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Que 1-What is Lasso Regression, and how does it differ from other regression t

Ans 1-This is a regularization technique used in feature selection using a Shrinkage method also referred to as the penalized regression method. Lasso is short for Least Absolute Shrinkage and Selection Operator, which is used both for regularization and model selection.

Que 2-What is the main advantage of using Lasso Regression in feature selectio

Ans 2-The main advantage of a LASSO regression model is that it has the ability to set the coefficients for features it does not consider interesting to zero. This means that the model does some automatic feature selection to decide which features should and should not be included on its own

Que 3-How do you interpret the coefficients of a Lasso Regression model?

Ans 3-Ridge regression (L2 regularization) shrinks coefficients towards zero, whereas lasso regression (L1 regularization) can force some coefficients to be exactly 0, making it suitable for feature selection

Que 4-What are the tuning parameters that can be adjusted in Lasso Regression, and how do they affect the model's performance?

Ans 4-A tuning parameter ( $\lambda$ ), sometimes called a penalty parameter, controls the strength of the penalty term in ridge regression and lasso regression. It is basically the amount of shrinkage, where data values are shrunk towards a central point, like the mean

Que 5-Can Lasso Regression be used for non-linear regression problems? If yes,

Ans 5-The ordinary lasso penalty has been extensively used in the framework of linear regression models; however, sufficient results have not been obtained for nonlinear regression models with Gaussian basis functions

Que 6-What is the difference between Ridge Regression and Lasso Regression?

Ans 6- lasso regression, ridge regression puts a similar constraint on the coefficients by introducing a penalty factor. However, while lasso regression takes the magnitude of the coefficients, ridge regression takes the square. Ridge regression is also referred to as L2 Regularization.

Que 7-Can Lasso Regression handle multicollinearity in the input features? If

Ans 7-yes

Another Tolerant Method for dealing with multicollinearity known as Least Absolute Shrinkage and Selection Operator (LASSO) regression, solves the same constrained optimization problem as ridge regression, but uses the L1 norm rather than the L2 norm as a measure of complexity.

Que 8-How do you choose the optimal value of the regularization parameter ( $\lambda$ )

Ans 8-When choosing a lambda value, the goal is to strike the right balance between simplicity and training-data fit: If your lambda value is too high, your model will be simple, but you run the risk of underfitting your data. Your model won't learn enough about the training data to make useful predictions.