Linear Regression with One Variable

Quiz, 5 questions

1 point

1.

Consider the problem of predicting how well a student does in her second year of college/university, given how well she did in her first year.

Specifically, let x be equal to the number of "A" grades (including A-. A and A+ grades) that a student receives in their first year of college (freshmen year). We would like to predict the value of y, which we define as the number of "A" grades they get in their second year (sophomore year).

Refer to the following training set of a small sample of different students' performances (note that this training set may also be referenced in other questions in this quiz). Here each row is one training example. Recall that in linear regression, our hypothesis is $h_{\theta}(x) = \theta_0 + \theta_1 x$, and we use m to denote the number of training examples.

x	у
3	4
2	1
4	3
0	1

For the training set given above, what is the value of m? In the box below, please enter your answer (which should be a number between 0 and 10).

Enter answer here

1 point

2.

Consider the following training set of m=4 training examples: Linear Regression with One Variable

Quiz, 5 questions X	у
1	0.5
2	1
4	2
0	0

Consider the linear regression model $h_{ heta}(x)= heta_0+ heta_1x$. What are the values of $heta_0$ and $heta_1$ that you would expect to obtain upon running gradient descent on this model? (Linear regression will be able to fit this data perfectly.)

- $\theta_0 = 1, \theta_1 = 1$
- hinspace hin
- $\bigcirc \quad \theta_0=0.5, \theta_1=0$
- $\bigcirc \quad \theta_0=1, \theta_1=0.5$
- $\theta_0=0.5, \theta_1=0.5$

point

Suppose we set $heta_0=0, heta_1=1.5$ in the linear regression hypothesis from Q1. What is $h_{ heta}(2)$?

Enter answer here

point

Let f be some function so that Linear Regression with One Variable

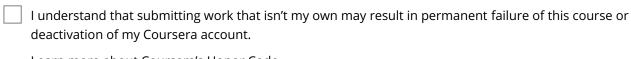
Quizf(@ue@i)noutputs a number. For this problem,

f is so	me arbitrary/unknown smooth function (not necessarily the
cost fu	nction of linear regression, so f may have local optima).
Suppo	se we use gradient descent to try to minimize $f(heta_0, heta_1)$
as a fu	nction of $ heta_0$ and $ heta_1$. Which of the
followi	ng statements are true? (Check all that apply.)
	If θ_0 and θ_1 are initialized so that $\theta_0=\theta_1$, then by symmetry (because we do simultaneous updates to the two parameters), after one iteration of gradient descent, we will still have $\theta_0=\theta_1$.
	Even if the learning rate $lpha$ is very large, every iteration of
	gradient descent will decrease the value of $f(heta_0, heta_1).$
	If the learning rate is too small, then gradient descent may take a very long
	time to converge.
	If $ heta_0$ and $ heta_1$ are initialized at
	a local minimum, then one iteration will not change their values.
	se that for some linear regression problem (say, predicting housing prices as in the lecture), we have some
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5. Supportrainin	se that for some linear regression problem (say, predicting housing prices as in the lecture), we have some g set, and for our training set we managed to find some $ heta_0$, $ heta_1$ such that $J(heta_0, heta_1)=0$.
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5. Supportrainin	se that for some linear regression problem (say, predicting housing prices as in the lecture), we have some g set, and for our training set we managed to find some θ_0 , θ_1 such that $J(\theta_0,\theta_1)=0$. of the statements below must then be true? (Check all that apply.)
5. Supportrainin	se that for some linear regression problem (say, predicting housing prices as in the lecture), we have some g set, and for our training set we managed to find some θ_0 , θ_1 such that $J(\theta_0,\theta_1)=0$. of the statements below must then be true? (Check all that apply.) $ \text{We can perfectly predict the value of } y \text{ even for new examples that we have not yet seen.} $

So that $h_{ heta}(x)=0$ Linear Regression with One Variable

Quiz, \overline{s} questions is not possible: By the definition of $J(heta_0, heta_1)$, it is not possible for there to exist

 $heta_0$ and $heta_1$ so that $J(heta_0, heta_1)=0$



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