2023-2024 FALL
Machine Learning – Project 1

DUE DATE: 10/11/2023

You will implement linear regression to predict the car price of primary beneficiaries using 6 variables. These variables are:

year: Age of the car

km_driven: How many kilometers the car has.

fuel: fuel type (Diesel, Petrol)

seller type: (Individual, Dealer, Trustmark Dealer)

transmission: (Manuel, Automatic)

Owner: (First Owner, Second Owner, Third Owner, Fourth & Above Owner)

Download the provided data (trainDATA.xlsx), write your own codes for regression algorithm for predicting individual medical costs. Use your results to get errors for data provided in textDATA.xlsx. Submit your estimation values in an excel file along with your report.

WRITE A FINAL REPORT, which includes the following information:

- Data arrangement,
- Scaling factors for variables,
- Learning rates,
- Try different rates and compare the number of iterations for convergence and values of the cost function for test data.
- Plot of cost values J and θ iteration number for training set.
- Learning rates, you use.
- Information on convergence,
- How did you decide for convergence? (i.e., convergence rule you used)

You can use following Matlab Codes to load the data from an excel file which includes only numbers:

```
data = load('data.xlsx'); % read all numbers excel file into a matrix called data
% Top row might include variable names
X = data(:, 1:end-1); y = data(:, 2);
m = length(y); % number of training examples
% You can also use m=size(data,1);
```