**AIML – ASSIGNMENT 1**

**START-UP 50**

**Simple linear regression:**

**A diagram of a heatmap

Description automatically generated**

* Here we can infer that R&D Spend and Marketing Spend has the highest correlation with Profit
* Even the scatter plot for R&D Spend vs Profit suggests the same
* So, if the profit needs to be increased, we need investment in R&D and Marketing
* For Simple Linear Regression we can take R&D Spend as Independent variable and Profit as Dependent variable.

**R-squared value**:

* 0.9498810358712269
* 94% of the variation in the Profit can be explained by R&D Spend.

**A graph with red line and blue dots

Description automatically generated**

* This shows the good fit of data points So if the Startup wants to have profit, they need to enhance the R&D.

**Output**

**A screenshot of a computer screen

Description automatically generated**

* The predicted values are reasonably close to the Actual values.

**Multiple Linear Regression:**

**A graph of a profit

Description automatically generated**

* This distribution suggests that is positively skewed.

A graph of a bar chart

Description automatically generated with medium confidence

* Through this Total amount spend for each category, we can infer that R&D had less investment comparing with other two. Yet it has high correlation with profit.

**R-squared value:**

* R² Score - 0.9386
* 93% of the variance in the dependent variable can be explained by Independent variable.

A screenshot of a computer screen

Description automatically generated

* The predicted value also reasonably close to the actual value.

**Result:**

* While comparing the R-squared value of Simple Linear Regression (0.949) and Multiple Linear Regression (0.938), The Simple Linear Regression has some edge in prediction.