**Decision tree analysis.**

**Key Elements of the Decision Tree:**

1. **Nodes**:
   * **Decision Nodes**: Represent splits based on criteria such as "duration < 522" or "poutcome = failure, other, unknown."
   * **Leaf Nodes**: Represent final decisions or predictions (e.g., "yes" or "no").
2. **Branches**:

Each branch corresponds to an outcome of a decision rule. For example, if "duration < 522," follow the respective branch.

1. **Probabilities**:

Each node or leaf contains probabilities (e.g., "0.12") that indicate the likelihood of a specific outcome.

1. **Counts**:

Percentages like "100%" or "89%" show the proportion of samples at a given node.

**Interpretation:**

1. **Initial Split**:

The first decision point evaluates duration < 522. Duration likely refers to the length of the last call, which is significant in predicting a customer's likelihood to respond positively to a campaign.

1. **Outcomes Based on Poutcome**:

For customers with poutcome values of "failure, other, unknown," additional splits like duration < 163 are evaluated, indicating a hierarchical approach to decision-making.

1. **Probabilities**:

Nodes with higher probabilities for "yes" (e.g., 0.62) indicate segments more likely to respond positively to the campaign. Conversely, nodes with higher probabilities for "no" suggest groups less likely to respond.

1. **Percentages**:

Indicate how much of the dataset is represented at each node. For instance, a "100%" at the root node shows the entire dataset before any split.

**Analysis:**

* Duration is a critical factor in predicting outcomes, as it appears in multiple levels of the tree.
* The attribute poutcome (outcome of a previous campaign) significantly influences decisions, grouping outcomes into categories like "failure, other, unknown."
* Probabilities highlight customer segments with varying levels of responsiveness. For instance, segments with higher probabilities for "yes" should be targeted for future campaigns.
* The tree effectively narrows down customers using straightforward rules, making it interpretable for marketing strategies.