

Project Report



A cell phone with a heart and a head

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B00135198, B00138007, B00148322

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# Introduction

For our Major Group Project, we have decided to develop a mental well-being mobile application. The aim of this project is to design and implement a working prototype that helps users manage and improve their mental health through app features such as journaling/planning, mood tracking, guided meditations. With growing awareness of mental well-being, our group collectively agree that in 2024 this project is fitting and meaningful. Member Sam of the group lost a cousin through poor mental health during the covid so this project is something of a passion for him. This chapter outlines the project's background and motivation, defines the problem, and presents its aims and objectives.

“App-based self-help has an enormous potential to reach a large number of people and provide high quality services at a low cost. Its impact on public mental health can be enormous.”

(Kerber, et al., 2023)

## Background

Our project focuses on developing a functional and useful mental well-being app prototype. The specific objectives include:

**Analyze the Situation:**  Initially our group will study the problem of mental well-being and current solutions available in the market, documenting this analysis using appropriate techniques such as SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) and requirements gathering through online research.

**Design a Solution:** Based on the analysis, we will design a solution for the problem. This includes creating detailed specifications, evaluating resources needed (technologies, skills, time), and preparing system architecture and UI design.

**Implement a Working Prototype:** we will develop a functional prototype of the mental well-being app that provides core features such as journaling, mood tracking, and meditation.

**Evaluate the Prototype:** we will conduct functional and user testing to assess how well the prototype meets its objectives and gather feedback on areas of improvement.

**Propose Future Work:** we aim to provide recommendations for taking the prototype from this stage to a fully working system. This will include identifying areas like enhanced security, scalability, and improved user experience that need to be addressed.

The first chapter sets the background and motivation for the project. The problem to be solved  
is stated, with the project aims and a list of specific objectives.

## Motivation for this project

We chose this project due to the growing importance of mental well-being. With rising stress levels and mental health challenges, especially from social media and the pandemic, there is a clear need for digital tools to support mental health. One of the members of the group has relatively recently lost a cousin through poor mental health so this project holds extra incentive to achieve. While existing apps often focus on one area (like meditation or journaling), we aim to create a more comprehensive platform that combines several mental wellness tools in one app. This project also draws on the skills we've developed throughout our course, such as:

**Mobile Development:** Some team members have experience building mobile interfaces.

**Backend and Database Management:** Others are skilled in server-side development and database management, enabling us to create a full-stack solution.

**System Design and Integration:** We've studied design principles and system architecture, which will help us build a seamless app experience.

## Project Novelty

The novelty of this project lies in the integration of multiple mental well-being tools into one app, allowing users to track their mood, meditate, and journal in one place. Additionally, the project is built to be scalable and future-proof, using modern mobile development frameworks (like **React Native**) and focusing on cloud-based backends. Our project uses data analytics to help users track their mental health over time and see patterns.

## Deliverables

The project will deliver the following:

* **Working Prototype**: A functional mobile app prototype that includes core features (mood tracking, journaling, guided meditation, find a therapist).
* **User Documentation**: A basic user manual for the prototype, explaining how to use the app and its features.
* **Evaluation Report**: A detailed evaluation of the system based on functional testing and user acceptance testing (UAT) results.
* **Recommendations for Further Work**: A set of recommendations outlining what needs to be done to move from the prototype to a fully working system. This will include considerations like enhanced security, user interface improvements, and support for additional features such as social integration or real-time counseling services.

# System Design

The goal of this chapter is to clearly define what the application is supposed to do, providing a detailed foundation for development. This will serve as an agreement between the development team and the clients, detailing the system's functionality and data requirements. The following sections will break down these details:

## Functional Requirements

**User Registration and Authentication:** Users will be able to register, log in, and manage their accounts. Basic authentication using email and password.

**Mood Tracking:** Users can log their mood daily, choose from predefined moods, and add notes.

**Guided Meditations:** The app will offer a library of guided meditations that users can access and listen to. Journaling: A space for users to write daily reflections or entries, stored and accessible for future reference.

**Analytics Dashboard**: Users can view patterns in their mood and journaling data over time through charts and graphs. Reminders and Notifications: Push notifications to remind users to log their mood or complete daily meditation/journal tasks.

**Backend Development:** For the backend, we will use Node.js due to its ability to handle asynchronous operations efficiently and its compatibility with JavaScript, which allows for full-stack development using a single language across both frontend and backend. Additionally, Node.js provides a robust framework for building RESTful APIs using Express.js, which will handle routing, middleware, and request handling.

**Database Management:** We will use MongoDB as our database because of its flexibility in handling unstructured data and its compatibility with Node.js through the Mongoose library. MongoDB's document-based structure makes it ideal for storing dynamic user data, such as mood entries and journaling data, allowing for easy scalability as the application grows.

# Implementation of the system