

Q1. Homoscedasticity in Linear Regression

How do you check homoscedasticity in Linear Regression?

- A. plot X vs Y and check the plot to be linear
- B. plot X^2 vs Y and check the plot to be quadratic
- ☒ C. Scatterplot of residuals versus predicted values
- D. None of the above

Q2. Multi-collinearity

How does multicollinearity affect our model?

- A. When independent variables in the model are correlated, it helps the model to achieve better fit
- B. When independent variables in the model are correlated, the train and test error margin reduces
- C. When independent variables in the model are correlated, it increases the interpretability of model
- ☒ D. When independent variables in the model are correlated, they cannot independently predict the value of the dependent variable

Q3. Error Independence

How do you check independence of errors in Linear regression?

- A. plot between X and Y
- ☒ B. scatter plot between the target variable and the error term
- C. Line plot between the target variable and the error term
- D. Scatter plot between various features

Q4. Outliers in Linear Regression

Why is Linear Regression sensitive to outliers?

- ☒ A. Line/Hyperplane tries to fit outliers as well
- B. Presence of non-linear relationship.
- C. Due to auto-correlation
- D. None of the above

Q5. Statements on VIF

Which of the statements are **True** with respect to VIF?

Note: d is the number of independent variables

Statement 1: VIF determines the strength of collinearity between independent variables

Statement 2: Range of VIF is $[0, \infty)$

Statement 3: The formula for score of i^{th} independent variable is $VIF_i = 1 / (1 - R_i^2)$

Statement 4: In the calculation of R^2 for i^{th} independent variable, the i^{th} independent variable becomes the dependent variable for the other $d-1$ independent variables.

- A. All statements are correct
- B. Statement 1, 2, 3 are correct
- C. Statement 2, 3, 4 are correct
- ☒ D. Statement 1, 3, 4 are correct