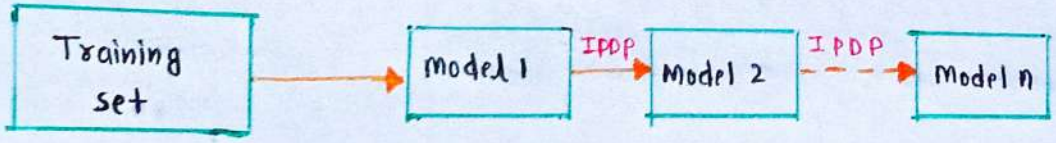
2. Boosting:

- Reduces bias and variance by converting weak learners to strong learners.
- Weak learners applied in sequential manner and learn from the mistakes of previous weak learner.
- Process: →
  - Build an intial base model which is also weak learner.
  - Train base model on whole training dataset.
  - Calculates error for base model using actual values and values predicted by base model.
  - Assign more weights to data points for which base model made incorrect predictions.
  - Create another weak learner.
  - Train this new weak learner only on the data points with high weight or the data points for which previous model made wrong predictions.
  - Keep adding models until you are satisfied with performance.
  - Obtain final model by weighting mean of all models.

→ Models function in series.
→ All the models are weak learners.
→ Their can be 'n' number of models.
→ All the models can be same or different.

IPDP: Incorrectly predicted data points from previous model.



3. Stacking:

- Process of combining various models to reduce bias of each model.
- Predictions from each model stacked together and used as input for meta model (final model).
- Training of meta model happens with cross validation set.
- Process: →
  - Split data in training and validation set. and test set.
  - Divide training set in K folds.
  - Train meta model on K-1 folds and make prediction on Kth fold (do it for each base learner)
  - Fit base models on train set. as whole.
  - Predictions done for base model for test set.
  - Predictions passed to meta model which makes final prediction.