✓ Environment Setup Instructions

Multivariate Linear Regression

Computing Parameters Analytically

Submitting Programming Assignments

Latest Week 2

✓ **Reading:** Lecture Slides
20 min

✓ **Quiz:** Linear Regression with Multiple Variables
5 questions

Octave/Matlab Tutorial

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Linear Regression with Multiple Variables

Quiz • 30 min

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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: **1 / 1 point**

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 $x_2^{(4)}$? (Hint: midterm = 69, final = 78 is training example 4.) Please round off your answer to two decimal places and enter in the text box below.

⊘ **Correct**

2. You run gradient descent for 15 iterations   **1 / 1 point**

with $\alpha = 0.3$ and compute

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

value of $J(\theta)$ **decreases** quickly then levels

off. Based on this, which of the following conclusions seems

most plausible?

⊘ **Correct**

3. Suppose you have $m = 23$ training examples with $n = 5$ 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 point**

⊘ **Correct**

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 point**

⊘ **Correct**

5. Which of the following are reasons for using feature scaling?   **1 / 1 point**

⊘ **Correct**