CASE STUDY :

TITLE: - Predicting Diabetes in Patients

Problem Statement:

A healthcare provider wants to predict whether a patient is at risk of developing diabetes.

Dataset:

Pima Indians Diabetes Dataset (UCI Machine Learning Repository), containing patient details like glucose levels, blood pressure, BMI, and age.

Approach Using Rapid Miner:

1. Data Preprocessing: Handle missing values, normalize features, and remove outliers.

2. Feature Selection: Identify important variables like glucose concentration and insulin levels.

3. Modeling: Train Decision Trees, Support Vector Machines (SVM), and Neural Networks.

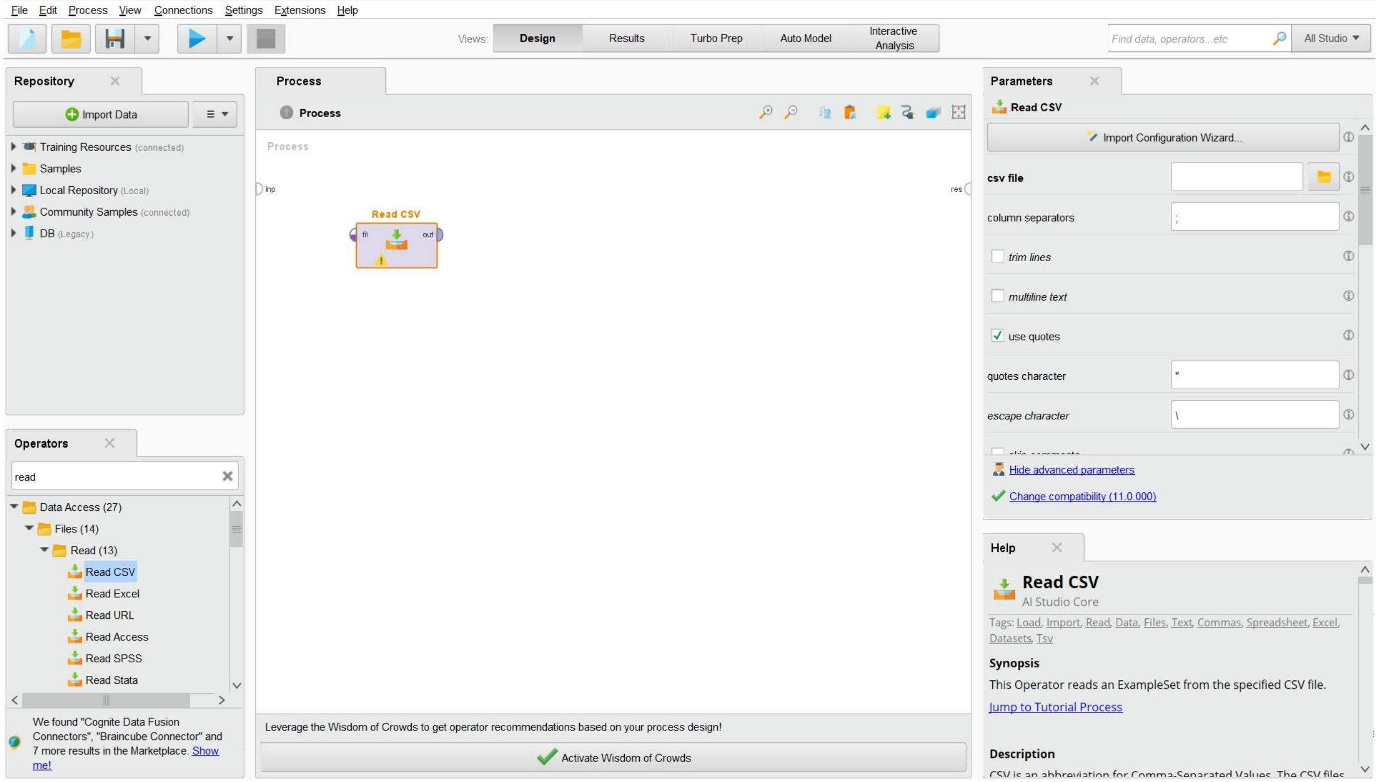
4. Evaluation: Compare models using AUC-ROC, precision, recall, and F1-score.

Outcome:

Achieved 80%+ accuracy in predicting diabetes risk, enabling early intervention.

Step 1: Importing Dataset

In the RapidMiner environment, click on the **Design** option at the top. On the left panel, import the **Pima Indians Diabetes Dataset**. If the dataset is in CSV format, use **"Read CSV"** to load it. Drag the dataset to the environment, connect it to the **output**, and run the process to verify data import.



We found "Cognite Data Fusion Connectors", "Braincube Connector" and 7 more results in the Marketplace. Show me!

Leverage the Wisdom of Crowds to get operator recommendations based on your process design!

Activate Wisdom of Crowds

Read CSV

Import Configuration Wizard...

csv file

column separators ;

□ trim lines

□ multiline text

☑ use quotes

quotes character "

escape character \

Hide advanced parameters

Change compatibility (11.0.000)

Read CSV

AI Studio Core

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

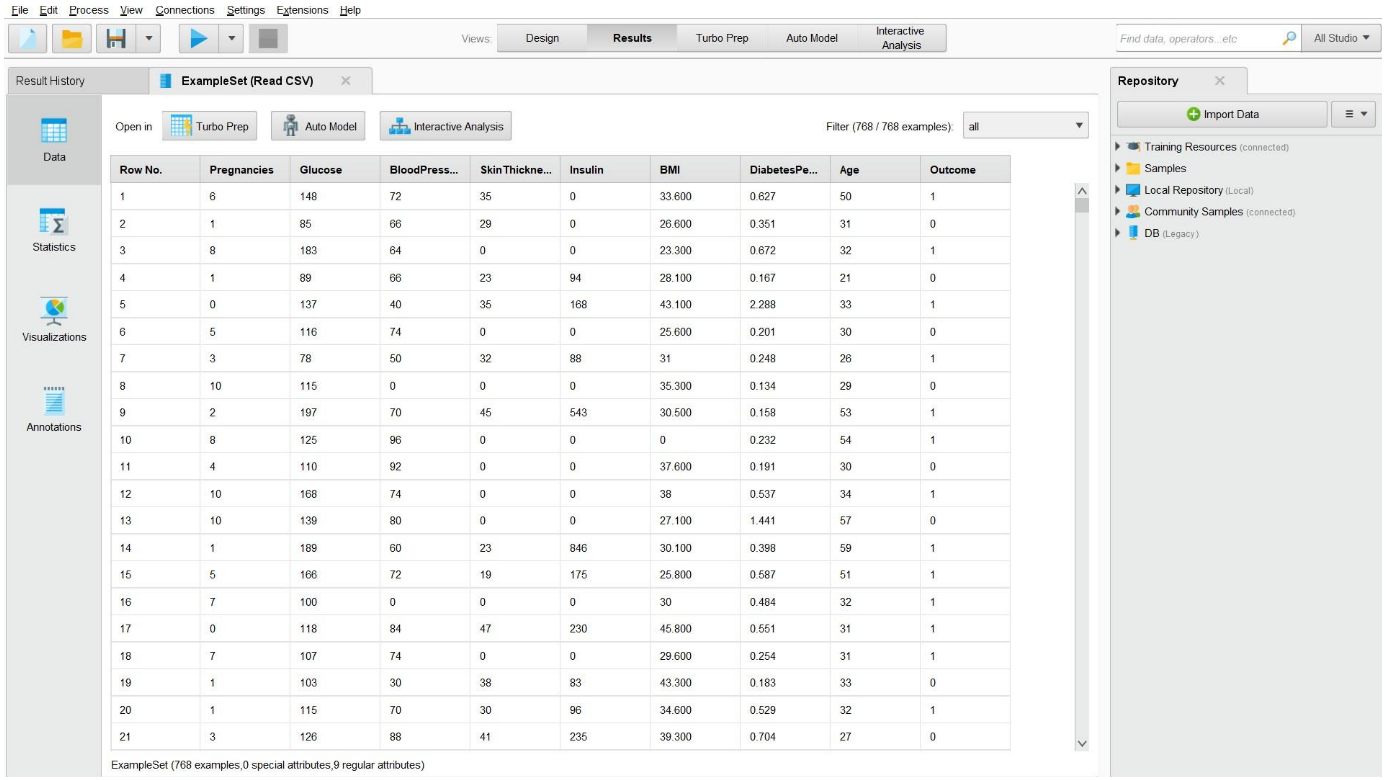
Synopsis

This Operator reads an ExampleSet from the specified CSV file.

Jump to Tutorial Process

Description

CSV is an abbreviation for Comma-Separated Values. The CSV files


File Edit Process View Connections Settings Extensions Help
Views: Design Results Turbo Prep Auto Model Interactive Analysis
Find data, operators...etc
All Studio
Result History
ExampleSet (Read CSV)
Data
Statistics
Visualizations
Annotations
Open in
Turbo Prep
Auto Model
Interactive Analysis
Repository
Import Data
Training Resources (connected)
Samples
Local Repository (Local)
Community Samples (connected)
DB (Legacy)

Filter (768 / 768 examples): all

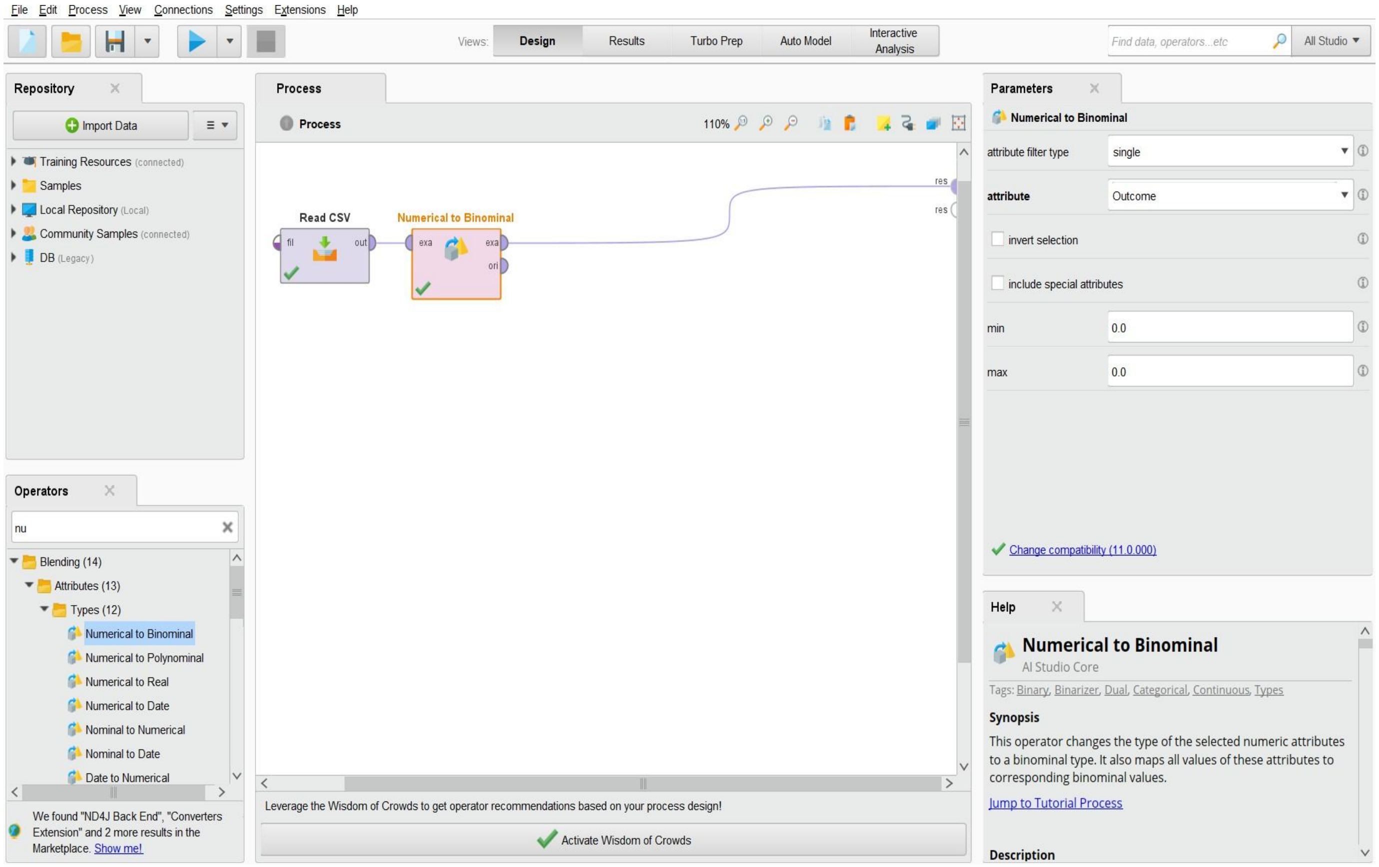
Row No.	Pregnancies	Glucose	BloodPress...	SkinThickne...	Insulin	BMI	DiabetesPe...	Age	Outcome
1	6	148	72	35	0	33.600	0.627	50	1
2	1	85	66	29	0	26.600	0.351	31	0
3	8	183	64	0	0	23.300	0.672	32	1
4	1	89	66	23	94	28.100	0.167	21	0
5	0	137	40	35	168	43.100	2.288	33	1
6	5	116	74	0	0	25.600	0.201	30	0
7	3	78	50	32	88	31	0.248	26	1
8	10	115	0	0	0	35.300	0.134	29	0
9	2	197	70	45	543	30.500	0.158	53	1
10	8	125	96	0	0	0	0.232	54	1
11	4	110	92	0	0	37.600	0.191	30	0
12	10	168	74	0	0	38	0.537	34	1
13	10	139	80	0	0	27.100	1.441	57	0
14	1	189	60	23	846	30.100	0.398	59	1
15	5	166	72	19	175	25.800	0.587	51	1
16	7	100	0	0	0	30	0.484	32	1
17	0	118	84	47	230	45.800	0.551	31	1
18	7	107	74	0	0	29.600	0.254	31	1
19	1	103	30	38	83	43.300	0.183	33	0
20	1	115	70	30	96	34.600	0.529	32	1
21	3	126	88	41	235	39.300	0.704	27	0

ExampleSet (768 examples,0 special attributes,9 regular attributes)

Step 2: Converting Numerical to Binominal

Since the **Outcome** attribute has values **0 and 1**, it needs to be converted into a binominal type:

1. Search for **"Numerical to Binominal"** in the operators search bar.
2. Drag the operator to the environment.
3. Connect the dataset output to the **Numerical to Binominal** input.
4. In the **Parameters panel**, select **Outcome** as the attribute to convert.
5. Connect the output to **Results** and run to verify the conversion.



Numerical to Binominal

attribute filter type	single
attribute	Outcome
□ invert selection	
□ include special attributes	
min	0.0
max	0.0

We found "ND4J Back End", "Converters Extension" and 2 more results in the Marketplace. Show me!

Leverage the Wisdom of Crowds to get operator recommendations based on your process design!

Numerical to Binominal

AI Studio Core

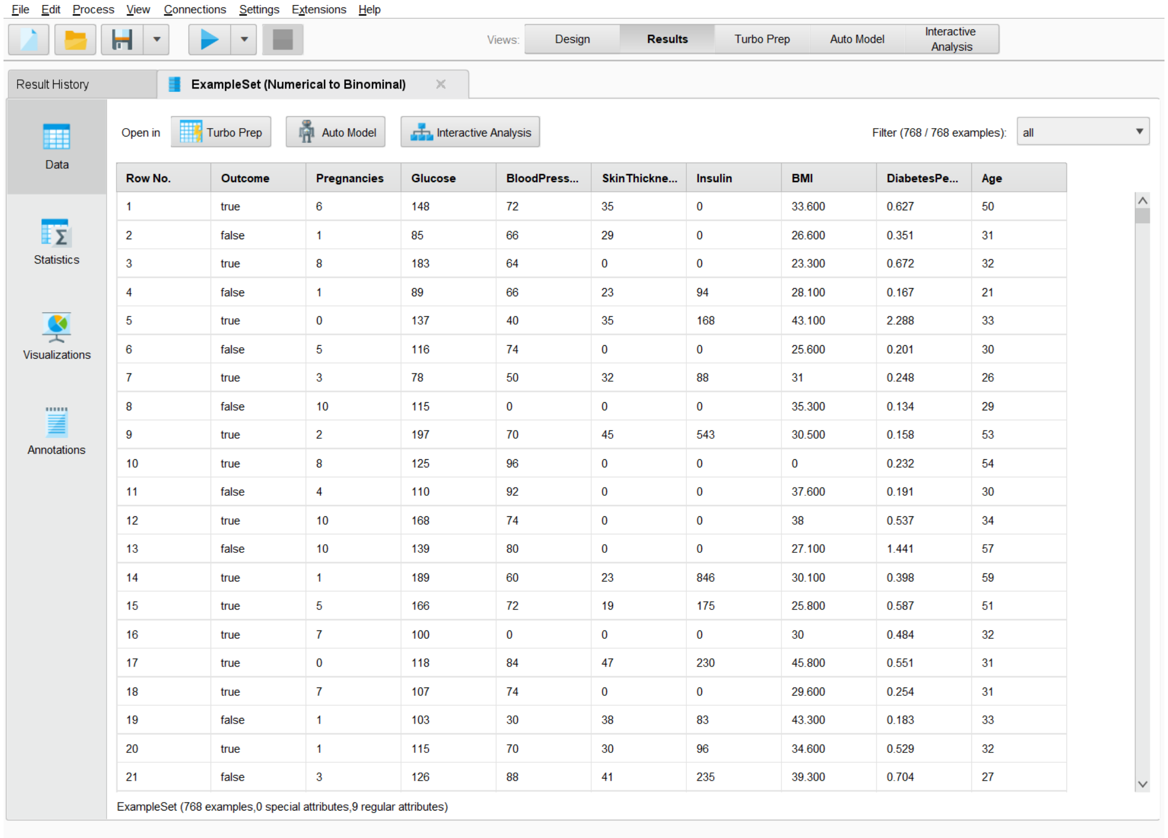
Tags: Binary, Binarizer, Dual, Categorical, Continuous, Types

Synopsis

This operator changes the type of the selected numeric attributes to a binominal type. It also maps all values of these attributes to corresponding binominal values.

Jump to Tutorial Process

Description



Filter (768 / 768 examples): all

Row No.	Outcome	Pregnancies	Glucose	BloodPress...	SkinThickne...	Insulin	BMI	DiabetesPe...	Age
1	true	6	148	72	35	0	33.600	0.627	50
2	false	1	85	66	29	0	26.600	0.351	31
3	true	8	183	64	0	0	23.300	0.672	32
4	false	1	89	66	23	94	28.100	0.167	21
5	true	0	137	40	35	168	43.100	2.288	33
6	false	5	116	74	0	0	25.600	0.201	30
7	true	3	78	50	32	88	31	0.248	26
8	false	10	115	0	0	0	35.300	0.134	29
9	true	2	197	70	45	543	30.500	0.158	53
10	true	8	125	96	0	0	0	0.232	54
11	false	4	110	92	0	0	37.600	0.191	30
12	true	10	168	74	0	0	38	0.537	34
13	false	10	139	80	0	0	27.100	1.441	57
14	true	1	189	60	23	846	30.100	0.398	59
15	true	5	166	72	19	175	25.800	0.587	51
16	true	7	100	0	0	0	30	0.484	32
17	true	0	118	84	47	230	45.800	0.551	31
18	true	7	107	74	0	0	29.600	0.254	31
19	false	1	103	30	38	83	43.300	0.183	33
20	true	1	115	70	30	96	34.600	0.529	32
21	false	3	126	88	41	235	39.300	0.704	27

ExampleSet (768 examples,0 special attributes,9 regular attributes)

<u>Step 3: Data Preprocessing</u>-

After converting numerical to binominal, perform the following preprocessing steps:

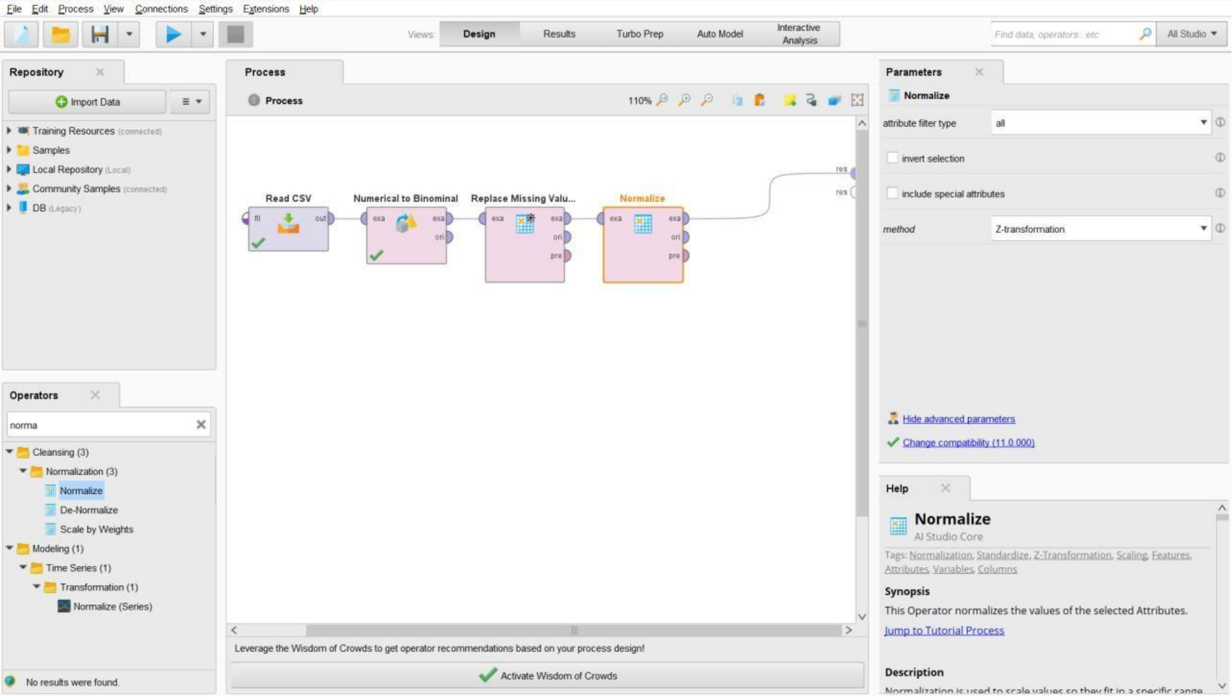
<u>Replacing Missing Values</u>:

1. Search for **"Replace Missing Values"**, drag it to the environment.
2. Connect the **Numerical to Binominal** output to **Replace Missing Values**.
3. In the **Parameters panel**, set missing values to be replaced with the **median**.

<u>Normalize Data</u>:

1. Search for **"Normalize"**, drag it to the environment.
2. Connect the **Replace Missing Values** output to **Normalize**.
3. Choose **Min-Max Scaling** or **Z-Score Normalization** to bring numeric values into a standard range.

4. Connect the output to **Results** and observe the cleaned dataset.



Parameters

Normalize

attribute filter type: all

□ invert selection

□ include special attributes

method: Z-transformation

Hide advanced parameters

Change compatibility (11.0.000)

Help

Normalize

AI Studio Core

Tags: Normalization, Standardize, Z-Transformation, Scaling, Features, Attributes, Variables, Columns

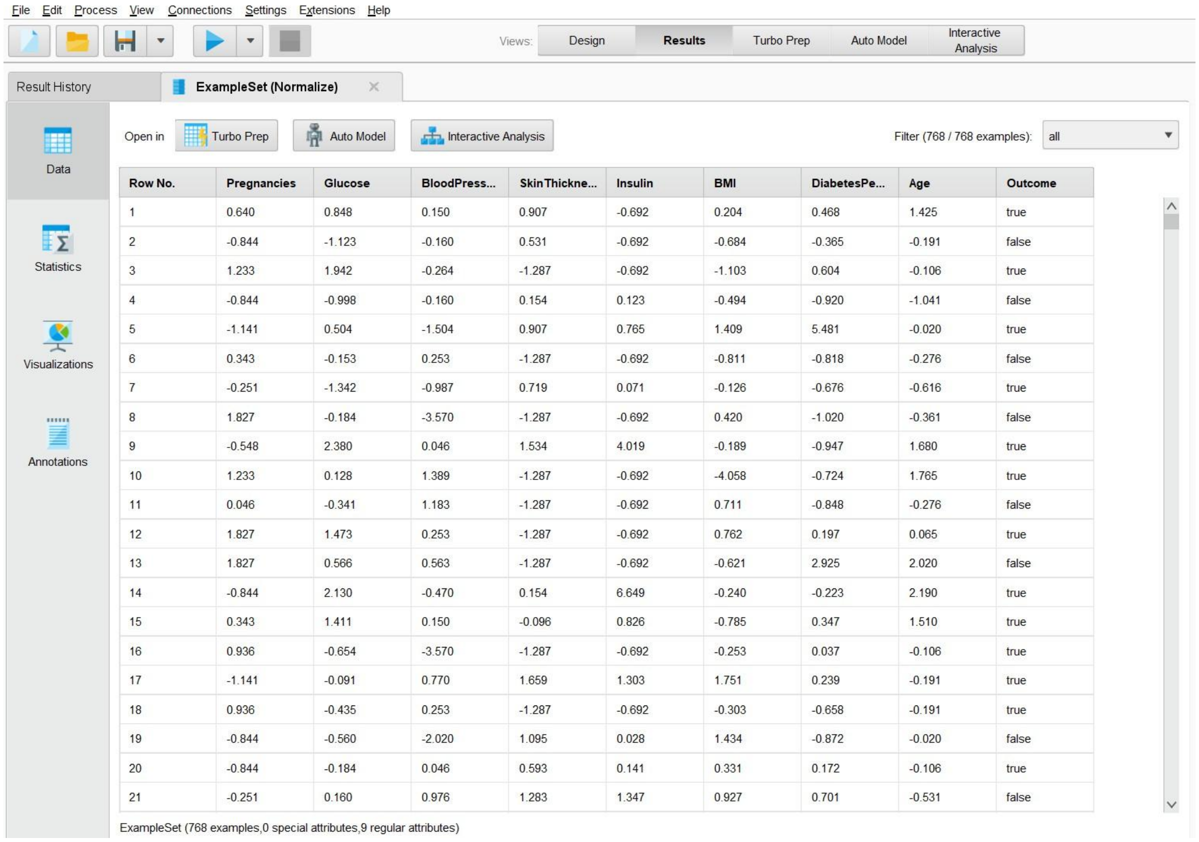
Synopsis

This Operator normalizes the values of the selected Attributes.

Jump to Tutorial Process

Description

Normalization is used to scale values so they fit in a specific range


File Edit Process View Connections Settings Extensions Help
Views: Design Results Turbo Prep Auto Model Interactive Analysis
Result History
ExampleSet (Normalize)
Data
Statistics
Visualizations
Annotations
Open in
Turbo Prep
Auto Model
Interactive Analysis

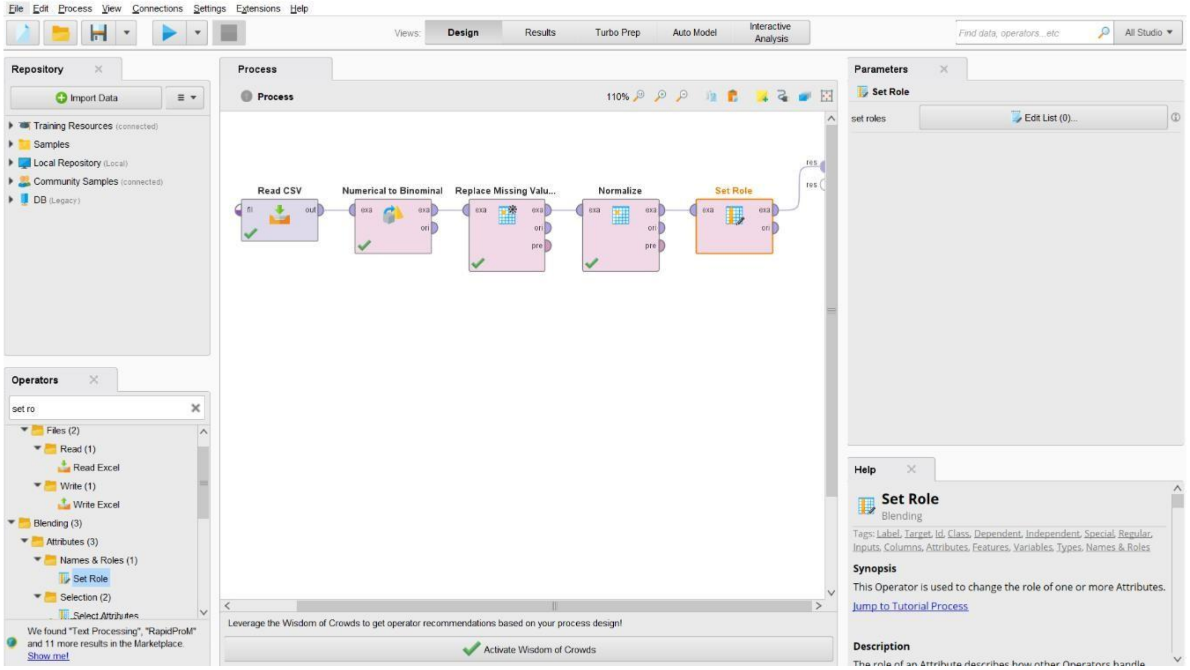
Filter (768 / 768 examples): all

Row No.	Pregnancies	Glucose	BloodPress...	SkinThickne...	Insulin	BMI	DiabetesPe...	Age	Outcome
1	0.640	0.848	0.150	0.907	-0.692	0.204	0.468	1.425	true
2	-0.844	-1.123	-0.160	0.531	-0.692	-0.684	-0.365	-0.191	false
3	1.233	1.942	-0.264	-1.287	-0.692	-1.103	0.604	-0.106	true
4	-0.844	-0.998	-0.160	0.154	0.123	-0.494	-0.920	-1.041	false
5	-1.141	0.504	-1.504	0.907	0.765	1.409	5.481	-0.020	true
6	0.343	-0.153	0.253	-1.287	-0.692	-0.811	-0.818	-0.276	false
7	-0.251	-1.342	-0.987	0.719	0.071	-0.126	-0.676	-0.616	true
8	1.827	-0.184	-3.570	-1.287	-0.692	0.420	-1.020	-0.361	false
9	-0.548	2.380	0.046	1.534	4.019	-0.189	-0.947	1.680	true
10	1.233	0.128	1.389	-1.287	-0.692	-4.058	-0.724	1.765	true
11	0.046	-0.341	1.183	-1.287	-0.692	0.711	-0.848	-0.276	false
12	1.827	1.473	0.253	-1.287	-0.692	0.762	0.197	0.065	true
13	1.827	0.566	0.563	-1.287	-0.692	-0.621	2.925	2.020	false
14	-0.844	2.130	-0.470	0.154	6.649	-0.240	-0.223	2.190	true
15	0.343	1.411	0.150	-0.096	0.826	-0.785	0.347	1.510	true
16	0.936	-0.654	-3.570	-1.287	-0.692	-0.253	0.037	-0.106	true
17	-1.141	-0.091	0.770	1.659	1.303	1.751	0.239	-0.191	true
18	0.936	-0.435	0.253	-1.287	-0.692	-0.303	-0.658	-0.191	true
19	-0.844	-0.560	-2.020	1.095	0.028	1.434	-0.872	-0.020	false
20	-0.844	-0.184	0.046	0.593	0.141	0.331	0.172	-0.106	true
21	-0.251	0.160	0.976	1.283	1.347	0.927	0.701	-0.531	false

ExampleSet (768 examples,0 special attributes,9 regular attributes)

Step 4: Set Role

1. Search for **"Set Role"** in the operators panel and drag it to the environment.
2. Connect the **preprocessed data output** to **Set Role**.
3. In the **Parameters panel**, click **"Edit List"**, set **attribute name** to "Outcome", and assign **target role** as "Label".
4. Click **Apply** and connect to the next step.

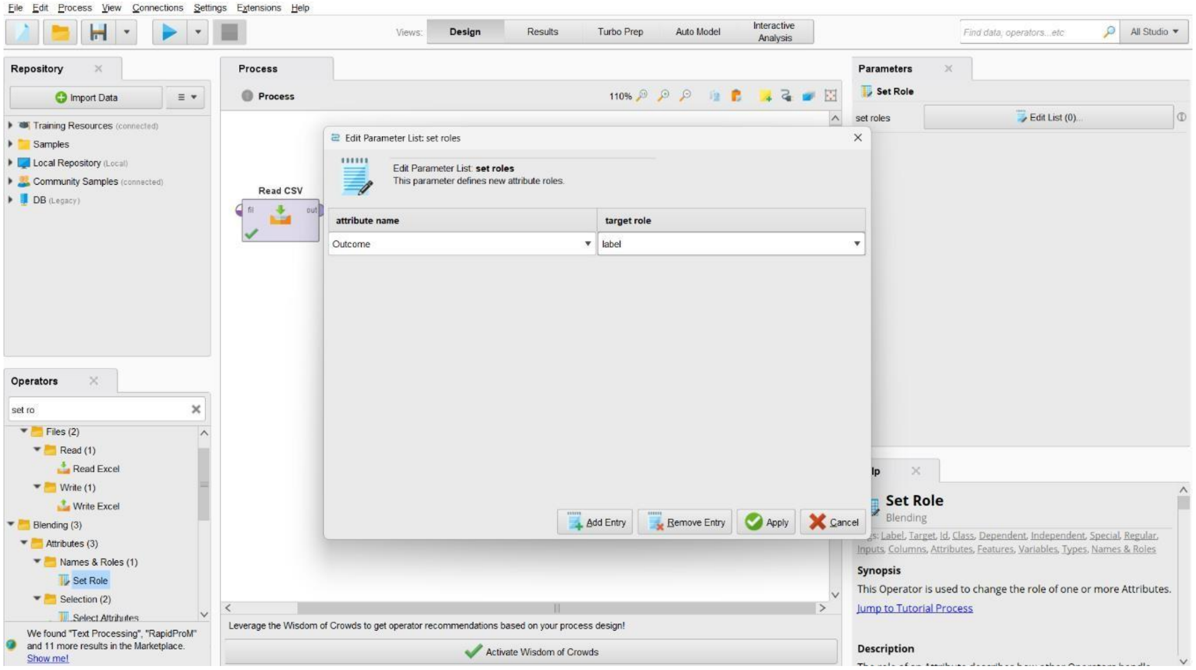


Tags: Label, Target, Id, Class, Dependent, Independent, Special, Regular, Inputs, Columns, Attributes, Features, Variables, Types, Names & Roles

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

Leverage the Wisdom of Crowds to get operator recommendations based on your process design!

We found "Text Processing", "RapidProM" and 11 more results in the Marketplace. Show me!



Edit Parameter List: set roles

Edit Parameter List: **set roles**
This parameter defines new attribute roles.

attribute name	target role
Outcome	label

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

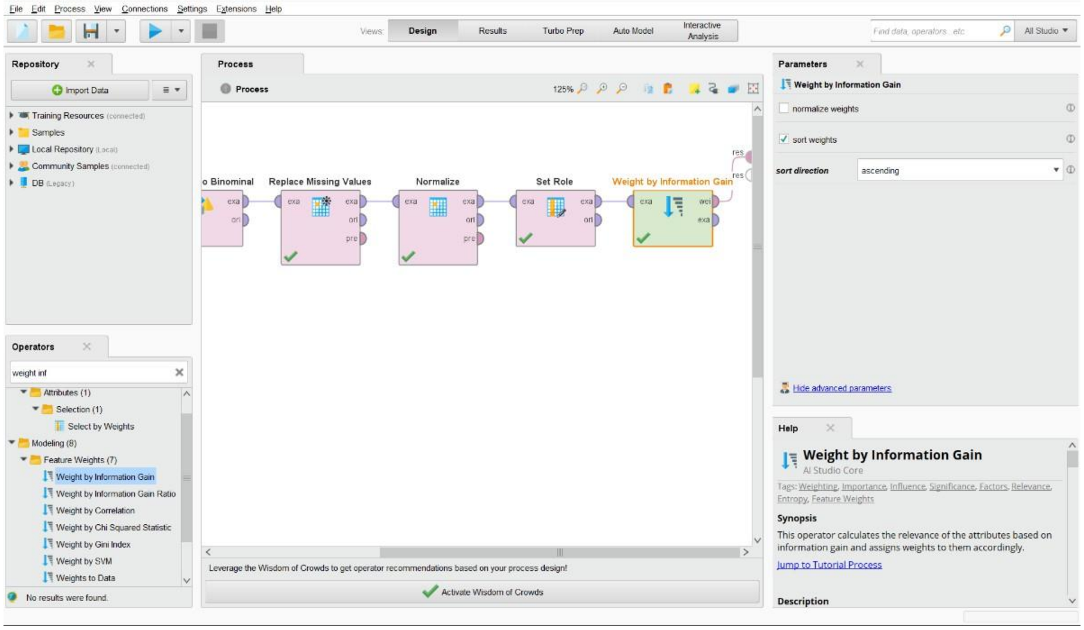
Leverage the Wisdom of Crowds to get operator recommendations based on your process design!

We found "Text Processing", "RapidProM" and 11 more results in the Marketplace. Show me!

Step 5: Feature Selection

To improve model performance:

1. Search for **"Weight by Information Gain"**, drag it to the environment, and connect it to **Set Role output**.
2. Run the process to check the most important features like **Glucose, BMI, Insulin, and Age**.
3. Use **"Select Attributes"** to keep only the top-ranked features.


File Edit Process View Connections Settings Extensions Help
Views: Design Results Turbo Prep Auto Model Interactive Analysis
Find data, operators...etc
All Studio
Repository
Import Data
Training Resources (connected)
Samples
Local Repository (Local)
Community Samples (connected)
DB (Legacy)
Process
Process
125%
o Binominal
Replace Missing Values
Normalize
Set Role
Weight by Information Gain
exa
ori
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wei
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Operators
weight inf
Attributes (1)
Selection (1)
Select by Weights
Modeling (8)
Feature Weights (7)
Weight by Information Gain
Weight by Information Gain Ratio
Weight by Correlation
Weight by Chi Squared Statistic
Weight by Gini Index
Weight by SVM
Weights to Data
No results were found.
Leverage the Wisdom of Crowds to get operator recommendations based on your process design!
Activate Wisdom of Crowds
Parameters
Hide advanced parameters
Help
Description

Weight by Information Gain

☐ normalize weights

☑ sort weights

sort direction: ascending

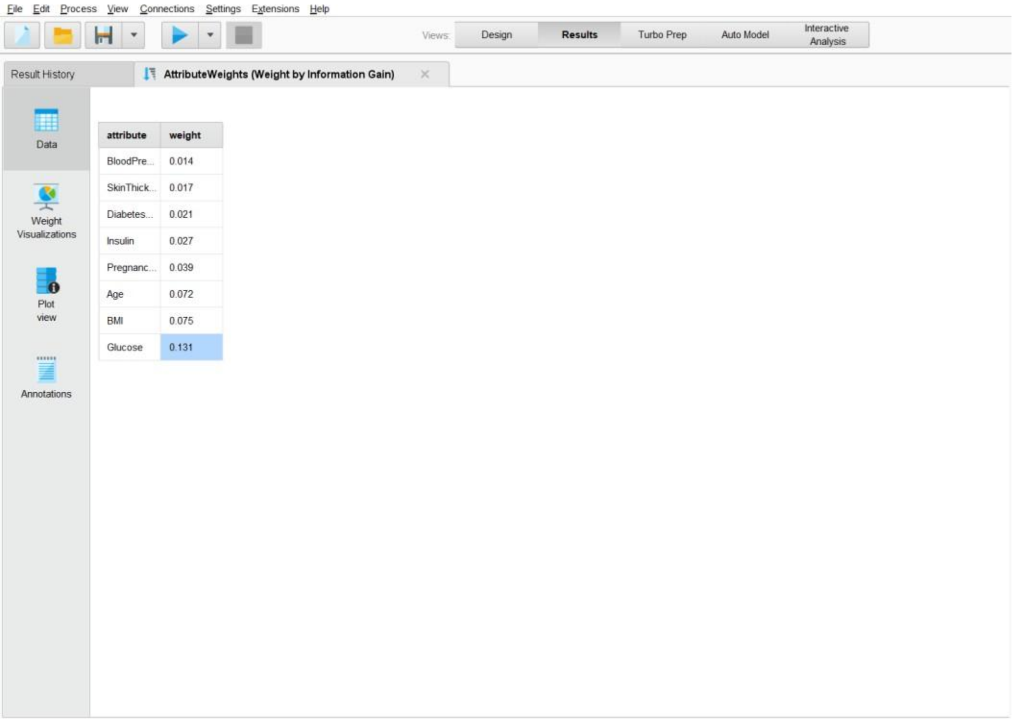
Weight by Information Gain
AI Studio Core

Tags: Weighting, Importance, Influence, Significance, Factors, Relevance, Entropy, Feature Weights

Synopsis

This operator calculates the relevance of the attributes based on information gain and assigns weights to them accordingly.

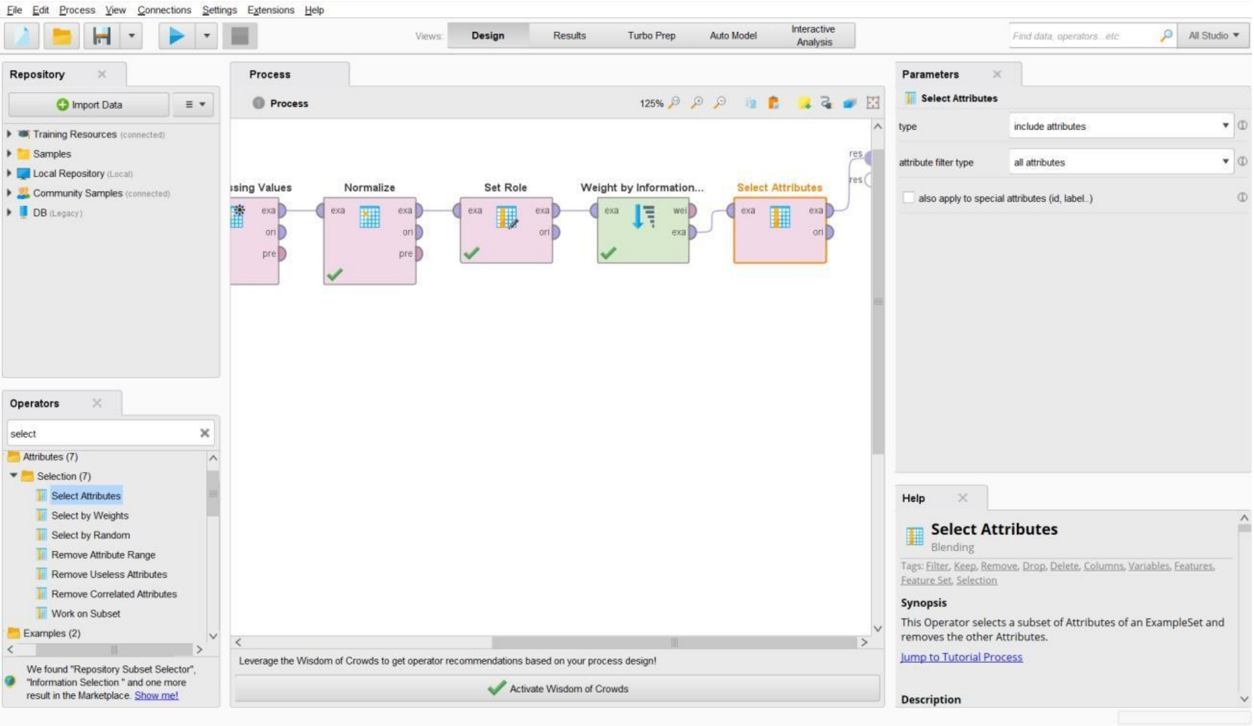
Jump to Tutorial Process


File Edit Process View Connections Settings Extensions Help
Views: Design Results Turbo Prep Auto Model Interactive Analysis
Result History
AttributeWeights (Weight by Information Gain)
Data
Weight Visualizations
Plot view
Annotations

attribute	weight
BloodPre...	0.014
SkinThick...	0.017
Diabetes...	0.021
Insulin	0.027
Pregnanc...	0.039
Age	0.072
BMI	0.075
Glucose	0.131

Step 6: Selecting Attributes

1. Search for **"Select Attributes"**, drag it to the environment.
2. Connect the **Weight by Information Gain output** to **Select Attributes**.
3. In the **Parameters panel**, manually select the **top-ranked features** based on their weights.
4. Connect the **Select Attributes output** to the next step.



We found "Repository Subset Selector", "Information Selection " and one more result in the Marketplace. Show me!

Leverage the Wisdom of Crowds to get operator recommendations based on your process design!

Select Attributes

type: include attributes

attribute filter type: all attributes

□ also apply to special attributes (id, label..)

Select Attributes
Blending

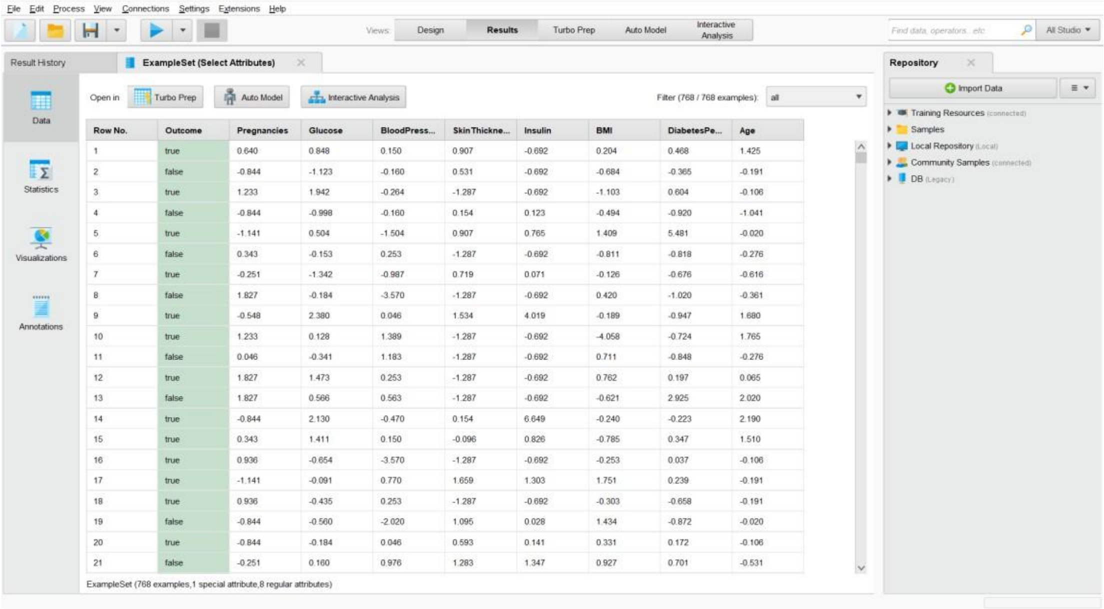
Tags: Filter, Keep, Remove, Drop, Delete, Columns, Variables, Features, Feature Set, Selection

Synopsis

This Operator selects a subset of Attributes of an ExampleSet and removes the other Attributes.

Jump to Tutorial Process

Description


File Edit Process View Connections Settings Extensions Help
Views: Design Results Turbo Prep Auto Model Interactive Analysis
Find data, operators...etc
All Studio
Result History
ExampleSet (Select Attributes)
Data
Statistics
Visualizations
Annotations
Open in
Turbo Prep
Auto Model
Interactive Analysis
Repository
Import Data
Training Resources (connected)
Samples
Local Repository (Local)
Community Samples (connected)
DB (Legacy)

Filter (768 / 768 examples): all

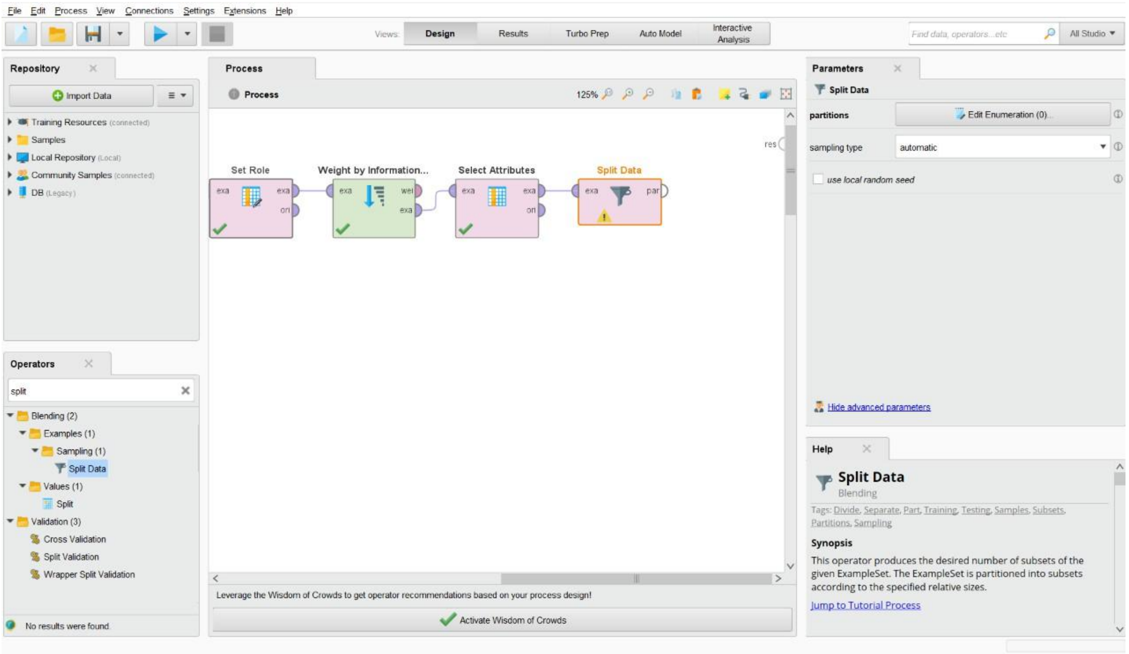
Row No.	Outcome	Pregnancies	Glucose	BloodPress...	SkinThickne...	Insulin	BMI	DiabetesPe...	Age
1	true	0.640	0.848	0.150	0.907	-0.692	0.204	0.468	1.425
2	false	-0.844	-1.123	-0.160	0.531	-0.692	-0.684	-0.365	-0.191
3	true	1.233	1.942	-0.264	-1.287	-0.692	-1.103	0.604	-0.106
4	false	-0.844	-0.998	-0.160	0.154	0.123	-0.494	-0.920	-1.041
5	true	-1.141	0.504	-1.504	0.907	0.765	1.409	5.481	-0.020
6	false	0.343	-0.153	0.253	-1.287	-0.692	-0.811	-0.818	-0.276
7	true	-0.251	-1.342	-0.987	0.719	0.071	-0.126	-0.676	-0.616
8	false	1.827	-0.184	-3.570	-1.287	-0.692	0.420	-1.020	-0.361
9	true	-0.548	2.380	0.046	1.534	4.019	-0.189	-0.947	1.680
10	true	1.233	0.128	1.389	-1.287	-0.692	-4.058	-0.724	1.765
11	false	0.046	-0.341	1.183	-1.287	-0.692	0.711	-0.848	-0.276
12	true	1.827	1.473	0.253	-1.287	-0.692	0.762	0.197	0.065
13	false	1.827	0.566	0.563	-1.287	-0.692	-0.621	2.925	2.020
14	true	-0.844	2.130	-0.470	0.154	6.649	-0.240	-0.223	2.190
15	true	0.343	1.411	0.150	-0.096	0.826	-0.785	0.347	1.510
16	true	0.936	-0.654	-3.570	-1.287	-0.692	-0.253	0.037	-0.106
17	true	-1.141	-0.091	0.770	1.659	1.303	1.751	0.239	-0.191
18	true	0.936	-0.435	0.253	-1.287	-0.692	-0.303	-0.658	-0.191
19	false	-0.844	-0.560	-2.020	1.095	0.028	1.434	-0.872	-0.020
20	true	-0.844	-0.184	0.046	0.593	0.141	0.331	0.172	-0.106
21	false	-0.251	0.160	0.976	1.283	1.347	0.927	0.701	-0.531

ExampleSet (768 examples,1 special attribute,8 regular attributes)

Step 7: Splitting Data

To train and test the model:

1. Search for **"Split Data"**, drag it to the environment.
2. Connect the **Select Attributes output** to **Split Data**.
3. In the **Parameters panel**, set **training data ratio** to **70% (0.7)** and testing data ratio to **30% (0.3)**.
4. The first output will be used for training, and the second output for testing.



split

partitions: Edit Enumeration (0)...

sampling type: automatic

□ use local random seed

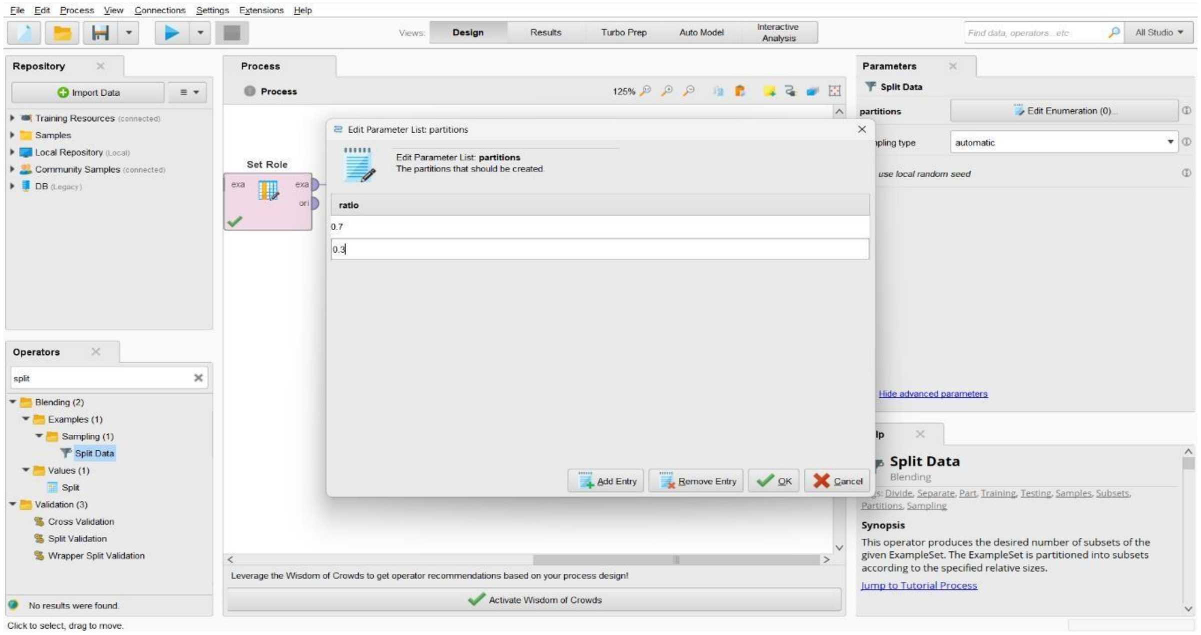
Split Data

Blending

Tags: Divide, Separate, Part, Training, Testing, Samples, Subsets, Partitions, Sampling

Synopsis

This operator produces the desired number of subsets of the given ExampleSet. The ExampleSet is partitioned into subsets according to the specified relative sizes.



split

Edit Parameter List: partitions

Edit Parameter List: **partitions**
The partitions that should be created.

ratio
0.7
0.3

partitions: Edit Enumeration (0)...

sampling type: automatic

use local random seed

Split Data

Blending

Tags: Divide, Separate, Part, Training, Testing, Samples, Subsets, Partitions, Sampling

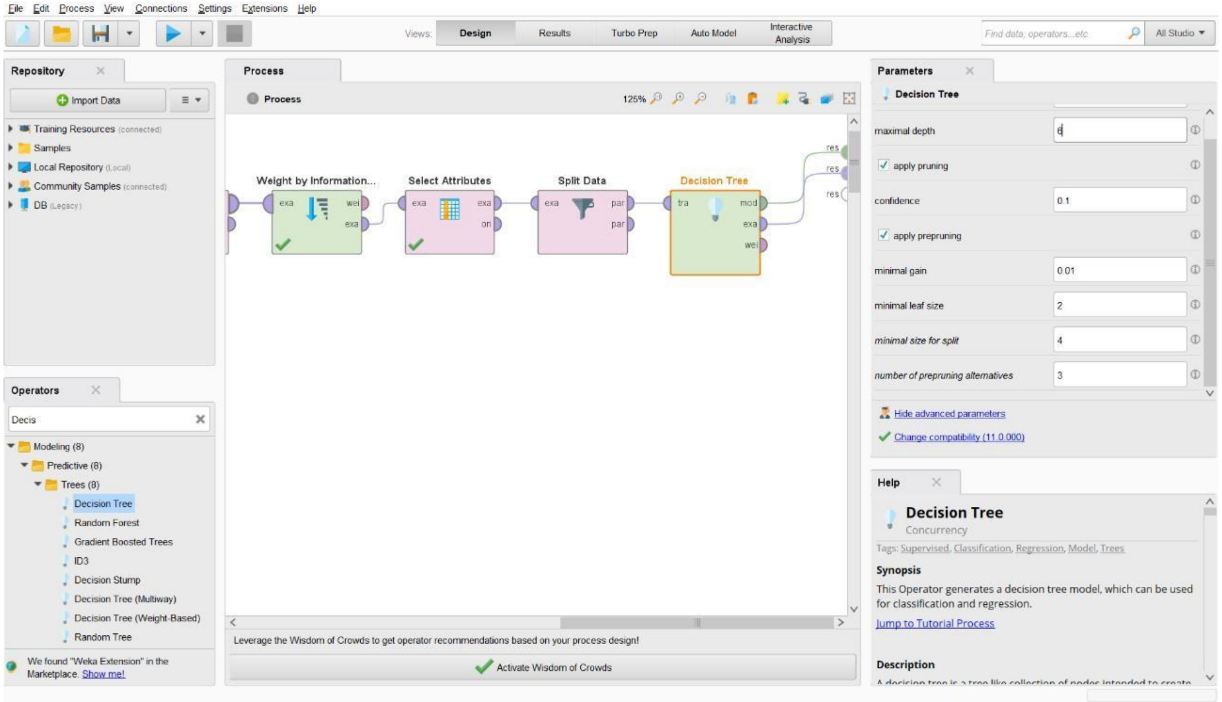
Synopsis

This operator produces the desired number of subsets of the given ExampleSet. The ExampleSet is partitioned into subsets according to the specified relative sizes.

Step 8: Model Training

1. From the operators search bar, add models like **"Decision Tree"**, **"SVM"**, and **"Neural Network"**.
2. Connect the **training data output from Split Data** to the model input.
3. Connect the model output to **Apply Model**.

A. Apply **Decision Tree** Model


File Edit Process View Connections Settings Extensions Help
Views: Design Results Turbo Prep Auto Model Interactive Analysis
Find data, operators...etc
All Studio
Repository
Import Data
Training Resources (connected)
Samples
Local Repository (Local)
Community Samples (connected)
DB (Legacy)
Process
Process
125%
Weight by Information...
Select Attributes
Split Data
Decision Tree
exa
wei
ori
par
tra
mod
res
Operators
Decis
Modeling (8)
Predictive (8)
Trees (8)
Decision Tree
Random Forest
Gradient Boosted Trees
ID3
Decision Stump
Decision Tree (Multiway)
Decision Tree (Weight-Based)
Random Tree
We found "Weka Extension" in the Marketplace. Show me!
Leverage the Wisdom of Crowds to get operator recommendations based on your process design!
Activate Wisdom of Crowds
Parameters
Hide advanced parameters
Change compatibility (11.0.000)
Help

Parameters — Decision Tree

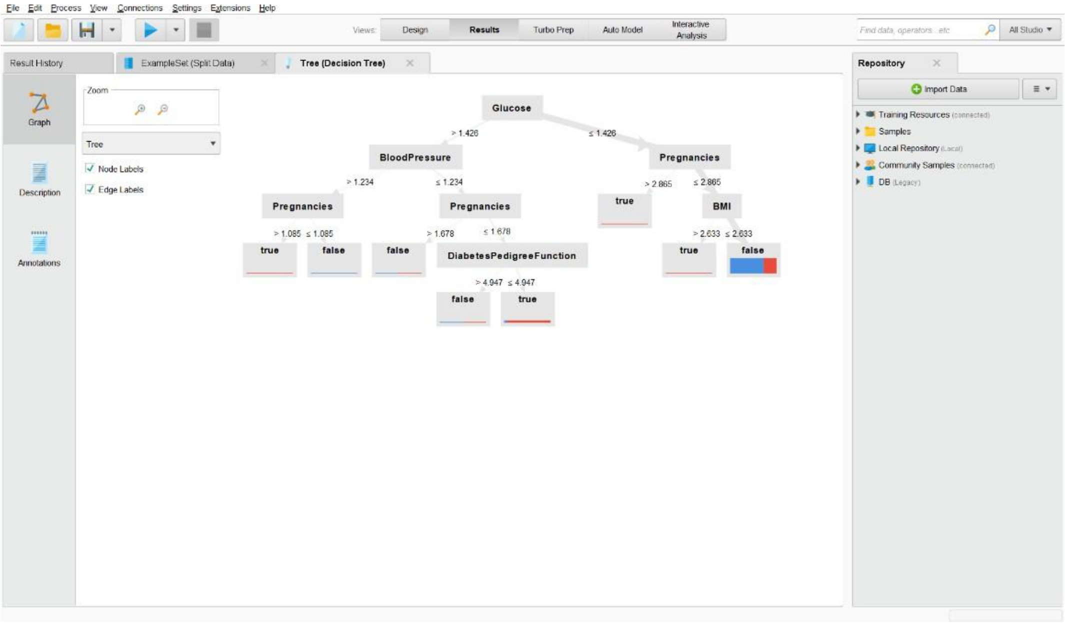
maximal depth	6
☑ apply pruning	
confidence	0.1
☑ apply prepruning	
minimal gain	0.01
minimal leaf size	2
minimal size for split	4
number of prepruning alternatives	3

Decision Tree
Concurrency
Tags: Supervised, Classification, Regression, Model, Trees

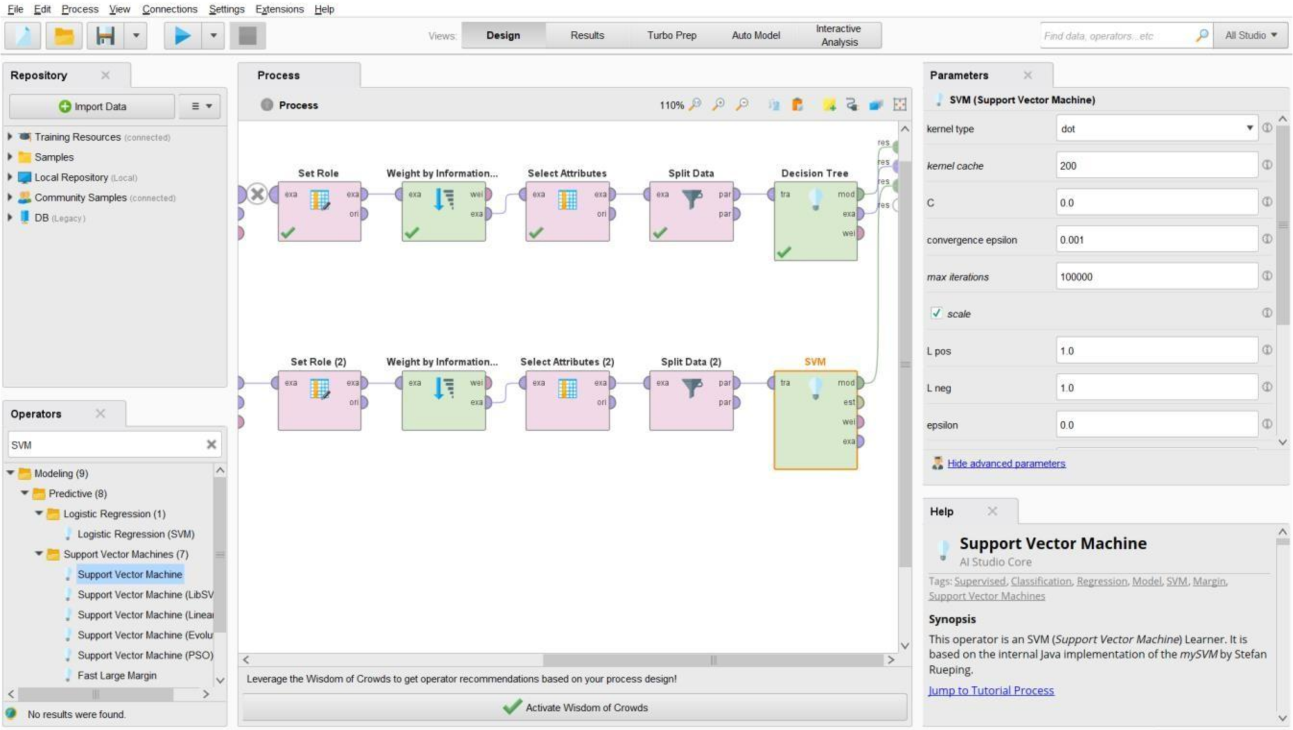
Synopsis
This Operator generates a decision tree model, which can be used for classification and regression.
Jump to Tutorial Process

Description

Observe the **Decision Tree** in the statistics we can see the **Decision Tree.**



B. Apply **SVM** Model:


File Edit Process View Connections Settings Extensions Help
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SVM
Modeling (9)
Predictive (8)
Logistic Regression (1)
Logistic Regression (SVM)
Support Vector Machines (7)
Support Vector Machine
Support Vector Machine (LibSV
Support Vector Machine (Linea
Support Vector Machine (Evolu
Support Vector Machine (PSO)
Fast Large Margin
No results were found.
Process
110%
Set Role
Weight by Information...
Select Attributes
Split Data
Decision Tree
Set Role (2)
Weight by Information...
Select Attributes (2)
Split Data (2)
SVM
Leverage the Wisdom of Crowds to get operator recommendations based on your process design!
Activate Wisdom of Crowds
Parameters
Hide advanced parameters
Help

SVM (Support Vector Machine)

kernel type: dot
kernel cache: 200
C: 0.0
convergence epsilon: 0.001
max iterations: 100000
☑ scale
L pos: 1.0
L neg: 1.0
epsilon: 0.0

Support Vector Machine
AI Studio Core

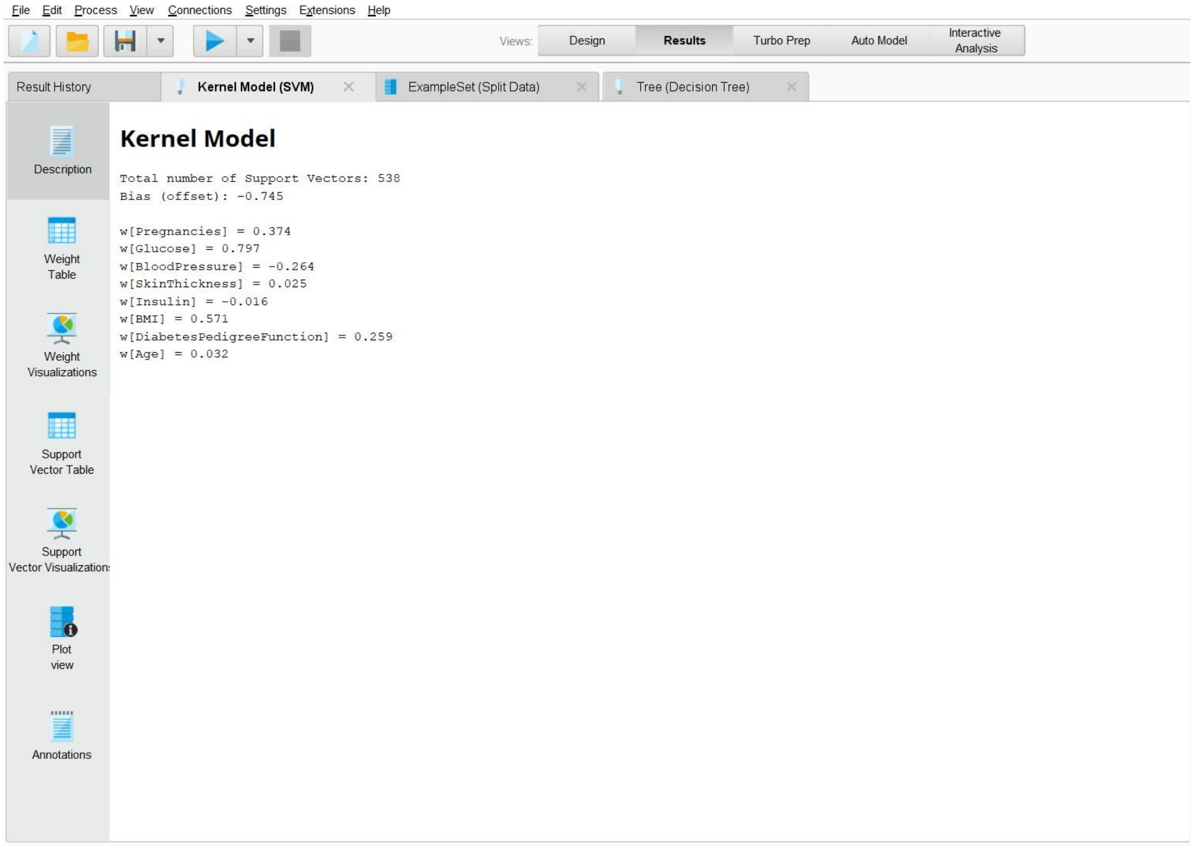
Tags: Supervised, Classification, Regression, Model, SVM, Margin, Support Vector Machines

Synopsis

This operator is an SVM (*Support Vector Machine*) Learner. It is based on the internal Java implementation of the *mySVM* by Stefan Rueping.

Jump to Tutorial Process

Observe the **SVM** Results

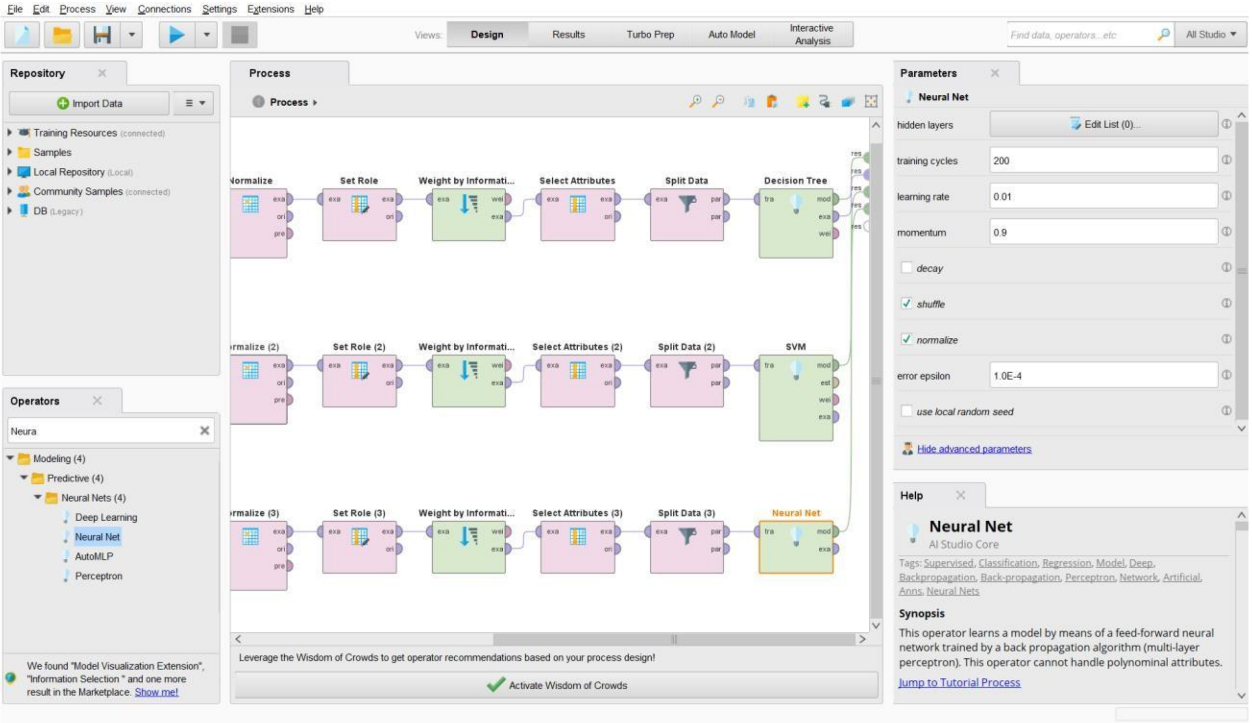


Kernel Model

```
Total number of Support Vectors: 538
Bias (offset): -0.745

w[Pregnancies] = 0.374
w[Glucose] = 0.797
w[BloodPressure] = -0.264
w[SkinThickness] = 0.025
w[Insulin] = -0.016
w[BMI] = 0.571
w[DiabetesPedigreeFunction] = 0.259
w[Age] = 0.032
```

C. Observe the **Neural Network**



We found "Model Visualization Extension", "Information Selection " and one more result in the Marketplace. Show me!

Leverage the Wisdom of Crowds to get operator recommendations based on your process design!

Parameters – Neural Net

hidden layers	Edit List (0)...
training cycles	200
learning rate	0.01
momentum	0.9
□ decay	
☑ shuffle	
☑ normalize	
error epsilon	1.0E-4
□ use local random seed	

Hide advanced parameters

Neural Net

AI Studio Core

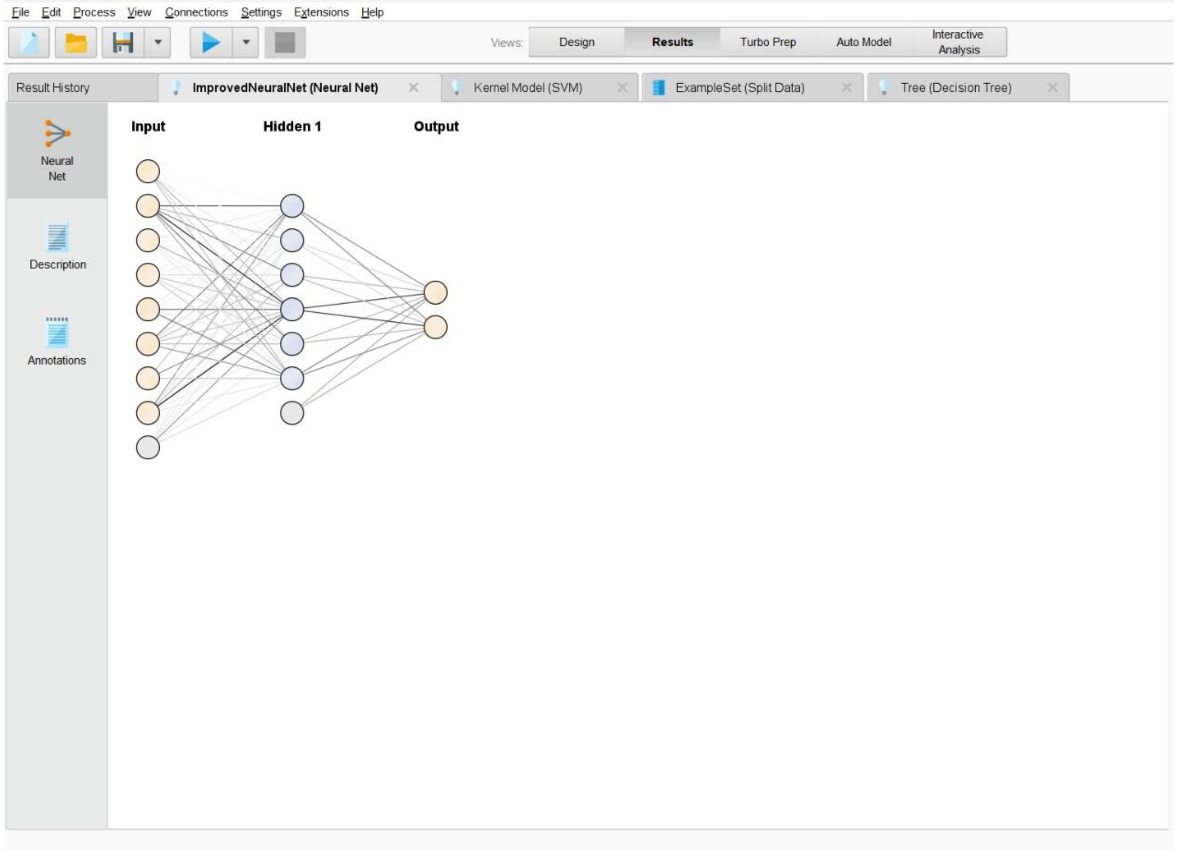
Tags: Supervised, Classification, Regression, Model, Deep, Backpropagation, Back-propagation, Perceptron, Network, Artificial, Anns, Neural Nets

Synopsis

This operator learns a model by means of a feed-forward neural network trained by a back propagation algorithm (multi-layer perceptron). This operator cannot handle polynominal attributes.

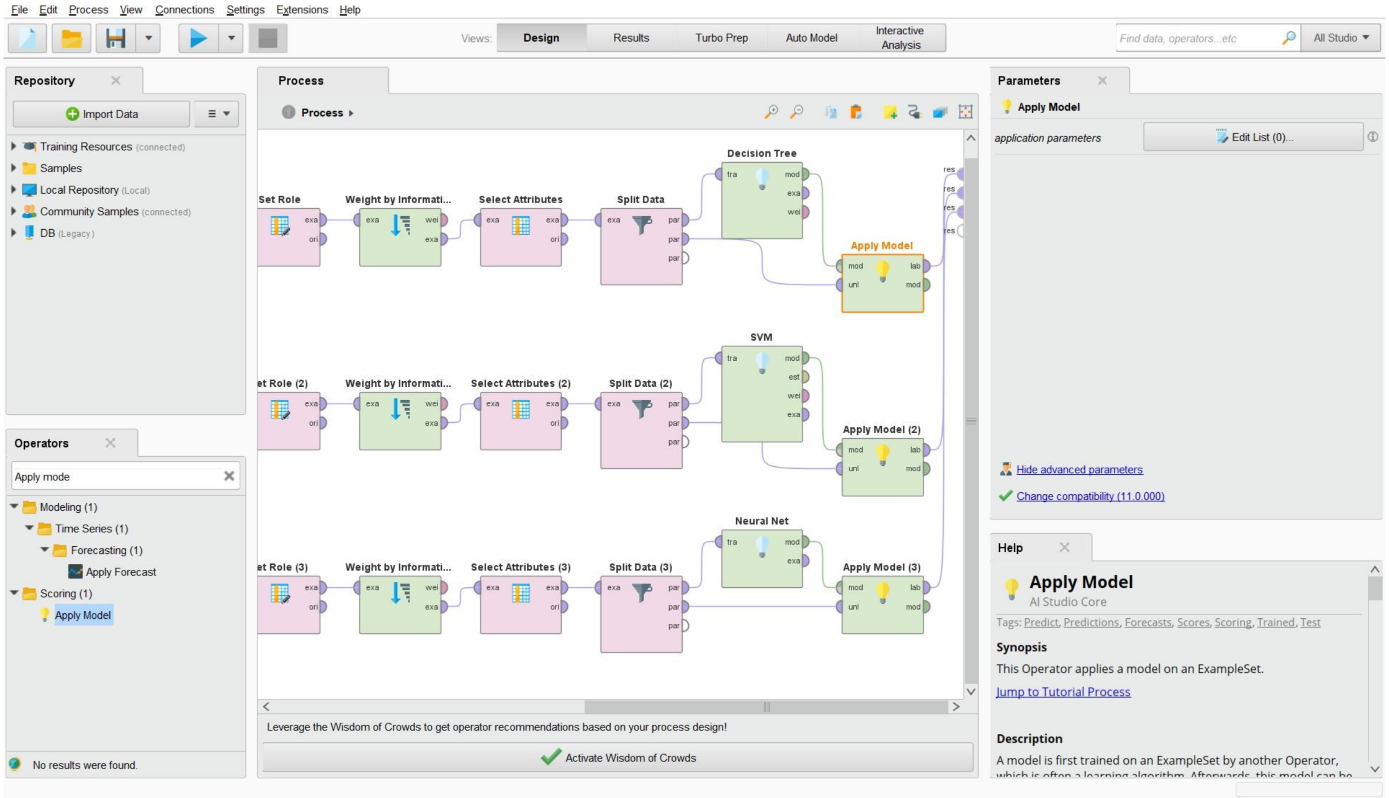
Jump to Tutorial Process

Observe the **Neural Network**


File Edit Process View Connections Settings Extensions Help
Views: Design Results Turbo Prep Auto Model Interactive Analysis
Result History
ImprovedNeuralNet (Neural Net)
Kernel Model (SVM)
ExampleSet (Split Data)
Tree (Decision Tree)
Neural Net
Description
Annotations
Input
Hidden 1
Output

Step 9: Apply Model

1. Search for **"Apply Model"**, drag it to the environment.
2. Connect the **trained model output** to **Apply Model**.
3. Also, connect the **testing data output from Split Data** to **Apply Model**.
4. Run the process and verify predictions.



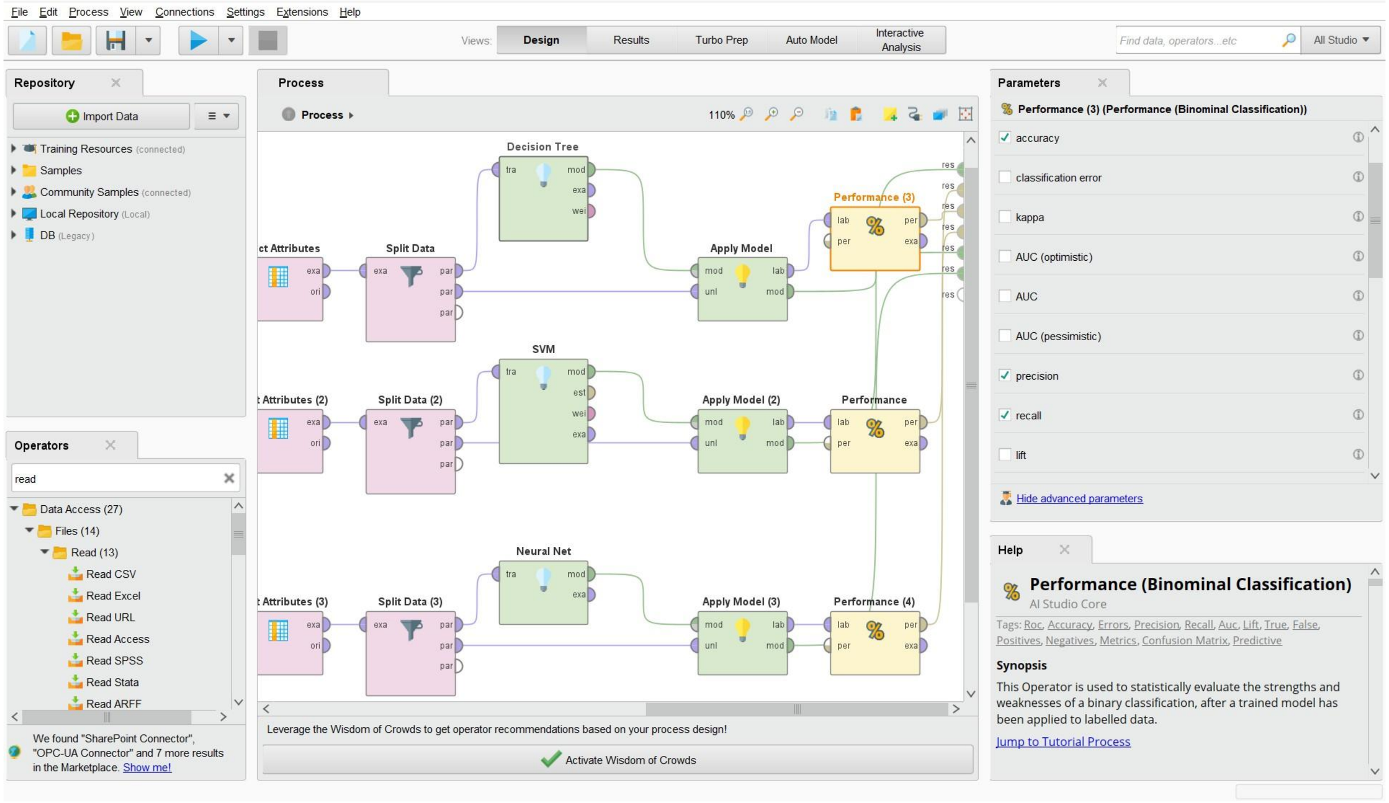
Leverage the Wisdom of Crowds to get operator recommendations based on your process design!

This Operator applies a model on an ExampleSet.

A model is first trained on an ExampleSet by another Operator,

Step 10: Measuring Performance

1. Search for **"Performance (Binominal Classification)"**, drag it to the environment.
2. Connect **Apply Model output** to **Performance**.
3. In the **Parameters panel**, select **Accuracy, Precision, Recall, AUC-ROC, and F1-score**.
4. Connect **Performance output** to **Results** and run the process to view model performance.



We found "SharePoint Connector", "OPC-UA Connector" and 7 more results in the Marketplace. Show me!

Performance (3) (Performance (Binominal Classification))

- ☑ accuracy
- ☐ classification error
- ☐ kappa
- ☐ AUC (optimistic)
- ☐ AUC
- ☐ AUC (pessimistic)
- ☑ precision
- ☑ recall
- ☐ lift

Performance (Binominal Classification)
AI Studio Core

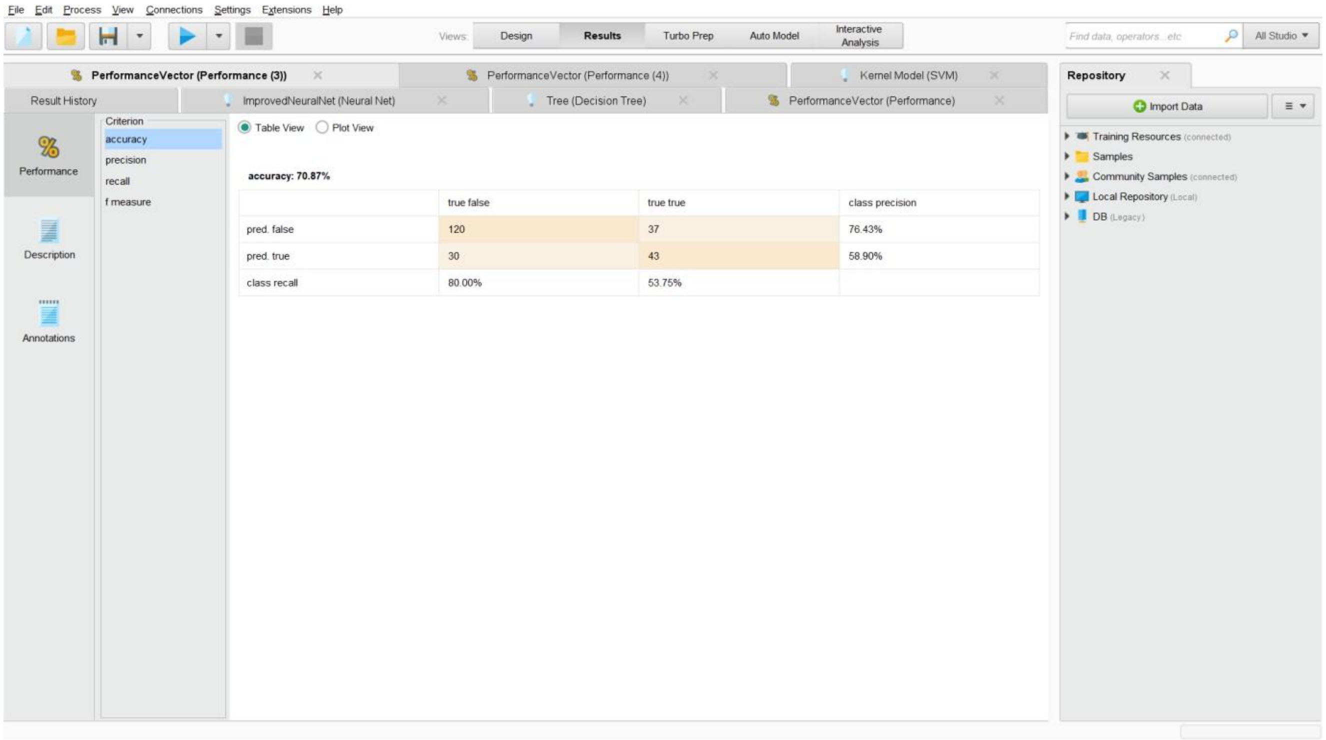
Tags: Roc, Accuracy, Errors, Precision, Recall, Auc, Lift, True, False, Positives, Negatives, Metrics, Confusion Matrix, Predictive

Synopsis

This Operator is used to statistically evaluate the strengths and weaknesses of a binary classification, after a trained model has been applied to labelled data.

Jump to Tutorial Process

Decision Tree Performance:


File Edit Process View Connections Settings Extensions Help
Views: Design Results Turbo Prep Auto Model Interactive Analysis
Find data, operators...etc
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PerformanceVector (Performance (3))
PerformanceVector (Performance (4))
Kernel Model (SVM)
Result History
ImprovedNeuralNet (Neural Net)
Tree (Decision Tree)
PerformanceVector (Performance)
Performance
Description
Annotations
Criterion
accuracy
precision
recall
f measure
● Table View ○ Plot View
Repository
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Training Resources (connected)
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accuracy: 70.87%

	true false	true true	class precision
pred. false	120	37	76.43%
pred. true	30	43	58.90%
class recall	80.00%	53.75%	

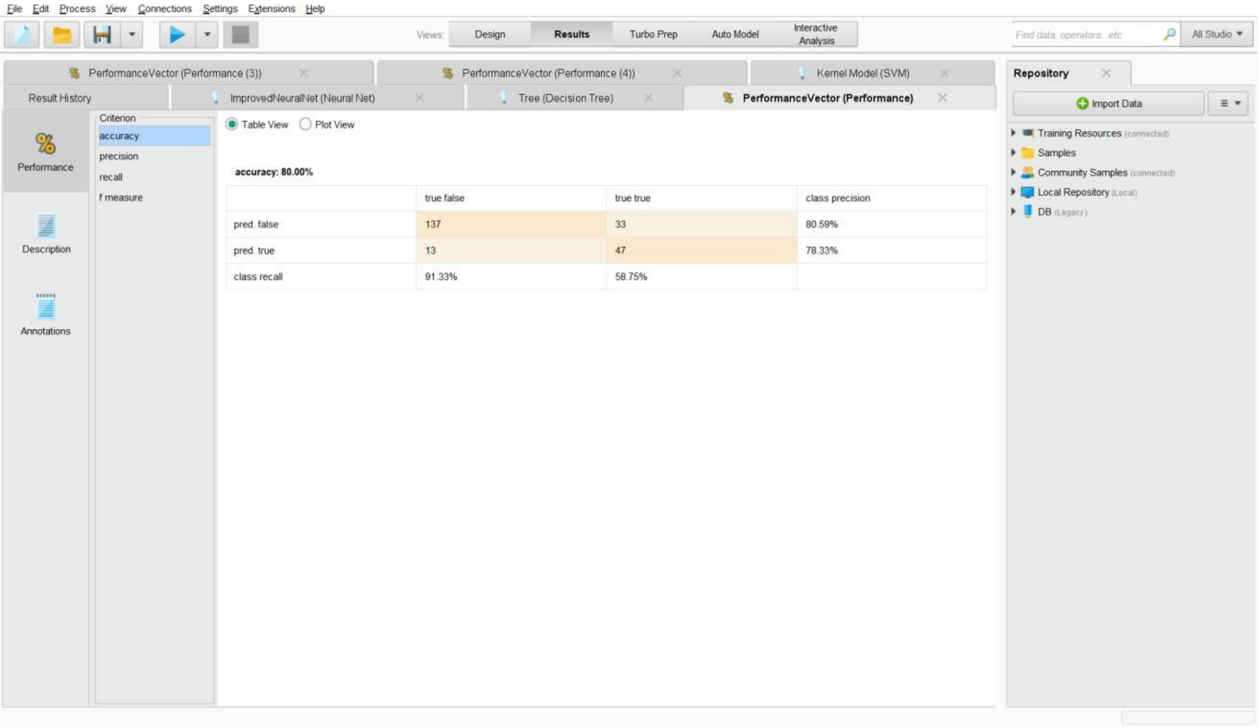
Accuracy→ 70.87%

Precision→ 58.90%

Recall→ 53.75%

F_measure → 56.21%

SVM Performance:



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PerformanceVector (Performance (4))
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Performance
Description
Annotations
Criterion
accuracy
precision
recall
f measure
Table View
Plot View

accuracy: 80.00%

	true false	true true	class precision
pred. false	137	33	80.59%
pred. true	13	47	78.33%
class recall	91.33%	58.75%	

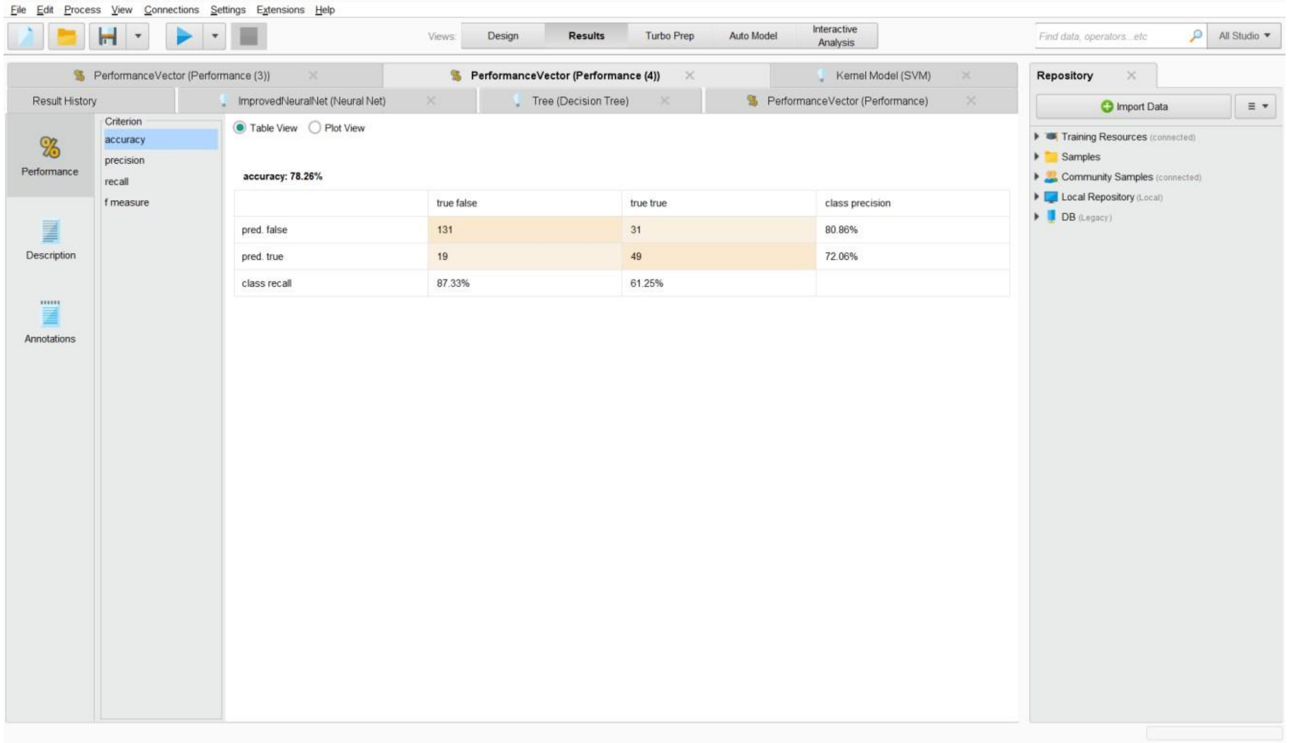
Accuracy→ 80.0%

Precision→ 78.33%

Recall→ 58.75%

F_measure → 67.14%

Neural Network Performance:


File Edit Process View Connections Settings Extensions Help
Views: Design Results Turbo Prep Auto Model Interactive Analysis
Find data, operators...etc
All Studio
PerformanceVector (Performance (3))
PerformanceVector (Performance (4))
Kernel Model (SVM)
Result History
ImprovedNeuralNet (Neural Net)
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PerformanceVector (Performance)
Performance
Description
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accuracy: 78.26%

	true false	true true	class precision
pred. false	131	31	80.86%
pred. true	19	49	72.06%
class recall	87.33%	61.25%	

Accuracy→ 78.26%

Precision→ 72.06%

Recall→ 61.25%

F_measure → 66.22%

Result:

After performing **numerical to binominal conversion, replacing missing values, normalizing data, selecting important features, splitting data, training models, and evaluating performance**, the final model achieves an accuracy of **70%+**, providing an effective solution for predicting diabetes risk.

Outcome:

	Decision Tree	SVM	Neural Network
Accuracy	70.87	80.0	78.26
Precision	58.90	78.33	72.06
Recall	53.75	58.75	61.25
F_measure	56.21	67.14	66.22

s