Assignment – 3

[Q1] Differentiate between Simple & Multiple Linear Regression.

[Q2] What are the different assumptions of Linear regression?

[Q3] Define R squared & also state that why we need adjusted R squared value?

[Q4] Can we use categorical variables as independent variables in linear regression? Explain with an example.

[Q5] Given observations for two variables x and y.

x_i	3	12	6	20	14
y_i	55	40	55	10	15

a) Develop a scatter diagram & depicts the relationship between these two variables.
b) Assume W0 = 50 and W1 = -0.8 for the linear regression equation, calculate the MSE(mean squared error), RMSE (root mean square error)?
c) Calculate the R2 value?

d) Predict the target variable(y) for input variable x = 25, using the above linear equation?

[Q6] Will outliers affect the linear regression model performance? If yes, explain how?

[7] Does higher R2 value imply that the model is better than the model with

lower R2?

[8] Do you really need machine learning to train the model on the following dataset? Explain in detail.

x	12	3	14	7	8	11	13	10	15
y	29	11	33	19	21	27	31	25	35

[9] Try to create a model on the above dataset to predict for the new x values.

[10] calculate the MSE once you get a model?