

study of the classifiers with respect to statistical
Parameters

Aim:- To implement various classifiers on the dataset and analyse the statistical parameters

Pseudocode:-

For KNN:-

1. compute the distance x -test x_i .
2. sort all distance in ascending order
3. select first k training points
4. count frequency of each label.
5. Return the label with highest frequency the predicted-class

For Logistic Regression

1. compute linear combination (z): $z = x_0 + b$
2. Apply sigmoid function: $\hat{y} = \text{sigmoid}(z)$
 $= \frac{1}{1 + e^{-z}}$
3. compute loss
4. compute gradients
5. update parameters

$$w = w - a^* dw$$

$$b = b - a^* db$$

For naive Bayes

Training phase:-

1. for each class c in all classes:

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→ calculate prior probability

$$P(c) = \text{count}(c) / \text{total} = \text{samples}$$

→ for each feature i :

2. for test point x -test:

$$P(A|B) = \frac{P(B|A)P(A)}{P(B)}$$

Observation:

① KNN

Accuracy: 100%.

② Logistic Regression

Accuracy: 100%.

③ Naive Bayes

Accuracy: 100%.

Justification:

→ clear data

→ small samples

→ well separated features

→ Balanced classes

Result:-

Implemented difference classifiers
same data set and analysed
Accuracy rate.