**Crop and Fertilizer recommendation using ML**

**1.What is ML(Machine Learning)?**

Machine learning is a field of study that enables computers to learn without being explicitly programmed.

According to **Tom Mitchell**, A computer program is said to learn from experience E with respect to some class of tasks T and performance measure P, if its performance at tasks in T, as measured by P, improves with experience E.

**2. What is Supervised ml algorithm?**

Supervised algorithms use labelled dataset.  
As the name suggests, there is a supervisor or teacher component in supervised learning.  
A supervisor provides labelled data so that the model is constructed and generates test data.

Supervised learning has two methods:

1. Classification
2. Regression

**3. What is Regression and Classification?**

1. **Regression:** A supervised learning task where the output is a continuous value.

* In regression, learning also occurs in two stages. During the training stage, the algorithm is provided with a labeled dataset containing input features and continuous output values. The model learns the relationship between input variables and the continuous output. In the testing stage, the trained model is evaluated using new data to predict a numerical value. This is the regression process.
* **Example:** Predicting crop yield based on environmental factors.

1. **Classification:** A supervised learning task where the output is a category or label.

* In classification, learning takes place in two stages. During the first stage, called training stage, the learning algorithm takes a labelled dataset and starts learning. After the training set, samples are processed and the model is generated. In the second stage, the constructed model is tested with test or unknown sample and assigned a label. This is the classification process.
* **Example:** Predicting whether a crop is suitable for a particular soil type