Heart Disease

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Title: heart disease

Description: Heart disease is one of the leading causes of death worldwide, and early detection plays a crucial role in saving lives. Many heart-related problems do not show clear symptoms at the initial stage, which makes diagnosis difficult. This project aims to overcome this challenge by using machine learning techniques to predict heart disease at an early stage.

In this project, a machine learning-based system is developed to analyze patient medical data and predict whether a person is affected by heart disease or not. The dataset includes important clinical attributes such as age, gender, blood pressure, cholesterol level, ECG results, heart rate, and other health indicators. These attributes help the model learn patterns related to heart disease.

The data is first preprocessed and analyzed to remove inconsistencies and understand the relationship between different features. After preprocessing, a supervised learning algorithm called **Logistic Regression** is used to train the model. This algorithm is highly suitable for binary classification problems and provides reliable prediction results.

The trained model is evaluated using test data to measure its accuracy and performance. Once trained, the system can predict heart disease for new patients by taking their medical details as input. This project demonstrates how machine learning can support doctors in early diagnosis and decision-making, reduce health risks, and improve patient care in the healthcare domain.

Tech Stack:

Programming Language:

- **Python**

Platform:

- **Google Colab**

Libraries Used:

- **NumPy** – Numerical computations
- **Pandas** – Data handling and preprocessing
- **Matplotlib** – Data visualization
- **Seaborn** – Statistical data visualization
- **Scikit-learn** – Machine learning algorithms and evaluation

Machine Learning Technique:

- **Supervised Learning**
- **Logistic Regression Algorithm**

Dataset Type:

- Structured medical dataset (CSV file)