Assignment 01

SCS3201 / IS3117 / CS3120 Machine Learning and Neural Computing

Linear Regression

Hope you have completed Tutorial 01. Now it is your chance to try and evaluate yourself whether you understood the concepts of linear regression and gradient decent algorithm.

Here are the tasks you have to do.

Task 01

In the SAT score and GPA example of **Tutorial 01,** we have used the mean squared error function as the loss function. But there are many functions that can be used as cost functions. Refer this link to get an idea about available functions.
https://machinelearningknowledge.ai/cost-functions-in-machine-learning/

Mean Absolute Error function is one of them. It can be represented by the following equation.

$$Loss = \frac{1}{n}\sum_{i=0}^{n} |y_i - \bar{y}_i|$$

Change the code to use Mean Absolute Error Function as the cost function.

Task 02

In the **Tutorial 01** we have initialized **m** and **c** with 0. Random values can also be used to initialize **m** and **c.** You can use python **random library** to do it.

```
import random
print(random.random())
```

Task 03

Change the code in **Tutorial 01** to display the regression line after every iteration. So you can see how the regression line changes over each iteration. (Search google for dynamic plotting with matplotlib)

Complete the 3 tasks and upload the python file to VLE using the given link. Please rename the file as <index_no>.py (Eg: 17000877.py).

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