# Tomato Leaf Disease Detection

## Introduction

Tomato cultivation is crucial for global food security. However, diseases significantly impact tomato yield and quality. In this project, we aim to develop a robust model for early detection and classification of tomato leaf diseases using machine learning techniques.

## About data set

We will utilize the Tomato Leaf Diseases Detection dataset, which contains 14531 tomato leaf images with ten different disease classes. Each image is labeled with the corresponding disease type. The dataset is sourced from publicly available data on Kaggle. Link-: https://www.kaggle.com/datasets/farukalam/tomato-leaf-diseases-detection-computer-vision

## Problem Statement

Our goal is to build a predictive model that can accurately classify tomato leaf images into one of the following disease categories.

- Bacterial Spot
- Early Blight
- Healthy
- Late Blight
- Leaf Mold
- Target Spot
- Black Spot

## Attributes of the dataset

- Image data: Each image represents a tomato leaf.
- Labels: The disease category associated with each image.

## Data types

- **Images**: RGB images (pixel values ranging from 0 to 255).

## Proposed Solution

We propose to solve the problem through a multi-class classification approach. Our solution involves data preprocessing, designing a CNN model, training and validation, evaluation, and deployment.

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