Presentation Topic - Multiple Linear Regression

Q1	In multiple linear regression, which of the following best describes the purpose of the coefficient of determination (R^2) value?
A.	To measure the total variation of the dependent variable
B.	To determine the strength of the relationship between the independent and dependent variables
C.	To calculate the standard error of the regression coefficients
D.	To identify the most significant independent variable

Q2	In multiple linear regression, what is the significance of a p-value less than 0.05 for a regression coefficient?
A.	It indicates a weak relationship between the variable and the dependent variable
B.	It suggests that the variable is not important in the regression model
C.	It means that the variable significantly contributes to the model
D.	It represents a high correlation between the independent and dependent variables

Q3	In multiple linear regression, which method is commonly used to avoid the problem of multicollinearity?
A.	Increasing the sample size
B.	Using a higher-order polynomial regression
C.	Applying ridge or lasso regression techniques
D.	Removing the intercept from the model

Q4	When performing multiple linear regression, why is it important to check for outliers in the data?
A.	Outliers can significantly affect the coefficients of the regression model
B.	Outliers are necessary to validate the model assumptions
C.	Outliers help in improving the prediction accuracy of the model
D.	Outliers are useful for testing the linearity assumption

Q5	Why is it important to check for independence of residuals in a multiple linear regression model?
A.	To ensure that each residual is not influenced by other residuals
B.	To confirm the linearity of the model
C.	To validate the classification accuracy of the model
D.	To ensure that the independent variables are correlated