Ensemble Model: Random forest
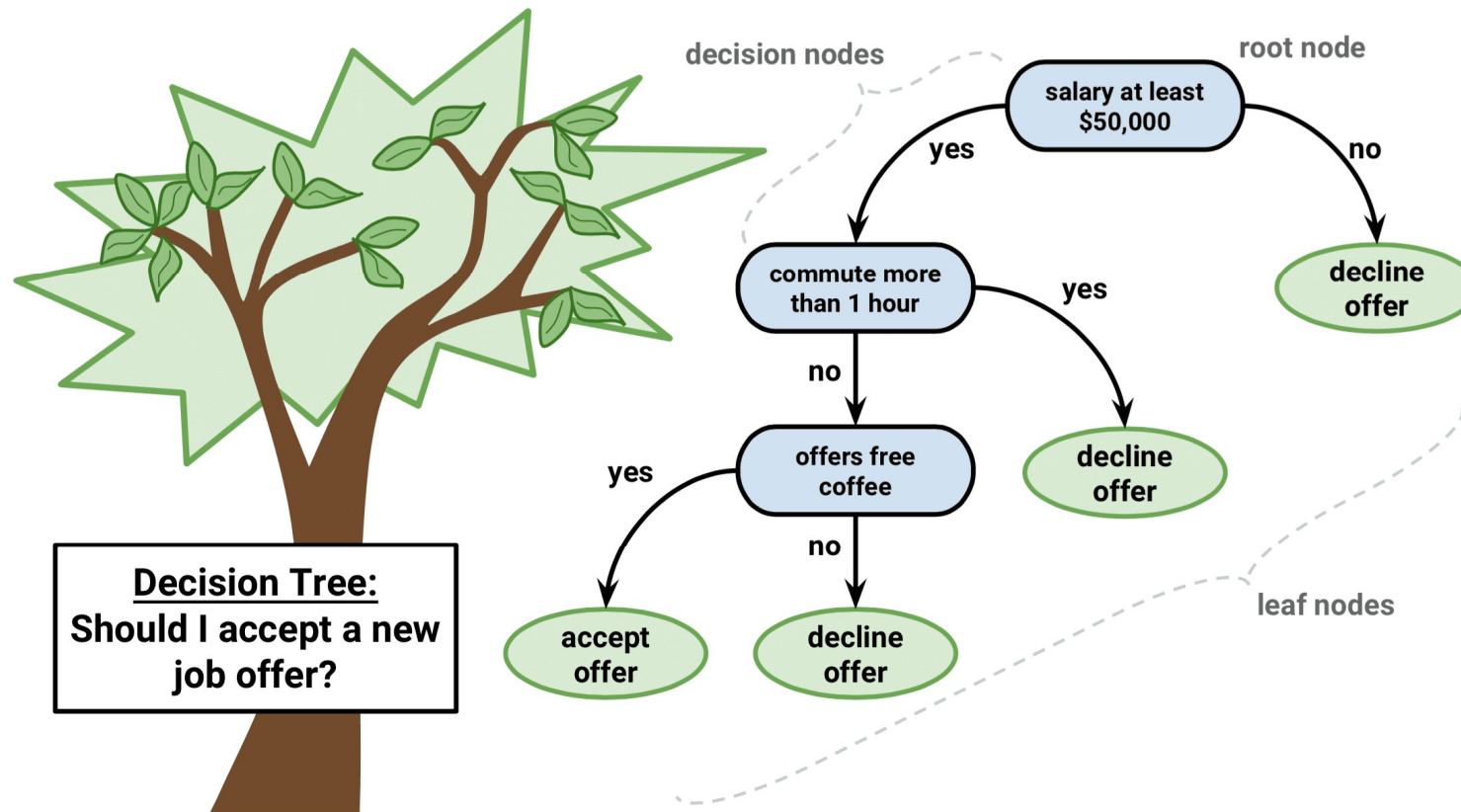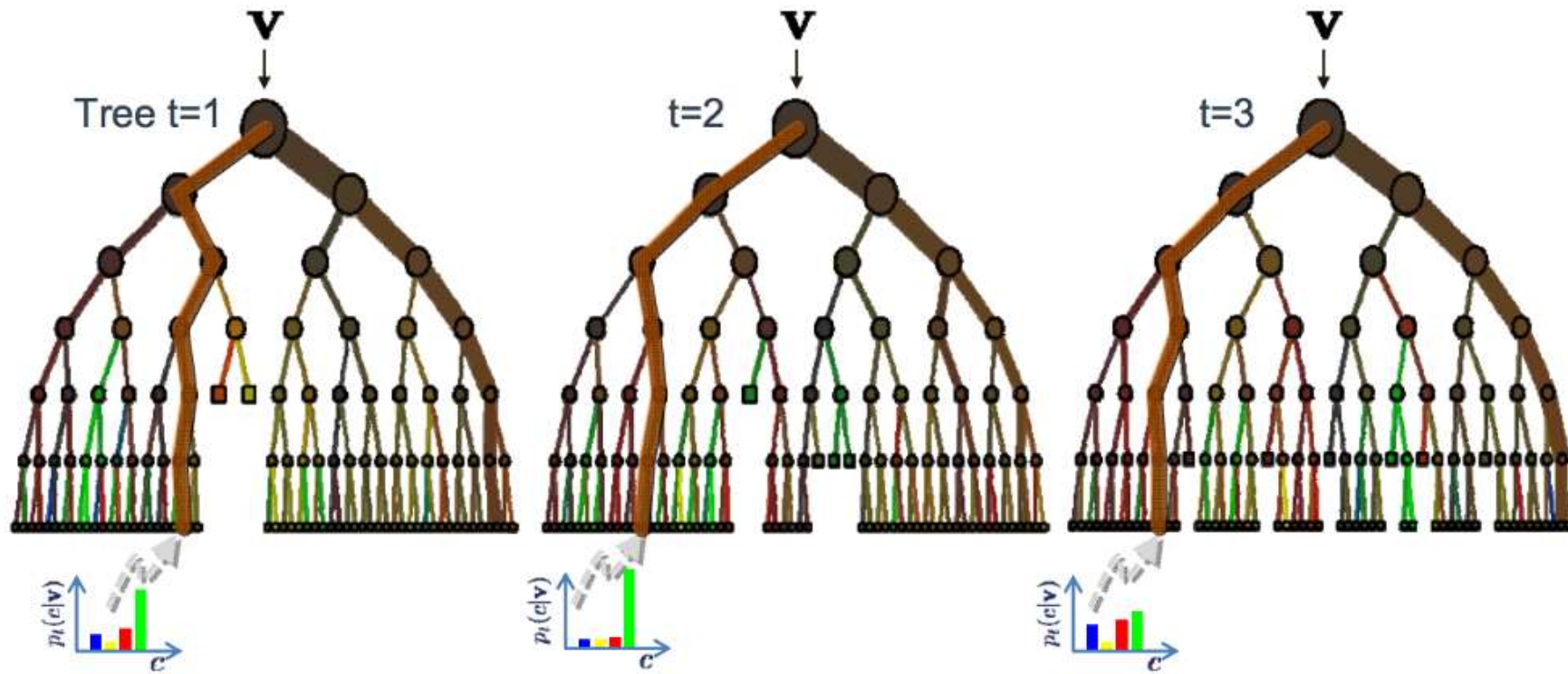
Limitations To Decision Trees

- Decision trees tend to over fit on their training data.

Ensemble Model: Random forest

Ensemble Model

Ensemble Model: Random forest

How it works

- Random Forest is a supervised learning algorithm.

- It creates a forest and makes it somehow random.

- The "forest" it builds, is an ensemble of Decision Trees, most of the time trained with the "bagging" method.

- The general idea is that a combination of learning models increases the overall result.

- Random forest builds multiple decision trees and merges them together to get a more accurate and stable prediction.
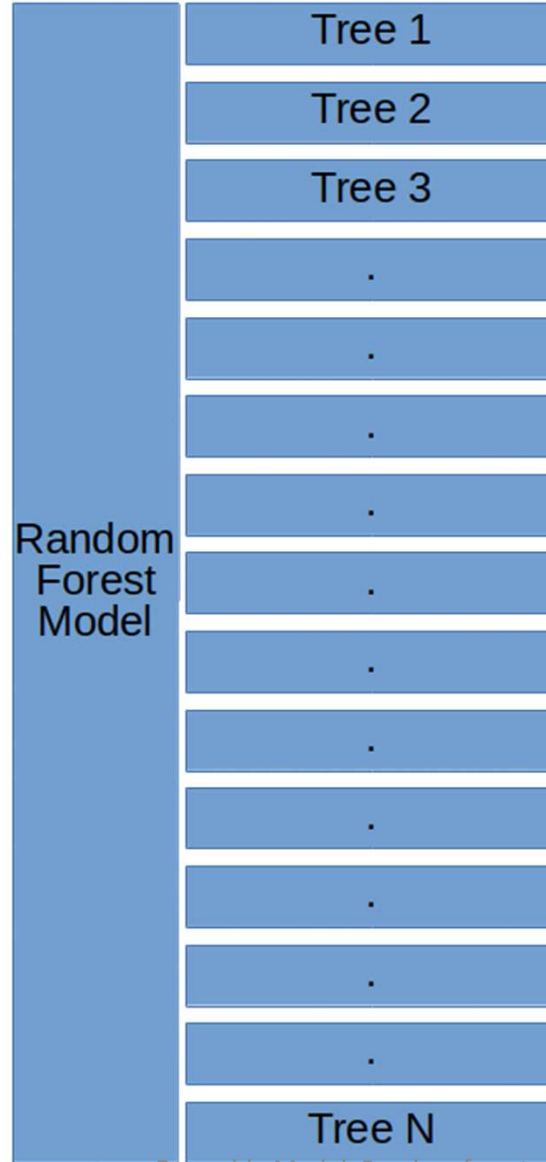
Real Life Analogy

- Imagine Andrew wants to decide, to which places he should travel during his vacation trip.

- He asks people for advice.

- First, he goes to a friend and where he traveled to in the past and if he liked it or not. Based on the answers, Andrew can decide where he should visit.

- This is a typical decision tree algorithm approach.

Real Life Analogy

- Afterwards, Andrew starts asking more and more of his friends to advise him.

- Then he chooses the places that were recommend the most to him

- It is typical Random Forest algorithm approach.

Ensemble Model: Random forest

How A Random Forest Makes A Prediction

- Given an observation (o).

- For each tree (t) in the model:
  - predict the outcome (p) using the tree (t) applied to observation(o)
  - store predicted value (p) in list P

- If the model is a classifier:
  - return max_count(p)

- If the model is a regressor:
  - return avg(p)

Ensemble Model: Random forest

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