AI-Powered Personal Health Assistant

Project Report

Submitted by:

Rahul

AICTE Internship Student Registration ID :
[STU67ded4966aaae1742656662]

Department of Artificial intelligence

collage name : Bk Birla institute of technology Pilani

University name : Bikaner technical university

City : Surajgarh

State : Rajasthan

Year: 2025

Month: may

AI-Powered Personal Health Assistant

• Introduction:

This project aims to develop an AI-powered personal health assistant that predicts diseases based on user input symptoms using Natural Language Processing (NLP) and Machine Learning.

Problem Statement:

Many people lack access to timely health insights. This system helps users identify possible conditions based on their symptoms, making early self-assessment more accessible

AI-Powered Personal Health Assistant

- **Goals:**

- Understand user symptoms via NLP-
- Predict diseases using ML
- Provide health-related suggestions
- Expand with more features like food tracking, wearable integration, etc.

Machine Learning Pipeline:

1. Input symptoms as free-text
2. Process input with TF-IDF
3. Predict disease using a Naive Bayes classifier
4. Output most likely condition

AI-Powered Personal Health Assistant

- **Dataset:**

The dataset used contains symptom phrases and corresponding disease labels. This prototype uses a small sample dataset, but can be expanded using real-world data sources from Kaggle or medical APIs.

AI-Powered Personal Health Assistant

- Code:

```python
import pandas as pd
from sklearn.feature_extraction.text import TfidfVectorizer
from sklearn.naive_bayes import MultinomialNB
from sklearn.pipeline import Pipeline
import nltk

# Sample dataset
data = {
    "symptoms": [
        "fever and cough",
        "headache and nausea",
        "sore throat and runny nose",
        "chest pain and shortness of breath",
        "fatigue and weight loss"
    ],
    "disease": [
        "flu",
        "migraine",
        "common cold",
        "heart disease",
        "diabetes"
    ]
}

df = pd.DataFrame(data)

# Build the ML pipeline
model = Pipeline([
    ('tfidf', TfidfVectorizer()),
    ('clf', MultinomialNB())
])

# Train model
model.fit(df['symptoms'], df['disease'])

# Inference
def predict_disease(symptom_input):
    prediction = model.predict([symptom_input])[0]
    return prediction

# Example usage
user_input = input("Describe your symptoms: ")
predicted_disease = predict_disease(user_input)
print(f"Based on your symptoms, you might have: {predicted_disease}")

```

AI-Powered Personal Health Assistant

- **Future Scope:**

- Add food image analysis using computer vision
- Integrate with wearable devices (e.g., Fitbit)
- Include chatbot interface for interactive diagnosis
- Enable health risk prediction models.

Conclusion :

This AI health assistant provides a foundational tool for early disease prediction using symptom analysis. With future integrations, it can evolve into a comprehensive health support platform.