LAB Artificial Intelligence

Programming Assignment 6 – Linear Regression

You are required to submit your solutions of this assignment on Moodle, at the end of the current session. Submit your own work. Cheating will not be tolerated and will be penalized.

Linear Regression using sklearn

Linear Regression is a supervised machine learning algorithm where the predicted output is continuous. This model is used to predict a dependent variable from a set of independent variables.

In this lab, the problem you are going to solve is for an ecommerce company. The company owns a store, where customers have sessions with a personal stylist, and then go home and can order either on a mobile app or on website for the clothes they want. The company is trying to decide whether to focus their efforts on their mobile app experience or their website.

You are going to use the `LinearRegression` model from the Scikit-learn library. This model is an ordinary least squares linear regression model. It fits a linear model with coefficients $w = (w_1, \ldots, w_p)$ to minimize the residual sum of squares between the observed targets in the dataset, and the targets predicted by the linear approximation.

Open the LinReg_Ecommerce.ipynb file, and complete the missing parts of the code. All the steps needed to solve this problem are given to you in the file.

Verification: If your code is running correctly, you should have results close to the following values:

	Coeffecient
Avg. Session Length	25.981550
Time on App	38.590159
Time on Website	0.190405
Length of Membership	61.279097

And for a `random_state = 101` in `train_test_split`:

```
MAE: 7.2
MSE: 79.8
RMSE: 8.9
```

Answer (in your notebook) the questions at the end of your file.