ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING (AIML) - PROJECT (Abstract)

Teams Members:

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Problem Statement:

Developing an AI-Based Symptom Checker for Early Detection of Common Diseases.

Early detection and diagnosis of diseases play a crucial role in effective healthcare management and treatment. However, many individuals do not have immediate access to healthcare professionals for initial diagnosis based on symptoms. This project aims to create a beginner-friendly, AI-based symptom checker that can help users identify potential common diseases based on their reported symptoms. The system will utilize a simple machine learning model to classify diseases, providing users with an initial assessment of their health condition and guiding them towards seeking appropriate medical advice.

Dataset:

- Title**:** Symptom-Disease Association Dataset
- Source**:** National Health Portal of India

ALGORITHM:

Machine Learning Model: The project will employ basic classification algorithms such as **Decision Trees** and **Random Forests**, implemented using the Scikit-learn library. These algorithms are well-suited for beginners and provide a clear understanding of how machine learning models can classify data based on input features.

Project Prerequisites:

1. **Knowledge and Skills:**
    - Basic understanding of machine learning concepts (e.g., classification, training/testing models).
    - Familiarity with data pre-processing techniques.
    - Proficiency in Python programming.
    - Basic knowledge of common diseases and their symptoms.

2. **Technical Tools:**
    - **Programming Language:** Python
    - **ML Libraries/Frameworks:** Scikit-learn for basic classification algorithms (e.g., Decision Trees, Random Forest)
    - **Data Analysis Tools:** Pandas, NumPy
    - **Data Visualization:** Matplotlib or Seaborn (for visualizing results)
    - **User Interface (optional):** Simple command-line interface or web interface using Flask.

3. **Resources:**
    - **Dataset:** A dataset containing symptoms and associated common diseases (e.g., from public health sources like National Health Portal of India).
    - **IDE:** Jupyter Notebook or any Python IDE (e.g., PyCharm, VSCode)

EXPECTED OUTCOME:

The project will result in the development of a functional symptom checker that can:

- Take user input for symptoms and predict potential diseases based on the reported symptoms.
- Utilize a basic classification model to categorize the input symptoms into one or more diseases.
- Provide a simple and user-friendly interface for easy interaction, either through a command-line interface or a web-based interface using Flask.
- Offer basic insights into the relationship between symptoms and diseases, helping users understand the possible health conditions associated with their symptoms.