Introduction of the Project:

Heart disease is one of the leading causes of death globally, and early diagnosis plays a critical role in reducing its fatality. Traditional diagnostic methods can be time-consuming and require expert analysis. To address this, the **Heart Disease Prediction System** (HDPS) uses **machine learning algorithms** to analyze patient data and predict the risk of heart disease. The system is built using technologies like Python, Django, and supervised machine learning models such as **Naive Bayes** and **Decision Tree**. This predictive tool not only assists doctors in early detection but also empowers patients with actionable health insights.

Need of the Project:

The increasing number of heart-related illnesses demands a faster, more accessible way to detect risk factors. There are several reasons why this project is needed:

- **Early diagnosis**: Many people ignore early symptoms; this tool helps detect potential risks based on patient data.
- **Lack of accessibility**: Not everyone has immediate access to a cardiologist. This system can bridge that gap by providing risk assessments remotely.
- **Data-driven decision-making**: Doctors can use machine learning predictions as a second opinion to support clinical judgment.
- **Healthcare burden reduction**: Automating the initial assessment reduces the load on hospitals and clinics.

Purpose of the Project:

The main purpose of the Heart Disease Prediction System is to:

- Develop an intelligent system that predicts the likelihood of heart disease based on medical parameters like age, cholesterol level, blood pressure, etc.
- Assist doctors and patients in making quick and informed decisions.
- Provide suggestions for nearby doctors if the prediction is positive.
- Improve healthcare outcomes through timely diagnosis and intervention.
- Use real patient data to train and improve predictive accuracy over time.