🩺 Health Buddy

Project Report

Submitted by: Rohit Kushwaha

Course: CS 584 - Machine Learning

Duration: Oct-2024- Nov-2024

Technologies: Python, Flask, scikit-learn, Pandas, HTML, CSS

Dataset Source: Kaggle

📘 Introduction

The rapid development in Artificial Intelligence and Machine Learning has enabled the creation of systems that can predict diseases with a fair degree of accuracy based on symptoms. This project, Disease Prediction and Medical Recommendation System, is an initiative to assist users by predicting possible diseases and suggesting remedies, diets, precautions, and medications using machine learning models.

🎯 Objectives

- To develop a system that can accurately predict diseases based on user-input symptoms.
- To recommend appropriate medications, dietary plans, workouts, and precautions.
- To provide an easy-to-use interface for non-technical users through a web application.
- To utilize real-world medical datasets to train and evaluate machine learning models.

🗂️ Dataset Overview

- Training.csv: Dataset for training disease prediction models based on symptoms.
- medications.csv: Maps diseases to suggested medications.
- diets.csv: Recommended diets per disease.
- workout_df.csv: Workout suggestions per illness.
- precautions_df.csv: Precautionary steps.
- Symptom-severity.csv: Assigns weights to symptoms.
- description.csv: Contains disease descriptions.
- symptoms_df.csv: Mapping of symptoms to diseases.

🧠 Machine Learning Model

Algorithm Used: Random Forest Classifier

Model File: RandomForest.pkl

Input: Symptoms selected by the user

Output: Predicted disease and corresponding recommendations

Accuracy: [Insert Accuracy if available]

🛠️ Project Structure

```
main.py                  - Flask application
Health_Buddy.ipynb  - Notebook for data processing & model training
model/
   └── Model.pkl        - Trained ML model
kaggle_dataset/
   ├── Training.csv
   ├── medications.csv
   ├── diets.csv
   ├── precautions_df.csv
   ├── Symptom-severity.csv
   ├── symptoms_df.csv
static/
   └── *.jpg, *.png          - Images for frontend
templates/
   └── index.html            - Frontend UI
```

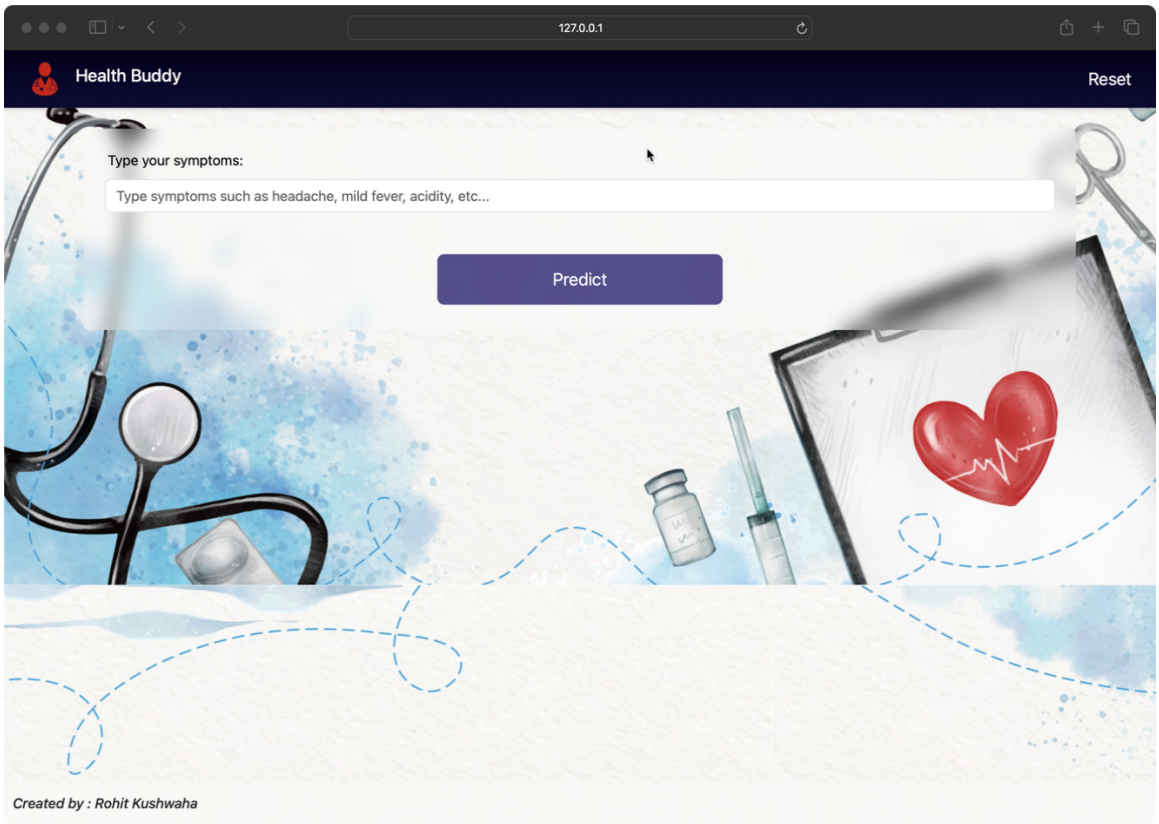
🌟 Features

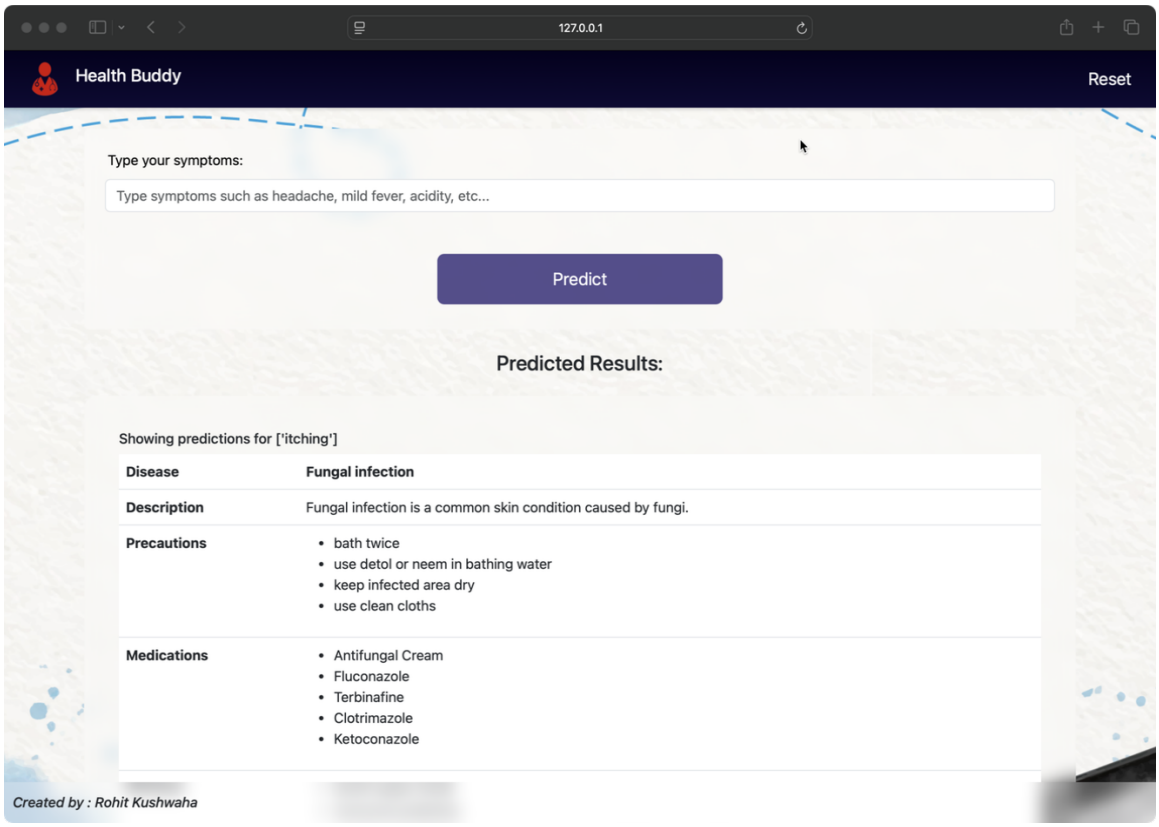
- 📄 Disease prediction using symptom analysis
- 💊 Medication recommendations
- 🥗 Personalized diet plans
- 🏋️ Workout suggestions for recovery and wellness
- ⚠️ Precautions to be taken for each disease
- 🖥️ Web-based interface using Flask
- 🧪 Ready-to-use trained ML model

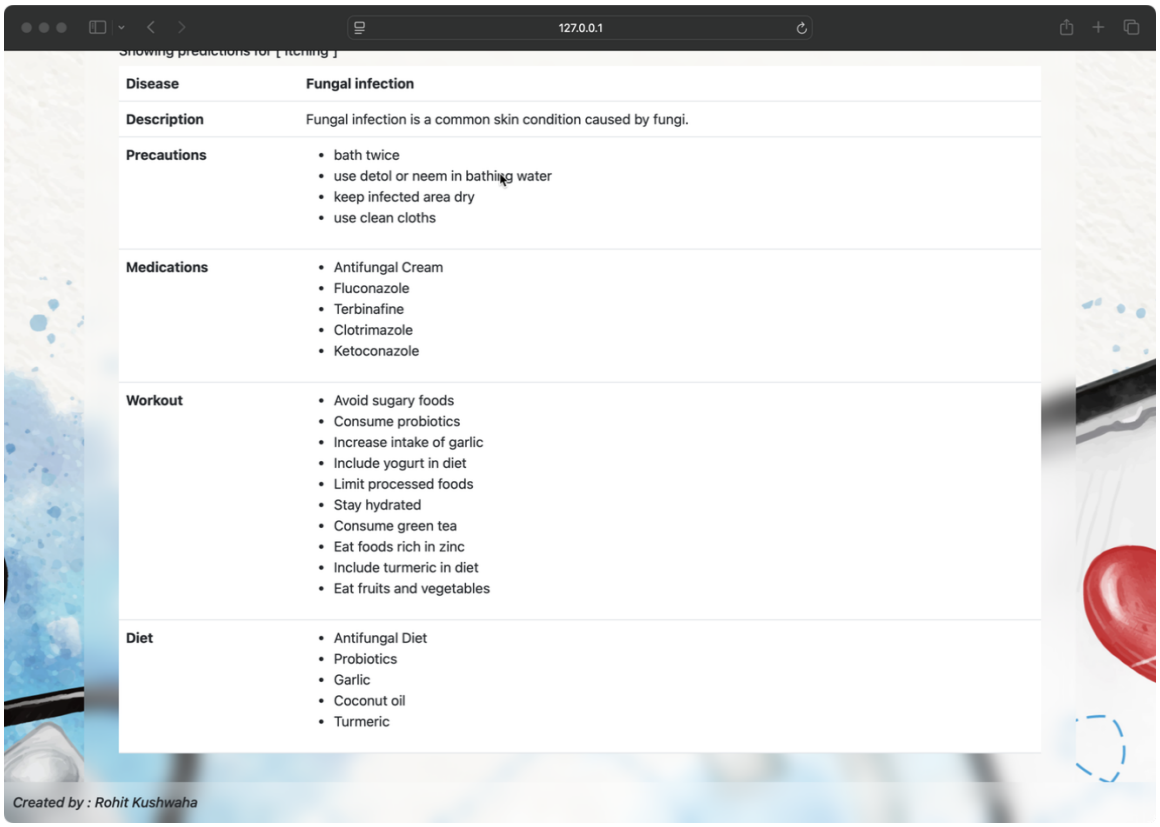
▶️ How to Run the Project

- Set up a virtual environment:
- python -m venv venv
- source venv/bin/activate # For Linux/macOS
- venv\Scripts\activate   # For Windows
- Install required libraries:
- pip install -r requirements.txt
- Start the Flask app:
- python main.py
- Visit in browser:
- http://localhost:5000

📸 Screenshots




127.0.0.1
Health Buddy
Reset
Type your symptoms:
Type symptoms such as headache, mild fever, acidity, etc...
Predict
Predicted Results:
Showing predictions for ['itching']
Disease
Fungal infection
Description
Fungal infection is a common skin condition caused by fungi.
Precautions
bath twice
use detol or neem in bathing water
keep infected area dry
use clean cloths
Medications
Antifungal Cream
Fluconazole
Terbinafine
Clotrimazole
Ketoconazole
Created by : Rohit Kushwaha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Medications
Antifungal Cream
Fluconazole
Terbinafine
Clotrimazole
Ketoconazole
Workout
Avoid sugary foods
Consume probiotics
Increase intake of garlic
Include yogurt in diet
Limit processed foods
Stay hydrated
Consume green tea
Eat foods rich in zinc
Include turmeric in diet
Eat fruits and vegetables
Diet
Antifungal Diet
Probiotics
Garlic
Coconut oil
Turmeric
Created by : Rohit Kushwaha

📌 Conclusion

This system demonstrates how machine learning can enhance healthcare accessibility by offering preliminary disease detection and personalized health recommendations. While it's not a replacement for professional medical diagnosis, it serves as a useful assistant tool.

📚 References

- Kaggle Datasets: https://www.kaggle.com/datasets
- Scikit-learn Documentation
- Flask Web Framework