

Big Data & Data

Analytics

Pertemuan 6

Manipulasi Data

Operator Cut

Operator
Split

Operator
Merge

Operator Set
Data

Menggunakan Operator Cut

- Operator Cut digunakan untuk menghilangkan beberapa karakter dalam suatu kata pada suatu attribute.
- Misal pada Data Set “Iris” terdapat attribute label yang berisi Jenis bunga Iris yaitu “Iris-setosa”, “Iris-versicolor” dan “Iris-virginica”.
- Kita akan hilangkan nama genus dari bunga Iris tersebut yaitu “Iris-” sehingga didapat nama spesiesnya saja “setosa”, “versicolor” dan “virginica”

❑ Retrieve Data Set “Iris” ke panel proses

❑ Pilih operator “Cut” – klik

❑ Pada Parameter, Isikan :

- Attribute filter type : pilih Single
- Attribute : pilih Label
- First character Index : Isilah dengan 6 (karena karakternya dimulai dari digit ke 6)
- Last character index : isilah dengan 20
- Klik include special attributes

❑ Klik ▶



Repository

Import Data

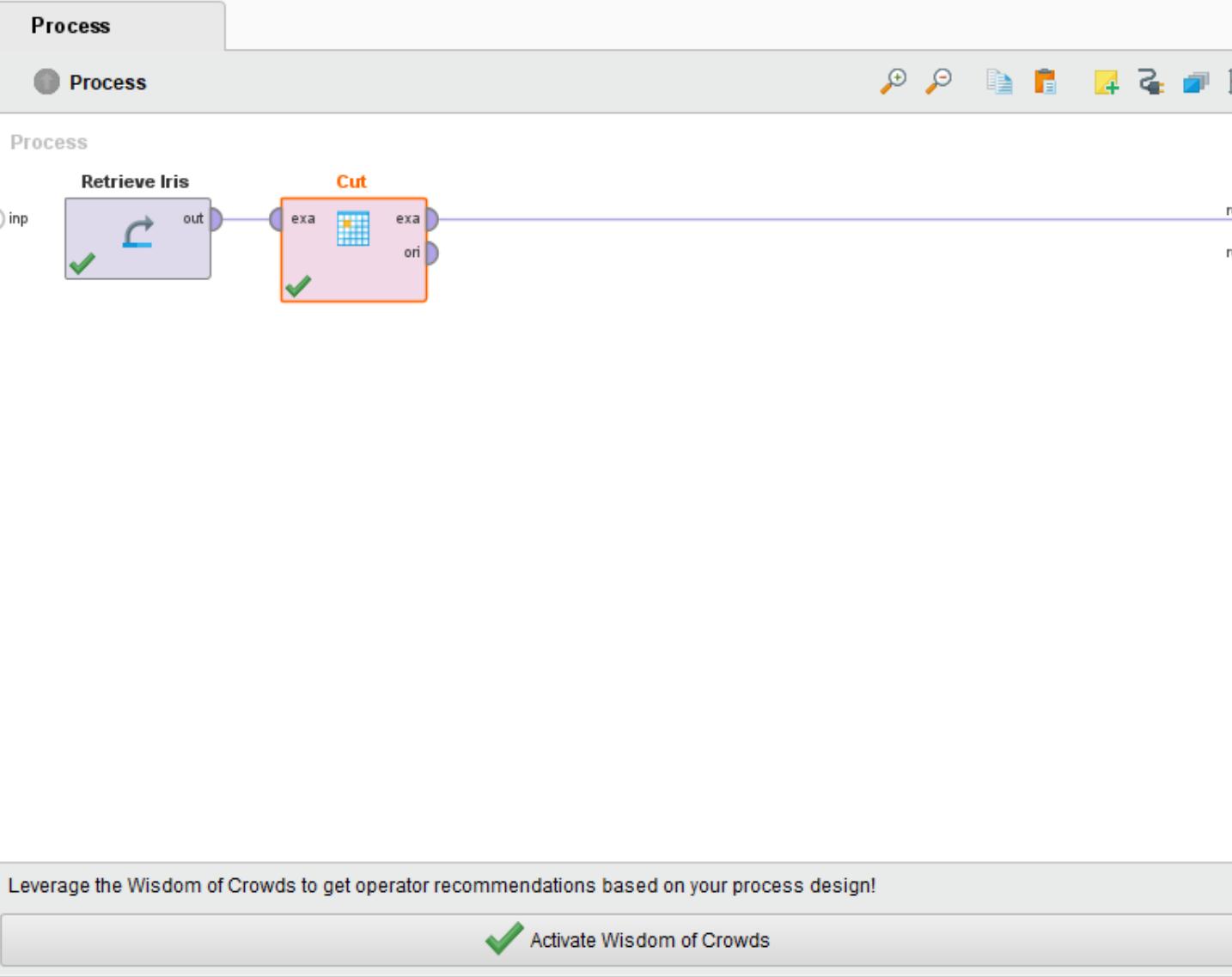
- data
 - Deals
 - Deals-Testset
 - Golf
 - Golf-Testset
 - Iris
 - Labor-Negotiation
 - Market-Data
 - Polynomial

Operators

cut

- Blending (1)
 - Values (1)
 - Cut
- Utility (4)
 - Scripting (3)

We found "Execute MCMD Extension", "Deep Learning" and 2 more results in the Marketplace. [Show me!](#)



Parameters

Cut

attribute filter type: single

attribute: label

invert selection

include special attributes

first character index: 6

last character index: 20

[Change compatibility \(9.10.000\)](#)

Help

Cut
RapidMiner Studio Core

Tags: [Values](#)

Synopsis

This operator cuts the nominal values of the specified regular attributes. The resultant attributes have values that are substrings of the original attribute values.



Views:

Design

Results

Turbo Prep

Auto Model

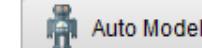
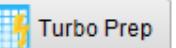
Deployments

Result History

ExampleSet (Cut)



Open in



Filter (150 / 150 examples):

all



Data

Row No.	id	label	a1	a2	a3	a4
1	id_1	setosa	5.100	3.500	1.400	0.200
2	id_2	setosa	4.900	3	1.400	0.200
3	id_3	setosa	4.700	3.200	1.300	0.200
4	id_4	setosa	4.600	3.100	1.500	0.200
5	id_5	setosa	5	3.600	1.400	0.200
6	id_6	setosa	5.400	3.900	1.700	0.400
7	id_7	setosa	4.600	3.400	1.400	0.300
8	id_8	setosa	5	3.400	1.500	0.200
9	id_9	setosa	4.400	2.900	1.400	0.200
10	id_10	setosa	4.900	3.100	1.500	0.100
11	id_11	setosa	5.400	3.700	1.500	0.200
12	id_12	setosa	4.800	3.400	1.600	0.200
13	id_13	setosa	4.800	3	1.400	0.100
14	id_14	setosa	4.300	3	1.100	0.100
15	id_15	setosa	5.800	4	1.200	0.200

ExampleSet (150 examples, 2 special attributes, 4 regular attributes)

Repository



data

- Deals
- Deals-Testset
- Golf
- Golf-Testset
- Iris
- Labor-Negotiations
- Market-Data
- Polynomial
- Products
- Purchases
- Ripley-Set
- Sonar
- Titanic
- Titanic Training
- Titanic Unlabeled
- Transactions
- Weighting



processes



Templates



Time Series



Tutorials

Hasil

Menggunakan Operator Split

- Operator Cut digunakan untuk memisahkan nilai suatu attribute menjadi beberapa attribute.
- Misal pada Data Set “Iris” terdapat attribute label yang berisi Jenis bunga Iris yaitu “Iris-setosa”, “Iris-versicolor” dan “Iris-virginica”.
- Kita akan pisahkan nama genus dari bunga Iris tersebut yaitu “Iris” dengan nama Spesiesnya yaitu “setosa”, “versicolor” dan “virginica”

- Retrieve Data Set “Iris” ke panel proses
- Pilih operator “Split” – klik
- Pada Parameter, Isikan :
 - Attribute filter type : pilih Single
 - Attribute : pilih Label
 - Split Pattern : Isilah dengan - (karena separator antar kata adalah -)
 - Split Mode : Pilih Ordered_split
 - Klik include special attributes
- Klik ▷



Repository

Import Data

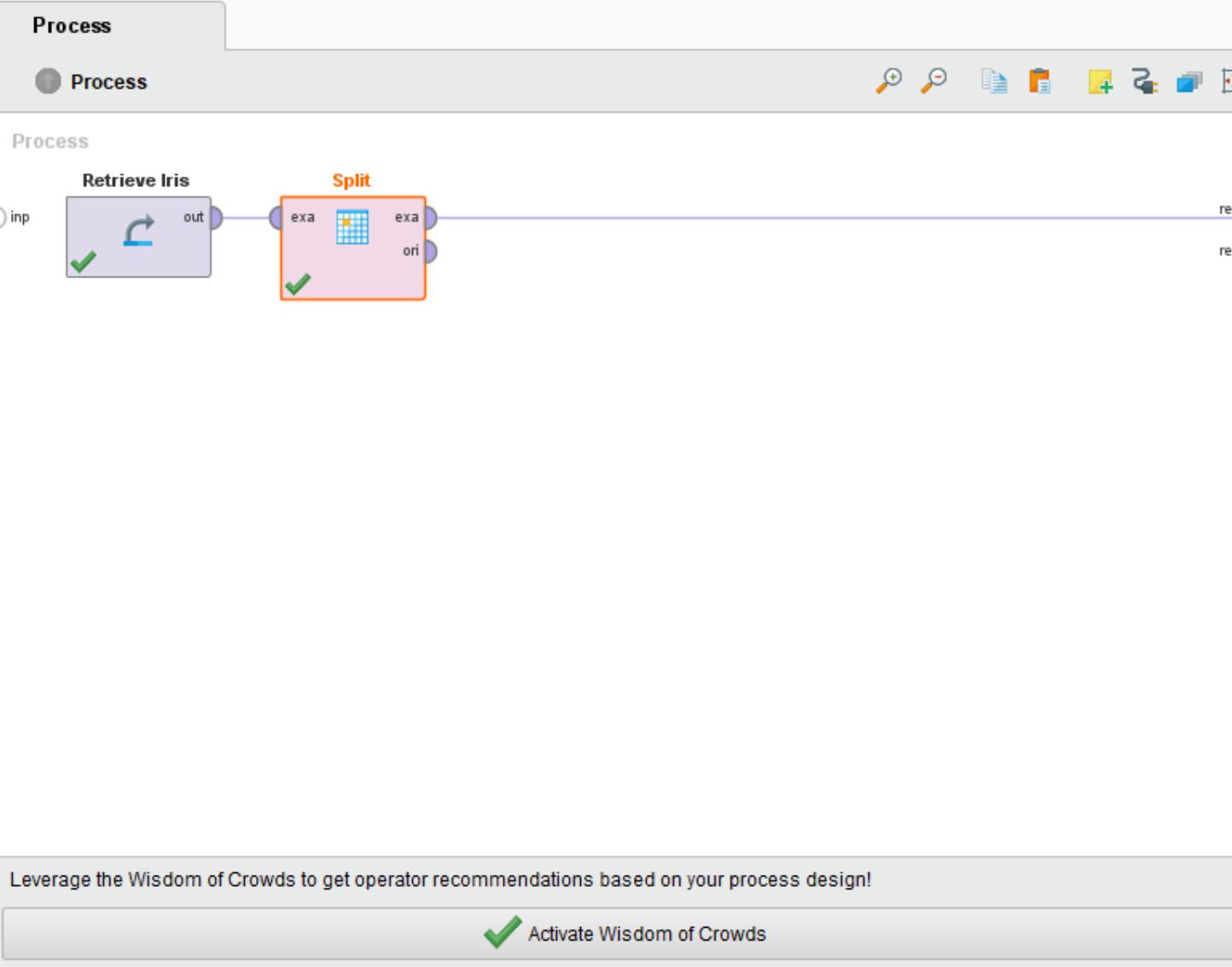
- data
 - Deals
 - Deals-Testset
 - Golf
 - Golf-Testset
 - Iris
 - Labor-Negotiation
 - Market-Data
 - Polynomial

Operators

split

- Blending (2)
 - Examples (1)
 - Sampling (1)
 - Split Data
- Values (1)
 - Split

We found "Information Extraction" in the Marketplace. [Show me!](#)



Parameters

Split

attribute filter type: single

attribute: label

invert selection

include special attributes

split pattern: -

split mode: ordered_split

[Change compatibility \(9.10.000\)](#)

Help

Split
RapidMiner Studio Core

Tags: [Values](#)

Synopsis

This operator creates new attributes from the selected nominal attributes by splitting the nominal values into parts according to the specified split criterion.



Views:

Design

Results

Turbo Prep

Auto Model

Deployments

Switch to Results view. (F9)

Result History

ExampleSet (Split)



Data

No.	id	a1	a2	a3	a4	label_1	label_2
	id_1	5.100	3.500	1.400	0.200	Iris	setosa
	id_2	4.900	3	1.400	0.200	Iris	setosa
	id_3	4.700	3.200	1.300	0.200	Iris	setosa
	id_4	4.600	3.100	1.500	0.200	Iris	setosa
	id_5	5	3.600	1.400	0.200	Iris	setosa
	id_6	5.400	3.900	1.700	0.400	Iris	setosa
	id_7	4.600	3.400	1.400	0.300	Iris	setosa
	id_8	5	3.400	1.500	0.200	Iris	setosa
	id_9	4.400	2.900	1.400	0.200	Iris	setosa
	id_10	4.900	3.100	1.500	0.100	Iris	setosa
	id_11	5.400	3.700	1.500	0.200	Iris	setosa
	id_12	4.800	3.400	1.600	0.200	Iris	setosa
	id_13	4.800	3	1.400	0.100	Iris	setosa
	id_14	4.300	3	1.100	0.100	Iris	setosa

ExampleSet (150 examples, 1 special attribute, 6 regular attributes)

Repository

data

- Deals
- Deals-Testset
- Golf
- Golf-Testset
- Iris
- Labor-Negotiations
- Market-Data
- Polynomial
- Products
- Purchases
- Ripley-Set
- Sonar
- Titanic
- Titanic Training
- Titanic Unlabeled
- Transactions
- Weighting

processes

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Time Series

Tutorials

Hasil

Menggunakan Operator Merge

- Operator Merge digunakan untuk menggabungkan 2 nilai nominal pada suatu attribute.
- Misal pada Data Set “Golf” akan ditambahkan kata “hot” di belakang kata “Sunny” pada attribute “Outlook” sehingga diperoleh kata “Sunny_hot”.

- Retrieve Data Set “Golf” ke panel proses
- Pilih operator “Merge” – klik
- Pada Parameter, Isikan :
 - Attribute name : pilih attribute “Outlook”
 - First value : ketikkan “sunny”
 - Last value : ketikkan “hot”
- Klik ▷



Views:

Design

Results

Turbo Prep

Auto Model

Deployments

Find data, operators...etc



All Studio

Repository

Import Data

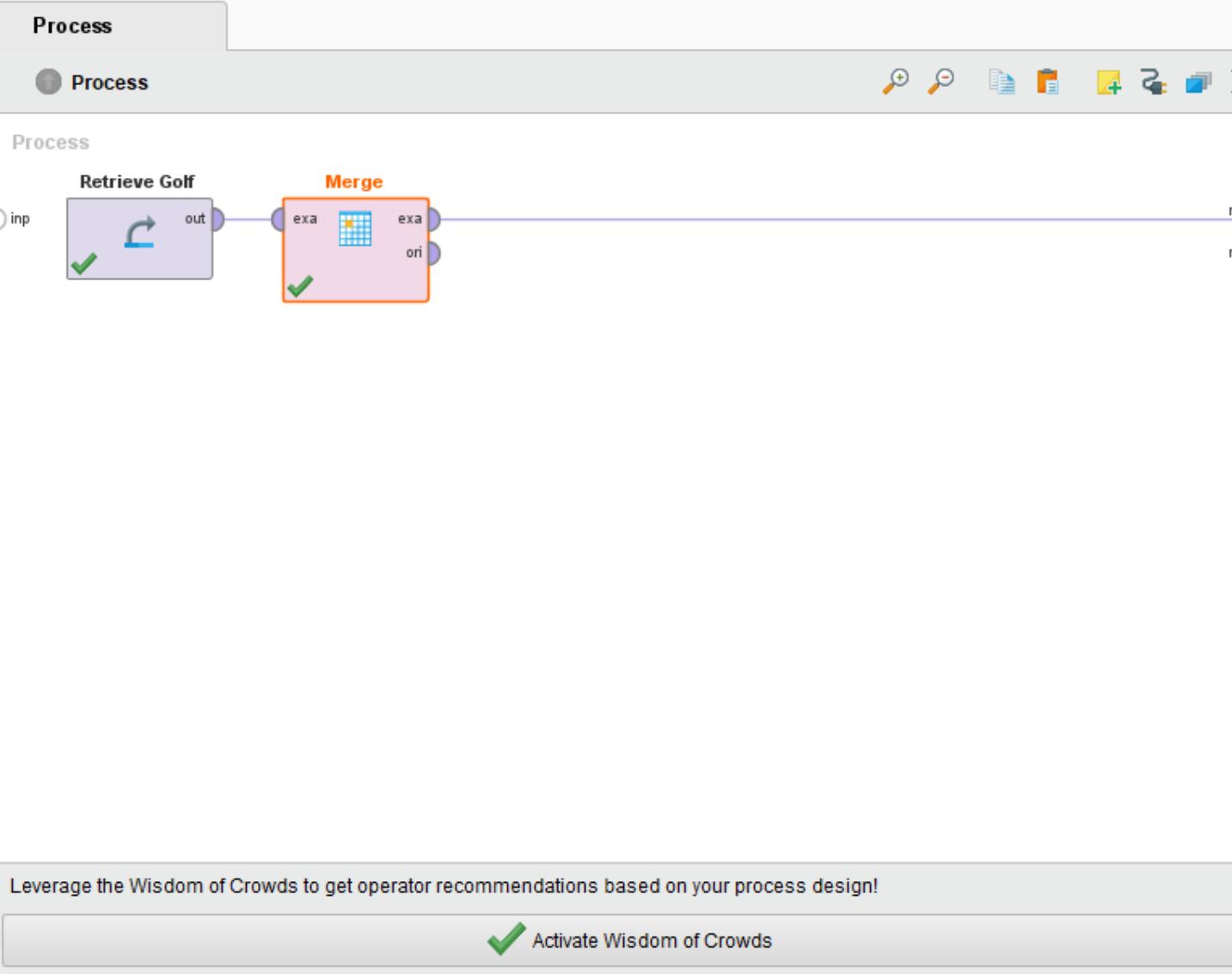
- data
 - Deals
 - Deals-Testset
 - Golf
 - Golf-Testset
 - Iris
 - Labor-Negotiation
 - Market-Data
 - Polynomial

Operators

merge

- Joins (4)
 - Append
 - Join
 - Union
 - Append (Robust)
- Values (1)
 - Merge

No results were found.



Parameters

Merge

attribute name: Outlook

first value: sunny

second value: hot

Help

Merge

RapidMiner Studio Core

Tags: [Values](#)

Synopsis

This operator merges two nominal values of the specified regular attribute.

[Jump to Tutorial Process](#)

Menggunakan Operator Set Data

- Operator Merge digunakan untuk menyetting data pada salah satu atau beberapa attribute pada baris tertentu.
- Misal pada Data Set “Golf”, data baris pertama pada attribute “Temperature” diganti dengan nilai 50 dan “Wind” diganti dengan “fast”

- Retrieve Data Set “Golf” ke panel proses
- Pilih operator “Set Data” – klik
- Pada Parameter, Isikan :
 - Example Index : isikan dengan 1
 - Attribute name : Pilih attribute “Temperature”
 - Value : ketikkan “50”
 - Additional values : klik edit list – pada attribute name : pilih “Wind” dan value isilah dengan “fast”
 - Klik apply
- Klik ▷



Views:

Design

Results

Turbo Prep

Auto Model

Deployments

Find data, operators...etc

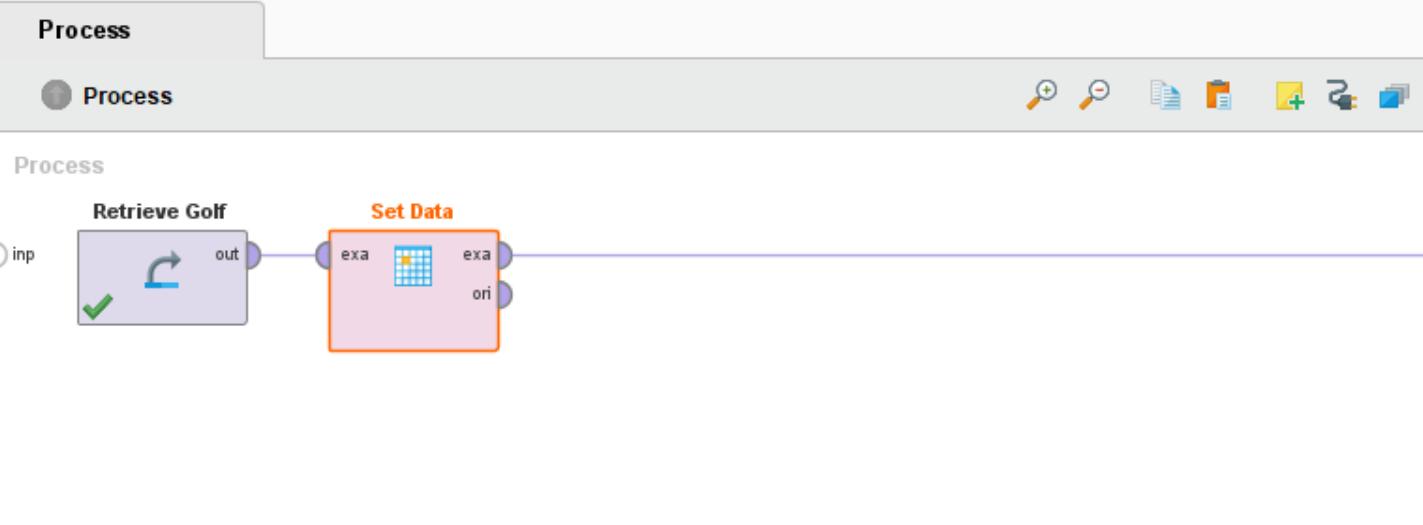


All Studio

Repository

Import Data

- data
 - Deals
 - Deals-Testset
 - Golf
 - Golf-Testset
 - Iris
 - Labor-Negotiation
 - Market-Data
 - Polynomial



Parameters

Set Data

example index

count backwards

attribute name

value

additional values

[Hide advanced parameters](#)

[Change compatibility \(9.10.000\)](#)

Help

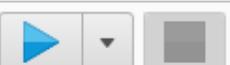
Set Data
RapidMiner Studio Core

Tags: Values

Synopsis

This operator sets the value of one or more attributes of the specified example.

[Jump to Tutorial Process](#)



Views:

Design

Results

Turbo Prep

Auto Model

Deployments

Find data, operators...etc



All Studio

Repository

+ Import Data

- data
 - Deals
 - Deals-Testset
 - Golf
 - Golf-Testset
 - Iris
 - Labor-Negotiation
 - Market-Data
 - Polynomial

Operators

set data

- Split Data
- Values (1)
 - Set Data
- Modeling (1)
 - Associations (1)

We found "Image Handling", "Text Processing" and 12 more results in the Marketplace. [Show me!](#)

Process

Process

Retrieve Golf

attribute name value

Wind	fast
------	------

Add Entry Remove Entry Apply Cancel

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

Activate Wisdom of Crowds

Parameters

Set Data

sample index 1

count backwards

attribute name Temperature

value 50

additional values [Edit List \(1\)...](#)

[Hide advanced parameters](#)

[Change compatibility \(9.10.000\)](#)

Set Data

RapidMiner Studio Core

Values

Synopsis

This operator sets the value of one or more attributes of the specified example.

[Jump to Tutorial Process](#)



Result History

ExampleSet (Set Data) X

Open in

Turbo Prep

Auto Model

Filter (14 / 14 examples):

all



Data

Row No.	Play	Outlook	Temperature	Humidity	Wind
1	no	sunny	50	85	fast
2	no	sunny	80	90	true
3	yes	overcast	83	78	false
4	yes	rain	70	96	false
5	yes	rain	68	80	false
6	no	rain	65	70	true
7	yes	overcast	64	65	true
8	no	sunny	72	95	false
9	yes	sunny	69	70	false
10	yes	rain	75	80	false
11	yes	sunny	75	70	true
12	yes	overcast	72	90	true
13	yes	overcast	81	75	false
14	no	rain	71	80	true

ExampleSet (14 examples, 1 special attribute, 4 regular attributes)

Repository

data

- Deals
- Deals-Testset
- Golf
- Golf-Testset
- Iris
- Labor-Negotiations
- Market-Data
- Polynomial
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- Titanic Unlabeled
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- Weighting

processes

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Hasil

Operator Aggregate

Aggregate

- Operator aggregate dapat digunakan untuk memperlihatkan fungsi agregasi dari suatu SQL. Operator ini dapat menghasilkan berbagai fungsi seperti rata-rata, nilai max atau min, dsb. Selain itu juga dapat digunakan untuk melakukan pengelompokan data.

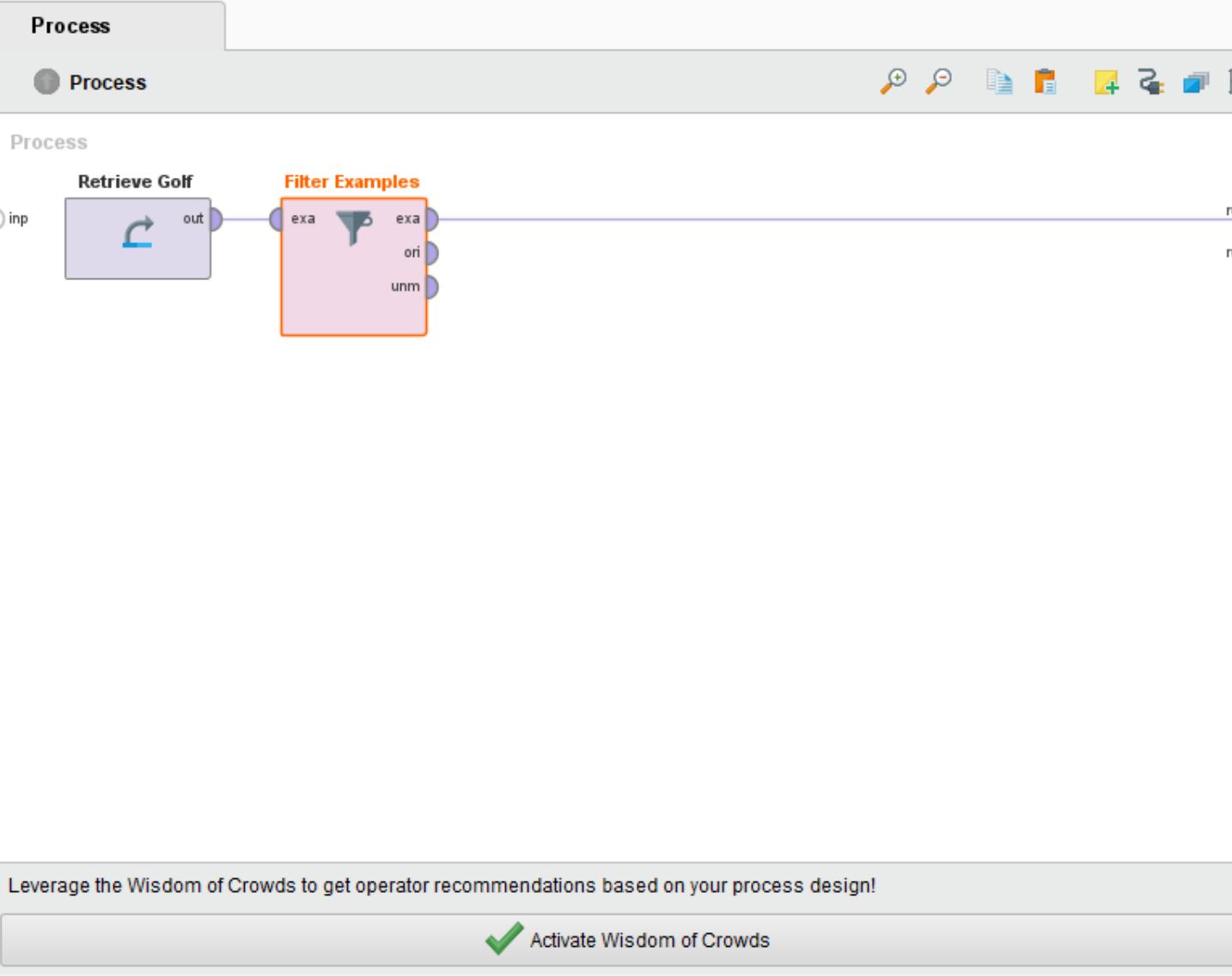
Contoh Kasus

- Misalkan digunakan dataset “Golf”
 1. Akan ditambahkan baris / examples dengan nilai-nilai pada attribute “Outlook”
 2. Akan dikelompokkan baris yang tersisa pada data set tersebut dengan nilai yang ada pada “Play” dan “Wind”
 3. Selanjutnya, akan dicari rata-rata Temperature dan rata-rata “Humidity” untuk data tersebut.
 4. Akan dilihat rata-rata Temperature yang kurang dari 71 dan akan dilihat secara urutan menaik (ascending)

Jawaban Kasus 1

- ❑ Retrieve data set “Golf” ke panel proses
- ❑ Pilih operator “filter Examples” – klik
- ❑ Pada parameter , Isikan :
 - Filters : Klik Add filters – pilih “outlook” lalu “equals” lalu “overcast” - Klik OK
 - Condition class : pilih custom_filters
- ❑ Klik ▷

The screenshot shows a 'Repository' window with a 'Samples' folder expanded. Inside 'Samples' are sub-folders 'data' and 'Deals'. The 'Golf' folder is selected. Other visible datasets include 'Deals-Testset', 'Golf-Testset', 'Iris', and 'Labor-Negotiations'. A 'Import Data' button and a 'More' dropdown are at the top.



Parameters X

Filter Examples (i)

filters Add Filters... (i)

condition class Add or edit ExampleSet filters. (i)

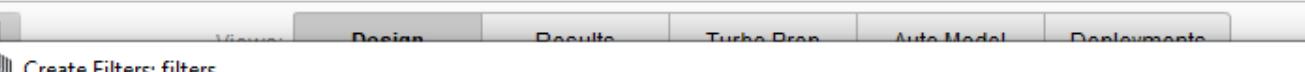
custom_filters ▼ (i)

invert filter (i)

[Hide advanced parameters](#)

[Change compatibility \(9.10.000\)](#)

The screenshot shows a help page for the 'Filter Examples' operator. The title 'Filter Examples' is at the top, with a blue 'P' icon to its left. Below the title is the text 'RapidMiner Studio Core'. A horizontal line follows, with 'Tags:' on the left and a list of underlined terms: 'Select', 'Keep', 'Remove', 'Drop', 'Delete', 'Rows', 'Cases', 'Instances', 'Lines', 'Observations', 'Filter Missing', and 'Filter'. Below this is a section titled 'Synopsis' with the following text: 'This Operator selects which Examples of an ExampleSet are kept and which Examples are removed.'



Repository

+ Import Data

Samples

- data
 - Deals
 - Deals-Testset
 - Golf
 - Golf-Testset
 - Iris
 - Labor-Negotiations

Operators

filter

Remove Correl

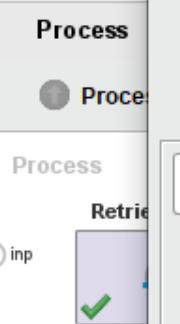
Examples (2)

Filter (2)

Filter Examples

Filter Example

We found "Text Processing" and "Holt-Winters Filtering" in the Marketplace. [Show me!](#)



Create Filters: filters

Create Filters: filters

Defines the list of filters to apply.

Process

Outlook equals overcast

Retrieval

inp

Leverage the

Match all Match any Preselect comparators

Add Entry OK Cancel

Activate Wisdom of Crowds

Find data, operators...etc

Examples

Add Filters...

custom_filters

Advanced parameters

Compatibility (9.10.000)

Filter Examples

RapidMiner Studio Core

Keep, Remove, Drop, Delete, Rows, Cases, Lines, Observations, Filter Missing, Filter

This Operator selects which Examples of an ExampleSet are kept and which Examples are removed.



Views:

Design

Results

Turbo Prep

Auto Model

Deployments

Find data, operators...etc



All Studio

Result History

ExampleSet (Filter Examples)

Repository

Open in [Turbo Prep](#) [Auto Model](#)

Filter (4 / 4 examples):

all

Row No.	Play	Outlook	Temperature	Humidity	Wind
1	yes	overcast	83	78	false
2	yes	overcast	64	65	true
3	yes	overcast	72	90	true
4	yes	overcast	81	75	false

ExampleSet (4 examples, 1 special attribute, 4 regular attributes)

Import Data

data

- Deals
- Deals-Testset
- Golf
- Golf-Testset
- Iris
- Labor-Negotiations
- Market-Data
- Polynomial
- Products
- Purchases
- Ripley-Set
- Sonar
- Titanic
- Titanic Training
- Titanic Unlabeled
- Transactions
- Weighting

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31°C Hujan



11:50 AM

11/6/2021



Jawaban Kasus 2

- ❑ Pilih operator “aggregate” – klik
- ❑ Pada parameter, Isikan :
 - Aggregation attributes : Pilih “Temperature” dengan attribute functions “average”
 - Klik add entry
 - Aggregation attributes : Pilih “Humidity” dengan attribute functions “average”
 - Klik Apply
 - Lalu, pada group by attributes : klik Select attributes
 - Pindahkan attribute yang dikehendaki
- ❑ Klik ▷



Views:

Design

Results

Turbo Prep

Auto Model

Deployments

Find data, operators...etc



All Studio

Repository

Import Data

Samples

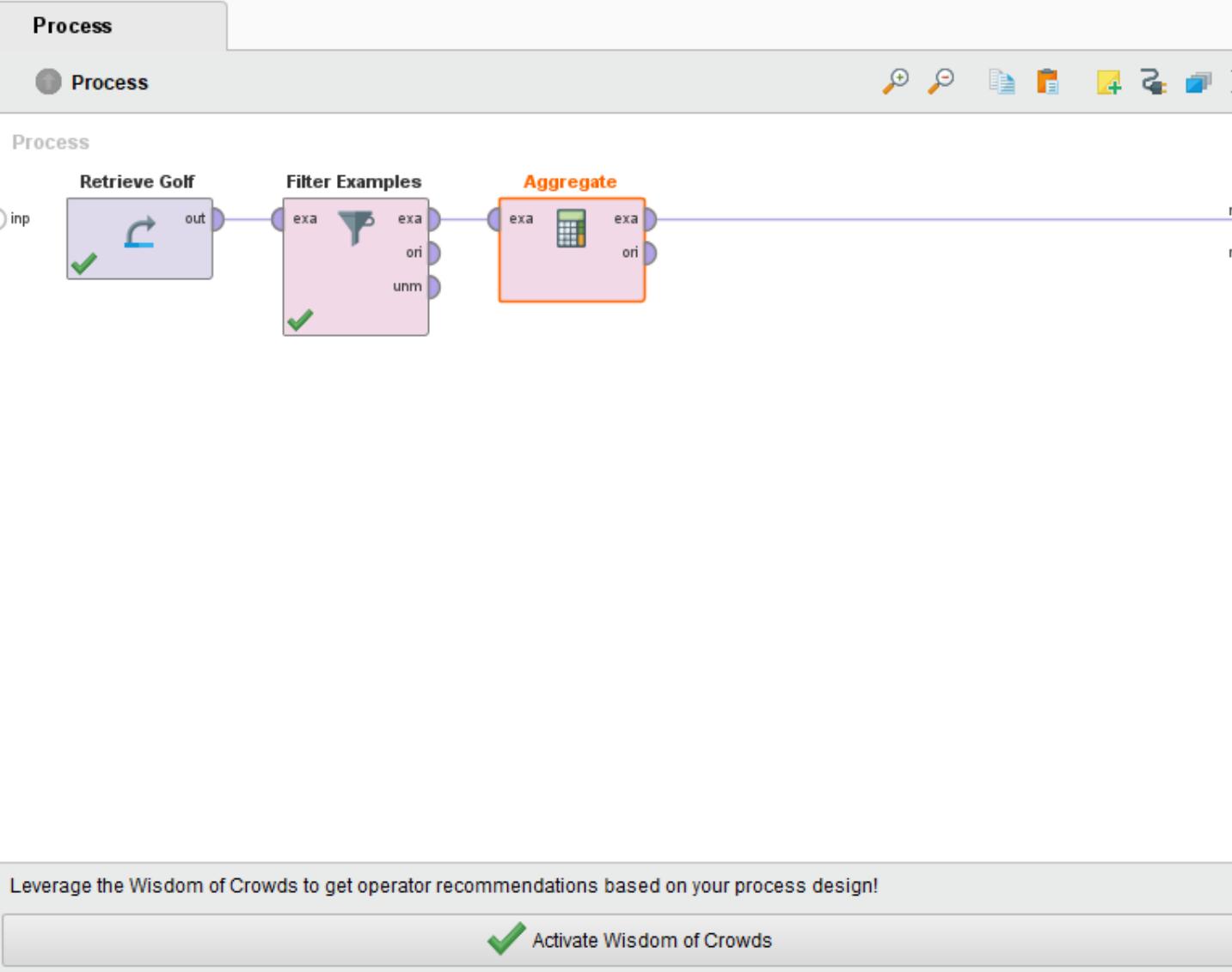
- data
 - Deals
 - Deals-Testset
 - Golf
 - Golf-Testset
 - Iris
 - Labor-Negotiations

Operators

agg

- Grouping (1)
 - Aggregate
- Rotation (2)
 - Pivot
 - De-Pivot
- Modeling (10)
 - Predictive (2)
 - Tree (1)

No results were found.



Parameters

Aggregate

use default aggregation

aggregation attributes [Edit List \(0\)...](#)

group by attributes [Select Attributes...](#)

count all combinations

only distinct

ignore missing

[Hide advanced parameters](#)

[Change compatibility \(9.10.000\)](#)

Help

Aggregate
RapidMiner Studio Core

Tags: Groupby, Group by, Grouping, Sum, Count, Min, Max, Average, Avg, Mean, Pivot, Cross-table, Crosstable, Distinct, Percentile, Standard Deviation

Synopsis

This operator performs the aggregation functions known from SQL. This operator provides a lot of



Views:

Design

Results

Turbo Prep

Auto Model

Deployments

Find data, operators...etc



All Studio

Repository

Import Data

Samples

- data**
- Deals
- Deals-Testset
- Golf
- Golf-Testset
- Iris
- Labor-Negotiations

Operators

agg

- Grouping (1)**
 - Aggregate**
- Rotation (2)**
 - Pivot
 - De-Pivot
- Modeling (10)**
 - Predictive (2)**
 - Tree (1)

No results were found.

Process

Edit Parameter List: aggregation attributes

Process

Retrieve Golf

aggregation attribute **aggregation functions**

Temperature	average
Humidity	average

Add Entry **Remove Entry** **Apply** **Cancel**

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

Activate Wisdom of Crowds

Parameters

Aggregate

use default aggregation

aggregation attributes **Edit List (0)...**

group by attributes **Select Attributes...**

count all combinations

only distinct

ignore missing

[Hide advanced parameters](#)

[Change compatibility \(9.10.000\)](#)

Aggregate

RapidMiner Studio Core

Groupby, Group by, Grouping, Sum, Count, Min, Max, Average, Avg, Mean, Pivot, Cross-table, Crosstable, Distinct, Percentile, Standard Deviation

Synopsis

This operator performs the aggregation functions known from SQL. This operator provides a lot of



Views:

Design

Results

Turbo Prep

Auto Model

Deployments

Find data, operators...etc



All Studio

Repository

Import Data

Samples

- data
 - Deals
 - Deals-Testset
 - Golf
 - Golf-Testset
 - Iris
 - Labor-Negotiations

Operators

agg

- Grouping (1)
 - Aggregate
- Rotation (2)
 - Pivot
 - De-Pivot
- Modeling (10)
 - Predictive (2)
 - Tree (1)

No results were found.

Process

Select Attributes: group by attributes

Process

Retrieve Golf

Attributes

Selected Attributes

Apply Cancel

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

Activate Wisdom of Crowds

Parameters

Aggregate

use default aggregation

regation attributes

up by attributes

count all combinations

only distinct

ignore missings

Hide advanced parameters

Change compatibility (9.10.000)

Aggregate

RapidMiner Studio Core

Groupby, Group by, Grouping, Sum, Count, Min, Max, Average, Avg, Mean, Pivot, Cross-table, Crosstable, Distinct, Percentile, Standard Deviation

Synopsis

This operator performs the aggregation functions known from SQL. This operator provides a lot of



Views:

Design

Results

Turbo Prep

Auto Model

Deployments

Find data, operators...etc

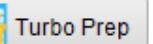


All Studio

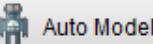
Result History

ExampleSet (Aggregate) X

Open in



Turbo Prep



Auto Model

Filter (2 / 2 examples):

all



Data

Row No.	Play	Wind	average(Te...)	average(Hu...)
1	yes	false	82	76.500
2	yes	true	68	77.500



Statistics



Visualizations



Annotations

ExampleSet (2 examples, 1 special attribute, 3 regular attributes)

Repository X

Import Data



data

- Deals
- Deals-Testset
- Golf
- Golf-Testset
- Iris
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- Market-Data
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- Products
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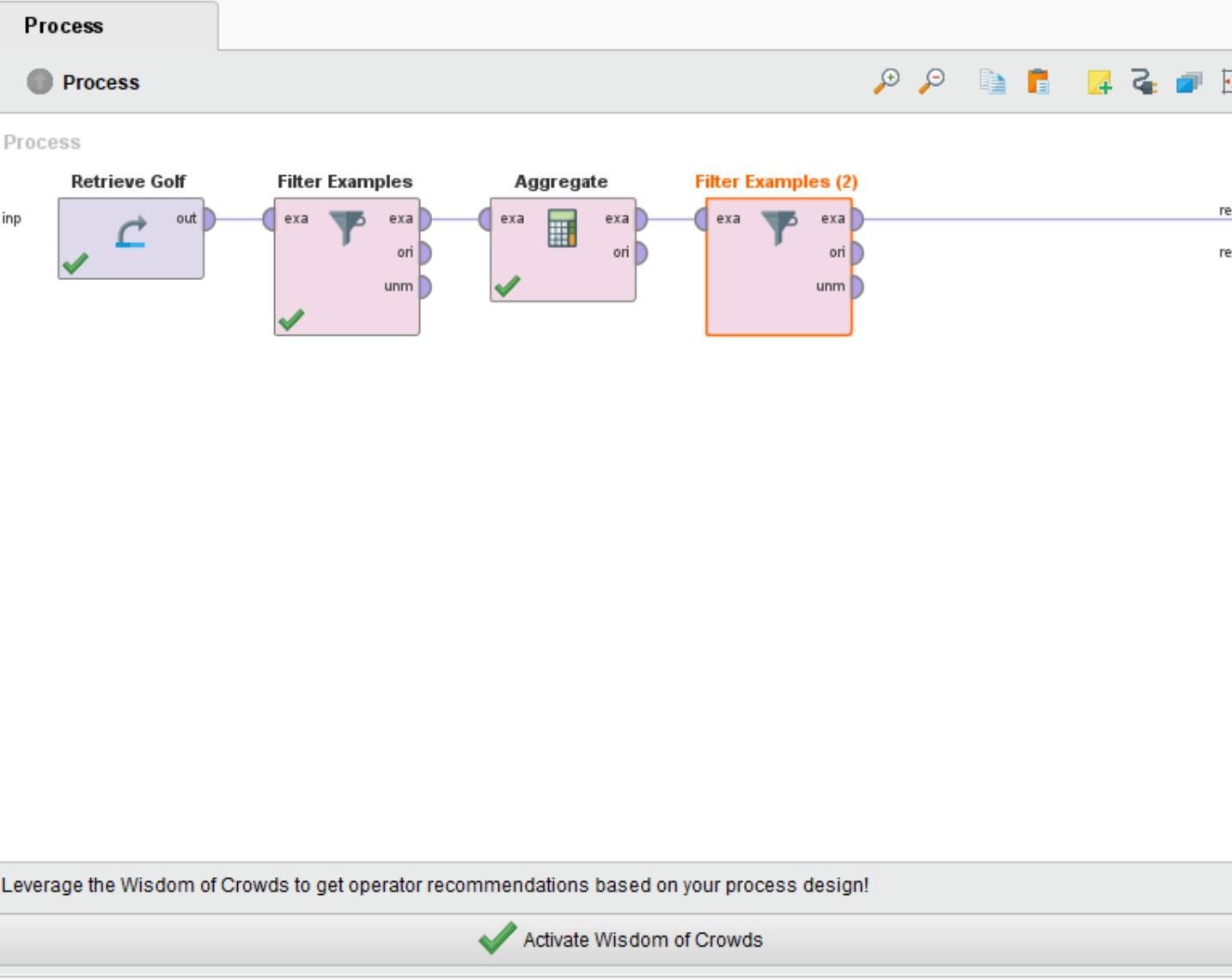
31°C Hujan

11:52 AM
11/6/2021

Jawaban Kasus 3

- Pilih operator “filter Examples” – klik
- Pada parameter Isikan :
 - Filters : klik add filters – pilih average (Temperature) – pilih < (di tengah)- ketikkan 71 (paling kanan)
- Klik ▷

The screenshot shows the KNIME Repository interface. At the top, there is a header with the title 'Repository' and a close button (X). Below the header are two buttons: 'Import Data' with a green plus sign icon and a settings icon with three horizontal lines and a downward arrow. The main area displays a folder structure under 'Samples'. The 'data' folder is expanded, showing sub-folders: 'Deals', 'Deals-Testset', 'Golf' (which is selected, highlighted in blue), 'Golf-Testset', 'Iris', and 'Labor-Negotiations'. The interface includes scroll bars on the right and bottom, and navigation icons at the bottom (back, forward, search, etc.).



Parameters X

Filter Examples (2) (Filter Examples)

filters  Add Filters... (i)

condition class custom_filters ▼ (i)

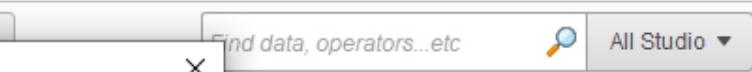
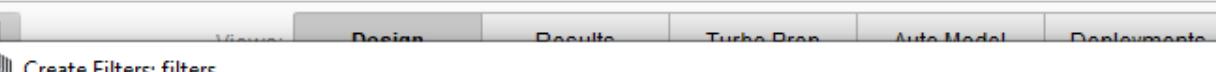
invert filter (i)

Filter Examples
RapidMiner Studio Core

Tags: [Select](#), [Keep](#), [Remove](#), [Drop](#), [Delete](#), [Rows](#), [Cases](#), [Instances](#), [Lines](#), [Observations](#), [Filter Missing](#), [Filter](#)

Synopsis

This Operator selects which Examples of an ExampleSet are kept and which Examples are removed.



Repository

+ Import Data

Samples

- data
 - Deals
 - Deals-Testset
 - Golf
 - Golf-Testset
 - Iris
 - Labor-Negotiations

Operators

filter

Remove Correl

Examples (2)

- Filter (2)
 - Filter Examples
 - Filter Example

We found "Text Processing" and "Holt-Winters Filtering" in the Marketplace. [Show me!](#)

Create Filters: filters

Create Filters: filters

Defines the list of filters to apply.

Process

average(Temperature) < 71

Retrieval

inp

Match all Match any Preselect comparators

Add Entry OK Cancel

Activate Wisdom of Crowds

Examples (2) (Filter Examples)

Add Filters...

custom_filters

Advanced parameters

Compatibility (9.10.000)

Filter Examples

RapidMiner Studio Core

Keep, Remove, Drop, Delete, Rows, Cases, Lines, Observations, Filter Missing, Filter

This Operator selects which Examples of an ExampleSet are kept and which Examples are removed.



Views:

Design

Results

Turbo Prep

Auto Model

Deployments

Find data, operators...etc



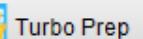
All Studio

Result History

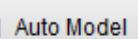
ExampleSet (Filter Examples (2))



Open in



Turbo Prep



Auto Model

Filter (1 / 1 examples):

all



Data

Row No.	Play	Wind	average(Te...	average(Hu...
1	yes	true	68	77.500



Statistics



Visualizations



Annotations

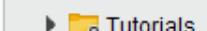
ExampleSet (1 example, 1 special attribute, 3 regular attributes)

Repository

Import Data



- Deals
- Deals-Testset
- Golf
- Golf-Testset
- Iris
- Labor-Negotiations
- Market-Data
- Polynomial
- Products
- Purchases
- Ripley-Set
- Sonar
- Titanic
- Titanic Training
- Titanic Unlabeled
- Transactions
- Weighting



31°C Hujan



11:53 AM

11/6/2021



Jawaban Kasus 4

- Pilih operator “sort”- klik
- Pada parameter, sort by :
 - > klik Edit list – attribute name : pilih average(Temperature)
 - sorting order : pilih Ascending
 - klik apply
- Klik ▶



Repository

Import Data

Samples

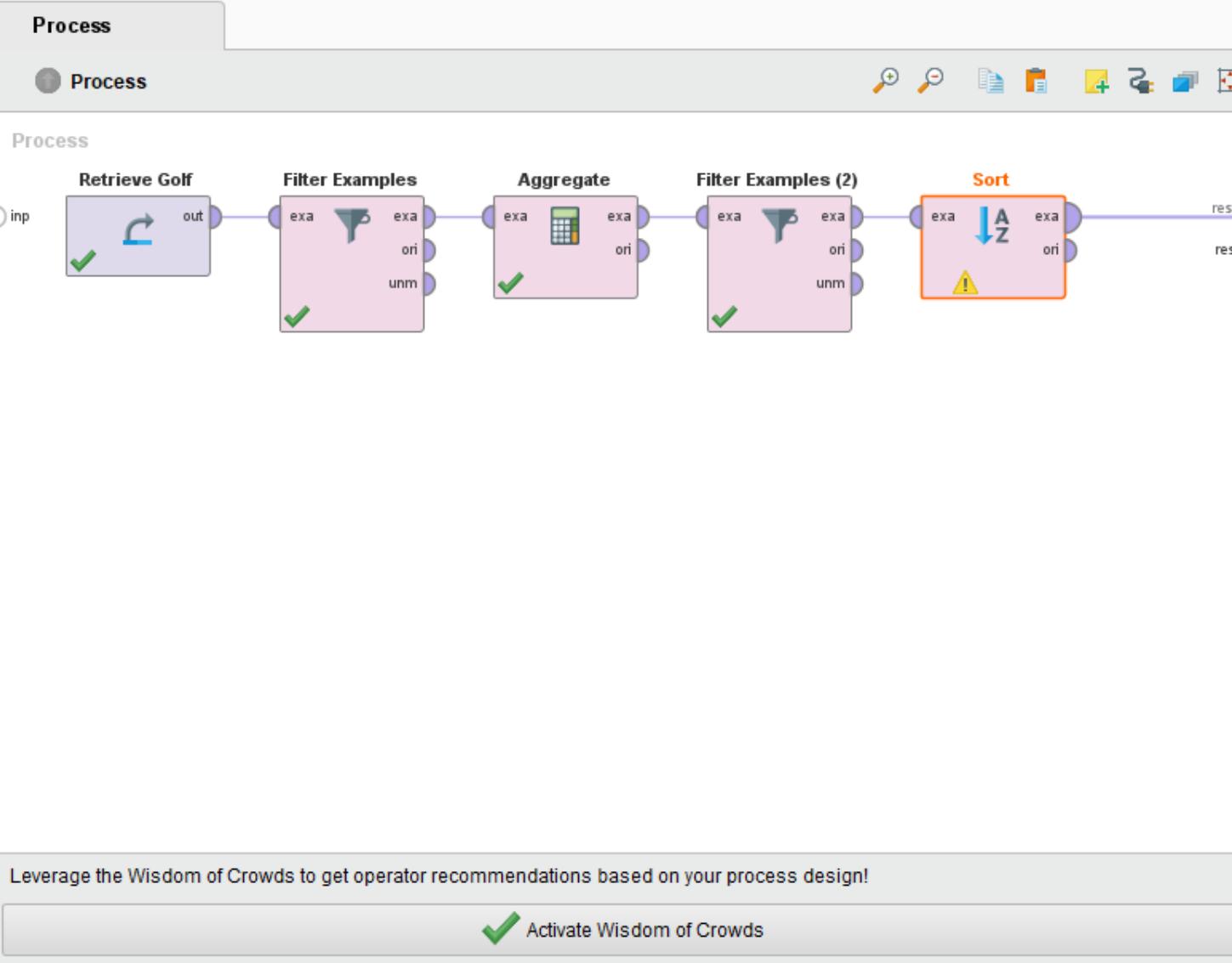
- data
 - Deals
 - Deals-Testset
 - Golf
 - Golf-Testset
 - Iris
 - Labor-Negotiations

Operators

sort

- Attributes (1)
 - Reorder Attributes
- Examples (3)
 - Sort (3)
 - Sort
 - Sort by Pareto F
 - Shuffle

No results were found.



Parameters

Sort

sort by

Help

Sort

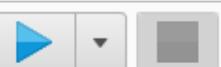
Blending

Tags: [Rank](#), [Order](#), [Ascending](#), [Decreasing](#), [Increasing](#), [Decreasing](#), [Sort](#)

Synopsis

This operator sorts the input data set in ascending or descending order according to several attributes.

[Jump to Tutorial Process](#)



Views:

Design

Results

Turbo Prep

Auto Model

Deployments

Find data, operators...etc



All Studio

Repository

Import Data

Samples

- data**
- Deals
- Deals-Testset
- Golf
- Golf-Testset
- Iris
- Labor-Negotiations

Operators

sort

- Attributes (1)**
 - Reorder Attributes
- Examples (3)**
 - Sort (3)**
 - Sort
 - Sort by Pareto
 - Shuffle

No results were found.

Process

Process

Retrieve Golf

Edit Parameter List: sort by

This parameter defines how to sort by specifying the attributes to sort by and the associated sorting orders.

attribute name	sorting order
average(Temperature)	ascending

Parameters

Sort

by

Edit List (1)

Sort

Blending

Rank, Order, Ascending, Descending, Increasing, Decreasing, Sort

Synopsis

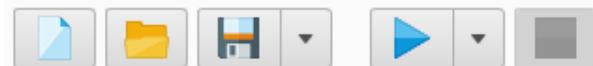
This operator sorts the input data set in ascending or descending order according to several attributes.

[Jump to Tutorial Process](#)

Add Entry Remove Entry Apply Cancel

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

Activate Wisdom of Crowds



Views:

Design

Results

Turbo Prep

Auto Model

Deployments

Find data, operators...etc



All Studio

Result History

ExampleSet (Sort)

Open in Turbo Prep Auto Model

Filter (1 / 1 examples): all



Data

Row No.	Play	Wind	average(Te...)	average(Hu...)
1	yes	true	68	77.500



Statistics



Visualizations



Annotations

ExampleSet (1 example, 1 special attribute, 3 regular attributes)

Repository



Import Data



data

- Deals
- Deals-Testset
- Golf
- Golf-Testset
- Iris
- Labor-Negotiations
- Market-Data
- Polynomial
- Products
- Purchases
- Ripley-Set
- Sonar
- Titanic
- Titanic Training
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- Weighting

processes

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31°C Hujan



11:55 AM

11/6/2021



Operator PIVOT

Menggunakan Operator Pivot

- Operator pivot digunakan untuk membentuk suatu table pivot, meringkas data dalam table yang lebih besar dengan mengelompokkannya dalam beberapa grup dan melakukan penghitungan jumlah, rata-rata, dan statistic lainnya untuk setiap grupnya.
- Misalkan akan ditentukan peluang penumpang selamat (survived) dari data Titanic berdasarkan kelompok “passenger class” dan “sex” serta membentuk suatu attribute baru “Family Size” dan melakukan penghitungan terhadapnya menggunakan operator pivot.

Menentukan Penumpang Selamat Berdasarkan Kelompok Kelas & Jenis Kelamin

- Retrieve data “Titanic” ke panel proses
- Karena pada attribute “survived” masih bertipe nominal maka harus diubah menjadi “numeric” menggunakan Operator “Nominal to Numerical”
- Pada parameter, isilah :
 - a. Attribute filter type : Pilih Single
 - b. Attribute : pilih Survived
 - c. Unexpected value handling : pilih all 0 and warning



Views:

Design

Results

Turbo Prep

Auto M

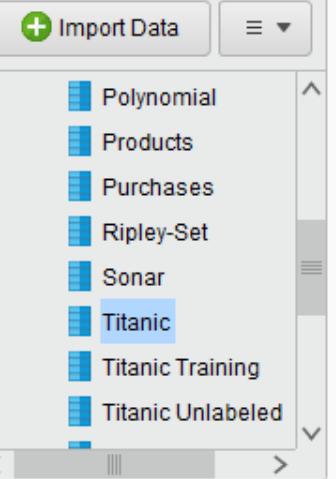
Deployment

Find data, operators...etc

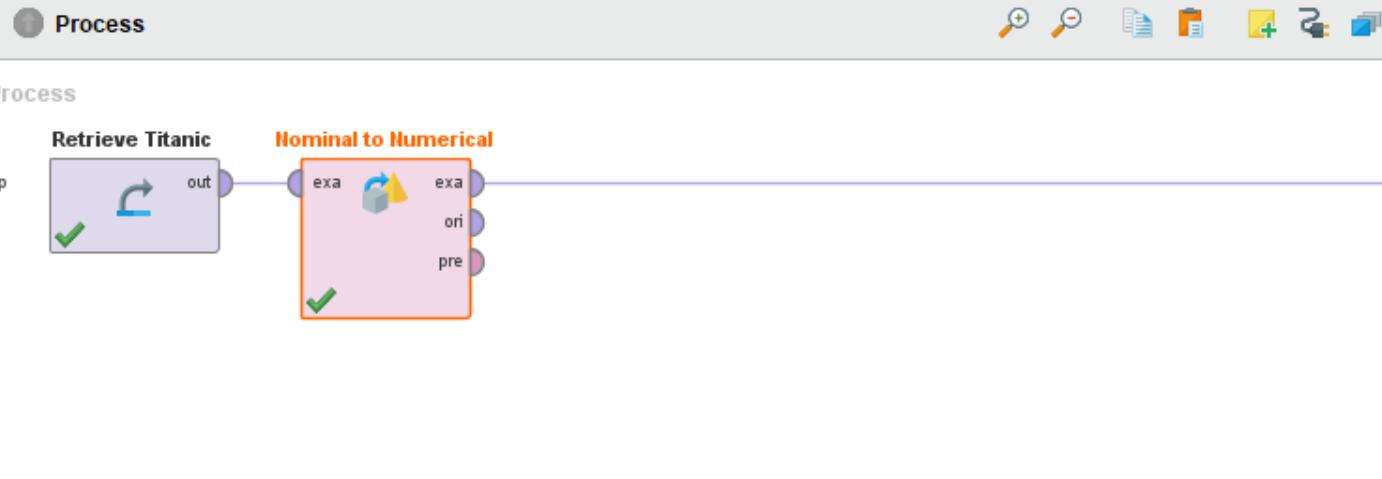


All Studio

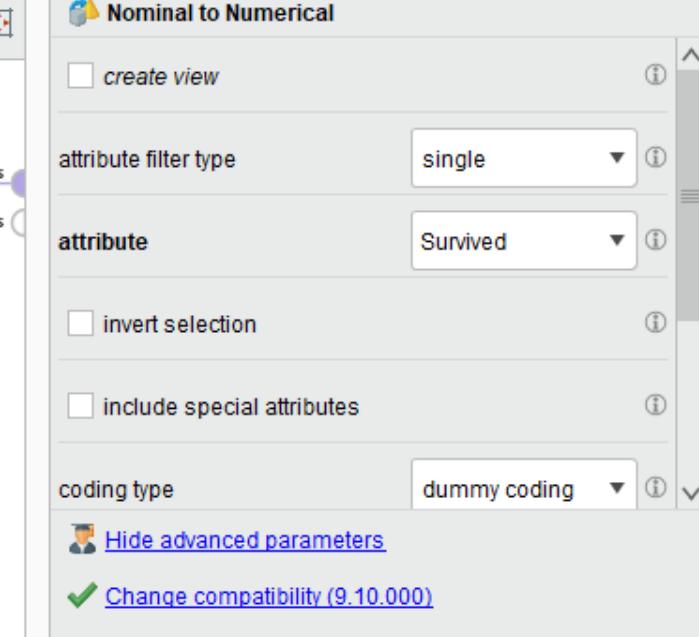
Repository X



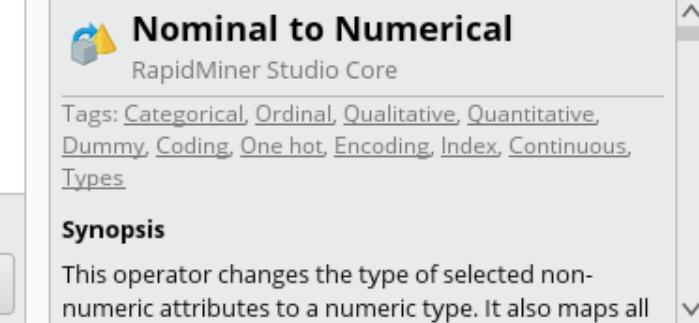
Process



Parameters X



Help





Views:

Design

Results

Turbo Prep

Auto Model

Deployments

Find data, operators...etc



All Studio

Result History

ExampleSet (Nominal to Numerical)

Repository

Open in

Turbo Prep

Auto Model

Filter (1,309 / 1,309 examples):

all

Row No.	Survived = Y...	Survived = No	Passenger ...	Name	Sex	Age	No of Sibli
1	1	0	First	Allen, Miss. E...	Female	29	0
2	1	0	First	Allison, Mast...	Male	0.917	1
3	0	1	First	Allison, Miss. ...	Female	2	1
4	0	1	First	Allison, Mr. H...	Male	30	1
5	0	1	First	Allison, Mrs. ...	Female	25	1
6	1	0	First	Anderson, Mr....	Male	48	0
7	1	0	First	Andrews, Mis...	Female	63	1
8	0	1	First	Andrews, Mr. ...	Male	39	0
9	1	0	First	Appleton, Mrs...	Female	53	2
10	0	1	First	Artagaveytia, ...	Male	71	0
11	0	1	First	Astor, Col. Jo...	Male	47	1
12	1	0	First	Astor, Mrs. Jo...	Female	18	1
13	1	0	First	Aubart, Mme. ...	Female	24	0
14	1	0	First	Barber, Miss. ...	Female	26	0

ExampleSet (1,309 examples, 0 special attributes, 13 regular attributes)

Import Data

data

- Deals
- Deals-Testset
- Golf
- Golf-Testset
- Iris
- Labor-Negotiations
- Market-Data
- Polynomial
- Products
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31°C Hujan



12:14 PM

11/6/2021



- Pilih Operator “Pivot”- klik
 - Pada Parameter, Isikan dengan :
 - a. Group by attributes : Klik Select Attributes – pindahkan “Passenger Class” ke kanan – klik apply
 - b. Column grouping attributes : pilih Sex
 - c. Aggregation attributes : Klik Edit List – aggregation attributes : Survived = YES
aggregation functions : average
 - d. Klik Apply
- * Klik ▷



Views:

Design

Results

Turbo Pre

Auto M

Deployment

Find data, operators...etc



All Studio

The image shows a software interface titled 'Repository'. At the top left is a green circular button with a white plus sign and the text 'Import Data'. To its right is a button with a list icon and a downward arrow. Below these are eight list items, each with a blue square icon and a dataset name. The 'Titanic' dataset is highlighted with a blue background. The interface has a light gray background with a vertical scroll bar on the right side.

The screenshot shows the 'Operators' pane in Power BI. The search bar at the top contains the text 'pivot'. Below the search bar, a tree view lists operators categorized by type: 'Blending (4)', 'Table (4)', 'Grouping (1)', 'Rotation (3)', 'Pivot', 'De-Pivot', and 'Transpose'. The 'Pivot' operator is highlighted with a blue selection bar. At the bottom of the pane, a message states 'No results were found.'

The screenshot shows the KNIME interface with the 'Process' tab selected. A process node titled 'Retrieve Titan' is visible on the left. The main area displays the 'Select Attributes: group by attributes' dialog. This dialog has two main sections: 'Attributes' and 'Selected Attributes'. The 'Attributes' section contains a search bar and a list of attributes: # Age, Cabin, Life Boat, Name, # No of Parents or Children on Board, # No of Siblings or Spouses on Board, # Passenger Fare, Port of Embarkation, Sex, # Survived = No, # Survived = Yes, and Ticket Number. The 'Selected Attributes' section contains a search bar and a list with one item: # Passenger Class. At the bottom of the dialog are 'Apply' and 'Cancel' buttons. A tooltip at the bottom right says 'Apply changes by selecting an attribute.' On the right side of the interface, the 'Pivot' parameters panel is open, showing settings for grouping attributes, grouping attribute values, aggregation attributes, and a link to edit the list. A 'Synopsis' panel at the bottom right provides a brief description of the Pivot Operator.





Views:

Design

Results

Turbo Prep

Auto Model

Deployments

Find data, operators...etc



All Studio

Repository

Import Data

- Polynomial
- Products
- Purchases
- Ripley-Set
- Sonar
- Titanic**
- Titanic Training
- Titanic Unlabeled

Operators

pivot

- Blending (4)
- Table (4)
 - Grouping (1)
 - Aggregate
 - Rotation (3)
 - Pivot
 - De-Pivot
 - Transpose

No results were found.

Process

Process

Edit Parameter List: aggregation attributes

The attributes which should be aggregated.

aggregation attribute	aggregation function
Survived = Yes	average

Add Entry **Remove Entry** **Apply** **Cancel**

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

Activate Wisdom of Crowds

Parameters

Pivot

up by attributes **Select Attributes...**

Column grouping attribute **Sex**

regation attributes **Edit List (0)...**

use default aggregation

[Hide advanced parameters](#)

[Change compatibility \(9.10.000\)](#)

Pivot

Blending

Operations: Rotate, Rotations, Pivoting, Group, Grouping, Group Aggregate, Cross-table, Crosstable, Long, Wide, Transpose, Sum, Count, Standard Deviation, Min, Max, Average, Avg, Rotation

Synopsis

The Pivot Operator creates a *pivot table*.



Views:

Design

Results

Turbo Prep

Auto Model

Deployments

Find data, operators...etc

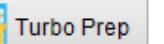


All Studio

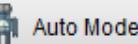
Result History

ExampleSet (Pivot) X

Open in



Turbo Prep



Auto Model

Filter (3 / 3 examples):

all



Data

Row No.	Passenger ...	average(Sur...)	average(Sur...
1	First	0.965	0.341
2	Second	0.887	0.146
3	Third	0.491	0.152



Statistics



Visualizations



Annotations

ExampleSet (3 examples, 0 special attributes, 3 regular attributes)

Repository X

Import Data



data

- Deals
- Deals-Testset
- Golf
- Golf-Testset
- Iris
- Labor-Negotiations
- Market-Data
- Polynomial
- Products
- Purchases
- Ripley-Set
- Sonar
- Titanic
- Titanic Training
- Titanic Unlabeled
- Transactions
- Weighting

processes

Templates

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Tutorials

Menentukan Family Size dari Data Titanic

- Retrieve data “Titanic” ke panel proses
 - Dibentuk attribute baru dengan nama “Family Size” menggunakan operator Generate Attribute
 - Pada parameter, isilah :
 - a. Function attribute : Klik Edit List
 - b. Attribute name : Ketikkan nama attribute baru “Family Size “
 - c. Function Expressions : klik gambar kalkulator – definisikan fungsi berikut :
$$\text{Family Size} = [\text{No of Parents or Children on Board}] + [\text{No of Siblings or Spouses on Board}]$$
 - d. Klik Apply
- * Klik ▷



Repository

Import Data

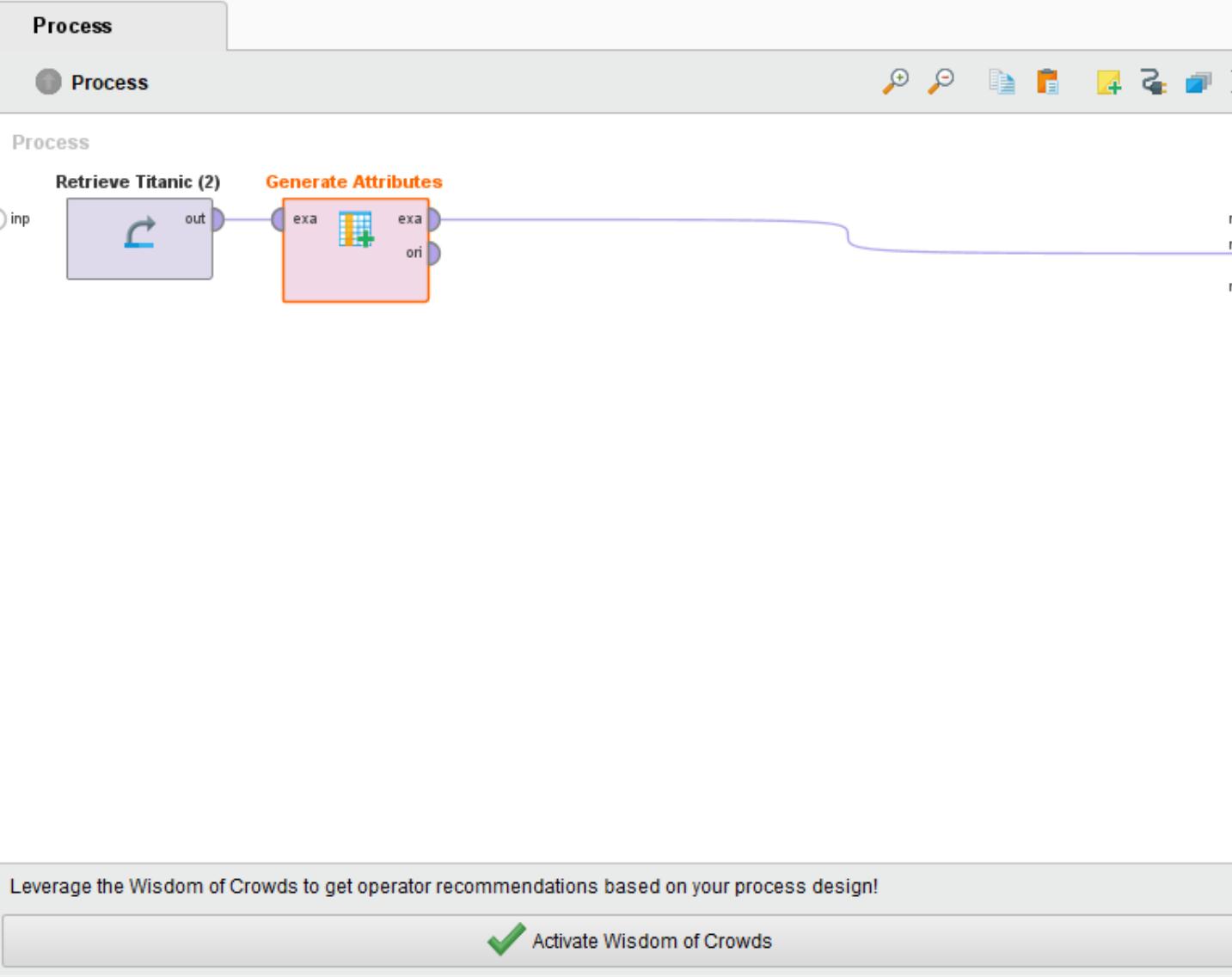
- Polynomial
- Products
- Purchases
- Ripley-Set
- Sonar
- Titanic
- Titanic Training
- Titanic Unlabeled

Operators

generate

- Blending (15)
 - Attributes (15)
 - Generation (15)
 - Generate Attributes
 - Generate ID

We found "InDatabase Extension", "Reporting Extension" and 4 more results in the Marketplace. [Show me!](#)



Parameters

Generate Attributes

function descriptions

keep all

[Edit List \(0\)...](#)

[Hide advanced parameters](#)

[Change compatibility \(9.10.000\)](#)

Help

Generate Attributes

RapidMiner Studio Core

Tags: Calculate, Create, New, Extract, Expressions, Features, Variables, Columns, Functions, Generation

Synopsis

This operator constructs new user defined attributes using mathematical expressions.

[Jump to Tutorial Process](#)



Repository

Import Data

- Polynomial
- Products
- Purchases
- Ripley-Set
- Sonar
- Titanic**
- Titanic Training
- Titanic Unlabeled

Operators

generate

- Blending (15)
 - Attributes (15)
 - Generation (15)
 - Generate Attributes**
 - Generate ID

We found "InDatabase Extension", "Reporting Extension" and 4 more results in the Marketplace. [Show me!](#)

Process

Edit Parameter List: function descriptions

Process

Retrieves Titanic

attribute name	function expressions
Family Size	

Add Entry Remove Entry Apply Cancel

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

Activate Wisdom of Crowds

Parameters

Generate Attributes

Function and arguments to use for generation. (string)

Hide advanced parameters

Change compatibility (9.10.000)

Generate Attributes

RapidMiner Studio Core

Attributes: Calculate, Create, New, Extract, Expressions, Variables, Columns, Functions, Generation

Synopsis

This operator constructs new user defined attributes using mathematical expressions.

[Jump to Tutorial Process](#)

Repository X

+ Import Data ≡

- Polynomial
- Products
- Purchases
- Ripley-Set
- Sonar
- Titanic
- Titanic Training
- Titanic Unlabeled

Operators X

generate X

Blending (15) ^

Attributes (15) ^

Generation (15) ^

- Generate Attributes
- Generate ID

We found "InDatabase Extension", "Reporting Extension" and 4 more results in the Marketplace. [Show me!](#)

Design X

Process X

Process Process

Retrieve Retrieve

inp inp

Expression 1 [No of Parents or Children on Board]+[No of Siblings or Spouses on Board]

Info: Expression is syntactically correct.

Functions Search

- Logical
- Comparison
- Text information
- Text transformation
- Mathematical functions
- Statistical functions

Inputs Search

- Cabin
- Life Boat
- Name
- # No of Parents or Children on Board
- # No of Siblings or Spouses on Board
- Passenger Class

✓ Apply ✗ Cancel

Activate Wisdom of Crowds ✓

Leverage the

Find data, operators...etc 🔍 All Studio ▼

Process X

Attributes X

Descriptions Edit List (0)... i

Advanced parameters [Compatibility \(9.10.000\)](#)

Generate Attributes X

RapidMiner Studio Core [Update](#) [Create](#) [New](#) [Extract](#) [Expressions](#) [Variables](#) [Columns](#) [Functions](#) [Generation](#)

This operator constructs new user defined attributes using mathematical expressions.

[Jump to Tutorial Process](#)

31°C Hujan 12:31 PM 11/6/2021



Views:

Design

Results

Turbo Prep

Auto Model

Deployments

Find data, operators...etc



All Studio

Result History

ExampleSet (Generate Attributes)

Repository

Open in [Turbo Prep](#) [Auto Model](#)

Filter (1,309 / 1,309 examples): all

Row No.	Passenger ...	Name	Sex	Age	No of Sibling...	No of Parent...	Ticket Nu...
1	First	Allen, Miss. E...	Female	29	0	0	24160
2	First	Allison, Mast...	Male	0.917	1	2	113781
3	First	Allison, Miss. ...	Female	2	1	2	113781
4	First	Allison, Mr. H...	Male	30	1	2	113781
5	First	Allison, Mrs. ...	Female	25	1	2	113781
6	First	Anderson, Mr....	Male	48	0	0	19952
7	First	Andrews, Mis...	Female	63	1	0	13502
8	First	Andrews, Mr. ...	Male	39	0	0	112050
9	First	Appleton, Mrs...	Female	53	2	0	11769
10	First	Artagaveytia, ...	Male	71	0	0	PC 17609
11	First	Astor, Col. Jo...	Male	47	1	0	PC 17757
12	First	Astor, Mrs. Jo...	Female	18	1	0	PC 17757
13	First	Aubart, Mme. ...	Female	24	0	0	PC 17477
14	First	Barber, Miss. ...	Female	26	0	0	19877

ExampleSet (1,309 examples, 0 special attributes, 13 regular attributes)

[Import Data](#)

data

- Deals
- Deals-Testset
- Golf
- Golf-Testset
- Iris
- Labor-Negotiations
- Market-Data
- Polynomial
- Products
- Purchases
- Ripley-Set
- Sonar
- Titanic**
- Titanic Training
- Titanic Unlabeled
- Transactions
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Calculating result: Visualizations



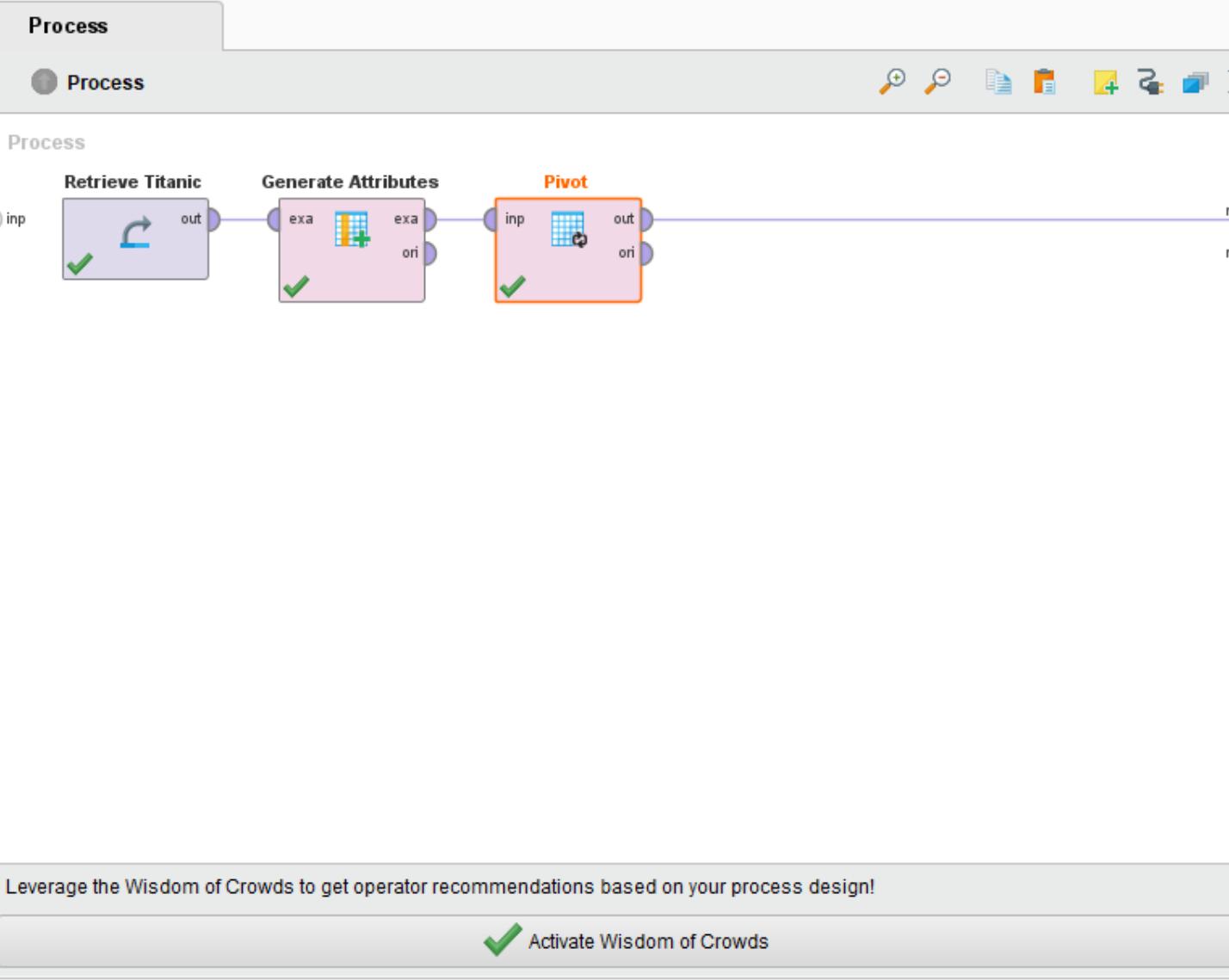
- Pilih Operator “Pivot”- klik
 - Pada Parameter, Isikan dengan :
 - a. Group by attributes : Klik Select Attributes – pindahkan “Passenger Class” dan “Sex” ke kanan – klik apply
 - b. Column grouping attributes : pilih “Survived”
 - c. Aggregation attributes : Klik Edit List
 - aggregation attributes : Family Size & aggregation functions : average
 - aggregation attributes : Family Size & aggregation functions : count
 - d. Klik Apply
- * Klik ▷



Repository

Import Data

- Products
- Purchases
- Ripley-Set
- Sonar
- Titanic**
- Titanic Training
- Titanic Unlabeled
- Transactions



Parameters

Pivot

group by attributes: [Select Attributes...](#)

column grouping attribute: Survived

aggregation attributes: [Edit List \(2\)...](#)

use default aggregation

[Hide advanced parameters](#)

[Change compatibility \(9.10.000\)](#)



Views:

Design

Results

Turbo Prep

Auto Mode

Deployment

Find data, operators...etc



All Studio ▾

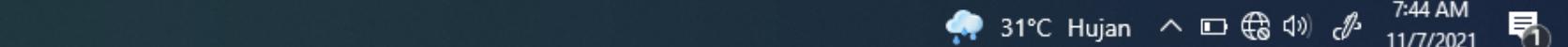
The image shows a software interface titled 'Repository' with a 'Import Data' button and a list of datasets. The 'Titanic' dataset is highlighted with a blue selection bar.

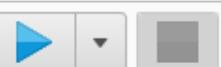
The screenshot shows the 'Operators' pane in Power BI. The 'pivot' operator is selected, indicated by a blue border around its icon and text. The pane lists several operators categorized under 'Blending' (4), 'Table' (4), and 'Rotation' (3). The 'Pivot' operator is highlighted with a blue box. At the bottom, there is a link to the Marketplace.

Category	Operator
Blending (4)	
Table (4)	
Grouping (1)	Aggregate
Rotation (3)	Pivot
	De-Pivot

Get more operators from the Marketplace

The screenshot shows the KNIME interface with a process titled 'Process' on the left. A sub-process titled 'Process' is currently selected. The main workspace contains a 'Select Attributes: group by attributes' node and a 'Pivot' node. The 'Select Attributes' dialog is open, showing a list of attributes: Age, Cabin, Family Size, Life Boat, Name, No of Parents or Children on Board, No of Siblings or Spouses on Board, Passenger Fare, Port of Embarkation, Survived, and Ticket Number. The 'Selected Attributes' list contains 'Passenger Class' and 'Sex'. The 'Pivot' parameters panel on the right shows 'group by attributes' set to 'Survived', 'Column grouping attribute' set to 'Survived', and 'Aggregation attributes' set to 'Edit List (2...)'. A note at the bottom of the dialog says: 'Leverage the Wisdom of Crowds to get operator recommendations based on your process design!' with a 'Activate Wisdom of Crowds' button.





Views:

Design

Results

Turbo Pre

Auto Mod

Deployment

Find data, operators...etc



All Studio

The image shows a software interface titled 'Repository'. At the top left is a green circular button with a white plus sign and the text 'Import Data'. To its right is a button with three horizontal lines and a downward arrow. Below these are eight list items, each with a blue square icon and a dataset name. The 'Titanic' dataset is highlighted with a blue selection bar. The list items are: Products, Purchases, Ripley-Set, Sonar, Titanic, Titanic Training, Titanic Unlabeled, and Transactions. The interface has a light gray background with dark gray horizontal and vertical scroll bars on the right and bottom edges.

The Operators panel shows the following structure:

- Blending (4)
- Table (4)
 - Grouping (1)
 - Aggregate
 - Rotation (3)
 - Pivot
 - De-Pivot

At the bottom, a link reads: [Get more operators from the Marketplace](#).

Process

Process

Process

Retrieve Titan

inp

aggregation attribute

Family Size

Family Size

aggregation function

average

count

Add Entry

Remove Entry

Apply

Cancel

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

Activate Wisdom of Crowds

Parameters

Pivot

Group by attributes

Column grouping attribute

Aggregation attributes

use default aggregation

[Hide advanced parameters](#)

[Change compatibility \(9.10.000\)](#)

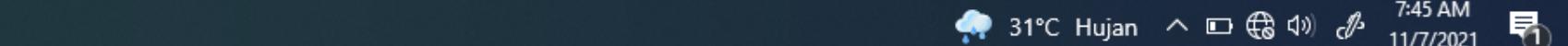
Pivot

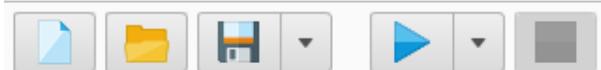
Blending

Operations: [Rotate](#), [Rotations](#), [Pivoting](#), [Group](#), [Grouping](#), [Group Aggregate](#), [Cross-table](#), [Crosstable](#), [Long](#), [Wide](#), [Transpose](#), [Sum](#), [Count](#), [Standard Deviation](#), [Min](#), [Max](#), [Average](#), [Avg](#), [Rotation](#)

Synopsis

The Pivot Operator creates a *pivot table*,





Result History

ExampleSet (Pivot)



Data

Open in [Turbo Prep](#) [Auto Model](#)

Filter (6 / 6 examples): all

Row No.	Passenger Class	Sex	average(Family Size)_No	average(Family Size)_Yes	count(Family Size)_No	count(Family Size)_Yes
1	First	Female	1.400	1.014	5	139
2	First	Male	0.551	0.754	118	61
3	Second	Male	0.432	1.040	146	25
4	Second	Female	0.667	1.213	12	94
5	Third	Male	0.756	0.560	418	75
6	Third	Female	2.082	0.943	110	106



Statistics



Visualizations



Annotations

ExampleSet (6 examples, 0 special attributes, 6 regular attributes)

Hasil

- Deals-Testset
- Golf
- Golf-Testset
- Iris
- Labor-Negotiations
- Market-Data
- Polynomial
- Products
- Purchases
- Ripley-Set
- Sonar
- Titanic
- Titanic Training
- Titanic Unlabeled
- Transactions
- Weighting
- processes
- Templates
- Time Series
- Tutorials
- Local Repository (Local)
- DB (Legacy)

TUGAS

Perguruan Tinggi XYZ adalah salah satu perguruan ternama di Yogyakarta yang sedang mempersiapkan menggunakan data sebagai bahan baku strategis untuk membantu mengambil keputusan. Pak Gatot adalah kepala bagian operasional di PT XYZ yang akan mempersiapkan data untuk pimpinan di perguruan tinggi tersebut. Saudara diminta membantu pak Gatot untuk melakukan pengolahan awal datanya. Perangkat lunak yang akan saudara gunakan Rapidminer. Berikut pengolahan awal data yang harus saudara lakukan

1. Pak Gatot sebagai kepala bagian operasional perguruan tinggi XYZ memiliki data yang disimpan dalam tabel datamhs.xlsx, sebagai berikut.

NPM	Nama	Jenis Kelamin	Jenis Sekolah Lanjutan	Status SMA/K	IPK Sem_1	IPK Sem _2	Status kelulusan
1901	Budi Setiawan	L	SMK	S	2,60	2,75	Tepat
1902	Joni Hermawan	L	SMA	N	2,99	2,90	Tidak
1903	Akmal Laksmana	L	SMA	S	2,85	3,05	Tidak
1904	Endah S	P	SMA	N	2,85	2,85	Tepat
1905	Rini Nuraeni	P	SMA	N	2,90	2,90	Tidak
1906	Nugroho	L	SMK	N	2,85	2,90	Tepat
1907	Farida	P	SMK	S	3,00	3,00	Tepat

Bantulah pak Gatot agar dapat membaca dan menyimpan tabel yang berasal dari file xlsz tersebut ke Rapidminer, berilah nama dmhs.

2. Dengan menggunakan data dmhs Saudara diminta membantu Pak Gatot untuk menghitung rata-rata IPK sem_1 berdasarkan jenis sekolah sehingga dihasilkan tabel sebagai berikut.

Jenis Sekolah Lanjutan	Rata-rata (IPK Sem 1)
SMK
SMA

3. Berdasar data pada soal no 1 Pak Gatot akan mencari data mahasiswa yang berasal dari SMA, IPK Sem_1 dan IPK Sem_2 lebih dari 2,9.

4. Dengan menggunakan data pada soal no 1, saudara diminta membantu Pak Gatot untuk menampilkan data dengan atribut **NPM**, **Nama**, **Jenis Kelamin** dan **Status Kelulusan**

5. Pak Gatot baru saja menerima data yang bernama ipkmhs1.xlsx dari Pusat Komputer sebagai berikut

NPM	Nama	IPK Sem_1	IPK Sem_2	IPK Sem_3	IPK Sem_4
1901	Budi Setiawan	2,60	2,75	2,80	2,95
1902	Joni Hermawan	2,99	2,90	3,25	2,95
1903	Akmal Laksmana	2,85	3,05	3,00	2,90
1904	Endah S	2,85	2,85	2,90	3,05
1905	Rini Nuraeni	2,90	2,90	2,95	2,95
1906	Nugroho	2,85	2,90	3,00	3,05
1907	Farida	3,00	3,00	3,00	3,15

Saudara diminta membantu pak Gatot untuk menghilangkan karakter '_' yang ada pada nama atribut.

6. Tambahkan atribut status kelulusan dari data pada soal no 1 ke data pada soal no 5, tempatkan setelah atribut IPK Sem_4, Bantulah pak Gatot untuk memvisualisasikan IPK Sem_1 sd IPK_Sem_4 untuk masing-masing mahasiswa, sehingga dapat dilakukan analisis IPK tersebut terhadap ketepatan waktu studi mahasiswa.

7. Setelah menerima data seperti pada soal no 5, satu hari kemudian pak Gatot menerima data kembali sebagai berikut

NPM	IPK Sem_5	IPK Sem_6
1901	3,00	3,05
1902	2,95	2,95
1903	3,15	3,15
1904	3,20	2,95

Gabungkan data pada soal no 5 dan 7 sehingga mahasiswa dengan NPM 1901-1904 IPK Sem_5 dan IPK Sem_6nya mengisi kolom setelah IPK Sem_4

8. Perhatikan tabel pada soal no 5, untuk kepentingan Kaprodi, pak Gatot diharuskan menghitung akar kuadrat dari IPK Sem_1 dan menempatkan hasil perhitungannya pada kolom baru yang diletakkan di sebelah kanan kolom dengan atribut IPK Sem_4.

12. Perhatikan tabel datamhs.xlsx berikut (soal no 1)

NPM	Nama	Jenis Kelamin	Jenis Sekolah Lanjutan	Status SMA/K	IPK Sem_1	IPK Sem_2	Status kelulusan
1901	Budi Setiawan	L	SMK	S	2,60	2,75	Tepat
1902	Joni Hermawan	L	SMA	N	2,99	2,90	Tidak
1903	Akmal Laksmana	L	SMA	S	2,85	3,05	Tidak
1904	Endah S	P	SMA	N	2,85	2,85	Tepat
1905	Rini Nuraeni	P	SMA	N	2,90	2,90	Tidak
1906	Nugroho	L	SMK	N	2,85	2,90	Tepat
1907	Farida	P	SMK	S	3,00	3,00	Tepat

Saudara diminta membantu pak Gatot untuk menghitung rata-rata IPK Sem_1, berdasarkan status kelulusan dan dan jenis sekolah seperti diperlihatkan pada tabel berikut

Status Kelulusan	Rata-rata IPK Sem_1 SMA	Rata-rata IPK Sem_1 SMK
Tepat
Tidak Tepat

Ketentuan Tugas

- Kerjakan Semua tugas tersebut secara mandiri
- Kerjakan tugas – tugas tersebut **dalam format pdf**
- **Setiap jawaban** dari semua soal wajib **disertai dengan screen shoot** Langkah-Langkah yang dilakukan dan hasil yang diperoleh menggunakan Rapidminer Studio
- **Kumpulkan** tugas tersebut **paling lambat hari Sabtu, 14 November 2021 Pukul 08.00 WIB** di elearning