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Kelas : A
Nim : L200170013

MODUL 11

INDUKSI DAN ATURAN ASOSIASI

Langkah-langkah Praktikum

1. Induksi Aturan Data Cuaca

Rule Model (Rule Induction)

The screenshot shows the RapidMiner Studio Free 9.0.003 interface. The main window is titled "RuleModel (Rule Induction)" and displays the following RuleModel description:

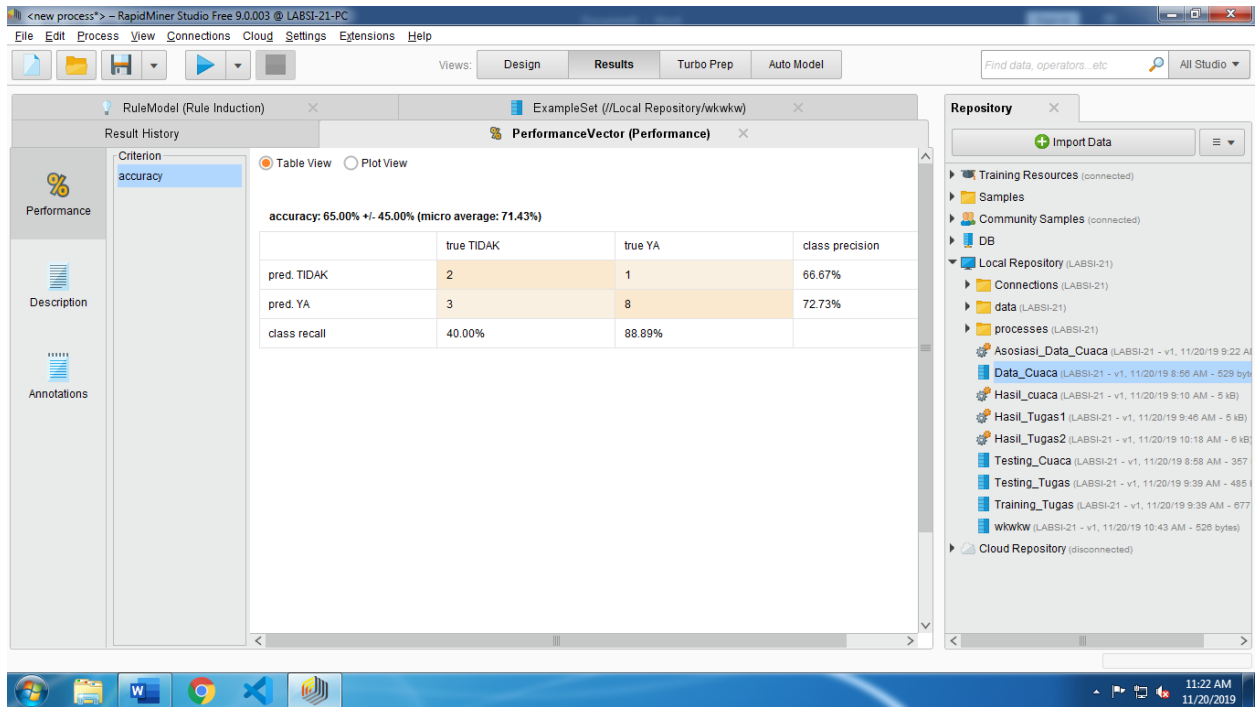
```
if Kelembapan_Udara ≤ 82.500 then YA (1 / 6)
if Cuaca = Cerah then TIDAK (3 / 0)
if Cuaca = Mendung then YA (0 / 2)
if Suhu ≤ 70.500 then YA (0 / 1)
else TIDAK (0 / 0)
```

Annotations: correct: 12 out of 13 training examples.

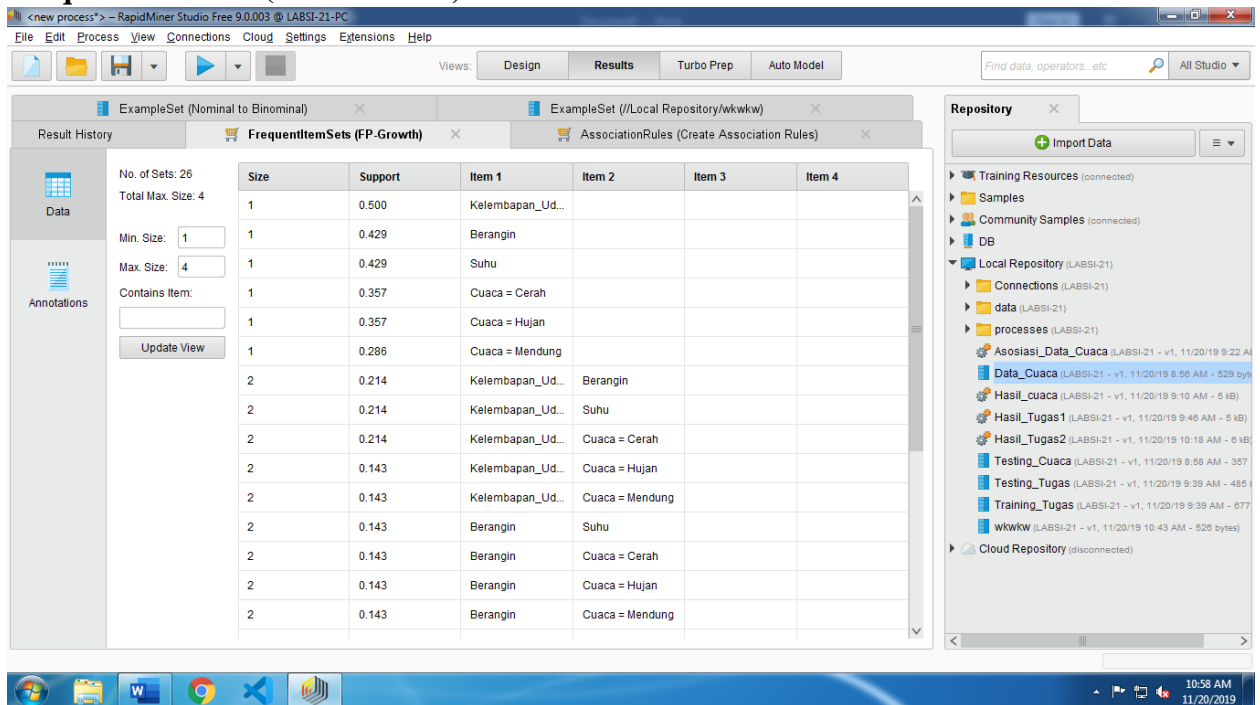
The right sidebar shows the Repository with the following structure:

- Training Resources (connected)
- Samples
- Community Samples (connected)
- DB
- Local Repository (LABSI-21)
 - Connections (LABSI-21)
 - data (LABSI-21)
 - processes (LABSI-21)
 - Asosiasi_Data_Cuaca (LABSI-21 - v1, 11/20/19 9:22 AM - 529 bytes)
 - Data_Cuaca (LABSI-21 - v1, 11/20/19 8:56 AM - 529 bytes)
 - Hasil_cuaca (LABSI-21 - v1, 11/20/19 9:10 AM - 5 KB)
 - Hasil_Tugas1 (LABSI-21 - v1, 11/20/19 9:46 AM - 5 KB)
 - Hasil_Tugas2 (LABSI-21 - v1, 11/20/19 10:18 AM - 6 KB)
 - Testing_Cuaca (LABSI-21 - v1, 11/20/19 9:58 AM - 357 bytes)
 - Testing_Tugas (LABSI-21 - v1, 11/20/19 9:39 AM - 485 bytes)
 - Training_Tugas (LABSI-21 - v1, 11/20/19 9:39 AM - 677 bytes)
 - wkwkw (LABSI-21 - v1, 11/20/19 10:43 AM - 528 bytes)
- Cloud Repository (disconnected)

Hasil Performance Vector



2. Aturan Asosiasi Data Cuaca Frequent Item Set (FP – Growth)



<new process*> - RapidMiner Studio Free 9.0.003 @ LABSI-21-PC

File Edit Process View Connections Cloud Settings Extensions Help

Views: Design Results Turbo Prep Auto Model

Find data, operators, etc. All Studio

ExampleSet (Nominal to Binominal) ExampleSet (/Local Repository/wwkw)

Result History FrequentItemSets (FP-Growth) AssociationRules (Create Association Rules)

Data Annotations

No. of Sets: 26
Total Max. Size: 4

Min. Size: 1
Max. Size: 4
Contains Item:
Update View

Size	Support	Item 1	Item 2	Item 3	Item 4
2	0.143	Berangin	Suhu		
2	0.143	Berangin	Cuaca = Cerah		
2	0.143	Berangin	Cuaca = Hujan		
2	0.143	Berangin	Cuaca = Mendung		
2	0.214	Suhu	Cuaca = Cerah		
2	0.071	Suhu	Cuaca = Hujan		
2	0.143	Suhu	Cuaca = Mendung		
3	0.071	Kelembapan_Ud...	Berangin	Suhu	
3	0.071	Kelembapan_Ud...	Berangin	Cuaca = Cerah	
3	0.071	Kelembapan_Ud...	Berangin	Cuaca = Hujan	
3	0.071	Kelembapan_Ud...	Berangin	Cuaca = Mendung	
3	0.143	Kelembapan_Ud...	Suhu	Cuaca = Cerah	
3	0.071	Kelembapan_Ud...	Suhu	Cuaca = Mendung	
3	0.143	Berangin	Suhu	Cuaca = Cerah	
4	0.071	Kelembapan_Ud...	Berangin	Suhu	Cuaca = Cerah

Repository

Import Data

Training Resources (connected)

Samples

Community Samples (connected)

DB

Local Repository (LABSI-21)

Connections (LABSI-21)

data (LABSI-21)

processes (LABSI-21)

Asosiasi_Data_Cuaca (LABSI-21 - v1, 11/20/19 9:22 AM - 529 bytes)

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wwkw (LABSI-21 - v1, 11/20/19 10:43 AM - 528 bytes)

Cloud Repository (disconnected)

10:58 AM 11/20/2019

Association Rules

<new process*> - RapidMiner Studio Free 9.0.003 @ LABSI-21-PC

File Edit Process View Connections Cloud Settings Extensions Help

Views: Design Results Turbo Prep Auto Model

Find data, operators, etc. All Studio

ExampleSet (Nominal to Binominal) ExampleSet (/Local Repository/wwkw)

Result History FrequentItemSets (FP-Growth) AssociationRules (Create Association Rules)

Data Annotations

Show rules matching
any of these conclusions:
Suhu
Cuaca = Cerah

No.	Premises	Conclusion
1	Berangin, Suhu	Cuaca = Cerah
2	Berangin, Cuaca = Cerah	Suhu
3	Kelembapan_Udara, Berangin, Suhu	Cuaca = Cerah
4	Kelembapan_Udara, Berangin, Cuaca = Cerah	Suhu

Min. Criterion:
confidence

Min. Criterion Value:

Repository

Import Data

Training Resources (connected)

Samples

Community Samples (connected)

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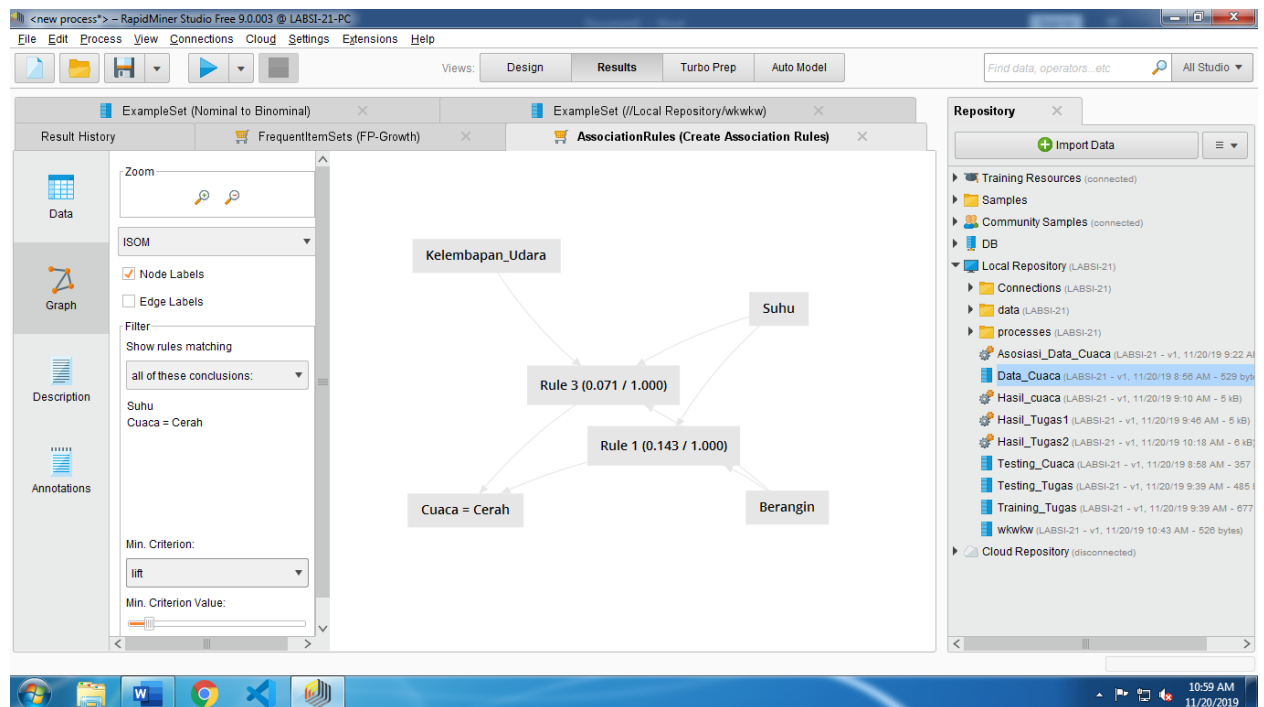
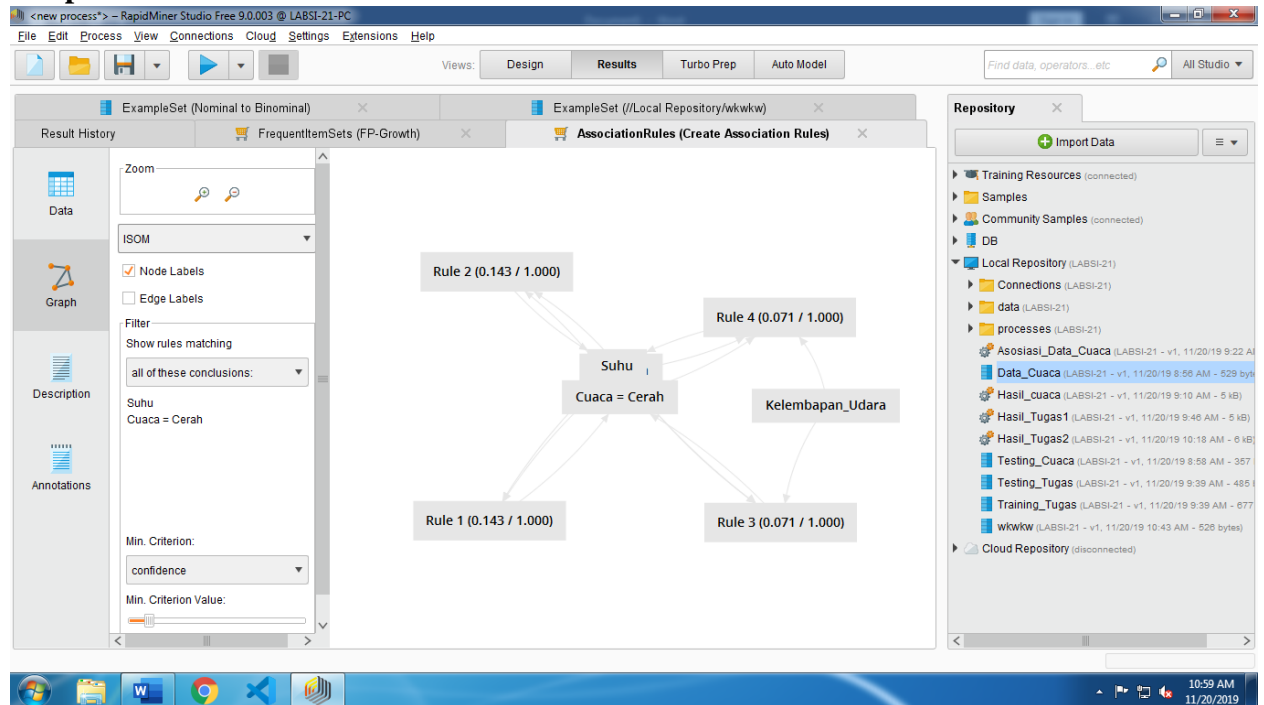
Training_Tugas (LABSI-21 - v1, 11/20/19 9:39 AM - 677 bytes)

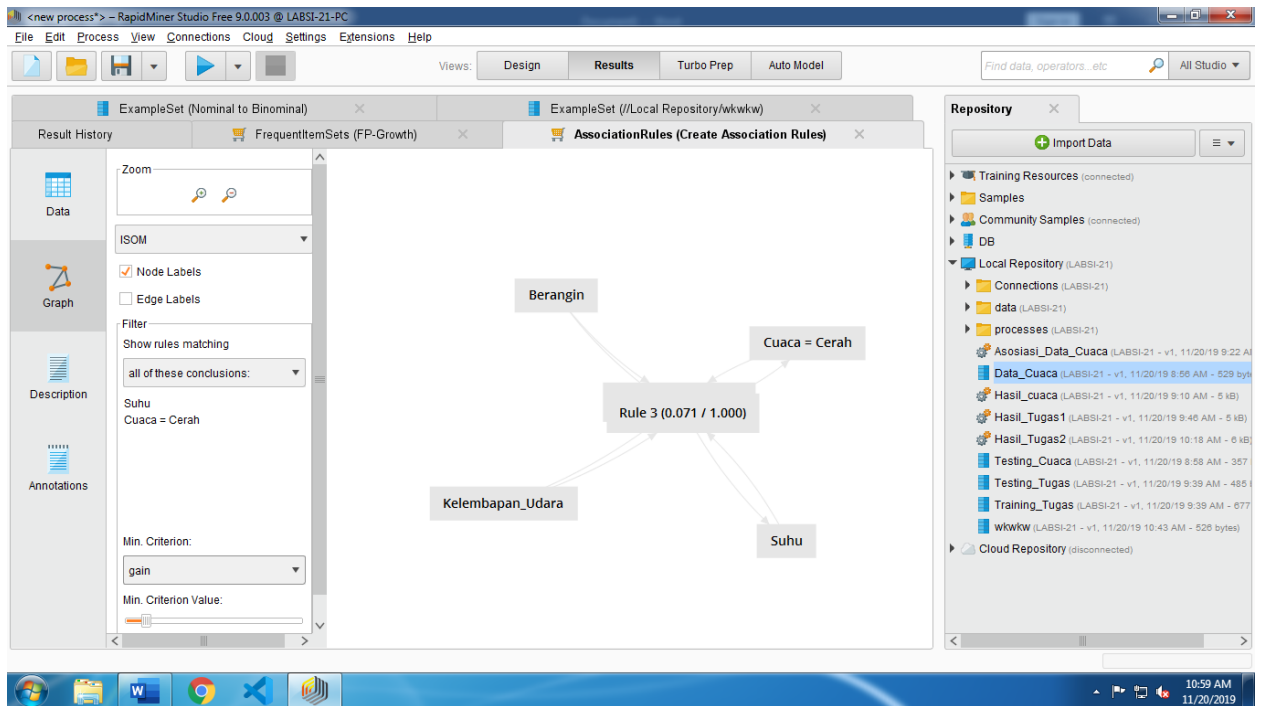
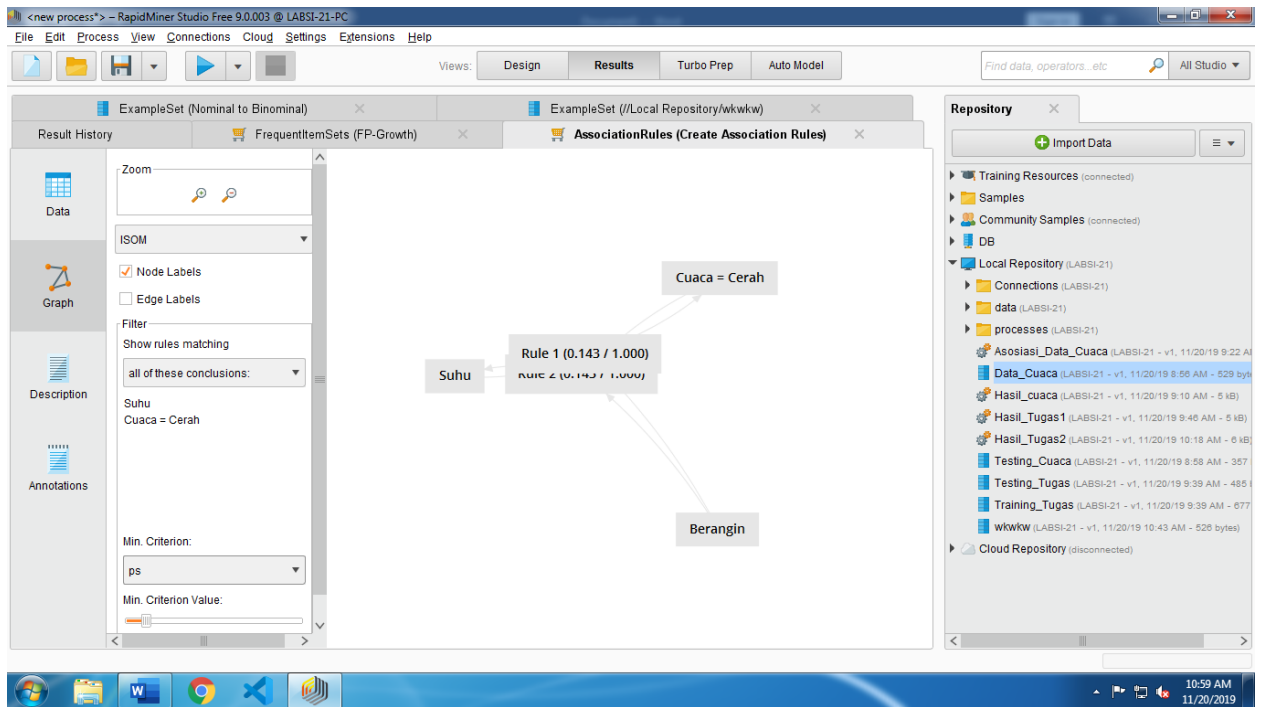
wwkw (LABSI-21 - v1, 11/20/19 10:43 AM - 528 bytes)

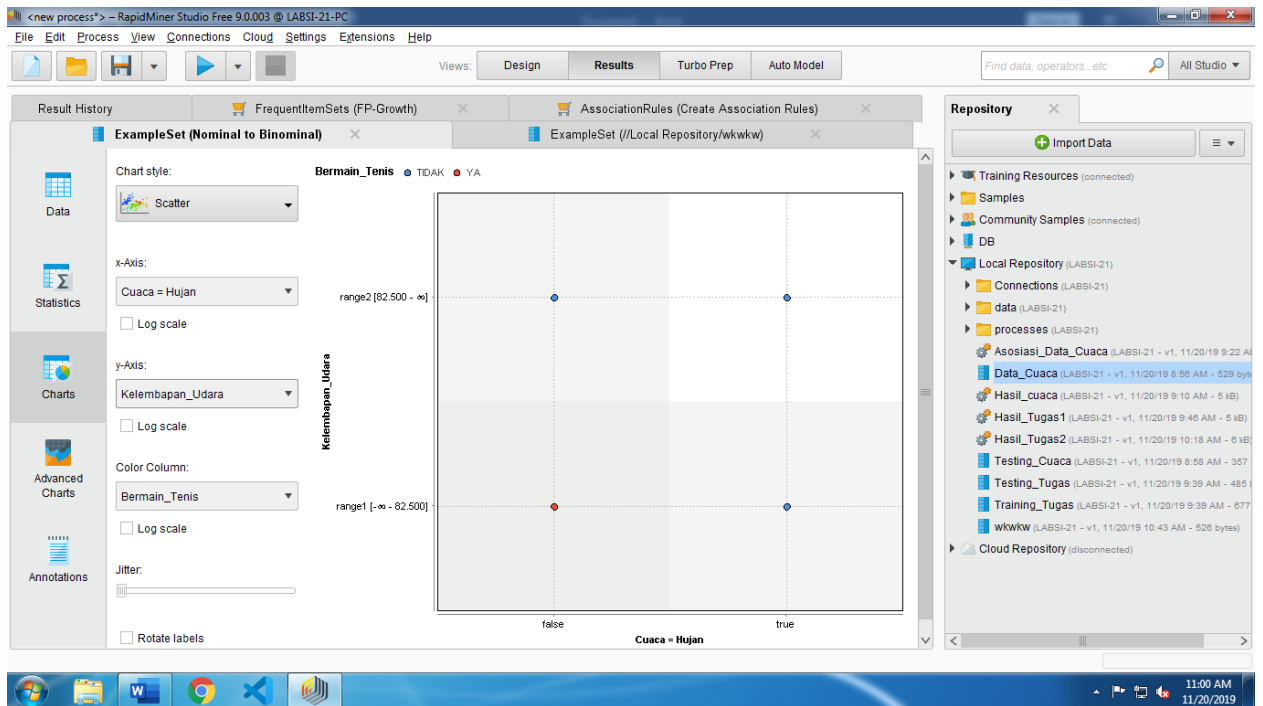
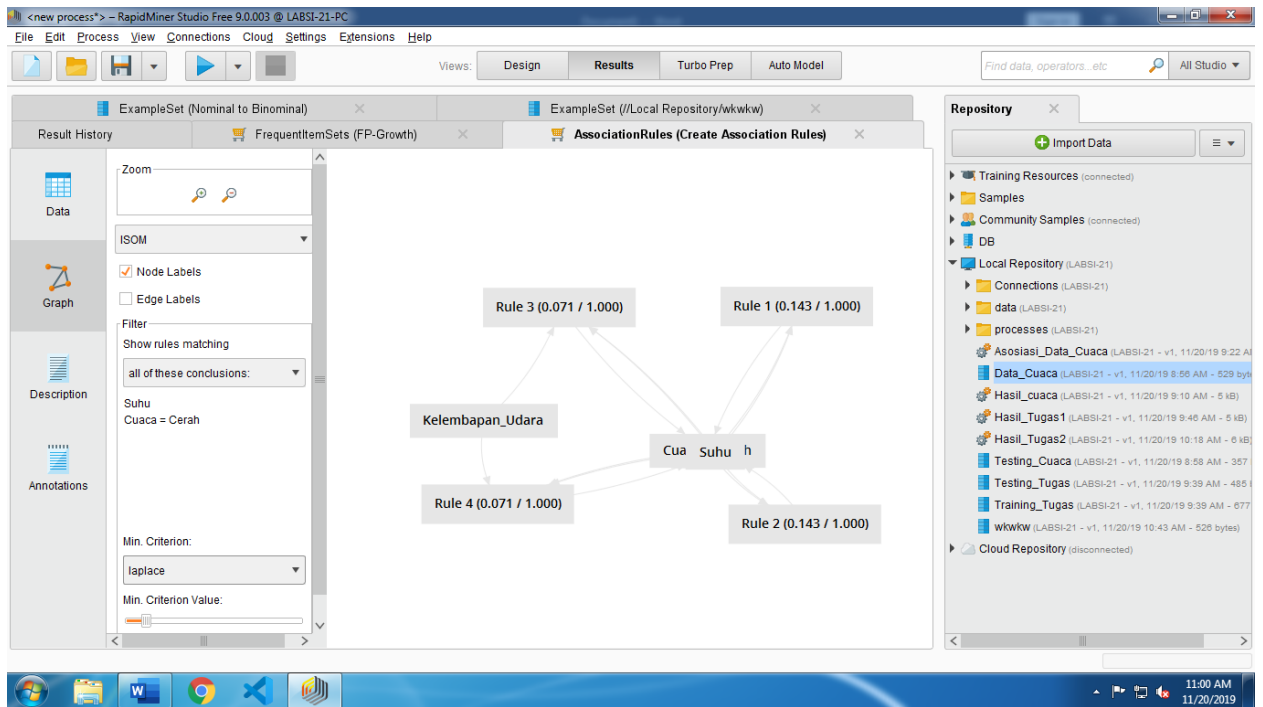
Cloud Repository (disconnected)

10:58 AM 11/20/2019

Graph View







Tugas

The screenshot shows the RapidMiner Studio interface. The main window displays the **RuleModel (Rule Induction)** process results. The **Result History** tab is active, showing the following rule set:

```
if Rerata_SKS > 18.500 then TEPAT (2 / 10)
if Gender = PRIA then TERLAMBAT (4 / 0)
if Jurusan_SMA = IPA then TEPAT (0 / 2)
if Jurusan_SMA = IPS then TERLAMBAT (1 / 0)
else TEPAT (0 / 0)
```

Annotations: correct: 17 out of 19 training examples.

The **Repository** panel on the right shows the local repository structure, including training resources, samples, community samples, and data files like **Asosiasi_Data_Cuaca**, **Data_Cuaca**, **Hasil_cuaca**, **Hasil_Tugas1**, **Hasil_Tugas2**, **Testing_Cuaca**, **Testing_Tugas**, **Training_Tugas**, and **wkwkw**.

The screenshot shows the RapidMiner Studio interface. The main window displays the **PerformanceVector (Performance)** process results. The **Result History** tab is active, showing the following performance metrics:

Criterion: accuracy

Table View (selected) | Plot View

accuracy: 65.00% +/- 32.02% (micro average: 65.00%)

	true TERLAMBAT	true TEPAT	class precision
pred. TERLAMBAT	4	4	50.00%
pred. TEPAT	3	9	75.00%
class recall	57.14%	69.23%	

The **Repository** panel on the right shows the local repository structure, including training resources, samples, community samples, and data files like **Asosiasi_Data_Cuaca**, **Data_Cuaca**, **Hasil_cuaca**, **Hasil_Tugas1**, **Hasil_Tugas2**, **Testing_Cuaca**, **Testing_Tugas**, **Training_Tugas**, and **wkwkw**.

ExampleSet (Nominal to Binominal) ExampleSet (/Local Repository/wkww)

Result History FrequentItemSets (FP-Growth) AssociationRules (Create Association Rules)

No. of Sets: 85
Total Max. Size: 5

Min. Size: 1
Max. Size: 5
Contains Item:
Update View

Size	Support	Item 1	Item 2	Item 3	Item 4	Item 5
1	0.750	Gender				
1	0.500	Jurusan_SMA ...				
1	0.400	Rerata_SKS =...				
1	0.350	Rerata_SKS =...				
1	0.300	Asal_Sekolah				
1	0.300	Jurusan_SMA ...				
1	0.250	Asisten				
1	0.250	Rerata_SKS =...				
1	0.200	Jurusan_SMA ...				
2	0.350	Gender	Jurusan_SMA ...			
2	0.200	Gender	Rerata_SKS =...			
2	0.300	Gender	Rerata_SKS =...			
2	0.250	Gender	Asal_Sekolah			
2	0.250	Gender	Jurusan_SMA ...			
2	0.200	Gender	Asisten			

Repository

Import Data

Training Resources (connected)

Samples

Community Samples (connected)

DB

Local Repository (LABSI-21)

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data (LABSI-21)

processes (LABSI-21)

Asosiasi_Data_Cuaca (LABSI-21 - v1, 11/20/19 9:22 AM - 529 bytes)

Data_Cuaca (LABSI-21 - v1, 11/20/19 8:56 AM - 529 bytes)

Hasil_cuaca (LABSI-21 - v1, 11/20/19 9:10 AM - 5 KB)

Hasil_Tugas1 (LABSI-21 - v1, 11/20/19 9:46 AM - 5 KB)

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Testing_Cuaca (LABSI-21 - v1, 11/20/19 8:58 AM - 367 bytes)

Testing_Tugas (LABSI-21 - v1, 11/20/19 9:39 AM - 485 bytes)

Training_Tugas (LABSI-21 - v1, 11/20/19 9:39 AM - 677 bytes)

wkww (LABSI-21 - v1, 11/20/19 10:43 AM - 526 bytes)

Cloud Repository (disconnected)

ExampleSet (Nominal to Binominal) ExampleSet (/Local Repository/wkww)

Result History FrequentItemSets (FP-Growth) AssociationRules (Create Association Rules)

No. of Sets: 85
Total Max. Size: 5

Min. Size: 1
Max. Size: 5
Contains Item:
Update View

Size	Support	Item 1	Item 2	Item 3	Item 4	Item 5
2	0.350	Gender	Jurusan_SMA ...			
2	0.200	Gender	Rerata_SKS =...			
2	0.300	Gender	Rerata_SKS =...			
2	0.250	Gender	Asal_Sekolah			
2	0.250	Gender	Jurusan_SMA ...			
2	0.200	Gender	Asisten			
2	0.250	Gender	Rerata_SKS =...			
2	0.150	Gender	Jurusan_SMA ...			
2	0.200	Jurusan_SMA ...	Rerata_SKS =...			
2	0.200	Jurusan_SMA ...	Rerata_SKS =...			
2	0.150	Jurusan_SMA ...	Asal_Sekolah			
2	0.200	Jurusan_SMA ...	Asisten			
2	0.100	Jurusan_SMA ...	Rerata_SKS =...			
2	0.150	Rerata_SKS =...	Asal_Sekolah			
2	0.100	Rerata_SKS =...	Jurusan_SMA ...			
2	0.050	Rerata_SKS =...	Asisten			

Repository

Import Data

Training Resources (connected)

Samples

Community Samples (connected)

DB

Local Repository (LABSI-21)

Connections (LABSI-21)

data (LABSI-21)

processes (LABSI-21)

Asosiasi_Data_Cuaca (LABSI-21 - v1, 11/20/19 9:22 AM - 529 bytes)

Data_Cuaca (LABSI-21 - v1, 11/20/19 8:56 AM - 529 bytes)

Hasil_cuaca (LABSI-21 - v1, 11/20/19 9:10 AM - 5 KB)

Hasil_Tugas1 (LABSI-21 - v1, 11/20/19 9:46 AM - 5 KB)

Hasil_Tugas2 (LABSI-21 - v1, 11/20/19 10:18 AM - 6 KB)

Testing_Cuaca (LABSI-21 - v1, 11/20/19 8:58 AM - 367 bytes)

Testing_Tugas (LABSI-21 - v1, 11/20/19 9:39 AM - 485 bytes)

Training_Tugas (LABSI-21 - v1, 11/20/19 9:39 AM - 677 bytes)

wkww (LABSI-21 - v1, 11/20/19 10:43 AM - 526 bytes)

Cloud Repository (disconnected)

ExampleSet (Nominal to Binominal) ExampleSet (/Local Repository/wkwk)

Result History FrequentItemSets (FP-Growth) AssociationRules (Create Association Rules)

No. of Sets: 10
Total Max. Size: 2

Min. Size: 1
Max. Size: 2
Contains Item:
Update View

Size	Support	Item 1	Item 2
1	0.750	Gender	
1	0.500	Jurusan_SMA = IPA	
1	0.300	Asal_Sekolah	
1	0.300	Jurusan_SMA = IPS	
1	0.250	Asisten	
1	0.250	Rerata_SKS	
2	0.350	Gender	Jurusan_SMA = IPA
2	0.250	Gender	Asal_Sekolah
2	0.250	Gender	Jurusan_SMA = IPS
2	0.250	Gender	Rerata_SKS

Repository

- Training Resources (connected)
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- Local Repository (LABSI-21)
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 - data (LABSI-21)
 - processes (LABSI-21)
 - Asosiasi_Data_Cuaca (LABSI-21 - v1, 11/20/19 9:22 AM - 529 bytes)
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 - Hasil_cuaca (LABSI-21 - v1, 11/20/19 9:10 AM - 5 KB)
 - Hasil_Tugas1 (LABSI-21 - v1, 11/20/19 9:46 AM - 5 KB)
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 - wkwkw (LABSI-21 - v1, 11/20/19 10:43 AM - 528 bytes)
- Cloud Repository (disconnected)

ExampleSet (Nominal to Binominal) ExampleSet (/Local Repository/wkwk)

Result History FrequentItemSets (FP-Growth) AssociationRules (Create Association Rules)

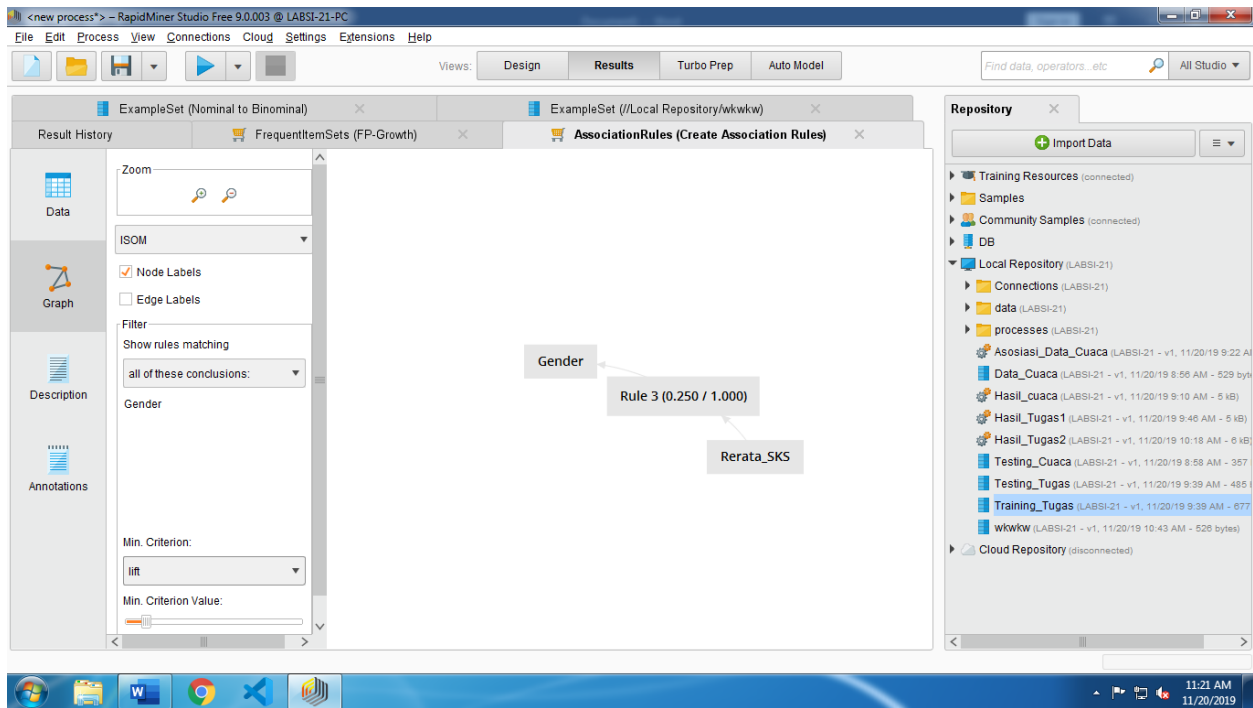
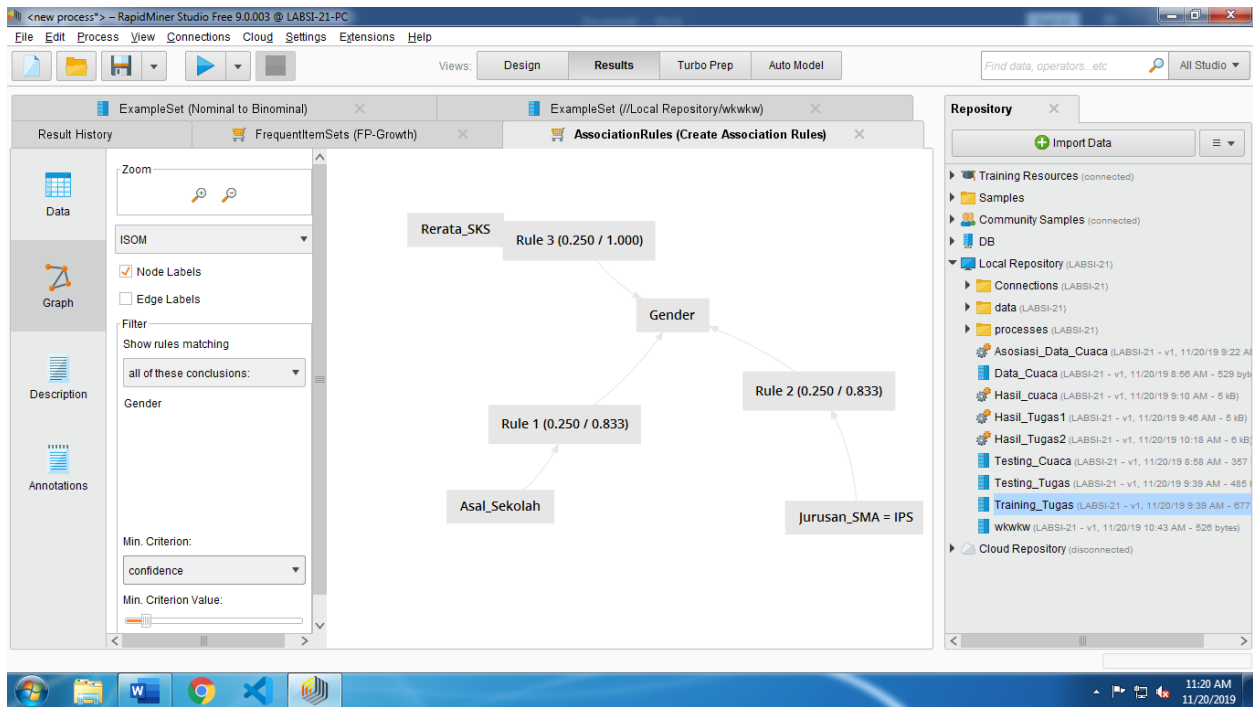
No. of Sets: 13
Total Max. Size: 2

Min. Size: 1
Max. Size: 2
Contains Item:
Show annotations of the data
Update View

Size	Support	Item 1	Item 2
1	0.750	Gender	
1	0.500	Jurusan_SMA = IPA	
1	0.400	Rerata_SKS = range1 [-∞ - 1...	
1	0.350	Rerata_SKS = range2 [18.50...	
1	0.300	Asal_Sekolah	
1	0.300	Jurusan_SMA = IPS	
1	0.250	Asisten	
1	0.250	Rerata_SKS = range3 [19.50...	
2	0.350	Gender	Jurusan_SMA = IPA
2	0.300	Gender	Rerata_SKS = range2 [18.50...
2	0.250	Gender	Asal_Sekolah
2	0.250	Gender	Jurusan_SMA = IPS
2	0.250	Gender	Rerata_SKS = range3 [19.50...

Repository

- Training Resources (connected)
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- Community Samples (connected)
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- Local Repository (LABSI-21)
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 - wkwkw (LABSI-21 - v1, 11/20/19 10:43 AM - 528 bytes)
- Cloud Repository (disconnected)



new process* - RapidMiner Studio Free 9.0.003 @ LABSI-21-PC

File Edit Process View Connections Cloud Settings Extensions Help

Views: Design Results Turbo Prep Auto Model

Find data, operators, etc. All Studio

ExampleSet (Nominal to Binominal) ExampleSet (/Local Repository/wkwkw)

Result History FrequentItemSets (FP-Growth) AssociationRules (Create Association Rules)

Data Graph Description Annotations

Zoom ISOM

Node Labels Edge Labels

Filter Show rules matching all of these conclusions: Gender

Min. Criterion: conviction Min. Criterion Value:

Jurusan_SMA = IPS Rule 2 (0.250 / 0.833) Asas_Sekolah Rule 1 (0.250 / 0.833) Gender Rule 3 (0.250 / 1.000) Rerata_SKS

Repository

Import Data

Training Resources (connected) Samples Community Samples (connected) DB Local Repository (LABSI-21) Connections (LABSI-21) data (LABSI-21) processes (LABSI-21) Asosiasi_Data_Cuaca (LABSI-21 - v1, 11/20/19 9:22 AM - 529 bytes) Data_Cuaca (LABSI-21 - v1, 11/20/19 8:56 AM - 529 bytes) Hasil_cuaca (LABSI-21 - v1, 11/20/19 9:10 AM - 5 KB) Hasil_Tugas1 (LABSI-21 - v1, 11/20/19 9:46 AM - 5 KB) Hasil_Tugas2 (LABSI-21 - v1, 11/20/19 10:18 AM - 6 KB) Testing_Cuaca (LABSI-21 - v1, 11/20/19 8:58 AM - 357 bytes) Testing_Tugas (LABSI-21 - v1, 11/20/19 9:39 AM - 485 bytes) Training_Tugas (LABSI-21 - v1, 11/20/19 9:39 AM - 677 bytes) wkwkw (LABSI-21 - v1, 11/20/19 10:43 AM - 528 bytes) Cloud Repository (disconnected)

11:21 AM 11/20/2019

new process* - RapidMiner Studio Free 9.0.003 @ LABSI-21-PC

File Edit Process View Connections Cloud Settings Extensions Help

Views: Design Results Turbo Prep Auto Model

Find data, operators, etc. All Studio

ExampleSet (Nominal to Binominal) ExampleSet (/Local Repository/wkwkw)

Result History FrequentItemSets (FP-Growth) AssociationRules (Create Association Rules)

Data Graph Description Annotations

Zoom ISOM

Node Labels Edge Labels

Filter Show rules matching all of these conclusions: Gender

Min. Criterion: The item 'Gender'. ps Min. Criterion Value:

Rerata_SKS Rule 3 (0.250 / 1.000) Gender

Repository

Import Data

Training Resources (connected) Samples Community Samples (connected) DB Local Repository (LABSI-21) Connections (LABSI-21) data (LABSI-21) processes (LABSI-21) Asosiasi_Data_Cuaca (LABSI-21 - v1, 11/20/19 9:22 AM - 529 bytes) Data_Cuaca (LABSI-21 - v1, 11/20/19 8:56 AM - 529 bytes) Hasil_cuaca (LABSI-21 - v1, 11/20/19 9:10 AM - 5 KB) Hasil_Tugas1 (LABSI-21 - v1, 11/20/19 9:46 AM - 5 KB) Hasil_Tugas2 (LABSI-21 - v1, 11/20/19 10:18 AM - 6 KB) Testing_Cuaca (LABSI-21 - v1, 11/20/19 8:58 AM - 357 bytes) Testing_Tugas (LABSI-21 - v1, 11/20/19 9:39 AM - 485 bytes) Training_Tugas (LABSI-21 - v1, 11/20/19 9:39 AM - 677 bytes) wkwkw (LABSI-21 - v1, 11/20/19 10:43 AM - 528 bytes) Cloud Repository (disconnected)

11:21 AM 11/20/2019

<new process*> - RapidMiner Studio Free 9.0.003 @ LABSI-21-PC

File Edit Process View Connections Cloud Settings Extensions Help

Views: Design Results Turbo Prep Auto Model

Find data, operators, etc. All Studio

ExampleSet (Nominal to Binominal) ExampleSet (/Local Repository/wkwkw)

Result History FrequentItemSets (FP-Growth) AssociationRules (Create Association Rules)

Data Graph Description Annotations

Zoom

ISOM

☒ Node Labels

☐ Edge Labels

Filter

Show rules matching

all of these conclusions:

Gender

Min. Criterion:

gain

Min. Criterion Value:

Rerata_SKS Rule 3 (0.250 / 1.000) Gender

Repository

Import Data

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Samples

Community Samples (connected)

DB

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wkwkw (LABSI-21 - v1, 11/20/19 10:43 AM - 528 bytes)

Cloud Repository (disconnected)

11:21 AM 11/20/2019