Assignment-3

In this assignment, you will implement logistic regression and apply it to the heart disease dataset (Heart.csv).To get started with the exercise, you will need to download the starter code and copy its contents to the directory where you wish to complete the assignment. The classification goal is to predict whether the patient has 10-year risk of future coronary heart disease (CHD). You have historical data from previous patients that you can use as a training set for logistic regression. For each training example, you have the applicant's scores on two exams and the admissions decision.

2.1 Feature Normalization

When features differ by orders of magnitude, first performing feature scaling can make gradient descent converge much more quickly.

2.2 House Price Prediction

Finally, use your final ***w and b*** values to predict a patient has a coronary heart disease or not with the values `[124, 4.00,12.42,31.29,1,54,23.23, 2.06,42]`

2.4 Selecting learning rates

In this part of the exercise, you will get to try out different learning rates for the dataset and find a learning rate that converges quickly. Run gradient descent for about 200 iterations at the chosen learning rate. The learning rate (alphas) = [1, 0.5, 0.1, 0.05, 0.01]

Plot the Cost function for various learning rates.

Note: large learning rates alphas can blow up resulting in values too large for computer calculations. or return NaN values. On the other hand, With small learning rates the gradient descent takes a very long time to converge to an optimal value.

What to Submit: Canvas Classroom.

1. Assignment3YourName.pdf (e.g., Assignment-3AliAburas.pdf). That contains all screen-shots of your code! Note: Dont zip the pdf file!
2. Python code