SNS COLLEGE OF TECHNOLOGY

Coimbatore-35
An Autonomous Institution
Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A+' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF MCA

19CAT703 – MACHINE LEARNING

II YEAR III SEM

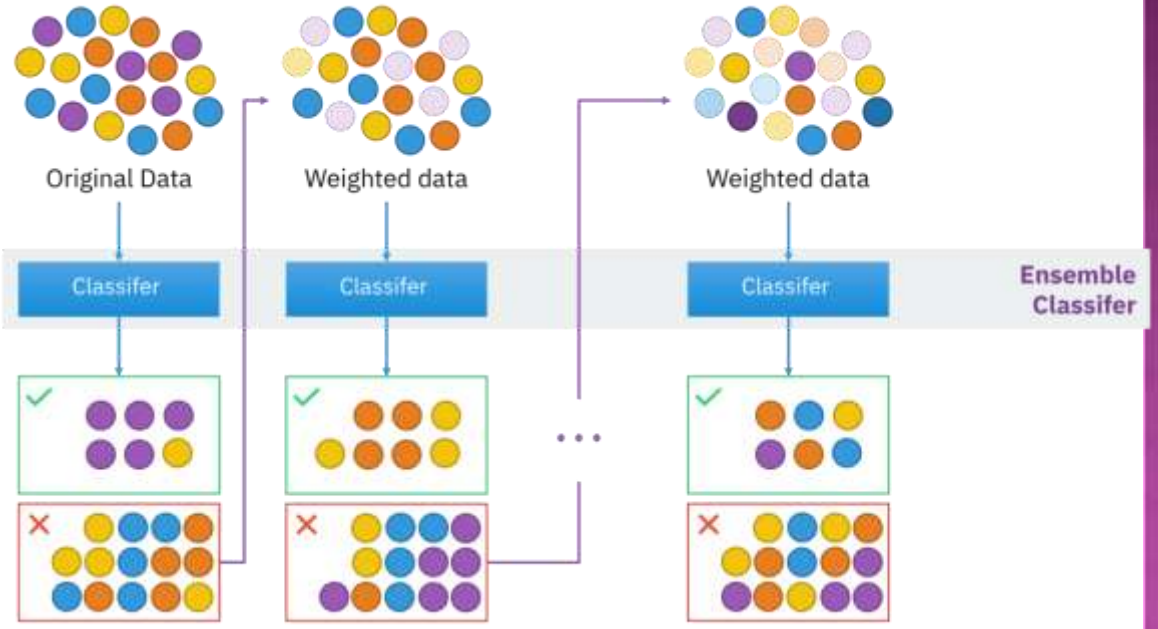
UNIT III – DISTANCE-BASED MODELS

TOPIC 27 – Boosting –meta learning

Boosting- Introduction

It is a process that multiple weak learners(**machine learning models**) train and combine their output to create strong learner from it.

Boosting is an ensemble meta algorithm for primarily reducing bias, and also variance in supervised learning



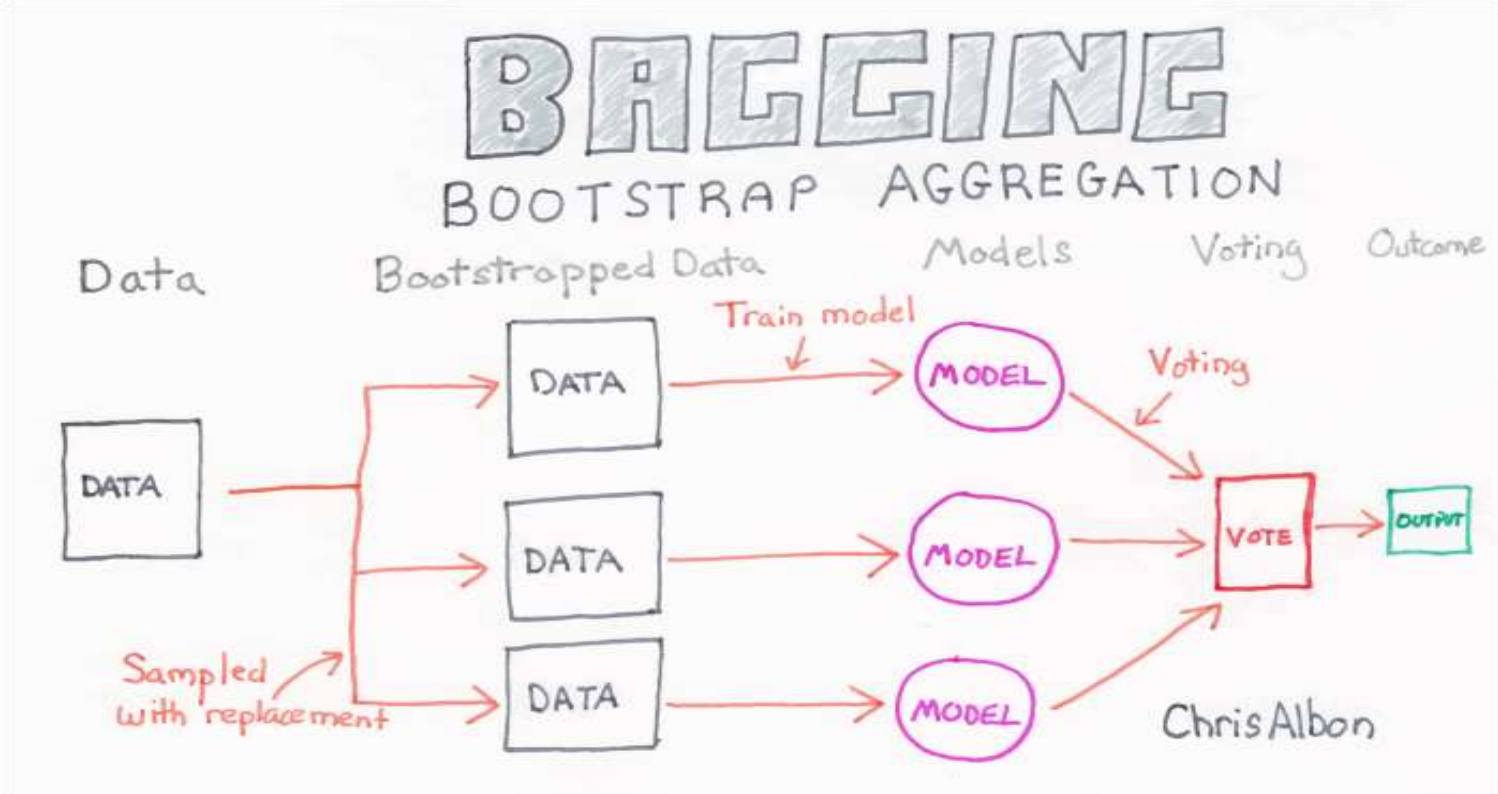
Boosting: Primary use

1. **Prevent Under-fitting** when we have less number of training data.
2. Prevent **Over-fitting** when we have enough sample for training data-set still, it is not giving a good result on the validation data-set.

How does it work?

1. It is beginning with bootstrapping of data, which process we do in bagging as well.
2. Then we start different machine learning models training which is known as weak learners.

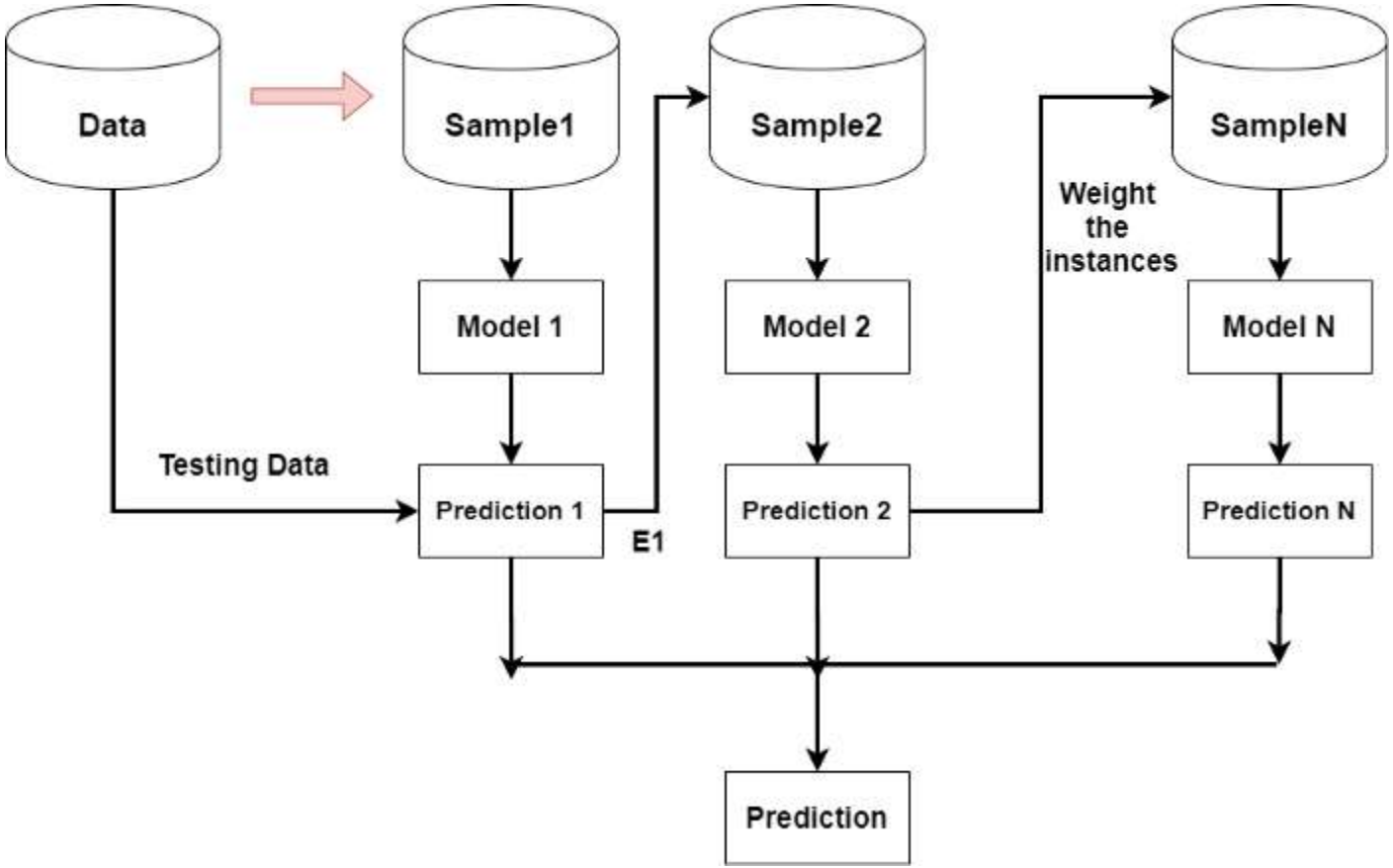
How does it works?



Let's explore the concept of the weak learner.

1. The weak learner is not fully accountable for final results, but they have hands in a small part to make final results.
2. For making the final decision, these weak classifier are aiding toward the final result. These classifier are known as weak learners.

Let's explore the concept of the weak learner.



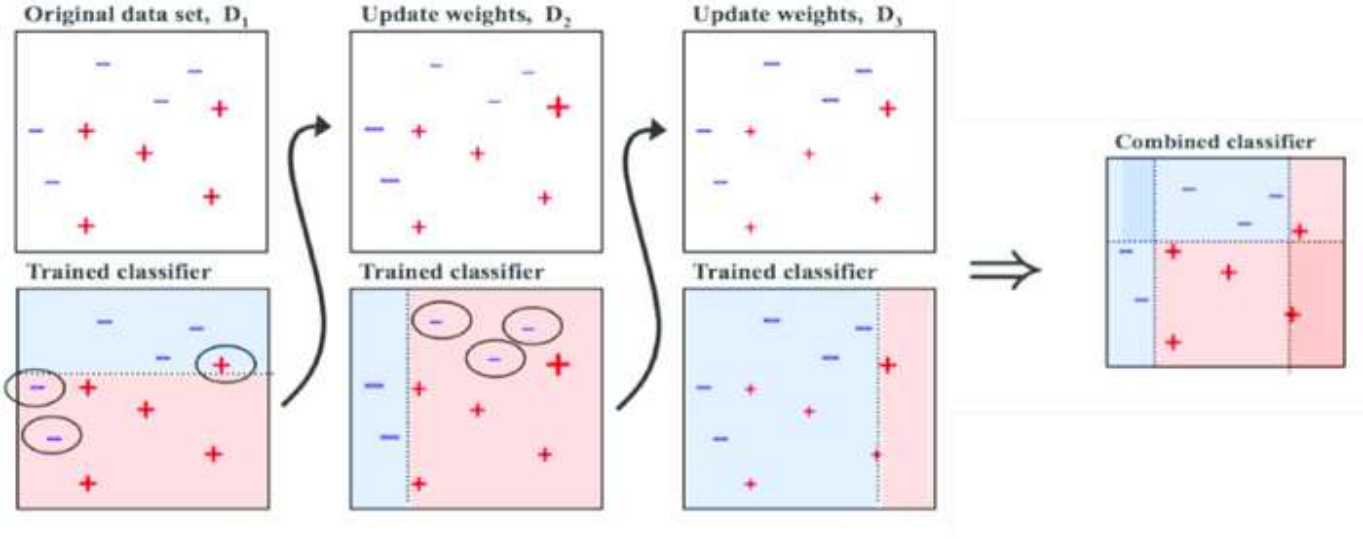
Boosting Process Steps:

1.First, generate Random Sample from Training Data-set.

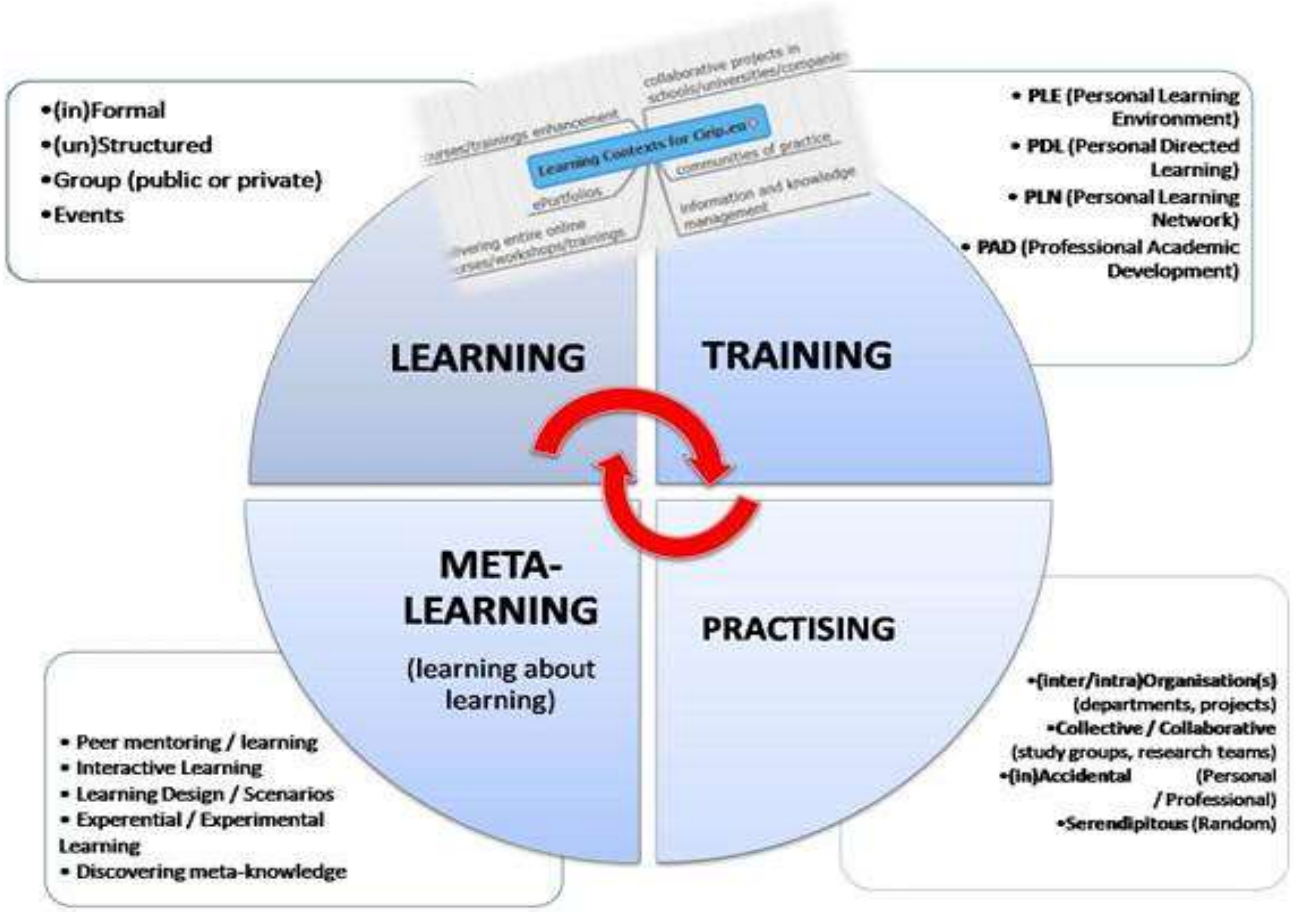
2.Now, Train a classifier model 1 for this generated sample data and test the whole training data-set.

3.Now, Calculate the error fir each instance prediction. if the instance is classified wrongly, increase the weight for that instance and create another sample.

4.Repeat this process until you get high accuracy from the system.



Meta Learning



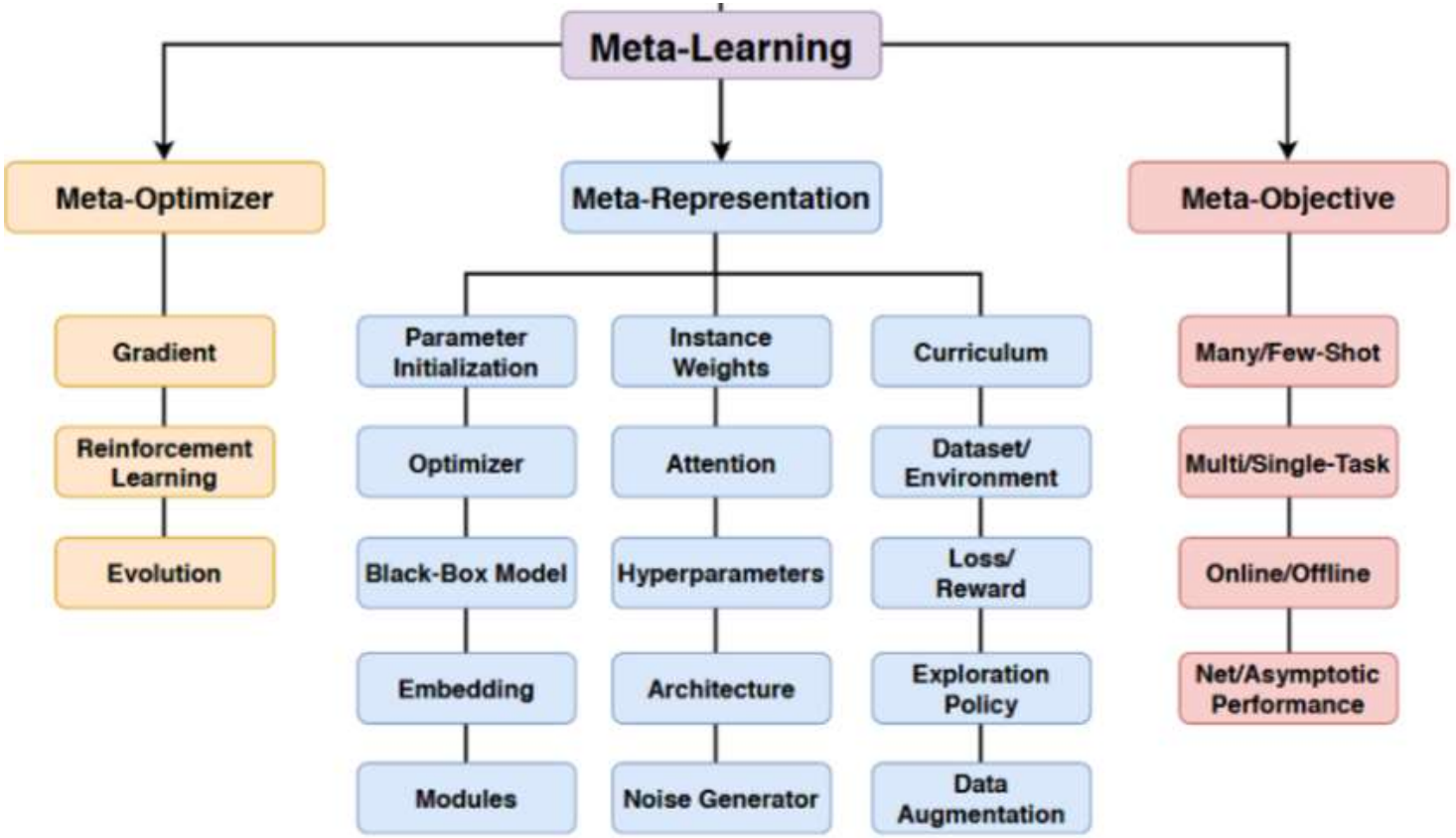
Meta Learning

meta-learning as “learning how to learn”.

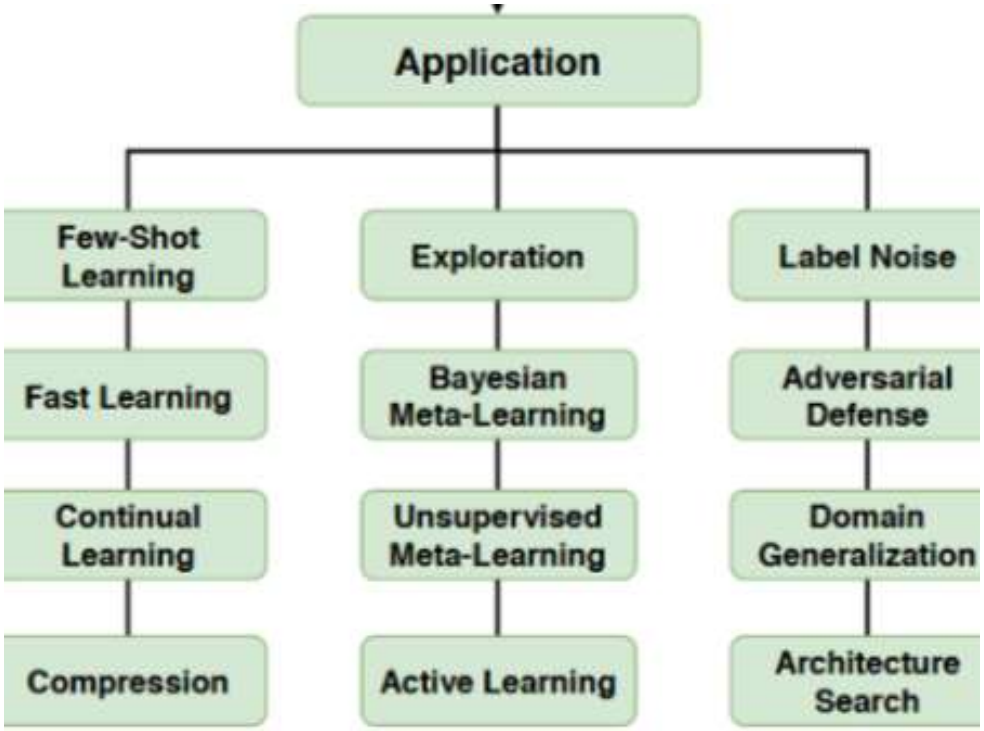
Meta-learning simply means “learning to learn”.

The goal isn’t to take one model and focus on training it on one specific dataset.

Meta Learning



Meta Learning - Applications



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Thank
you