# **Plant Disease Detection system**

## **Week-1 Assignment**

### Problem Statement:

Develop a Convolutional Neural Network (CNN)-based model to automatically detect and classify plant diseases from leaf images of various crops such as apple, cherry, grape, and corn. The system should accurately distinguish between healthy and diseased leaves and identify the specific type of disease present. This solution aims to support precision agriculture by enabling early disease detection, reducing crop loss, and promoting efficient and sustainable disease management practices.

### Pipeline:

1. **Data collection & Data loading:**

* Collect images of healthy and diseased plant leaves.
* The Structure of dataset is
* Train (category1, category2)
* Test (category1, category2)
* Valid (category1, category2)

1. **Zip & Upload:**

* Zip the dataset folder.
* Upload it to Google Drive.
* Mount Google Drive in Google Colab to access the data.

1. **Unzip Dataset:**

* Unzip the dataset in Colab for processing.

1. **Image Processing & Image Augmentation:**

* Resize images to a standard size (e.g., 128x128).
* Apply augmentation techniques (rotation, flip, etc.) to improve model generalization.

1. **CNN Model Building:**

* Design and train a Convolutional Neural Network (CNN) to classify plant diseases.

1. **Testing & Evaluation:**

* Evaluate the trained model on test data to check accuracy and performance.