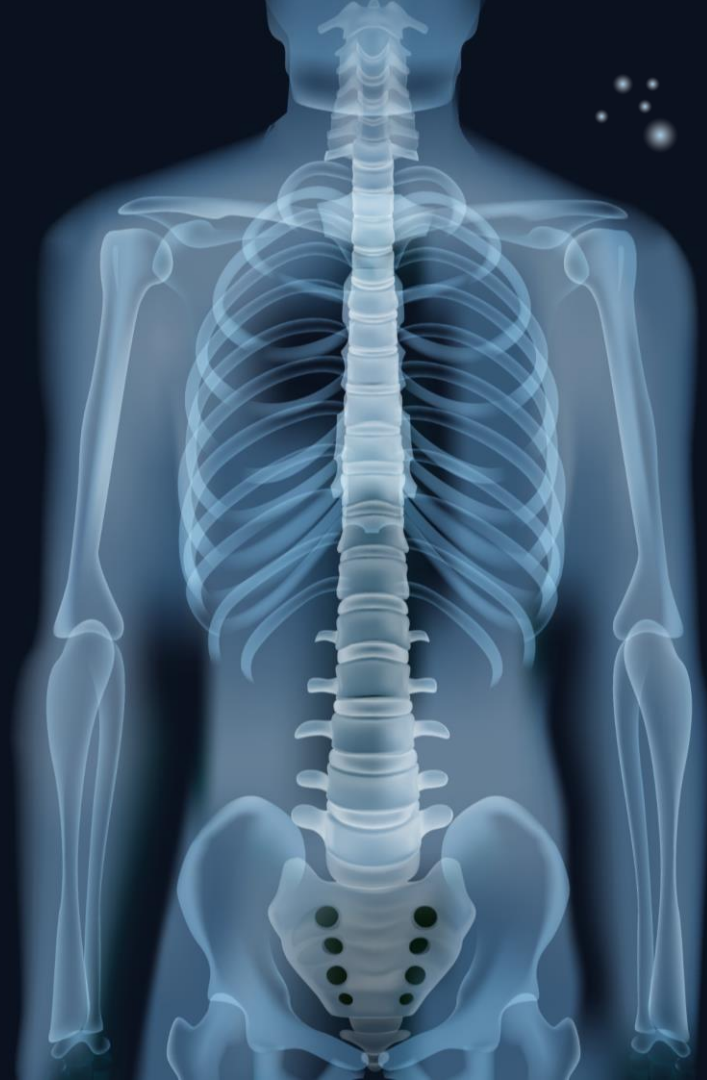
Medicine Recommendation System

A Machine Learning Project



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Overview

This project focuses on developing a comprehensive recommendation system that predicts diseases. give detailed description of the predicted diseases and recommends medications based on the symptoms input by users.However there is need for a disclaimer that the recommender system we are to put in place does not in anyway replace a doctor and there is still need to seek a doctors opinion.

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Problem Statement

Many individuals face challenges in accessing timely and accurate medical advice due to various factors such as geographical barriers, busy schedules, and overcrowded healthcare facilities. These challenges often lead to delayed diagnosis and treatment, potentially worsening health conditions. There is a need for a solution that can provide immediate, reliable, and personalized medical recommendations based on symptoms, thereby improving accessibility to healthcare and reducing the strain on medical facilities.

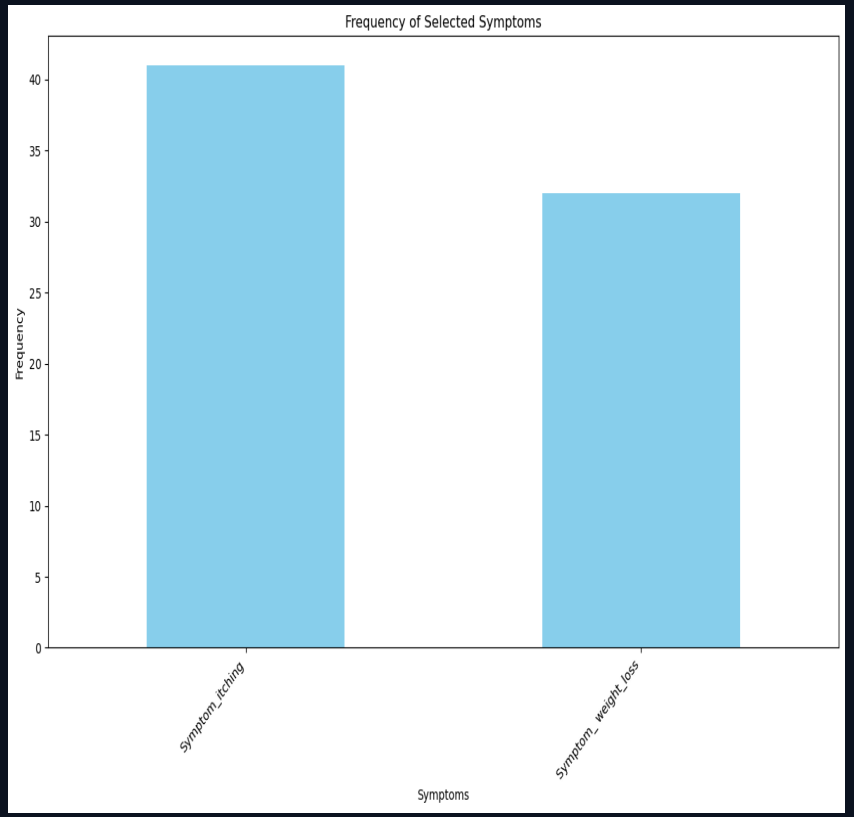
Objectives

- To gather a repository of detailed descriptions for a wide range of diseases, including causes, symptoms, and treatment options.
- To develop and train a machine learning model on extensive medical data to predict possible diseases based on the input symptoms.
- To give detailed descriptions of the predicted disease.
- To recommend appropriate medications based on the predicted disease.
- To integrate a user-friendly interface for individuals to input their symptoms.

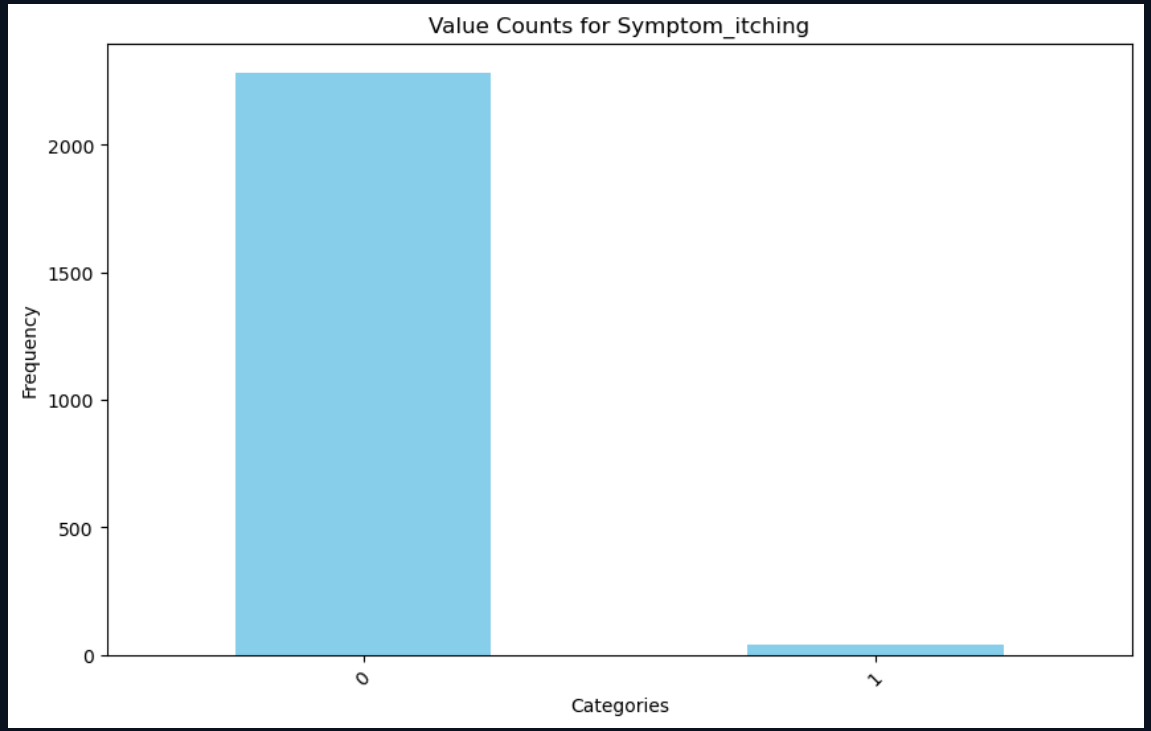
DATA UNDERSTANDING

- After further inspection of all the datasets the most important datasets are the dataset, dataset and the medication dataset. In order to create the medicine recommendation system these are the two datasets that we will be utilizing.

EDA



- visualization of the frequency of specified symptoms in the DataFrame, hence able to tell which is the most frequent symptom occuring in most diseases



visualizing the value count of the specified symptoms and hence one is able to tell how many times it appeared or not

Modelling

The model we used was a multi output random classifier Model. This is how it performed:

- `Disease Prediction Accuracy: 1.00`
- `Medication Prediction Accuracy (Subset Accuracy): 0.99`

User Interface

We built the User interface using bootstrap. The reason we used bootstrap is due to its:

- Responsive Design
- Consistency Across Browsers
- Efficiency in Development

Deployment

For the deployment of our machine learning models, we utilized both Flask and Streamlit to create an interactive user experience.

- **Flask**: We used Flask, a lightweight web framework, to build a robust backend service. Flask allowed us to handle HTTP requests and serve the trained models to the end-users.
- **Streamlit:** Streamlit enabled us to rapidly develop a user-friendly interface where users can input symptoms and receive real-time predictions for potential diseases and recommended medications.

Conclusion

The models show excellent performance, with a disease prediction accuracy of 1.00 and medication prediction accuracy (subset accuracy) of 0.99. These results indicate that the models are highly effective at their respective tasks, potentially offering valuable insights in a healthcare setting

THANK YOU