Coursera machine learning week 2 assignment answers

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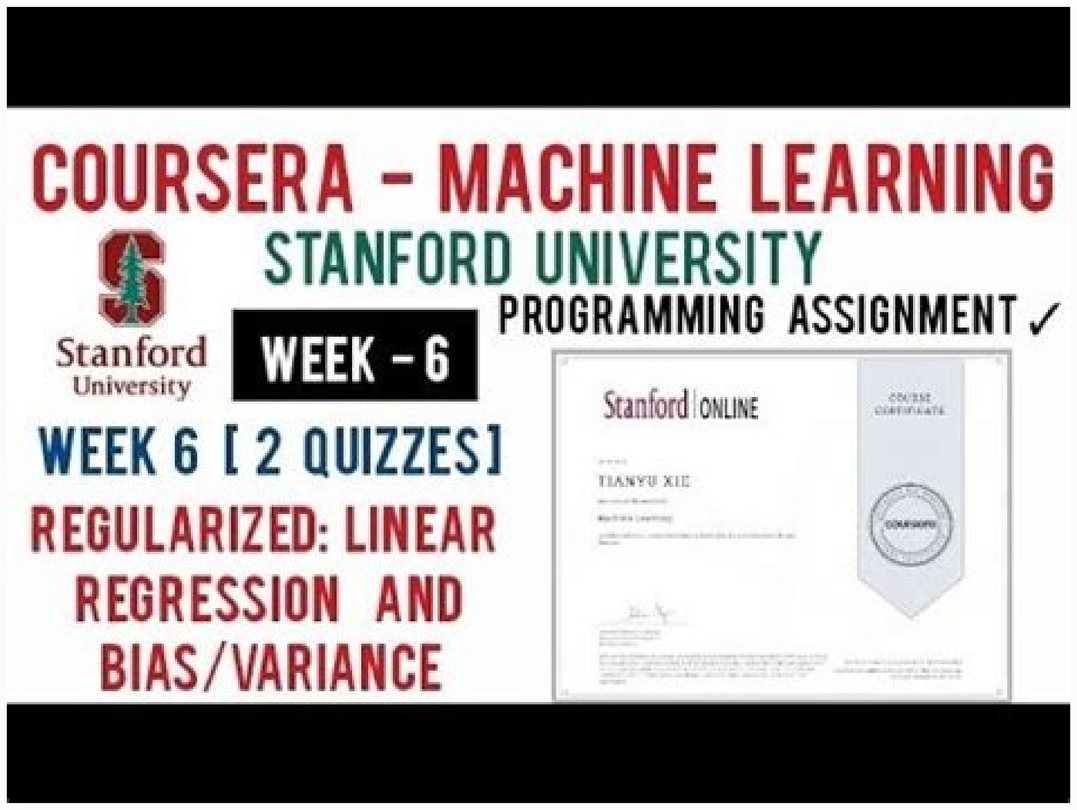
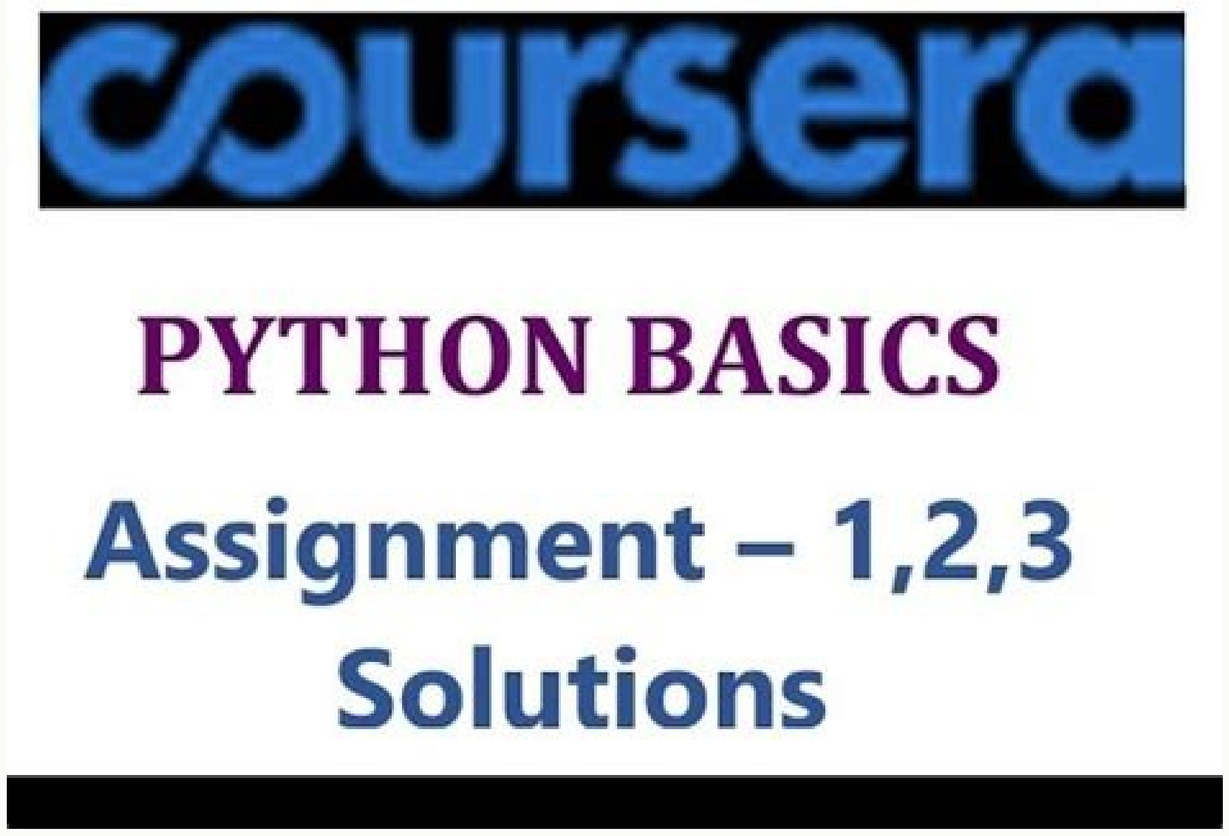

COURSERA - MACHINE LEARNING
STANFORD UNIVERSITY
Stanford University
WEEK - 6
PROGRAMMING ASSIGNMENT ✓
WEEK 6 [2 QUIZZES]
REGULARIZED: LINEAR REGRESSION AND BIAS/VARIANCE
Stanford | ONLINE
TIANYU XIE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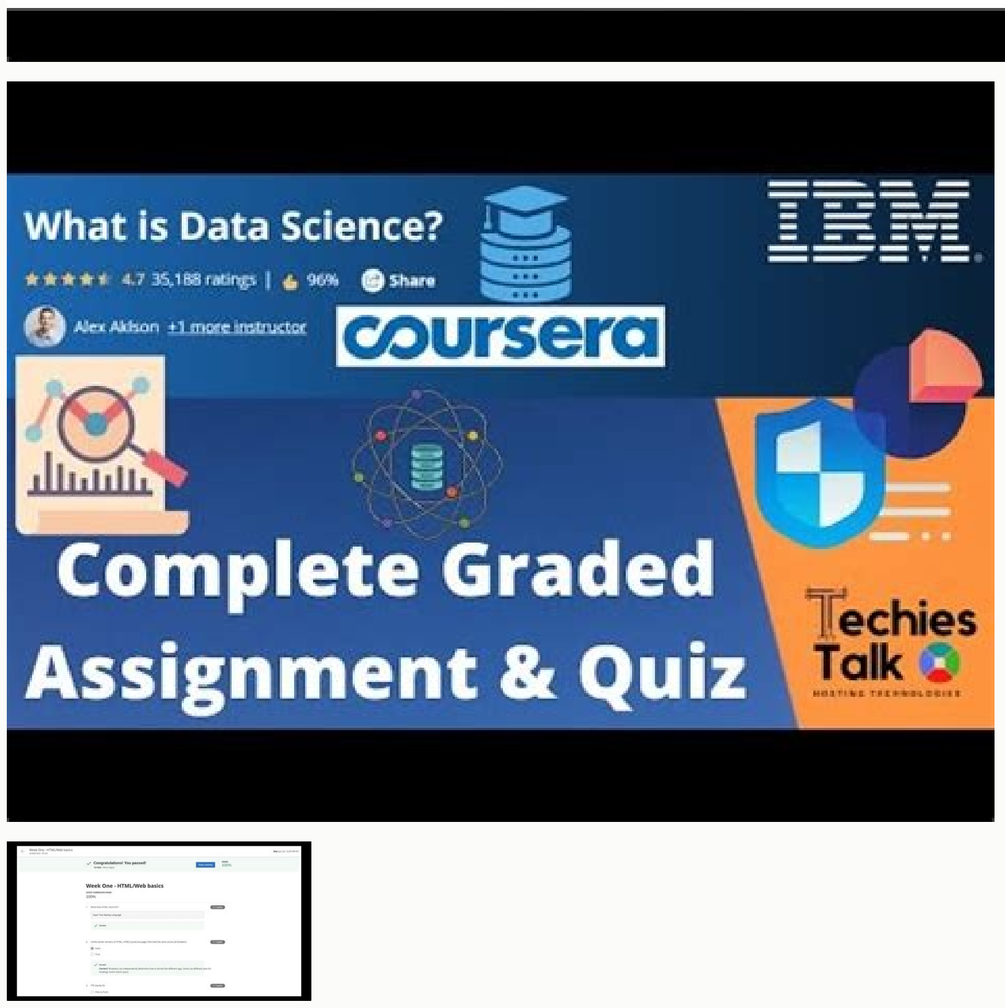
PYTHON BASICS
Assignment – 1,2,3
Solutions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Week One - HTML/Web basics

- C) implementation teams can never stop
- D) data conversion

View Feedback
Question 18 1 / 1 point
Which of the following refers to data that have been organized, grouped, or otherwise assembled into a useful form?

- A) information
- B) knowledge
- C) wisdom
- D) a memorandum

View Feedback
Question 19 1 / 1 point
Which of the following is the way enterprise systems provide the maximum benefit to an organization?

- A) by providing improved financial reporting
- B) by providing a better data entry system
- C) by providing real-time information across functions to improve decision making
- D) by providing a web portal to customers

View Feedback
Question 20 1 / 1 point
Which of the following should be able to access the enterprise system software? (select all that apply)

- A) strategic partners
- B) customers
- C) software vendor
- D) employees

IFSM 300 Quiz 6

Coursera machine learning week 2 programming assignment answers.

HomeArtificial Intelligence byAkshay Daga (APDaga) -April 25, 2021 function A = warmUpExercise() % function [y1,...,yN] = myfun(x1,...,xN) % above function 'myfun' takes argument (x1,...,xN) and returns y1,...,yN % Return the 5x5 identity matrix in octave A = eye(5); endfunction plotData(x, y) %PLOTDATA Plots the data points x and y into a new figure plot(x, y, 'rx', 'MarkerSize', 10); % Plot the data % Hint: You can use the 'rx' option with plot to have the markers % appear as red crosses. Furthermore, you can make the % markers larger by using plot(..., 'rx', 'MarkerSize', 10); ylabel('Profit in $10,000s'); % Set the y ? axis label xlabel('Population of City in 10,000s'); % Set the x ? axis label figure; % open a new figure window endfunction J = computeCost(X, y, theta) % J = COMPUTECOST(X, y, theta) computes the cost for linear regression % using theta as the parameter for linear regression to fit the data % points in X and y m = length(y); i = 1:m; J = (1/(2*m)) * sum(((theta(1) + theta(2) .* X(i,2)) - y(i)) .^ 2); % Un-Vectorized endfunction [theta, J_history] = gradientDescent(X, y, theta, alpha, num_iters) % theta = GRADIENTDESENT(X, y, theta, alpha, num_iters) updates theta by % taking num_iters gradient steps with learning rate alpha m = length(y); J_history = zeros(num_iters, 1); for iter = 1:num_iters k = 1:m; t1 = sum((theta(1) + theta(2) .* X(k,2)) - y(k)); % Un-Vectorized t2 = sum(((theta(1) + theta(2) .* X(k,2)) - y(k)) .* X(k,2)); % Un-Vectorized theta(1) = theta(1) - (alpha/m) * (t1); theta(2) = theta(2) - (alpha/m) * (t2); % Save the cost J in every iteration J_history(iter) = computeCost(X, y, theta); end endfunction J = computeCostMulti(X, y, theta) % J = COMPUTECOSTMULTI(X, y, theta) computes the cost of using theta as the % parameter for linear regression to fit the data points in X and y m = length(y); % number of training examples J = (1/(2*m)) * (X * theta - y)' * (X * theta - y); % Vectorized endfunction [theta, J_history] = gradientDescentMulti(X, y, theta, alpha, num_iters) % theta = GRADIENTDESCENTMULTI(x, y, theta, alpha, num_iters) updates theta by % taking num_iters gradient steps with learning rate alpha m = length(y); J_history = zeros(num_iters, 1); for iter = 1:num_iters theta = theta - alpha * (1/m) * (((X*theta) - y)' * X)'; % Vectorized J_history(iter) = computeCostMulti(X, y, theta); end endfunction [X_norm, mu, sigma] = featureNormalize(X) % FEATURENORMALIZE(X) returns a normalized version of X where % the mean value of each feature is 0 and the standard deviation % is 1. This is often a good preprocessing step to do when % working with learning algorithms. mu = mean(X); sigma = std(X); t = ones(length(X), 1); X_norm = (X - (t * mu)) ./ (t * sigma); % Vectorized endfunction [theta] = normalEqn(X, y) % NORMALEQN(X,y) computes the closed-form solution to linear % regression using the normal equations. theta = pinv(X' * X) * (X' * y); % Vectorized end Hi Sir/Ma'm, I am sending 2-week assignment coding answers. Coursera machine learning (week 2 programming assignment answers) is Matlab. Please check the attached file and confirm. email id-rsmanojshukla@gmail.com Thanks & Regards, Manoj Shukla Manoj Shukla (2022). Week 2 programming assignment answers (, MATLAB Central File Exchange. Retrieved August 19, 2022. Recommended Courses:Coursera: Machine LearningGoogle Data Analytics Professional Certificate. Coursera Google Data Analytics Professional Quiz Answers   click here& Coursera Google IT Support Professional   click hereHave no concerns to ask doubts in the comment section. I will give my best to answer it.If you find this helpful kindly comment and share the post.This is the simplest way to encourage me to keep doing such work. Exercises are done on Matlab R2017a This repository consists my personal solutions to the programming assignments of Andrew Ng's Machine Learning course on Coursera. Week 1 Introduction Linear Regression with One Variable Linear Algebra Review Week 2 Linear Regression with Multiple Variables Octave / Matlab Tutorial Programming Exercise 1 Week 3 Logistic Regression Regularization Programming Exercise 2 Week 4 Neural Network Representation Programming Exercise 3 Week 5 Neural Networks: Learning Programming Exercise 4 Week 6 Advice for Applying Machine Learning Programming Exercise 5 Machine Learning System Design Week 7 Support Vector Machines Programming Exercise 6 Week 8 Unsupervised Learning Dimensionality Reduction Programming Exercise 7 Week 9 Anomaly Detection Recommender Systems Programming Exercise 8 Week 10 Large Scale Machine Learning Week 11 Application Example: Photo OCR ▸ Linear regression and get to see it work on data. I have recently completed the Machine Learning course from Coursera by Andrew NG. While doing the course we have to go through various quiz and assignments. Here, I am sharing my solutions for the weekly assignments throughout the course. These solutions are for reference only. > It is recommended that you should solve the assignments by yourself honestly then only it makes sense to complete the course. > But, In case you stuck in between, feel free to refer to the solutions provided by me. NOTE: Don't just copy paste the code for the sake of completion. Even if you copy the code, make sure you understand the code first. Since there is NO assignment in week-1, Let's start with the week-2 assignment.... In this exercise, you will implement linear regression and get to see it work on data. Before starting on this programming exercise, we strongly recommend watching the video lectures and completing the review questions for the associated topics. It consist of the following files: ex1.m - Octave/MATLAB script that steps you through the exercise ex1 multi.m - Octave/MATLAB script for the later parts of the exercise ex1data1.txt - Dataset for linear regression with one variable ex1data2.txt - Dataset for linear regression with multiple variables submit.m - Submission script that sends your solutions to our servers [*] warmUpExercise.m - Simple example function in Octave/MATLAB [*] plotData.m - Function to display the dataset [*] computeCost.m - Function to compute the cost of linear regression [*] gradientDescent.m - Function to run gradient descent [#] computeCostMulti.m - Cost function for multiple variables [#] gradientDescentMulti.m - Gradient descent for multiple variables [#] featureNormalize.m - Function to normalize features [#] normalEqn.m - Function to compute the normal equations Video - YouTube videos featuring Free IOT/ML tutorials * indicates files you will need to complete # indicates optional exercises warmUpExercise.m : function A = warmUpExercise() %WARMUPEXERCISE Example function in octave % A = WARMUPEXERCISE() is an example function that returns the 5x5 identity matrix A = []; % ============ YOUR CODE HERE ============== % Instructions: Return the 5x5 identity matrix % In octave, we return values by defining which variables % represent the return values (at the top of the file) % and then set them accordingly. A = eye(5); %It's a built-in function to create identity matrix % === end plotData.m : function plotData(x, y) %PLOTDATA Plots the data points x and y into a new figure % PLOTDATA(x,y) plots the data points and gives the figure axes labels of % population and profit. figure; % open a new figure window % ====================== YOUR CODE HERE ====================== % Instructions: Plot the training data into a figure using the % "figure" and "plot" commands. Set the axes labels using % the "xlabel" and "ylabel" commands. Assume the % population and revenue data have been passed in % as the x and y arguments of this function. % % Hint: You can use the 'rx' option with plot to have the markers % appear as red crosses. Furthermore, you can make the % markers larger by using plot(..., 'rx', 'MarkerSize', 10); plot(x, y, 'rx', 'MarkerSize', 10); % Plot the data ylabel('Profit in $10,000s'); % Set the y-axis label xlabel('Population of City in 10,000s'); % Set the x-axis label % == end computeCost.m : function J = computeCost(X, y, theta) %COMPUTECOST Compute cost for linear regression % J = COMPUTECOST(X, y, theta) computes the cost of using theta as the % parameter for linear regression to fit the data points in X and y % Initialize some useful values m = length(y); % number of training examples % You need to return the following variables correctly J = 0; % ====================== YOUR CODE HERE ====================== % Instructions: Compute the cost of a particular choice of theta % You should set J to the cost. %%%%%%%%%%%%% CORRECT %%%%%%%%% % h = X*theta; % temp = 0; % for i=1:m % temp = temp + (h(i) - y(i))^2; % end % J = (1/(2*m)) * temp; %%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%% %%%%%%%%%%%%%% CORRECT: Vectorized Implementation %%%%%%%%% J = (1/(2*m))*sum(((X*theta)-y).^2); %%% % === end gradientDescent.m : function [theta, J_history] = gradientDescent(X, y, theta, alpha, num_iters) %GRADIENTDESCENT Performs gradient descent to learn theta % theta = GRADIENTDESCENT(X, y, theta, alpha, num_iters) updates theta by % taking num_iters gradient steps with learning rate alpha % Initialize some useful values m = length(y); % number of training examples J_history = zeros(num_iters, 1); for iter = 1:num_iters % ====================== YOUR CODE HERE ====================== % Instructions: Perform a single gradient step on the parameter vector % theta. % % Hint: While debugging, it can be useful to print out the values % of the cost function (computeCost) and gradient here. % %%%%%%%%% CORRECT %%%%%%%% %error = (X * theta) - y; %temp0 = theta(1) - ((alpha/m) * sum(error .* X(:,1))); %temp1 = theta(2) - ((alpha/m) * sum(error .* X(:,2))); %theta = [temp0; temp1]; %%%%%%%%%%%%%%%%%%%%%%%%%% %%%%%%%%%% CORRECT %%%%%%%% %error = (X * theta) - y; %temp0 = theta(1) - ((alpha/m) * X(:,1)'*error); %temp1 = theta(2) - ((alpha/m) * X(:,2)'*error); %theta = [temp0; temp1]; %%%%%%%%%%%%%%%%%%%%%%%%%% %%%%%%%%% CORRECT %%%%%%% error = (X * theta) - y; theta = theta - ((alpha/m) * X'*error); %%%%%%%%%%%%%%%%%%%%%%%%%%%% % == % Save the cost J in every iteration J_history(iter) = computeCost(X, y, theta); end end computeCostMulti.m : function J = computeCostMulti(X, y, theta) %COMPUTECOSTMULTI Compute cost for linear regression with multiple variables % J = COMPUTECOSTMULTI(X, y, theta) computes the cost of using theta as the % parameter for linear regression to fit the data points in X and y % Initialize some useful values m = length(y); % number of training examples % You need to return the following variables correctly J = 0; % ====================== YOUR CODE HERE ====================== % Instructions: Compute the cost of a particular choice of theta % You should set J to the cost. J = (1/(2*m))*(sum(((X*theta)-y).^2)); % === end gradientDescentMulti.m : function [theta, J_history] = gradientDescentMulti(X, y, theta, alpha, num_iters) %GRADIENTDESCENTMULTI Performs gradient descent to learn theta % theta = GRADIENTDESCENTMULTI(x, y, theta, alpha, num_iters) updates theta by % taking num_iters gradient steps with learning rate alpha % Initialize some useful values m = length(y); % number of training examples J_history = zeros(num_iters, 1); for iter = 1:num_iters % ====================== YOUR CODE HERE ====================== % Instructions: Perform a single gradient step on the parameter vector % theta. % % Hint: While debugging, it can be useful to print out the values % of the cost function (computeCostMulti) and gradient here. % %%%%%%%% CORRECT %%%%%%%%%% error = (X * theta) - y; theta = theta - ((alpha/m) * X'*error); %%%%%%%%%%%%%%%%%%%%%%%%%%%% % == % Save the cost J in every iteration J_history(iter) = computeCostMulti(X, y, theta); end end Check-out our free tutorials on IOT (Internet of Things): featureNormalize.m : function [X_norm, mu, sigma] = featureNormalize(X) %FEATURENORMALIZE Normalizes the features in X % FEATURENORMALIZE(X) returns a normalized version of X where % the mean value of each feature is 0 and the standard deviation % is 1. This is often a good preprocessing step to do when % working with learning algorithms. % You need to set these values correctly X_norm = X; mu = zeros(1, size(X, 2)); sigma = zeros(1, size(X, 2)); % ====================== YOUR CODE HERE ====================== % Instructions: First, for each feature dimension, compute the mean % of the feature and subtract it from the dataset, % storing the mean value in mu. Next, compute the % standard deviation of each feature and divide % each feature by it's standard deviation, storing % the standard deviation in sigma. % % Note that X is a matrix where each column is a % feature and each row is an example. You need % to perform the normalization separately for % each feature. % % Hint: You might find the 'mean' and 'std' functions useful. % mu = mean(X); sigma = std(X); X_norm = (X - mu)./sigma; % == end normalEqn.m : function [theta] = normalEqn(X, y) %NORMALEQN Computes the closed-form solution to linear regression % NORMALEQN(X,y) computes the closed-form solution to linear % regression using the normal equations. theta = zeros(size(X, 2), 1); % ====================== YOUR CODE HERE ====================== % Instructions: Complete the code to compute the closed form solution % to linear regression and put the result in theta. % % ---------------------- Sample Solution ---------------------- theta = pinv(X'*X)*X'*y; % --- % == end I tried to provide optimized solutions like vectorized implementation for each assignment. If you think that more optimization can be done, then put suggest the corrections / improvements. --- Click here to see solutions for all Machine Learning Coursera Assignments. Click here to see more codes for Raspberry Pi 3 and similar Family. Click here to see more codes for NodeMCU ESP8266 and similar Family. Click here to see more codes for Arduino Mega (ATMega 2560) and similar Family. Feel free to ask doubts in the comment section. I will try my best to solve it. If you find this helpful by any mean like, comment and share the post. This is the simplest way to encourage me to keep doing such work.

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