Team ID	PNT2022TMID13660
Project Name	Fertilizer Recommendation System for Disease Prediction

Sprint 1:

We downloaded the dataset given by IBM. The dataset contains two data of fruit and vegetables. Test and Train.

Downloading the dataset using the below link:

https://drive.google.com/file/d/1fxs7ptI6zh7NTbCOZARKZ7AmYKjnprrY/view?usp=sharing

Importing Libraries:

```
import numpy as np
import pickle
import cv2
from os import listdir
```

Image preprocessing:

Before training the model, you have to pre-process the images and then feed them on to the model for training. We make use of Keras ImageDataGenerator class for image pre-processing.

Image Pre-processing includes the following main tasks

- Import ImageDataGenerator Library.
- Configure ImageDataGenerator Class.
- Applying ImageDataGenerator functionality to the trainset and test set.

Image data augmentation is a technique that can be used to artificially expand the size of a training dataset by creating modified versions of images in the dataset.

The Keras deep learning neural network library provides the capability to fit models using image data augmentation via the ImageDataGenerator class.

There are five main types of data augmentation techniques for image data; specifically:

- Image shifts via the width_shift_range and height_shift_range arguments.
- The image flips via the horizontal_flip and vertical_flip arguments.
- The image rotates via the rotation_range argument
- Image brightness via the brightness_range argument.
- The image zooms via the zoom_range argument.

An instance of the ImageDataGenerator class can be constructed for train and test.

Image augmentation:

```
aug = ImageDataGenerator(
    rotation_range=25, width_shift_range=0.1,
    height_shift_range=0.1, shear_range=0.2,
    zoom_range=0.2,horizontal_flip=True,
    fill_mode="nearest")
```