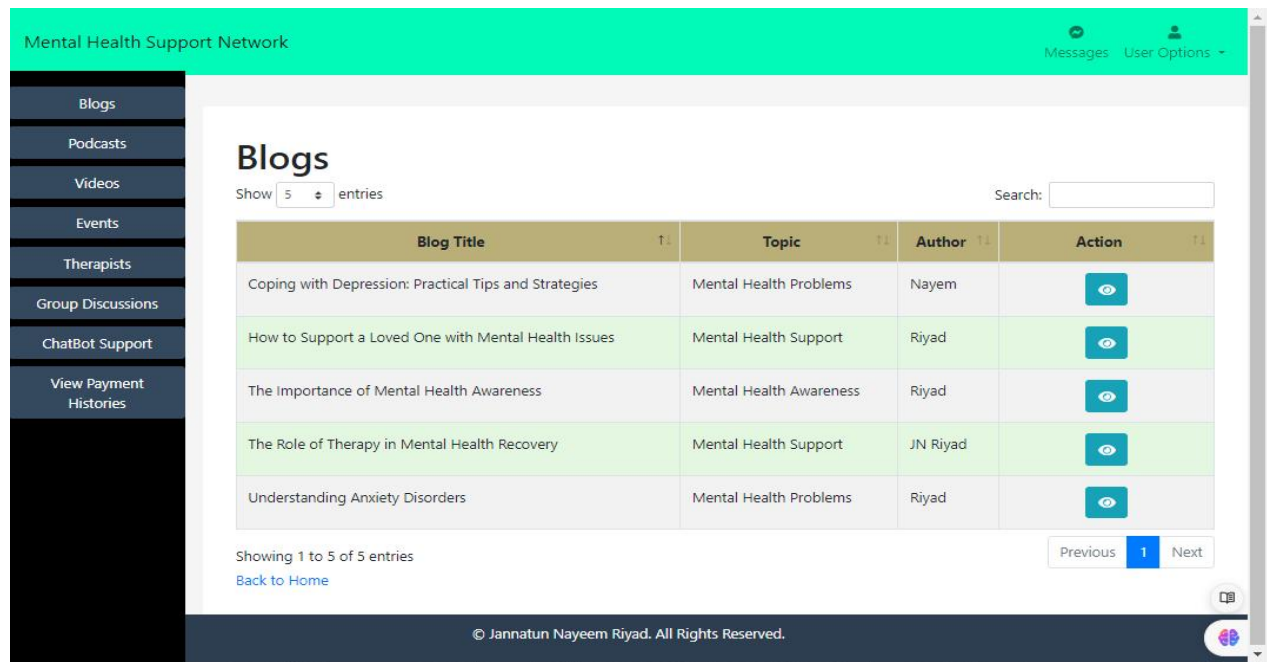


Figure 5.2.12: Blog Option for User

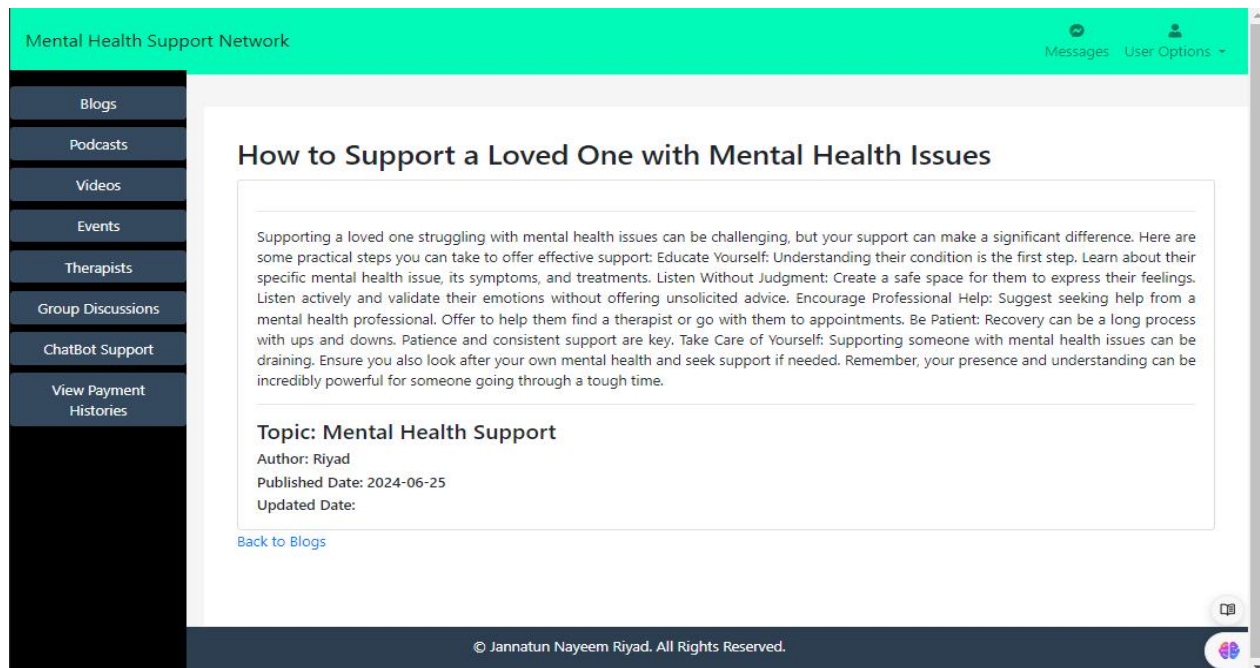


Figure 5.2.13: Read Blog

Figures 5.1.12 and 5.1.13 show the blog option and blog description for users. The blog will be uploaded by the system admin and here user can see the blog and read it.

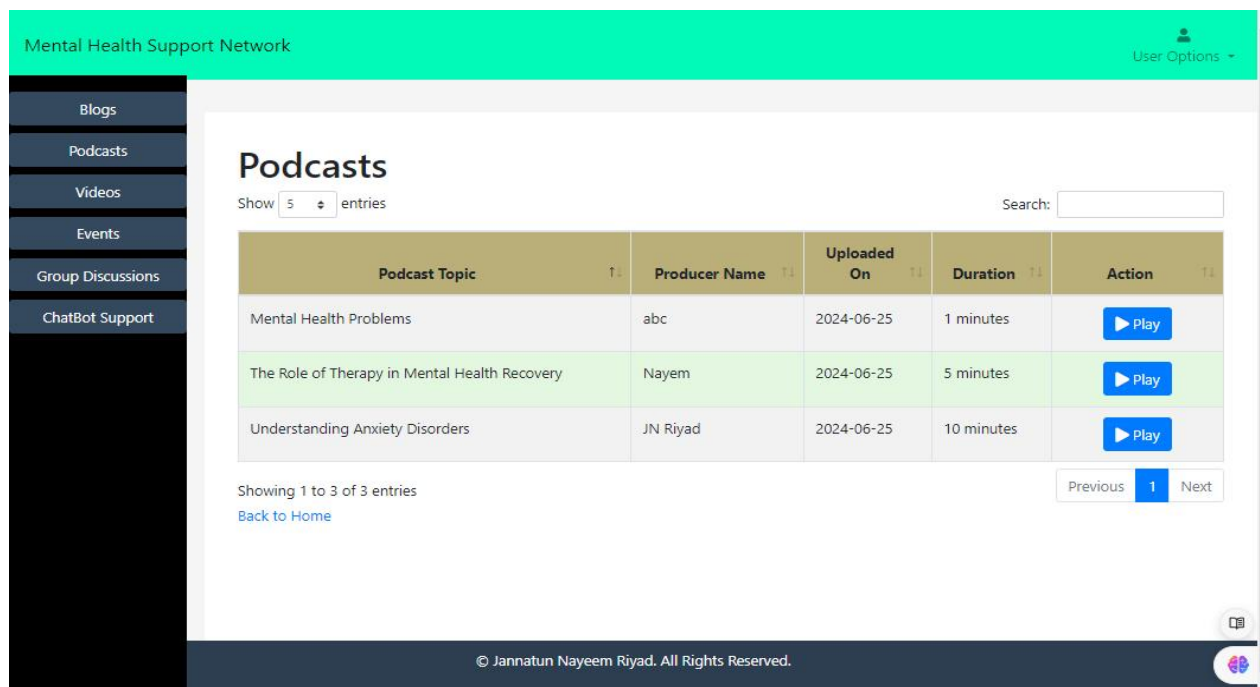


Figure 5.2.14: Podcast for User

This is the podcast option for the user which will uploaded by the system admin and by clicking the play option user could listen to a podcast that should be about mental health and support.

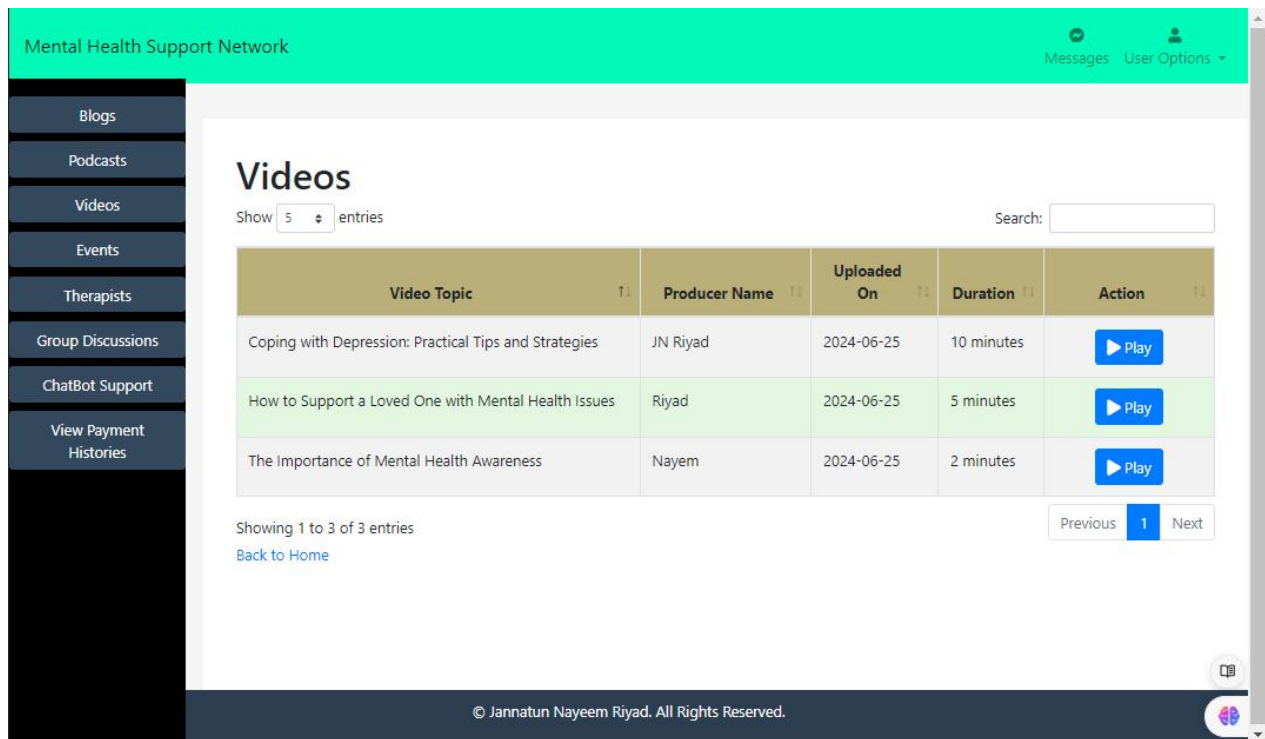


Figure 5.2.14: Videos for User

This is the video option for the user which will uploaded by the system admin and by clicking the play option user could view a video that should be about mental health and support.

5.3 Testing Implementation

A structured approach is employed in the testing implementation to ensure the usability, security, and performance of the "Mental Health Support Network." Each component of the system undergoes extensive testing. The testing protocol summary is displayed in the table below:

Test Case Description	Test Steps	Expected Result	Actual Result	Pass/Fail
User Registration	1. Enter all kinds of information with email and password.	The user is successfully logged in and directed to the login page.	User registration Successfully	Passed
User Login	1. Enter a valid email and password on the login screen.	The user is successfully logged in and directed to the homepage.	User login Successfully	Passed
User Login with Invalid Credentials	1. Enter an invalid email or password on the login screen.	An error message is displayed indicating invalid credentials.	Invalid Email or Password	Passed

The user forgets the password and resets the password	1. Navigate to forget password 2. Input valid information with email and secret question-and-answer 3. Update new password	User can reset their password by providing valid information	Password Reset successfully	Passed
User Payment Request	1. Log in to the system As user 2. Navigate to the “View Payment history”. 3. Navigate to Pay now 4. Input payment data and submit	Users can view payment history, make payment requests to admin approval	Users can make payment requests successfully.	Passed

Admin Payment Approval	1. Login as admin to the system 2. Navigate to approve payment 3. Check and approve payments	Admin can approve payment requests from user	Approve payments successfully	Passed
User Message Therapist	1. Log in to the system As user 2. Navigate to the “Therapist” section. 3. Select a therapist and send a message.	Users can send messages to a therapist. Each message costs an amount of taka.	Users can message a therapist successfully.	Passed
User Message Therapist with no balance	1. Log in to the system As user 2. Navigate to the “Therapist” section. 3. Select a therapist and send a message.	Users can not send messages to a therapist. Users have to pay first.	Users can not message a therapist. Insufficient balance.	Passed

Therapist Reply User Message	1. Log in to the system As Therapist 2. Navigate to the “message” section. 3. Reply Message	A therapist can make a conversation with a user.	Reply message successfully	Passed
Admin Set Events	1. Login as admin to the system 2. Navigate to Events 3. Add New Event	Admin can set new events, do status active and inactive as well as view, edit, and delete events.	Add event successfully	Passed
Admin add Therapist	1. Login to the system as admin 2. Navigate to Therapist 3. Add New Therapist	Admin can add a therapist with his information.	Add therapist Successfully	Passed

Admin Chatbot Configurations	1. Login as admin with email and password 2. Navigate to Chatbot configurations 3. Navigate to the Chatbot question list 4. Add new Question and answer	Admin can add new question and answer as well as add not and question.	Add new questions and answer successfully	Passed
Admin adds Podcasts	1. Login as admin with email and password 2. Navigate to Podcasts 3. Add podcast	Admin can add new podcasts, listen to podcasts as well as delete them.	Add blogs successful	Passed

Admin adds Videos	1. Login to the system 2. Navigate to Videos 3. Add video	Admin can add new videos, view videos as well as delete them.	Add blogs successful	Passed
User access Event	1. Log in to the system As user 2. Navigate to the “Event” section. 3. Update status going or not going.	User can access Events and view events as well as update status going or not going.	Access events successfully	Passed
User Events Comment	1. Log in to the system As user 2. Navigate to the “Event” section. 3. Comment on Events	Users can comment on the event	Comment events successfully	Passed

User access Therapist	1. Log in to the system As user 2. Navigate to the “Therapist” section. 3. Get access to send message	Users can access therapist directories and can get access to send messages to therapists.	Access therapist successfully	Passed
User Chatbot support	1. Log in to the system As user 2. Navigate to the “Chatbot support” section. 3. Ask Question	Users can ask questions to the chatbot support and get answers.	Users get Chatbot support successfully.	Passed
User access Blogs	1. Enter the system 2. Navigate to the “Blogs” section. 3. Read Blog	Users can access blogs and read them.	Read blogs successfully	Passed

User access Podcasts	1. Enter the system 2. Navigate to the "Podcasts" section. 3. Play Podcast	Users can access podcasts and listen to them.	Access podcasts successfully	Passed
User access Videos	1. Enter the system 2. Navigate to the "Videos" section. 3. Play Video	Users can access videos and view them.	Access videos successfully	Passed
User access Group discussion	1. Log in to the system As a user or therapist 2. Navigate to the "Group Discussion" section.	Users can access group discussions and ask new queries; view; update; delete their discussion as well and view	Access Group discussion successfully	Passed
User asks Query in Group discussion	1. Log in to the system As user 2. Navigate to the "Group Discussion" section. 3. Ask New Query	Users can simply submit a new query by adding the query topic, inquirer name, gender, and user Query	The new query is submitted successfully	Passed

Therapist access query Group discussion	1. Log in to the system As therapist 2. Navigate to the “Group Discussion” section. 3. View Query	Therapists can access group discussions and view users’ queries.	Access query by therapist successful.	Passed
User comment Group discussion	1. Log in to the system As User 2. Navigate to the “Group Discussion” section. 3. View Query 4. Comment and reply	Users can access group discussions and view their own or other user’s queries and give comments and replies to them.	User can comment successfully	Passed
Therapist comment Group discussion	1. Log in to the system As therapist 2. Navigate to the “Group Discussion” section. 3. View Query 4. Comment and reply	Therapists can access group discussions view users’ queries give comments and reply to them.	Therapist can comment successfully	Passed

Profile access and Update Profile	1. Log in to the system As any kind of user 2. Navigate to the “User Option” then Profile. 3. Navigate to “Update Profile” 4. Update Information	All the user can access their profile and update their profile information.	Access profile and Update profile successfully	Passed
Change Password	1. Log in to the system As any kind of user. 2. Navigate to the “User Option” then Change password. 3. Enter old and new passwords to update.	All the user can change their password by entering their old password and new password.	Password changed successfully	Passed
Logout	1.Log into the system As any user. 2. Navigate to the “User Option” and then the “Logout” option.	The user will be logged out from the system and be redirected to the homepage.	I have logged out successfully.	Passed

5.4 Test Results and Reports

The test reports and outcomes for my “Mental Health Support Network” project show that the systems unit testing and integration testing were completed successfully. All of the functions and routes run properly. They demonstrate robust functionality, compliance with security guidelines, and positive user feedback, ensuring a solid platform.

Test reports and findings offer crucial documentation of the testing procedure, covering the problems found, how they affect the product, and suggested fixes.

5.5 Chatbot Result and Answer Analysis

The chatbot system of “Mental Health Support Networks” works properly as another system. In the chatbot, the system admin will add questions and set the answers to them. Users can ask only questions related to mental health, mental health problems, and support. If a user asks a valid question and he not find the answer the admin can check this out and can set the answer for the question. The chatbot support system is implemented based on a word-matching system. The system will match the users' questions word with the admin-provided questions word. If 40% of words match with the user's question the system will provide the answer to the question. Many questions contain the same word as another question as a result the system provides the wrong but similar answer for the question. As an admin, I have set around two hundred questions. I get eight correct answers out of ten appropriate questions from the chatbot. So, the accuracy of the chatbot system is around 80%. By inputting more appropriate questions in the system it is possible to increase the accuracy of the chatbot. Future implementation of machine learning and AI can make the chatbot more efficient and accurate.

CHAPTER 6

IMPACT ON ENVIRONMENT, SOCIETY, AND, SUSTAINABILITY

6.1 Impact on Society

The website has the potential to make a significant impact on society in many positive ways:

- ❖ **Enhanced mental health support:** The "Mental Health support network" is crucial for people who require mental health assistance. It streamlines the processes, making resource and support management less challenging.
- ❖ **Enhanced Accessibility:** The platform's user-friendly design and accessibility features ensure that mental health support is available to all by meeting a wide range of user expectations, including those of those who require assistance.
- ❖ **Impact on individuals' lives and families:** Happiness is the most crucial factor for individuals in the field of mental health. Sustaining mental wellness is essential for general health and life satisfaction. Emotional, psychological, and social well-being that affects a person's thoughts, feelings, and behaviors is referred to as mental health. We may overcome obstacles in life, form enduring bonds with others, make wise judgments, and reach our greatest potential when we have a sound mind. It affects our capacity for emotional growth, our output, and our general well-being. Thus, a happy life depends greatly on the website, and happy families are found wherever happy lives do.
- ❖ **Personalized Resource experience:** Nowadays, many social media platforms are filled with sick entertainment and content, and many people become mentally sick by watching this kind of content. where this website provides those people as well as the all-users different services as well as a guideline on how to keep our mental health happy.
- ❖ **Impact on Environment:** The digitalization of the mental health support platform via the platform indirectly contributes to the reduction of carbon footprints.
- ❖ **Economic Impact:** The website is for helping people that's why overall the available services are free to use, no need to spend money if the website fulfils the user's requirements.
- ❖ **Use of Technology:** Utilizing technology to encourage innovation and digitalization in the mental health support system creates opportunities for future advancements on this platform.

"Mental Health Support Network" ultimately benefits society by keeping people mentally healthy and happy. Where there is a happy and healthy mind, there are more productive people in society which is most important for a perfect society.

6.2 Impact on Environment

“Mental Health Support Network” can benefit the environment in different ways:

- ❖ **Minimize Paper Consumption:** By digitizing this type of medical service, the platform reduces waste and paper consumption by doing away with the need for printed prescriptions, medical reports, and other paperwork.
- ❖ **Minimize Vehicle usage:** Because the system is web-based, there is no need to visit the therapist until absolutely essential, which minimizes the usage of cars and lowers fuel consumption. Even while the platform may have an indirect direct environmental impact, it may ultimately aid the travel industry's efforts to save the environment by promoting sustainable choices, improving travel logistics, and reducing unnecessary travel.
- ❖ **Motivate Tree Plantation:** To keep our brain, calm and to be mentally fit the therapists suggest gardening and tree plantation. Tree plantation and gardening provide more oxygen to our environment.

In the end, the platform helps people mentally to keep their minds happy as well as indirectly it also motivates people to keep the environment good.

6.3 Ethical Aspects

The implementation and development of “Mental Health Support Network” involve various ethical considerations:

- ❖ To ensure the ethical integrity of this project, it is essential to prioritize data privacy by implementing measures to safeguard user information, obtain proper consent, and maintain secure storage. The ethical aspect of a Mental Health Support Network Project is a critical component that ensures the well-being, privacy, and dignity of individuals are prioritized throughout the initiative.

- ❖ It will also be confirmed that unnecessary and unusual media will not be provided in the website. The project also confirms that any kind of harmful, unusual, and wrong information in the group discussion will be deleted by the admin. The project is for helping people and also it provides useful information and content that will help people to keep him/her mentally well. By addressing these ethical considerations, the Mental Health Support Network Project can contribute positively to the well-being of individuals while upholding the highest ethical standards.

6.4 Sustainability Plan

Creating a sustainable plan for "Mental Health Support Network" means putting strategies in place to ensure long-term viability, minimize environmental effect, and promote ethical and responsible conduct.

- ❖ Environmental Sustainability:

- Reducing Carbon Footprint: The website encourages people to be more environment friendly like tree plantation.
- Reducing use of Fuel: The system reduces fuel usage and carbon emissions indirectly for being a web-based platform.

- ❖ Responsible Data Handling:

- Privacy Compliance: The continuous updates of the privacy rules guarantee compliance with global data protection regulations and safeguard the privacy of users.
- Data Encryption and Security Measures: To protect user data and the user password it is ensured that the system follows the inception system while storing user data.

- ❖ Social Responsibility:

- Enhance accessibility: People can simply access the website and register themselves if they need any kind of help with mental health. No need to directly met with the therapist.
- Social Engagement: It will help people to be social because people who are introverted or who have problems mentally as well as who are not happy in their life for many reasons the website will help them and support them.

- ❖ Continuous Improvement:

- Integration of User Feedback: User feedback and requirements are considered when the website has been implemented and in the future the process will continue.
- Innovation and Adaptation: There are many future scopes for this project like AI integration and video calling feature. Continuously the project will be upgraded to fulfil the user's requirements.

The purpose of this sustainability plan is to guide the platform “Mental Health Support Network”. By maintaining this sustainability plan like ethical standards, environmental awareness, and ongoing development while coordinating the platforms, it will be a roadmap for achieving long-term goals. This sustainability plan serves as a roadmap for the "Mental Health Support Network" platform. It will serve as a road map for accomplishing long-term objectives by upholding this sustainability plan's components, such as moral principles, environmental consciousness, and continuous development while synchronizing the platforms.

CHAPTER 7

CONCLUSION AND FUTURE SCOPE

7.1 Discussion and Conclusion

The Mental Health Support Network project represents a significant stride towards addressing the pressing mental health challenges faced by individuals in our community. Throughout the implementation of this initiative, various key aspects emerged, highlighting both successes and areas for potential improvement. Happiness is necessary and for being happy it is more necessary to keep our physical and mental health well. To get rid of mental issues as well as keep our mental health and our mind well we have to need instruction from experts and follow some rules. My project committed to addressing the diverse needs of individuals experiencing mental health challenges remains unwavering. This application, a web-based system, offers an efficient solution for getting mental health support through different useful media, therapist directories, and discussion groups for queries. With some pupation and future integration, the project could be a better-supporting website. Overall, this project provides a user-friendly platform that simplifies the mental health support system for individuals.

7.2 Scope for Future Implementation

“Web-Based Mental Health Support Network” offers a number of opportunities for further growth and development:

- ❖ Development of AI and Machine Learning: While the current version operates without artificial intelligence (AI), future enhancements can involve the integration of AI technology to significantly enhance the services as well as AI integration will enhance the recommendation system of self-help tools.
- ❖ Integration of More Features: For future integration features like video conferences with therapists will make the project completely supportive for its users. Video conferences will make it easy to contact the therapist online to get support.
- ❖ Blockchain Technology Integration: Blockchain technology will be used in future developments to enhance trust and security in payments and data management through secure and transparent

transactions, even though there is only one required payment option.

- ❖ Sustainability Features: It is possible to make awareness among the people to keep our environment well. In the event, it is possible to implement more features like the necessity of a good environment and tree plantation.
- ❖ Global Expansion: It may be feasible to make the platform more accessible to a larger group of international users in the future. To help with this, we can add more languages, currencies, and effective tools and information regarding mental health assistance.
- ❖ Constant Security Measures: More security procedures and the use of creative algorithm implementation will make the website more secure to use.

Through the implementation of these development opportunities, the "Web-Based Mental Health Support Network" has the potential to evolve into a more innovative and beneficial platform that offers enhanced functionality, more accessibility, and a more fulfilling user experience for those in need of mental health care.

REFERENCE

- [1] National Library of Medicine [ncbi.nlm.nih.gov] <<<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8554893/>>> [Article on Bangladesh mental healthcare] last accessed on 10-09-2023
- [2] WHO Website [who.int] <<<https://www.who.int/>>> [Provide information about mental health service of Bangladesh government and NGOs] last accessed on 10-09-2023
- [3] Mental Health Service Website [www.eshonijekori.com] <<<https://www.eshonijekori.com/service/mental-health-service>>> [A similar website provides mental health service in Bangladesh] last accessed on 15-02-2024
- [4] Fresh Hope Website [freshhope.us] <<<https://freshhope.us>>> [A similar website provides mental health service and therapy] last accessed on 16-02-2024
- [5] WILEY Online Library [<https://onlinelibrary.wiley.com/>] <<<https://onlinelibrary.wiley.com/doi/abs/10.1037/0002-9432.76.2.226>>> [A journal about campus mental health services which provides recommendations for change. It tells about student mental health] last accessed on 20-02-2024

Jannatun Nayem Riyad _ WEB-BASED MENTAL HEALTH SUPPORT NETWORK_V3

ORIGINALITY REPORT

11 %	7 %	1 %	6 %
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	Submitted to Daffodil International University Student Paper	4 %
2	dspace.daffodilvarsity.edu.bd:8080 Internet Source	2 %
3	winsepang.eu.org Internet Source	1 %
4	Submitted to George Bush High School Student Paper	<1 %
5	Carol T. Mowbray. "Campus mental health services: Recommendations for change.", American Journal of Orthopsychiatry, 2006 Publication	<1 %
6	openpolytechnic.ac.nz Internet Source	<1 %
7	sites.ipaddress.com Internet Source	<1 %
8	Submitted to Southern New Hampshire University - Continuing Education Student Paper	<1 %

