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3.1 File List

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Namespace Documentation

4.1 Build Namespace Reference

Classes

- class Quantity

  class used to save information about number of elements
- class Subtree_Values

  class used to save elemnets in all knots

Functions

- def count_all (training_data)

  function used to count all elements
- def build_tree (training_data)

  function used to build tree

4.1.1 Function Documentation

4.1.1.1 build_tree()

```
def Build.build_tree (
              training_data )
```

function used to build tree

Parameters

training_elements	list of training elements

Returns

object Subtree_Values for knot

object Quantity for knot

4.1.1.2 count_all()

```
def Build.count_all (
              training_data )
```

function used to count all elements

Parameters

training_elements	list in which items will be counted

Returns

quantity of elements all elements

4.2 Data Namespace Reference

Functions

- def read_csv_file (name)

  function used to read csv file
- def read_data_file (name)

  function used to read data file

4.2.1 Function Documentation

4.2.1.1 read_csv_file()

```
def Data.read_csv_file (
              name )
```

function used to read csv file

Parameters

name	name of data file

Returns

data readed data

4.2.1.2 read_data_file()

```
def Data.read_data_file (
              name )
```

function used to read data file

Parameters

name	name of data file

Returns

data readed data

4.3 Data_matching Namespace Reference

Functions

- def for_basic_tree (quantity, data)
  function used to do test for basic tree
- def for_tree_incremental_learning (quantity_basic_tree, quantity, data)
  function used to do test for tree with one incremental learning
- def confusion_matrix (data_test, tree)
  function used to create confusion matrix
- def data_matching (tree, data_test)
  function used to calculate test data matching
- def find (tree, dt)
  function used to find the list for test data

4.3.1 Function Documentation

4.3.1.1 confusion_matrix()

```
def Data_matching.confusion_matrix (
              data_test,
              tree )
```

function used to create confusion matrix

Parameters

tree	
data	test

Returns

matrix confusion_matrix

4.3.1.2 data_matching()

```
def Data_matching.data_matching (
              tree,
              data_test )
```

function used to calculate test data matching

Parameters

tree	
data	test

Returns

match

4.3.1.3 find()

```
def Data_matching.find (
              tree,
              dt )
```

function used to find the list for test data

Parameters

trees	
dt	element for which we are looking for a place

Returns

tree[1].quantity leaf value

4.3.1.4 for_basic_tree()

```
def Data_matching.for_basic_tree (
              quantity,
              data )
```

function used to do test for basic tree

Parameters

quantity	quantity of data used to tarin dree

Returns

match matching basic tree

matrix confusion matrix

4.3.1.5 for_tree_incremental_learning()

```
def Data_matching.for_tree_incremental_learning (
              quantity_basic_tree,
              quantity,
              data )
```

function used to do test for tree with one incremental learning

Parameters

quantity_basic_tree	quantity of data used to tarin basic tree
quantity	quantity of data used to incremental learning

Returns

match matching for incremental learning

matrix confusion matrix

4.4 Incremental_learning Namespace Reference

Functions

- def find_tree (tree, data)

  function used to find the same tree in old tree
- def incremental_learning (data, tree)

  function for incremental learning

4.4.1 Function Documentation

4.4.1.1 find_tree()

```
def Incremental_learning.find_tree (
              tree,
              data )
```

function used to find the same tree in old tree

Parameters

tree	- old tree
data	current data

Returns

tree tree from old tree which can be used

4.4.1.2 incremental_learning()

```
def Incremental_learning.incremental_learning (
              data,
              tree )
```

function for incremental learning

Parameters

tree	- old tree
data	current data

Returns

object Subtree_Values for knot

object Quantity for knot

4.5 Mesure Namespace Reference

Functions

- def count (training_elements)

  function used to count elements in all attributes

- def giny (training_data)

  function used to calculate the gini coefficient
- def gain (false, true, current)

  function used to calculate the information gain

4.5.1 Function Documentation

4.5.1.1 count()

```
def Mesure.count (
              training_elements )
```

function used to count elements in all attributes

Parameters

training_elements	list in which items will be counted

Returns

count_data dictionary with quantity of elements in all category

4.5.1.2 gain()

```
def Mesure.gain (
              false,
              true,
              current )
```

function used to calculate the information gain

Parameters

false	list of false elements in which the information gain will be counted
true	list of true elements in which the information gain will be counted
current	all list of all elements in which the information gain will be counted

Returns

info_gain information gain for current split

4.5.1.3 giny()

```
def Mesure.giny (
              training_data )
```

function used to calculate the gini coefficient

Parameters

training_elements	list in which items will be counted

Returns

1 - giny_tmp gini coefficient

4.6 Print_tree Namespace Reference

Functions

- def print_tree (element, space="")
  function used to print tree
- def print_basic_tree (start, quantity, data)
  function used to build and print tree
- def print_incremental_tree (start, quantity, tree, data)
  function used to incremental learning and print tree

4.6.1 Function Documentation

4.6.1.1 print_basic_tree()

```
def Print_tree.print_basic_tree (
              start,
              quantity,
              data )
```

function used to build and print tree

Parameters

start	- the data number in the csv file used to train the tree
quantity	- quantity of data used to train the tree
data	data for incremental learning

4.6.1.2 print_incremental_tree()

```
def Print_tree.print_incremental_tree (
              start,
              quantity,
              tree,
              data )
```

function used to incremental learning and print tree

Parameters

start	- the data number in the csv file used to train the tree
quantity	- quantity of data used to train the tree
tree	- old tree
data	data for incremental learning

4.6.1.3 print_tree()

```
def Print_tree.print_tree (
              element,
              space = "" )
```

function used to print tree

Parameters

element	tree
space	

4.7 Split Namespace Reference

Functions

- def make_split (training_data)

  function used to find the best split
- def check_split (training_data, question_split)

  function used to do split for only one question

4.7.1 Function Documentation

4.7.1.1 check_split()

```
def Split.check_split (
              training_data,
              question_split )
```

function used to do split for only one question

Parameters

training_elements	list in which items will be split

Returns

best_gain_value the best find gain

best_question_split the best find question to split

best_true_data the best find list with true data

best_false_data the best find list with false data

4.7.1.2 make_split()

```
def Split.make_split (
              training_data )
```

function used to find the best split

Parameters

training_elements	list in which items will be split

Returns

best_gain_value the best find gain

best_question_split the best find question to split

best_true_data the best find list with true data

best_false_data the best find list with false data

4.8 Test Namespace Reference

Functions

- def read_bank ()

  function used to read bank data
- def write_file (name, match)

  function used to write match

- def write_time (name, time)

  function used to write time
- def write_dict (matrix, name)

  function used to write confusion matrix
- def data_matching_for_basic_tree (quantity, name, data)

  function used to do tests
- def data_matching_for_tree_incremental_learning (quantity_basic_tree, quantity, quantity_of_all, name, data)

  function used to do tests
- def test ()

  function used to do all tests

Variables

- def bank = read_bank()
- agaricus_incremental = Data.read_data_file('agaricus-lepiota.data')
- iris = Data.read_data_file('iris.data')

4.8.1 Function Documentation

4.8.1.1 data_matching_for_basic_tree()

```
def Test.data_matching_for_basic_tree (
              quantity,
              name,
              data )
```

function used to do tests

Parameters

quantity	quantity of data used to train tree

Returns

match matching basic tree

4.8.1.2 data_matching_for_tree_incremental_learning()

```
def Test.data_matching_for_tree_incremental_learning (
              quantity_basic_tree,
              quantity,
              quantity_of_all,
              name,
              data )
```

function used to do tests

Parameters

quantity_basic_tree	quantity of data used to tarin basic tree
quantity	quantity of data used to incremental learning

Returns

match matching for incremental learning

4.8.1.3 read_bank()

```
def Test.read_bank ( )
```

function used to read bank data

Returns

data

4.8.1.4 test()

```
def Test.test ( )
```

function used to do all tests

4.8.1.5 write_dict()

```
def Test.write_dict (
              matrix,
              name )
```

function used to write confusion matrix

Parameters

matrix	confusion matrix
name	name of data

4.8.1.6 write_file()

```
def Test.write_file (
              name,
              match )
```

function used to write match

Parameters

name	name of data
match	

4.8.1.7 write_time()

```
def Test.write_time (
              name,
              time )
```

function used to write time

Parameters

name	name of data
time	

4.8.2 Variable Documentation

4.8.2.1 agaricus_incremental

```
Test.agaricus_incremental = Data.read_data_file('agaricus-lepiota.data')
```

4.8.2.2 bank

```
def Test.bank = read_bank()
```

4.8.2.3 iris

```
Test.iris = Data.read_data_file('iris.data')
```

Chapter 5

Class Documentation

5.1 Build.Quantity Class Reference

class used to save information about number of elements

Public Member Functions

- def __init__ (self, data)

  save information about number of elements

Public Attributes

- quantity

  number of elements

5.1.1 Detailed Description

class used to save information about number of elements

5.1.2 Constructor & Destructor Documentation

5.1.2.1 __init__()

```
def Build.Quantity.__init__ (
              self,
              data )
```

save information about number of elements

5.1.3 Member Data Documentation

5.1.3.1 quantity

`Build.Quantity.quantity`

number of elements

The documentation for this class was generated from the following file:

- Build.py

5.2 Build.Subtree_Values Class Reference

class used to save elemnets in all knots

Public Member Functions

- def __init__ (self, question, right_next, left_next, gain, true_data, false_data)
  save information about knots

Public Attributes

- question
  question used to divide data
- right_next
  next right knots
- left_next
  next left knots
- gain
  gain of information obtained
- true_data
  list with true data - that met the query
- false_data
  list with false data - which did not match the query

5.2.1 Detailed Description

class used to save elemnets in all knots

5.2.2 Constructor & Destructor Documentation

5.2.2.1 __init__()

```
def Build.Subtree_Values.__init__ (
              self,
              question,
              right_next,
              left_next,
              gain,
              true_data,
              false_data )
```

save information about knots

5.2.3 Member Data Documentation

5.2.3.1 false_data

```
Build.Subtree_Values.false_data
```

list with false data - which did not match the query

5.2.3.2 gain

```
Build.Subtree_Values.gain
```

gain of information obtained

5.2.3.3 left_next

```
Build.Subtree_Values.left_next
```

next left knots

5.2.3.4 question

```
Build.Subtree_Values.question
```

question used to divide data

5.2.3.5 right_next

`Build.Subtree_Values.right_next`

next right knots

5.2.3.6 true_data

`Build.Subtree_Values.true_data`

list with true data - that met the query

The documentation for this class was generated from the following file:

- Build.py

Chapter 6

File Documentation

6.1 Build.py File Reference

Classes

- class Build.Subtree_Values

  class used to save elemnets in all knots
- class Build.Quantity

  class used to save information about number of elements

Namespaces

- Build

Functions

- def Build.count_all (training_data)

  function used to count all elements
- def Build.build_tree (training_data)

  function used to build tree

6.2 Data.py File Reference

Namespaces

- Data

Functions

- def Data.read_csv_file (name)

  function used to read csv file
- def Data.read_data_file (name)

  function used to read data file

6.3 Data_matching.py File Reference

Namespaces

- Data_matching

Functions

- def Data_matching.for_basic_tree (quantity, data)

  function used to do test for basic tree
- def Data_matching.for_tree_incremental_learning (quantity_basic_tree, quantity, data)

  function used to do test for tree with one incremental learning
- def Data_matching.confusion_matrix (data_test, tree)

  function used to create confusion matrix
- def Data_matching.data_matching (tree, data_test)

  function used to calculate test data matching
- def Data_matching.find (tree, dt)

  function used to find the list for test data

6.4 Incremental_learning.py File Reference

Namespaces

- Incremental_learning

Functions

- def Incremental_learning.find_tree (tree, data)

  function used to find the same tree in old tree
- def Incremental_learning.incremental_learning (data, tree)

  function for incremental learning

6.5 Mesure.py File Reference

Namespaces

- Mesure

Functions

- def Mesure.count (training_elements)

  function used to count elements in all attributes
- def Mesure.giny (training_data)

  function used to calculate the gini coefficient
- def Mesure.gain (false, true, current)

  function used to calculate the information gain

6.6 Print_tree.py File Reference

Namespaces

- Print_tree

Functions

- def Print_tree.print_tree (element, space="")

  function used to print tree
- def Print_tree.print_basic_tree (start, quantity, data)

  function used to build and print tree
- def Print_tree.print_incremental_tree (start, quantity, tree, data)

  function used to incremental learning and print tree

6.7 Split.py File Reference

Namespaces

- Split

Functions

- def Split.make_split (training_data)

  function used to find the best split
- def Split.check_split (training_data, question_split)

  function used to do split for only one question

6.8 Test.py File Reference

Namespaces

- Test

Functions

- def Test.read_bank ()

  function used to read bank data
- def Test.write_file (name, match)

  function used to write match
- def Test.write_time (name, time)

  function used to write time
- def Test.write_dict (matrix, name)

  function used to write confusion matrix
- def Test.data_matching_for_basic_tree (quantity, name, data)

  function used to do tests
- def Test.data_matching_for_tree_incremental_learning (quantity_basic_tree, quantity, quantity_of_all, name, data)

  function used to do tests
- def Test.test ()

  function used to do all tests

Variables

- def Test.bank = read_bank()
- Test.agaricus_incremental = Data.read_data_file('agaricus-lepiota.data')
- Test.iris = Data.read_data_file('iris.data')

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