

Project Report



A cell phone with a heart and a head

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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 related to monitoring and maintaining each user’s mental well-being’*.* With growing awareness of mental well-being, our group collectively agree that in 2024 this project is fitting and meaningful. While there are now quite a few mental well-being apps on the market, they all focus a lot of their resources into one standout core feature. We aim to pick the best features on the market and implement them into one true mental well-being application with possibly developing a new feature that may be lacking. This report 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. ”

[(Kerber1, et al., 2023)](#_Bibliography)

# Background

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

**Assess 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 our findings, we will design a solution for the problem. This includes creating detailed specifications on how the app should function, what tools will be used, and how it will meet user needs. Evaluate resources needed (technologies, skills, time), and prepare functional requirements 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’ Social Support’, ‘Journaling’* and necessary RESTful api’ssuchas *‘Mood Tracking’ and ‘Guided 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.

## 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 balanced 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:

**JavaScript**: A versatile language used for both front-end and back-end development. On the server-side, JavaScript (through **Node.js**) allows us to manage databases like MongoDB

**Backend and Database Management:** We each have a background in server-side development **(PHP**) and database management (**SQL, MongoDB**), enabling us to create a complete application.

**System Design and Integration:** We've learned design principles and system structure, which will help us create a smooth 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, journal, social support. The app will host a comprehensive range of different respective mental health issues which will offer an initial brief background followed by research and respective services available. A fundamental feature of any mental well-being app is a journal which is now coined as ‘journaling’, we want to design a smart journal that is automatically updated in real time. The mood tracker will also have an activities recommendation feature based on the users mood. Additionally, the project is built to be scalable and future-proof, using a modern mobile development framework and focusing on cloud-based backends. Our project uses data analytics to help users track their mental health over time and spot patterns.

## Deliverables

The project will deliver the following:

* **Working Prototype**: A functional mobile app prototype that includes the core features:
  + - Social Support
    - mood tracking
    - journaling
    - Planner
    - 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 thorough review 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 counselling services.

# System Design

This will act as a contract between the development team and the clients, outlining 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.
* **Social Support:** a community-based feature where users can share positive experiences, mental health tips, or inspirational quotes.
* **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.
* **Analysis**: 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.
* **Frontend Development**: We will use React Native for frontend development as it is a popular framework for building mobile applications using JavaScript and React. React Native allows developers to write a single codebase in JavaScript, which can be used to create applications for both iOS and Android. This saves time and resources compared to developing separate native applications for each platform.

Vue.js is a popular JavaScript framework known for being simple and flexible when building user interfaces and single-page apps. It’s often considered an alternative to React Native for mobile app development, especially with tools like Vue Native, which let developers create native apps using Vue’s syntax. Vue.js is easy to learn and lightweight, making it a good option for smaller projects. However, we chose React Native because it has a larger, more active community, giving us better access to resources, support, and third-party libraries if we run into issues.

* **Backend Development:** We will use Node.js for the backend because it handles asynchronous operations well and works with JavaScript, allowing us to use the same language for both the frontend and backend. Node.js also offers a strong framework for building RESTful APIs with Express.js.

Django, a Python-based web framework, is a strong alternative to Node.js for backend development. It comes with built-in features like authentication and database management, which can speed up development. Its Model-View-Template (MVT) architecture makes it great for building secure and scalable apps. However, while Django is a good option, we chose Node.js because it’s better for real-time applications and allows us to use JavaScript for both the frontend and backend, making development more streamlined.

* **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 updates and scalability as our application grows. 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. This structure allows us to run detailed queries, helping us analyse user data and offer personalized insights

SQL databases, such as MySQL or PostgreSQL, are traditional relational databases that use structured tables and are ideal for applications with well-defined schemas and relationships between data. They offer strong data integrity, complex querying through SQL, and are widely used in many industries. However, our group has decided to use MongoDB instead because it provides more flexibility for handling unstructured or semi-structured data, which suits our mental well-being app. MongoDB’s document-based structure allows us to easily store and manage dynamic user data, like mood entries and journal logs, without needing to predefine a rigid schema. Additionally, MongoDB scales more easily with large amounts of data, making it better suited to our app's potential growth and varied data requirements.

## A screenshot of a login screen Description automatically generatedDesign Template

# Bibliography

[Kerber1, A., Beintner, . I., Burchert, . S. & Knaevelsrud, . C., 2023.](https://mental.jmir.org/2023/1/e45068) *[https://mental.jmir.org/2023/1/e45068.](https://mental.jmir.org/2023/1/e45068)* [[Online]   
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