EX No:-3

Study of The classifier with respect to statical Parameter

Aim:-

To implement Various classifier IRIS dataset and analysis the statistical Parameter.

Pseudo Code:-

For KNN:-

1, Complete the distance X-test, Xi
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; Computer Linear Combination (z) : $z = X_0 + b$
2, Apply Sigmoid function : $\hat{y} = \text{Sigmoid}(z) = 1/(1+e^{-z})$
3, Compute loss
4, Compute Gradient
5, Update Parameter.

$w = w - \alpha^* dw$

$b = b - \alpha^* db$

For Navie Bayes.

Training Phase:-

- for each class c in all classes:
  - → calculate Prior Probability.
    P(c) = count(c) / total-samples
  - → for each feature j:
- for test, 1 Point X-test:

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

Observation:

① → kNN

Accuracy: ~~100%~~ 100%

② → Logistic Regression

Accuracy: ~~100%~~ 100%

③ → Naive Bayes

Accuracy: ~~100%~~ 100%

Justification:

→ clear data

→ Small Sample(s)

→ Well Seperated feature.

Result:

Implemented diffence classification same data and analysed Acuuray rates.

Metric	KNN	Logistic Regression	Naive Bayes	SVM
Accuracy	1.00	1.00	0.98	0.98
Precision	1.00	1.00	0.98	0.98
Recall	1.00	1.00	0.97	0.97
F_1- Score	1.00	1.00	0.97	0.97.

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