



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



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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

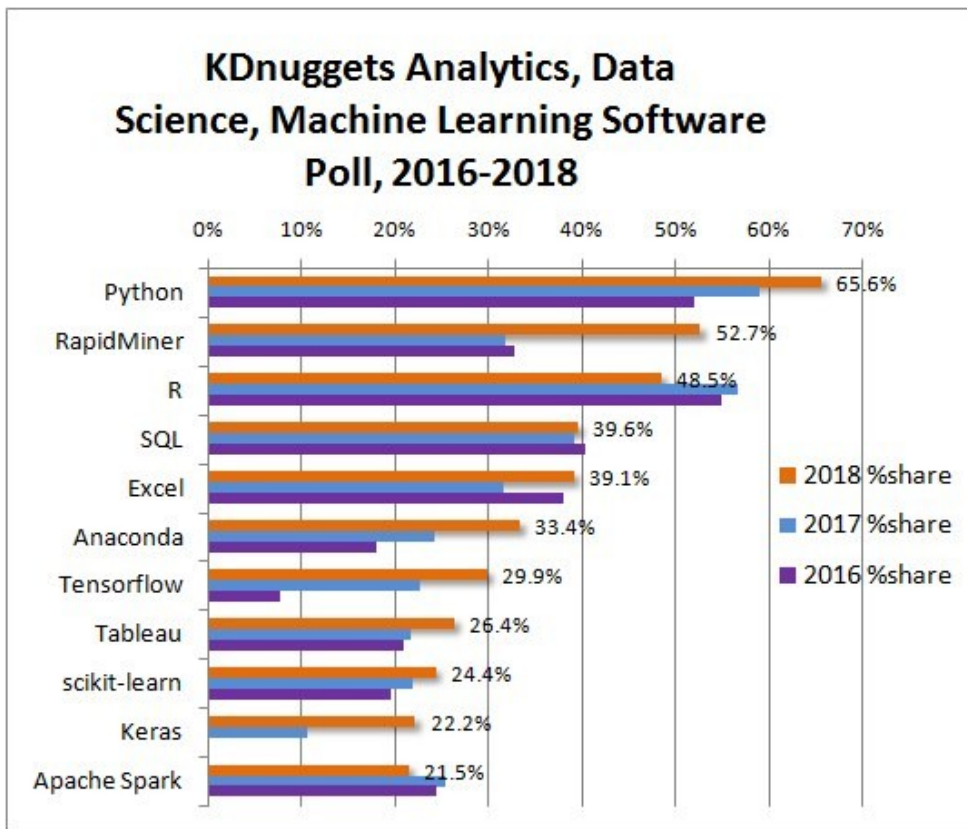
System RapidMiner

Jan Górecki



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Popularita DM systémů (2015-2017)



Educational License Program

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<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:

 <p>Blank Start with a blank process.</p>	 <p>Churn Modeling Predict which of your customers will churn and why with a decision tree.</p>
 <p>Direct Marketing Predict response to campaigns and increase the conversion rate of your campaign.</p>	 <p>Credit Risk Modeling Model credit default risk by training an optimized Support Vector Machine (SVM) model.</p>
 <p>Market Basket Analysis Find products frequently purchased together and turn them into rules for recommendations.</p>	 <p>Predictive Maintenance Model equipment failures to schedule maintenance pre-emptively</p>
 <p>Price Risk Clustering Cluster price developments using X-Means to unveil price-risk-relationships.</p>	 <p>Lift Chart Create a lift chart to visualize the improvement that a model provides compared to guessing.</p>

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

Hlavní obrazovka – Design workspace



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The screenshot shows the RapidMiner Studio interface. The title bar reads "<new process> - RapidMiner Studio Trial 8.1.001 @ A407-Gorecki". The menu bar includes File, Edit, Process, View, Connections, Cloud, Settings, Extensions, and Help. The "Views" tab is highlighted with a red circle and contains "Design", "Results", and "Auto Model". The main workspace displays a message: "Your process looks empty. Add some data first. Drag data or operators here." The left sidebar contains a "Repository" panel with "Add Data" and a tree view of "Samples", "DB", "Local Repository (gor0001)", and "Cloud Repository (disconnected)". Below it is an "Operators" panel with a search bar and a list of categories: "Data Access (47)", "Blending (77)", "Cleansing (26)", "Modeling (130)", "Scoring (12)", "Validation (29)", "Utility (85)", and "Extensions (17)". At the bottom of the sidebar is a link to "Get more operators from the Marketplace". The bottom of the workspace features a "Recommended Operators" section with four items: "Retrieve" (12%), "Select Attributes" (6%), "Set Role" (5%), and "Apply Model" (4%). The right sidebar contains a "Parameters" panel for the "Process" with "logverbosity" set to "init" and a "logfile" field. Below it is a "Help" panel for "Process" with a "Synopsis" and "Description" section.

Import dat



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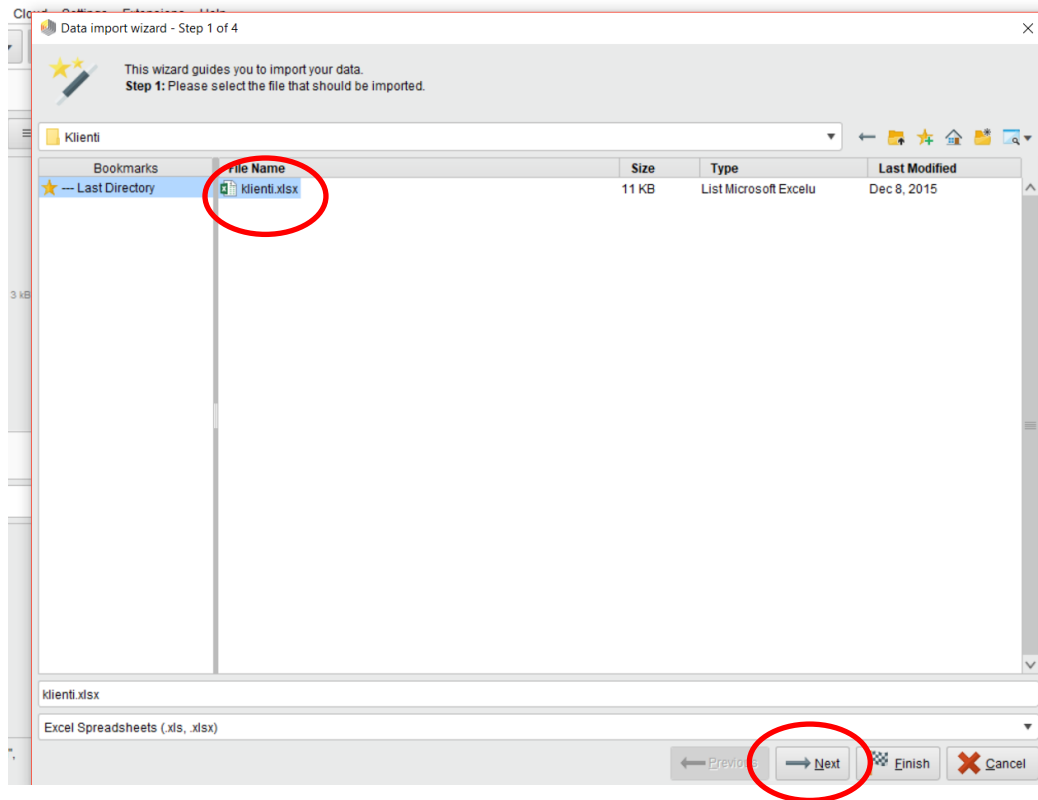
The screenshot displays the RapidMiner Studio interface with the following components:

- Repository:** Shows a tree view of data sources including 'Local Repository' and 'Cloud Repository'.
- Process:** The main workspace showing a 'Read Excel' operator in a process flow, circled in red.
- Parameters:** A configuration panel for the 'Read Excel' operator, also circled in red. It includes:
 - 'Import Configuration Wizard...' button
 - 'Excel file' input field
 - 'sheet number' set to 1
 - 'first row as names' checked
 - 'date format' dropdown set to 'Enter value...'
 - 'Show advanced parameters' and 'Change compatibility (8.1.001)' links.
- Operators:** A list of operators under the 'Data Access' category, with 'Read Excel' highlighted and circled in red.
- Recommended Operators:** A section at the bottom showing other operators like 'Select Attributes', 'Set Role', 'Filter Examples', and 'Apply Model' with their respective usage percentages.
- Help:** A panel at the bottom right providing details for the 'Read Excel' operator, including tags and a synopsis.

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
-	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 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' and 'Files', with 'Read Excel' selected.
- Parameters:** A panel for configuring the 'Process' operator, showing 'logverbosity' set to 'init' and a 'logfile' field.
- Help:** A panel providing 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 'Undo'. The bottom toolbar shows 'Recommended Operators' with a list of operators and their usage percentages: 'Select Attributes' (29%), 'Set Role' (26%), 'Filter Examples' (22%), and 'Apply Model' (20%).

Vizualizace dat



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Software interface for data visualization, showing a grid of chart types and a repository panel.

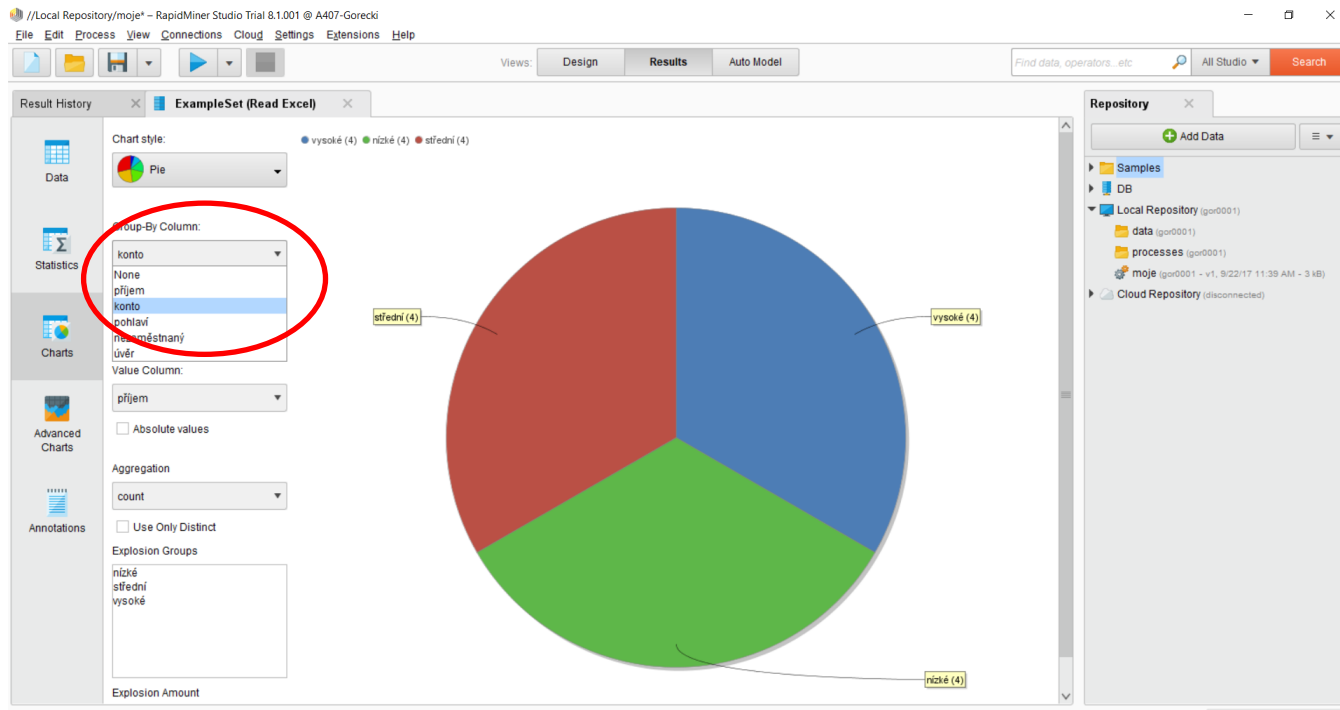
The interface displays a grid of chart types under the heading "ExampleSet (Read Excel)". The chart types are categorized into Data, Statistics, Charts, Advanced Charts, and Annotations. A red circle highlights the "Pie" chart type in the "Data" category. Another red circle highlights the "Pie" chart type in the "Charts" category. A yellow label "vysoké (4)" is positioned above the "Pie" chart in the "Charts" category, and another yellow label "nízké (4)" is positioned below it. The "Repository" panel on the right shows a tree view of data sources, including "Local Repository" and "Cloud Repository".

The interface also shows a search bar at the top right with the text "Find data, operators, etc." and a search button. The bottom of the interface displays a preview of the selected "Pie" chart, which is divided into four colored segments (red, green, blue, yellow).

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 'Read Excel' operator and the 'Set Role' operator.
- 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 search results panel for 'set ro'. The 'Set Role' operator is highlighted with a red circle.
- Help:** A help panel for the 'Set Role' operator, providing tags and a synopsis.
- Recommended Operators:** A bottom panel showing suggested operators: 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: checked
- confidence: 0.25
- apply prepruning: checked
- minimal gain: 0.1
- minimal leaf size: 1
- minimal size for split: 2
- Hide advanced parameters: link

The Help panel at the bottom right provides information about the Decision Tree operator, including its concurrency, tags (Supervised, Classification, Regression, Model, Trees), and a synopsis: "This Operator generates a decision tree model, which can be used for classification and regression." A link to "Jump to Tutorial Process" is also present.

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

Rozhodovací stromy – Výsledek



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Result History x Tree (Decision Tree) x

Zoom

Tree

Node Labels
 Edge Labels

Graph

Description

Annotations

Views: Design Results Auto Model

Find data, operators... etc

All Studio Search

Repository

Add Data

Samples

DB

Local Repository (gor0001)

data (gor0001)

processes (gor0001)

moje (gor0001 - v1, 9/22/17 11:39 AM - 3 KB)

Cloud Repository (disconnected)

```
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]
```

Detailed description of the decision tree: The root node is 'přijem'. It branches into 'nízký' (low) and 'vysoký' (high). The 'vysoký' branch leads to a leaf node 'ano'. The 'nízký' branch leads to 'konto'. 'konto' branches into 'nízké' (low), 'střední' (medium), and 'vysoké' (high). 'nízké' leads to 'ne', 'střední' leads to 'nezaměstnaný', and 'vysoké' leads to 'ano'. The 'nezaměstnaný' node branches into 'ne' and 'ano'. A red circle highlights the 'ne' leaf node under 'nezaměstnaný'. A tooltip for this node shows: 'ne', 'Distribution: 0 ano, 2 ne', 'Number of items: 2', and 'Ratio of total: 16.67%'.

Rozhodovací stromy – Výsledek (pravidla)



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Result History | Tree (Decision Tree)

Graph | **Description** | Annotations

```
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)
```

Repository

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

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!](#)

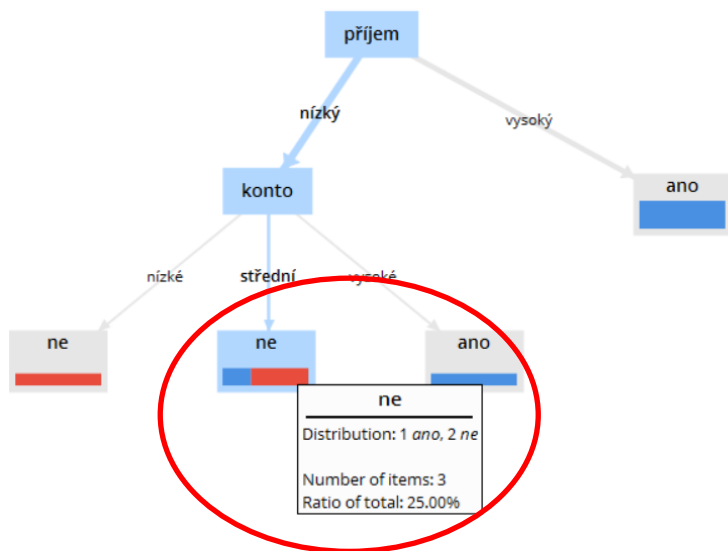
Recommended Operators

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

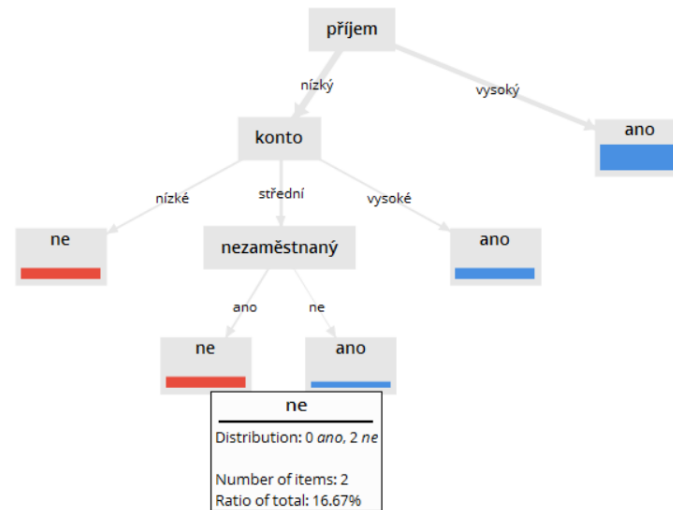
Rozhodovací stromy – Výsledek 2



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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** (circled in red) → **Set Role** → **Cross Validation** (circled in red)

Parameters

Read CSV

- Import Configuration Wizard...
- csv file: **data/Bank/bank.csv** (circled in red)
- 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_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

Repository

- Local Repository (igor0001)
 - data (igor0001)
 - processes (igor0001)
 - stromy (igor0001 - v1, 4/17/18 3:11 PM - 5 kB)
 - stromy_banka_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: [x]
- 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

- 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: Cross Validation

100%

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

[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](#)

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)

Performance

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

Operators

perform

- 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

Process

100%

Process

inp

Read CSV

Set Role

Optimize Parameters (Grid)

res

res

res

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](#)

Recommended Operators

Retrieve 70%

Select Attributes 41%

Subprocess 32%

Apply Model 31%

Optimalizace parametrů



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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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 - processes (gor0001)
 - stromy (gor0001 - v1, 4/17/18 3:11 PM - 5 kB)
 - stromy_banka_crossval (gor0001 - v1, 4/17/18 3:11 PM - 5 kB)
 - stromy_banka_optimization (gor0001 - v1, 4/17/18 3:10 PM - 5 kB)

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.

[Lump to Tutorial Process](#)

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

- Local Repository (igor0001)
 - data (igor0001)
 - processes (igor0001)
 - stromy_igor0001 - v1, 4/17/18 3:11 PM - 5 kB
 - stromy_banko_crossval (igor0001 - v1, 4/17/18 3:11 PM - 5 kB)
 - stromy_banko_optimization (igor0001 - v1, 4/17/18 3:11 PM - 5 kB)
 - moje (igor0001 - v1, 4/17/18 3:10 PM - 5 kB)

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

Process

Process

100%

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

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	Max	Steps	Scale
10	500	50	linear

Value List

- gain_ratio
- information_gain
- gini_index
- accuracy

Recommended: least_square

2 parameters / 204 combinations selected

Grid List

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](#)

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

Repository

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 - moje (gor0001 - v1, 4/17/18 3:10 PM - 5 kB)
- Cloud Repository (disconnected)

Děkuji za pozornost