Capstone Project Document

Introduction

Purpose
What is the problem or the opportunity that the project is investigating?
- Luna investigates the gap in accessible and immediate mental health support, leveraging AI for personalized care.

Why is this problem valuable to address?
- Addressing this gap is crucial due to the rising demand for mental health services and the limitations of traditional therapy (availability, cost, stigma).

What is the current state (e.g. unsatisfied users, lost revenue)?
- The current landscape is characterized by unsatisfied users due to the inaccessibility and high costs of traditional therapy.

What is the desired state?
- A world where mental health support is as accessible and straightforward as having a chat with a friend, anytime and anywhere.

Has this problem been addressed by other projects? What were the outcomes?
- Other AI chatbots have been developed, but Luna stands out with its empathetic design and advanced AI capabilities.

Industry/ Domain

What is the industry/ domain?
- Mental Health and Wellness Tech

What is the current state of this industry? (e.g. challenges from startups)
- The industry is evolving, with startups challenging traditional models by integrating technology.

What is the overall industry value-chain?
- Involves awareness, diagnosis, therapy, and continuous support.

What are the key concepts in the industry?
- Accessibility, immediate support, AI in therapy.

Is the project relevant to other industries?
- Yes, particularly in HR, education, and healthcare for stress and wellness management.

Stakeholders

Who are the stakeholders?
- Users seeking mental health support, mental health professionals, educational institutions, and HR departments in corporations.

Why do they care about this software?
- To access an immediate, reliable, and empathetic AI-powered therapy solution.

What are the stakeholders' expectations?
- 24/7 availability, user-friendly interface, confidentiality, and personalized support.

Architecture Diagram

(See Luna designs & charts folder)

User Stories

Sign Up
Title: User Registration
Description: As a new visitor, I want to create an account so that I can login and retrieve previous conversations.
Priority: High

Chat with AI
Title: Interact with Chatbot
Description: As a user, I want to send messages to the chatbot and receive fast replies that seem almost human.
Priority: High

Log In
Title: User customization
Description: I would like to have a profile page so I can customize my information allowing more personal conversations with the AI.
Priority

User Flow

(See Luna designs & charts folder)

Open Questions/ Out of Scope

What features are considered out of scope?
- Multi-language support, video therapy sessions.

Non-functional Requirements

What are the key security requirements? (e.g. login, storage of personal details, inactivity timeout, data encryption)
- Secure login, encrypted personal data storage, automatic inactivity logout.

How many transactions should be enabled at peak time?
- Capable of handling thousands of concurrent user interactions.

How easy to use does the software need to be?
- Intuitive UI with minimal learning curve.

How quickly should the application respond to user requests?
- Immediate responses to user inputs.

How reliable must the application be? (e.g. mean time between failures)
- High with minimal downtime. MTBF targets to be established.

Does the software conform to any technical standards to ease maintainability?
- Conforms to RESTful API standards, secure coding practices for maintainability.

Project Planning

(See Luna designs & charts folder)

Testing Strategy

What were steps undertaken to achieve product quality?
- Used Chai and Chai-HTTP for route testing, unit tests for individual features, and user acceptance testing for overall functionality.

How was each feature of the application tested?
- Each feature tested through automated tests and manual user testing.

How did you handle edge cases?

- Handled through extensive test cases and real-user simulation scenarios.

Implementation
What were the considerations for deploying the software?
- Chose deployment platforms based on scalability, security, and ease of integration with existing technologies.

End-to-end solution
How well did the software meet its objectives?
- Luna successfully meets the objectives of providing accessible, immediate, and empathetic mental health support.

References

Github: https://github.com/Pkt-Rkt/Capstone-project-1.0
Api: https://deepmind.google/technologies/gemini/introduction
Express: Web application framework for Node.js.
Mongoose: MongoDB object modeling for Node.js.
Express-Session: Session management middleware.
Dotenv: Environment variable loader.
Body-Parser: Request body parsing middleware.
Chai: Assertion library for testing.
Chai-Http: HTTP integration testing for Chai.
MongoDB: For data storage.
Node.js: JavaScript runtime environment.