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Please provide numbers in the requested precision within each question. The use of different precision is evaluated as wrong!

Load the dataset `Boston` from the package `MASS` into your `R` workspace. Use `?Boston` to get information about the dataset. Let n denote the number of observations included in this dataset.

(a) Set the seed to 2021. Split the dataset randomly into a training and a test dataset where the training dataset contains $n - 100$ observations. Fit a linear model based on the training data where `medv` is the response variable and `crim, zn, indus, nox, rm, age, dis, tax, ptratio, black, lstat` are the explanatory variables. What is the mean value of the resulting fitted values?

1 of 1 point

mean value **(requested precision: 4 digits)**) — 1 of 1 point

22.3111 ✓

(b) Fit the penalized regression model with Lasso with tuning parameter $\lambda = 0.5$. What are the resulting estimates for the intercept and the coefficient of `dis`?

2 of 2 points

estimate of intercept **(requested precision: 4 digits)** — 1 of 1 point

10.1197 ✓

estimate of coefficient of `dis` **(requested precision: 4 digits)** — 1 of 1 point

-0.0615 ✓

(c) Fit the penalized regression model with Lasso using cross validation (CV). What are the values for the minimum of λ (denoted by λ_{min}) and λ_{1-SE}?

2 of 2 points

value for λ_{min} **(requested precision: 4 digits)** — 1 of 1 point

0.0227 ✓

value for λ_{1-SE} **(requested precision: 4 digits)** — 1 of 1 point

1.0293 ✓

(d) Fit the penalized regression model with Lasso with tuning parameter λ_{1-SE} from (c). What is the minimum value of the resulting estimated coefficients ?

1 of 1 point

minimum value of resulting estimated coefficients **(requested precision: 4 digits)** — 1 of 1 point

-0.5996 ✓

(e) Fit the penalized regression model with Lasso with tuning parameter λ_{min} from (c). What is the minimum value of the resulting estimated coefficients ?

1 of 1 point

minimum value of resulting estimated coefficients **(requested precision: 4 digits)** — 1 of 1 point

-10.6274 ✓

(f) Test the models fitted in (d) and (e) on the test dataset and compute the values for predicted residual sum of squares (PRESS). Which model has the lowest value of PRESS? Type in "1" for the model fitted in (d) and type in "2" for the model fitted in (e) (without quotation marks).

1 of 1 point

model with lowest value of PRESS — 1 of 1 point

2 ✓

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Create an inspection request?

Please note that this document will become a part of your exam file!
- Be polite and friendly.
- Describe your rationale as precisely as possible.

Dynexite, 30.07.2021

Request for correction of this item

Dear sir or madam, ...

(This document is valid without signature)

Changes were saved