MEDCARE

An ML based disease prediction and drug reccomendation system

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OBJECTIVE

An advanced Machine
Learning Model designed for
Disease Prediction based on
Symptom Analysis.

MOTIVATION

Healthcare Challenges: The accurate diagnosis of diseases based solely on symptoms remains a significant challenge in healthcare, often leading to delayed treatments and compromised patient outcomes.

Empowering Medical Professionals: Our work aims to provide medical professionals with a sophisticated tool for disease prediction, leveraging advanced machine learning techniques. By enhancing diagnostic accuracy, we empower healthcare providers to make more informed decisions and optimize patient care pathways.

Improving Patient Care: Timely and accurate disease prediction is paramount for improving patient care and overall health outcomes. Our model facilitates early disease detection, enabling prompt interventions and personalized treatment plans tailored to individual patient needs.

EXISTING PROJECTS

Heart Disease Prediction App: A simple web application that predicts the risk of heart disease based on user-entered symptoms and demographic information. It utilizes a machine learning model trained on a dataset of patient records to provide personalized risk assessments.

Skin Cancer Detection Tool: An image classification tool that analyzes photos of skin lesions to detect signs of melanoma and other types of skin cancer. The model is trained on a dataset of labeled skin images and provides risk assessments based on visual symptoms.

EXISTING PROJECTS

Diabetes Risk Calculator: A simple desktop application that predicts the risk of developing type 2 diabetes based on factors such as age, weight, family history, and lifestyle habits. Users input their information, and the app generates a personalized risk score along with recommendations for prevention.

Allergy Symptom Tracker: A mobile app that allows users to track their allergy symptoms over time and predicts allergy triggers based on environmental factors, pollen counts, and user-reported data. It offers personalized recommendations for managing allergy symptoms.

HOW IS OUR PROJECT DIFFERENT?

Comprehensive Disease Coverage:

Unlinke the existing projects mentioned, our project aims to cover a vast range of 41 diseases including Fungal infection, Allergy, GERD, Heart attack, Varicose veins, Hypothyroidism etc.

Multi-Symptom Analysis:

The model covers multiple symptoms to predict the disease of the patient, it helps in improving the accuracy and efficiency of the output.

MODULES

DJANGO: To provise a user interface, provide a framework to the application integrate the machine learning model with

APIs:Integration with External Data Sources, allows your project to receive symptom inputs from users and send them to a machine learning model for prediction.

Ajax: Implementing AJAX in the symptom input form allows users to dynamically search for symptoms as they type.

MODULES

Scikit-learn: Preprocessing of Data

Library for Python, tools: for data mining and data analysis Building and training models

WORKFLOW

The collected symptom data underwent preprocessing to standardize formats, handle missing values, and encode the diseases with numbers. This was to ensure that the data is in a suitable format for analysis.

The predictive model was evaluated using validation datasets. Performance metrics such as accuracy, sensitivity and specificity were used to assess the models' effectiveness in predicting diseases based on symptoms.

Finally, the predictions are presented to healthcare providers or providers through a user-friendly interface. The system displays the predicted diseases along with their corresponding probabilities.

DATA COLLECTION **DATA PREPROCESSING** MACHINE LEARNING AND TRAINING **EVALUATION OF MODEL PREDICTION** RESULT

The system starts by collecting data on symptoms reported by patients. This data come from various sources such as patient interviews, electronic health records (EHR), or symptom tracking applications.

We referred Kaggle for this data.

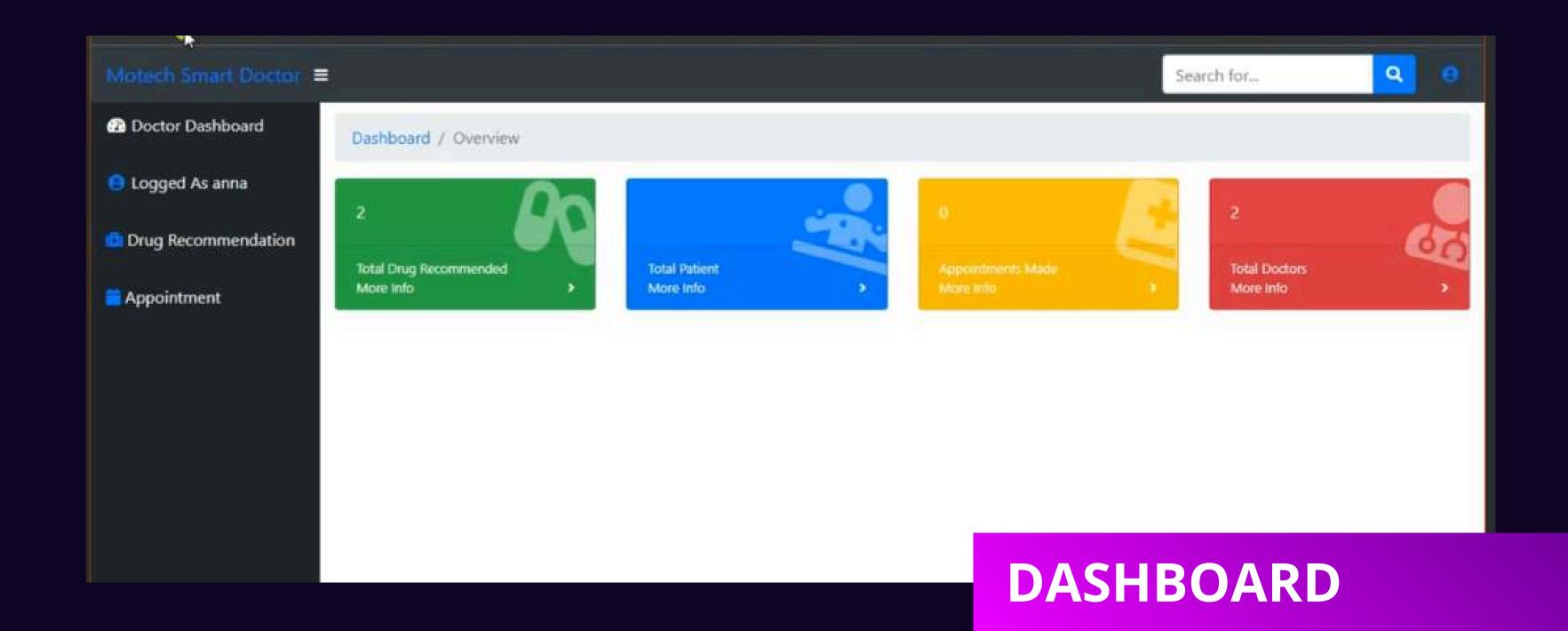
The preprocessed data then was used to train machine learning models. Decision trees, support vector machines (SVM) were employed for this task.

When a new set of symptoms is inputted into the system, the trained models are used to predict the likelihood of various diseases. The models analyze the input symptoms and provide predictions of the most probable diseases or conditions that the patient may have.

OUTCOME



OUTCOME



HOW IT SERVES TO THE PUBLIC COMMUNITY?

The disease prediction system based on symptoms offers a proactive approach to healthcare within the community. By analyzing symptoms, it aids in **early disease detection**, enabling individuals to seek timely medical attention and prevent health issues from worsening. This not only **reduces the strain on healthcare resources** but also **empowers individuals** to take control of their health.

Additionally, these systems **promote health education** by providing information on symptoms, risk factors, and preventive measures, fostering a culture of proactive health management. Overall, disease prediction systems contribute to better health outcomes and improved community well-being.

RESPONISIBILITIES OF EACH MEMBER

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Model Training for Disease Prediction

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ML Model Research

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Patient Dashboard

SWATI

Dataset and data preprocessing

HARSHITAA ASHISH

Medicine reccomendation model

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UI development

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Doctor Dashboard

ADITYA PANDEY

REFERENCES

https://github.com/undiscovered-genius/Heart-Disease-Prediction-App/tree/main/app

https://www.jatit.org/volumes/Vol98No19/5Vol98No19.pdf

https://www.jatit.org/volumes/Vol98No19/5Vol98No19.pdf

THANKYOU