Chapter 8 Quiz

8.Q1

1/1 point (graded)

The tree building algorithm given on pg 13 is described as a Greedy Algorithm. Which of the following is also an example of a Greedy Algorithm?:

- ⚪ The Lasso

- ⚪ Support Vector Machines

- ⚪ The Bootstrap

- 🔘 Forward Stepwise Selection

  ✔

Explanation

Forward Stepwise Selection is a Greedy Algorithm because at each step it selects the variable that improves the current model the most. There is no guarantee that the final result will be optimal.

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ℹ️   Answers are displayed within the problem

8.Q2

1/1 point (graded)

Examine the plot on pg 23. Assume that we wanted to select a model using the one-standard-error rule on the Cross-Validated error. What tree size would end up being selected?:

- ○ 1
- ⦿ 2
- ○ 3
- ○ 10

✔

Explanation

Cross-Validated error is minimized at tree size 3. The error for Tree size 2 is within one standard error of the minimum, but the error for tree size 1 is not. Thus, the one-standard-error rule selects tree size 2.

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ⓘ   Answers are displayed within the problem

8.Q3

1/1 point (graded)

Suppose I have two qualitative predictor variables, each with three levels, and a quantitative response. I am considering fitting either a tree or an additive model. For the additive model, I will use a piecewise-constant function for each variable, with a separate constant for each level. Which model is capable of fitting a richer class of functions:

- ⦿ Tree
- ○ Additive Model
- ○ They are equivalent

✔

Explanation

Although each split of the tree makes two partitions, it can fit interactions, while

the additive model cannot. With enough splits the tree can fit a full 3x3 regression surface.

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