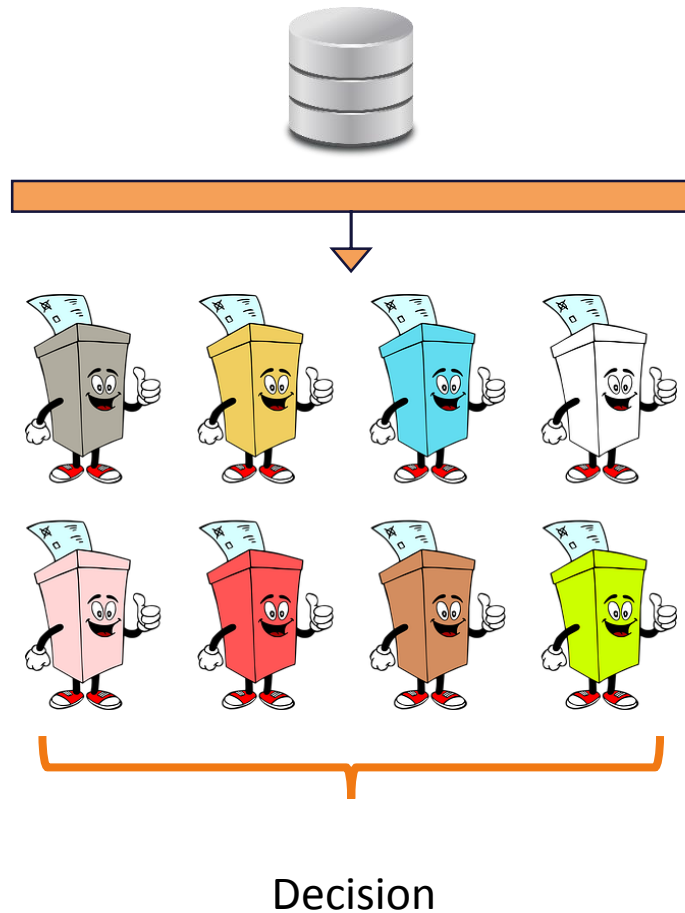




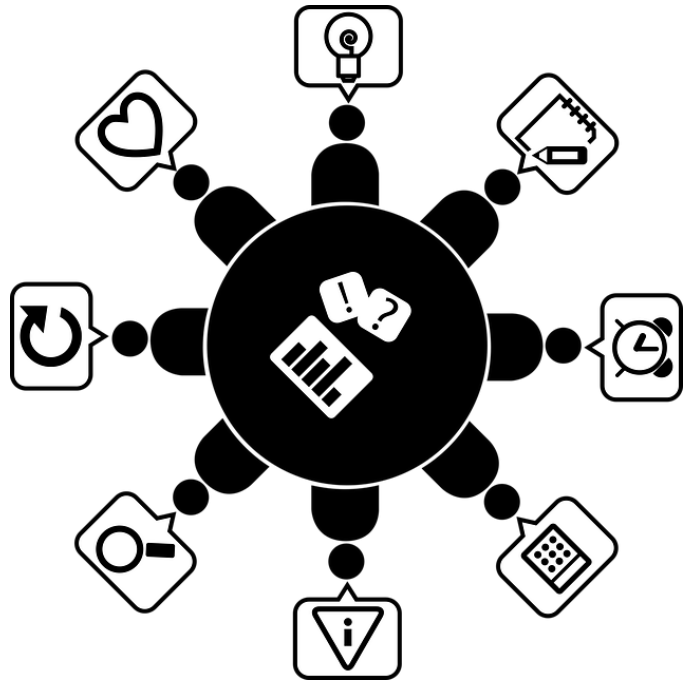
Foundations of Ensemble Learning

Foundations of Ensemble Learning



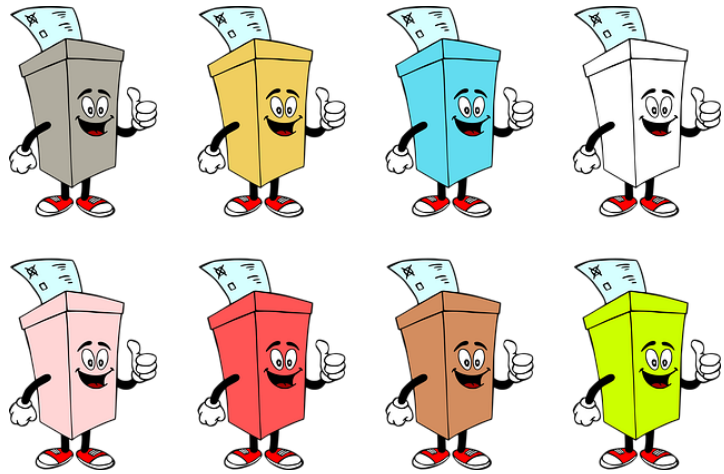
- **Objective:** improve model performance
- **Idea:** combining several classifiers whose combination outperforms every individual counterpart
- **How:** Several classifiers are built from the data, and their decisions combined or aggregated
- To classify a new example, it is submitted to all the classifiers; and the predictions of all the classifiers are considered to make the final decision

Foundations of Ensemble Learning



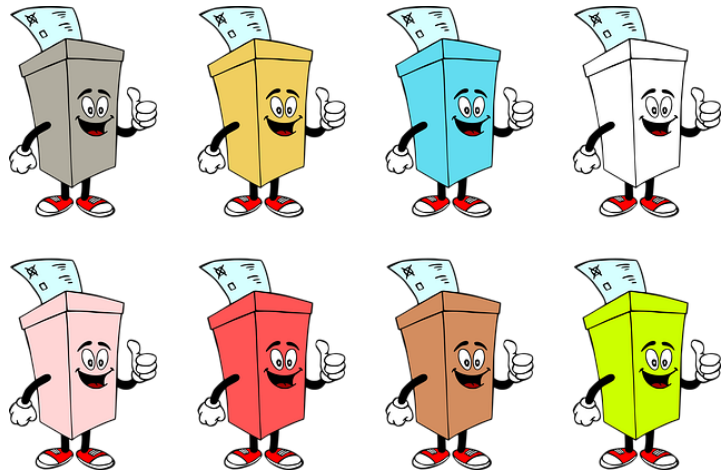
- **Inspired in human behavior:** before making important decisions, we seek several experts opinion.
- We consider all the opinions before making a final decision.

Foundations of Ensemble Learning



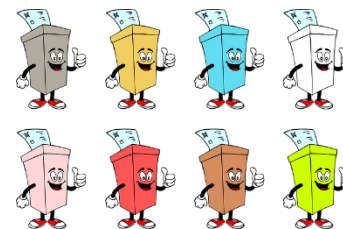
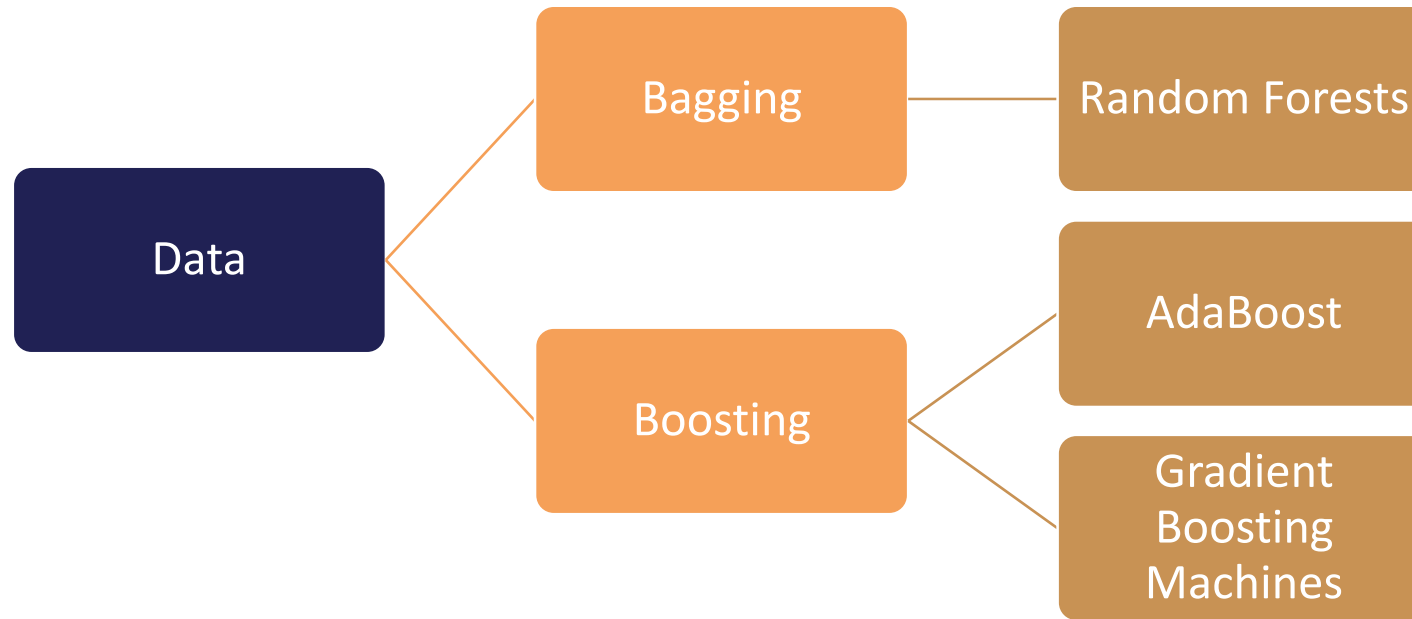
- The motivation to combine classifiers is to improve their generalization
- Each classifier is known to make errors.
- If we make classifiers that make different errors, the misclassified examples will not be the same
- Thus, the classifiers complement each other

Foundations of Ensemble Learning



- The motivation to combine classifiers is to improve their generalization
- Each classifier is known to make errors.
- If we make classifiers that make different errors, the misclassified examples will not be the same
- Thus, the classifiers complement each other
- **How do we construct the classifiers so that they make different errors, and thus complement each other?**

Foundations of Ensemble Learning



THANK YOU

www.trainindata.com