**Techniques of Ensemble learning-:**

1. Bagging (Bootstrap Aggregation)
2. Boosting
3. Stacking

**1) Bagging-:**

How it works?

**step1:** Multiple subsets are created from the original dataset. (datapoints inside a subsets are selected randomely.

**step2**: A base model is created on each of this subset

**step3:**Each model is learned in parallel and indepedent of each other.

**step4**: Final predictions are determined by aggregating the predictions of all the models.

- Baging is a independent process i.e model are build independent to each other.

Bagging is a parallel process i.e model can be build parallel to each other. Example of Bagging is Random Forest.

Bagging is used to reduce variance.

**2) Boosting-:**

-Boosting is a sequential process.

- A model is build from the training data and then the second model is build which tries to corrrect the errors present in the first model.

-This process is cont. until the training dataset is predicted completely.

How it works?

**step1:** Init the dataset and assign equal weights to each of the datapoints.

**step2**: Provide this as a i/p to the model and identify the wrongly classified datapoints.

**step3**: Increase the weights of wrongly classified datapoints.

**step4**: If required result is achieved the stop else go to step no 2.

- Boosting is a dependent process i.e model are build dependent to each other.

-Bagging is a non-parallel process i.e model can not be build parallel to each other.

-Example of Boosting is ADA BOOST, Gradient Boost, XGBoost (extreme Gradient Boosting)