

In [1]: *# 1. What are the three stages to build the hypotheses or model in machine learning?*

In [2]: *# The three stages to build the model in machine learning are:*

1. Model Building: Model Building involves in Data preparation, Training set generation and indulgence in Algorithm training.

2. Model Testing: Model testing involves in prediction and evaluation of Test data.

3. Applying the model: It deals with the Deployment of data set and Monitoring the model.

In [3]: *#2. What is the standard approach to supervised learning?*

In [4]: *# Ans: The standard approach to supervised learning is to split the set of examples into training and testing sets.*

In [5]: *# 3. What is Training set and Test set?*

In [6]: *# 1. Training set:*

Training set is a data set used to train the model.

Specific features are picked up from the training set for training purpose.

In [7]: *# 2. Test set:*

Test set is a data set used to measure how well the model performs at making predictions on new data.

The training set is used to train the model.

In [8]: *# 4. What is the general principle of an ensemble method and what is bagging and boosting?*

In [9]: *# Ans: Ensemble Learning is used when you build component classifiers that are more accurate than a single classifier.*

The general principle of an ensemble method is to combine the predictions of several models in order to improve robustness over a single model. Bagging is a method of ensemble learning that uses bootstrap aggregation to reduce the variance of the model.

While boosting method are used sequentially to reduce the bias of the combined model.

errors by reducing the variance term.

In [10]: *# 5. How can you avoid overfitting?*

```
In [ ]: # Ans: The possibility of over-fitting exists as the criteria used for training the model is used to judge the efficacy of a model.

# By using a lot of data over-fitting can be avoided, over-fitting happens relative to the data used to learn from it. But if you have a small database and you are forced to come up with a model, you can use a technique known as cross validation.

# In this method the dataset splits into two sections, testing and training datasets. While in the training dataset, the data points will come up with the model.

# In this technique, a model is usually given a dataset of known data on which it is trained, and a dataset of unknown data against which the model is tested. The idea of cross validation is to test the model in the training phase.
```