



EVROPSKÁ UNIE
Evropské strukturální a investiční fondy
Operační program Výzkum, vývoj a vzdělávání



MINISTERSTVO ŠKOLSTVÍ,
MLÁDEŽE A TĚLOVÝCHOVY

Název projektu	Rozvoj vzdělávání na Slezské univerzitě v Opavě
Registrační číslo projektu	CZ.02.2.69/0.0./0.0/16_015/0002400

Dolování dat

System RapidMiner

Jan Górecki

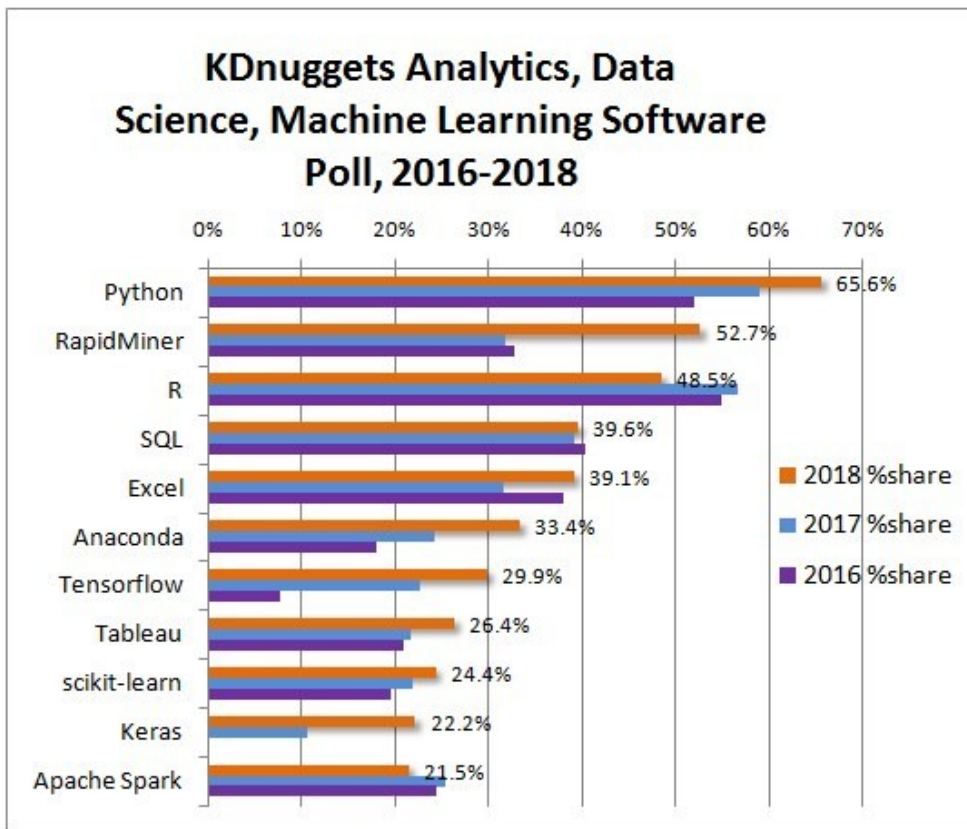


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Popularita DM systémů (2015-2017)



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Educational License Program

Free Licenses for Academic Usage

<https://rapidminer.com/educational-program/> popř.

<http://rapidminer.findmysoft.com/>

	EDUCATIONAL	FREE
	Free	Free
# Data Rows	Unlimited	10,000
# Logical Processors	1	1
Auto Model	✓	
License Expiration	After 12 Months	Never
Customer Support	Community	Community
	Apply for Access	Download

Startujeme RapidMiner Studio




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Začátky jsou těžké... ale s RapidMinerem rychle za námi

Choose a template to start from:


Blank
Start with a blank process.




Churn Modeling
Predict which of your customers will churn and why with a decision tree.




Direct Marketing
Predict response to campaigns and increase the conversion rate of your campaign.




Credit Risk Modeling
Model credit default risk by training an optimized Support Vector Machine (SVM) model.




Market Basket Analysis
Find products frequently purchased together and turn them into rules for recommendations.




Predictive Maintenance
Model equipment failures to schedule maintenance pre-emptively.



Price Risk Clustering
Cluster price developments using X-Means to unveil price-risk-relationships.



Lift Chart
Create a lift chart to visualize the improvement that a model provides compared to guessing.



- **Můžeme začít rovnou s předpřipravenými daty a modely**

Hlavní obrazovka – Design workspace



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<new process> – RapidMiner Studio Trial 8.1.001 @ A407-Gorecki

File Edit Process View Connections Cloud Settings Extensions Help

Views: **Design** Results Auto Model

Find data, operators...etc All Studio Search

Repository

- Add Data
- Samples
- DB
- Local Repository (gor0001)
- Cloud Repository (disconnected)

Process

100%

Your process looks empty.
Add some data first.
Drag data or operators here.

Parameters

- logverbosity: init
- logfile: [Folder Icon]
- Show advanced parameters
- Change compatibility (8.1.001)

Operators

Search for Operators

- Data Access (47)
- Blending (77)
- Cleansing (26)
- Modeling (130)
- Scoring (12)
- Validation (29)
- Utility (85)
- Extensions (17)

Get more operators from the Marketplace

Recommended Operators

- Retrieve (12%)
- Select Attributes (6%)
- Set Role (5%)
- Apply Model (4%)

Help

Process
RapidMiner Studio Core

Synopsis
The root operator which is the outer most operator of every process.

Description
Each process must contain exactly one operator of this class, and it must be the root operator of the

Import dat



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Local Repository/moje* - RapidMiner Studio Trial 8.1.001 @ A407-Gorecki

File Edit Process View Connections Cloud Settings Extensions Help

Views: Design Results Auto Model Find data, operators, etc. All Studio Search

Repository

- Local Repository (gor0001)
 - data (gor0001)
 - processes (gor0001)
 - moje (gor0001 - v1, 9/22/17 11:39 AM - 3 kB)

Process

Process

100%

Parameters

Read Excel

Import Configuration Wizard...

excel file

sheet number 1

first row as names

date format Enter value...

Show advanced parameters

Change compatibility (8.1.001)

Help

Read Excel

RapidMiner Studio Core

Tags: Load, Import, Read, Data, Files, Xls, Xlsx, Microsoft, Spreadsheets, Datasets

Synopsis

This operator reads an ExampleSet from the specified Excel file.

[Jump to Tutorial Process](#)

Operators

read

- Data Access (22)
 - Files (16)
 - Read (15)
 - Read CSV
 - Read Excel**
 - Read Excel with Format
 - Read URL
 - Read SPSS
 - Read Stata

We found "Spreadsheet Table Extraction", "MLWizard" and 2 more results in the Marketplace. [Show me!](#)

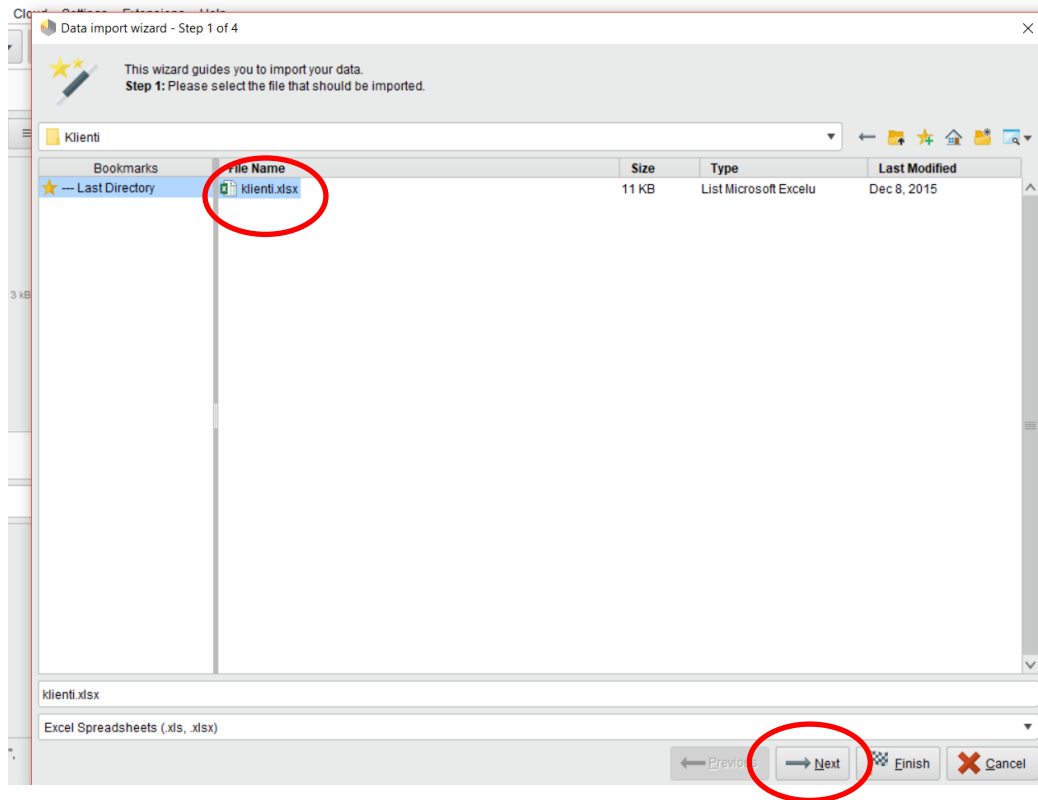
Recommended Operators

- Select Attributes 29%
- Set Role 26%
- Filter Examples 22%
- Apply Model 20%

Průvodce importem dat z Excelu



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Průvodce importem dat z Excelu



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Data import wizard - Step 2 of 4

This wizard guides you to import your data.
Step 2: An Excel file can contain multiple sheets. Please select the one you want to import into RapidMiner Studio. Furthermore, you can mark a range of cells to be loaded.

nominální numerické log2

A	B	C	D	E
příjem	konto	pohlaví	nezamě...	úvěr
vysoký	vysoké	žena	ne	ano
vysoký	vysoké	muž	ne	ano
nízký	nízké	muž	ne	ne
nízký	vysoké	žena	ano	ano
nízký	vysoké	muž	ano	ano
nízký	nízké	žena	ano	ne
vysoký	nízké	muž	ne	ano
vysoký	nízké	žena	ano	ano
nízký	střední	muž	ano	ne
vysoký	střední	žena	ne	ano
nízký	střední	žena	ano	ne
nízký	střední	muž	ne	ano

← Previous **Next** → Finish Cancel

Průvodce importem dat z Excelu



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Data import wizard - Step 3 of 4

This wizard guides you to import your data.
Step 3: In RapidMiner Studio, each attribute can be annotated. The most important annotation of an attribute is its name - a row with this annotation defines the names of the attributes. If your data does not contain attribute names, do not set this property. If further annotations are contained in the rows of your data file, you can assign them here.

Annotat...	A	B	C	D	E
Name	příjem	konto	pohlaví	nezamé...	úvěr
-	vyšoký	vyšoké	žena	ne	ano
-	vyšoký	vyšoké	muž	ne	ano
-	nížký	nížké	muž	ne	ne
-	nížký	vyšoké	žena	ano	ano
-	nížký	vyšoké	muž	ano	ano
-	nížký	nížké	žena	ano	ne
-	vyšoký	nížké	muž	ne	ano
-	vyšoký	nížké	žena	ano	ano
-	nížký	střední	muž	ano	ne
-	vyšoký	střední	žena	ne	ano
-	nížký	střední	žena	ano	ne
-	nížký	střední	muž	ne	ano

← Previous **Next** → Finish Cancel

Průvodce importem dat z Excelu



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Data import wizard - Step 4 of 4

This wizard guides you to import your data.
Step 4: RapidMiner Studio uses strongly typed attributes. In this step, you can define the data types of your attributes. Furthermore, RapidMiner Studio assigns roles to the attributes, defining what they can be used for by the individual operators. These roles can be also defined here. Finally, you can rename attributes or deselect them entirely.

Date format

Preview uses only first 100 rows.

<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
příjem	konto	pohlaví	nezaměstná	úvěr
polyno...	polyno...	binomi...	polyno...	polyno...
attribute	attribute	attribute	attribute	attribute
vysoký	vysoké	žena	ne	ano
vysoký	vysoké	muž	ne	ano
nízký	nízké	muž	ne	ne
nízký	vysoké	žena	ano	ano
nízký	vysoké	muž	ano	ano
nízký	nízké	žena	ano	ne
vysoký	nízké	muž	ne	ano
vysoký	nízké	žena	ano	ano
nízký	střední	muž	ano	ne
vysoký	střední	žena	ne	ano
nízký	střední	žena	ano	ne

0 errors. Ignore errors Show only errors

Row, Column	Error	Original value	Message
-------------	-------	----------------	---------

Vizualizace dat



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The screenshot displays the RapidMiner Studio interface. The main workspace shows a process diagram with a 'Read Excel' operator highlighted by a red oval. The interface includes several panels:

- Repository:** Shows a tree view of data sources, including 'Local Repository' and 'Cloud Repository'.
- Operators:** A search bar with 'read' entered, showing a list of operators under 'Data Access (22)', including 'Read CSV', 'Read Excel', 'Read Excel with Format', 'Read URL', and 'Read SPSS'.
- Parameters:** Shows the configuration for the 'Process' operator, including 'logverbosity' set to 'init' and a 'logfile' field.
- Help:** Provides information about the 'Process' operator, including a synopsis and description.

The top menu bar includes 'File', 'Edit', 'Process', 'View', 'Connections', 'Cloud', 'Settings', 'Extensions', and 'Help'. The top toolbar contains icons for 'Run' (a play button, circled in red), 'Save', and 'Close'. The 'Process' panel shows a 'Read Excel' operator connected to a 'Process' operator, with a red oval highlighting the 'Read Excel' operator.

Vizualizace dat



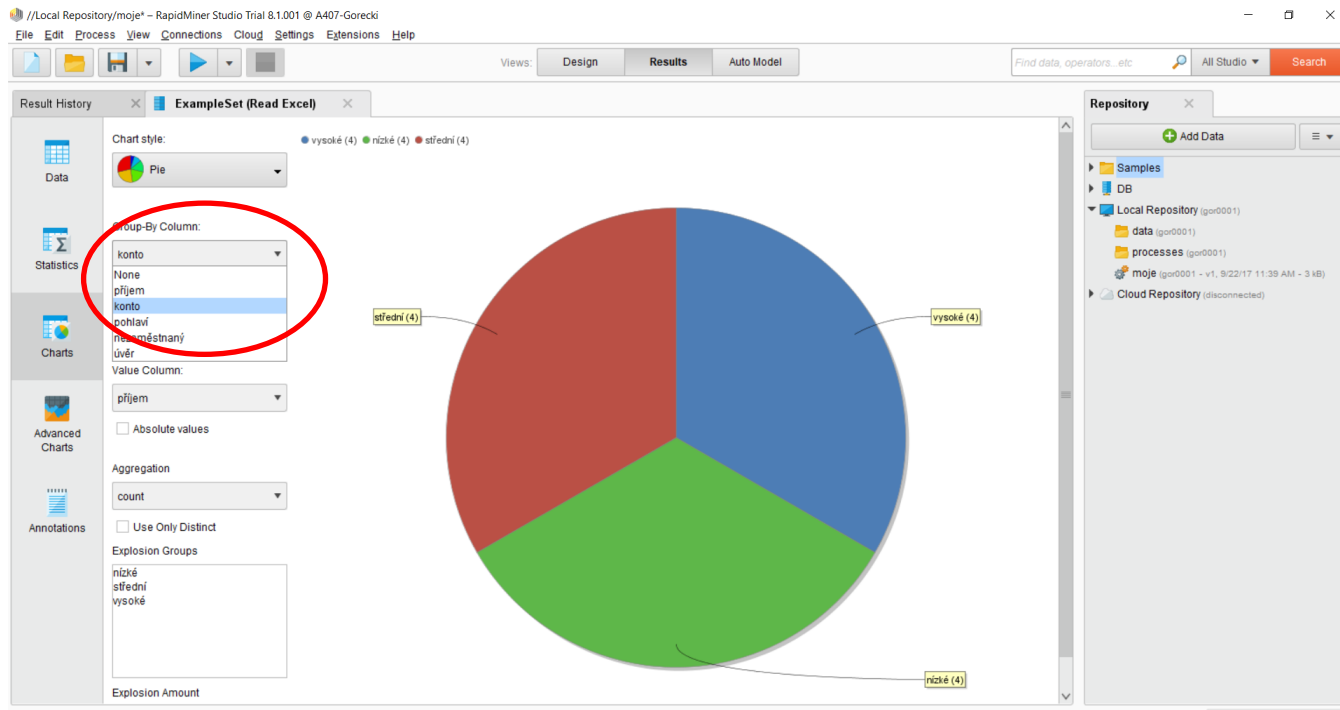
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The screenshot displays the RapidMiner Studio interface. The main window shows a grid of visualization icons. A red circle highlights the 'Pie' icon in the top-left corner of the grid. Another red circle highlights the 'Pie' icon in the bottom-right corner of the grid. The interface includes a menu bar (File, Edit, Process, View, Connections, Cloud, Settings, Extensions, Help), a toolbar with icons for file operations and execution, and a 'Views' section with 'Design', 'Results', and 'Auto Model' tabs. A search bar is located at the top right. The 'Repository' panel on the right shows a tree view of data sources, including 'Local Repository' and 'Cloud Repository'. The main workspace shows a 'Data' tab with a 'Pie' chart selected, and a 'Charts' tab with a grid of visualization options. The 'Pie' chart is highlighted with a red circle. The 'Charts' tab also shows a 'Pie' icon in the bottom row, which is also highlighted with a red circle. The interface is titled 'ExampleSet (Read Excel)' and shows a 'Data' tab with a 'Pie' chart selected. The 'Charts' tab is active, showing a grid of visualization options. The 'Pie' icon is highlighted with a red circle. The 'Charts' tab also shows a 'Pie' icon in the bottom row, which is also highlighted with a red circle. The interface is titled 'ExampleSet (Read Excel)' and shows a 'Data' tab with a 'Pie' chart selected. The 'Charts' tab is active, showing a grid of visualization options. The 'Pie' icon is highlighted with a red circle. The 'Charts' tab also shows a 'Pie' icon in the bottom row, which is also highlighted with a red circle.

Vizualizace dat



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Rozhodovací stromy – Volba cílového atributu



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The screenshot displays the RapidMiner Studio interface with the following components:

- Repository:** Shows a tree view of data sources including 'Samples', 'DB', 'Local Repository', and 'Cloud Repository'.
- Process:** A workflow diagram with 'Read Excel' and 'Set Role' operators. Red circles highlight the 'Set Role' operator in the process canvas and the 'setro' operator in the Operators panel.
- Parameters:** A configuration panel for the 'Set Role' operator. The 'attribute name' dropdown is set to 'úvěr' and the 'target role' dropdown is set to 'label'. Both dropdowns are circled in red.
- Operators:** A panel showing a search for 'setro' with 'Set Role' selected under 'Names & Roles'.
- Help:** A panel providing details for the 'Set Role' operator, including tags and a synopsis.
- Recommended Operators:** A bar at the bottom showing suggestions like 'Retrieve' (70%), 'Select Attributes' (44%), 'Apply Model' (28%), and 'Filter Examples' (26%).

Parameters

- Set Role
- attribute name: úvěr
- target role: label
- set additional roles: Edit List (0)...
- Change compatibility (8.1.001)

Help

Set Role
RapidMiner Studio Core

Tags: Label, Target, Id, Class, Dependent, Independent, Special, Regular, Inputs, Columns, Attributes, Features, Variables, Types, Names & Roles

Synopsis

This Operator is used to change the role of one or more Attributes.

[Jump to Tutorial Process](#)

Rozhodovací stromy – Nastavení parametrů modelování



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The screenshot displays the RapidMiner Studio interface. The main workspace shows a workflow with three operators: Read Excel, Set Role, and Decision Tree. The Decision Tree operator is selected, and its parameters are visible in the right-hand panel. The parameters are:

- Decision Tree
- criterion: gain_ratio
- maximal depth: 20
- apply pruning:
- confidence: 0.25
- apply prepruning:
- minimal gain: 0.1
- minimal leaf size: 1
- minimal size for split: 2
- Hide advanced parameters: [Hide advanced parameters](#)

The Help panel for the Decision Tree operator is also visible, showing the following information:

- Decision Tree
- Concurrency
- Tags: Supervised, Classification, Regression, Model, Trees
- Synopsis: This Operator generates a decision tree model, which can be used for classification and regression.
- [Jump to Tutorial Process](#)

Red circles highlight the Run button in the top toolbar, the Decision Tree operator in the workflow, the Decision Tree operator in the Operators list, and the Hide advanced parameters link in the Parameters panel.

Rozhodovací stromy – Výsledek



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Result History | Tree (Decision Tree)

Zoom: [Search icons]

Tree [Dropdown]

Node Labels
 Edge Labels

Graph
Description
Annotations

Views: Design Results Auto Model

Find data, operators...etc [Search] All Studio [Dropdown] Search

```
graph TD;
    A[přijem] -- nízký --> B[konto];
    A -- vysoký --> C[ano];
    B -- nízké --> D[ne];
    B -- střední --> E[nezaměstnaný];
    B -- vysoké --> F[ano];
    E -- ne --> G[ne];
    E -- ano --> H[ano];
```

Repository

Add Data [Dropdown]

- Samples
- DB
- Local Repository (gor0001)
 - data (gor0001)
 - processes (gor0001)
 - moje (gor0001 - v1, 9/22/17 11:39 AM - 3 KB)
- Cloud Repository (disconnected)

Tooltip for 'ne' branch of 'nezaměstnaný':

ne
Distribution: 0 ano, 2 ne
Number of items: 2
Ratio of total: 16.67%

Rozhodovací stromy – Výsledek (pravidla)



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The screenshot shows the RapidMiner Studio interface. The main window displays a decision tree rule set under the 'Tree (Decision Tree)' tab. The rules are as follows:

```
příjem = nízký  
| konto = nízké: ne (ano=0, ne=2)  
| konto = střední  
| nezaměstnaný = ano: ne (ano=0, ne=2)  
| nezaměstnaný = ne: ano (ano=1, ne=0)  
| konto = vysoké: ano (ano=2, ne=0)  
příjem = vysoký: ano (ano=3, ne=0)
```

The 'Description' tab in the left sidebar is circled in red. The 'Repository' panel on the right shows a local repository with folders for 'Samples', 'DB', 'data', and 'processes', and a file named 'moje'.

Rozhodovací stromy – Úprava parametrů modelu



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Local Repository/moje* - RapidMiner Studio Trial 8.1.001 @ A407-Gorecki

File Edit Process View Connection Cloud Settings Extensions Help

Views: Design Results Auto Model Find data, operators...etc All Studio Search

Repository

- DB
- Local Repository (gor001)
 - data (gor001)
 - processes (gor001)
 - moje (gor001 - v1, 9/22/17 11:39 AM - 3 kB)
- Cloud Repository (disconnected)

Process

Process

100%

Read Excel → Set Role → Decision Tree

Parameters

Decision Tree

- criterion: gain_ratio
- maximal depth: 20
- apply pruning:
- confidence: 0.25
- apply prepruning:
- minimal gain: 0.1
- minimal leaf size: 1
- minimal size for split: 4

[Hide advanced parameters](#)

Help

Decision Tree

Concurrency

Tags: Supervised, Classification, Regression, Model, Trees

Synopsis

This Operator generates a decision tree model, which can be used for classification and regression.

[Jump to Tutorial Process](#)

Operators

deci

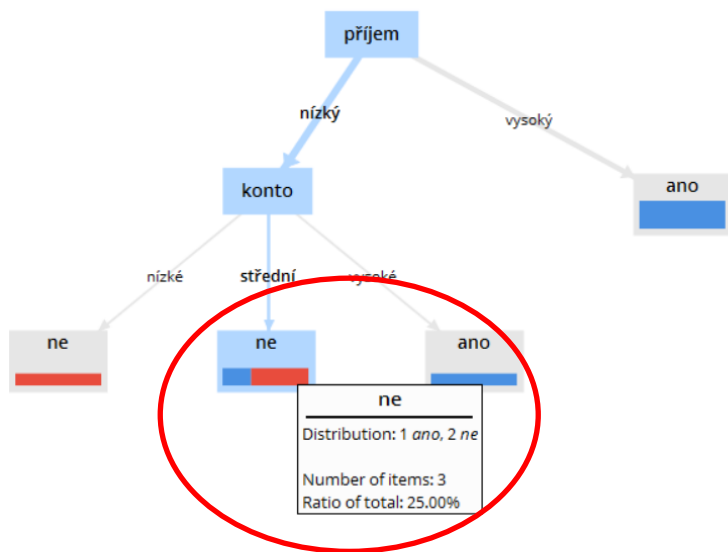
- Predictive (8)
 - Trees (8)
 - Decision Tree
 - Random Forest
 - Gradient Boosted Trees
 - ID3
 - Decision Stump
 - Decision Tree (Multiway)
 - Decision Tree (Weight-Based)

We found "Weka Extension" and "WhiBo" in the Marketplace [Show me!](#)

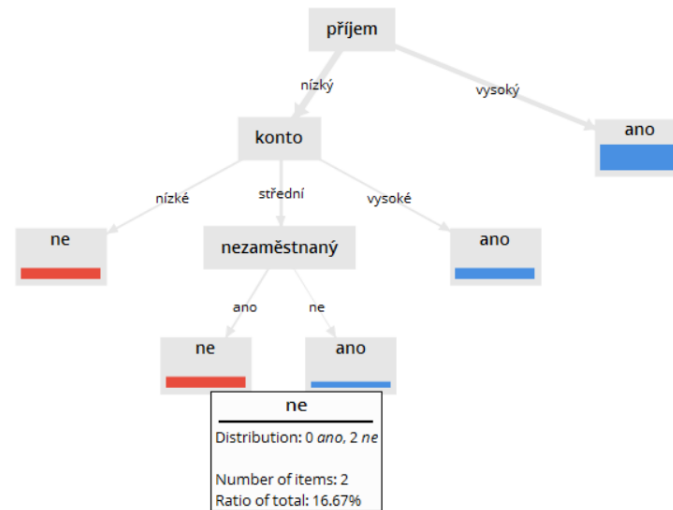
Recommended Operators

- Retrieve 73%
- Select Attributes 39%
- Apply Model 36%
- Filter Examples 27%

Rozhodovací stromy – Výsledek 2



Výsledek 2



Výsledek 1

Banka - Testování modelu – Křížová validace



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://Local Repository/processes/stromy_bank_a_crossval* - RapidMiner Studio Trial 8.1.001 @ A407-Gorecki

File Edit Process View Connections Cloud Settings Extensions Help

Views: Design Results Auto Model

Find data, operators, etc. All Studio Search

Repository

- Samples
- DB
- Local Repository (gor0001)
 - data (gor0001)
 - processes (gor0001)
 - stromy (gor0001 - v1, 4/17/18 3:11 PM - 5 kB)
 - stromy_bank_a_crossval (gor0001 - v1, 4/17/18 3:10 PM - 5 kB)
 - moje (gor0001 - v1, 4/17/18 3:10 PM - 5 kB)
- Cloud Repository (disconnected)

Process

Process

100%

Process flow: **Read CSV** → **Set Role** → **Cross Validation**

Parameters

Read CSV

- Import Configuration Wizard
- csv file: data/Bank/bank.csv
- column separators: ;
- trim lines:
- use quotes:
- quotes character: "
- escape character: \
- Hide advanced parameters
- Change compatibility (8.1.001)

Help

Read CSV

RapidMiner Studio Core

Tags: Load, Import, Read, Data, Files, Text, Commas, Spreadsheet, Excel, Datasets, Tsv

Synopsis

This Operator reads an ExampleSet from the specified CSV file.

[Jump to Tutorial Process](#)

Operators

cross va

- Validation (1)
 - Cross Validation

No results were found.

Recommended Operators

- Retrieve 68%
- Select Attributes 42%
- Apply Model 27%
- Filter Examples 23%

Banka - Testování modelu – Křížová validace



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Local Repository/processes/stromy_bank_a_crossval* - RapidMiner Studio Trial 8.1.001 @ A407-Gorecki

File Edit Process View Connections Cloud Settings Extensions Help

Views: Design Results Auto Model Find data, operators, etc. All Studio Search

Repository

- Local Repository (igor0001)
 - data (igor0001)
 - processes (igor0001)
 - stromy (igor0001 - v1, 4/17/18 3:11 PM - 5 kB)
 - stromy_bank_a_crossval (igor0001 - v1, 4/17/18 3:10 PM - 5 kB)
 - moje (igor0001 - v1, 4/17/18 3:10 PM - 5 kB)

Operators

cross va

- Validation (1)
 - Cross Validation

Process

Process: Cross Validation

100%

Training: Decision Tree

Testing: Apply Model, Performance

Parameters

Decision Tree

- criterion: information_gain
- maximal depth: 20
- apply pruning:
- confidence: 0.25
- apply prepruning:
- minimal gain: 0.1
- minimal leaf size: 10
- minimal size for split: 20

Help

Decision Tree

Concurrency

Tags: Supervised, Classification, Regression, Model, Trees

Synopsis

This Operator generates a decision tree model which can be used for classification and regression.

[Jump to Tutorial Process](#)

Recommended Operators

- Performance (CL... 33%
- Performance (Bl... 22%
- k-NN 17%
- Naive Bayes 15%

Banka - Testování modelu – Křížová validace - výsledky



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://Local Repository/processes/stromy_bank_a_crossval* - RapidMiner Studio Trial 8.1.001 @ A407-Gorecki

File Edit Process View Connections Cloud Settings Extensions Help

Views: Design Results Auto Model

Find data, operators, etc. All Studio Search

Result History PerformanceVector (Performance)

Criterion
accuracy
precision
recall
AUC (optimistic)
AUC
AUC (pessimistic)

Table View Plot View

accuracy: 88.43% +/- 0.13% (mikro: 88.43%)

	true no	true yes	class precision
pred. no	3996	519	88.50%
pred. yes	4	2	33.33%
class recall	99.90%	0.38%	

Téměř nepokrývá třídu yes

Repository

Add Data

Samples

DB

Local Repository (igor001)

data (igor001)

processes (igor001)

stromy (igor001 - v1, 4/17/18 3:11 PM - 5 kB)

stromy_bank_a_crossval (igor001 - v1, 4/17/18 3:10 PM - 5 kB)

moje (igor001 - v1, 4/17/18 3:10 PM - 5 kB)

Cloud Repository (disconnected)

Banka - Testování modelu – Křížová validace 2



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//Local Repository/processes/stromy_bank_a_crossval* - RapidMiner Studio Trial 8.1.001 @ A407-Gorecki

File Edit Process View Connections Cloud Settings Extensions Help

Views: Design Results Auto Model

Find data, operators... All Studio Search

Repository

- Local Repository (gor0001)
 - data (gor0001)
 - processes (gor0001)
 - stromy (gor0001 - v1, 4/17/18 3:11 PM - 5 kB)
 - stromy_bank_a_crossval (gor0001 - v1, 4/17/18 3:10 PM - 5 kB)
 - moje (gor0001 - v1, 4/17/18 3:10 PM - 5 kB)

Process

Process: Cross Validation

Training: Decision Tree

Testing: Apply Model, Performance

Parameters

Decision Tree

- criterion: gini_index
- maximal depth: 20
- apply pruning:
- confidence: 0.25
- apply prepruning:
- minimal gain: 0.1
- minimal leaf size: 10
- minimal size for split: 20

Help

Decision Tree

Concurrency

Tags: Supervised, Classification, Regression, Model, Trees

Synopsis

This Operator generates a decision tree model, which can be used for classification and regression.

[Jump to Tutorial Process](#)

Recommended Operators

- Performance (CL... 33%
- Performance (BI... 22%
- k-NN 17%
- Naive Bayes 15%

Banka - Testování modelu – Křížová validace 2



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//Local Repository/processes/stromy_banka_crossval* – RapidMiner Studio Trial 8.1.001 @ A407-Gorecki

File Edit Process View Connections Cloud Settings Extensions Help

Views: Design Results Auto Model

Find data, operators...etc All Studio Search

Result History PerformanceVector (Performance)

Criterion
accuracy
precision
recall
AUC (optimistic)
AUC
AUC (pessimistic)

Description

Annotations

Table View Plot View

accuracy: 88.85% +/- 0.74% (mikro: 88.85%)

	true no	true yes	class precision
pred. no	3869	373	91.21%
pred. yes	131	148	53.05%
class recall	96.73%	28.41%	

Repository

Add Data

- Samples
- DB
- Local Repository (gor0001)
 - data (gor0001)
 - processes (gor0001)
 - stromy (gor0001 - v1, 4/17/18 3:11 PM - 5 kB)
 - stromy_banka_crossval (gor0001 - v1, 4/17/18 3:10 PM - 5 kB)
 - moje (gor0001 - v1, 4/17/18 3:10 PM - 5 kB)
- Cloud Repository (disconnected)

Mnohem lepší model
(parametrizace)
vzhledem k pokrytí
třídy *yes*

Optimalizace parametrů



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OBCHODNĚ PODNIKATELSKÁ
FAKULTA V KARVINĚ

///Local Repository/processes/stromy_banka_optimization* - RapidMiner Studio Trial 8.1.001 @ A407-Gorecki

File Edit Process View Connections Cloud Settings Extensions Help

Views: Design Results Auto Model

Find data, operators...etc

All Studio Search

Repository

- Local Repository (gor0001)
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Process

Process

Read CSV → Set Role → **Optimize Parameters (Grid)**

Parameters

Optimize Parameters (Grid)

Edit Parameter Settings...

error handling: fail on error

log performance

log all criteria

synchronize

enable parallel execution

[Hide advanced parameters](#)

Help

Optimize Parameters (Grid)

Concurrency

Tags: Iterate, Settings, Grid, Search, Tune, Optimal, Parameters

Synopsis

This Operator finds the optimal values of the selected parameters for the Operators in its subprocess.

[Jump to Tutorial Process](#)

Operators

perfor

- Cluster Density Performance
- Item Distribution Performance
- Performance
- Extract Performance
- Combine Performances
- Performance (User-Based)
- Performance (Min-Max)
- Performance In Data

We found "Time Series", "Model Visualization Extension" and 2 more results in the Marketplace. [Show me!](#)

Recommended Operators

- Retrieve 70%
- Select Attributes 41%
- Subprocess 32%
- Apply Model 31%

Optimalizace parametrů



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Process

Process > Optimize Parameters (Grid)

Optimize Parameters (Grid)

100%

inp

inp

Cross Validation

mod

per

mod

out

Parameters

Optimize Parameters (Grid)

Edit Parameter Settings...

error handling: fail on error

log performance

log all criteria

synchronize

enable parallel execution

Hide advanced parameters

Help

Optimize Parameters (Grid)

Concurrency

Tags: Iterate, Settings, Grid, Search, Tune, Optimal, Parameters

Synopsis

This Operator finds the optimal values of the selected parameters for the Operators in its subprocess.

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Operators

perfor

- Cluster Density Performance
- Item Distribution Performance
- Performance
- Extract Performance
- Combine Performances
- Performance (User-Based)
- Performance (Min-Max)
- Performance to Data

We found "Time Series", "Model Visualization Extension" and 2 more results in the Marketplace. [Show me!](#)

Recommended Operators

- Log 61%
- Apply Model 5%
- Sample 5%
- Multiply 4%

Optimalizace parametrů



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://Local Repository/processes/stromy_banko_optimization* - RapidMiner Studio Trial 8.1.001 @ A407-Gorecki

File Edit Process View Connections Cloud Settings Extensions Help

Views: Design Results Auto Model

Find data, operators...etc All Studio Search

Repository

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Operators

perfor

- Cluster Density Performance
- Item Distribution Performance
- Performance
- Extract Performance
- Combine Performances
- Performance (User-Based)
- Performance (Min-Max)
- Performance In Data

We found "Time Series", "Model Visualization Extension" and 2 more results in the Marketplace. [Show me!](#)

Process: Optimize Parameters (Grid) > Cross Validation

100%

Decision Tree

Apply Model

Performance

Parameters

Cross Validation

- split on batch attribute
- leave one out
- number of folds: 10
- sampling type: automatic
- use local random seed
- enable parallel execution

[Hide advanced parameters](#)

Help

Cross Validation

Concurrency

Tags: Cross-Validations, Cross-validations, Folds, K-Folds, K-folds, Validations, Estimations, Evaluations, Performances, Splitting, X-Validation, X-Prediction, Validation

Synopsis

This Operator performs a cross validation to estimate the statistical performance of a learning model.

[Jump to Tutorial Process](#)

Recommended Operators

- Performance (CL... 33%
- Performance (Bl... 22%
- k-NN 17%
- Naive Bayes 15%

Optimalizace parametrů



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 - moje (igor0001 - v1, 4/17/18 3:10 PM - 5 kB)

Process

Process

100%

Process flow: Read CSV → Set Role → Optimize Parameters (Grid)

Parameters

- Optimize Parameters (Grid)
- Edit Parameter Settings...
- error handling: fail on error
- log performance:
- log all criteria:
- synchronize:
- enable parallel execution:
- Hide advanced parameters

Select Parameters: configure operator

Select Parameters: configure operator
Configure this operator by means of a Wizard.

Operators: Cross Validation (Cross Validation), Decision Tree (Decision Tree), Apply Model (Apply Model), Performance (Performance)

Parameters: Decision Tree.minimal_leaf_size, Decision Tree.criterion

Grid/Range: Min: 10, Max: 500, Steps: 50, Scale: linear

Value List: least_square, gain_ratio, information_gain, gini_index, accuracy

Record: Grid List 2 parameters / 204 combinations selected

Help

Optimize Parameters (Grid)
Concurrency

Tags: Iterate, Settings, Grid, Search, Tune, Optimal, Parameters

Synopsis
This Operator finds the optimal values of the selected parameters for the Operators in its subprocess.
[Jump to Tutorial Process](#)

Optimalizace parametrů



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File Edit Process View Connections Cloud Settings Extensions Help

Views: Design Results Auto Model

Find data, operators...etc All Studio Search

Repository

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- Cloud Repository (disconnected)

Process

Process

Read CSV → Set Role → Optimize Parameters (Grid)

100%

Select Parameters: configure operator

Select Parameters: configure operator
Configure this operator by means of a Wizard.

Operators

- Cross Validation (Cross Validation)
- Decision Tree (Decision Tree)
- Apply Model (Apply Model)
- Performance (Performance)

Parameters

Select Parameters

- Decision Tree_minimal_leaf_size
- Decision Tree_criterion

Grid/Range

Min	Max	Steps	Scale
10	500	50	linear

-Value List

- 10
- 20
- 30
- 39

Recommended Parameters

Grid List 2 parameters / 204 combinations selected

OK Cancel

Parameters

Optimize Parameters (Grid)

Edit Parameter Settings...

error handling fall on error

log performance ✓

log all criteria

synchronize

enable parallel execution

Hide advanced parameters

Help

Optimize Parameters (Grid)

Concurrency

Tags: Iterate, Settings, Grid, Search, Tune, Optimal, Parameters

Synopsis

This Operator finds the optimal values of the selected parameters for the Operators in its subprocess.

[Jump to Tutorial Process](#)

Optimalizace parametrů - výsledek



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File Edit Process View Connections Cloud Settings Extensions Help

Views: Design Results Auto Model

Find data, operators...etc All Studio Search

Tree (Decision Tree) PerformanceVector (Performance) Optimize Parameters (Grid)

Result History ParameterSet (Optimize Parameters (Grid))

ParameterSet

Description

Parameter set:

Performance:

PerformanceVector [

----accuracy: 89.01% +/- 0.67% (mikro: 89.01%)

ConfusionMatrix:

True:	no	yes
no:	3855	352
yes:	145	169

----precision: 59.80% +/- 12.06% (mikro: 53.82%) (positive class: yes)

ConfusionMatrix:

True:	no	yes
no:	3855	352
yes:	145	169

----recall: 32.40% +/- 17.80% (mikro: 32.44%) (positive class: yes)

ConfusionMatrix:

True:	no	yes
no:	3855	352
yes:	145	169

----AUC (optimistic): 0.908 +/- 0.016 (mikro: 0.908) (positive class: yes)

----AUC: 0.747 +/- 0.041 (mikro: 0.747) (positive class: yes)

----AUC (pessimistic): 0.586 +/- 0.067 (mikro: 0.586) (positive class: yes)

]

Decision Tree.minimal_leaf_size = 49

Decision Tree.criterion = gini_index

Annotations

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- Cloud Repository (disconnected)

Děkuji za pozornost