60004210210

Amartya Mishra

COMPS – C31

ML Experiment 8

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Aim: To Implement Baysian classification

Theory:
Byasian Classification is a probabilistic approach to learning & inference based on different views of what it means to learn from Data in which probability is used to represent uncertainity about the relation ship being learnt.

It is used to determine the Probability of hypothesis with a pair knowledge

It depends on conditional Probability
The Bayes thm is $P(A|B) = \frac{P(B|A) \times P(A)}{P(B)}$

P(A|B) Probability of A given B happened (Posterior)
P(B|A) Prob. of B given A occurs (likelyhood)
P(A) prob of A prior prob. (Prob of hypothesis)
P(B) Prob of B ~~Posterior~~ marginal Prob. (Prob of evidence)

Conclusion: Thus we implement Byasian classification.

Implementation:

```
from sklearn.datasets import load_breast_cancer
from sklearn.model_selection import train_test_split
from sklearn.svm import SVC
from sklearn.metrics import accuracy_score
data = load_breast_cancer()
X = data.data
y = data.target
X
```

```
X_train, X_test, Y_train, Y_test = train_test_split(X, y,
test_size=0.3, random_state=42)
classifier = SVC(kernel=' ')
classifier.fit(X_train, Y_train)
Y_pred = classifier.predict(X_test)
accuracy = accuracy_score(Y_test, Y_pred)
print("Accuracy:", accuracy)
```

```
from sklearn.metrics import confusion_matrix
confusion_matrix(y_test, y_pred)
```