**MACHINE LEARNING**

**1.(A)**

**2.(A)**

**3.(B)**

**4.(B)**

**5.(C)**

**6.(B)**

**7.(D)**

**8.(A)**

**9.(A)**

**10.(B)**

**11.(B)**

**12.(A)&(B)**

**13.What is Regularization?**

Regularization is one of the most important concepts of machine learning. It is a technique to prevent the model from overfitting by adding extra information to it.

Sometimes the [machine learning](https://www.javatpoint.com/machine-learning) model performs well with the training data but does not perform well with the test data. It means the model is not able to predict the output when deals with unseen data by introducing noise in the output, and hence the model is called overfitted. This problem can be deal with the help of a regularization technique.

This technique can be used in such a way that it will allow to maintain all variables or features in the model by reducing the magnitude of the variables. Hence, it maintains accuracy as well as a generalization of the model.

It mainly regularizes or reduces the coefficient of features toward zero. In simple words, "In regularization technique, we reduce the magnitude of the features by keeping the same number of features."

**14. regularization techniques**

There are three main regularization techniques, namely:

1. Ridge Regression (L2 Norm)
2. Lasso (L1 Norm)
3. Dropout

Ridge and Lasso can be used for any algorithms involving weight parameters, including neural nets. Dropout is primarily used in any kind of neural networks e.g. ANN, DNN, CNN or RNN to moderate the learning.

**Ridge regression-** Ridge regression is also called L2 norm or regularization.When using this technique, we add the sum of weight’s square to a loss function and thus create a new loss function.

**Lasso-**In ridge regression, loss function along with the optimization algorithm brings parameters near to zero but not actually zero, while lasso eliminates less important features and sets respective weight values to zero. Thus, lasso also performs feature selection along with regularization.

**Dropout-**Dropout is a regularization technique used in neural networks. It prevents complex co-adaptations from other neurons.

**15.Error present in linear regression equation**

## What Is an Error Term?

An error term is a residual variable produced by a statistical or mathematical model, which is created when the model does not fully represent the actual relationship between the independent variables and the dependent variables. As a result of this incomplete relationship, the error term is the amount at which the equation may differ during empirical analysis.

The error term is also known as the residual, disturbance, or remainder term, and is variously represented in models by the letters e, ε, or u.

### KEY TAKEAWAYS

* An error term appears in a statistical model, like a regression model, to indicate the uncertainty in the model.
* The error term is a residual variable that accounts for a lack of perfect goodness of fit.
* Heteroskedastic refers to a condition in which the variance of the residual term, or error term, in a regression model varies widely.

## Understanding an Error Term

An error term represents the margin of error within a statistical model; it refers to the [sum of the deviations](https://www.investopedia.com/terms/s/sum-of-squares.asp) within the [regression line](https://www.investopedia.com/terms/r/regression.asp), which provides an explanation for the difference between the theoretical value of the model and the actual observed results. The regression line is used as a point of analysis when attempting to determine the correlation between one independent variable and one dependent variable.

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