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In [ ]:  """
         Que 1. Explain the concept of R-squared in linear regression models. How is it
         calculated, and what does it represent ?.
         Ans 1- R-Squared (R² or the coefficient of determination) is a statistical
         measure in a regression model that determines the proportion of variance in th
         dependent variable that can be explained by the independent variable. In other
         words, r-squared shows how well the data fit the regression model
         (the goodness of fit)

         Que 2-Define adjusted R-squared and explain how it differs from the regular
         R-squared. ?
         Ans 2-Adjusted R2 is a corrected goodness-of-fit (model accuracy) measure for
         linear models. It identifies the percentage of variance in the target field
         that is explained by the input or inputs
         and it differe from the adjusted R squared based on the accuracy of model when
         we increase the feature in  side data so that bassed performance of model is g
         increase in R squared matrics it does not depend that feature higly correlated
         to the target feature or less correlted to the target feature.but in the Adjus
         R squared performance of model is not increase if the new feature less corelat
         the negative corelted to the feature where other side performance of model is
         if the new feature highly corrleted to the target feature




         Que 3-When is it more appropriate to use adjusted R-squared?
         Ans 3-we need to use adjusted r squared on that time if we add new feature and
         feature is negative corrlted to the target value and model performance is got
         so on that time we use R squared-


         Que 4-What are RMSE, MSE, and MAE in the context of regression analysis? How a
         calculated, and what do they represent?
         Ans 4-What are RMSE, MSE, and MAE in the context of regression analysis? How a
         calculated, and what do they represent?


         Mean squared error tells us whether or not a regression line is an accurate
         model for predicting data points in a particular data set. A low mean squared
         error value indicates an accurate regression model, or, goodness of fit


         The Mean absolute error is calculated by adding up all the absolute errors and
         dividing them by the number of errors.




         Que 5-Explain the concept of Lasso regularization. How does it differ from Rid
         regularization, and when is it more appropriate to use?
         Ans 5-In statistics and machine learning, lasso (least absolute shrinkage and
         selection operator; also Lasso or LASSO) is a regression analysis method that
         performs both variable selection and regularization in order to enhance the
         prediction accuracy and interpretability of the resulting statistical model.

         Que 6-
         Ans 6-In short, Regularization in machine learning is the process of regulari
         zing the parameters that constrain, regularizes, or shrinks the coefficient
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estimates towards zero. In other words, this technique discourages learning a
more complex or flexible model, avoiding the risk of Overfitting.

Que -Discuss the limitations of regularized linear models and explain why they
choice for regression analysis.
Ans-limitation of Regurlarized linear model.
Non-Linearity of the response-predictor relationships.
Correlation of error terms.
A non-constant variance of the error term [Heteroscedasticity]
Collinearity.
Outliers and High Leverage Points.

Que-8
You are comparing the performance of two regression models using different
evaluation metrics. Model A has an RMSE of 10, while Model B has an MAE of 8.
Which model would you choose as the better performer, and why? Are there any
limitations to your choice of metric?
Ans-8 I will use the model b because it have less Error as compare to A.

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