

*PROJECT REPORT*

*On*

## **MindCare**

*Submitted by*

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*In fulfillment for the award of the degree*

*Of*

**BACHELOR OF TECHNOLOGY**

*In*

**COMPUTER SCIENCE AND ENGINEERING**



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AHMEDABAD-382115, GUJARAT, INDIA,**

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APRIL 2025

# **PROJECT REPORT**

**ON**

## **MindCare**

**AT**



In the partial fulfillment of the requirement  
for the degree of  
Bachelor of Technology  
in  
Computer Science and Engineering

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APRIL 2025

## CANDIDATE'S DECLARATION

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I declare that the final semester report entitled "**MindCare**" is my own work conducted under the supervision of the guide **Ms. Foram Gohel**.

I further declare that to the best of my knowledge, the report for B. Tech final semester does not contain part of the work which has been submitted for the award of B. Tech Degree either in this university or any other university without proper citation.

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## ABSTRACT

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Mental health plays a crucial role in an individual's overall well-being, yet it remains one of the most overlooked aspects of healthcare. Many people struggle with mental health issues but hesitate to seek professional help due to societal stigma, lack of awareness, or limited access to mental health resources. MindCare is designed to address this gap by providing an accessible, user-friendly platform that enables individuals to track their mental well-being, analyze mood patterns, and seek professional guidance when needed.

This system is an AI and ML-integrated web-based solution that allows users to monitor their mental health through daily mood tracking, interactive visualizations, and data-driven insights. A color-coded calendar feature visually represents mood variations, helping users recognize recurring mental health patterns and triggers. Additionally, users can fill out a mental health questionnaire, which assists in analyzing their emotional state using predictive analytics.

One of the core functionalities of the system is the therapist booking module, where users can browse therapist profiles, check their availability, and book therapy sessions (online or offline). The system ensures seamless appointment scheduling, enhancing accessibility to mental health professionals. Each therapist has a dedicated profile page, displaying their expertise, consultation hours, and patient feedback, allowing users to make informed decisions about their therapy choices.

The website is built using HTML, CSS, JavaScript, PHP, and MySQL for robust and dynamic functionality. The user interface follows an elegant pastel pink and white aesthetic, providing a calming and welcoming experience. The platform also includes a chatbot, trained on mental health-related data, to offer users immediate responses and support. The chatbot provides basic guidance, relaxation techniques, and self-care tips, helping users manage stress and anxiety in real time.

Security and privacy are critical considerations in the system. Users can create accounts securely, with encrypted credentials ensuring data protection. A forgot password and OTP-based

verification system is implemented to enhance user authentication. The platform also includes a privacy policy page, reassuring users that their sensitive data remains confidential.

Beyond mood tracking and therapist bookings, the system incorporates additional mental wellness resources, including motivational videos, breathing exercises, yoga sessions, funny cat videos, and stand-up comedy clips to encourage positive mental health practices. These features aim to promote relaxation, mindfulness, and emotional resilience.

The database structure plays a crucial role in the system's effectiveness. It stores user mood logs, questionnaire responses, therapist details, and appointment schedules, ensuring seamless data retrieval and analysis. The ML model, trained on mental health datasets, predicts potential emotional trends and offers personalized suggestions for self-care.

The admin panel provides comprehensive management features, allowing administrators to oversee users, therapists, and system data. Admins can manage questionnaire questions, monitor therapist availability, and analyze platform engagement. This ensures the system remains up-to-date, efficient, and responsive to user needs.

The Mental Health Analysis and Chart Support System is not just a website; it is a proactive approach to mental well-being. By integrating data visualization, AI-based analysis, and direct therapist interaction, the platform encourages users to take control of their mental health, fostering a supportive and informed environment. This project aims to make mental healthcare more approachable, reducing stigma and empowering individuals to seek timely assistance.

Ultimately, the system aspires to contribute to a healthier society by promoting mental well-being through technology-driven solutions. The integration of AI, data analytics, and user-centric features ensures that users receive valuable insights and support, bridging the gap between individuals and mental health resources.

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## **ABBREVIATION**

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<b>Abbreviation</b>	<b>Full Form</b>
AI	Artificial Intelligence
ML	Machine Learning
UX	User Experience
NLP	Natural Language Processing
DB	Database
JWT	JSON Web Token
HTML	HyperText Markup Language
CSS	Cascading Style Sheets
JS	JavaScript
PHP	Hypertext Preprocessor
OTP	One-Time Password
UAT	User Acceptance Testing
ER	Entity-Relationship
DFD	Data Flow Diagram
API	Application Programming Interface
HTTP	HyperText Transfer Protocol
SSL	Secure Sockets Layer
FAQ	Frequently Asked Questions

# **CHAPTER 1**

# **INTRODUCTION**

- PROJECT SUMMARY**
- PROJECT PURPOSE**
- PROJECT SCOPE**
- OBJECTIVES**
- SYNOPSIS**

## 1.1 PROJECT SUMMARY

---

Mental health is crucial for overall well-being, yet many individuals hesitate to seek help due to stigma, lack of awareness, or limited access to professionals. The Mental Health Analysis and Chart Support System aims to bridge this gap by providing a digital platform where users can track their mental well-being, analyze mood patterns, and seek professional guidance from therapists.

The system features a mood tracking module, allowing users to log daily emotions through a color-coded calendar and visualize emotional trends over time. A mental health questionnaire helps users understand their mental state, with responses analysed using machine learning (ML) for predictive insights.

To enhance accessibility, the platform offers a therapist booking system, enabling users to:

- Browse therapist profiles and check availability.
- Book online or offline therapy sessions.

The website is developed using HTML, CSS, JavaScript, PHP, and MySQL, ensuring a dynamic and responsive interface with a pastel pink and white aesthetic for a soothing user experience. Security and privacy are prioritized, with secure authentication, encrypted data, and confidential communication.

Additional wellness resources include:

- Motivational videos, yoga, and breathing exercises for stress relief.
- A chatbot providing self-care tips and basic mental health support.

The admin panel allows management of users, therapists, and questionnaires, ensuring smooth platform operation.

### Why This Project is Important?

Many struggle with mental health but lack accessible support. Our platform serves as a self-help tool for students, professionals, and individuals experiencing anxiety or depression. By combining AI, data analysis, and therapist interactions, it empowers users to take charge of their mental well-being, breaking the stigma surrounding mental health care.

## 1.2 PROJECT PURPOSE

Mental health issues often go unnoticed due to lack of awareness, stigma, and limited accessibility to professional help. The Mental Health Analysis and Chart Support System is developed to offer a structured and technology-driven approach to mental well-being, providing users with interactive tools to monitor their emotional health and connect with therapists when needed.

This project aims to simplify mental health tracking and professional assistance by integrating mood logging, AI-based analysis, and therapist appointment booking into a single platform. Users can record their daily moods, gain insights into emotional trends, and make informed decisions about seeking help. The system leverages machine learning to assess questionnaire responses, offering predictive insights into mental health patterns.

Beyond tracking, the platform encourages self-care and emotional well-being through motivational content, guided breathing exercises, and relaxation techniques. Ensuring privacy and security is a key focus, with data encryption and secure authentication to maintain user confidentiality.

By offering an accessible and structured support system, this project serves as a bridge between self-awareness and professional guidance, helping individuals take proactive steps toward improving their mental health.

### 1.3 PROJECT SCOPE

The Mental Health Analysis and Chart Support System is designed to assist individuals in tracking their mental well-being, understanding emotional patterns, and accessing professional support. This project targets students, working professionals, and individuals seeking a structured approach to mental health care.

Core Features and Functionalities:

- Mood Tracking System – Users can log daily emotions through an interactive color-coded calendar to visualize their emotional trends.
- AI-Based Mental Health Analysis – The system utilizes machine learning algorithms to assess questionnaire responses and provide predictive insights.
- Therapist Booking System – Users can browse therapist profiles, check availability, and schedule online or offline therapy sessions.
- Wellness Resources – Includes motivational videos, breathing exercises, yoga sessions, and relaxation techniques to promote mental well-being.
- Chatbot Assistance – Offers basic mental health guidance, self-care tips, and instant support based on user queries.
- Admin Panel – Allows administrators to manage users, therapists, questionnaire responses, and overall system functionality.

Technical Scope:

- Developed using HTML, CSS, JavaScript, PHP, and MySQL for a dynamic and responsive experience.
- Secure authentication and encrypted data storage to protect user privacy.
- AI/ML integration for automated mental health insights and trend predictions.

Future Scope:

- Expansion to mobile applications for wider accessibility.

- Multilingual support to reach a broader audience.

This project is not just a mood-tracking tool; it serves as a comprehensive mental health support system, promoting self-awareness and encouraging users to take proactive steps toward emotional well-being.

## 1.4 OBJECTIVES

- The Mental Health Analysis and Chart Support System is designed to assist individuals in The Mental Health Analysis and Chart Support System aims to provide users with an accessible platform to track their emotional well-being, gain insights into mental health trends, and connect with therapists. By integrating mood tracking, AI-driven analysis, and professional consultation, the system encourages proactive mental health management.
- A key objective is to help users visualize mood patterns through an interactive color-coded calendar and AI-based predictions. This allows individuals to identify emotional triggers and take timely action. The platform also simplifies therapist appointments, enabling users to browse profiles, check availability, and book sessions seamlessly.
- Beyond professional support, the system offers self-help resources such as motivational videos, relaxation techniques, and a chatbot to provide guidance and coping strategies. With a focus on privacy and security, all user data is encrypted and protected, ensuring a safe space for mental well-being.
- By combining technology with mental health awareness, the project empowers individuals to take charge of their emotional health and access the right support when needed.

## 1.4 SYNOPSIS

---

- Mental health plays a vital role in overall well-being, yet many individuals lack the tools to monitor their emotional state or seek timely support. The Mental Health Analysis and Chart Support System is designed to bridge this gap by offering an intuitive platform where users can track their mood variations, and access therapy services. The system leverages data visualization and AI-powered analysis to provide personalized mental health insights, helping users understand their emotional fluctuations more effectively.
- By incorporating a structured questionnaire, the platform gathers user responses and applies machine learning algorithms to identify trends and potential concerns. The inclusion of a therapist appointment system ensures that users can easily find and book professional support when needed. Additionally, a chatbot serves as an immediate point of guidance, offering self-care tips and mental health-related assistance.
- Beyond professional support, the platform promotes mental wellness through interactive resources, including breathing exercises, meditation guides, and motivational content. With a focus on privacy and security, all user data is safeguarded through encrypted storage and secure authentication.
- Developed using modern web technologies, the system is optimized for a seamless user experience, ensuring accessibility across different devices. By combining data-driven insights with mental health awareness, this project aims to create a comprehensive and supportive environment, empowering users to take control of their emotional well-being.

# **CHAPTER 2**

# **LITERATURE SURVEY**

- OVERVIEW OF EXISTING SYSTEMS**
- COMPARATIVE ANALYSIS OF SIMILAR SYSTEMS**

## 2.1 OVERVIEW OF EXISTING SYSTEMS

---

In the realm of digital mental health platforms, **Amaha** (formerly InnerHour) stands out as a comprehensive solution offering a blend of self-care resources, therapy, and community support. Established in 2016 by Dr. Amit Malik, Amaha aims to address the significant mental health treatment gap in India by providing accessible and integrated care.

### KEY FEATURES OF AMAHA:

- **Self-Care Resources:** The Amaha app serves as a digital repository of mental health tools, offering users access to over 600 activities, articles, and daily reminders tailored to individual needs.
- **Therapy and Psychiatry Services:** Amaha's in-house team of qualified therapists and psychiatrists delivers both online and in-person clinical treatments, adhering to proprietary clinical protocols to ensure exceptional care.
- **Community Support:** The platform fosters a safe space for users to share experiences and receive peer support through moderated community platforms, enhancing social connectedness.
- **Employee Well-being Programs:** Amaha collaborates with organizations to offer mental health support to employees and their families, promoting workplace wellness.

### USERS FEEDBACK:

User experiences with Amaha are mixed. Some users appreciate the app's helpful features and resources but express concerns about the cost of unlocking additional content, suggesting a desire for more free resources.

## 2.2 COMPARATIVE ANALYSIS OF SIMILAR SYSTEMS

---

To understand the strengths and limitations of existing mental health platforms, a comparative analysis was conducted between Amaha , Wysa, and MindCare (our proposed system). This comparison helps identify key features, differentiators, and areas where MindCare can provide unique value.

### 1. Amaha ([amahahealth.com](http://amahahealth.com))

- **Strengths:**
  - Offers both self-care resources and professional therapy sessions.
  - Provides a personalized self-help journey with structured activities and reminders.
  - Has a dedicated team of therapists and psychiatrists for professional support.
  - Supports employee wellness programs for corporate mental health initiatives.
- **Limitations:**
  - Most self-care tools require premium access, making affordability an issue for many users.
  - Limited real-time engagement beyond scheduled therapy sessions.

### 2. Wysa ([wysa.io](http://wysa.io))

- **Strengths:**
  - Uses AI-powered chatbot for mental health support, providing instant assistance.
  - Offers cognitive behavioral therapy (CBT)-based exercises for stress and anxiety management.
  - Supports anonymous user interactions, increasing privacy.
  - Includes structured self-help programs for users who prefer guided mental health support.

- **Limitations:**

- Therapist support is not integrated within the free version.
- Limited mood tracking and visualization features.

### 3. MindCare (Proposed System)

- **Advantages Over Existing Systems:**

- Combines mood tracking, AI analysis, and therapist consultation in one platform.
- Provides color-coded emotional trend visualization, helping users recognize patterns in their mental well-being.
- Offers a dedicated therapist booking system, allowing users to schedule online or offline sessions.
- Includes a chatbot for immediate mental health assistance, bridging the gap between AI and human interaction.
- Features motivational videos, breathing exercises, and wellness content for holistic mental health support.

While platforms like Amaha and Wysa offer valuable mental health solutions, they often focus on either self-care tools, therapy sessions, or AI chat support separately. MindCare integrates all these features into a single, user-friendly system, making mental health tracking, professional consultation, and self-help tools more accessible and interactive. This comprehensive approach ensures users receive continuous support, from daily mood monitoring to professional therapy sessions, enhancing their mental health journey effectively.

# **CHAPTER 3**

# **SYSTEM OVERVIEW**

- INTRODUCTION**
- WHY MINDCARE?**
- KEY FEATURES**
- TECHNOLOGIES AND  
TOOLS USED**

### 3.1 INTRODUCTION

---

Mental health plays a crucial role in overall well-being, yet many individuals find it challenging to recognize emotional patterns, manage their mental state, or seek timely support. MindCare is designed to address these challenges by providing a digital platform that encourages users to track their moods, analyze emotional trends, and connect with professional therapists. By integrating AI-driven analytics with an intuitive and user-friendly interface, MindCare aims to promote proactive mental health management.

Through daily mood logging and visual trend analysis, MindCare empowers users to understand their emotions better and take necessary actions for self-care by bridging the gap between emotional awareness and professional guidance, it fosters a more informed and supportive approach to mental well-being.

The MindCare logo reflects the essence of emotional support, healing, and care. The open hand symbolizes guidance and reassurance, offering a sense of safety and comfort to those seeking help. Above it, the heart represents compassion, love, and emotional well-being, reinforcing the platform's core mission. The soft pastel pink colour scheme evokes warmth and tranquillity, creating a welcoming atmosphere that aligns with the brand's commitment to mental wellness.



*Fig 3.1 MindCare Logo*

By combining technology with mental health awareness, MindCare encourages individuals to take control of their emotional well-being. Whether through self-monitoring, AI-powered insights, or professional therapy sessions, this platform serves as a stepping stone toward better mental health, empowering users to heal, grow, and thrive in their journey.

### 3.2 WHY MINDCARE?

---

Choosing MindCare as a mental health analysis and support system project is an excellent choice for several reasons. Below are six key reasons why MindCare is the perfect choice for your project:

- **Innovative and Unique Concept:**

MindCare stands out as a unique and innovative platform in the mental health space. Unlike generic wellness apps that offer limited tracking or static resources, MindCare combines AI-powered mood analysis, real-time data visualization, and therapist booking into a seamless experience. By integrating daily mood tracking, intelligent insights, and direct access to mental health professionals, MindCare ensures that users receive personalized guidance and support tailored to their emotional well-being. This gives it a significant edge over traditional mental health platforms.

- **High Market Demand:**

The demand for mental health support and wellness platforms is growing rapidly, especially in the wake of increasing awareness about mental health. Studies show that the global mental health app market is expected to grow at a CAGR of 18.6% from 2022 to 2030, highlighting the increasing reliance on technology for mental well-being. With more people seeking self-care solutions, AI-driven emotional analysis, and convenient access to therapists, MindCare has significant potential for growth and monetization, making it a valuable and impactful project.

- **Potential For Strategic Partnership:**

MindCare has the potential to collaborate with mental health professionals, wellness organizations, and therapy platforms to enhance its offerings. Partnerships with psychologists, mindfulness coaches, and mental health institutions can expand the platform's reach and credibility. Additionally, social media campaigns and collaborations with mental health influencers can help MindCare gain visibility, attract more users, and create a larger community for

mental wellness. These partnerships not only increase the platform's impact but also open doors for future monetization and expansion.

- **User Friendly Interface:**

The platform is designed with a clean, intuitive, and engaging user interface that prioritizes ease of use and accessibility. Users can easily log their moods, view emotional trends, book therapy sessions, and access self-help resources with just a few clicks. The UI is built on modern design principles, ensuring an aesthetically pleasing and seamless experience for users of all backgrounds, including those unfamiliar with digital wellness platforms. The interface will be refined through user feedback and research, ensuring that it meets user expectations effectively.

- **Mobile-Responsive Design:**

MindCare is designed to be fully responsive, making it accessible on all devices, including smartphones, tablets, and desktops. Given the increasing reliance on mobile apps for mental health tracking and support, the platform ensures that users can log their emotions, check insights, and book therapy sessions anytime, anywhere. The mobile-first approach is optimized for speed, ease of use, and an engaging experience, ensuring that users receive support whenever they need it without technical barriers.

### 3.3 KEY FEATURES

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The Mental Health Analysis and Chart Support System is designed to provide users with a comprehensive mental health support platform that integrates mood tracking, AI-based analysis, therapist booking, and self-care resources. Below are its key features:

- **Mood Tracking and Visualization**

Users can log their daily emotions through an interactive color-coded calendar, which helps visualize mood trends over time. This enables individuals to identify patterns, triggers, and emotional fluctuations effectively.

- **AI-Based Mental Health Analysis**

The system leverages machine learning algorithms to analyze user responses from mental health questionnaires. Based on trends, the AI model provides predictive insights and personalized recommendations for improving mental well-being.

- **Therapist Booking System**

Users can explore therapist profiles, check availability, and schedule online or offline therapy sessions. This ensures direct access to professional support when needed.

- **Chatbot Assistance**

An AI-powered chatbot offers users instant mental health guidance, self-care tips, and relaxation techniques. It acts as a first line of support before seeking professional consultation.

- **Wellness Resources**

The platform includes a collection of motivational videos, breathing exercises, yoga sessions, and guided relaxation techniques to help users manage stress and anxiety.

### 3.4 TECHNOLOGIES AND TOOLS USED

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The Mental Health Analysis and Chart Support System is developed using a combination of frontend, backend, database, and AI/ML technologies to ensure a seamless and secure user experience.

- **Frontend Technologies:**
  - HTML, CSS, JavaScript – Used to design an interactive, responsive, and visually appealing user interface.
  - Bootstrap & Tailwind CSS – Ensures a modern and mobile-friendly UI design.
- **Backend Technologies:**
  - PHP – Handles server-side logic and database interactions.
  - Python (Flask/Django) – Used for AI/ML model integration to analyze mental health trends.
- **Database & Data Storage:**
  - MySQL – Manages user data, therapist information, mood logs, and appointment records.
  - ChromaDB – Used for storing mental health document data for chatbot and AI-related functionalities.
- **Machine Learning & AI:**
  - Scikit-learn, TensorFlow, Joblib – Implements AI-based mood analysis and predictive modeling.
  - Natural Language Processing (NLP) – Enhances the chatbot for mental health-related queries.
- **Security & Authentication:**
  - JWT (JSON Web Token) Authentication – Ensures secure user login and session management.

## **CHAPTER 4**

# **PROJECT MANAGEMENT**

- PROJECT PLANNING**
- OBJECTIVES**
- PROJECT SCHEDULING**
- RISK MANAGEMENT**

## 4.1 PROJECT PLANNING OBJECTIVES

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Effective project management is essential for the successful development and deployment of the Mental Health Analysis and Chart Support System. The primary objectives of project planning are to define clear goals, allocate resources efficiently, and ensure timely delivery of the system while maintaining high-quality standards.

The first objective is to establish a structured development roadmap, ensuring that each phase, from requirement gathering to deployment, follows a well-defined schedule. The system follows an agile development approach, allowing continuous testing, feedback incorporation, and iterative improvements to enhance user experience and functionality.

Another key objective is efficient resource allocation, which involves assigning development tasks to appropriate team members based on their expertise in frontend, backend, database management, and AI integration. Ensuring optimal workload distribution minimizes delays and enhances productivity.

Maintaining security and data privacy is also a crucial aspect of project planning. The system must comply with best practices for user authentication, encrypted data storage, and secure therapist-client interactions to protect sensitive mental health information.

Additionally, scalability and future expansion are considered during planning. The architecture is designed to accommodate future enhancements, such as mobile app integration, multilingual support, and AI-driven personalized recommendations.

Finally, a risk management strategy is put in place to identify potential challenges, such as technical failures, data security concerns, and user engagement issues, and implement preventive measures to mitigate risks effectively.

By adhering to these objectives, the project ensures a smooth workflow, high-quality implementation, and long-term success in supporting mental health awareness and professional assistance.

#### **4.1.1 Resources Required**

The development of the Mental Health Analysis and Chart Support System (MindCare) requires a combination of human, technical, and infrastructural resources to ensure smooth implementation and functionality.

##### **Human Resources:**

- Frontend Developers – Responsible for designing an interactive and responsive user interface using HTML, CSS, JavaScript, and Bootstrap.
- Backend Developers – Manage server-side logic, database connections, and authentication using PHP and Python (Flask/Django for AI integration).
- Database Administrators – Handle MySQL/PostgreSQL to manage user profiles, therapist details, appointments, and mood logs.
- Machine Learning Engineers – Implement AI-based mood analysis and chatbot functionality using Scikit-learn, TensorFlow, and NLP techniques.
- UI/UX Designers – Ensure a visually appealing and user-friendly design, maintaining the platform's pastel pink and white aesthetic.
- Security Experts – Implement data encryption, authentication, and privacy policies to secure sensitive user data.

##### **Technical Resources:**

- Development Tools: VS Code, GitHub, Postman (for API testing)
- AI/ML Libraries: Scikit-learn, TensorFlow, Joblib (for predictive analytics)
- Database & Storage: MySQL/PostgreSQL for structured data, ChromaDB for chatbot document storage
- Server Hosting: Apache, Nginx, or cloud-based solutions like AWS or DigitalOcean

#### 4.1.2 Development Approach

The agile development methodology is adopted to ensure flexibility, iterative improvements, and continuous user feedback throughout the project lifecycle. The system is developed in phases, allowing each feature to be tested and refined before moving to the next stage.

##### Phase 1: Requirement Analysis & Design

- Gather project requirements and define system functionalities.
- Design UI wireframes for mood tracking, therapist booking, and chatbot features.

##### Phase 2: Frontend & Backend Development

- Implement frontend components (mood tracker, chatbot interface, appointment booking).
- Develop backend APIs for database interactions and user authentication.
- Integrate machine learning models for AI-based mood analysis.

##### Phase 3: Testing & Security Implementation

- Conduct unit testing, integration testing, and user acceptance testing (UAT).
- Implement data encryption, JWT authentication, and access control policies.

##### Phase 4: Deployment & User Feedback

- Deploy the website on a cloud server or hosting platform.
- Collect user feedback and iterate based on real-world usability.

By following this agile, modular approach, the project ensures a stable, scalable, and user-centric mental health support system that evolves with user needs.

## 4.2 PROJECT SCHEDULING

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The development of the MindCare system is organized into well-defined phases to ensure systematic and timely completion. Each phase includes specific tasks, durations, and timelines. The table below outlines the proposed project schedule.

*Table 4.1 Project Scheduling*

Phase	Task Description	Duration	Timeline
Planning	Requirement gathering, feasibility study	1 week	1st Jan – 7th Jan
Design	UI/UX designing, wireframing, database schema	2 weeks	8th Jan – 21st Jan
Frontend Development	HTML, CSS, JavaScript design	2 weeks	22nd Jan – 4th Feb
Backend Development	PHP and database integration (phpMyAdmin)	2 weeks	5th Feb – 18th Feb
AI/ML Integration	Mood prediction algorithm, calendar chart	2 weeks	19th Feb – 3rd Mar
Therapist Booking Module	Profile view, availability, online/offline booking	1 week	4th Mar – 10th Mar
Testing and Debugging	Unit and system testing	1 week	11th Mar – 17th Mar
Final Review & Deployment	Final improvements and deployment	1 week	18th Mar – 24th Mar
Documentation & Submission	SRS, user manual, final report	1 week	25th Mar – 31st Mar

## 4.3 RISK MANAGEMENT

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Risk management is an essential part of the project to ensure smooth development and delivery. The table below identifies potential risks, their likelihood, impact, and mitigation strategies that have been planned for the MindCare system.

*Table 4.2 Project Scheduling*

Risk	Likelihood	Impact	Mitigation Strategy
Delay in requirement gathering	Medium	High	Conduct regular meetings with the team to finalize quickly
Integration issues (Frontend/Backend)	High	Medium	Use modular development and regular integration testing
AI/ML model prediction inaccuracy	Medium	High	Train on reliable datasets and continuously validate results
Data security concerns	High	High	Implement input validation and secure session management
Poor UI/UX feedback from users	Medium	Medium	Conduct feedback sessions during design and after deployment
Internet/server downtime	Low	High	Use local servers for development; schedule backups
Team member unavailability	Medium	Medium	Allocate tasks flexibly and ensure documentation is updated

## CHAPTER 5

# SYSTEM REQUIREMENTS

- **USER CHARACTERISTICS**
- **FUNCTIONAL  
REQUIREMENTS**
- **NON-FUNCTIONAL  
REQUIREMENTS**
- **HARDWARE AND  
SOFTWARE REQUIREMENTS**

## 5.1 USER CHARACTERISTICS

The Mental Health Analysis and Chart Support System (MindCare) is designed for different types of users, each with specific roles and system access levels. The platform is built for ease of use, accessibility, and privacy protection.

- **General Users (Patients/Individuals Seeking Mental Health Support)**
  - Purpose: Use the system for mood tracking, AI-based analysis, therapist booking, and self-care resources.
  - Technical Expertise: Basic knowledge of using web applications.
  - Key Needs:
    1. Log moods and view emotional trends using graphs.
    2. Receive AI-based mental health insights.
    3. Book therapy sessions with available therapists.
    4. Access self-care resources (videos, relaxation exercises, chatbot support).
- **Therapists**
  - Purpose: Conduct therapy sessions and manage their appointment schedules.
  - Technical Expertise: Moderate (familiarity with dashboard navigation).
  - Access Rights:
    1. View their own profile (but cannot add, edit, or delete it).
    2. Manage their appointment availability.
    3. View scheduled sessions with patients.
    4. Cannot modify patient records or other therapist profiles.
- **Admin (System Administrator/Moderator)**
  - Purpose: Oversee the system, manage therapists and users, and ensure smooth operations.
  - Technical Expertise: Advanced (knowledge of database management and backend operations).
  - Access Rights:
    1. Add, edit, and delete therapist profiles.
    2. Manage user accounts and security settings.
    3. Oversee therapist availability and appointments.
    4. Monitor system performance and logs.

## 5.2 FUNCTIONAL REQUIREMENTS

The Mental Health Analysis and Chart Support System (MindCare) must meet specific functional requirements to ensure a smooth user experience. These requirements define the system's core operations, features, **and user interactions**.

### 1. User Management

- Users can sign up, log in, and manage their profiles securely.
- Admins can add, edit, or remove therapist profiles while users can only modify their personal details.
- Secure password reset and OTP-based authentication are provided.

### 2. Mood Tracking & Visualization

- Users can log their daily mood and select an emotion filter (e.g., happy, sad, all emotions).
- The system provides multiple graph options (bar chart, pie chart, line graph, etc.) for mood trend visualization.
- Users can analyze their mood variations over days, weeks, and months.

### 3. AI-Based Mental Health Analysis

- Users complete a mental health questionnaire for AI-driven analysis.
- The system predicts whether the user should seek professional help and provides a probability score.
- Personalized static and dynamic graphs display trends based on user responses.

### 4. Therapist Booking System

- Users can view therapist profiles and check their availability.
- Users can book, cancel, or reschedule appointments.

- Admins manage therapist availability and appointment schedules.

## 5. Chatbot Support

- Users can ask mental health-related queries, and the chatbot provides empathetic, AI-generated responses.
- The chatbot retrieves information from stored mental health documents (ChromaDB).

## 6. Wellness & Self-Help Resources

- Users can access guided meditation, breathing exercises, motivational videos, and yoga sessions.
- Users can subscribe to newsletters for mental health tips and updates.

## 7. Security & Authentication

- User authentication is secured with JWT tokens.
- Data encryption ensures privacy and protection of sensitive information.
- Role-based access control (RBAC) prevents unauthorized access.

## 5.3 NON-FUNCTIONAL REQUIREMENTS

Non-functional requirements define performance, security, usability, and reliability aspects of the system.

### 1. Performance Requirements

- The system should handle multiple users simultaneously without delays.
- AI-based mental health predictions should generate results within 5 seconds.

### 2. Security Requirements

- User data must be encrypted and securely stored to prevent unauthorized access.
- The system must comply with privacy policies (GDPR, HIPAA if applicable).

### 3. Usability Requirements

- The UI must be intuitive, visually appealing, and user-friendly, especially for non-tech-savvy users.
- The chatbot should provide natural and empathetic responses.

### 4. Scalability Requirements

- The system should support an increasing number of users without performance degradation.
- Future enhancements may include mobile app support and AI-based therapy recommendations.

### 5. Maintainability & Availability

- The system should be available 24/7 with minimal downtime.
- The backend should be modular and well-documented for future updates.

## 5.4 HARDWARE AND SOFTWARE REQUIREMENTS

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The Mental Health Analysis and Chart Support System (MindCare) requires a combination of hardware and software components to ensure smooth performance, security, and scalability.

- **Hardware Requirements**

- **For End Users (Patients & Therapists):**

1. Device: PC, Laptop, Tablet, or Smartphone
2. Processor: Minimum Dual-Core 2.0 GHz (Recommended: Quad-Core 2.5 GHz or higher)
3. RAM: 2GB minimum (Recommended: 4GB or higher)
4. Storage: 500MB free space for browser cache and data
5. Internet Connection: Stable broadband or mobile internet

- **For Server Hosting:**

1. Processor: Intel Xeon / AMD Ryzen 5 or better
2. RAM: 8GB minimum (Recommended: 16GB or higher)
3. Storage: 100GB SSD (Recommended: Scalable cloud storage)
4. Bandwidth: At least 10 Mbps for handling multiple requests

- **Software Requirements**

- **For End Users:**

1. Operating System: Windows, macOS, Linux, Android, or iOS
2. Browser: Chrome, Firefox, Safari, or Edge (Latest Version)

➤ **For Development & Deployment:**

1. Frontend Technologies: HTML, CSS, JavaScript (with AJAX for dynamic updates)
2. Backend Technologies: PHP for business logic, Flask (Python) for AI processing
3. Database Management System: MySQL
4. AI & ML Libraries: Scikit-learn, TensorFlow, Joblib (for mental health analysis)
5. Vector Database: ChromaDB (for chatbot document retrieval)
6. Authentication & Security: JWT for secure login, SSL for encrypted connections
7. Server & Hosting: Apache

By ensuring these hardware and software requirements, the MindCare system remains efficient, scalable, and secure for all users

# **CHAPTER 6**

# **SYSTEM ANALYSIS**

- NEED FOR THE SYSTEM**
- PROCESS MODEL**
- FEASIBILITY STUDY**

## 6.1 NEED FOR THE SYSTEM

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Mental health issues are often overlooked due to stigma, lack of awareness, and limited access to professional help. Many individuals struggle with stress, anxiety, and depression but do not have a structured way to track their emotional well-being or seek timely intervention. The Mental Health Analysis and Chart Support System (MindCare) addresses this gap by providing a digital platform that combines mood tracking, AI-driven analysis, and therapist booking.

Existing mental health support platforms often focus on either self-help tools, therapy sessions, or AI chatbots individually. However, MindCare integrates all these elements into a single, user-friendly system that allows individuals to:

- Log their daily emotions and analyze mood trends over time.
- Receive AI-based insights on whether professional help is recommended.
- Book therapy sessions seamlessly with available professionals.
- Access self-care resources, including meditation, breathing exercises, and motivational videos.

The system also ensures data security and privacy, enabling users to engage with the platform without concerns about confidentiality. By implementing graph-based visualization, MindCare makes it easier for users to understand their emotional patterns and take proactive steps toward better mental health.

## 6.2 PROCESS MODEL

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For the development of MindCare, the Agile Software Development Model is used. Agile is chosen over the Waterfall model because it allows for continuous feedback, iterative improvements, and flexibility in feature enhancements.

### Why Agile?

- Iterative development: Features like mood tracking, chatbot, and therapist booking can be developed and tested in smaller cycles.
- User feedback integration: Regular testing with end users (patients, therapists, and admins) ensures usability improvements.
- Quick adaptation: New AI models, UI improvements, and security features can be implemented without waiting for full development completion.

### Agile Development Phases for MindCare:

1. Requirement Gathering & Planning – Define user needs, feature list, and technical stack.
2. Design & Prototyping – Develop UI wireframes, system architecture, and database schema.
3. Incremental Development – Develop core features in short sprints (mood tracking, AI analysis, chatbot, therapist module).
4. Testing & Quality Assurance – Perform unit testing, security testing, and performance testing.
5. Deployment & User Feedback – Launch the platform, collect user feedback, and continuously improve features.

By following Agile development, MindCare remains scalable, adaptable, and continuously optimized for a better user experience.

## 6.3 FEASIBILITY STUDY

---

A feasibility study evaluates whether the Mental Health Analysis and Chart Support System (MindCare) can be successfully developed and deployed. The study considers technical, operational, economic, and schedule feasibility to ensure the project's viability.

### 6.3.1 Technical Feasibility

The technical feasibility of MindCare assesses whether the required technology, infrastructure, and development resources are available to implement the system efficiently.

- **Availability of Technology**

MindCare is built using widely available and well-supported technologies:

- Frontend: HTML, CSS, JavaScript (with AJAX for dynamic updates).
- Backend: PHP for business logic, Flask (Python) for AI-based analysis.
- Database: MySQL/PostgreSQL for structured data management.
- AI & ML: Scikit-learn, TensorFlow, and Joblib for mental health prediction models.
- Vector Database: ChromaDB for storing chatbot knowledge base and mental health documents.
- Security: JWT authentication, SSL encryption, and role-based access control.

Since these technologies are open-source and scalable, they reduce cost and ensure long-term maintainability.

- **System Scalability & Performance**

- The system is designed to handle multiple users simultaneously with optimized database queries.

- AI-based analysis is lightweight and runs efficiently using pre-trained models.
- **Integration & Compatibility**
  - The system is cross-platform compatible, working on Windows, macOS, Linux, Android, and iOS.
  - It supports modern web browsers (Chrome, Firefox, Safari, Edge) for a smooth user experience.
  - Third-party API integration (if required) is technically feasible for future enhancements.
- **Development Complexity**
  - Since the project follows the Agile methodology, each component (mood tracking, AI analysis, chatbot, therapist booking) is developed and tested in phases, making implementation manageable.
  - The system is modular, allowing future enhancements like mobile apps, voice-enabled chatbot interactions, and real-time sentiment analysis.

### 6.3.2 Operational Feasibility

Operational feasibility evaluates whether the Mental Health Analysis and Chart Support System (MindCare) can be effectively implemented and used by its intended users, including patients, and administrators.

- **User-Friendly Interface:** The system is designed with a simple, intuitive UI, ensuring that users without technical knowledge can navigate features like mood tracking, therapist booking, and chatbot interactions effortlessly.
- **Accessibility & Engagement:** The platform is accessible on multiple devices (PCs, tablets, and smartphones) and supports different user needs, including mental health insights, self-care resources, and appointment scheduling.

- Data Security & Confidentiality: The system ensures secure authentication (JWT tokens), encrypted communication (SSL), and user role-based access control, making it safe for mental health-related interactions.
- Integration with Existing Mental Health Practices: Therapists can manage appointments, while admins can oversee system operations, ensuring the platform aligns with professional mental health workflows.

### 6.3.3 Economic Feasibility

Economic feasibility assesses the cost-effectiveness of developing and maintaining the system. MindCare follows a cost-efficient model by using:

- Open-Source Technologies: The system is built using free and widely supported technologies like PHP, Python, MySQL, TensorFlow, and ChromaDB, reducing software licensing costs.
- Low Maintenance Costs: The modular architecture ensures easy updates, bug fixes, and feature enhancements, reducing long-term operational expenses.
- AI-Powered Automation: The chatbot and AI-based mental health analysis automate many manual tasks, reducing the need for human intervention and lowering operational costs.

### 6.3.4 Schedule Feasibility

Schedule feasibility ensures that the development timeline is realistic and achievable. MindCare follows the Agile development model, allowing iterative progress, continuous testing, and quick adaptation

*Table 6.1 Scheduling*

	<b>PHASE</b>	<b>TASKS</b>	<b>DURATION</b>	<b>DELIVERABLES</b>
<b>PHASE 1</b>	Requirement Analysis & Planning	Define objectives, gather requirements	2 WEEKS	SRS Document, Architecture Plan
<b>PHASE 2</b>	UI/UX Design	Create wireframes, finalize UI elements	2 WEEKS	UI Prototypes, Mood Tracker & Chatbot Designs
<b>PHASE 3</b>	Core Development	Develop frontend, backend, and database	5 WEEKS	Working prototype with essential features
<b>PHASE 4</b>	AI & ML Integration	Implement AI-driven mental health analysis	3 WEEKS	Functional chatbot & AI-based prediction model
<b>PHASE 5</b>	Testing & Security	Conduct unit testing, security checks	3 WEEKS	Bug fixes, security validations
<b>PHASE 6</b>	Deployment & User Feedback	Launch system, collect feedback, optimize performance	2 WEEKS	Live system, User feedback report

# **CHAPTER 7**

# **SYSTEM DESIGN**

- DATA FLOW DIAGRAM**
- USECASE DIAGRAM**
- SEQUENCE DIAGRAM**
- ER DIAGRAM**

## 7.1 DATA FLOW DIAGRAM

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The Data Flow Diagram (DFD) represents how data moves through the MindCare system. It includes external entities like the user and therapist, processes like login, mood tracking, booking, and the central database for storing and retrieving data.

### 7.1.1 DFD (Level 0)

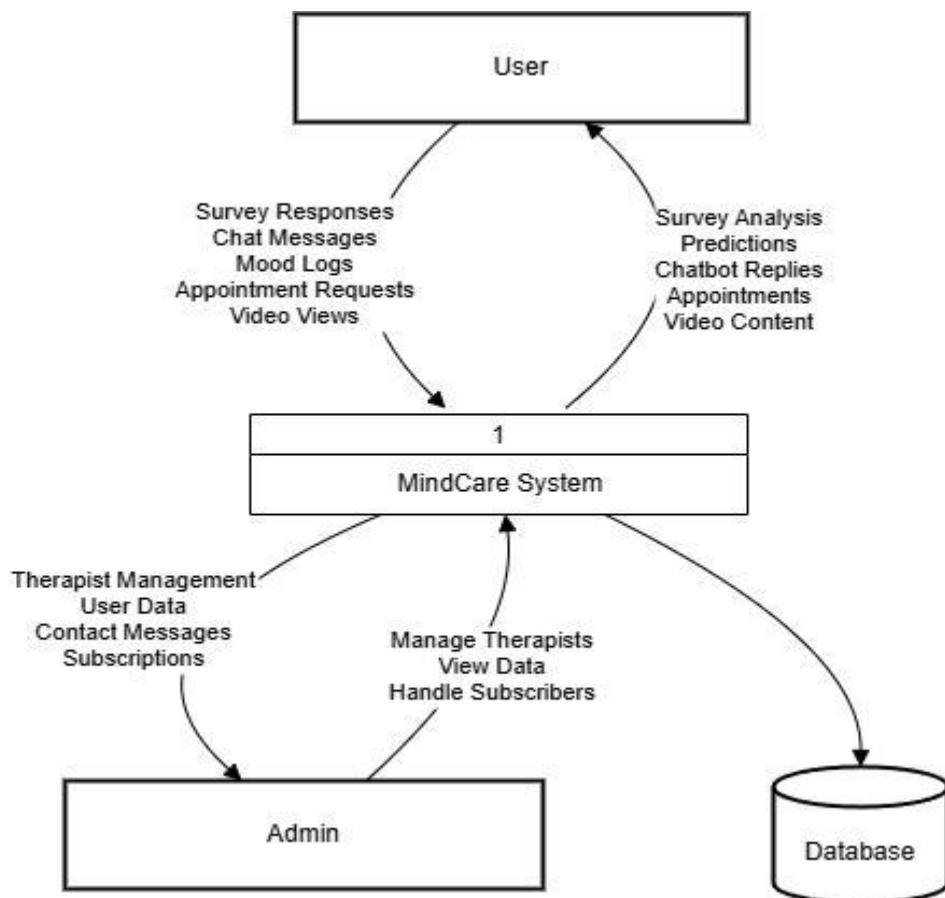


Fig. 7.1 DFD (Level 0)

### 7.1.2 DFD (Level 1)

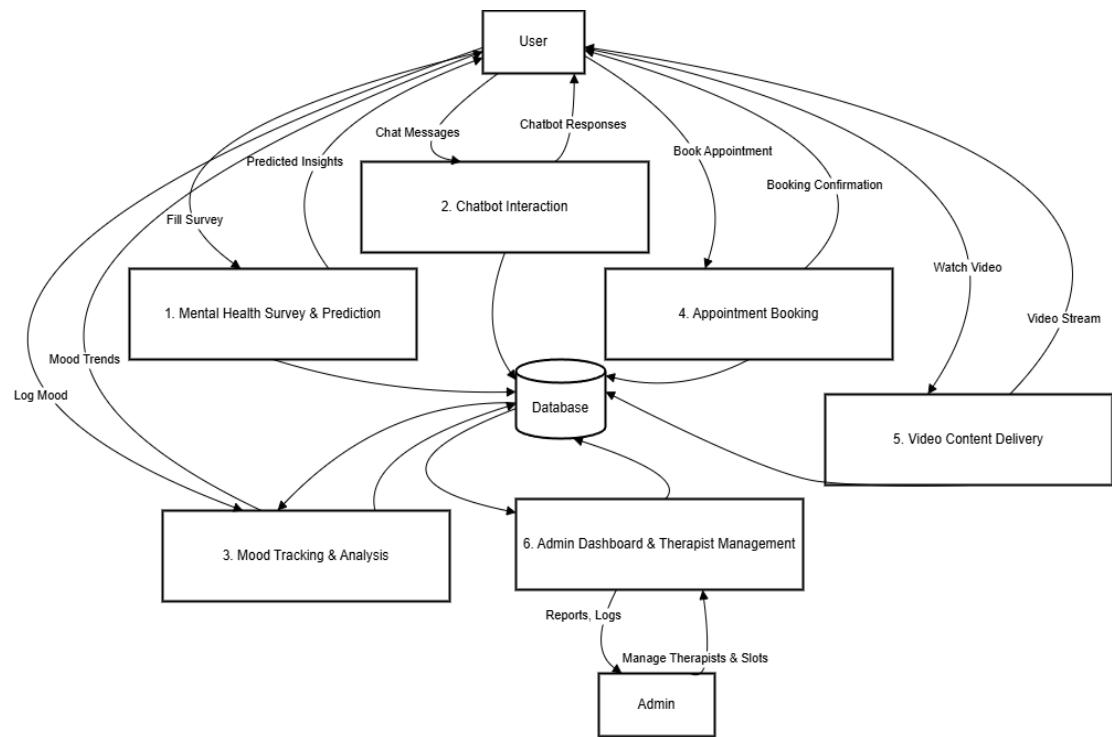


Fig. 7.2 DFD (Level 1)

## 7.2 USE CASE DIAGRAM

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**Actors:** User, Admin

**Description:**

The user logs in, tracks mood, fills mental health questionnaires, views reports, and books therapy sessions. The admin manages user data, reviews booking records, updates therapist profiles, and monitors system activity. All actions interact with the central database for storage and retrieval.

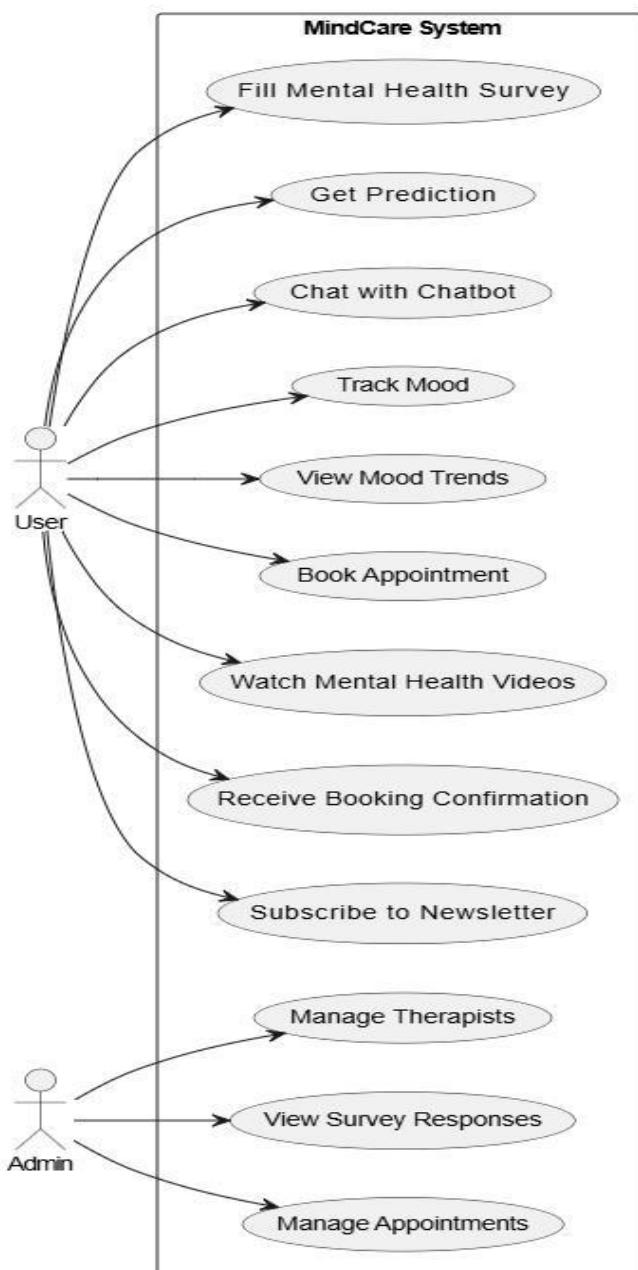


Fig. 7.3 Use Case Diagram

### 7.3 SEQUENCE DIAGRAM

This sequence diagram illustrates the interaction between the user/admin and the system components during the typical operations within the MindCare platform.

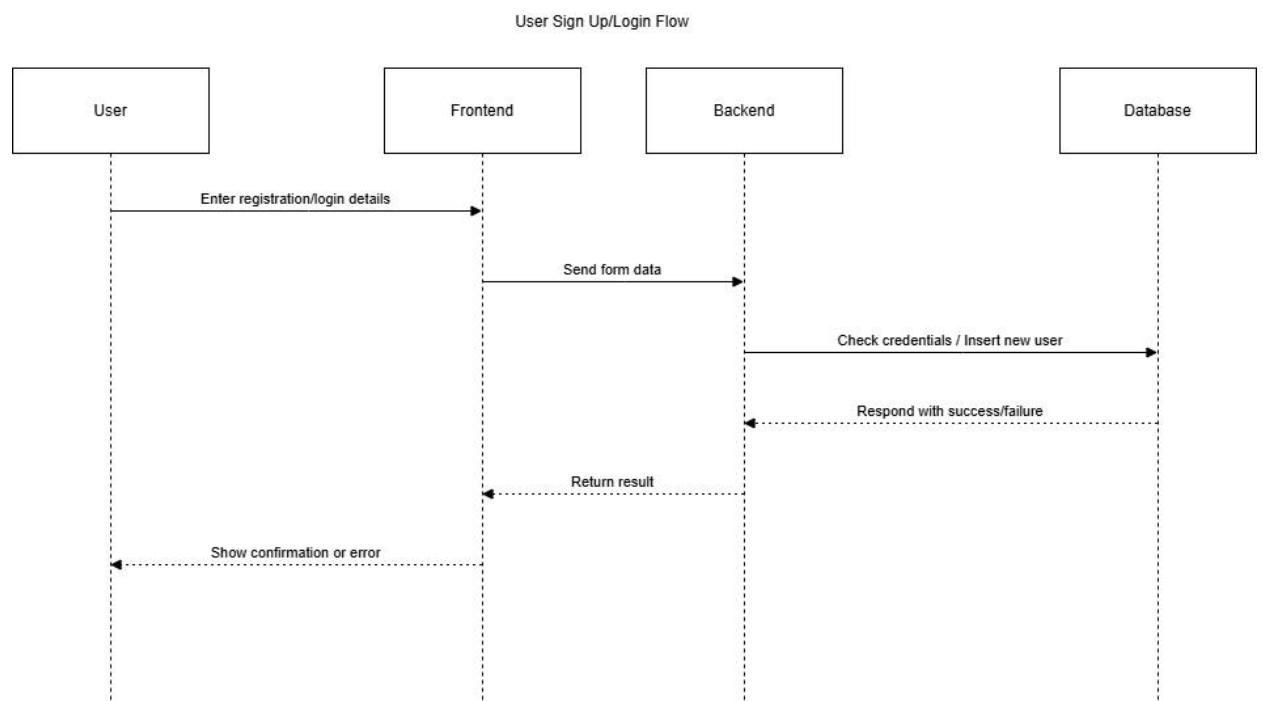
#### User Perspective:

- The user initiates the interaction by logging into the system.
- Once authenticated, the user can access features like mood tracking, questionnaire submission, and therapy session booking.
- Each action sends a request to the respective module (e.g., Mood Tracker, Questionnaire Module), which processes the input and communicates with the database to store or retrieve data.
- The system confirms each operation (e.g., mood log saved, questionnaire submitted, session booked) with a response message back to the user.

#### Admin Perspective:

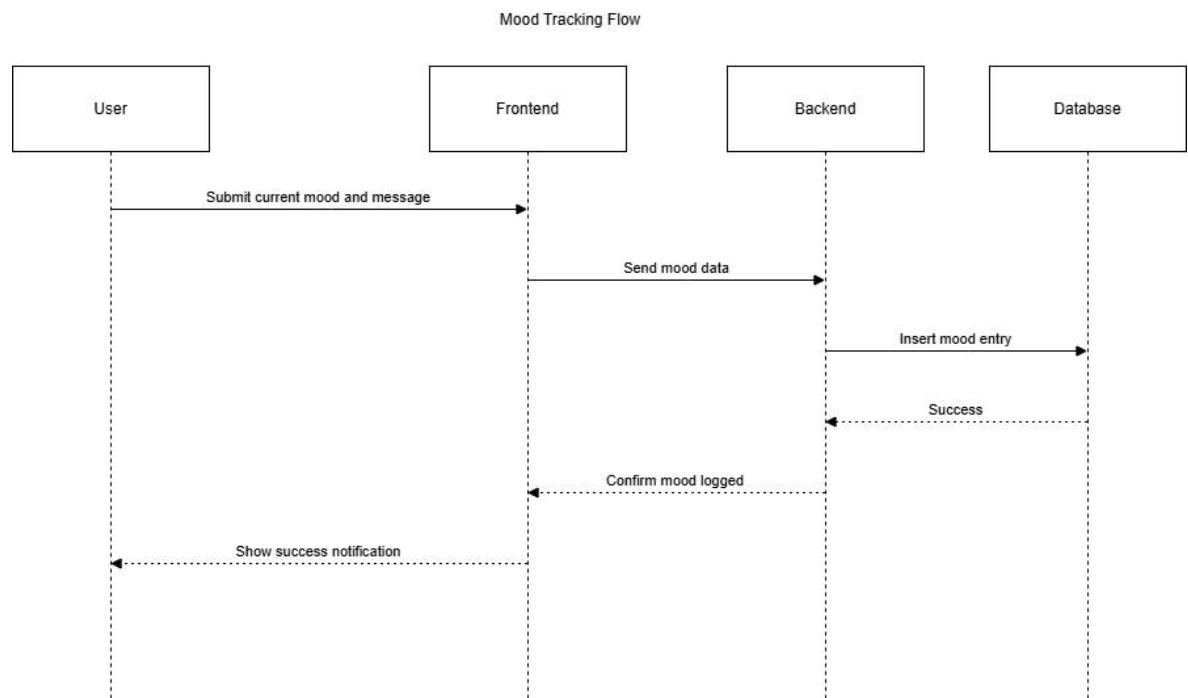
- The admin logs in through the admin panel.
- After successful login, the admin can perform management tasks such as reviewing user data, managing therapist profiles, and monitoring session bookings.
- All actions performed by the admin trigger updates or fetch operations from the central database.
- The system returns updated data or success notifications to the admin interface.

### 7.3.1 User Signup/Login Flow



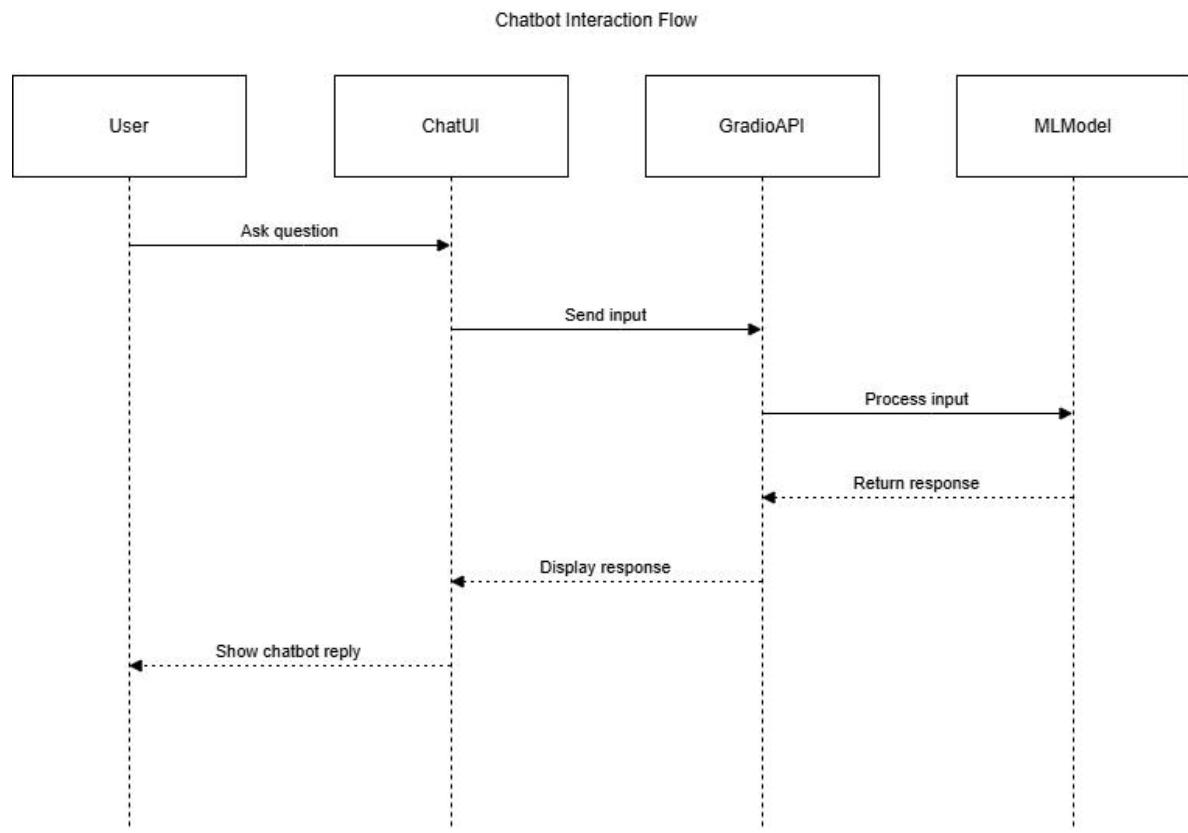
*Fig. 7.4 Use Sign Up/Login Flow*

### 7.3.2 Mood Tracking Flow



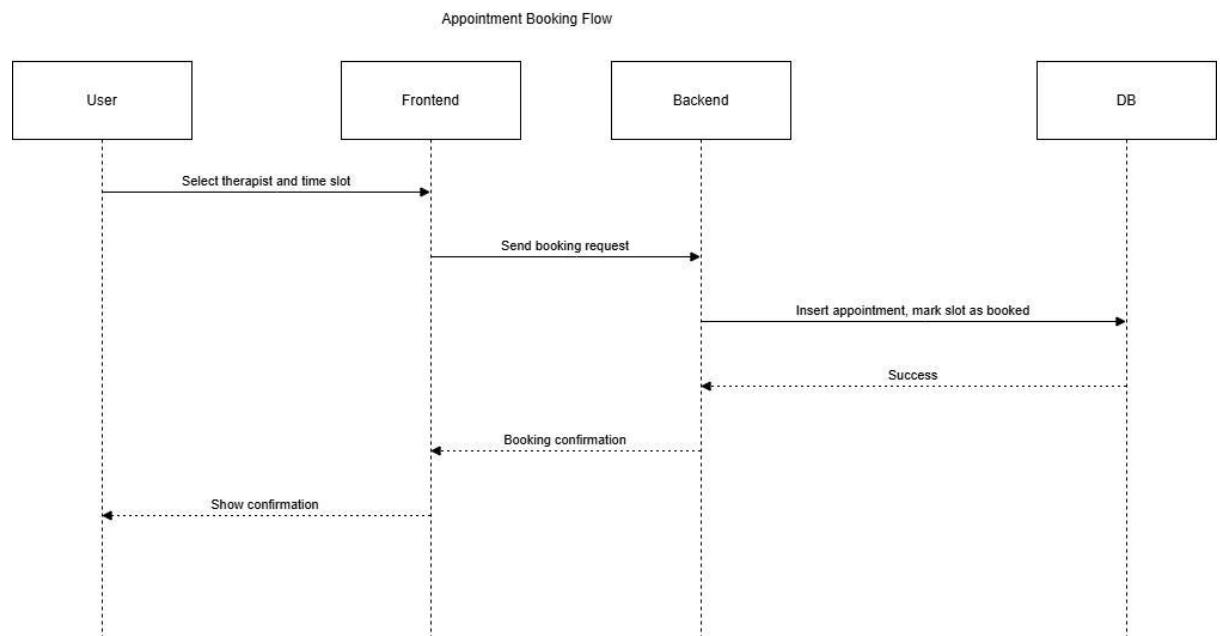
*Fig. 7.5 Mood Tracking Flow*

### 7.3.3 Chatbot Interaction Flow



*Fig. 7.6 Chatbot Interaction Flow*

### 7.3.4 Appointment Booking Flow



*Fig. 7.7 Appointment Booking Flow*

### 7.3.5 Therapist Management Flow

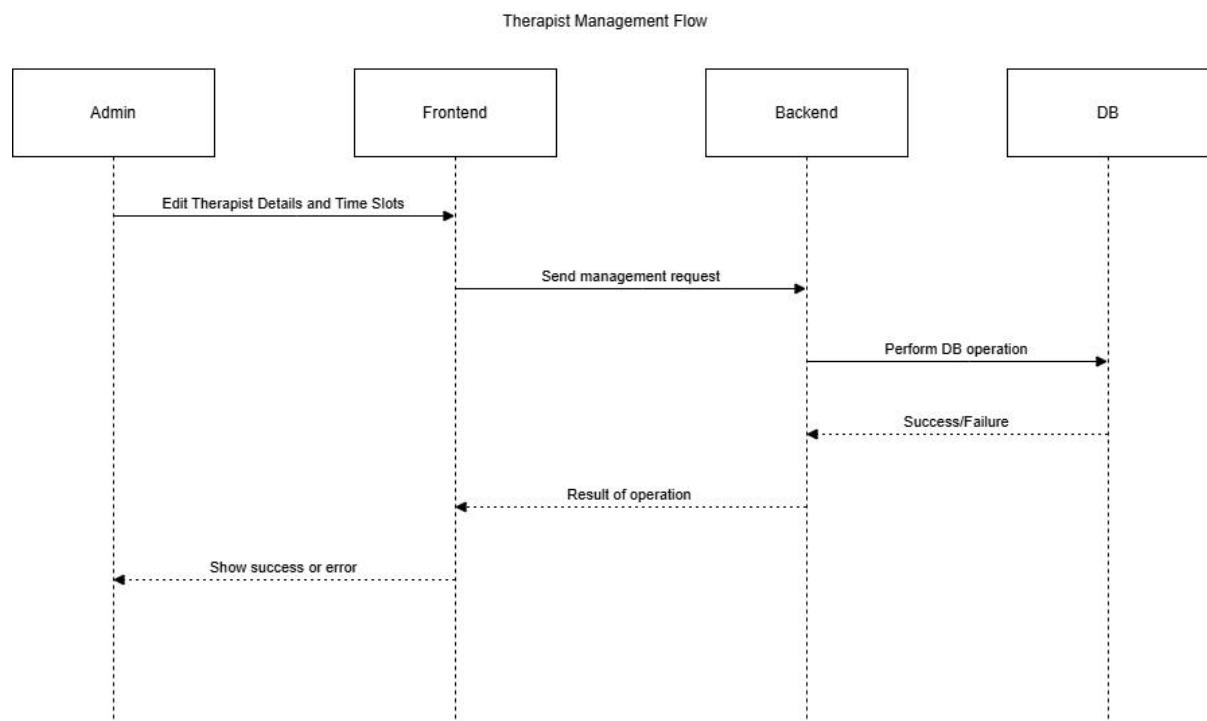


Fig. 7.8 Therapist Management Flow

## 7.4 ENTITY-RELATIONSHIP DIAGRAM

The Entity-Relationship (ER) model is a high-level data modeling technique used to define the structure of a database. It visually represents the data and how different data elements (entities) relate to each other.

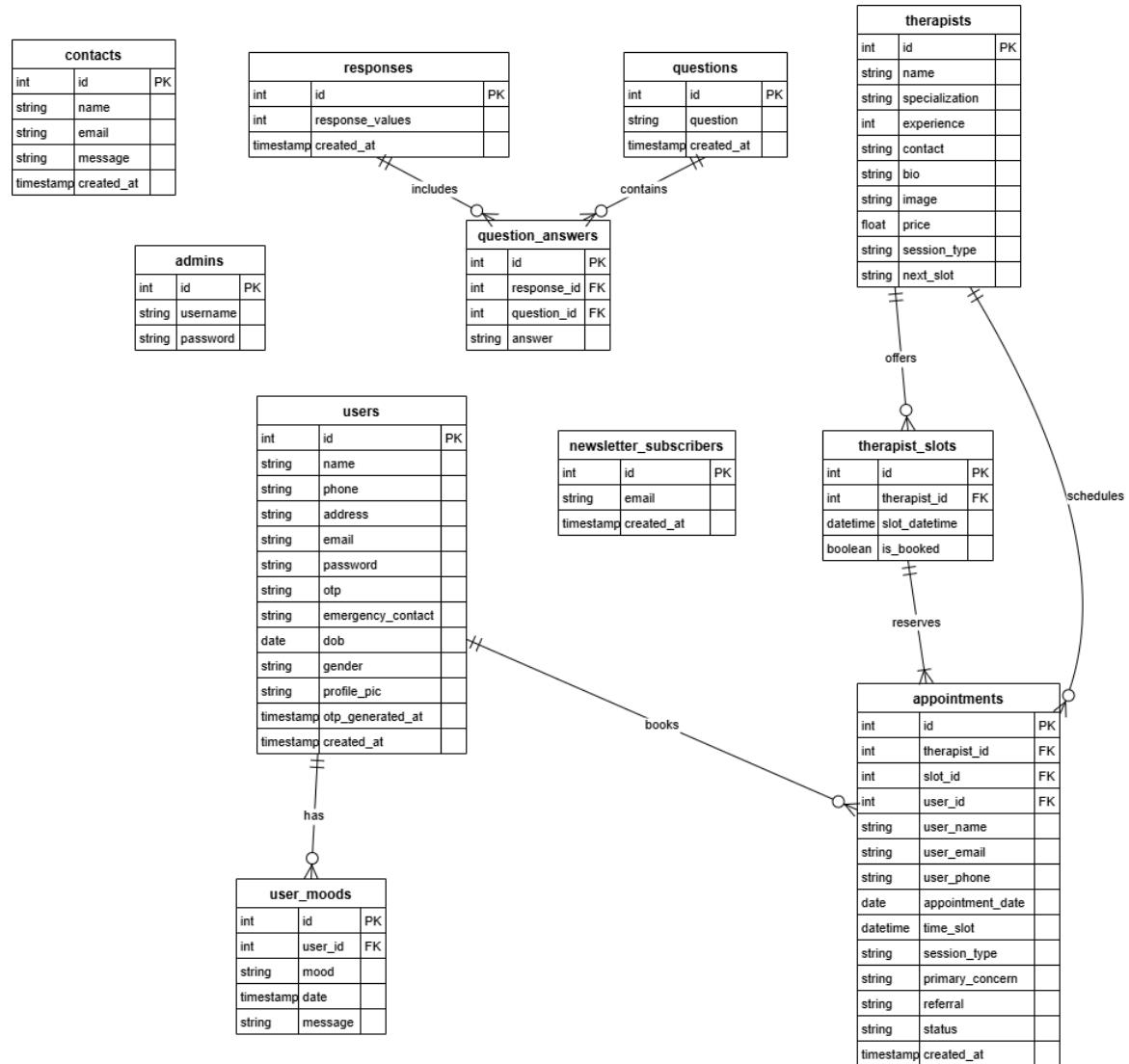


Fig. 7.9 ER Diagram

## **CHAPTER 8**

# **MODULE DESCRIPTION**

- USER PROFILE MANAGEMENT MODULE**
- MOOD TRACKING MODULE**
- MENTAL HEALTH QUESTIONNAIRE MODULE**
- THERAPIST BOOKING & MANAGEMENT MODULE**
- CHATBOT MODULE**
- CONTACT US MODULE**
- HOME PAGE**

## 8.1 USER PROFILE MANAGEMENT MODULE

---

The User Profile Management Module in the MindCare platform plays a crucial role in facilitating seamless and secure user interaction. It empowers users to create, manage, and personalize their accounts while upholding the highest standards of data security, privacy, and mental health confidentiality. Designed with a user-centric approach, this module ensures that every individual engaging with MindCare—be it a patient, therapist, or admin—can do so with trust and ease.

### Core Functionalities:

#### 1. User Registration & Login:

- Simple and Secure Signup:** New users can register using a valid email address and a strong password, promoting easy access while maintaining robust protection.
- OTP-Based Two-Factor Authentication:** During login, an OTP (One-Time Password) is sent via email, adding an extra layer of verification.
- Hashed Passwords:** All passwords are securely stored using advanced hashing algorithms to ensure maximum protection.

Fig. 8.1 Signup page

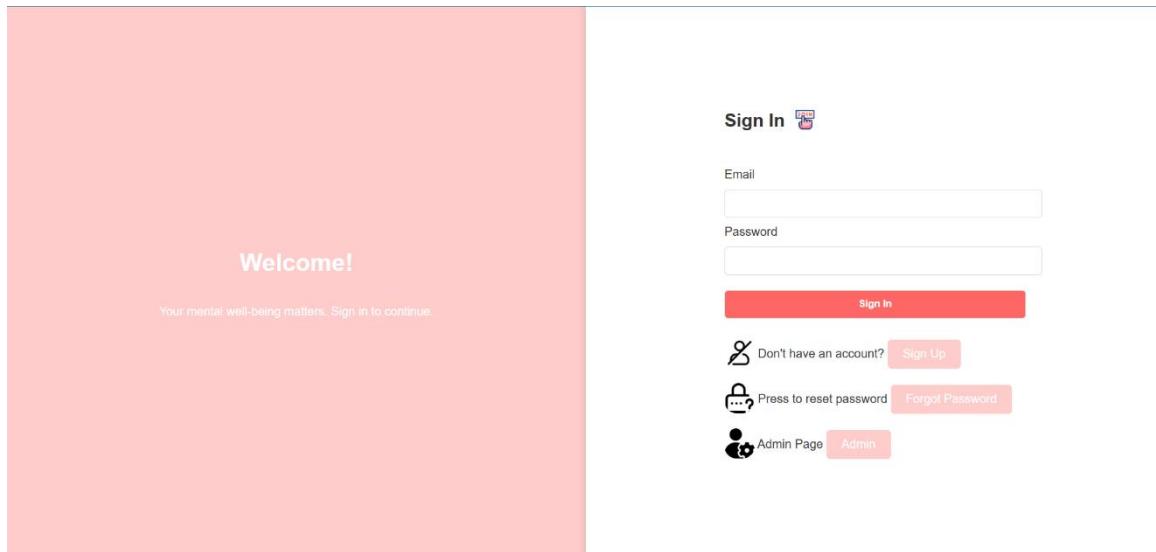


Fig. 8.2 Signin page

## 2. Profile Management

- Personal Information:** Users can update and manage personal information such as full name, age, gender, and contact details.
- Profile Picture Handling:** Uploading or removing profile pictures is handled with secure file validation and encrypted storage, maintaining both safety and user preference.

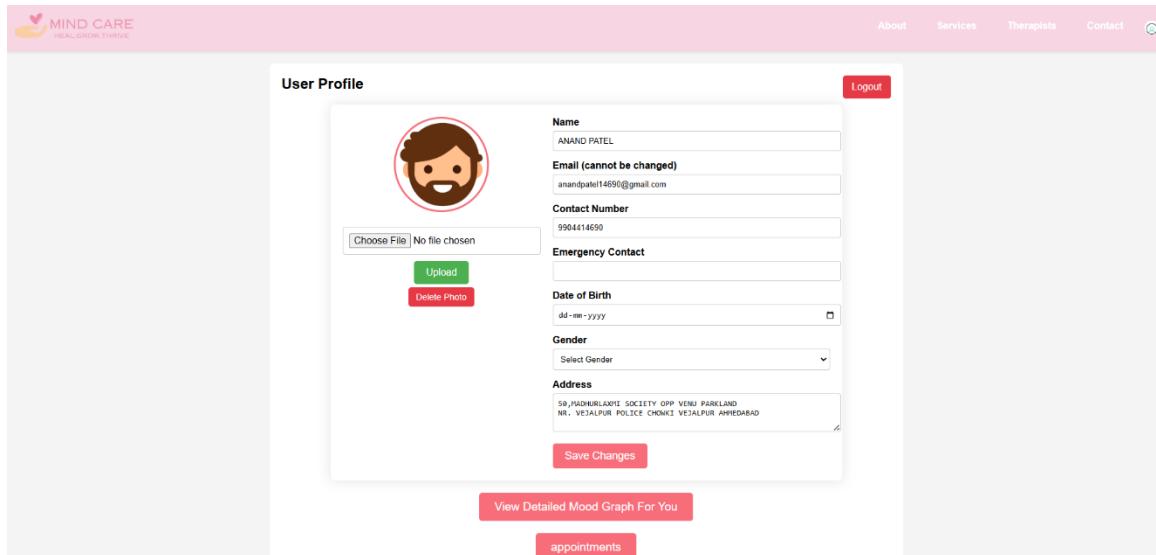


Fig. 8.3 User Profile

### **3. Authentication & Security**

- **JWT-Based Token Authentication:** The system uses JSON Web Tokens (JWT) for managing user sessions, ensuring that only authenticated users can access protected resources or pages.
  - **Encrypted Data Handling:** Sensitive user data—including personal details and therapy preferences—is encrypted both at rest and in transit, adhering to privacy standards like HIPAA.
  - **Session Timeout & Auto Logout:** To prevent unauthorized access, sessions auto-expire after a set time of inactivity.

*Fig. 8.4 Password Hashing*

#### **4. Account Recovery**

- **Forgot Password Option:** In case users forget their passwords, they can securely reset them through OTP-based email verification.
  - **Secure Reset Workflow:** The reset link and verification code are time-sensitive, ensuring that only authorized users can recover access.

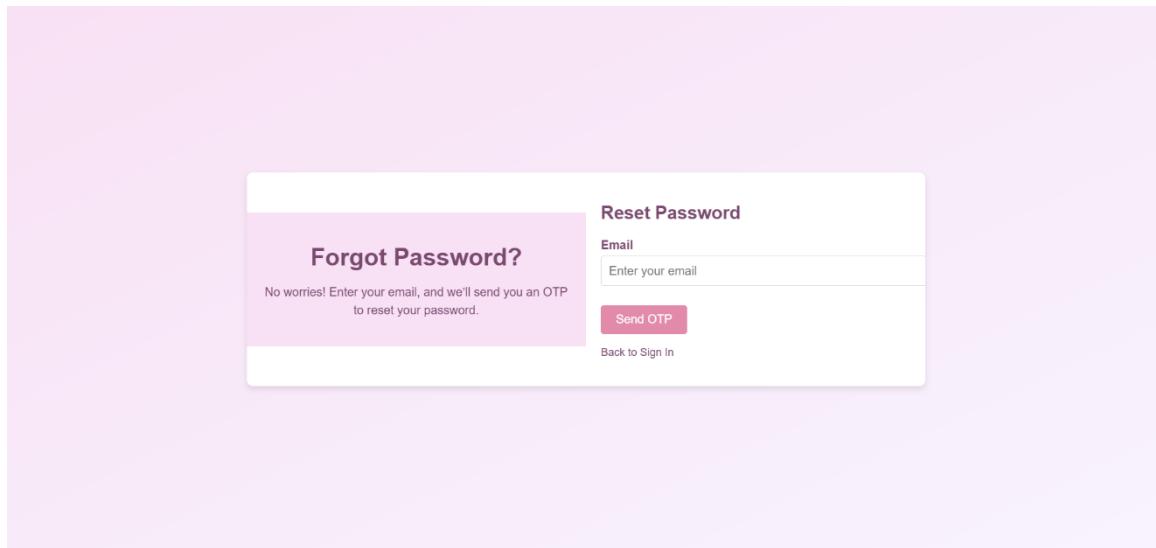


Fig. 8.5 Forgot Password

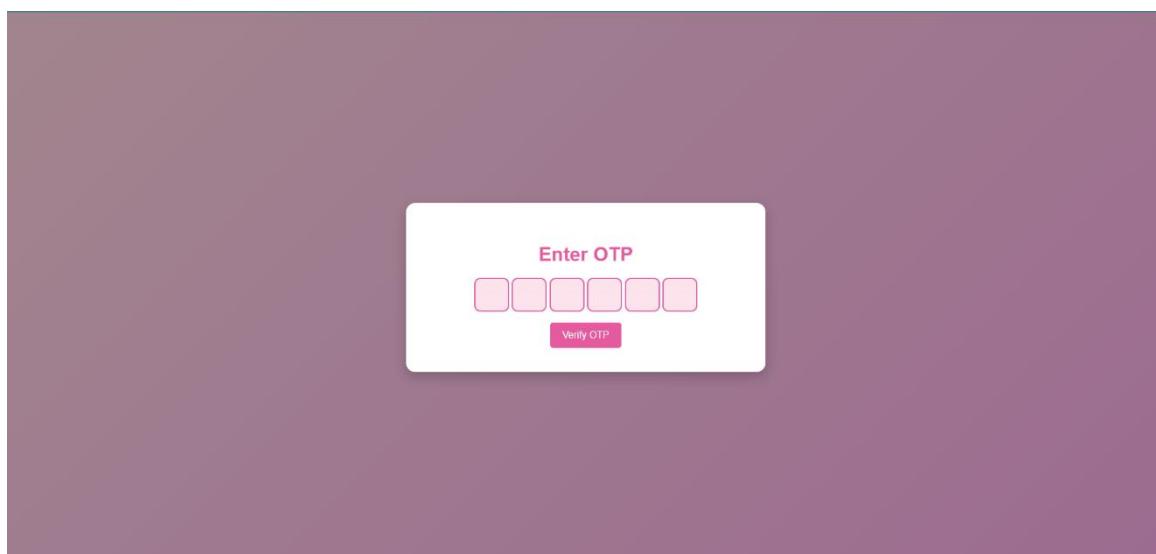


Fig. 8.6 OTP Input

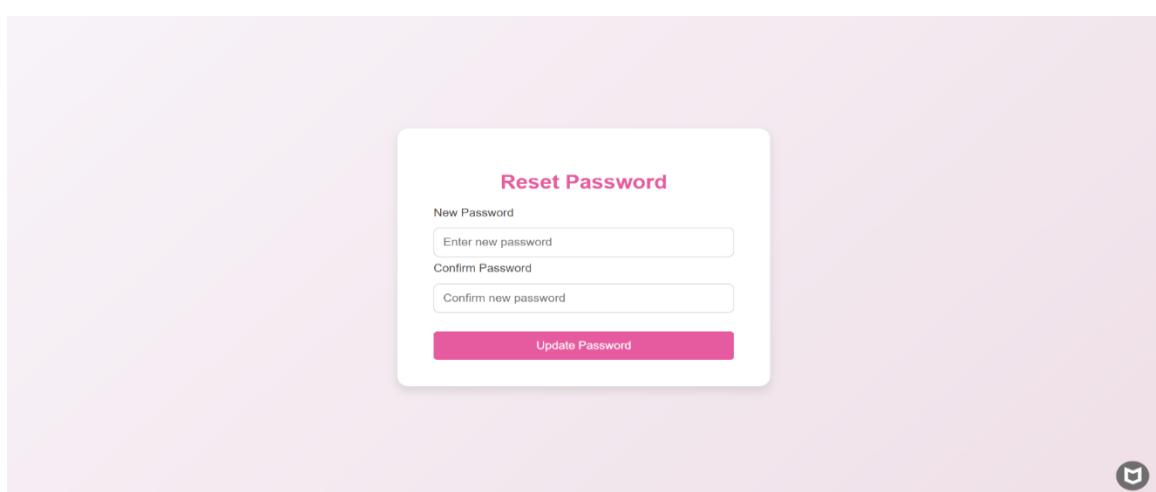


Fig. 8.7 Reset Password

## 5. Admin Access & Role Management

- Admin Dashboard:** Admins have a dedicated panel where they can view user accounts, monitor activity, and manage account statuses.
- Limited Access Rights:** While admins can activate or deactivate accounts based on community guidelines or violations, they cannot modify user-specific information such as name, preferences, or therapy notes, preserving user confidentiality.
- Therapist Tagging & Monitoring:** Admins can assign therapist roles, manage appointment capacity, and track therapist availability.

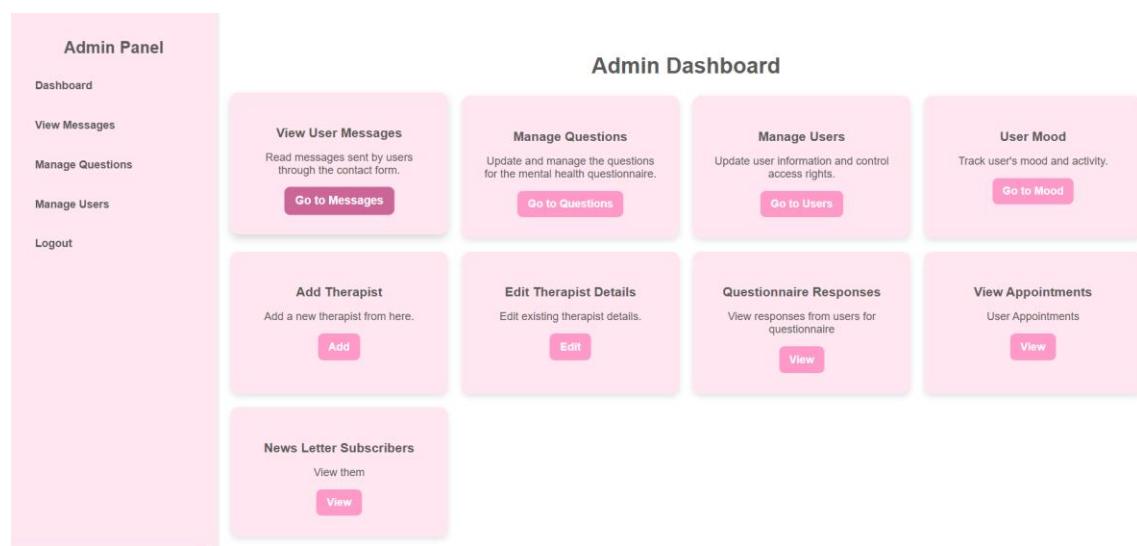


Fig. 8.8 Admin Dashboard

User Messages				
<a href="#">Back to Dashboard</a>				
Name	Email	Message	Submitted At	
ANAND PATEL 2	anandpatel.21.cs@iite.indusuni.ac.in	Np	2025-04-11 19:02:23	
ANAND PATEL 1	anandpatel.21.cs@iite.indusuni.ac.in	yNp	2025-04-11 19:02:14	
ANAND PATEL	anandpatel.21.cs@iite.indusuni.ac.in	yes	2025-04-11 19:02:04	
ANAND PATEL	anandpatel14690@gmail.com	abcd	2025-02-25 22:56:24	

Fig. 8.9 User Message



The screenshot shows a table titled "Manage Users" with the following columns: User ID, Name, Phone, Address, Email, Emergency Contact, DOB, Gender, Profile Pic, Created At, and Action. There are four rows of data:

User ID	Name	Phone	Address	Email	Emergency Contact	DOB	Gender	Profile Pic	Created At	Action
2	ANAND PATEL	9904414690	50,MADHURLAXMI SOCIETY OPP VENU PARKLAND NR. VEJALPUR POLICE CHOWKI VEJALPUR AHMEDABAD	anandpatel14690@gmail.com		0000-00-00	N/A		2025-02-17 20:05:44	<a href="#">Delete</a>
3	ANAND PATEL	9904414690	50,MADHURLAXMI SOCIETY OPP VENU PARKLAND NR. VEJALPUR POLICE CHOWKI VEJALPUR AHMEDABAD	devsalot@gmail.com	N/A	N/A	N/A	N/A	2025-02-18 15:23:05	<a href="#">Delete</a>
4	Drashti	2334455555	50,MADHURLAXMI SOCIETY OPP VENU PARKLAND NR. VEJALPUR POLICE CHOWKI VEJALPUR AHMEDABAD	drashti.0604@gmail.com		0000-00-00	N/A	N/A	2025-02-22 12:50:33	<a href="#">Delete</a>
			50,MADHURLAXMI SOCIETY OPP VENU PARKLAND						2025-	

Fig. 8.10 Manage Users

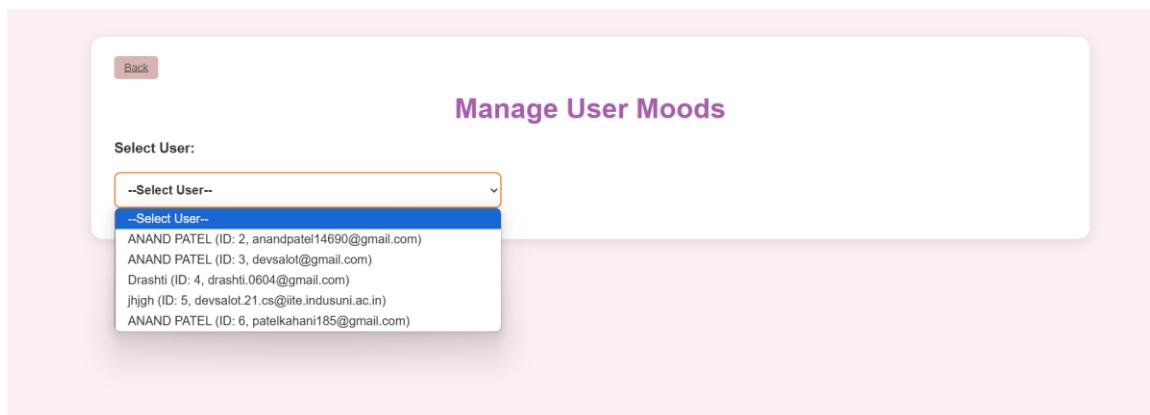
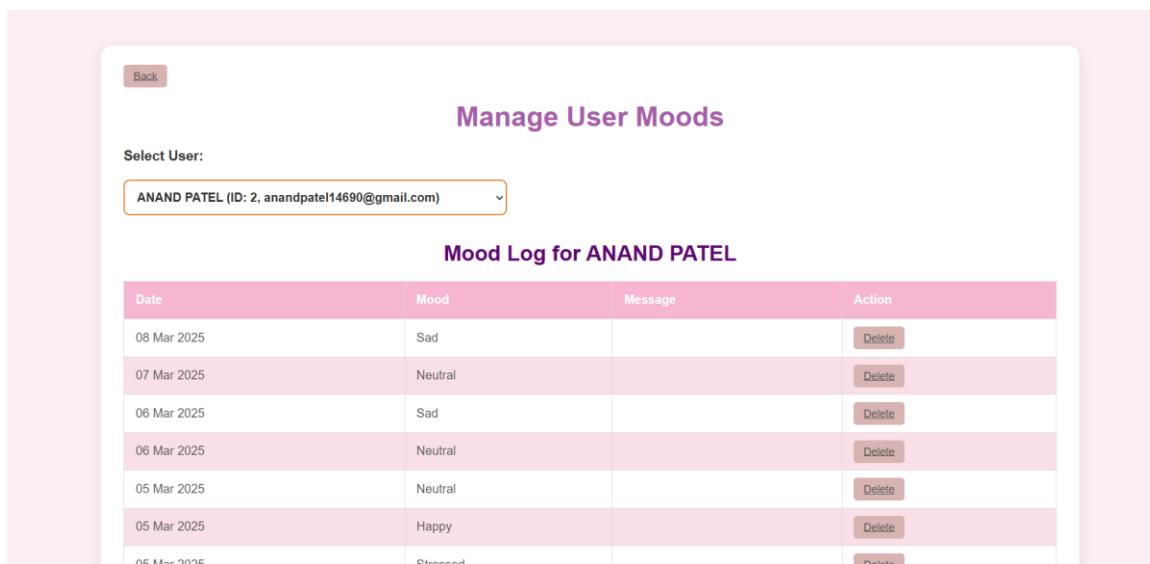


Fig. 8.11 Multiple User Mood Log



The screenshot shows a table titled "Mood Log for ANAND PATEL" with the following columns: Date, Mood, Message, and Action. There are seven rows of data:

Date	Mood	Message	Action
08 Mar 2025	Sad		<a href="#">Delete</a>
07 Mar 2025	Neutral		<a href="#">Delete</a>
06 Mar 2025	Sad		<a href="#">Delete</a>
06 Mar 2025	Neutral		<a href="#">Delete</a>
05 Mar 2025	Neutral		<a href="#">Delete</a>
05 Mar 2025	Happy		<a href="#">Delete</a>
06 Mar 2025	Stressed		<a href="#">Delete</a>

Fig. 8.12 User Specific Mood Tracking

**Add a Therapist**

Name:

Specialization:

Experience (Years):

Contact Email:

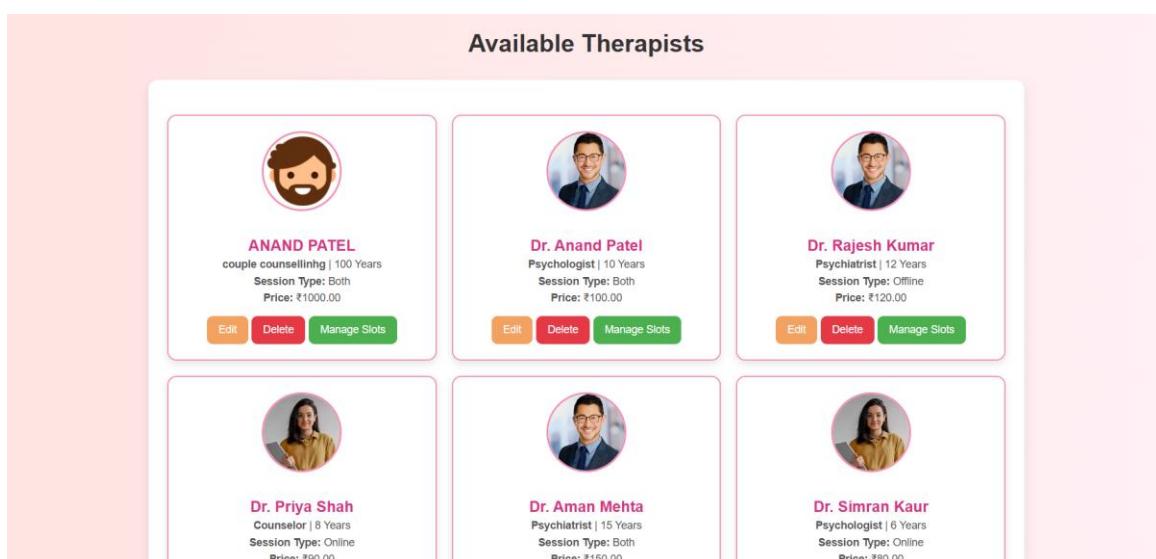
Bio:

Upload Profile Picture:

Session Price (INR):

Online:  Online

Select Available Time Slots (with Date & Time):

*Fig. 8.13 Add Therapist**Fig. 8.14 Available Therapist*

**Manage Therapist**

**Edit Therapist Details**

Name:

Specialization:

Experience (Years):

Contact:

Price per session:

Session Type:

Bio:

*Fig. 8.15 Edit Therapist*

Manage Slots		
Existing Slots		
Slot ID	Date & Time	Action
548	24-02-2025 10:00 AM	<button>Delete</button>
70	24-02-2025 11:00 AM	<button>Delete</button>
71	24-02-2025 02:00 PM	<button>Delete</button>
72	24-02-2025 04:00 PM	<button>Delete</button>
547	24-02-2025 06:00 PM	<button>Delete</button>
205	25-02-2025 09:00 AM	<button>Delete</button>
206	25-02-2025 11:00 AM	<button>Delete</button>
207	25-02-2025 02:00 PM	<button>Delete</button>
208	25-02-2025 04:00 PM	<button>Delete</button>

Fig. 8.16 Manage Slots

1854	17-04-2025 02:00 PM	<button>Delete</button>
<b>Add New Slot</b> Slot Date & Time <input type="text" value="dd-mm-yyyy -- : --"/> <input type="button" value="Add Slot"/>		
<a href="#">Back to Therapist Admin</a>		

Fig. 8.17 Add Custom Slots

<a href="#">-- Back to Dashboard</a>
<b>Questionnaire Responses</b>
<b>Encoding Mapping Legend</b> Gender: Female -> 0, Male -> 1, Others -> 2 Self Employed: No -> 0, Yes -> 1 Family History: No -> 0, Yes -> 1 Treatment: No -> 0, Yes -> 1 Work Interferes: Don't know -> 0, Never -> 1, Often -> 2, Rarely -> 3, Sometimes -> 4 No Employees: 1-5 -> 0, 100-500 -> 1, 26-100 -> 2, 500-1000 -> 3, 6-25 -> 4, More than 1000 -> 5 Remote Work: No -> 0, Yes -> 1 Tech Company: No -> 0, Yes -> 1 Benefits: Don't know -> 0, No -> 1, Yes -> 2 Care Options: No -> 0, Not sure -> 1, Yes -> 2 Wellness Program: Don't know -> 0, No -> 1, Yes -> 2 Seek Help: Don't know -> 0, No -> 1, Yes -> 2 Anonymity: Don't know -> 0, No -> 1, Yes -> 2 Leave Policy: Don't know -> 0, Somewhat difficult -> 1, Somewhat easy -> 2, Very difficult -> 3, Very easy -> 4 Mental Health Consequence: Maybe -> 0, No -> 1, Yes -> 2 Phys Health Consequence: Maybe -> 0, No -> 1, Yes -> 2 Coworkers: No -> 0, Some of them -> 1, Yes -> 2 Supervisor: No -> 0, Some of them -> 1, Yes -> 2 Mental Health Interview: Maybe -> 0, No -> 1, Yes -> 2 Phys Health Interview: Maybe -> 0, No -> 1, Yes -> 2 Mental vs Physical: Don't know -> 0, No -> 1, Yes -> 2 Obs Consequence: No -> 0, Yes -> 1

Fig. 8.18 Questionnaire Responses

[← Back to Dashboard](#)**Appointments**

ID	Therapist Name	User ID	User Name	User Email	User Phone	Date	Time Slot	Session Type	Primary Concern	Referral	Status	Created At
23	ANAND PATEL	2	Anand	anandpate14690@gmail.com	9904414690	2025-04-14	2025-04-14 11:00:00	Online	awfe	sds	Pending	2025-04-10 21:33:46
22	ANAND PATEL	2	Anand	anandpate14690@gmail.com	9904414690	2025-04-14	2025-04-14 09:00:00	Online	cs	scs	Pending	2025-04-10 21:33:31
21	ANAND PATEL	2	Anand	anandpate14690@gmail.com	9904414690	2025-04-14	2025-04-14 14:00:00	Online	cs	scs	Cancelled	2025-04-10 21:33:25
20	ANAND PATEL	2	Anand	anandpate14690@gmail.com	9904414690	2025-04-12	2025-04-12 16:00:00	Online	cs	scs	Pending	2025-04-10 21:33:16
19	ANAND PATEL	2	Anand	anandpate14690@gmail.com	9904414690	2025-04-12	2025-04-12 11:00:00	Online	No Specific	Friend	Pending	2025-04-10 21:32:54
18	ANAND PATEL	2	f	dev@f	9904414690	2025-03-08	2025-03-08 14:00:00	Online	cw	yes	Cancelled	2025-03-06 19:59:57
17	ANAND PATEL	2	Anand	anandpate14690@gmail.com	9904414690	2025-03-08	2025-03-08 11:00:00	Online	abcd	Friend	Cancelled	2025-03-06 19:58:25
16	ANAND PATEL	2	Anand	anandpate14690@gmail.com	9904414690	2025-03-08	2025-03-08 14:00:00	Online	cscs	Friend	Cancelled	2025-03-06 19:52:09
15	ANAND PATEL	2	Anand	anandpate14690@gmail.com	9904414690	0000-00-00	0000-00-00 00:00:00	Offline	abcd	yes	Cancelled	2025-03-06 19:48:00
14	ANAND PATEL	0	Anand	anandpate14690@gmail.com	9904414690	0000-00-00	0000-00-00 00:00:00	Online	fe	Friend	Pending	2025-03-06 19:40:57

*Fig. 8.19 Appointments*[← Back to Dashboard](#)**Newsletter Subscribers**

ID	Email	Subscription Date
5	anandpate.21.cs@iite.indusuni.ac.in	2025-03-08 14:32:00
3	anandpate14690@gmail.com	2025-03-08 11:35:26

*Fig. 8.20 Newsletter Subscribers*

## 8.2 MOOD TRACKING MODULE

The Mood Tracking Module allows users to log their daily emotions, visualize mood trends, and gain insights into their mental well-being. It provides a structured way for users to monitor emotional patterns over time.

Functionalities:

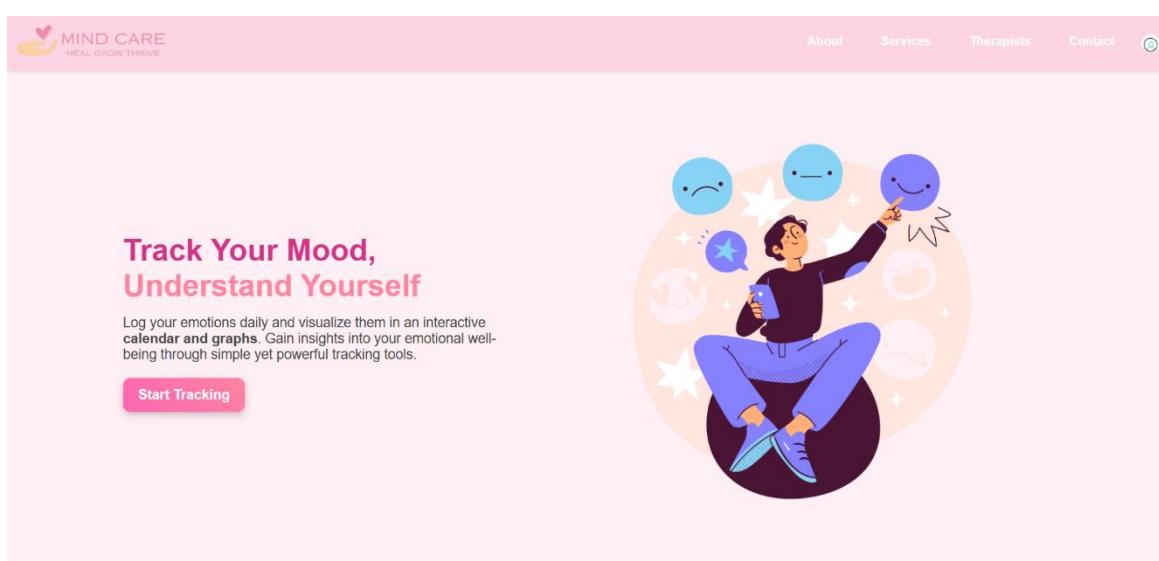
- **Daily Mood Logging:**

- Users can select their current mood from predefined categories (e.g., happy, sad, stressed, neutral).
- Option to add notes describing the reason behind their mood.

- **Graph-Based Visualization:**

- Users can select different types of graphs (bar, pie, line, histogram, etc.) to analyze mood trends.
- Option to filter specific emotions (e.g., view only sad or happy moods).

This module helps users develop self-awareness and understand emotional patterns over time.

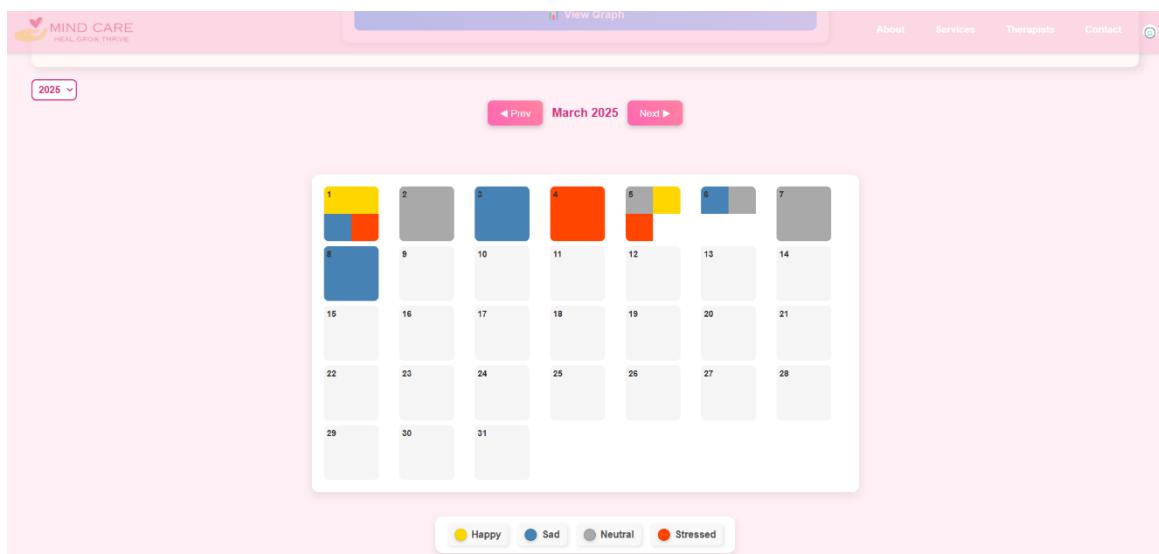


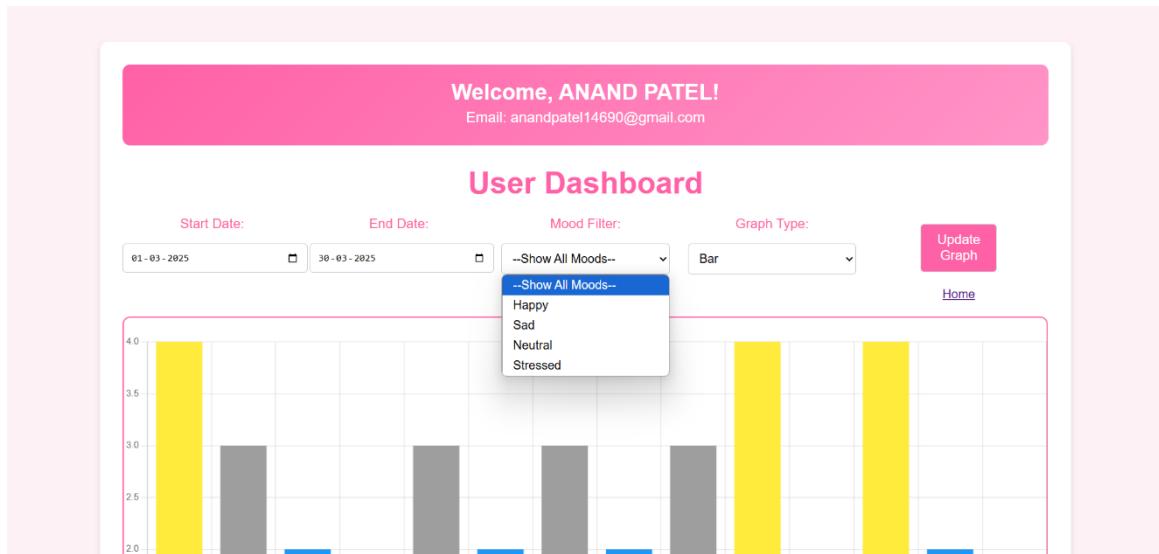
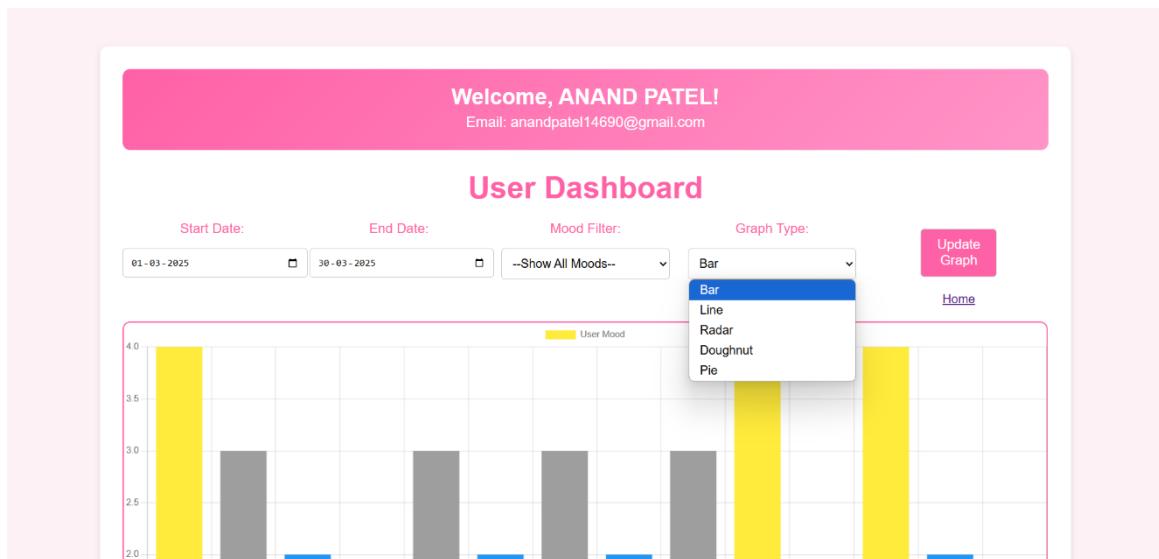
*Fig. 8.21 Mood Tracker*

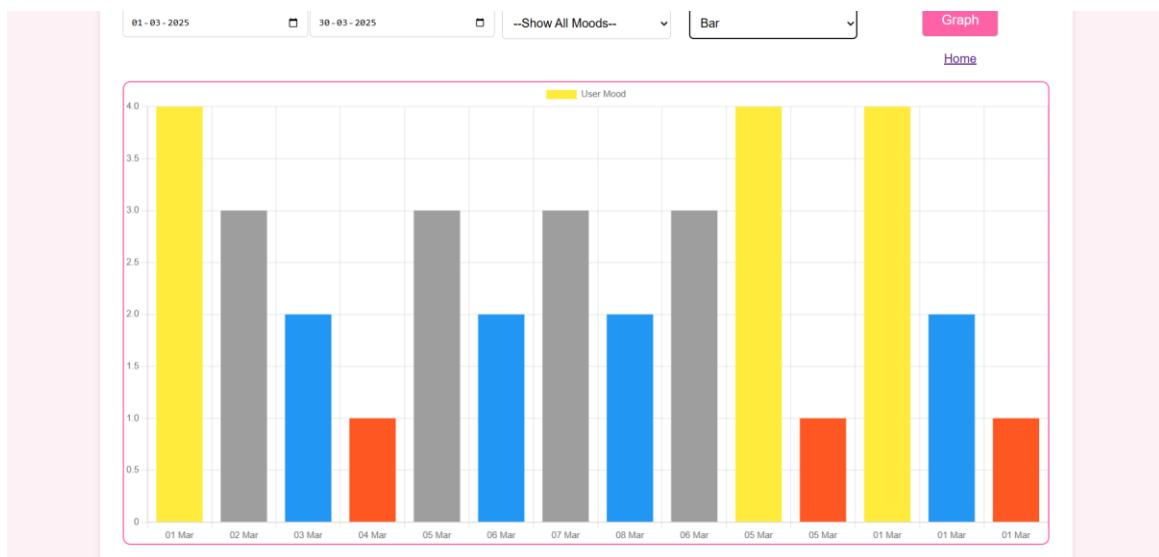
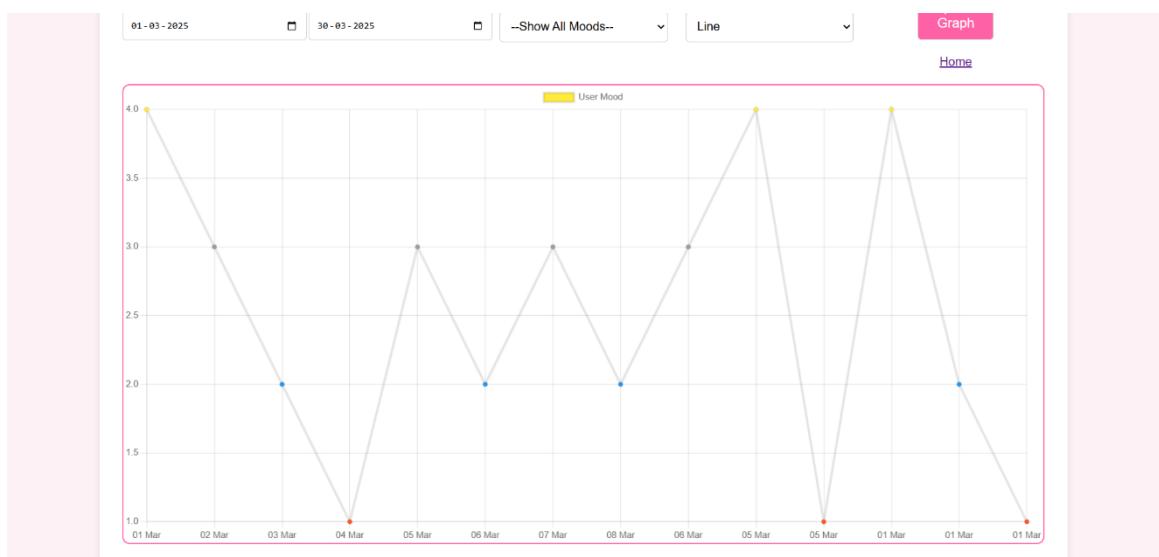
The screenshot shows the 'MIND CARE' app interface. At the top, there is a navigation bar with links for 'About', 'Services', 'Therapists', 'Contact', and a user icon. Below the navigation bar is a large white input box containing the following fields:

- How are you feeling today?**
- Four mood buttons: Happy (yellow), Neutral (grey), Sad (light blue), and Stressed (pink).
- Date:** A date picker with a placeholder 'Pick a date'.
- Add a Note (optional):** A text input field.
- Save Mood**: A pink button with a save icon.
- View Graph**: A blue button with a graph icon.

At the bottom of the input box, there are date navigation buttons: '2025 ▾', '< Prev', 'April 2025', and 'Next >'.

*Fig. 8.22 Mood logging form**Fig. 8.23 Heatmap*

*Fig. 8.24 Filter Based On Mood**Fig. 8.25 Filter Based On Graph Type*

*Fig. 8.26 Bar Graph**Fig. 8.27 Line Graph*

### 8.3 MENTAL HEALTH QUESTIONNAIRE MODULE

---

The Mental Health Questionnaire Module allows users to answer a series of scientifically designed questions that help assess their mental health condition. The responses are used to provide AI-based analysis and personalized recommendations.

#### **Functionalities:**

- **Questionnaire Form:**
  - Users answer multiple-choice questions covering stress levels, work-life balance, past mental health history, and emotional well-being.
  - Uses validated mental health screening questions to ensure accuracy.
- **AI-Based Analysis & Predictions:**
  - The system processes responses using a trained Machine Learning model.
  - Predicts whether the user should seek professional help or continue with self-care.
  - Provides a probability score (e.g., 75% likelihood of needing therapy).
- **Graphical Results & Insights:**
  - Displays static and dynamic graphs comparing the user's answers with dataset trends.
  - Users can view statistics on how their responses compare to others.

This module ensures users receive scientifically backed mental health assessments while maintaining privacy and security.

**Mental Health Questionnaire**

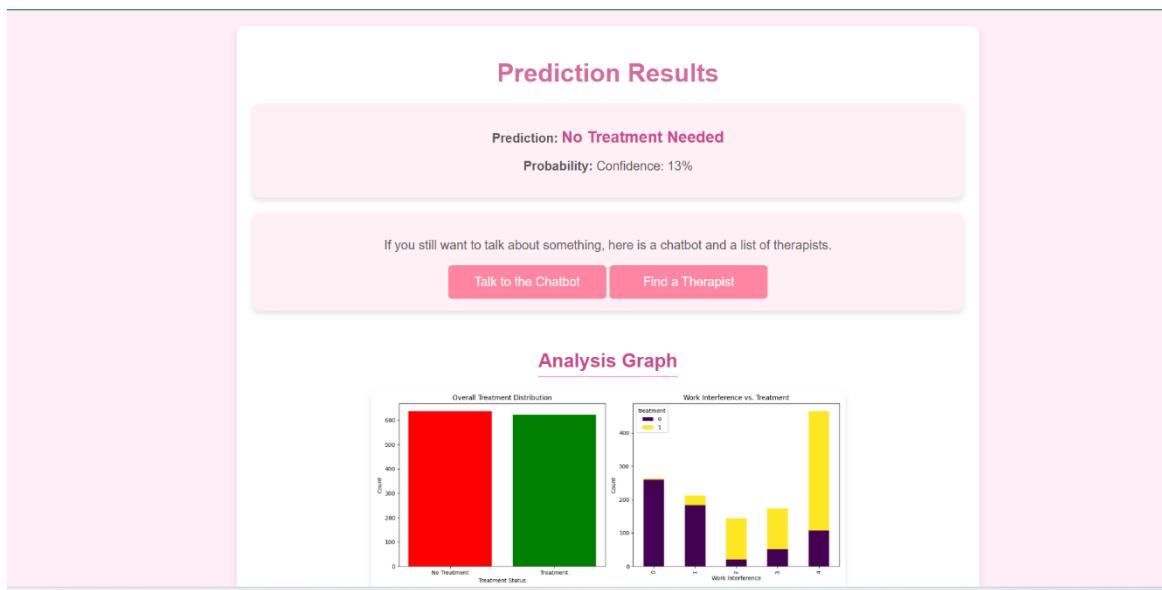
**Age:**  
25

**Gender:**  
Female

**Are you self-employed?**  
No

**Do you have a family history of mental illness?**  
No

**Does work interfere with your mental health?**

*Fig. 8.28 Mental Health Questionnaire**Fig. 8.29 Result Prediction*

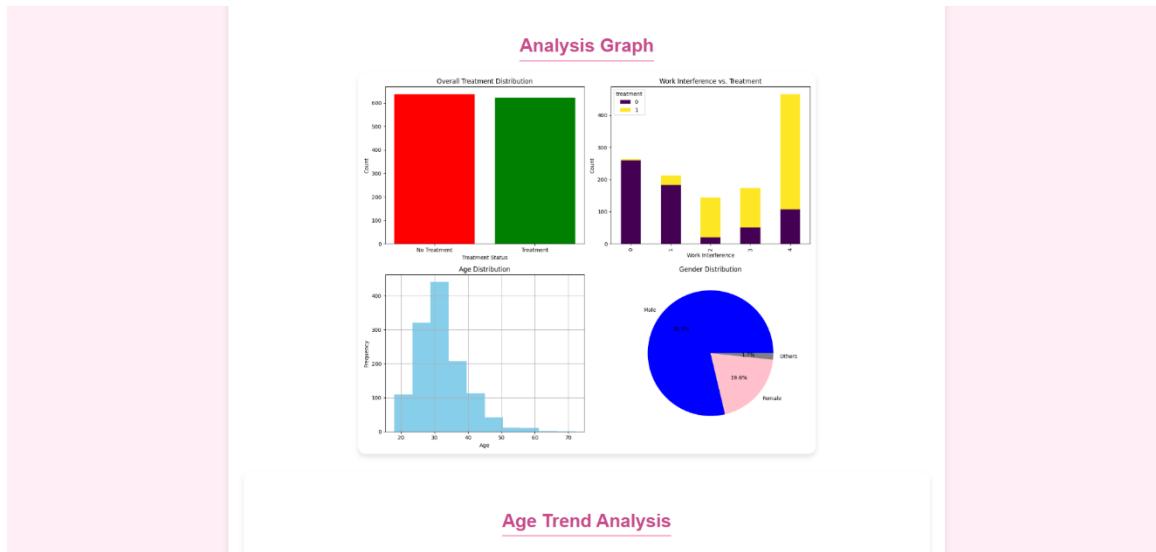


Fig. 8.30 Static Graph Analysis

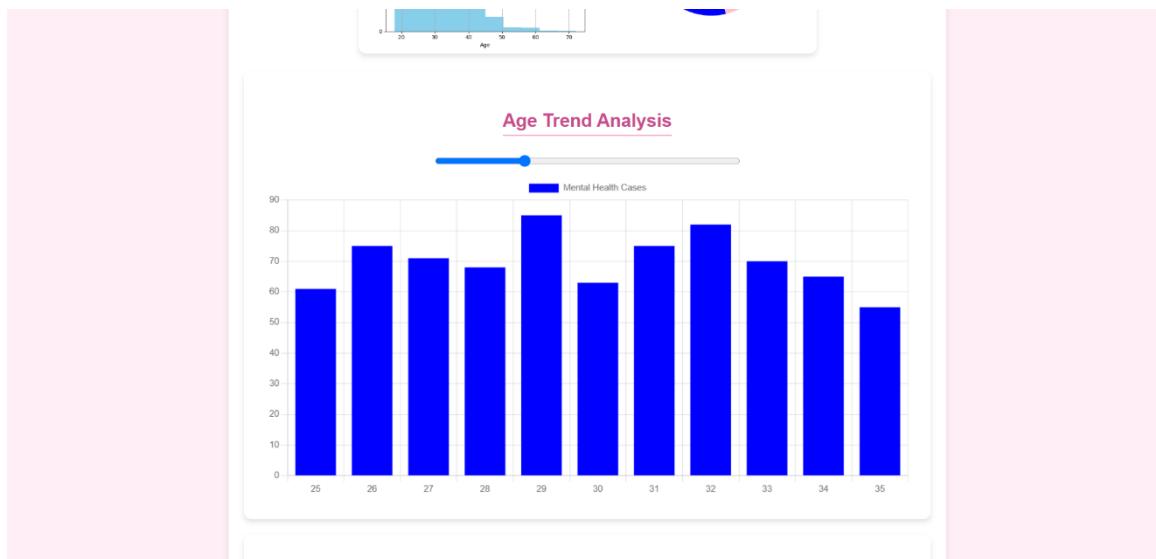


Fig. 8.31 Dynamic Age Trend Analysis

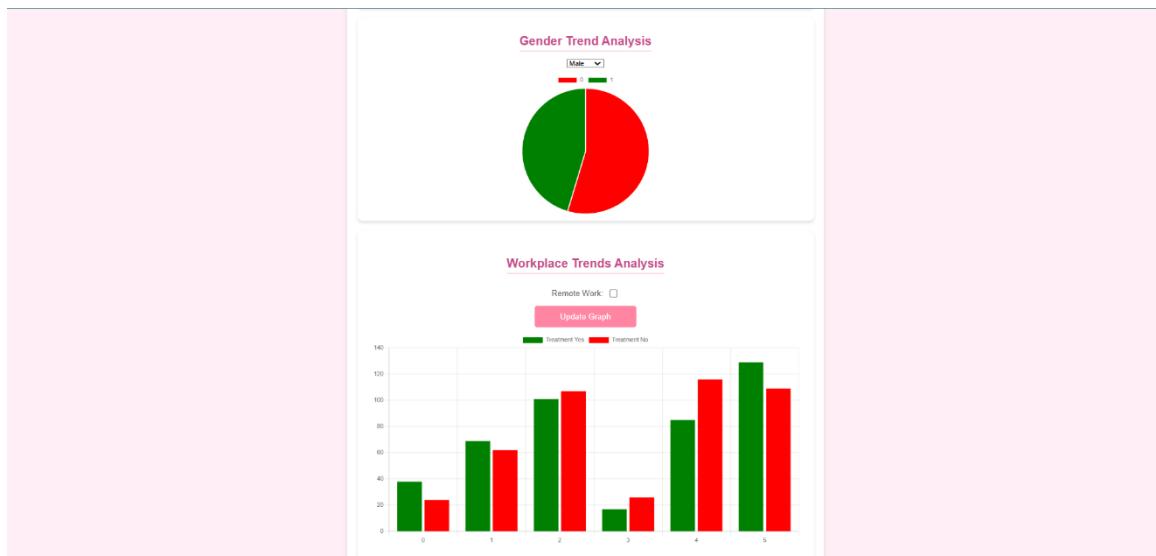


Fig. 8.32 Gender & Workplace Trend Analysis

## 8.4 THERAPIST BOOKING & MANAGEMENT MODULE

---

The Therapist Booking & Management Module allows users to view therapist profiles, check availability, and book appointments for professional mental health support. The admin manages therapist accounts while therapists handle appointment schedules.

### Functionalities:

- **Therapist Profile Display:**
  - Users can view therapist profiles with name, specialization, experience, availability, and contact details.
  - Admin-only feature: Admins can add, edit, or remove therapist profiles (therapists cannot modify their profiles).
- **Appointment Booking System:**
  - Users can book therapy sessions (online or offline) based on therapist availability.
  - Users receive confirmation messages after successful booking.
  - Users can cancel appointments, but rescheduling is not allowed.
- **Admin Management:**
  - Admins approve or modify therapist availability.
  - Admins monitor user appointments and system performance.

This module ensures easy access to professional mental health support, making therapy more structured and accessible.

**MIND CARE**  
HEAL.GROW.THRIVE

**Our Therapists**

- ANAND PATEL**  
100 years of experience  
Starts @ ₹1000.00 for 50 mins  
Expertise: couple counsellinhg  
Online In-person  
**BOOK**
- Dr. Anand Patel**  
10 years of experience  
Starts @ ₹100.00 for 50 mins  
Expertise: Psychologist  
Online In-person  
**BOOK**
- Dr. Rajesh Kumar**  
12 years of experience  
Starts @ ₹120.00 for 50 mins  
Expertise: Psychiatrist  
In-person  
**BOOK**
- Dr. Priya Shah**  
8 years of experience  
Starts @ ₹90.00 for 50 mins
- Dr. Aman Mehta**  
15 years of experience  
Starts @ ₹150.00 for 50 mins
- Dr. Simran Kaur**  
6 years of experience  
Starts @ ₹80.00 for 50 mins

*Fig. 8.33 Therapist Page*

**ANAND PATEL**

**Specialization:** couple counsellinhg  
**Experience:** 100 years  
**Contact:** anand@gmail.com  
**Price per session:** ₹1000.00  
**Session Type:** Both  
**Bio:** 123

« Previous      Next »

2025    April

Thursday 10-04-2025 (0 slots available)	Friday 11-04-2025 (4 slots available)	Saturday 12-04-2025 (4 slots available)	Sunday 13-04-2025 (0 slots available)	Monday 14-04-2025 (4 slots available)	Tuesday 15-04-2025 (4 slots available)	Wednesday 16-04-2025 (4 slots available)	Thursday 17-04-2025 (4 slots available)
Friday 18-04-2025 (0 slots available)	Saturday 19-04-2025 (0 slots available)	Sunday 20-04-2025 (0 slots available)	Monday 21-04-2025 (0 slots available)	Tuesday 22-04-2025 (0 slots available)	Wednesday 23-04-2025 (0 slots available)	Thursday 24-04-2025 (0 slots available)	Friday 25-04-2025 (0 slots available)
	Saturday 26-04-2025 (0 slots available)	Sunday 27-04-2025 (0 slots available)	Monday 28-04-2025 (0 slots available)	Tuesday 29-04-2025 (0 slots available)	Wednesday 30-04-2025 (0 slots available)		

*Fig. 8.34 Therapist Details*

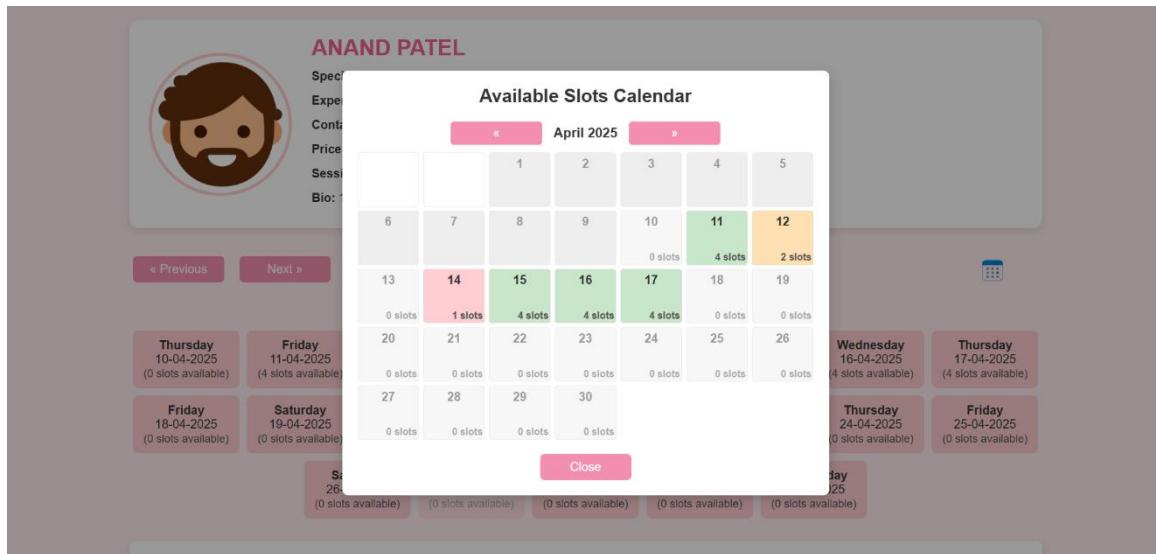


Fig. 8.35 Calendar Modal

**Book an Appointment**

No time slot selected.

Your Name

Your Phone Number

Enter 10-digit phone number

Your Email

Session Type

Online

Primary Concern

Please describe your primary concern...

How did you hear about us?

E.g., Friend, Social Media, etc.

**Book Appointment**

Fig. 8.36 Booking page

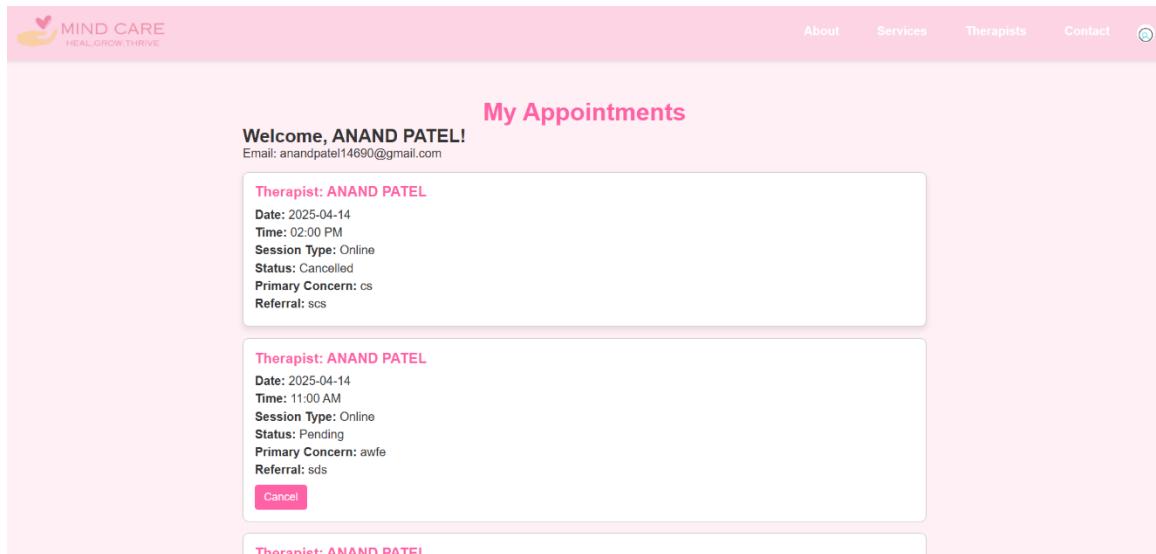


Fig. 8.37 Appointment Details

## 8.5 CHATBOT MODULE

---

The Chatbot Module provides an AI-powered mental health assistant that offers empathetic, conversational support to users. It uses machine learning and natural language processing (NLP) to understand queries and provide helpful responses.

### Functionalities:

- **AI-Powered Mental Health Guidance:**
  - Users can ask mental health-related questions, and the chatbot provides relevant, supportive answers.
  - Responses are warm, concise, and non-judgmental, encouraging users to express themselves.
- **Contextual Response Generation:**
  - Uses ChromaDB (vector database) to retrieve information from mental health-related documents.
  - Uses HuggingFace NLP models to understand user intent and generate meaningful responses.
- **Seamless UI Integration:**
  - The chatbot is embedded into the MindCare website, providing instant chat support.
  - A soft pastel pink interface ensures a calming, user-friendly experience.
- **Security & Privacy:**
  - The chatbot does not store personal conversations to ensure confidentiality.
  - Prevents users from discussing irrelevant topics by steering conversations back to mental health.

This module acts as a first line of support, helping users navigate their mental health journey while maintaining confidentiality and ease of use.

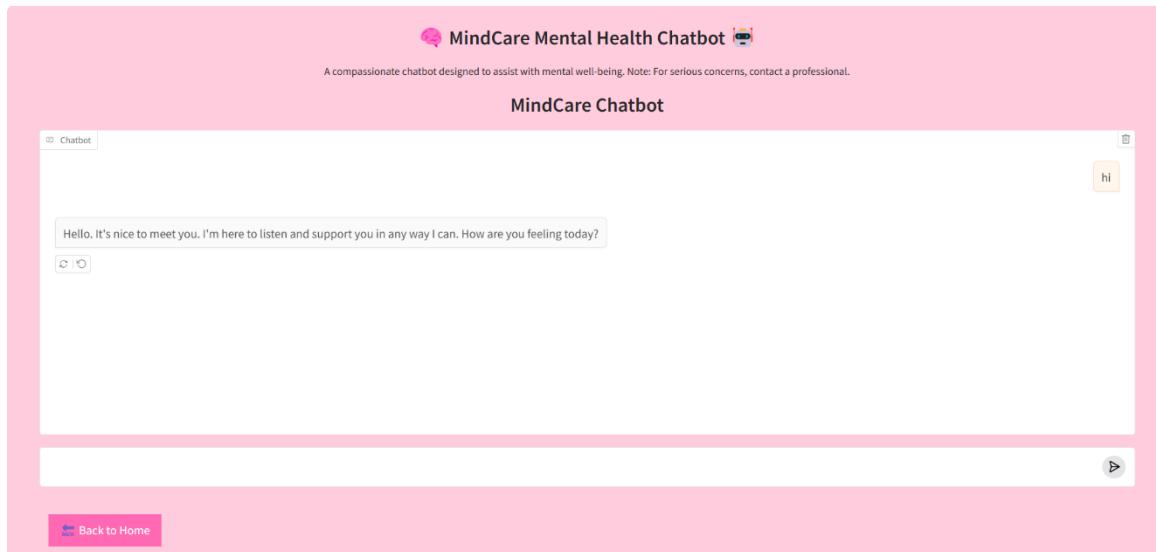


Fig. 8.38 Chatbot

## 8.6 CONTACT US MODULE

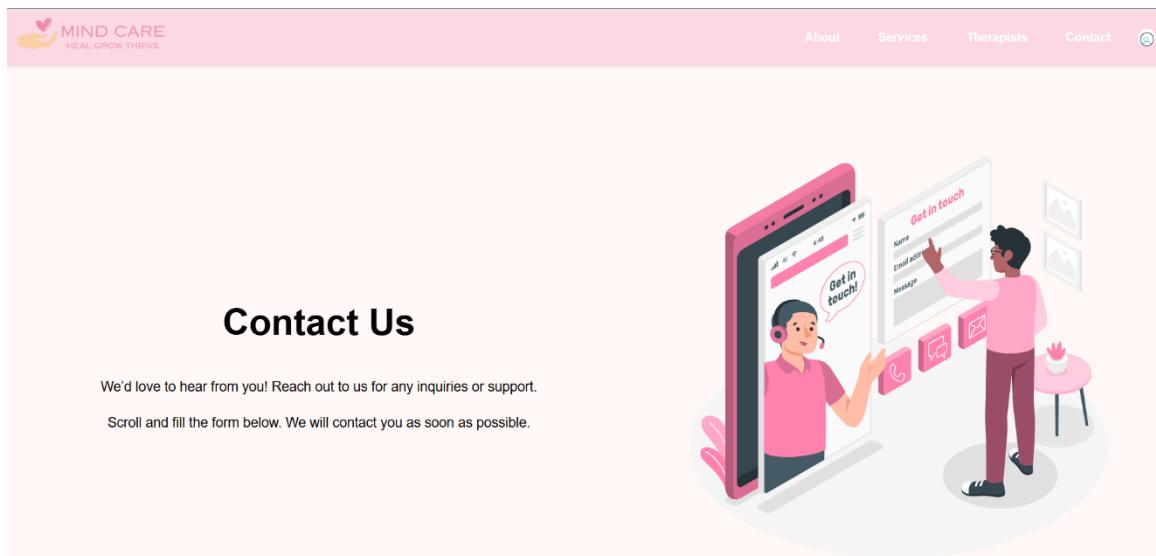


Fig. 8.39 ContactUs page

A screenshot of a contact form page. At the top, it has the same pink header bar with the "MIND CARE HEAL.GROW.THRIVE" logo and navigation links. The main title is "We'd love to hear from you!". Below the title are three input fields: "Name" with a placeholder "Your Name", "Email" with a placeholder "Your Email", and "Message" with a placeholder "Write your message here...". At the bottom is a large pink button labeled "Send Message".

Fig. 8.40 Contact Us Form

## 8.7 HOME PAGE

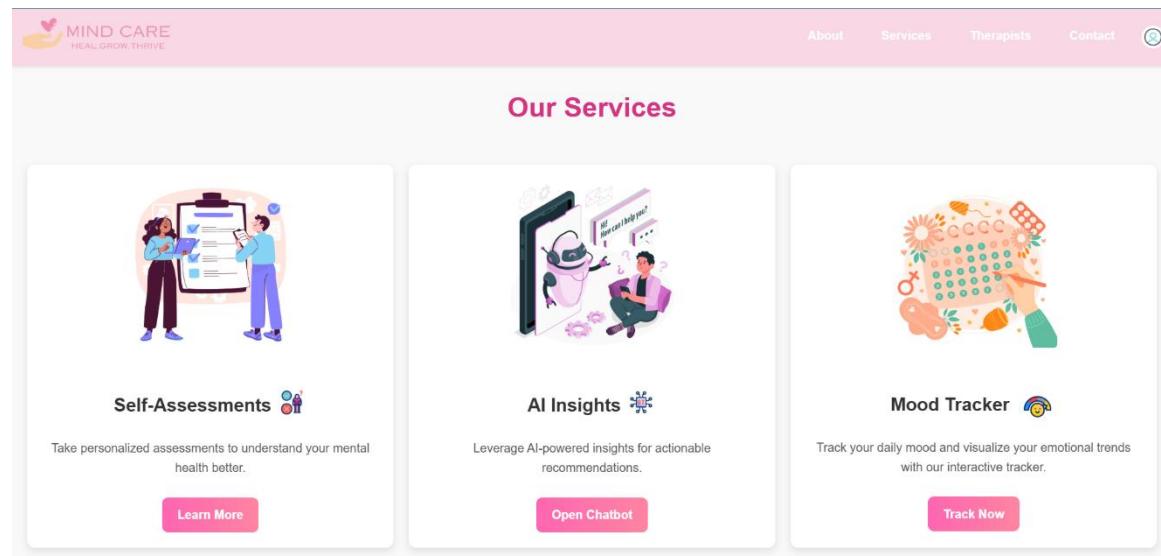


Fig. 8.41 Our Services

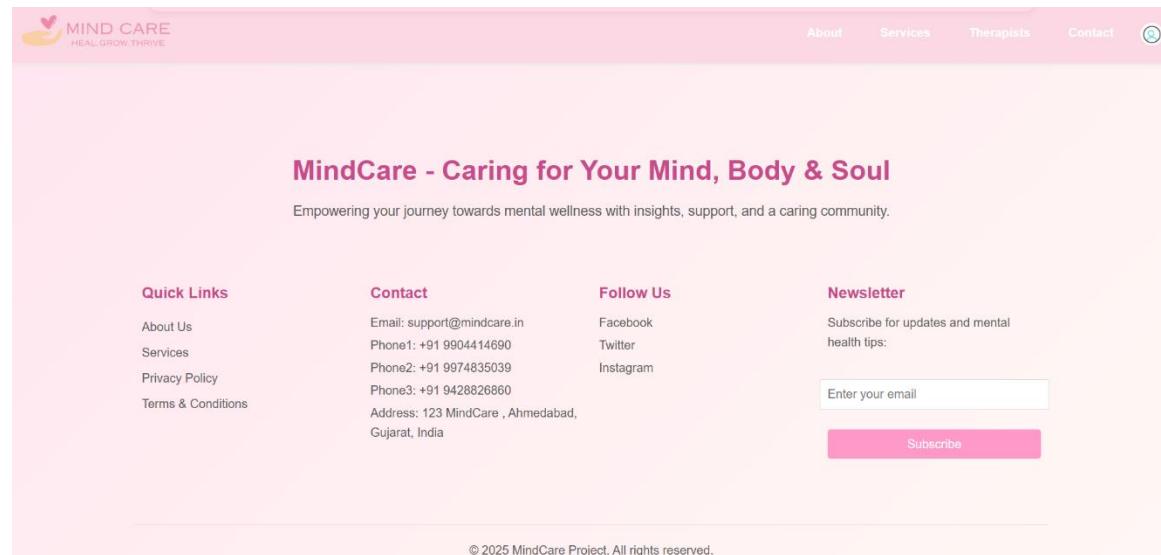


Fig. 8.42 Footer

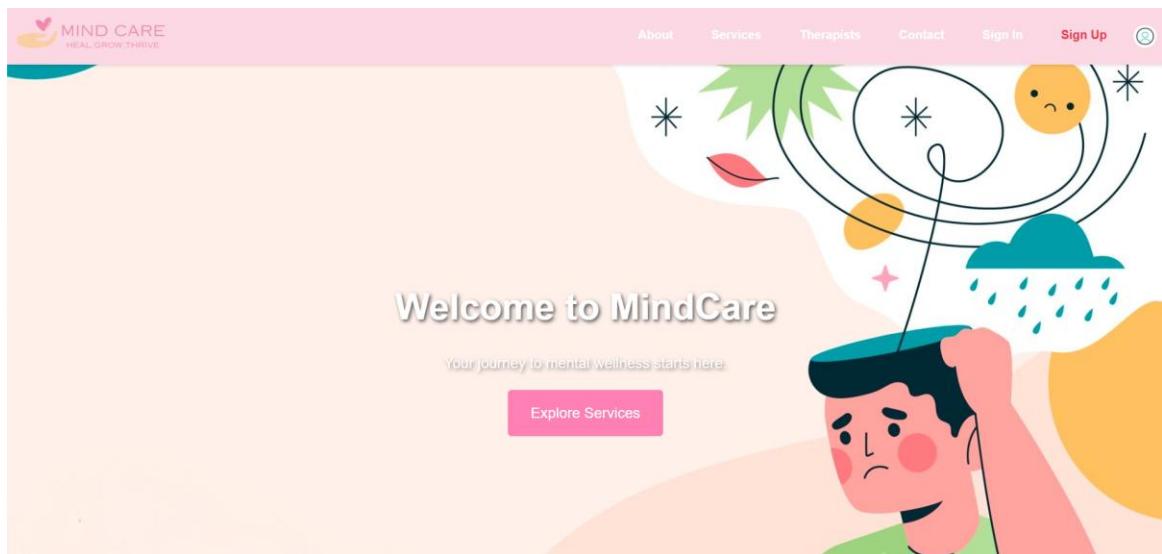


Fig. 8.43 Home Page

## CHAPTER 9

# SYSTEM IMPLEMENTATION

- DATA SCHEMA
- BACKEND LOGIC AND API  
DEVELOPMENT
- FRONTEND UI/UX  
IMPLEMENTATION

## 9.1 DATA SCHEMA

---

The MindCare platform is backed by a structured relational database that supports all its core features—from user registration and mood tracking to therapist management and mental health assessments. Here's an easy-to-follow breakdown of how the database is organized:

### 1. Database Initialization

- The system first creates a database named `mindcare` (if it doesn't already exist). All tables and operations are then handled within this database.

### 2. Communication & Admin Management

- The `contacts` table stores user messages from the “Contact Us” page, including sender name, email, message content, and submission time.
- The `admins` table holds admin credentials, allowing administrative control over therapist profiles and user management. Passwords are stored securely (preferably hashed).

### 3. Mental Health Assessment

- The `questions` table lists all the mental health-related questions used in assessments.
- The `responses` table records user answers to the questionnaire, storing demographic and work-related data.
- The `question_answers` table connects each user's response to the corresponding question, helping track individual answers. If a question or response is deleted, its linked answers are removed automatically.

#### 4. User Management & Mood Tracking

- The users table stores details of registered users, including their name, contact info, emergency contact, date of birth, gender, profile picture, and authentication data like hashed passwords and OTPs.
- The user\_moods table logs daily mood entries from users. Each mood is linked to a specific user and includes a timestamp, selected mood type (e.g., Happy, Sad, Neutral), and optional notes. If a user is deleted, their mood logs are also removed.

#### 5. Therapist Profiles & Appointment Scheduling

- The therapists table contains detailed profiles of mental health professionals, including their specialization, experience, consultation type (online/offline/both), and availability.
- The therapist\_slots table keeps track of available time slots for therapists, marking whether a slot is booked or not.
- The appointments table stores scheduled appointments between users and therapists. It includes session details, user contact info, appointment timing, session type, and current status (Pending, Confirmed, Cancelled). Slots and therapist profiles are properly linked via foreign keys to ensure consistency.

#### 6. Newsletter Subscriptions

- The newsletter\_subscribers table simply stores the email addresses of users who opt in to receive regular mental health updates and platform news.

#### 7. Data Relationships & Security

- The database uses cascading deletes to automatically remove linked records when a parent entry is deleted—for example, deleting a user will also delete their moods and appointments.

- Indexes on key foreign columns (like therapist IDs in appointment and slot tables) help in faster data retrieval.
- Sensitive information such as passwords and OTPs is securely stored and encrypted.

## 9.2 BACKEND LOGICAL AND API DEVELOPMENT

---

- **Backend Overview of MindCare**

The backend of MindCare is built using both PHP and Python, forming a strong and scalable system that supports all core functionalities—from user management to machine learning predictions and chatbot assistance.

- **PHP-Based Backend (Core System Logic & APIs):**

PHP handles most of the server-side tasks like managing users, forms, appointments, and connecting to the database.

### 1. Form Handling & User Management:

- PHP files inside the process/ folder (e.g., process\_contact.php, admin\_login.php) manage form submissions like contact forms and login attempts.
- db\_connect.php securely connects the app to the database.

### 2. API Endpoints for Real-Time Data

- fetch\_latest.php: Grabs the latest questionnaire responses for ML predictions.
- fetch\_moods.php, fetch\_slots.php: Fetch user mood logs and therapist availability.
- get\_therapist.php: Provides therapist profile info for the booking system.

### 3. Appointment & Profile Management

- Users can book, cancel, or update appointments via scripts like book\_appointment.php and cancel\_appointment.php.
- Profile picture uploads and deletions are handled through dedicated scripts.
- Admin tools in the admin/ folder allow for managing users, therapists, and content.

#### **4. Templates & Frontend Support**

- Reusable templates (admin\_navbar.html, user\_navbar.html) keep the UI consistent.
- Styles and scripts in the assets/ folder enable dynamic and responsive experiences.
- **Python Modules (AI, ML, and Chatbot):**

Python handles AI-powered features, including machine learning predictions and chatbot interactions.

##### **1. Mental Health Predictions (ML)**

- App.py runs a pre-trained Random Forest model (ranfor.joblib) to analyze user questionnaire data and predict if professional help is needed.
- It returns results in JSON format and uses Pandas, Matplotlib, and Seaborn to create visual graphs of predictions and trends.

##### **2. Chatbot for Mental Health Support**

- Chatbot.py powers a Flask + Gradio chatbot using LLM models like Llama via ChatGroq.
- It uses ChromaDB to store mental health information and respond contextually.
- The Gradio interface matches the site's pastel pink theme for a friendly user experience.

- **Integration & Security:**

The system is modular, allowing PHP and Python components to work independently but communicate smoothly via APIs. Security features include:

- JWT Authentication and secure sessions in PHP.
- SSL Encryption for safe data transmission.
- Secure user operations like sign-up and password resets.
- PHP's vendor/ folder is managed via Composer to safely integrate external libraries (e.g., PHPMailer).

### 9.3 FRONTEND UI/UX IMPLEMENTATION

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The frontend of MindCare is designed with a focus on user experience (UX), accessibility, and responsiveness. The system follows a minimalist and pastel-themed UI, ensuring a calming and supportive environment for users seeking mental health assistance.

#### **1. Frontend Technologies & Design Approach**

**The UI is developed using:**

- HTML, CSS, and JavaScript – Core technologies for structure, styling, and interactivity.
- Bootstrap & Tailwind CSS – Ensure a responsive and modern design across devices.
- AJAX & JavaScript – Enable seamless real-time updates for features like mood tracking and chatbot interactions.

#### **2. Key UI Components**

##### **Homepage & Navigation**

- The homepage (index.php) provides an overview of the platform's features with a user-friendly navigation bar.
- The navigation bar (stored in templates/admin\_navbar.html and user-navbar.html) provides quick access to features like mood tracking, chatbot, therapist booking, and self-help resources.

##### **Mood Tracking UI**

- Users can log daily moods through an interactive UI with emotion selection (happy, sad, stressed, etc.).
- They can view dynamic graphs (bar, pie, line) to analyze emotional trends over time.
- Users can filter graphs by specific emotions to gain personalized insights.

### **Therapist Booking UI**

- Users can browse therapist profiles, check availability, and book appointments through an intuitive calendar-based booking system.
- Booking confirmations are displayed in a modal popup or confirmation page.

### **AI-Powered Chatbot UI**

- The chatbot interface is built with Gradio & JavaScript and features:
  1. A soft pastel pink and white theme to create a welcoming experience.
  2. Instant responses using AJAX, preventing unnecessary page reloads.
  3. A persistent chat history for better engagement.

### **User Authentication (Sign-up/Login/Password Reset)**

- The sign-in and sign-up pages have a modern, card-based UI with clear input fields and validation messages.
- OTP-based password recovery ensures enhanced security.

### **3. Mobile Responsiveness & Accessibility**

- The UI follows a mobile-first approach, ensuring smooth experience on smartphones and tablets.
- ARIA attributes and high-contrast design options are implemented for users with visual impairments.
- Smooth animations and transitions enhance user engagement without causing distractions.

#### **4. User Experience Enhancements**

- Minimalist UI Elements – Avoids overwhelming users, ensuring clarity and ease of use.
- Color Psychology in UI – Uses soft pastel colors for a calming and stress-free interface.
- Interactive Elements – Features like hover effects, animations, and progress indicators guide user actions smoothly.

# **CHAPTER 10**

# **TESTING**

- TESTING METHODOLOGIES**
- TEST CASES AND RESULT**

## 10.1 TESTING METHODOLOGIES

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The testing process for MindCare employs a comprehensive mix of methodologies to cover all aspects of the system:

- Unit Testing: Individual modules, such as user registration, mood logging, and API endpoints, are tested in isolation. This helps in verifying that each function performs as expected before integrating them into the full system.
- Integration Testing: Tests are conducted to ensure that the interaction between different modules—such as the PHP-based backend and Python ML components—works seamlessly. This phase verifies data flow and communication between modules like form processing, database operations, and AI predictions.
- System Testing: The entire MindCare platform is tested as a unified system. This includes checking all end-to-end functionalities, such as user sign-up, mood tracking, therapist booking, and chatbot responses, to confirm that the system meets the specified requirements.
- User Acceptance Testing (UAT): Real users, including patients, therapists, and administrators, participate in testing the platform. Their feedback is crucial for identifying usability issues, ensuring the interface is intuitive, and verifying that the system provides a supportive mental health experience.
- Regression Testing: After any update or bug fix, regression testing is performed to ensure that previously working functionalities remain unaffected by recent changes.
- Security Testing: The platform undergoes vulnerability assessments, penetration testing, and data encryption checks to ensure robust security measures. Tests confirm that user data is protected, authentication mechanisms are secure, and role-based access is enforced.

- Performance and Load Testing: These tests simulate multiple concurrent users to evaluate system responsiveness and stability under heavy load. They help identify potential bottlenecks and verify that the system meets performance benchmarks.

## 10.2 TEST CASES AND RESULTS

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Detailed test cases have been developed for each module to validate both functional and non-functional requirements:

- User Registration and Authentication:
  - *Test Cases:* Verify user registration, login, OTP generation and validation, password reset functionality, and role-based access control for admins.
  - *Results:* All cases passed; secure authentication using JWT and OTP mechanisms functioned correctly.
- Mood Tracking Module:
  - *Test Cases:* Test mood logging functionality, verify that selected moods and messages are saved, and validate the graph visualization feature with various filter options (e.g., viewing only "happy" or "sad" moods).
  - *Results:* Mood entries are accurately recorded, and dynamic graphs (bar, pie, line, histogram) render correctly according to the selected filters.
- Therapist Booking System:
  - *Test Cases:* Validate therapist profile display, appointment booking, and cancellation functionalities. Ensure that only admins can add, edit, or delete therapist profiles, while therapists manage their availability and users can only book or cancel appointments.
  - *Results:* Appointment booking and cancellation function as expected; access control restrictions are properly enforced.
- AI-Based Mental Health Prediction and Graph Generation:
  - *Test Cases:* Submit sample questionnaire responses to verify that the ML model correctly predicts whether professional help is recommended, with an accurate probability score. Validate that both static and dynamic graphs display the prediction outcomes and trends.

- *Results:* ML predictions are consistent with manual validations, and graphs accurately reflect underlying data trends.
- Chatbot Module:
  - *Test Cases:* Evaluate the chatbot's ability to provide empathetic, contextually relevant responses, handle off-topic queries by steering the conversation back to mental health topics, and maintain a coherent conversation history.
  - *Results:* The chatbot delivers supportive responses using the integrated NLP model and vector database; it effectively manages conversation context and provides a user-friendly chat experience.
- Security and Performance:
  - *Test Cases:* Conduct load testing to simulate high traffic and multiple concurrent sessions. Run security tests to check for vulnerabilities in data transmission and access controls.
  - *Results:* The system handles concurrent users with minimal delays, and all security tests confirmed that data is encrypted and access control mechanisms are robust.

# **CHAPTER 11**

## **LIMITATIONS AND**

## **FUTURE ENHANCEMENTS**

- CURRENT SYSTEM  
LIMITATIONS**
- PROPOSED FUTURE  
ENHANCEMENTS**

## 11.1 CURRENT SYSTEM LIMITATIONS

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While MindCare offers a comprehensive digital platform for mental health tracking and support, several limitations have been identified. The current ML prediction model, though effective, may not capture the full complexity of an individual's mental health due to limited training data and the inherent challenges of predicting nuanced emotional states. Additionally, the system currently supports basic appointment booking and cancellation, but it lacks functionality for rescheduling appointments, which could enhance user convenience. The chatbot, while providing empathetic responses, occasionally struggles with handling off-topic queries or delivering highly personalized advice, particularly for complex mental health issues. Moreover, the system's integration is primarily web-based, limiting the potential for real-time data collection from wearable devices or mobile-specific optimizations. Lastly, while efforts have been made to ensure a user-friendly interface, there is room for improvement in accessibility features, such as enhanced support for users with visual impairments or other disabilities.

## 11.2 PROPOSED FUTURE ENHANCEMENTS

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To overcome these limitations and further enhance the user experience, several future enhancements are proposed. One key area is the improvement of the ML model by incorporating larger, more diverse datasets and advanced algorithms, thereby increasing the accuracy and reliability of mental health predictions. The appointment system could be expanded to allow for rescheduling, offering greater flexibility for users. Enhancing the chatbot with more sophisticated NLP capabilities, including voice interaction and context retention, would provide a more natural and responsive support experience. Expanding the platform into a mobile application, along with integration of wearable devices, would enable real-time mood tracking and richer data collection. Additionally, adding multilingual support and further refining accessibility options would help cater to a broader user base. Future iterations could also explore integration with third-party mental health tools and resources, fostering a more interconnected and comprehensive mental wellness ecosystem.

# **CHAPTER 12**

# **CONCLUSION**

- SUMMARY**
- ACHIEVEMENT OF OBJECTIVES**
- CHALLENGES FACED**
- KEY STRENGTHS**
- LIMITATIONS**
- CONCLUSION**

## 12.1 SUMMARY

The MindCare project is a dynamic web-based mental health support system designed to help users track their mental health through daily mood logs, AI-based analysis, and therapist booking options. The system integrates user-friendly design with powerful backend functionality, enabling personalized insights through visual charts and mood patterns. By combining PHP, JavaScript, HTML/CSS, Regex, and AI/ML techniques, the platform offers both emotional support and practical solutions for mental well-being.

## 12.2 ACHIEVEMENT OF OBJECTIVES

- Successfully developed a fully functional mental health analysis platform.
- Implemented a calendar-based daily mood logging system.
- Integrated AI/ML algorithms to analyze mood trends.
- Created a dynamic therapist profile and booking system (online/offline).
- Designed an aesthetically pleasing UI using pastel pink and white themes.
- Ensured secure user registration and login with session management.

### 12.3 CHALLENGES FACED

- Training an accurate mood prediction model with limited data.
- Ensuring seamless integration between frontend UI and backend logic.
- Handling calendar input and chart generation dynamically for each user.
- Maintaining clean and responsive UI across different screen sizes.
- Addressing security concerns like input validation and session management.

## 12.4 KEY STRENGTHS

- Unique blend of technology and mental health support.
- Visually appealing and user-friendly interface.
- Real-time insights with mood charts and trends.
- AI-powered mood analysis tailored to individual users.
- Secure therapist booking module with profile and availability view.

## 12.5 LIMITATIONS

- Mood prediction accuracy can be improved with more diverse datasets.
- Current therapist booking system doesn't include payment integration.
- Limited language support (only English UI at the moment).
- AI does not yet provide deep emotional understanding—only pattern-based predictions.
- The system requires stable internet access to function optimally.

## 12.6 CONCLUSION

MindCare is a step forward in integrating mental wellness with intelligent digital solutions. By providing tools for mood tracking, AI-driven analysis, and therapist support, the project empowers users to monitor and improve their mental health effectively. Although there are areas for future enhancement, MindCare demonstrates the potential of technology in supporting mental well-being and fostering healthier lifestyles.

## APPENDICES

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### Appendix A – Glossary

Term	Technology Used
AI	Artificial Intelligence – used in MindCare to analyze mental health patterns.
ML	Machine Learning – a subfield of AI used to build predictive models for user analysis.
JWT	JSON Web Token – used for secure user authentication.
UI/UX	User Interface/User Experience – the design and usability aspects of the platform.
NLP	Natural Language Processing – used in the chatbot to understand user queries.
OTP	One-Time Password – temporary password used for secure login and verification.
DFD	Data Flow Diagram – graphical representation of data movement in the system.
ER Diagram	Entity-Relationship Diagram – shows the database structure and entity relationships.

### **Appendix B – Tools And Technologies Used**

<b>Category</b>	<b>Tools/Technologies</b>
Frontend	Stores user-uploaded documents (PDFs, images)
Backend	Contains static assets like CSS, JS, and images
Database	HTML files rendered dynamically by PHP
AI/ML Libraries	Handles text extraction via Google Vision API
Authentication	Stores processed and structured text files
UI Design	Scripts for login, signup, and user session management
Server	Apache, XAMPP (for development), Gradio (for chatbot interface)
Code Repository	GitHub
Development Tools	VS Code, Postman, Composer, phpMyAdmin

### Appendix C – Folder Structure Overview

<b>Folder/File</b>	<b>Description</b>
/admin/	Contains admin dashboard pages and therapist/user management features.
/assets/	Contains all static files such as CSS, JS, images, and fonts.
/chatbot/	Python-based chatbot implementation and related scripts.
/database/	SQL files and setup scripts for initializing database tables.
/includes/	Common reusable components like navigation bars, footers, and headers.
/process/	PHP scripts that handle backend logic such as form submission, booking, etc.
/templates/	HTML templates reused across pages (e.g., navbars, layout structures).
/uploads/	Stores user-uploaded files such as profile pictures.
/vendor/	Composer-managed PHP libraries (e.g., PHPMailer for email OTPs).
index.php	Entry point of the application (homepage).
app.py	Python script to handle AI-based mood analysis and chart generation.
chatbot.py	Chatbot interface file using Flask + Gradio and ChromaDB.
.env	Environment file for storing sensitive credentials (not version-controlled).

### Appendix D – Hardware Requirements

<b>Component</b>	<b>Minimum Requirement</b>	<b>Recommended</b>
Processor	Dual-Core 2.0 GHz	Quad-Core 2.5 GHz or higher
RAM	2 GB	4 GB or higher
Storage	500 MB free space	1 GB for smoother experience
Internet Connection	Stable broadband/mobile	10 Mbps or higher
Server Specs	8 GB RAM, Intel Xeon or AMD Ryzen 5	16 GB RAM, SSD storage, High Bandwidth

### Appendix E – Software Requirements

<b>Component</b>	<b>Required Version</b>
OS (User Side)	Windows/macOS/Linux/Android/iOS
Browser	Chrome, Firefox, Safari, Edge (Latest)
Server	Apache (XAMPP or cloud-hosted)
PHP	Version 8.x
Python	Version 3.10+
Database	MySQL / phpMyAdmin
AI Libraries	scikit-learn, TensorFlow, Joblib
Chatbot Storage	ChromaDB
Package Manager (PHP)	Composer
IDE/Editor	VS Code
API Testing Tool	Postman

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