Health Care – A Mental Health Tracking and Recommendation Application

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***Abstract*—We propose an user-friendly, secure mental health tracking and suggestion tool to overcome barriers in seeking support. The app aims to create a safe environment where users can receive personalized guidance for their mental well-being. By answering a series of questions, users will gain insight into their current mental state. Based on their responses, the program will generate tailored suggestions to promote mental health, including stress reduction techniques, mindfulness practices, self-care routines, and work-life balance strategies. Privacy of user information will be ensured, fostering a safe space for sharing concerns. Additionally, the app will encourage a compassionate community where users can connect with like-minded individuals.**

***Index Terms*—User-Friendly Interface, Personalized Recommendations, Data Security, Integration with Wearable Devices, Health Tracking Features, Reminders and Alerts, Educational Resources, Social Support, Feedback and Progress Tracking, Accessibility**

I. Introduction

In an era where mental health concerns are increasingly prevalent, our report delves into the development of a groundbreaking application. This innovative platform is conceived with the noble objective of creating a secure haven for individuals seeking a supportive and empathetic community, while also offering essential mental health guidance and access to professional assistance.

The user journey begins with a seamless login process via their mobile number, verified through a one-time password (OTP). New users are encouraged to provide essential details such as their name, email, and profile image, fostering a personalized and empathetic experience. As users navigate through the application, they are prompted to answer targeted questions pertaining to their mental well-being, culminating in the determination of their emotional state across four categories: happiness, sadness, stress, and relaxation.

Importantly, the application leverages these insights to generate personalized recommendations aimed at enhancing users' mental health. Furthermore, a comprehensive report is generated, offering users a valuable retrospective on their progress and accomplishments in their mental health journey. Our report provides an in-depth exploration of this transformative application, poised to make a significant impact on mental health support and guidance.

II. Literature Survey

[1] EmoKey: An Emotion-aware Smartphone Keyboard for Mental Health Monitoring

The rate of mental health disorders is rising across the globe. While it significantly affects the quality of life, early detection can prevent fatal consequences. Existing literature suggests that mobile-based sensing technology can be used to determine different mental health conditions like stress, bipolar disorder. In today's smartphone-based communication, a significant portion is based on instant messaging apps like WhatsApp; thus, providing the opportunity to unobtrusively monitor the text input interaction pattern to track mental state. We, in this app, leverage the text entry pattern to track multiple emotion states. We design, develop and implement an Android-based smartphone keyboard EmoKey, which monitors a user's typing pattern and determines four emotion states (happy, sad, stressed, relaxed) by developing an on-device, personalized machine learning model.

[2] "Nutri-Mental" – An Android Application for Personal Health And Nutrition Management

These days, people are getting more wellbeing cognizant and will, in general, keep a beware of the dietary addition from the stuffed sustenance things they use. The rising growth of Android in the field of Operating System's has brought many advancements and proficient things such as applications, games, and many more. The proposed app gives an insight into nutrition that a person should have by eating aa properly balanced diet and will present an outline on further research and development of the application.

[3] PsyHeal: An Approach to Remote Mental Health Monitoring System

In this paper, a proof-of-concept cloud based psychological assessment/ monitoring service named PsyHeal is proposed. It is an app which interfaces with a handful of third party API's for its implementation.

[4] Monitoring Mental Health using Smart Devices with Text Analytical Tool

This paper intends to study the benefits of using an intelligent

application that uses a text analytical tool to support mental health. It uses innovative sensors and different technologies that are built-in smart devices. It detects anxiety and depression using the camera sensors, and by performing self-testing scales. It is a user-friendly platform providing simple bits of advice, animated breath exercises, and online text-based therapy with registered psychologists supported by the text analytical tool. We tested different machine learning classifications, and the SVM selected showed the best performance with a score of 79.81 percentage in the text analytical tool.

[5] A new mental health mobile app for well-being and stress reduction in working women: randomized controlled trial

The study evaluated a new mental health mobile app's efficacy in reducing stress and improving well-being among working women. 653 female hospital employees participated, randomized into control (n=240) and intervention (n=250) groups. The 8-week program included 4 classes weekly, focusing on stress management. Results showed both groups experienced increased general well-being, while the intervention group also saw improvements in work-related well-being and reduced stress levels. The study suggests that mobile apps can be effective tools for enhancing mental health outcomes in professional settings.

III. Problem Statement

In today's fast-paced world, where everyone is focused on achieving their goals and meeting financial and basic needs, the importance of mental health often gets overlooked. Many people struggle with mental health issues but do not know how to address them effectively. Seeking professional help can be challenging due to its high cost and the stigma associated with mental health, influenced by family views and societal judgments.

Our aim is to create a safe space for individuals in need of mental health support through the "Health Care" app, a secure and understanding community that offers mental health guidance and professional assistance. This Android application is designed to identify and track users' mental health through a user-friendly interface. According to our research, the app must include a robust authentication system to ensure data security. Additionally, it should be easy to use, customizable to individual needs, and capable of saving personal goals and memories.

IV. Scope Of The Project

Users need to answer few questions that will be asked based on mental health. Based on answers given by the user some actions to improve mental health will be recommended.try to get an idea of the mental state of your user (in the least intrusive ways), find out if they are suffering and then suggest measures they can take to get out of their present condition.Sentiment analysis approach helps to determine the sentiment behind the user's text. As its name suggest, sentiment analysis helps to analyze the user feelings, emotions by using some text or review.

V. Proposed System

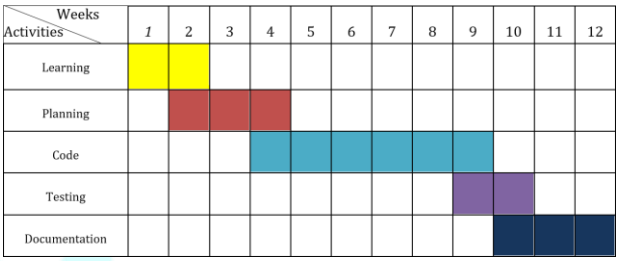

Fig. 1. Project Management Plan for Health Care

Mental health is a serious problem in today's society. As a result of a large number of individuals working from home and being separated from their loved ones, the mental health condition has deteriorated. As a consequence, it's vital to stay on top of any problems and treat them before they get too serious. As a result, our project aims to fulfill these goals for the user. This software will help you achieve a condition of tranquility and wellbeing. The user will learn how to deal with stress on a regular basis and enhance their mental health. Keeping in mind that some users may have mental illnesses and may not want to connect with an app as much as others.

The Health Care application is developed using Flutter for the frontend and Firebase for the backend. The system is designed with the following components and functionalities:

- Login Page: Users log in via phone number OTP verification to ensure secure access.
- Home Page: The main dashboard prompts users to start the mental health questionnaire.
- Questionnaire Page: Users respond to a series of questions designed to assess their mental health, with responses stored securely in Firebase Firestore.
- Recommendation Page: Based on the questionnaire responses, the application provides personalized recommendations to support the user's mental health.
- Report Page: Displays historical data and trends of the user's mental health, visualized through charts and graphs.
- Profile Page: Manages user details and settings, allowing users to update their information and preferences. The application ensures data confidentiality, authenticity, and integrity, offering a reliable platform for mental health support.

VI. Workflow Of The System

Module	Purpose
OTP verification	This module is created as initial step to allow user to use the app through verifying OTP sent on their mobile number.
Register	The purpose of this module is to allow new user to enter their details and register themselves on the app.
Quiz	The purpose of this module is to provide user a set of questions that he/she needs to answer so that system can recommend action to improve mental health based on answers given by user.
Recommendation	This module is used to display recommendations to improve mental health if any.
Report	This module is created to display report containing answer to the quiz questions given by user,

Fig. 2. Module Description

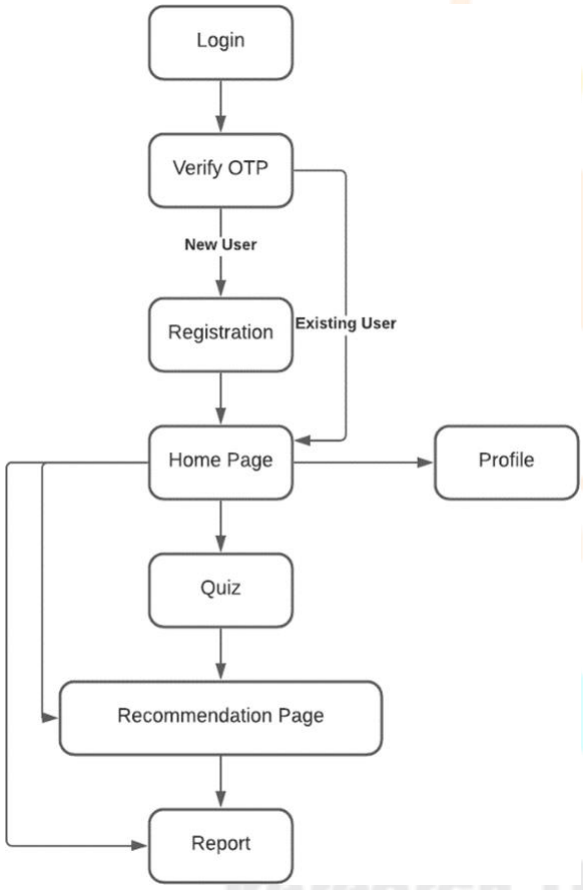

Fig. 3. Architecture Diagram

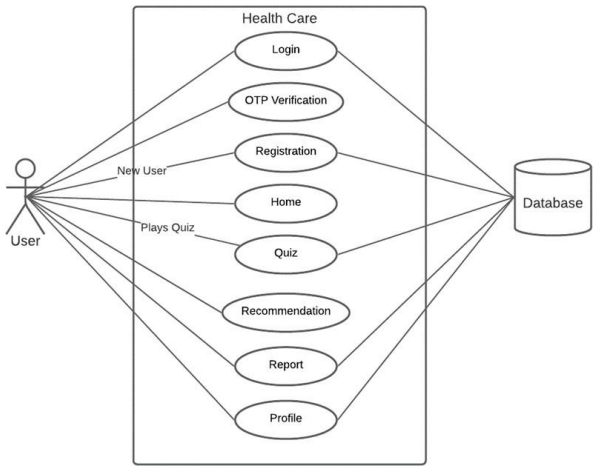

Fig. 4. Use-case Diagram

VII. Future Scope

In the future, healthcare recommendation apps will likely harness advanced artificial intelligence and machine learning algorithms to provide even more personalized and accurate health suggestions. These apps will seamlessly integrate with a wide range of wearable devices, allowing for real-time tracking of health metrics and behaviors. Additionally, they will expand their scope beyond physical health to include mental well-being, offering tailored recommendations for stress management, mindfulness, and emotional support. As the healthcare landscape evolves, these apps may also incorporate genetic data and biomarkers to further customize recommendations based on individual genetic profiles. Overall, the future of healthcare recommendation apps holds immense potential to revolutionize preventive care and empower individuals to take proactive steps towards optimizing their health and well-being.

VIII. Conclusion

In conclusion, the Health Care – A Mental Health Tracking and Recommendation Application represents a significant step towards addressing the growing mental health challenges faced by individuals in today's fast-paced world. By providing a secure and understanding community, along with valuable mental health guidance and professional support, this app aims to be a beacon of hope for those in need. Through a user-friendly interface that includes personalized questions to assess emotional states, the app offers tailored recommendations to enhance mental well-being. The emphasis on user security is evident with the mobile number login and OTP verification, ensuring a safe and confidential environment. Additionally, the incorporation of user profiles and the generation of comprehensive reports allow individuals to track their progress and celebrate their achievements on their mental health journey. This application not only promotes self-awareness but also facilitates access

to valuable resources, ultimately contributing to a healthier, happier society.

ACKNOWLEDGEMENT

I declare that this written submission represents my ideas in my own words and where others ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea / data / fact / source in my submission. I understand that any violation of the above will because for disciplinary action by the Institute and can also evoke penalaction from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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