Getting Started with RapidMiner

Download tool and datasets:
http://rapidminer.com/

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Outline

Design and result perspectives in RapidMiner.

The Point Dataset Point1.csv:

- Reading the data
- Visual exploration to understand the data and guide the work
- Clustering and the Loop operator: searching for the right k for k-means.

Design and Result Perspectives

Organize your space to store processes, files and results.

Point1:

8 points defined by their x-, y-coordinates.

Reading the Point1-Dataset

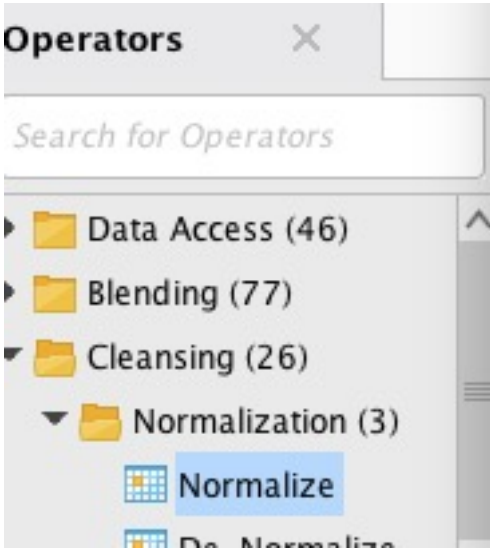
Warning Read Wizard: RapidMiner guesses the type of attributes looking at the first 100 by default.

Metadata:

- Check the order of magnitudes of attributes
- Handy for classical transformations such as:

$$\frac{x - average}{std\ deviation} \qquad \frac{x - min}{range}$$

- Transformation can be done inside RM:



Exploring the Point1-Dataset

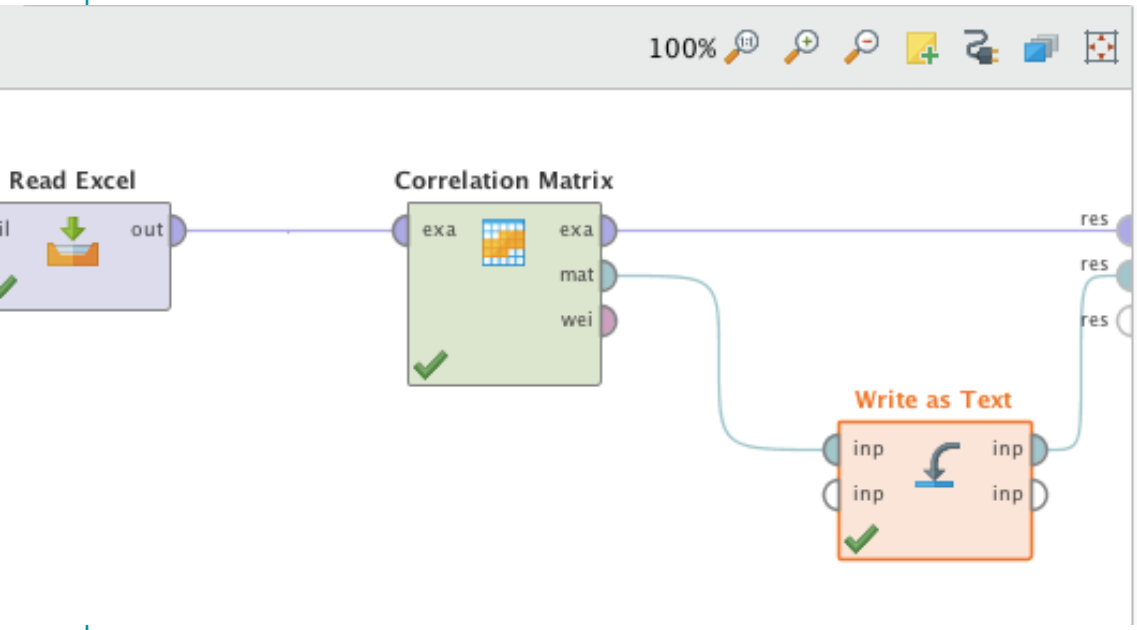
Plots:

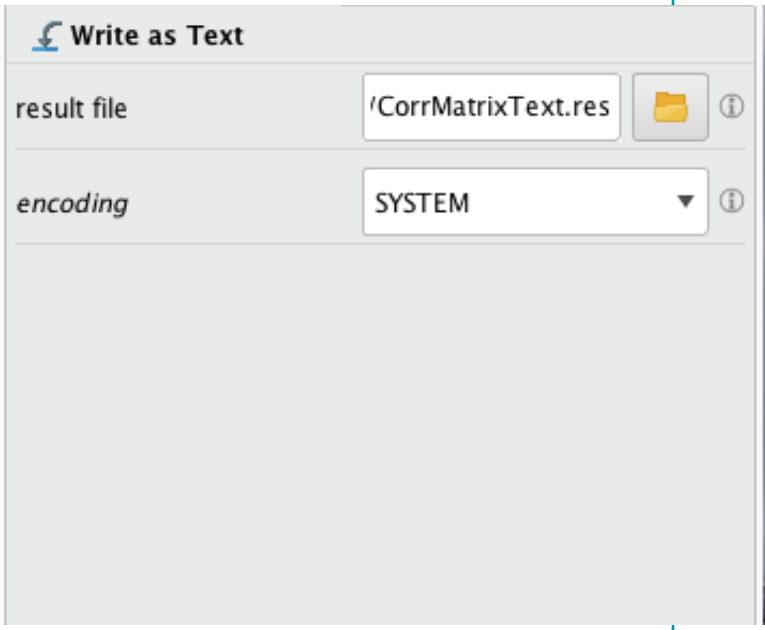
- Histogram / color
- Box plots (quartile)
- Scatter
- and much more...

Correlation Operator:

- Handy: store the matrix with the Write as text Operator

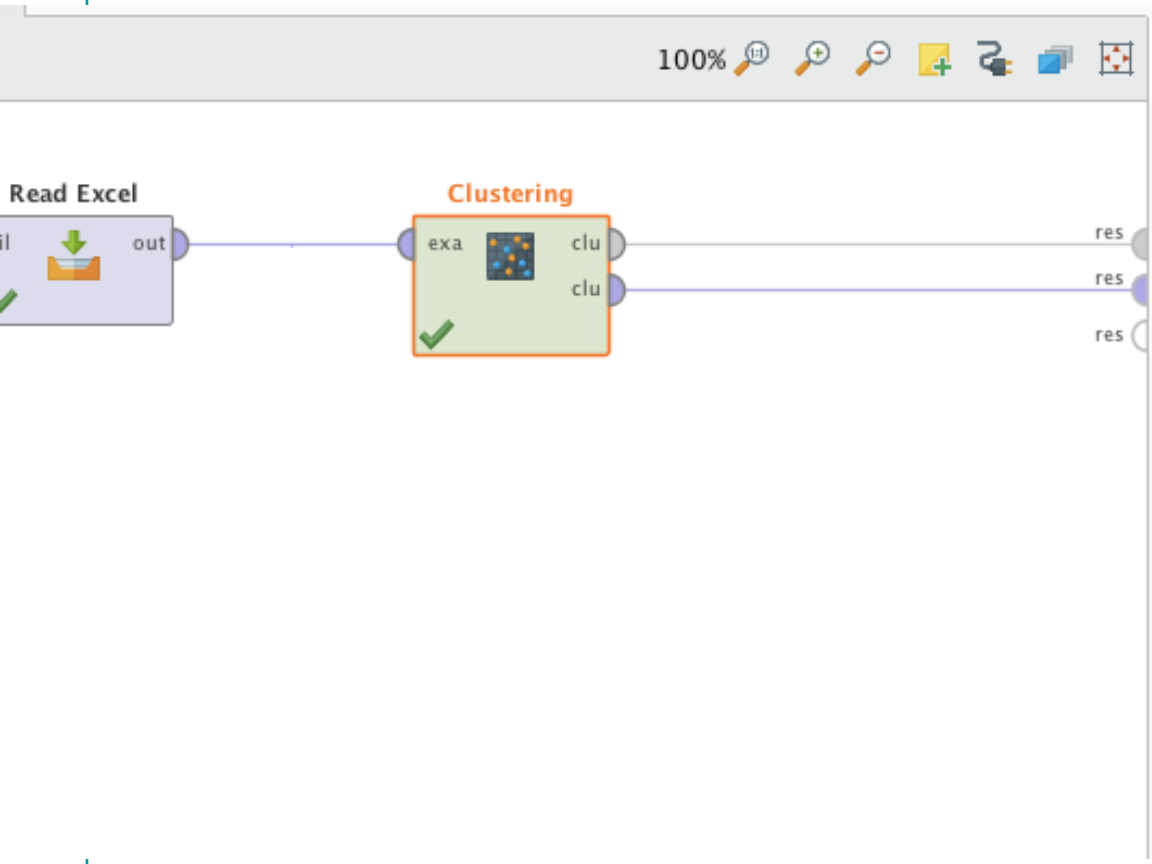
Exploring the Point1-Dataset

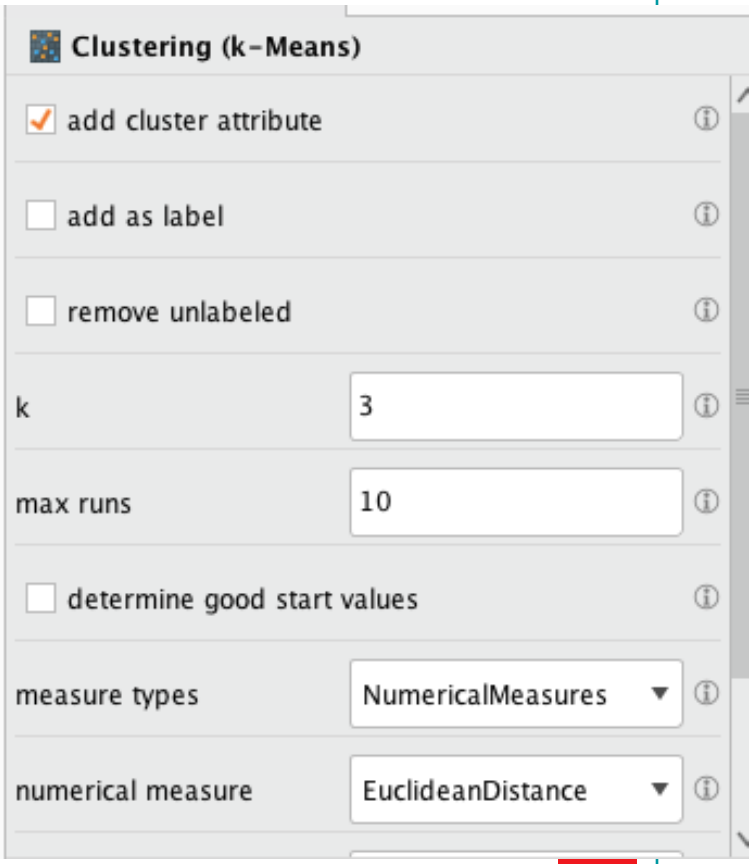




Looking for groups of points with Clustering

K-means / Scatter Plot with Color Column cluster

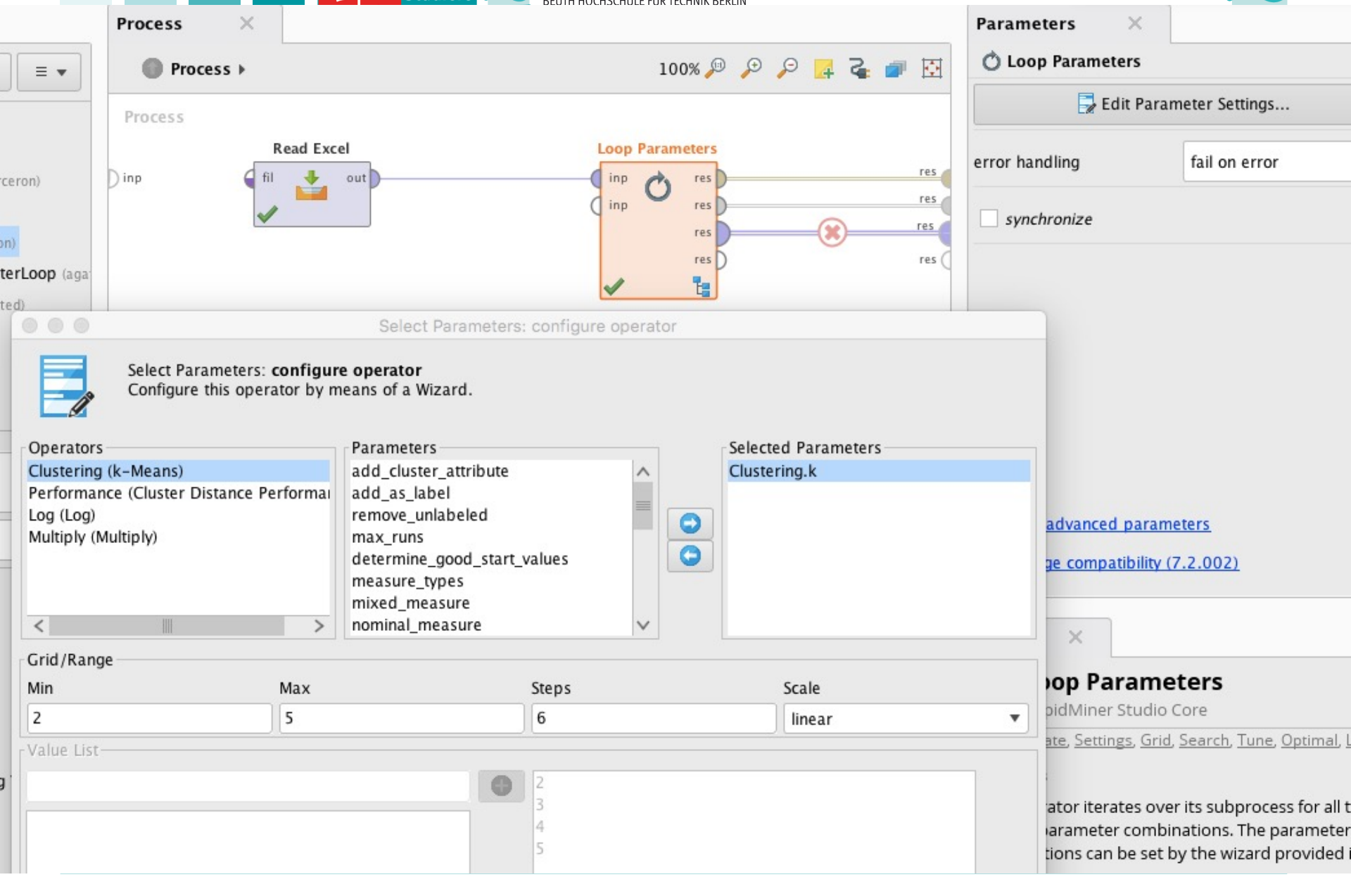




Looking for groups of points with Clustering

Loop Operator to discover the right k:

- Warning: skip the first port per inside the loop operator to get the results
- Handy: Log Operator to plot average within distance cluster or Davies Bouldin against k. Edit the parameters you want to plot, k and avg_within_distance for instance.


Process
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Parameters
Loop Parameters
Edit Parameter Settings...
error handling
fail on error
synchronize
Select Parameters: configure operator
Select Parameters: configure operator
Configure this operator by means of a Wizard.
Operators
Clustering (k-Means)
Performance (Cluster Distance Performa
Log (Log)
Multiply (Multiply)
Parameters
add_cluster_attribute
add_as_label
remove_unlabeled
max_runs
determine_good_start_values
measure_types
mixed_measure
nominal_measure
Selected Parameters
Clustering.k
Grid/Range
Min
Max
Steps
Scale
2
5
6
linear
Value List
2
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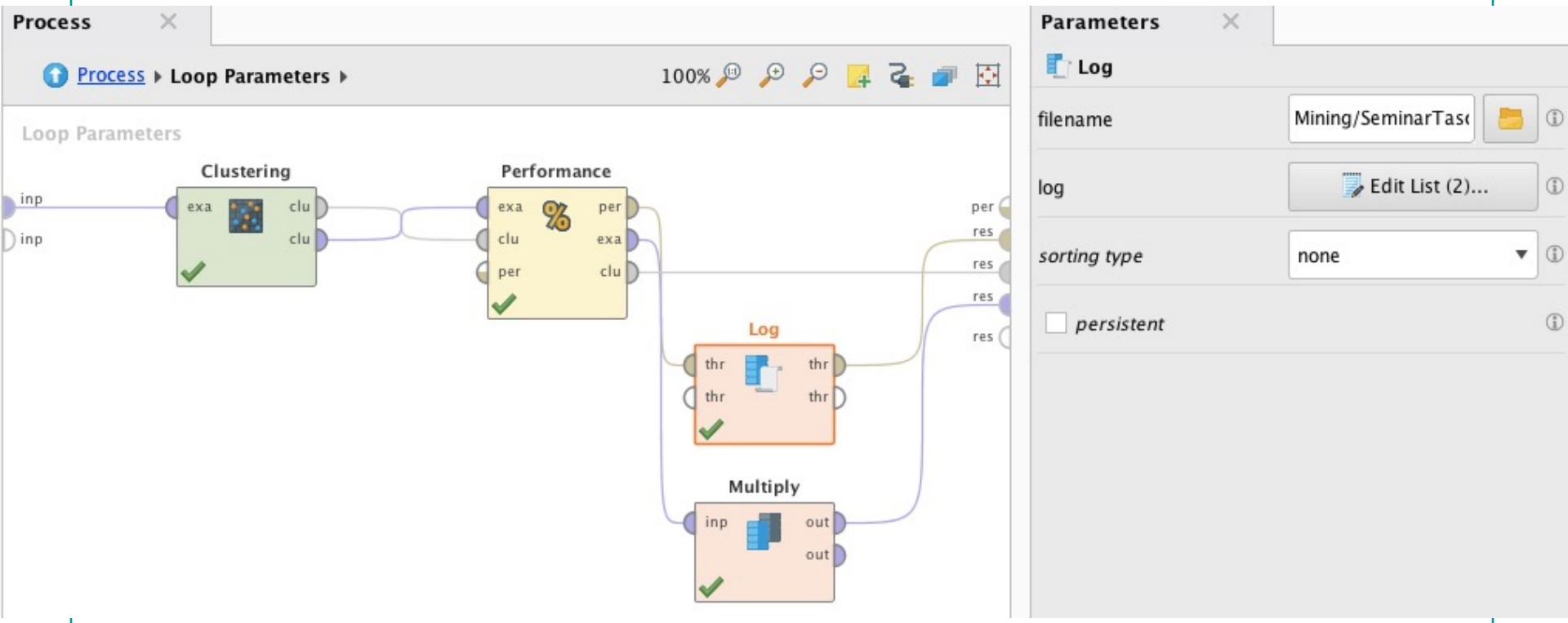
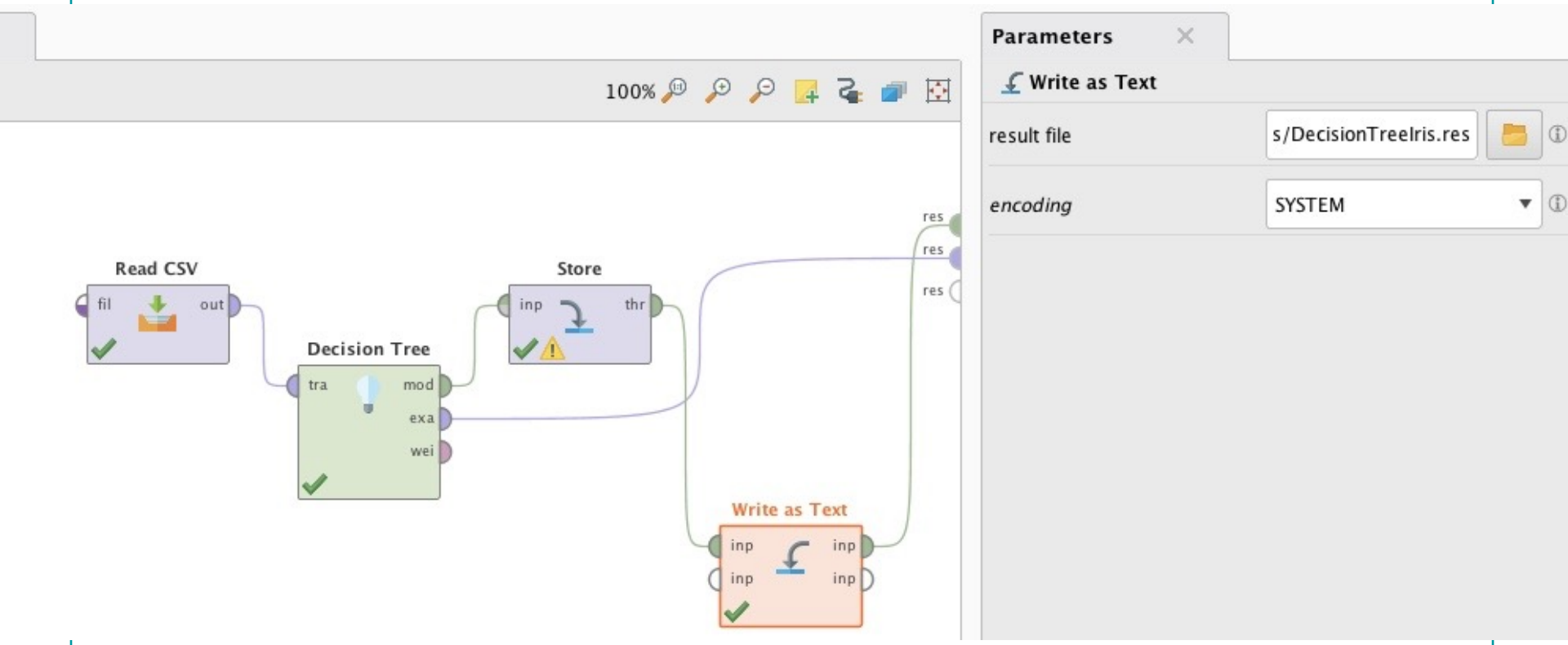
Looking for groups of points with Clustering



Classification with the iris dataset

Class should be of type Label



Classification

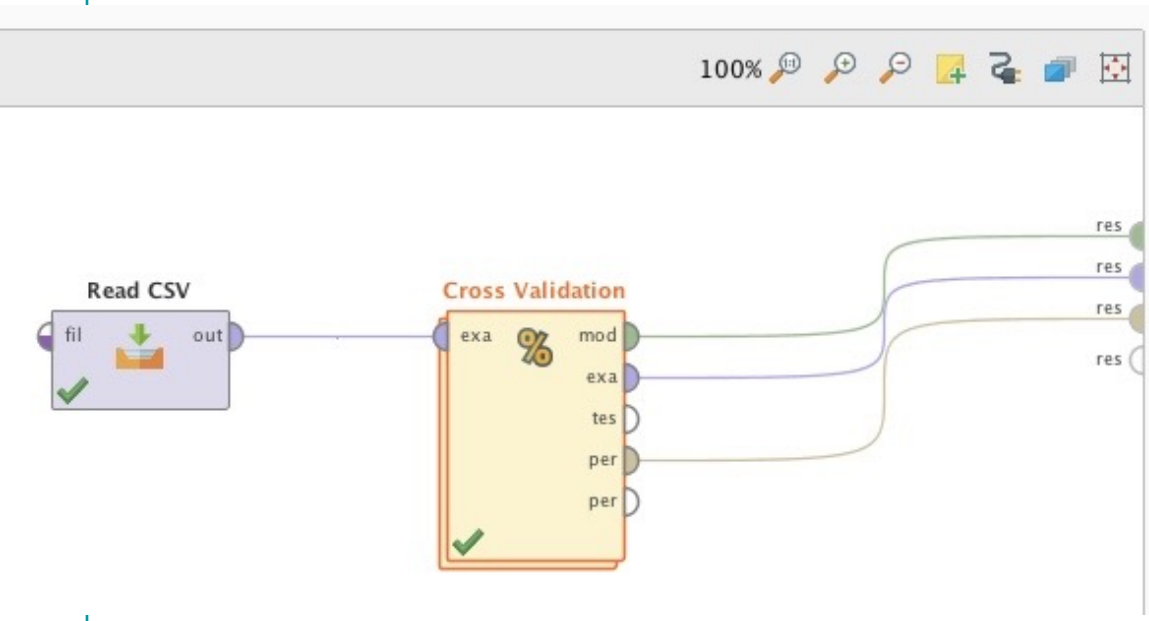
Decision tree:

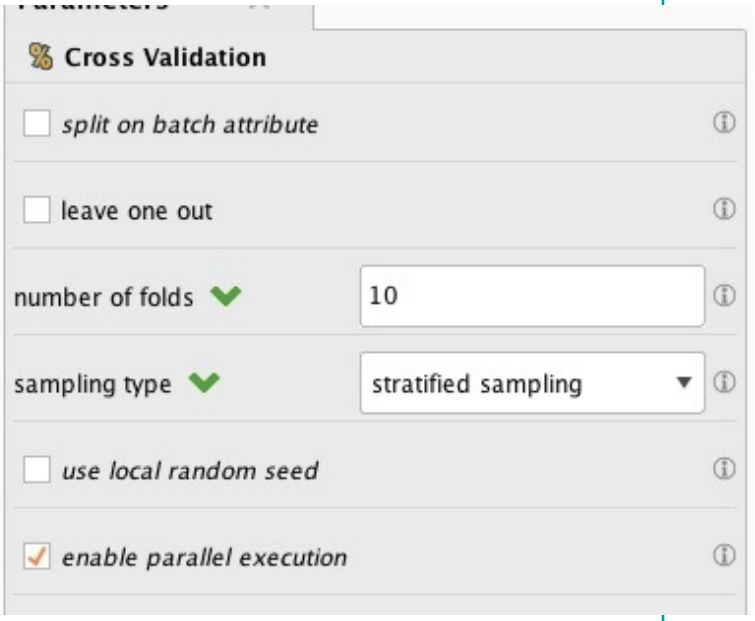
- label to set the attribute to predict

Validation:

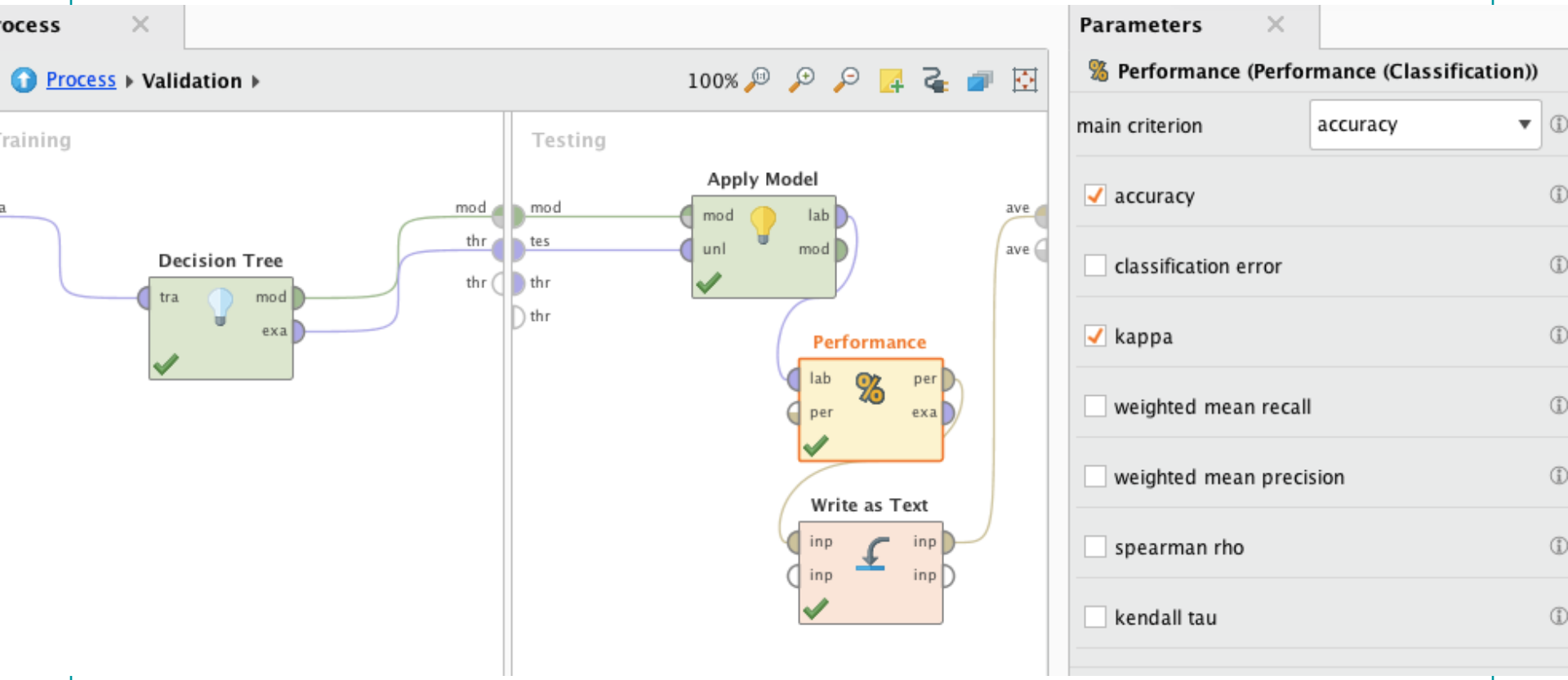
- X Validation Operator
- Handy: Write as Text Operator the output of Performance Operator to check the result step by step.

Classification





Classification



References

Rapid Miner website: rapidminer.com with good tutorials.

- https://community.rapidminer.com/
- https://docs.rapidminer.com/

Many videos on youtub, see for example:

https://www.youtube.com/watch?v=C8Ko3-2f-pA&list=PLssWC2d9JhOZLbQNZ80uOxLypglgWqbJA&index=16

References

Thank your for your attention!

Schloß Charlottenburg, Berlin