# DISEASE PREDICTION

#### Project Overview

The Multi-Disease Prediction System is a health care initiative aimed at early diagnosis of various diseases using machine learning models. This project involves creating predictive models to determine the likelihood of an individual having a specific disease based on several health parameters such as Body Mass Index (BMI), blood sugar levels, and other relevant factors. The diseases targeted in this project include diabetes, heart disease, and Parkinson's disease. The final output will be a user-friendly web application developed with Streamlit in Python, allowing users to interactively select and predict different diseases.

#### Objectives

1. **Early Diagnosis**: Enable early detection of diseases to improve patient outcomes and reduce healthcare costs.
2. **Multiple Disease Prediction**: Develop models capable of predicting various diseases using appropriate datasets and parameters.
3. **User-Friendly Interface**: Deploy the models as a web application for easy accessibility and use by healthcare professionals and individuals.

#### Methodology

1. **Data Collection and Preprocessing**:
2. **Feature Selection**:
   * Identify critical features for each disease prediction model. For instance:
     + **Diabetes**: BMI, blood sugar levels, age, family history.
     + **Heart Disease**: Cholesterol levels, blood pressure, BMI, smoking history.
     + **Parkinson's Disease**: Motor function scores, genetic factors, age, environmental exposure.
3. **Model Development**:
   * Use machine learning algorithms such as Logistic Regression and to build predictive models for each disease.
4. **Model Integration**:
   * Integrate the individual disease prediction models into a single system.
5. **Web Application Development**:
   * Use Streamlit to develop an interactive and user-friendly web application.
   * Implement navigation features like a sidebar to select different diseases.
6. **Deployment and Testing**:
   * Deploy the web application on a cloud platform for accessibility.
   * Conduct thorough testing to ensure accuracy and usability of the system.
   * Gather user feedback and make necessary improvements.

#### Expected Outcomes

* A robust and accurate multi-disease prediction system capable of early diagnosis based on user inputs.
* An interactive web application accessible to healthcare professionals and individuals for disease prediction.
* Improved awareness and proactive health management among users.

#### Tools and Technologies

* **Programming Language**: Python
* **Machine Learning Libraries**: Scikit-learn, TensorFlow
* **Web Framework**: Streamlit
* **Data Visualization**: Matplotlib

This Multi-Disease Prediction System aims to revolutionize preventive healthcare by providing an accessible and efficient tool for early disease detection, ultimately contributing to better health outcomes and reduced healthcare costs.