# Module 4 Quiz

测验, 10 个问题

1 point

1。

Which of the following is an example of clustering?

- (●) Separate the data into distinct groups by similarity
- ( ) Creating a new representation of the data with fewer features
- ( ) Compress elongated clouds of data into more spherical representations
- ( ) Accumulate data into groups based on labels

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1 point

2。

Which of the following are advantages to using decision trees over other models? (Select all that apply)

- [ ] Decision trees can learn complex statistical models using a variety of kernel functions
- [ ] Trees are naturally resistant to overfitting
- [x] Trees often require less preprocessing of data
- [x] Trees are easy to interpret and visualize

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1 point

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3.

What is the main reason that each tree of a random forest only looks at a random subset of the features when building each node?

- To increase interpretability of the model
- To improve generalization by reducing correlation among the trees and making the model more robust to bias.
- To reduce the computational complexity associated with training each of the trees needed for the random forest.
- To learn which features are not strong predictors

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1 point

4.

Which of the following supervised machine learning methods are greatly affected by feature scaling? (Select all that apply)

- [x] Neural Networks
- [x] KNN
- [ ] Decision Trees
- [x] Support Vector Machines
- [ ] Naive Bayes

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1 point

5.

Select which of the following statements are true.

- [x] For a model that won't overfit a training set, **Naive**

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**Bayes** would be a better choice than a **decision tree**.

- [ ] For having an audience interpret the fitted model, a **support vector machine** would be a better choice than a **decision tree**.

- [ ] For a fitted model that doesn't take up a lot of memory, **KNN** would be a better choice than **logistic regression.**

- [x] For predicting future sales of a clothing line, **Linear regression** would be a better choice than a **decision tree regressor**.

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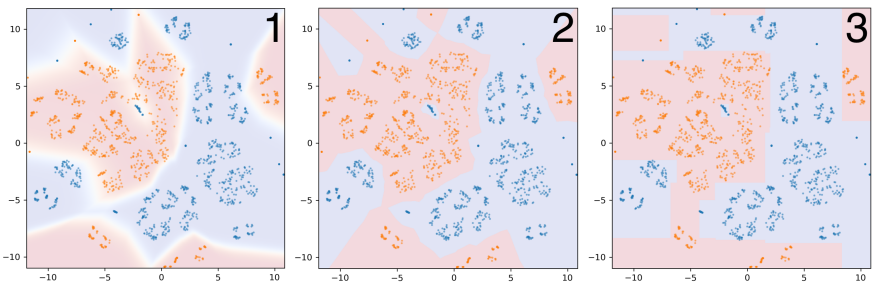
1 point

6。

Match each of the prediction probabilities decision boundaries visualized below with the model that created them.




- ( ) 1. KNN (k=1)
  2. Decision Tree
  3. Neural Network

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1. Neural Network
2. KNN (k=1)
3. Decision Tree

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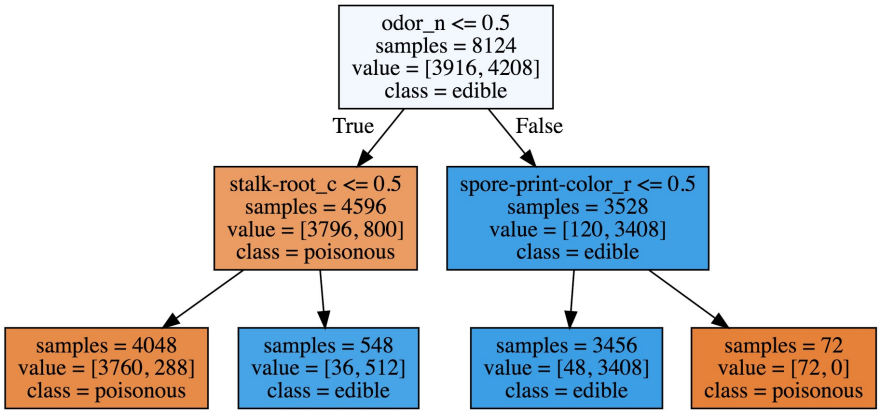
1 point

7。

A decision tree of depth 2 is visualized below. Using the `value` attribute of each leaf, find the accuracy score for the tree of depth 2 and the accuracy score for a tree of depth 1.




What is the improvement in accuracy between the model of depth 1 and the model of depth 2?

0.06745

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1 point

8。

For the autograded assignment in this module, you will create a classifier to predict whether a given blight ticket will be paid on time (See the module 4 assignment notebook for a more detailed description). Which of the following features should be removed from the training of the model to prevent data leakage? (Select all that apply)

- [ ] grafitti_status - Flag for graffiti violations

- [x] collection_status - Flag for payments in collections
- [x] compliance_detail - More information on why each ticket was marked compliant or non-compliant
- [ ] ticket_issued_date - Date and time the ticket was issued
- [ ] agency_name - Agency that issued the ticket

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1 point

9。
Which of the following might be good ways to help prevent a data leakage situation?

- [x] If time is a factor, remove any data related to the event of interest that doesn't take place prior to the event.
- [ ] Ensure that data is preprocessed outside of any cross validation folds.
- [x] Remove variables that a model in production wouldn't have access to
- [x] Sanity check the model with an unseen validation set

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1 point

10。

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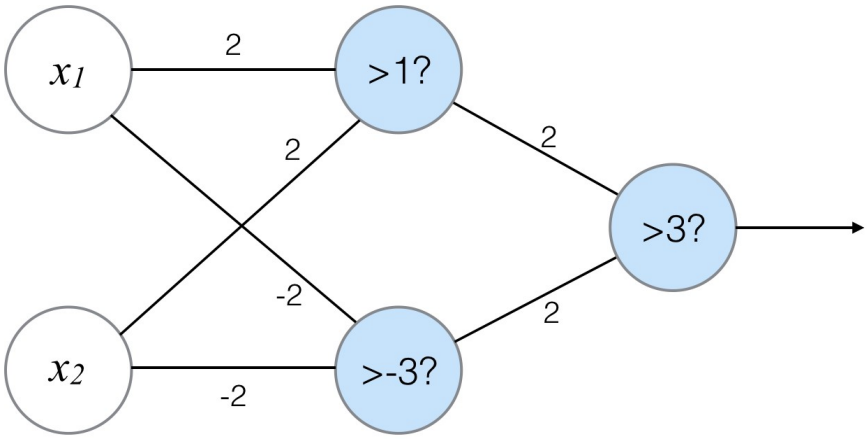
Given the neural network below, find the correct outputs for the given values of x1 and x2.

The neurons that are shaded have an activation threshold, e.g. the neuron with *>1?* will be activated and output 1 if the input is greater than 1 and will output 0 otherwise.




| x1 | x2 | output |
|---|---|---|
| 0 | 0 | 0 |
| 0 | 1 | 0 |
| 1 | 0 | 0 |
| 1 | 1 | 1 |

| x1 | x2 | output |
|---|---|---|
| 0 | 0 | 1 |
| 0 | 1 | 0 |
| 1 | 0 | 0 |
| 1 | 1 | 1 |

| x1 | x2 | output |
|---|---|---|

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测验, 10 个问题

| | | |
|---|---|---|
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 1 |

| x1 | x2 | output |
|---|---|---|
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 0 |

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提交测试