Started on	Friday, March 24, 2023, 6:53 PM
State	Finished
Completed on	Friday, March 24, 2023, 7:00 PM
Time taken	7 mins 3 secs
Points	9.00/10.00
Grade	**90.00** out of 100.00

Question **1**

Correct

1.00 points out of 1.00

In the scikit-learn DecisionTreeClassifier, the "Gini" criterion is an alternative to

Select one:

- bottle
- entropy ✔
- standardized
- linear
- SVM

Your answer is correct.

The correct answer is: entropy

Question 2

Correct

1.00 points out of 1.00

In the context of decision trees, what does entropy measure?

Select one:

- the impurity of feature values in the entire training set
- the magnitude of a feature vector
- the depth of the decision tree
- the heat produced during training
- the energy required to train a model
- the impurity of a subset of examples ✔
- the breadth of the decision tree

Your answer is correct.

The correct answer is: the impurity of a subset of examples

Question 3

Correct

1.00 points out of 1.00

Decision trees

Select one:

- are employed mostly to determine if a trained logistic regression model is fair.
- accelerate support vector machines by storing support vectors in a binary search tree.
- classify examples based on sequences of conditions. ✔
- are employed mostly to determine which pre-trained model should be used for a specified input.
- classify learning algorithms by bias and variance.
- accelerate logistic regression by storing intermediate results in a red-black tree.

Your answer is correct.

The correct answer is: classify examples based on sequences of conditions.

Question 4

Correct

1.00 points out of 1.00

The "kernel trick"

Select one:

- allows a Support Vector Machine to achieve the effect of adding dimensions without the cost of deriving and performing calculations on additional features. ✔
- allows a Support Vector Machine to achieve high classification accuracy when training only with a small subset of the training data.
- hides intermediate progress on the objective until all support vectors align.
- allows the user to provide an approximate decision boundary, thereby speeding convergence.
- is often employed by magicians at venues that serve popcorn.

Your answer is correct.

The correct answer is: allows a Support Vector Machine to achieve the effect of adding dimensions without the cost of deriving and performing calculations on additional features.

Question 5

Correct

1.00 points out of 1.00

The number of "dimensions" of data in a dataset is

Select one:

- the number of features provided for each example. ✔
- the log (base 2) of the range of values across all features, across all examples.
- the ratio between the number of training examples and the number of testing examples.
- the number of values that the target takes, across all of the examples.

Your answer is correct.

The correct answer is: the number of features provided for each example.

Question **6**

Incorrect

0.00 points out of 1.00

The decision boundary produced by a decision tree can be curved.

Select one:

- True ✖
- False

The correct answer is 'False'.

Question **7**

Correct

1.00 points out of 1.00

The "support vectors" in Support Vector Machines are

Select one:

- the vectors that support a prediction of class 0.
- the vectors to the average positions of all examples in each class.
- the training examples closest to the decision boundary. ✔
- the training examples furthest from any examples in the opposite class.
- the vectors that support a prediction of class 1.

Your answer is correct.

The correct answer is: the training examples closest to the decision boundary.

Question **8**

Correct

1.00 points out of 1.00

Compared to single decision trees, random forests are usually

Select one:

- more extensively pruned.
- easier to interpret.
- more difficult to interpret. ✔
- ternary.
- quicker to train.

Your answer is correct.

The correct answer is: more difficult to interpret.

Question **9**

Correct

1.00 points out of 1.00

A "soft margin" Support Vector Machine

Select one:

- allows some examples to be misclassified, for the sake of a larger margin between those that are classified correctly. ✔
- converges slowly, as opposed to "hard margin" Support Vector Machines, which converge quickly.
- uses support vectors with fewer dimensions than are used by "hard margin" Support Vector Machines.
- only produces prediction probabilities between 0.1 and 0.9.
- has less predictable costs than "hard margin" Support Vector Machines, but usually produces more accurate classifiers.

Your answer is correct.

The correct answer is: allows some examples to be misclassified, for the sake of a larger margin between those that are classified correctly.

Question **10**

Correct

1.00 points out of 1.00

Data that is not linearly separable may often be made linearly separable by

Select one:

- eliminating features that have low values.
- shuffling the order of the features.
- eliminating features that have high values.
- adding additional features that are derived from the original features. ✔

Your answer is correct.

The correct answer is: adding additional features that are derived from the original features.

◄ Code from class (k_nearest_neighbors)

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