**Abstract:**

**Title:** Interactive Health Chatbot with Data Visualization for Disease Statistics

**Objective:**

This project aims to develop an **Interactive Health Chatbot with Data Visualization for Disease Statistics** that combines an AIML-based conversational agent with data visualization tools to enhance the accessibility and understanding of health information. The chatbot provides immediate responses to health-related queries, while the data visualization component offers a clear representation of disease statistics.

**Components and Methodology:**

1. **AIML-Based Health Chatbot:**
   * **Technology Used:** The chatbot is built using the Artificial Intelligence Markup Language (AIML), a specialized XML-based language for creating conversational agents. AIML allows for defining patterns and responses that guide the chatbot's behavior.

Implementation:

A screenshot of a computer program

Description automatically generated

* + **Explanation:**
    - import aiml: Imports the AIML library necessary for creating the chatbot.
    - kernel = aiml.Kernel(): Initializes the AIML kernel, which handles AIML processing.
    - kernel.learn("health\_chatbot.aiml"): Loads the AIML file, which contains the predefined patterns and responses for the chatbot.
    - get\_response(user\_input): A function that uses the respond method of the AIML kernel to provide a response based on user input.
    - print("Chatbot Response:", response): Tests the chatbot with a sample input and prints the response.

2. **Data Visualization:**

* **Technology Used:** Python libraries Pandas and Matplotlib are used for data manipulation and visualization. Pandas is employed to handle and structure the data, while Matplotlib is used to generate graphical representations.
* **Implementation:**

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Description automatically generated

* + - **Explanation:**
      * import matplotlib.pyplot as plt and import pandas as pd: Import necessary libraries for data visualization and manipulation.
      * data = {...}: Defines a dictionary containing sample disease statistics.
      * df = pd.DataFrame(data): Converts the dictionary into a Pandas DataFrame for easier data handling.
      * plt.figure(figsize=(8, 5)): Creates a new figure with specified dimensions.
      * plt.bar(df['Disease'], df['Cases'], color='skyblue'): Plots a bar chart with diseases on the x-axis and the number of cases on the y-axis, using a sky-blue color for the bars.
      * plt.xlabel('Disease') and plt.ylabel('Number of Cases'): Set the labels for the x-axis and y-axis, respectively.
      * plt.title('Disease Statistics'): Sets the title for the chart.
      * plt.show(): Displays the generated chart.

**Results:**

The AIML-based chatbot effectively responds to health-related queries, providing users with relevant and accurate information. The data visualization component presents disease statistics in a clear and understandable manner, enabling users to easily interpret the prevalence of various diseases.

**Conclusion:**

The integration of an AIML-based chatbot with a data visualization component creates a comprehensive tool for health information dissemination. This project highlights the potential of combining conversational AI and data visualization to improve the accessibility and clarity of health data, contributing to better-informed decision-making and health education.

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