Plant diseases are a major challenge for farmers and growers around the world, with the potential to cause significant crop losses and economic damage. Traditional methods of plant disease diagnosis and treatment can be time-consuming, expensive, and reliant on expert knowledge, making them challenging to implement on a large scale.

To address this challenge, recent advancements in computer vision and machine learning have led to the development of novel approaches for plant disease detection, classification, and treatment. In this project, we focus on the use of deep learning algorithms to automate the diagnosis and treatment of plant diseases, specifically trained to identify 5 classes for disease detection and 24 classes for disease classification.

The dataset used for this project can be downloaded from Kaggle and consists of images of plants affected by various diseases. The 24 classes used for disease classification include common plant diseases such as Apple Scab, Black Rot, Cedar Apple Rust, and others. Meanwhile, the 5 classes used for disease detection include some of the most prevalent diseases in fruit crops, such as Powdery Mildew in Cherries, Black Rot in Grapes, and Bacterial Spot in Peppers.

Our system uses deep learning algorithms to analyze these images and identify the presence of disease symptoms. The algorithms can be trained to recognize specific patterns and characteristics of each disease, allowing for accurate and timely diagnosis. Additionally, we explore various treatment methods, including chemical and biological controls, to mitigate the effects of disease and promote plant health.

Overall, the goal of this project is to develop an efficient and comprehensive system for plant disease management that can help farmers and growers quickly detect and treat diseases, ultimately leading to increased crop yields and improved food security. By utilizing machine learning for disease detection and classification, we hope to provide a cost-effective and sustainable solution for managing plant diseases that can benefit farmers, consumers, and the environment alike.

**Problem description :-**

Plant diseases are a significant challenge for farmers, and traditional methods of diagnosis and treatment are time-consuming, expensive, and require expert knowledge. Chemical treatments can have harmful effects on the environment and human health. Therefore, there is a need for an efficient and sustainable approach that leverages computer vision and machine learning for plant disease detection, classification, and treatment. Such a system would benefit farmers, consumers, and the environment by increasing crop yields, improving food security, and providing a cost-effective solution for managing plant diseases.