

Q1) What is a Multiclass Classification?

ANS.

Multiclass Classification is a type of Machine Learning problem where the model predicts one class out of more than two possible classes.

Explanation:

- Each input belongs to one class only.
- Number of classes ≥ 3

Example:-

- Classifying emails into:
 - Spam
 - Promotion
 - Social

Other Examples:-

- Digit Recognition (0-9)
- Animal Classification (cat, dog, horse)

Techniques:

- Softmax Function
- One-vs-rest (OvR)
- One-vs-One (OvO)

Multiclass classification assigns data into multiple categories. (more than two)

Q2)

Explain Binary classification with an Example?

ANS.

Binary Classification is a type of classification where the model predicts one of two possible classes.

Explanation

- Only two outcomes.

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- Output is typically
 - 0 and 1
 - Yes and No.

Example:-

- Email Spam Detection :

Spam \rightarrow 1

Not Spam \rightarrow 0

How it Works :-

- Model learns from labeled data.
- Predicts probability of belonging to a class.

• Common Algorithms:-

1. Logistic Regression
2. Decision Trees.
3. Support Vector Machines (SVM)

o Example Output:

Input : "Win a free iPhone!"

Prediction : Spam (1)

Hence, Binary Classification divides data into two classes only.