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1. A junior data analyst uses tree-based learning for a sales and marketing project. Currently, they are interested in the section of the tree that represents where the first decision is made. What are they examining? 1 / 1 point

- ☐ Branches
- ☐ Splits
- ☐ Leaves
- ☒ Roots

☒ Correct

2. Which of the following statements accurately describe decision trees? Select all that apply. 1 / 1 point

☒ Decision trees require no assumptions regarding the distribution of underlying data.

☒ Correct

☐ Decision trees are equally effective at predicting both existing and new data.

☒ Decision trees represent solutions to solve a given problem based on possible outcomes of related choices.

☒ Correct

☒ Decision trees are susceptible to overfitting.

☒ Correct

3. Which section of a decision tree is where the final prediction is made? 1 / 1 point

- ☐ Split
- ☐ Decision node
- ☐ Root node
- ☒ Leaf node

☒ Correct

4. In a decision tree model, which hyperparameter specifies the number of attributes that each tree selects randomly from the training data to determine its splits? 1 / 1 point

- ☐ Max depth
- ☒ Max features
- ☐ Number of estimators
- ☐ Learning rate

☒ Correct

5. What process uses different portions of the data to test and train a model across several iterations? 1 / 1 point

- ☐ Proportional verification
- ☒ Cross validation
- ☐ Model validation
- ☐ Grid search

☒ Correct

6. Which of the following statements correctly describe ensemble learning? Select all that apply. 0.5 / 1 point


- ☐ It is possible to use the same methodology for each contributing model, as long as there are numerous base learners.
- ☒ A best practice of ensemble learning is to use very different methodologies for each contributing model.

☒ Correct

- ☒ Ensemble learning involves building multiple models.

☒ Correct

- ☒ If a base learner's prediction is equally effective as a random guess, it is a strong learner.

☒ This should not be selected
Review [the video about bootstrap aggregation](#). 

7. Fill in the blank: A random forest model grows trees by taking a random subset of the available features in the training data, then _____ each node at the best feature available to that tree. 1 / 1 point

- ☐ tuning
- ☐ bagging

- ☐ bootstrapping
- ☒ splitting

☒ Correct

8. What are some benefits of boosting? Select all that apply.

0.25 / 1 point

☒ Boosting scales well to very large datasets.

☒ This should not be selected
Review [the video that introduces boosting](#).

☐ Boosting does not require the data to be scaled.

☒ Boosting can handle both numeric and categorical features.

☒ Correct

☐ Boosting algorithms are easy to understand.

9. Which of the following statements correctly describe gradient boosting? Select all that apply.

0.75 / 1 point

☒ Each base learner in the sequence is built to predict the residual errors of the model that preceded it.

☒ Correct

☐ Gradient boosting models can be trained in parallel.

☐ Gradient boosting machines have difficulty with extrapolation.

☒ Gradient boosting machines can be difficult to interpret.

☒ Correct

You didn't select all the correct answers