

DOCAI - AN SMART SYMPTOM ANALYSIS AND DOCTORS RECOMMENDATION TOOL

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ABSTRACT

This project introduces a cutting-edge Doc AI application designed to simplify the process of seeking medical advice by leveraging artificial intelligence and machine learning. Users input their symptoms through an intuitive interface, initiating a backend process that utilizes advanced natural language processing and machine learning models to analyze and identify potential health issues. The application then employs a specialized recommendation algorithm to suggest relevant healthcare professionals based on their specialization and success rates in treating similar conditions. The Doc AI app prioritizes user privacy and data security, implementing robust encryption protocols to safeguard sensitive medical information. Continuous learning mechanisms ensure ongoing improvement in diagnostic capabilities through user feedback and real-world patient outcomes. This innovation addresses the complexity of healthcare systems, offering a user-friendly tool for efficient symptom analysis and personalized doctor recommendations. By minimizing the time and effort users would spend in finding the right doctor, the app contributes to improved healthcare delivery, empowering individuals to make informed decisions about their health and ultimately enhancing overall healthcare outcomes.

Keyword: - Dialog Flow, React JS, MongoDB, Google Maps API

1. INTRODUCTION

In an era where technology is increasingly shaping every aspect of our lives, healthcare remains an area ripe for innovation and improvement. Recognizing the need for efficient and accessible healthcare services, Doc AI emerges as a pioneering solution aimed at revolutionizing the patient-doctor interaction paradigm. At its core, Doc AI seeks to bridge the gap between patients and specialized medical professionals by harnessing the power of artificial intelligence and digital connectivity. The primary objective of Doc AI is to provide patients with personalized recommendations for nearby specialized doctors based on their symptoms, thereby streamlining the process of seeking medical assistance. The journey begins with a user-friendly login page, designed to cater to both existing users and newcomers alike. For those already registered, seamless access is granted, eliminating the hassle of repetitive sign-ins. However, for new users, a straightforward sign-up process utilizing email IDs ensures secure authentication and access to Doc AI's suite of services. Upon successful authentication, users are ushered into a dynamic digital environment where they can input their symptoms with ease. Leveraging intuitive interfaces and advanced algorithms,

Doc AI analyzes these symptoms in real time, generating tailored recommendations for nearby specialized doctors. These recommendations encompass crucial details such as contact information, geographical location, and appointment scheduling facilities, empowering patients to make informed decisions regarding their healthcare needs. By seamlessly integrating technology into the healthcare ecosystem, Doc AI aims to enhance accessibility, efficiency, and overall patient satisfaction. Through its innovative approach, Doc AI seeks to redefine the healthcare landscape, making specialized medical care more accessible and personalized for patients worldwide. As we embark on this transformative journey, the promise of Doc AI shines bright, heralding a new era of healthcare excellence powered by artificial intelligence and digital innovation.

2. LITERATURE SURVEY

[1] C. Ju and S. Zhang, 2021 The recommendation model takes the real consultation data from online as the research object, fully testifying its effectiveness. Specifically, this model would make recommendations to patients on department and doctors based on patients' information of symptoms, diagnosis, and geographical location, as well as the doctor's specialty and department. Methods: Utilizing the crawler technique, five hospital departments were selected from the online medical service platform. a dataset consisting of 20000 consultation questions by patients was built.

[2] A. Bhansali and N. K. Nagwani, 2021 Doctor recommender system is a very useful and emerging area in data science and health informatics. In recent times many approaches and applications have been proposed in this direction. This paper presents a simple prototype of recommending a doctor using classification-based models. In the proposed approach patients' information and preferences are selected as input to train the model and using classification algorithms a suitable doctor is recommended. In this work probability-based classifiers and decision tree-based classifiers are used for recommending a doctor and a comparative study is also presented between them.

3. THEORY OF PROBLEM

3.1 OBJECTIVES

DocAI is a cutting-edge app that combines AI-driven symptom analysis with doctors' recommendations, providing users with accurate health insights and expert advice for improved well-being.

3.2 AIM OF THE PROJECT

DocAI offers smart symptom analysis and doctor recommendations, ensuring quick, accurate health advice for users. It combines cutting-edge technology with medical expertise, promoting well-being and peace of mind.

3.3 HOW SYSTEM WORKS



Figure-1: Method Flow

The journey begins with a user authentication system, ensuring secure access to Doc AI. Users are prompted to log in using their email ID and a strong password. For existing users, a streamlined login process eliminates the need for repetitive sign-ins, enhancing user experience. However, for new users, a straightforward sign-up process is facilitated, enabling them to create an account seamlessly. Upon successful authentication, users are directed to the main interface, where they input their symptoms. Leveraging Flutter's intuitive user interface, the symptom entry page is designed for ease of use, featuring user-friendly input fields and clear instructions. Users can input their symptoms manually or

utilize voice-to-text functionality for added convenience. Behind the scenes, Node.js powers the backend logic, handling user requests and processing symptom data. As users input their symptoms, Doc AI employs sophisticated algorithms to analyze the data and generate personalized recommendations. These algorithms utilize machine learning and data analytics techniques to correlate symptoms with potential medical conditions, ensuring accurate and reliable results. Once the symptom analysis is complete, Doc AI retrieves data from the hybrid database system, which comprises MongoDB. MongoDB serves as a flexible document-oriented database, accommodating unstructured data related to patient symptoms and medical histories. The frontend interface dynamically renders nearby specialized doctors based on the user's symptoms, utilizing real-time geolocation data to identify practitioners in the vicinity. Users are presented with a curated list of doctors, complete with contact details, location maps, and appointment scheduling options. Flutter's responsive design ensures a seamless user experience across various devices, including smartphones, tablets, and desktops. Building upon the recommendation engine, Doc AI facilitates seamless appointment booking and management functionalities. Users can select their preferred doctor and schedule appointments directly through the platform. Leveraging Flutter's interactive widgets, the appointment booking process is intuitive and efficient, allowing users to specify their preferred date, time, and additional preferences. Behind the scenes, Node.js orchestrates appointment scheduling logic, coordinating between users, doctors, and available time slots. The databases manage appointment records, ensuring data integrity and efficient retrieval of scheduling information. Meanwhile, MongoDB stores auxiliary data, such as user preferences and appointment histories, enabling personalized recommendations and streamlined user experiences. Additionally, Doc AI incorporates automated reminders and notifications to enhance appointment adherence and patient engagement. Users receive timely reminders via email or push notifications, reducing the likelihood of missed appointments and improving overall healthcare outcomes. As Doc AI evolves, continuous feedback and iteration are essential for enhancing performance and addressing user needs. Utilizing Flutter's hot reload feature, frontend developers can rapidly iterate on UI enhancements, incorporating user feedback and improving usability. Meanwhile, Node.js enables agile backend development, facilitating seamless integration of new features and functionalities. Moreover, leveraging data analytics and user feedback, Doc AI refines its recommendation algorithms, ensuring the accuracy and relevance of doctor recommendations. By harnessing the power of machine learning and artificial intelligence, Doc AI continuously adapts to changing user preferences and healthcare trends, delivering personalized experiences tailored to individual needs. Doc AI represents a groundbreaking fusion of technology and healthcare, revolutionizing the way patients access specialized medical care. By leveraging Flutter for the front end, Node.js for the backend, and database system MongoDB, Doc AI delivers a seamless user experience, from symptom input to doctor recommendation and appointment scheduling. With its intuitive interface, personalized recommendations, and streamlined workflows, Doc AI empowers patients to take control of their health journey, facilitating timely access to specialized care and improving overall healthcare outcomes.

3.4 IMPLEMENTATION AND WORKS

A. React JS

In addition to web applications, React JS can be used to build web applications using the same codebase, expanding its utility and making it a versatile framework for developers.

B. Node.js

Node.js is cross-platform and can run on various operating systems, including Windows, macOS, and Linux. This makes it easy to develop and deploy applications across different environments.

C. MongoDB

Unlike traditional relational databases, MongoDB does not enforce a rigid schema. Each document in a collection can have different fields, and fields can vary in data type. This provides flexibility and makes it easier to adapt to evolving data requirements.

D.API integration

API integration refers to the process of connecting and allowing communication between different software systems via their application programming interfaces (APIs)

E. Dialogflow

Dialogflow is a natural language understanding (NLU) platform developed by Google for building conversational interfaces, such as chatbots and voice-activated applications.

F. JWT tokens

JWTs are often used to secure the communication between a client and a server and can be used as a stateless way of authenticating users.

ILLUSTRATION OF RESULT:

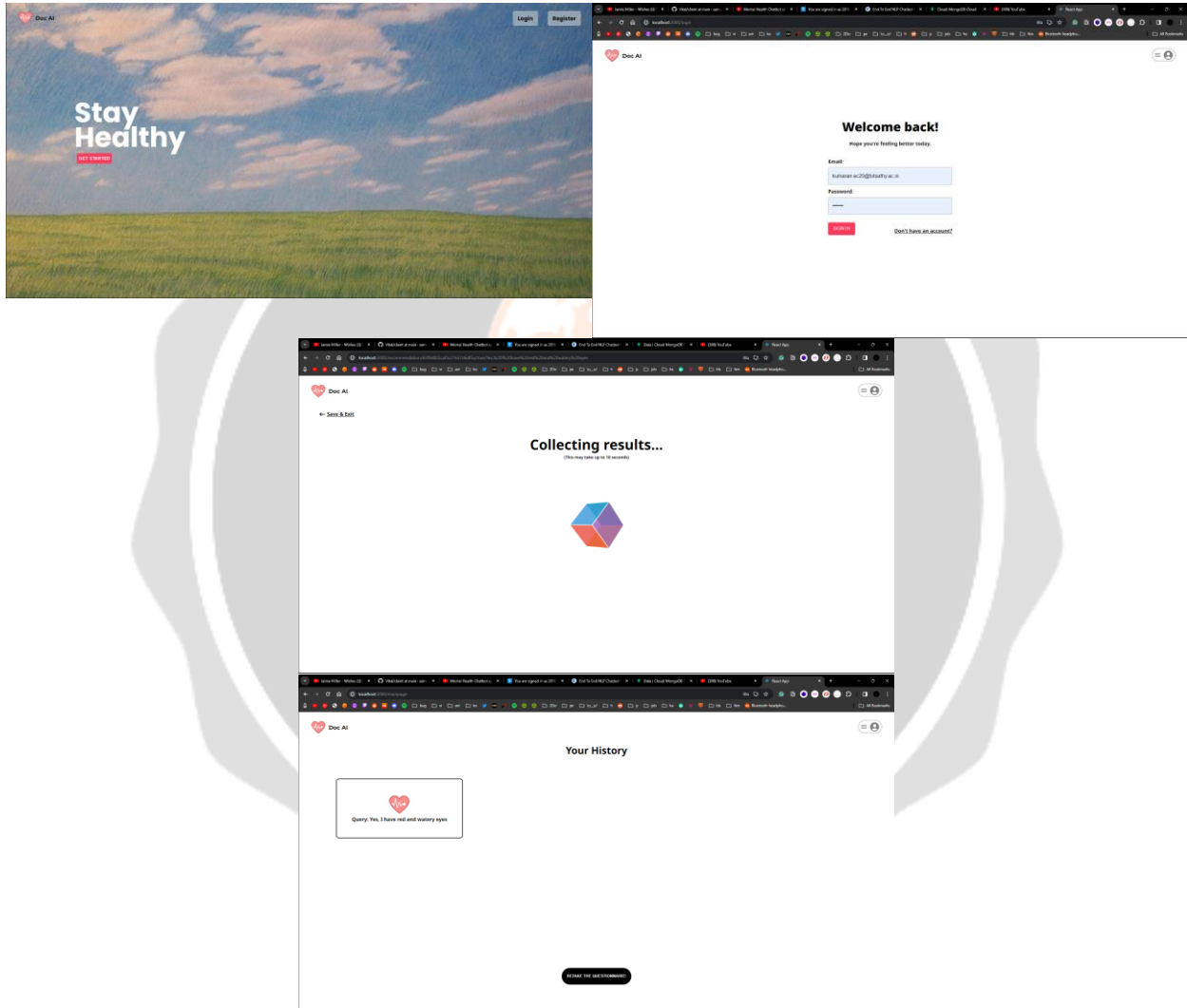


Fig 2 : Webpages of DocAI application

Doctor AI facilitates easier access to specialized healthcare services by providing a user-friendly platform for patients to find nearby doctors based on their symptoms.

Patients can input their symptoms into the application, which then uses advanced algorithms to match them with relevant specialists in their vicinity, ensuring targeted medical assistance.

The application allows users to schedule appointments with recommended doctors seamlessly, reducing waiting times and ensuring timely access to medical care.

4. CONCLUSIONS

In conclusion, the Doc Ai project holds the promise of revolutionizing healthcare navigation by leveraging advanced technologies to connect users with specialized doctors based on their symptoms. The proposed framework envisions a user-friendly application, ensuring secure authentication, accurate doctor recommendations, and seamless appointment booking. The incorporation of user profiles, feedback systems, and emergency services integration adds depth to the platform's functionality. While the project is currently in the conceptual stage, the anticipated outcomes aim to enhance the overall healthcare experience for users.

5. REFERENCES

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