# Linear Regression

Started: Feb 18 at 9:23pm

# Quiz Instructions

Read the section 'In Depth: Linear Regression' in the Python Data Science Handbook (https://jakevdp.github.io/PythonDataScienceHandbook/05.06-linear-regression.html) up to, but not including, the subsection on 'Regularization'. This involves only a few pages of reading.

This is a homework assignment. All resources, such as the book, lectures, internet, Python is available.

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## Question 1 — 1 pts

Suppose I have a linear model that uses 3 predictors/features. During the training of my model, how many model parameters will be set?

- ○ 2
- ○ 3
- ◉ 4
- ○ 42

## Question 2 — 1 pts

What kind of machine learning does linear regression represent?

- ◉ Supervised
- ○ Unsupersived
- ○ Reinforced
- ○ Observable

## Question 3 — 1 pts

(T/F) With linear regression, you are likely to obtain a lower RMSE on test data if you scale your predictor variables first.

- ○ True
- ◉ False

## Question 4 — 1 pts

Which takes longer to train, KNN regression or linear regression? (Consider time to perform arithmetic operations only.)

- ◉ KNN regression
- ○ linear regression
- ○ c. it depends on the number of rows of training data
- ○ d. it depends on the number of predictors

## Question 5 — 1 pts

I have a linear model that predicts the cost of tuition at a university based on the number of students at the university.

My model predicts a yearly tuition of $22,000 dollars, if there are 12,000 students at a university, and $35,000 dollars if there are 2,000 students at a university.

According to this model, what would my model predict for a university with 6,500 students?

Enter your result as an integer, such as 100. Answers within the error margin will be accepted.

29,150

## Question 6

1 pts

Suppose I want to fit a linear model to some training data. Which parts of the training data do I need?

- ○ predictor values only
- ○ target values only
- ◉ both predictor and target values

## Question 7

1 pts

With linear regression, which quantity are we attempting to minimize during the training process?

- ◉ the average of the squared differences between predicted target values and actual target values
- ○ the average of the absolute value of the differences between predicted target values and actual target values
- ○ the average of the differences between the predicted target values and actual target values

## Question 8

1 pts

Here is a model that estimates the monthly rental price of an office in Cork, Ireland (in dollars):

$$\text{price} = \text{-}0.151 + 0.63 \times \text{size} - 0.178 \times \text{floor} + 0.071 \times \text{internetSpeed}$$

The units for size are square feet, and the units for internet Speed is Mb/sec.

What is the predicted rental price for a 850 square foot office on the 15th floor of a building with an internet speed of 100 Mb/sec?

- ○ 260
- ◉ 540
- ○ 780

## Question 9

1 pts

Referring to the model of the last question, what would be the difference in price if the office were on the 18th floor instead of the 15th floor?

In other words, what is the new price minus the old price?

- ○ 0.53
- ◉ -0.53
- ○ 0.26
- ○ -0.26

## Question 10

1 pts

Referring again to the office model, would the price change associated with a change from the 15th to the 18th floor be the same as the price change associated with a change from the 18th to the 21st floor?

Select Yes/True or No/False.

- ◉ True
- ○ False

No new data to save. Last checked at 12:44pm Submit Quiz