Problem Statement: Plant Disease Prediction Using AI

Agriculture is a critical sector for the global economy and food security. However, plant diseases pose a significant threat to crop yield and quality, leading to substantial economic losses and food scarcity. Traditional methods of disease detection rely heavily on manual inspection by experts, which is time-consuming, labor-intensive, and often prone to errors due to the subtle and varied symptoms of diseases.

The objective of this project is to develop an automated, accurate, and efficient system for early detection and prediction of plant diseases using Artificial Intelligence (AI) techniques. By leveraging image processing and machine learning, the system will analyze images of plant leaves to identify disease symptoms and classify the type of disease affecting the plant.

This AI-based approach aims to:

* Provide farmers with a quick and reliable tool to detect diseases at an early stage.
* Reduce the dependency on expert knowledge and manual inspection.
* Help in timely intervention and treatment to minimize crop damage.
* Enhance agricultural productivity and sustainability.

The system will use a dataset of leaf images, both healthy and diseased, to train machine learning models capable of recognizing patterns and features indicative of specific diseases. The final solution will be scalable and adaptable to various crops and disease types, contributing to smarter and more resilient agricultural practices.