**Life Expectancy data**

**Interpretations Simple Linear Regression Analysis**

**Model Overview:** A Simple Linear Regression analysis was conducted to predict Life Expectancy (dependent variable) based on BMI (independent variable) and. The dataset was divided as 80% of the data points were used to train the model and remaining 20% were used for testing.

**Model Parameters:**

**a) Intercept (𝛽0) = 60.07,** which indicates that if BMI is 0, the predicted Profit would be 60.07 units. While BMI cannot realistically be 0, this value provides a starting point for the model's predictions.

**b) R-Squared = 0.32**, indicates that the model has limited explanatory power of 32% of the variability in life expectancy. This suggests that other factors have strong influence in determining life expectancy.

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**Multiple Linear Regression Analysis**

**Model Overview**: Multiple Linear Regression is used to predict Life Expectancy based on Multiple predictors. The dataset was processed, with categorical variables (Country and Status) encoded into numerical form to ensure compatibility with the regression model.

**Model Parameters**

**a) Intercept (𝛽0) = 281.26**, this represents the predicted life expectancy when all independent variables are zero, which is a hypothetical scenario.

**b) R-Squared value is 0.8166**, indicates that the model explains 81.66% of the variability in Life Expectancy. This suggests a strong relationship between the predictors and the target variable.

**c) Mean Squared Error = 13.0247**, represents the average squared difference between the actual and predicted life expectancy values. While lower is better, its interpretation depends on the scale of the Life Expectancy variable (e.g., if life expectancy is typically around 60-80 years, this error is relatively small).