



MEDHOME – MEDICAL RECOMMENDATION SYSTEM

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Abstract— MedHome is an all-around health management system that predicts possible diseases based on symptoms entered by the users. Through the use of a strong algorithm and large medical database, the system correctly identifies potential health conditions. Besides disease prediction, MedHome offers users detailed descriptions of the diagnosed conditions, useful precautionary steps, personalized medicine suggestions, and customized dietary recommendations. The site is created with an easy-to-use interface to ensure health information is readily available to all. Through providing a complete approach to the prevention and management of disease, MedHome enables users to make empowered health choices, enhancing general wellness and allowing for active health management.

Keywords—Disease Prediction; Health Management System; Symptom-based Diagnosis; Medical Recommendation; Personalized Healthcare; Precautionary Measures; Medicine Recommendation; Dietary Suggestions

I. INTRODUCTION

The swift evolution of digital technologies has significantly influenced the healthcare sector, enhancing both the availability and efficiency of medical services. Yet, a key challenge remains: detecting diseases in their early stages through symptom analysis, particularly for those without quick access to healthcare professionals. This often results in delayed diagnoses, which can worsen health conditions, raise medical expenses, and lead to more complicated treatments. Recognizing the urgent need for fast and reliable digital health solutions, MedHome has been created to tackle this important challenge.

MedHome is an all-in-one digital health management system that helps users identify possible illnesses based on the symptoms they enter. It uses advanced machine learning algorithms and a comprehensive medical dataset to interpret symptoms and deliver accurate disease predictions. In addition to diagnosis, the platform offers in-depth information about each suggested condition, such as causes, symptoms, and potential risks. It also provides personalized recommendations for medication, preventive steps, and dietary plans to support recovery and promote general well-being. With its intuitive and accessible design, MedHome ensures that users of all backgrounds can navigate the platform with ease. By delivering reliable, up-to-date, and actionable health insights, MedHome enables users to manage their health proactively, helping to minimize risks and support early intervention. The project emphasizes the value of early detection through symptom analysis and highlights the impact of digital tools in improving personal healthcare in today's tech-driven era.

II. PROPOSED SYSTEM

The proposed system, “MedHome”, is a web-based healthcare platform designed to predict potential illnesses based on symptoms provided by users. It employs machine learning algorithms such as the Random Forest Classifier and Support Vector Classifier (SVC), which are trained on extensive medical datasets. These models analyze input symptom patterns to deliver accurate predictions, displaying a list of likely conditions, confidence levels, and detailed information regarding causes, associated symptoms, and possible complications.

Beyond disease prediction, MedHome delivers personalized healthcare guidance, including over-the-counter medication suggestions, preventive strategies, and customized dietary tips. The platform is designed with a simple and user-friendly interface to accommodate users regardless of their familiarity with healthcare information. In the future, MedHome aims to expand its capabilities by integrating live health tracking via wearable technology and supporting online medical consultations, the system plans to improve its flexibility and extend its impact in the field of digital healthcare.

2.1 REGISTER AND LOGIN

Figure 2.1 illustrates the Register and Login Page, the main entry point of the MedHome-Medical Recommendation System. It enables users to register, log in, or recover forgotten passwords, ensuring secure and seamless access. Designed with user convenience in mind, this page integrates advanced AI with an intuitive interface, optimizing access and protecting user data.

2.2 REGISTER DETAILS

Figure 2.2 displays the Register Details Page, where new users can enroll in the system. The interface simplifies the registration process, requiring essential details like name, email address, and password. The design effectively balances usability with security.

2.3 HOME

Figure 2.3 displays the Home Page, highlighting the feature where users can input symptoms such as "itching" or "headache" into the designated search bar. After entering the symptoms, users can click the "Predict" button, which will generate a list of potential disease predictions based on the provided information. This feature aids users in identifying possible health conditions with greater accuracy.

2.4 PREDICTION AND RECOMMENDATION

Figure 2.4 shows the MedHome system after the user enters the symptom "itching." The system predicts a "Fungal infection" based on the entered symptom and provides a detailed description of the condition, assisting users in understanding the potential diagnosis. succinct but useful informative description of the condition, helping users understand the potential health issue. Additionally, it offers treatment recommendations, including the use of antifungal creams and specific medications like "Fluconazole" and "Ketoconazole," to assist in managing the infection effectively.

2.5 ABOUT

Figure 2.5 introduces the platform as an AI-powered solution aimed at offering tailored medicine recommendations based on user inputted symptoms. It provides clear usage instructions for users, including avoiding capital letters, using underscores to connect multi-word symptoms, and separating multiple symptoms with commas to ensure accurate input and effective processing. The main services highlighted on this page include Primary Care, Specialized Care, and Emergency Services, reflecting the system's comprehensive healthcare approach.

2.6 DEVELOPERS

Figure 2.6 shows the "Developers" section of the MedHome project, highlighting the team behind its development. It includes four developers, each displayed with a photo, name, phone number, and a "Contact" button. This section brings a sense of openness and personalization to the platform by enabling users to recognize and directly engage with the individuals responsible for developing and maintaining the system.

III. LIST OF FIGURES



Figure 2.1: Register and Login



Figure 2.2: Register Details



Figure 2.3: Home



Figure 2.4: Prediction & Recommendation



Figure 2.5: Home



Figure 2.6: Developers

IV. RESULTS AND DISCUSSIONS

The MedHome system was designed to deliver reliable and customized medical suggestions by applying sophisticated machine learning algorithms that analyze user-inputted symptoms effectively. During the implementation and evaluation stages, multiple models were tested, with Support Vector Classifier (SVC) and Random Forest Classifier emerging as the top performers. SVC demonstrated strong efficiency in handling high-dimensional input data, while the Random Forest Classifier showcased its ability to process diverse datasets reliably and deliver consistent outcomes. Figure 9.1 displays the performance metrics of both SVC and Random Forest across four key indicators: Accuracy, Precision, Recall, and F1-Score. The results show that both models perform exceptionally well, with metric scores nearing 1, indicating high predictive capability. The close similarity in their performance suggests that either model is well-suited for the task, providing reliable and effective disease prediction based on user symptoms.

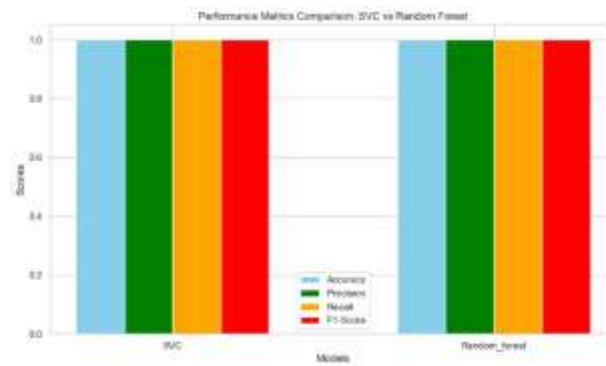


Figure 4.1: Accuracy and Validation of Real-Time AI-Powered Attendance System

V. CONCLUSION

The MedHome project effectively demonstrates how machine learning, combined with user-friendly design, can be utilized to deliver tailored medical recommendations based on individual symptoms. By allowing users to input symptoms and receive tailored advice, the platform simplifies the process of identifying potential health conditions and suggesting appropriate medications. By employing machine learning models such as SVM and Random Forest, which deliver high accuracy, and combining them with an intuitive interface, MedHome proves to be an effective and accessible tool for users seeking reliable medical advice. Looking ahead, MedHome can be further enhanced by integrating data from wearable health devices, expanding its disease and medication database, and providing multilingual support to cater to a diverse user base. Incorporating advanced features like AI-powered chatbots for realtime assistance and telemedicine integration for remote consultations can significantly enhance the user experience, providing seamless and accessible healthcare solutions. Additionally, adopting advanced predictive models like deep learning have the potential to further enhance the accuracy and broaden the scope of predictions, enabling more precise and comprehensive medical recommendations. These advancements would position MedHome as a comprehensive, innovative, and user-centric healthcare solution.

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