

Logistic Classification

1. What is Logistic Classification?

Logistic classification, often referred to as logistic regression, is a statistical method used for binary classification problems. It predicts the probability that a given input belongs to a particular category, typically using a logistic function to model the probability. The output is a value between 0 and 1, which is then mapped to two classes using a threshold.

2. How does Logistic Classification differ from Linear Regression?

While linear regression is used for predicting continuous outcomes, logistic classification is used for binary outcomes. Logistic classification uses the logistic (sigmoid) function to map predicted values to probabilities between 0 and 1, whereas linear regression uses a linear function to predict continuous values.

3. How does logistic regression differ from linear regression?

Logistic regression is used for binary outcomes, while linear regression is used for continuous outcomes. Logistic regression models the probability of an outcome using the logistic function, whereas linear regression models the relationship between variables using a straight line.

4. How do you evaluate the performance of a logistic classification model?

Confusion Matrix

A confusion matrix is a table that is used to describe the performance of a classification model. It shows the true positives (TP), true negatives (TN), false positives (FP), and false negatives (FN)

- Accuracy
- Precision
- Recall
- F1 Score

5. How to import logistic classification

From sklearn.linear_model import LogisticRegression

6. What are some assumptions of logistic regression?

The dependent variable is binary.

There is a linear relationship between the log odds of the outcome and the independent variables.

The observations are independent.

There is no multicollinearity among the independent variables.

7. What are the different types of logistic regression?

Binary Logistic Regression: Used when the target variable has two possible outcomes.

Multinomial Logistic Regression: Used when the target variable has three or more nominal categories.

Ordinal Logistic Regression: Used when the target variable has three or more ordinal categories.