■ Heart Disease Prediction Project

■ Project Overview

Heart disease remains one of the leading causes of death worldwide.
Early prediction can help in taking preventive measures and saving lives.
This project uses a Machine Learning model to predict the likelihood of heart disease based on medical attributes.
The dataset was retrieved from Kaggle and includes health metrics such as age, blood pressure, and cholesterol levels.

■ Objectives

- Perform data exploration & preprocessing
- Build and train a Logistic Regression model
- Evaluate the model using classification metrics
- Visualize insights with charts

■ Dataset

Source: Kaggle Heart Disease Dataset
Key features:
- Age – Patient's age
- Sex – Gender of the patient
- Cholesterol – Serum cholesterol level
- BP – Resting blood pressure
- Chest Pain Type – Medical indicator
- Target – Presence (1) or absence (0) of heart disease

■ Methodology

1. Data Preprocessing: handled missing values and explored distributions.
2. Exploratory Data Analysis (EDA): correlation heatmap & feature visualization.
3. Model Building: train-test split and Logistic Regression model.
4. Model Evaluation: confusion matrix, precision, recall, F1-score, accuracy.

■ Results

The Logistic Regression model achieved strong predictive performance and revealed which features are most influential for prediction.

■ Key Learnings

- Logistic Regression is effective for binary classification problems.
- Data preprocessing & EDA improve model quality.
- Visualization is crucial for understanding feature importance.

■ Next Steps

- Experiment with Random Forests, SVM, or XGBoost
- Apply hyperparameter tuning
- Deploy as a web app (Streamlit or Flask)

■ Tech Stack

- Python
- Pandas, NumPy (Data preprocessing)
- Matplotlib, Seaborn (Visualization)
- Scikit-learn (ML models & evaluation)

■ Portfolio Value

This project demonstrates ability to:
- Work with real-world health datasets
- Apply machine learning techniques for predictive modeling
- Communicate findings with clear visuals & reports

■ How to Showcase on LinkedIn

1. Upload Notebook to GitHub with a README containing this explanation.
2. Add as a Portfolio Project on LinkedIn (Projects section).
- Title: Heart Disease Prediction using Machine Learning
- Description: Short version of this explanation
- Link: GitHub repo
3. (Optional) Write a blog post on Medium/LinkedIn article for visibility.