

# Machine Learning: Gradient Boost Decision Trees

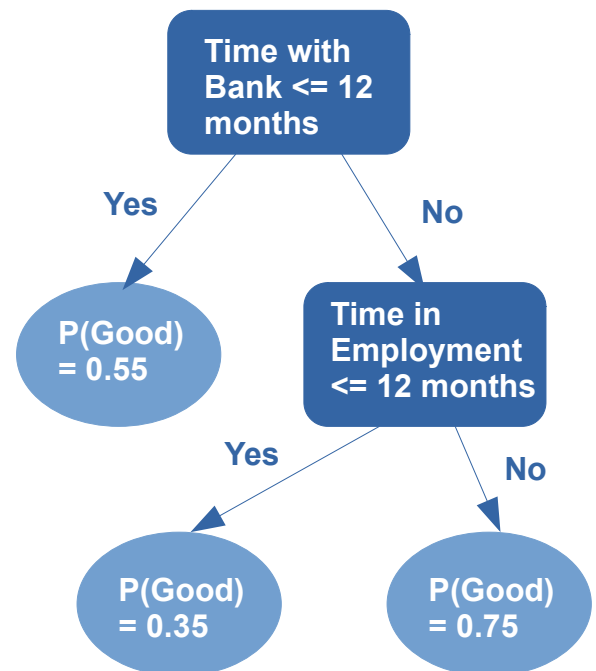
But what is a Decision Tree?

Decision Tree is a Machine Learning algorithm that can be seen as a series of „Yes“ or „No“ questions. Decision trees split the data into categories and predict an outcome for each category.

**Classification and Regression Trees**

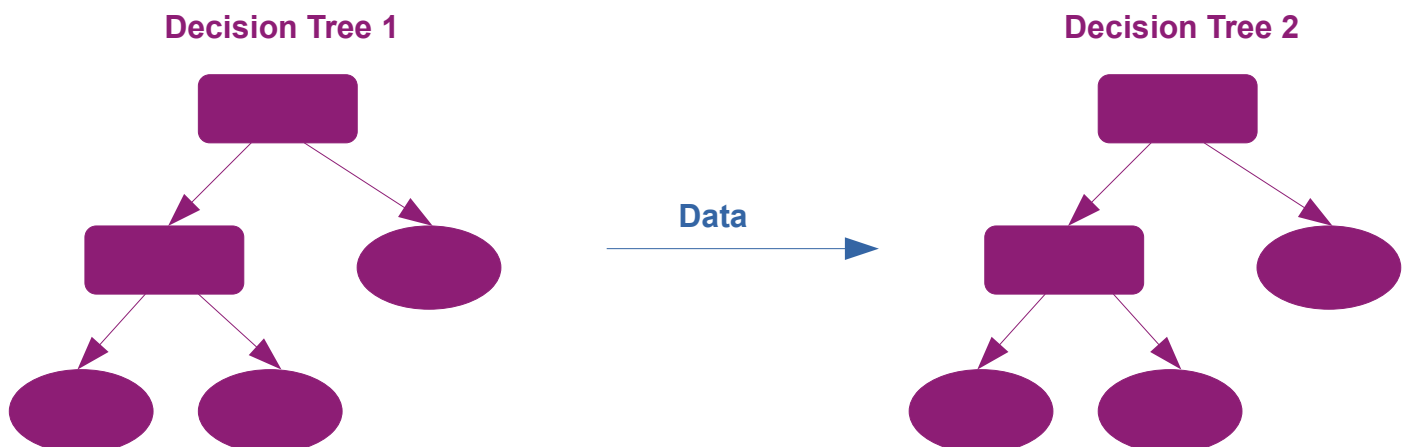
Classification Trees are used to predict a category. In example, a „Good“ or „Bad“ applicant.

Regression Trees are used to predict a numerical value. In example the Gross Annual Income of an applicant.



But what is Gradient Boost Decision Trees?

A Gradient Boost model consists of a series of Decision Trees that are used in a sequential order to predict the outcome. Each next tree increases the accuracy of the final prediction.



## FAQs

1. How do we calculate a Credit Score?

A: The final outcome of Gradient Boosting Classification model returns the probability of being „Good“. The P(Good) is calibrated to standard G:B odds for Delphi Scores.

2. What is XGBoost and LightGBM?

A: XGBoost and LightGBM are variations of Gradient Boosting Decision Trees. They all return the probability of being „Good“ for classification problems or a numerical value for Regression problems.

3. Which predictive variables have the highest contribution to the final score?

A: The contribution of each predictive variable in Gradient Boosting models is measured by using SHAP values. A high mean absolute SHAP value indicates that the predictive variable has a high contribution to the final model outcome.