Linear Regression with Multiple Variables

Quiz, 5 questions

5/5 points (100%)

Congratulations! You passed!

Next Item

1 / 1 points

1.
Suppose *m*=4 students have taken some class, and the class had a midterm exam and a final exam. You have collected a dataset of their scores on the two exams, which is as follows:

midterm exam	(midterm exam)^2	final exam
89	7921	96
72	5184	74
94	8836	87
69	4761	78

You'd like to use polynomial regression to predict a student's final exam score from their midterm exam score. Concretely, suppose you want to fit a model of the form $h_\theta(x) = \theta_0 + \theta_1 x_1 + \theta_2 x_2$, where x_1 is the midterm score and x_2 is (midterm score)^2. Further, you plan to use both feature scaling (dividing by the "max-min", or range, of a feature) and mean normalization.

What is the normalized feature $x_2^{(2)}$? (Hint: midterm = 72, final = 74 is training example 2.) Please round off your answer to two decimal places and enter in the text box below.

---

1 / 1 points

2.
You run gradient descent for 15 iterations

with $\alpha = 0.3$ and compute

$J(\theta)$ after each iteration. You find that the

value of $J(\theta)$ **decreases slowly** and is still

decreasing after 15 iterations. Based on this, which of the

following conclusions seems most plausible?

---

1 / 1 points

3.
Suppose you have $m = 14$ training examples with $n = 3$ features (excluding the additional all-ones feature for the intercept term, which you should add). The normal equation is $\theta = (X^T X)^{-1} X^T y$. For the given values of m and n, what are the dimensions of θ, X, and y in this equation?

---

1 / 1 points

Linear Regression with Multiple Variables

Quiz, 5 questions

5/5 points (100%)

4.

Suppose you have a dataset with $m = 1000000$ examples and $n = 200000$ features for each example. You want to use multivariate linear regression to fit the parameters θ to our data. Should you prefer gradient descent or the normal equation?

1 / 1 points

5.

Which of the following are reasons for using feature scaling?