

Web-Based Patient Health Management System with Doctor Recommendations and Medicine Alternatives using Machine Learning

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Abstract—Web-Based Patient Health Management System with Doctor Recommendations and Medicine Alternatives depicts a novel doctor appointment system that unites simplicity with sophisticated technology, featuring a Random Forest Classifier model to boost healthcare services. Another advantageous component is the inclusion of a specific pharmacy area, enabling efficient drug administration tracking. Confirmation emails are sent upon successful appointment bookings, keeping individuals updated on upcoming visits. The platform also encompasses a multifaceted disease prediction mechanism powered by the Random Forest Classifier's predictive capabilities, assisting physicians in delivering accurate diagnoses and targeted therapy recommendations[15]. Integrating of these elements results in a comprehensive strategy for managing patient health. By emphasizing user-friendliness and advanced technology, the system aims to elevate both patient satisfaction and healthcare provider productivity. Employing machine learning techniques within medical settings can lead to enhanced appointment scheduling efficiency and diagnostic precision, ultimately benefiting patients through improved care outcomes.

Index Terms—Random Forest Classifier, Tailored Guidance, Recommendation, Symptoms , Appointment

I. INTRODUCTION

Here the proposed system aimed at streamlining doctor appointment processes while incorporating a range of healthcare-related features. Our system utilizes a Random Forest Classifier model to automate appointment scheduling, eliminating the need for human intervention. [11]The proposed work comprises several essential components, such as a dedicated pharmacy web page, a healthcare bot providing relevant advice, email confirmations followed by appointment scheduling, and a multi-disease diagnostic feature. The pharmacy section caters

to users by offering easy access to medication services. The healthcare bot enhances user engagement by sharing valuable healthcare insights and knowledge. [14]Email notifications ensure immediate updates on secured appointments, maintaining clear communication. The multi-disease diagnostic attribute significantly improves the system value by providing comprehensive health assessments, which may contribute to early detection and treatment of various conditions[16].

The implementation of Flask as the underlying framework allows to manage user requests, handle data processing, and maintain connections between different components. Also the proposed work represents a comprehensive solution for doctor appointment organization and healthcare assistance, leveraging machine learning techniques and diverse functions to enhance the overall healthcare experience for patients and healthcare professionals[12].

II. LITERATURE REVIEW

In [1], the author proposed a comprehensive survey upon the appointment scheduling within the healthcare sector. It states the challenges and opportunities surrounding this critical aspect of healthcare management. This system explores about the various scheduling methodologies.

The proposed system focuses on comprehensively discusses various scheduling methodologies and the role of emerging technologies, it may lack in-depth analysis or empirical validation of the proposed strategies. Without concrete examples or case studies, the effectiveness of the discussed approaches remains theoretical.

In [2], the proposed system focused on the application of machine learning techniques in healthcare appointment

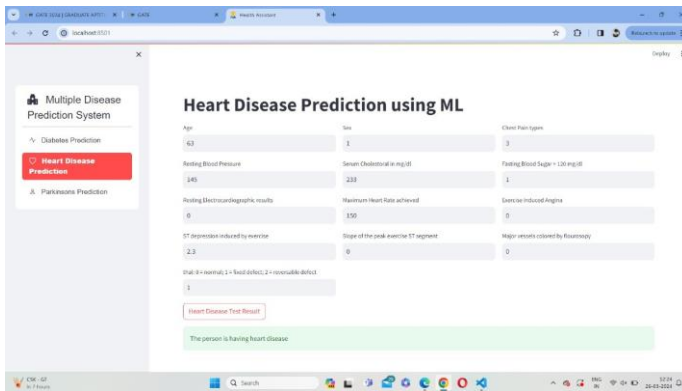


Fig. 7. Heart Disease Prediction

patients can choose symptoms, leading to disease prediction using a RandomForestClassifier model. Once the disease is predicted, the chat-bot provides a list of nearby hospitals for treatment. The chat-bot enhances the user experience by providing efficient healthcare support and facilitating easy access to medical services.

The multi-disease diagnosis employs a RandomForestClassifier model to predict the likelihood of three diseases such as Parkinson's, heart disease, and diabetes as in "Fig 7". It utilizes symptom inputs provided by the user during appointment booking to assess the probability of each disease. The app serves both doctors and patients, requiring specific inputs for accurate disease assessment. It enhances the platform's functionality by providing comprehensive health evaluation alongside appointment scheduling and other healthcare features.

V. FUTURE ENHANCEMENT

To expand access to healthcare services the proposed model is to develop a mobile application that complements the web platform. The objective is to create an app that functions smoothly on both iOS and Android devices, thereby increasing its reach. Partnering with leading wearable health device companies will enable to gather real-time health data such as heart rate, blood pressure, and daily activities. This information can be utilized to provide customized health guidance and proactive suggestions to users. By linking with existing electronic health record systems, healthcare providers will have unhindered access to patient medical histories.

VI. CONCLUSION

This work aims to enhance the productivity and ease of use of healthcare services through innovative technology. The utilization of the Random Forest Classifier within a doctor's appointment system, providing users with a way to make consultations. Additionally, a pharmacy section is integrated to enable smooth drug procurement, supporting ongoing treatment plans. A healthcare chat-bot is introduced to deliver necessary information and guidance, leading to increased user engagement. The email confirmations secure timely notification about scheduled appointments.

The multi-disease detection feature adds value to the platform, empowering users to acquire early knowledge about possible health problems. By utilizing machine learning algorithms and intuitive layouts, the system addresses the diverse expectations of different parties, such as patients and healthcare providers.

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