Naive Bayes Classifier

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072BCT530

Classification
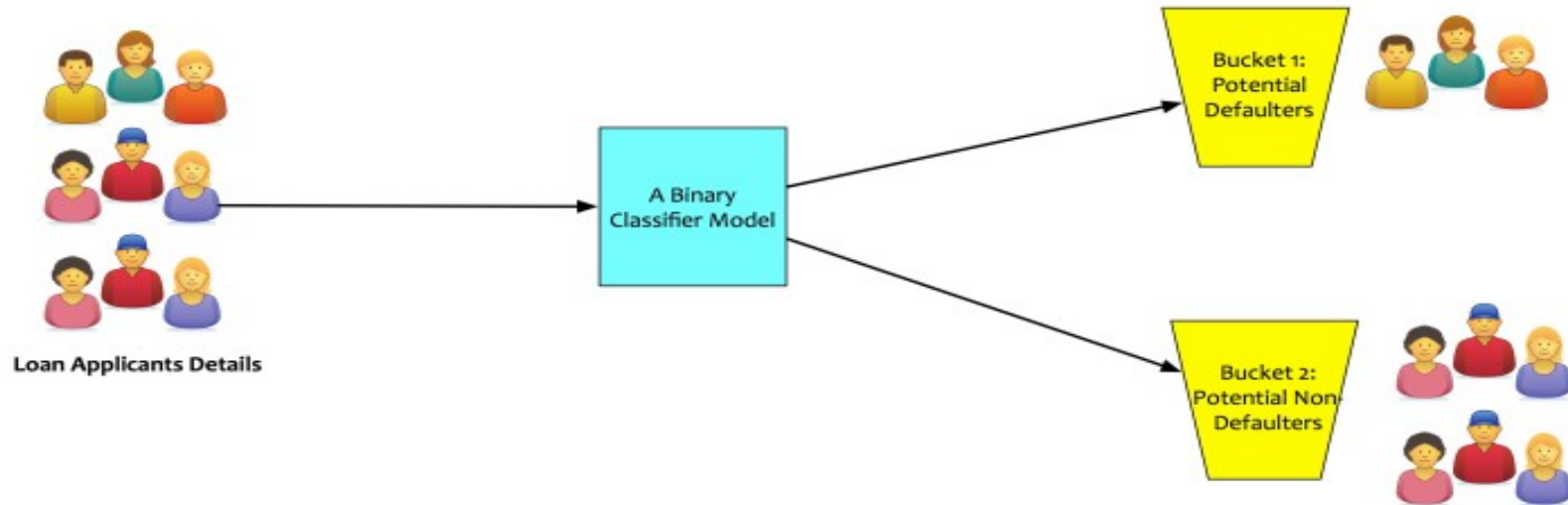
Baye's Theorem

$$\underbrace{p(A|B)}_{\substack{\text{Posterior}\\\text{probability}}} = \frac{\overbrace{p(B|A)}^{\text{Likelihood}}\,\overbrace{p(A)}^{\substack{\text{Prior}\\\text{probability}}}}{p(B)}$$

Naive Bayes

- Statistical Classifier
- Predicts class membership probabilities
- Attribute values are independent to each other.

How does it work?

- Find class probabilities of all classes with given feature vector.
- Use Baye's theorem to find each class probability.
- One having highest probability is chosen.

Dataset

Balance Scale Data Set

Download: Data Folder, Data Set Description

Abstract: Balance scale weight & distance database

Data Set Characteristics:	Multivariate	Number of Instances:	625	Area:	Social
Attribute Characteristics:	Categorical	Number of Attributes:	4	Date Donated	1994-04-22
Associated Tasks:	Classification	Missing Values?	No	Number of Web Hits:	208281

Source:

Generated to model psychological experiments reported by Siegler, R. S. (1976).
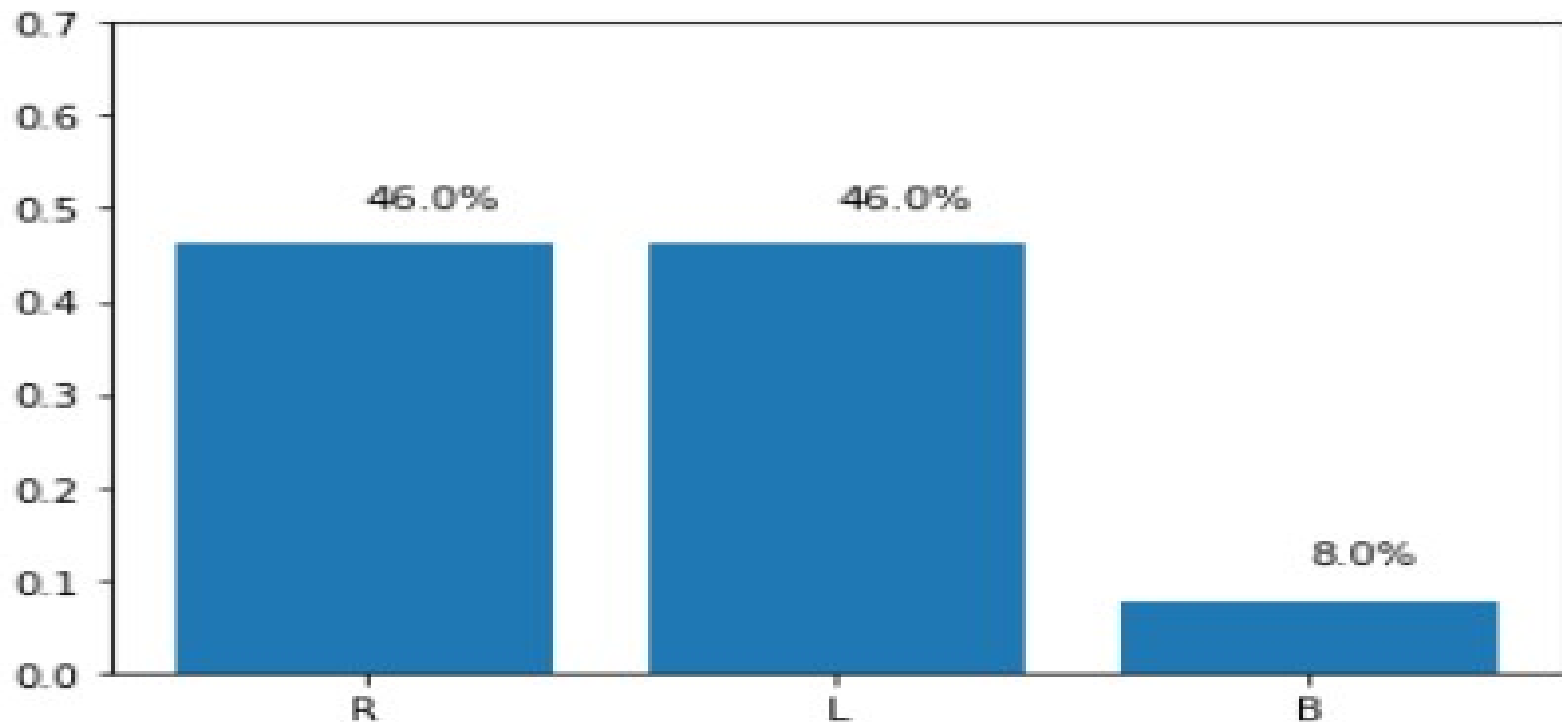Three Aspects of Cognitive Development. Cognitive Psychology, 8, 481-520.

Donor:

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Class Labels

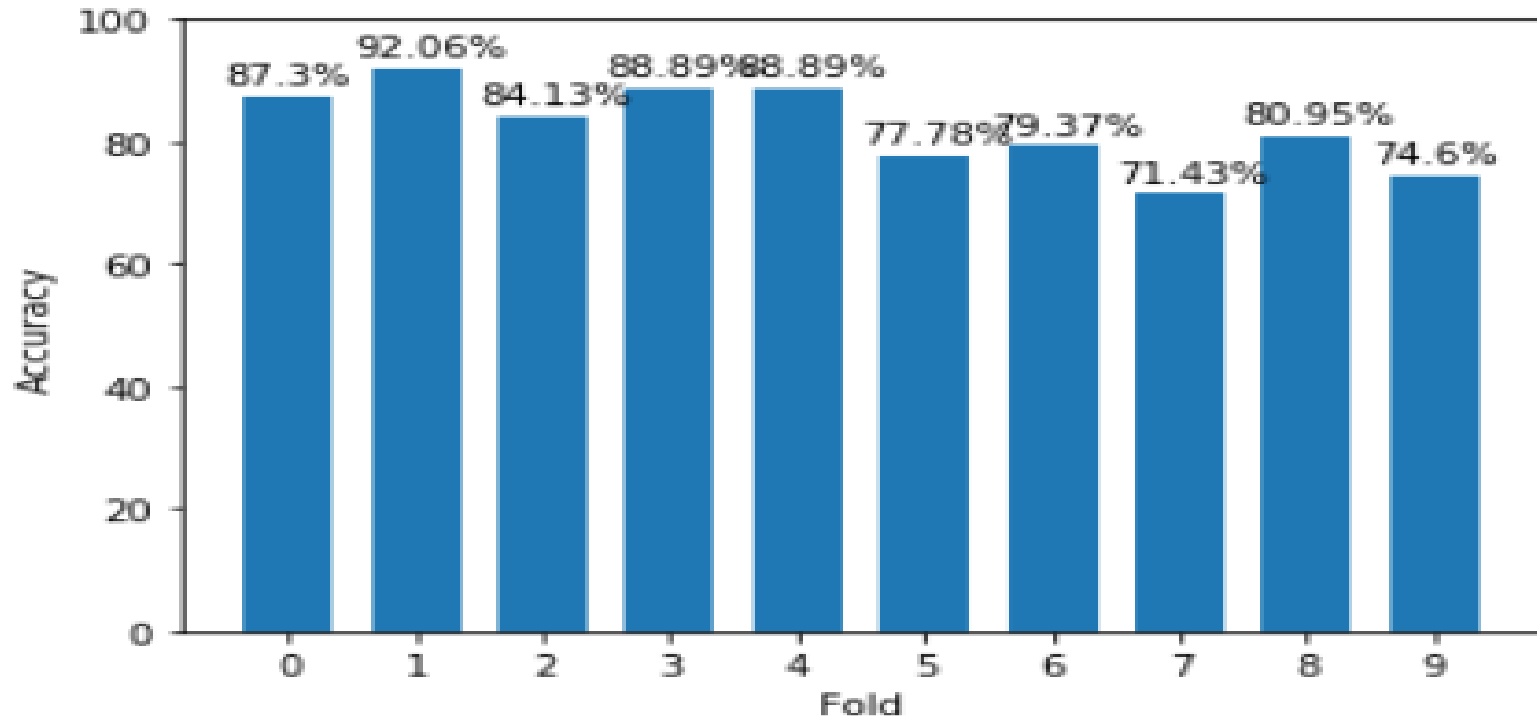- Right
  Left
  Balanced

Class Distribution

Cross Validation for 10 folds

Overall Average Accuracy

82.53 %

Thank You