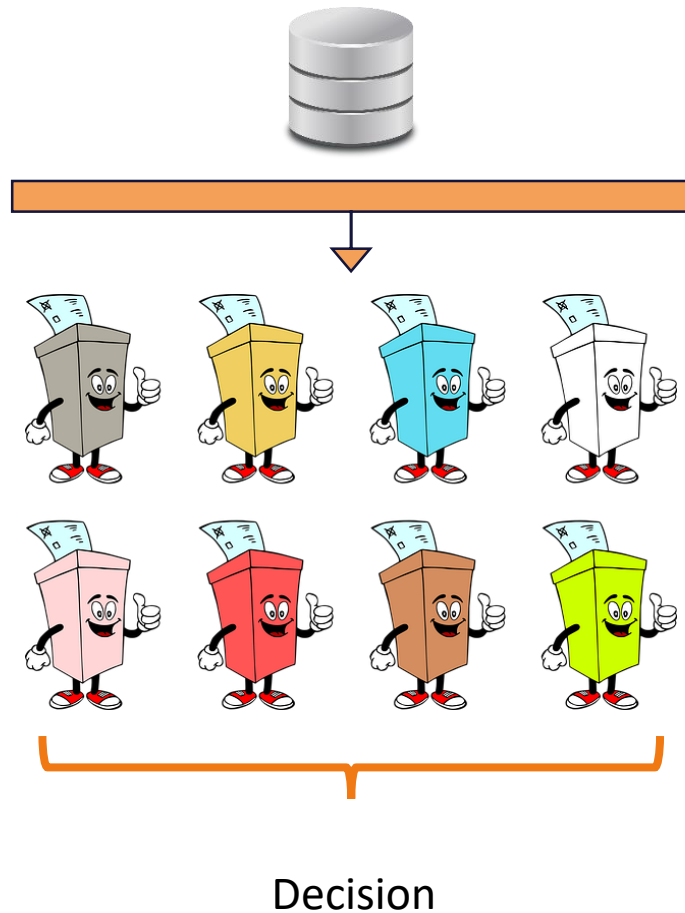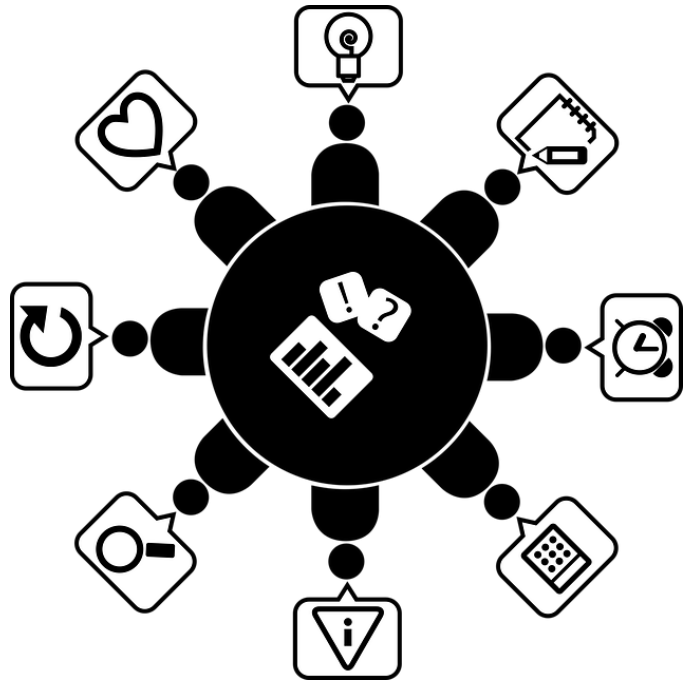# Ensemble learning

Foundations of Ensemble Learning
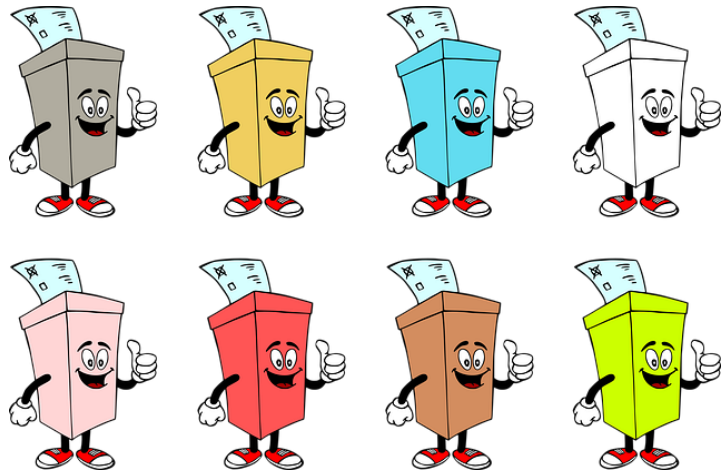

Decision

- **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
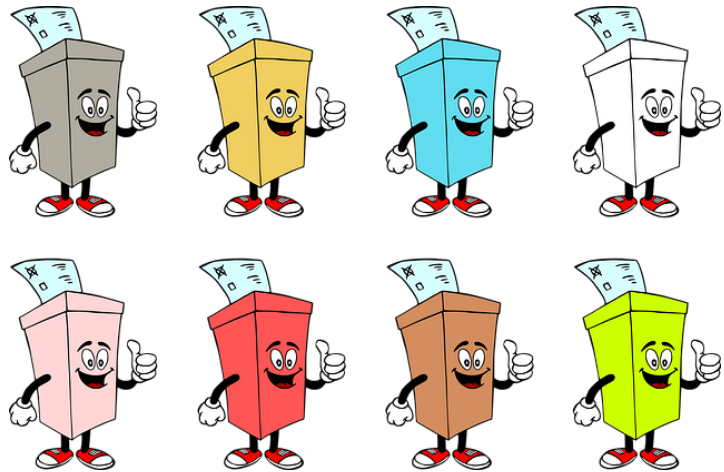
Foundations of Ensemble Learning

- **Inspired in human behavior:** before making important decisions, we seek several experts opinion.

- We consider all the opinions before making a final decision.
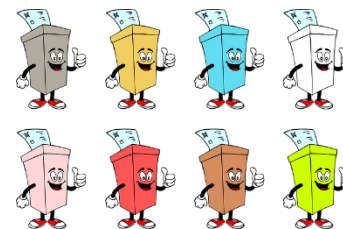
Foundations of Ensemble Learning

- 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
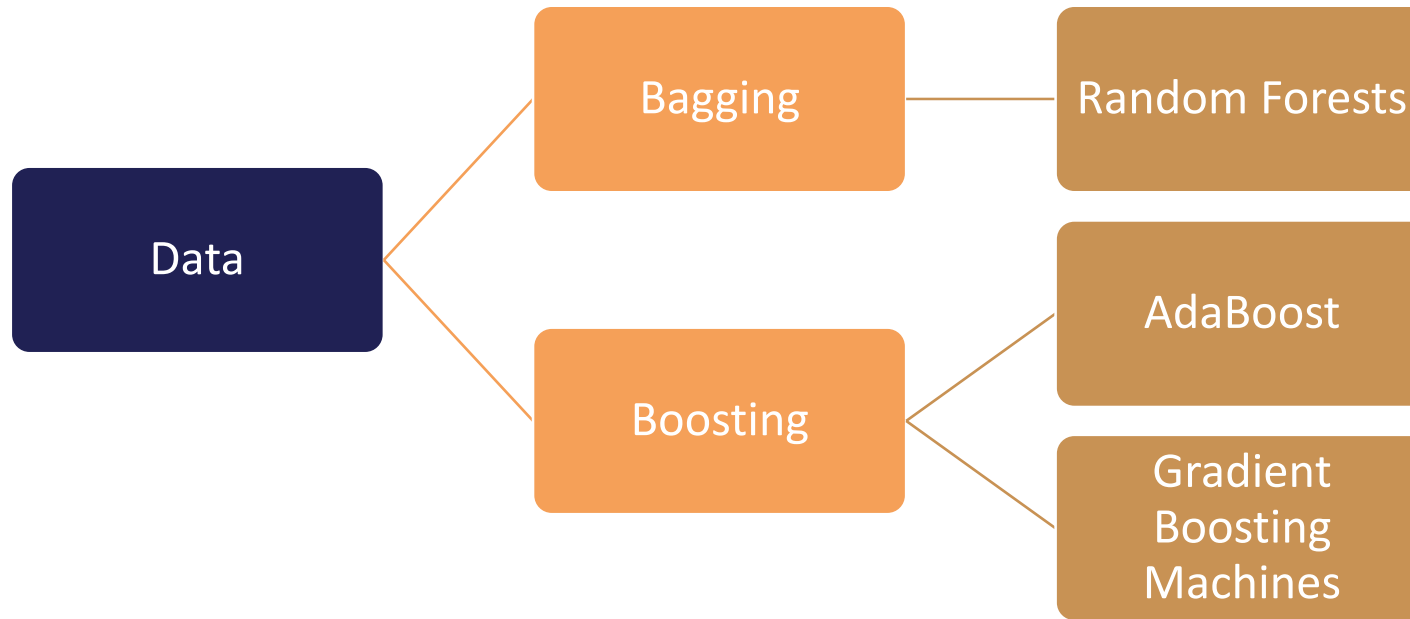
Foundations of Ensemble Learning

- 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

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