

## DOCTORAL PROGRAM IN ENGINEERING SCIENCES AT ITESO

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Algorithm 4 - chooseRandomData.doc

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## Abstract

We present the Algorithm 4 (`chooseRandomData`) which is part of the Adaptative Discovering Algorithm based on Neural networks (ADAN algorithm).

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**Algorithm 4** chooseRandomData

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**Require:**  $args \neq \emptyset \wedge randomizedDataFrame \neq \emptyset$

```
1: LABELS  $\leftarrow$  'Setosa' | 'Versicolor' | 'Virginica'
2: df  $\leftarrow$  DataFrame(randomizedDataFrame)
3: tsda  $\leftarrow$  size(df)
4: tsfe  $\leftarrow$  size(df.keys)
5: spfe  $\leftarrow$  readArg('spfe', args)
6: sptr  $\leftarrow$  readArg('sptr', args)
7: sppr  $\leftarrow$  readArg('sppr', args)
8: label  $\leftarrow$  readArg('label', args)
9: ssfe  $\leftarrow$  int(tsfe * spfe)
10: sstr  $\leftarrow$  int(tsda * sptr)
11: dfTraining  $\leftarrow$  sample(df, sstr)
12: dfTesting  $\leftarrow$  {x | x  $\notin$  dfTraining}
13: nRecordsForPrediction  $\leftarrow$  int(tsda * sppr)
14: dfPredict  $\leftarrow$  sample(df, nRecordsForPrediction)
15: trainY  $\leftarrow$  pop(dfTraining, label)
16: testY  $\leftarrow$  pop(dfTesting, label)
17: predictY  $\leftarrow$  pop(dfPredict, label)
18: expected  $\leftarrow$   $\emptyset$ 
19: x  $\leftarrow$  0
20: while x < size(predictY) do
21:   expected  $\leftarrow$  append(expected, LABELS[x])
22: end while
23: return (dfTraining, trainY), (dfTesting, testY), dfPredict, expected
```

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Take into consideration the follow about the Algorithm 4, the function chooseRandomData(args, randomizedDataFrame):

1. The function sample(dataFrame, nRecords) in lines 11 and 14, returns a sample of nRecords from dataFrame. Again, we suggest to use a library to achieve this, in our case, once more, Pandas give us this implementation.