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MEDICAL SYMPTOM CHECKER – MINI PROJECT REPORT

1. Problem Statement

The goal of this project is to design and implement a rule-based Medical Symptom Checker using pure Python without external libraries.

The system should take user-entered symptoms, compare them with a predefined knowledge base, calculate scores for possible conditions, and provide likely diagnoses along with recommendations such as:

- Self-care
- Visit a doctor
- Emergency attention

This project aims to demonstrate basic AIML logic without any machine-learning model training.

2. Objectives
- To build a simple, interactive symptom checker using pure Python.
- To implement AIML-style rule-based reasoning without external libraries
- To store symptoms and weights for each condition in a Python dictionary.
- To match user symptoms against condition symptoms using exact and partial matching.
- To generate human-friendly, interpretable medical recommendations.
- To create a modular and easily extendable AI mini-project.

3. System Design (Flowchart & Use Case)

START

  ↓

Collect Patient Age

  ↓

Check for Emergency Symptoms

  ↓

If Emergency → Show Immediate Warning → END

  ↓

Input Symptoms (until 'done')

  ↓

Match Symptoms with Knowledge Base

  ↓

Calculate Weighted Scores

  ↓

Rank Possible Conditions

  ↓

Generate Recommendation

  ↓

Display Results

  ↓

END

4 .Use Case Description

Actor: User

System: Medical Symptom Checker

Steps:

1. User enters age.
2. System checks for red-flag emergency symptoms.
3. User inputs symptoms.
4. System analyzes symptoms using weighted scoring.
5. System displays likely condition(s) and proper advice

4. Working & Explanation

The symptom checker is entirely rule-based.

It uses a knowledge base containing several medical conditions such as:

- Common Cold
- Flu
- COVID-19
- Strep Throat
- Migraine
- Gastroenteritis
- UTI
- Pneumonia

Each condition has a list of symptoms with assigned weights.

When the user enters symptoms, the system:

1. Normalizes user inputs
2. Performs exact and partial symptom matching
3. Calculates total scores
4. Ranks the conditions
5. Detects emergencies such as:
- Severe chest pain
- Severe breathing difficulty
- Loss of consciousness

6. Generates:
- Likely / possible condition
- Recommendation
- Top matched conditions

This makes the system simple, interpretable, and effective for demo purposes.

5.Output Screenshots

Welcome to the Medical Symptom Checker

Enter age: 21

Are you experiencing severe chest pain? (y/n): n

Are you having severe difficulty breathing? (y/n): n

Have you lost consciousness? (y/n): n

Enter symptoms (type 'done' to finish):

fever

dry cough

loss of taste

done

--- RESULTS ---

Severity Level : Likely

Condition   : COVID-19

Recommendation : Get tested and isolate.

Top Matches:

 - COVID-19 : 4.1

 - Flu   : 2.3

 - Common Cold : 1.8

6. Conclusion

The Medical Symptom Checker is a successful demonstration of a rule-based AI system implemented using pure Python.

It effectively matches symptoms to medical conditions using weighted logic, without relying on machine learning libraries.

The project showcases how AIML concepts can be applied to real-life scenarios while keeping the system simple, interpretable, and easy to extend.

7. References

- Symptom descriptions and condition lists collected from publicly available medical resources such as:
- Mayo Clinic
- CDC
- WebMD