INF FAKULTÄT FÜR INFORMATIK

Advanced Topics in Machine Learning Programming Task

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Advanced Topics in Machine Learning

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Data Preparation

49 Attributes, 101.000 Instances

Reasons for attribute removal:

1. **Uniqueness**
2. **Missing Values**
3. **Unequal Distribution**
4. **Single Attribute**

No instance was removed

Choice of Algorithms

Algorithms:

- Naive Bayes
- SVM
- YATSI
- Decision Table

Implementation

Choice of libraries:

- weka
- libSVM
- collectiveClassifiers

Settings

Decision Table:

- Search: Best First
- Evaluation Measure: accuracy/RMSE

SVM:

- Type: C-SVM
- Kernel: radial basis function
- with normalizing, no weights

YATSI:

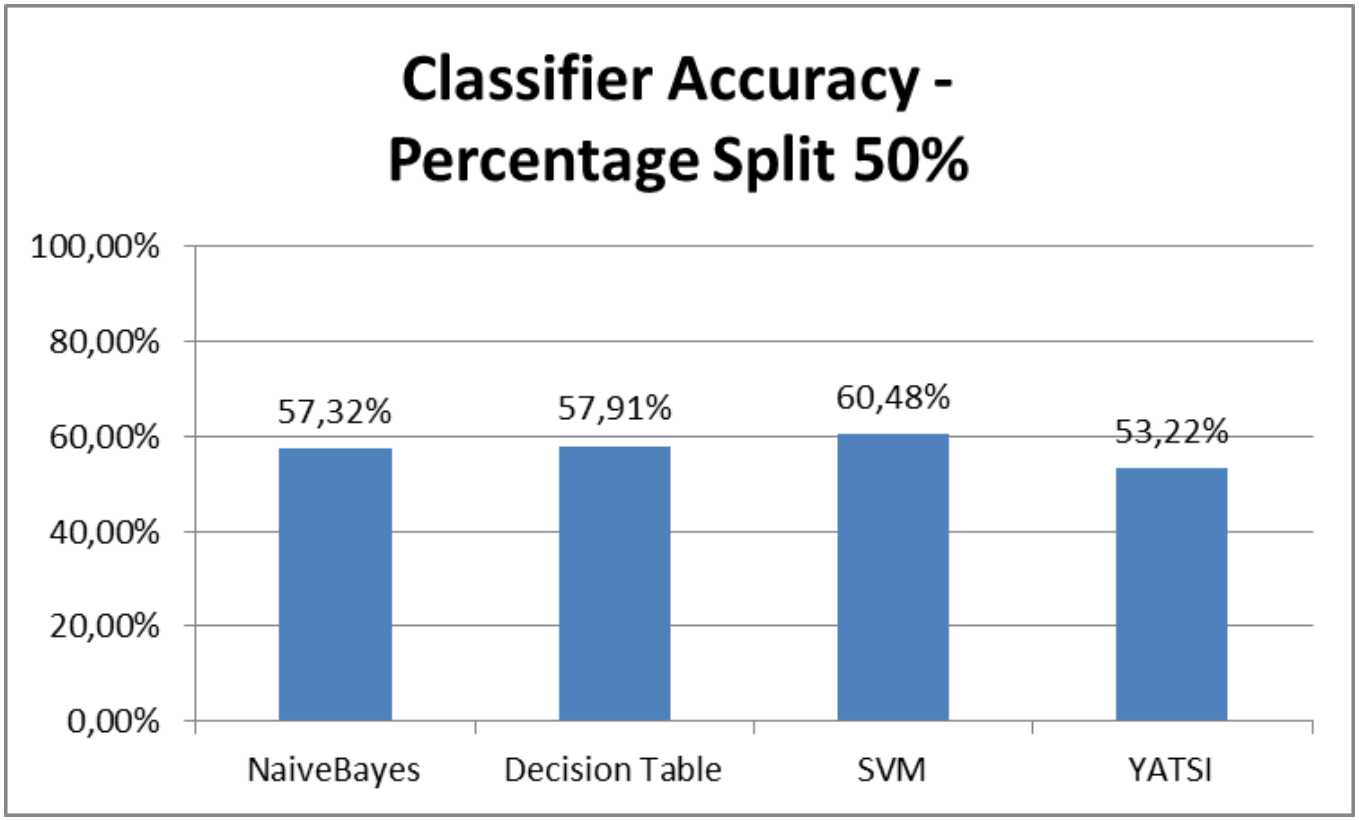
- KNNpe: 15

Experiments

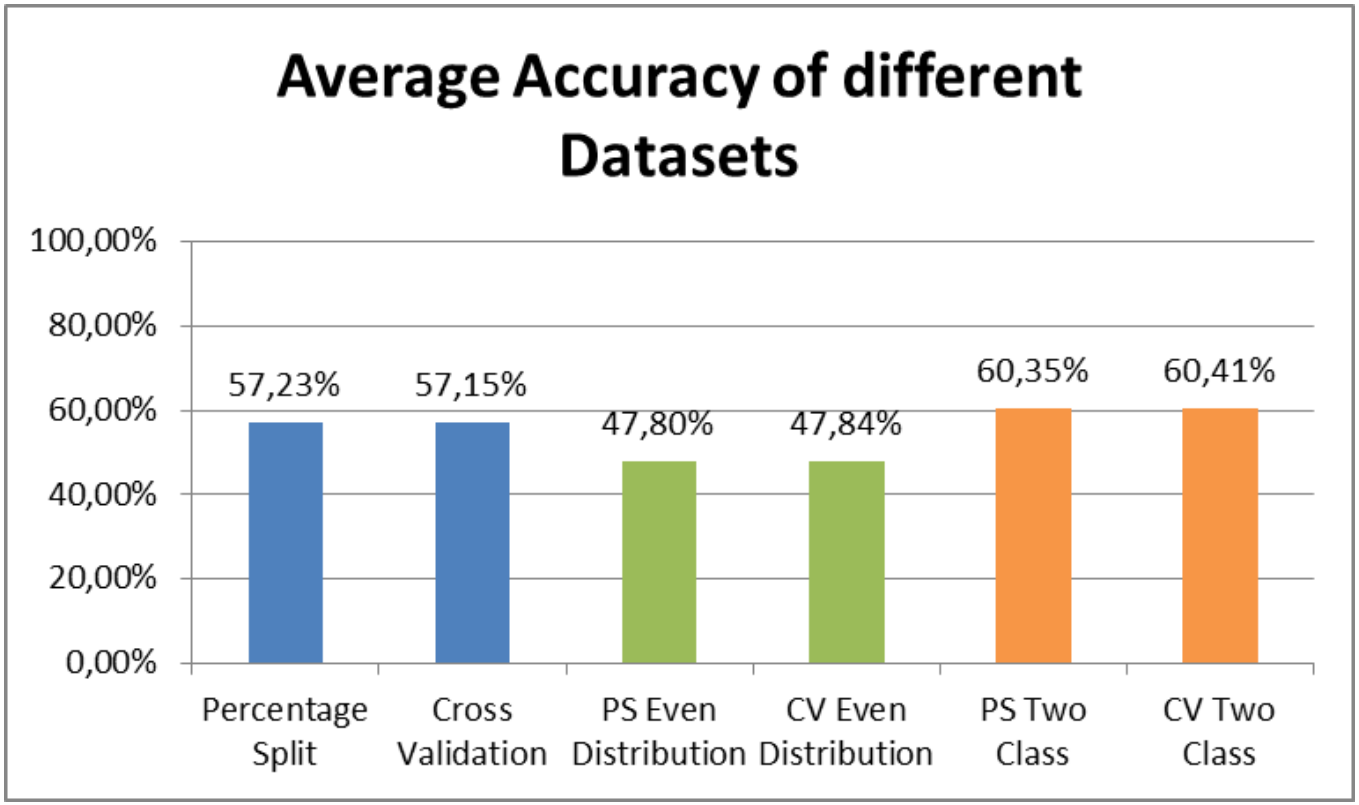
Settings:

- Percentage Split / Cross-Validation
- Accuracy of classification as quality measure
- two additional data sets:
  - even class dataset (equally distributed classification attribute)
  - two class dataset (join label > 30, < 30)

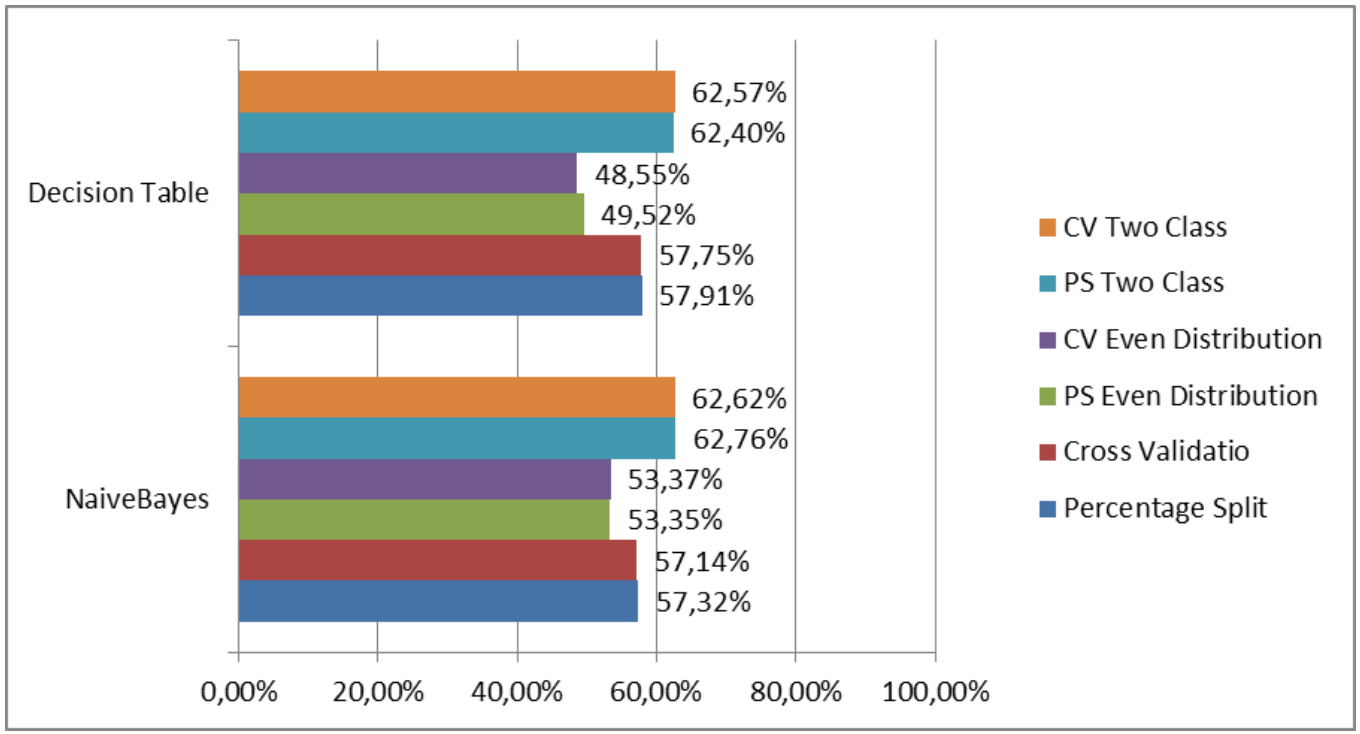
Results

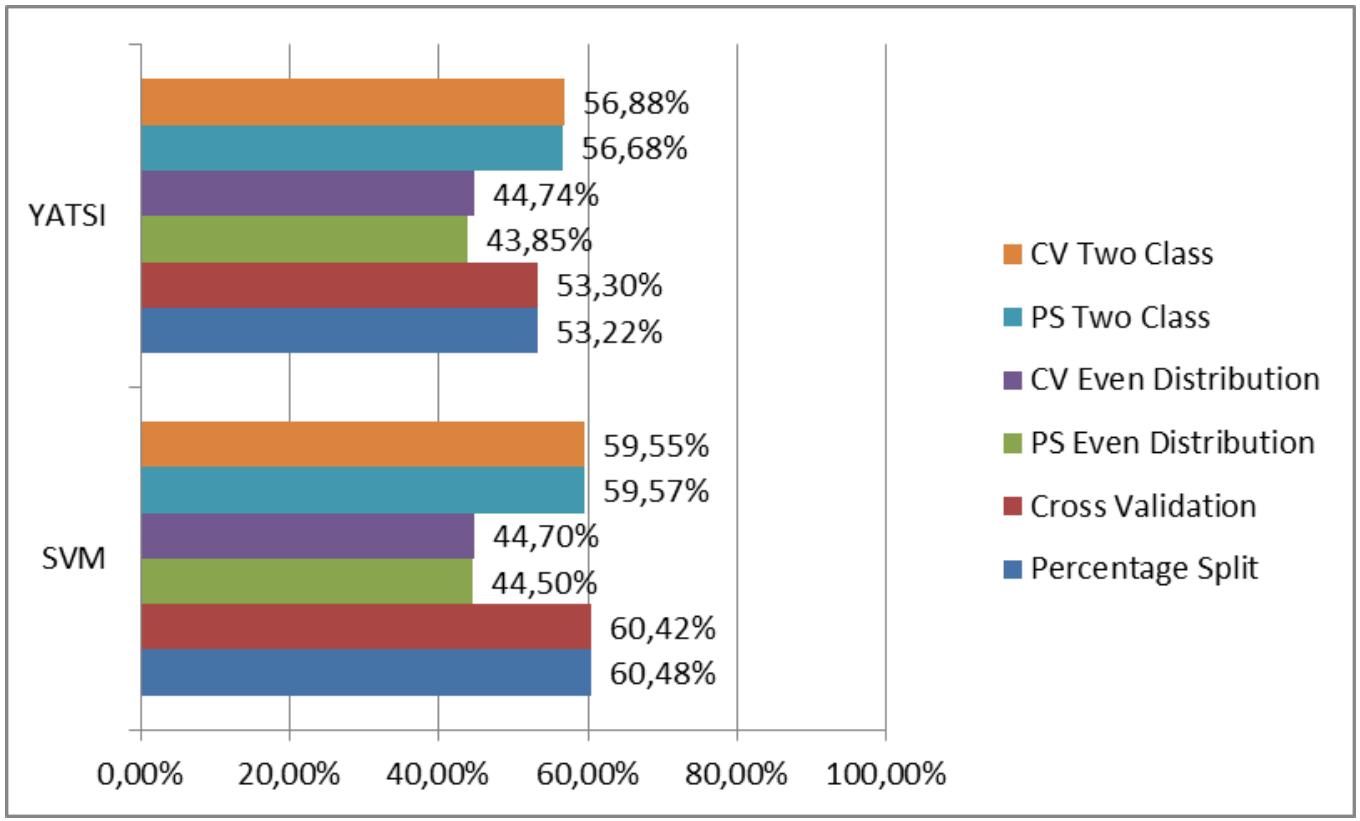

Classifier Accuracy - Percentage Split 50%
100,00%
80,00%
60,00%
40,00%
20,00%
0,00%
57,32%
57,91%
60,48%
53,22%
NaiveBayes
Decision Table
SVM
YATSI

Results


Average Accuracy of different Datasets
100,00%
80,00%
60,00%
40,00%
20,00%
0,00%
57,23%
57,15%
47,80%
47,84%
60,35%
60,41%
Percentage Split
Cross Validation
PS Even Distribution
CV Even Distribution
PS Two Class
CV Two Class

Thanks for Your attention!


Decision Table
NaiveBayes
62,57%
62,40%
48,55%
49,52%
57,75%
57,91%
62,62%
62,76%
53,37%
53,35%
57,14%
57,32%
0,00%
20,00%
40,00%
60,00%
80,00%
100,00%
CV Two Class
PS Two Class
CV Even Distribution
PS Even Distribution
Cross Validatio
Percentage Split


YATSI
SVM
56,88%
56,68%
44,74%
43,85%
53,30%
53,22%
59,55%
59,57%
44,70%
44,50%
60,42%
60,48%
0,00%
20,00%
40,00%
60,00%
80,00%
100,00%
CV Two Class
PS Two Class
CV Even Distribution
PS Even Distribution
Cross Validation
Percentage Split