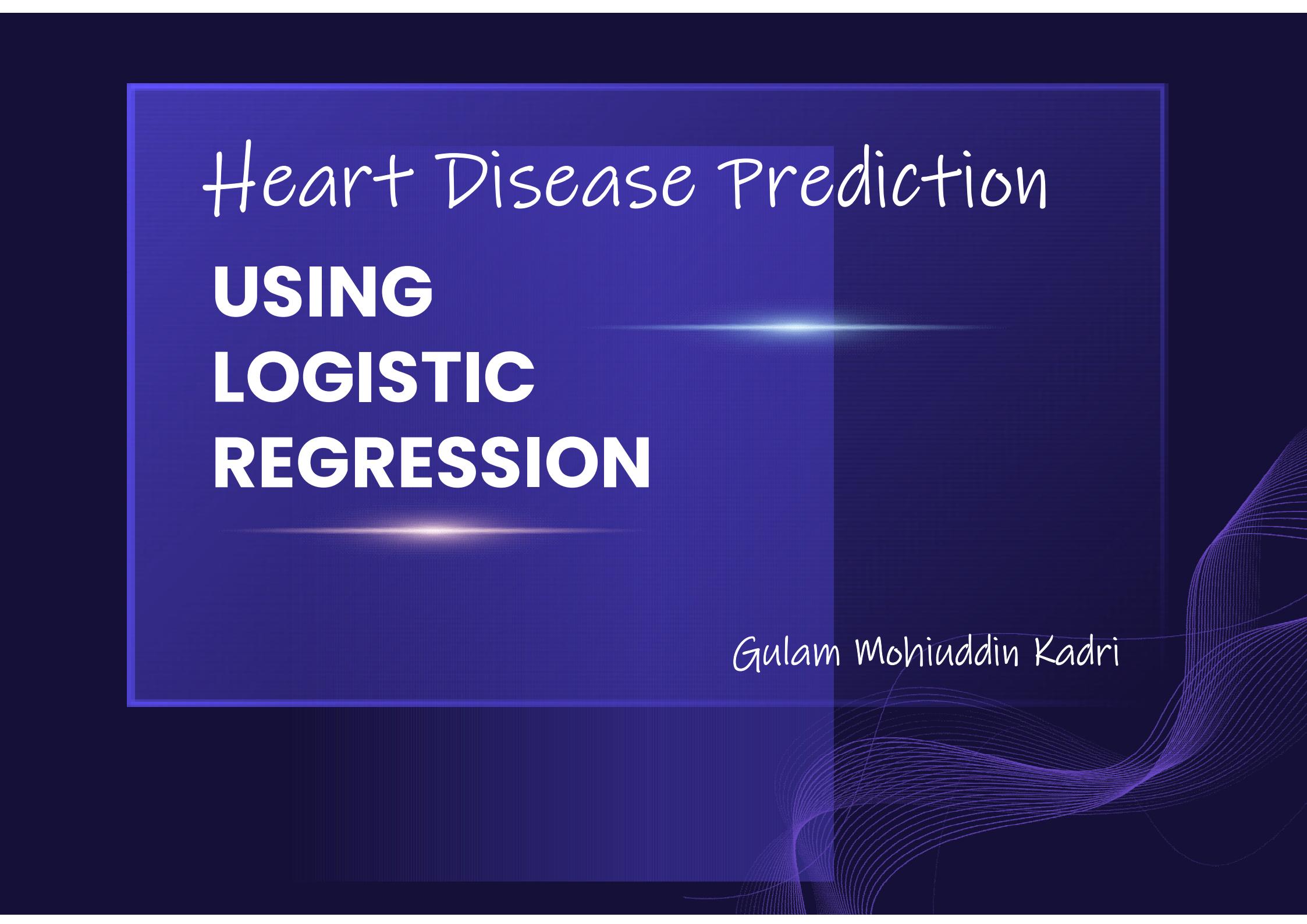


Heart Disease Prediction **USING LOGISTIC REGRESSION**

The background features a dark blue gradient with a subtle grid pattern. Two horizontal bands of light blue glow are positioned in the center, with one band being brighter than the other. In the bottom right corner, there is a large, abstract shape composed of numerous thin, glowing blue lines that curve and overlap, creating a sense of depth and motion.

Gulam Mohiuddin Kadri



INTRODUCTION



Heart disease is one of the leading causes of death worldwide, mainly because it is often detected too late. By analyzing key health factors like age, blood pressure, cholesterol, and chest pain type, machine learning can help predict heart disease early. This project uses machine learning algorithms to study patient data and accurately identify whether a person is at risk, helping in faster diagnosis and better treatment decisions.

➤ **Early Detection**

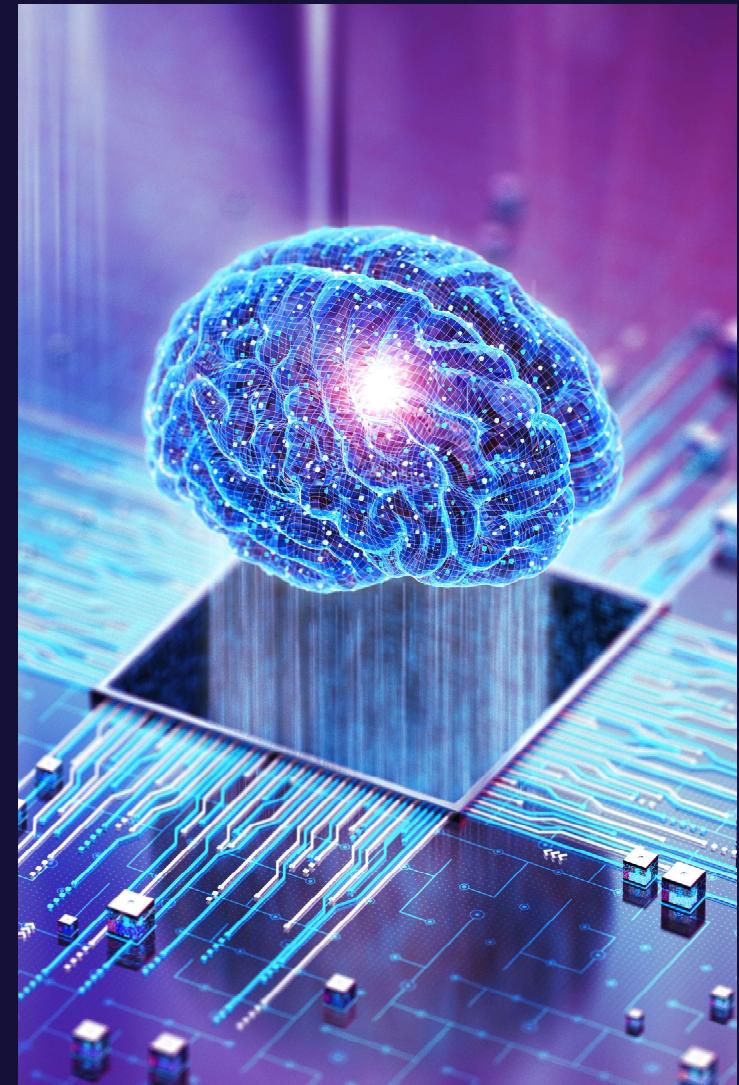
➤ **Risk Analysis**

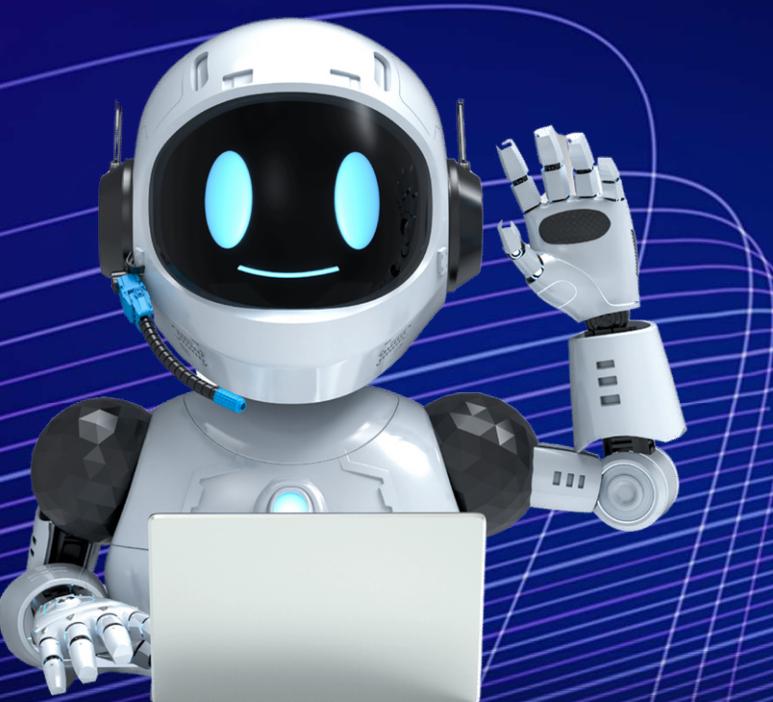
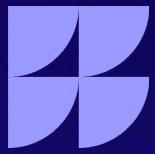
➤ **Smart Diagnosis**

AIM of the Project

The aim of this project is to create a dependable and user-friendly machine learning model that can accurately predict the chances of heart disease based on a person's medical information. By carefully analysing important factors such as age, blood pressure, cholesterol levels, chest pain patterns, and other health indicators, the project seeks to assist in identifying potential heart risks at an early stage.

The broader purpose is to support healthcare professionals with a helpful decision-making tool that can save time, reduce human error, and provide quicker insights. Ultimately, this project aims to encourage early treatment, raise awareness about heart health, and contribute to preventing severe complications by offering timely predictions based on real-world medical data.





HOW Logistic Regression Predicts

- PROBABILITY = $1 / (1 + e^{(-\text{WEIGHTED_SUM})})$
- IF PROBABILITY > 0.5
- → HIGH RISK OF HEART DISEASE
- IF PROBABILITY < 0.5
- → LOW RISK
- MODEL ALSO
- CHECKS:
- HIGH BP
- HIGH CHOLESTEROL
- HIGH OLDPEAK
- ANGINA DURING EXERCISE



Problem Statement



- Heart disease is one of the leading causes of death worldwide.
- Early detection can significantly reduce complications and save lives.
- Manual diagnosis requires time, expertise, and detailed testing.
- A machine learning model can analyze patient data and provide quick, initial risk estimation to support health decisions.



Conclusion



- This project successfully demonstrates the development of a machine learning model capable of predicting heart disease risk using essential medical parameters. Through the process, I gained practical experience in data preprocessing, numerical encoding, feature scaling, and building an end-to-end ML workflow.
- The system not only provides risk predictions but also offers simple medical suggestions, making it useful for early awareness and preventive insight.
- Overall, this project serves as a beginner-friendly yet meaningful application with strong real-world healthcare relevance.

Thank You !!

