

NAMA : Risa Ayu Agustina

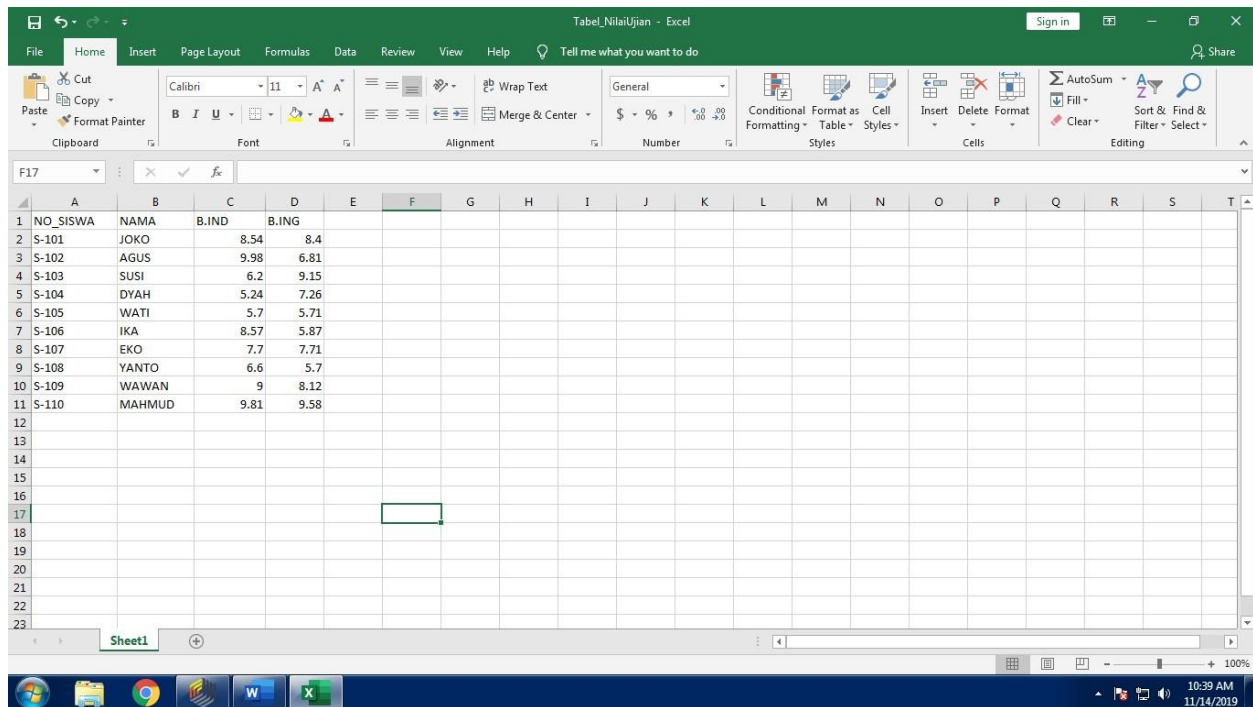
NIM : L200170049

KELAS : C

## MODUL 10

### KEGIATAN PRAKTIKUM

- Berikut table data nilai siswa :

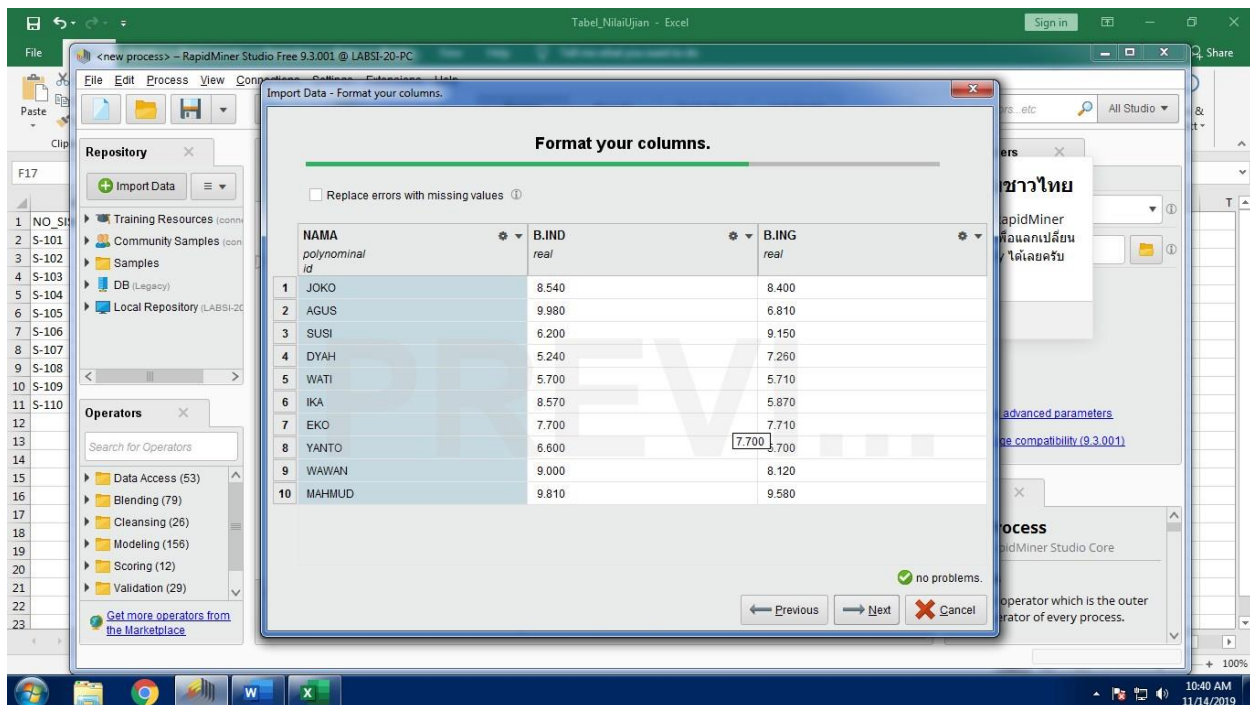
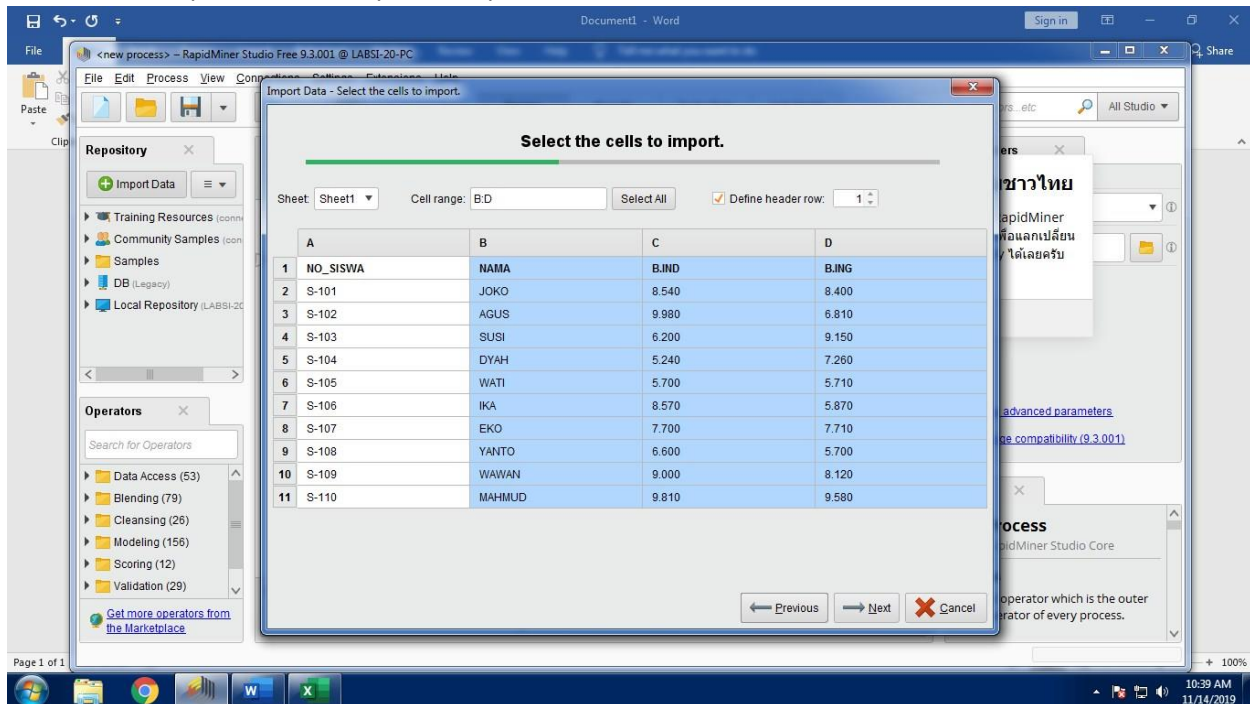


The screenshot shows a Microsoft Excel spreadsheet titled 'Tabel\_NilaiUjian - Excel'. The spreadsheet contains a table with student data. The columns are labeled A through T, and the rows are numbered 1 through 23. The data is as follows:

1	NO_SISWA	NAMA	B.IND	B.ING
2	S-101	JOKO	8.54	8.4
3	S-102	AGUS	9.98	6.81
4	S-103	SUSI	6.2	9.15
5	S-104	DYAH	5.24	7.26
6	S-105	WATI	5.7	5.71
7	S-106	IKA	8.57	5.87
8	S-107	EKO	7.7	7.71
9	S-108	YANTO	6.6	5.7
10	S-109	WAWAN	9	8.12
11	S-110	MAHMUD	9.81	9.58
12				
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23				

The Excel interface includes the ribbon with tabs for File, Home, Insert, Page Layout, Formulas, Data, Review, View, and Help. The Home tab is active, showing options for Clipboard, Font, Alignment, Number, Styles, Cells, and Editing. The status bar at the bottom indicates the current sheet is 'Sheet1' and the zoom level is 100%.

Gunakan file Tabel\_NilaiUjian.xlsx sebagai data yang akan digunakan dalam proses Clustering. Lalu import ke dalam aplikasi RapidMiner.



The screenshot shows the RapidMiner Studio interface. A pop-up window titled "ฟอรัม RapidMiner สำหรับชาวไทย" (RapidMiner Forum for Thai people) is displayed, containing text in Thai and a button labeled "ไปฟอรัม" (Go to forum). The main window shows a data table with 10 rows and 4 columns: Row No., NAMA, B.IIND, and B.IING.

Row No.	NAMA	B.IIND	B.IING
1	JOKO	8.540	8.400
2	AGUS	9.980	6.810
3	SUSI	6.200	9.150
4	DYAH	5.240	7.260
5	WATI	5.700	5.710
6	IKA	8.570	5.870
7	EKO	7.700	7.710
8	YANTO	6.600	5.700
9	WAWAN	9	8.120
10	MAHMUD	9.810	9.580

ExampleSet (10 examples, 1 special attribute, 2 regular attributes)

- Tambahkan operator k-Means. Lalu Jalankan dengan menekan tombol run (F11)

The screenshot shows the RapidMiner Studio interface with a process design. The process flow is: Retrieve Data\_NilaiUjian... → Clustering → SVD. The SVD operator is configured with "dimensionality reduction" set to "fixed number" and "dimensions" set to 1. The "Parameters" panel on the right shows the SVD configuration. The "Operators" panel on the left shows the "Singular Value Decomposition" operator selected. The "Help" panel on the right shows the "Singular Value Decomposition" help text.

Process Design:

```

graph LR
    A[Retrieve Data_NilaiUjian...] --> B[Clustering]
    B --> C[SVD]
    C --> D[Output]
  
```

Parameters for SVD (Singular Value Decomposition):

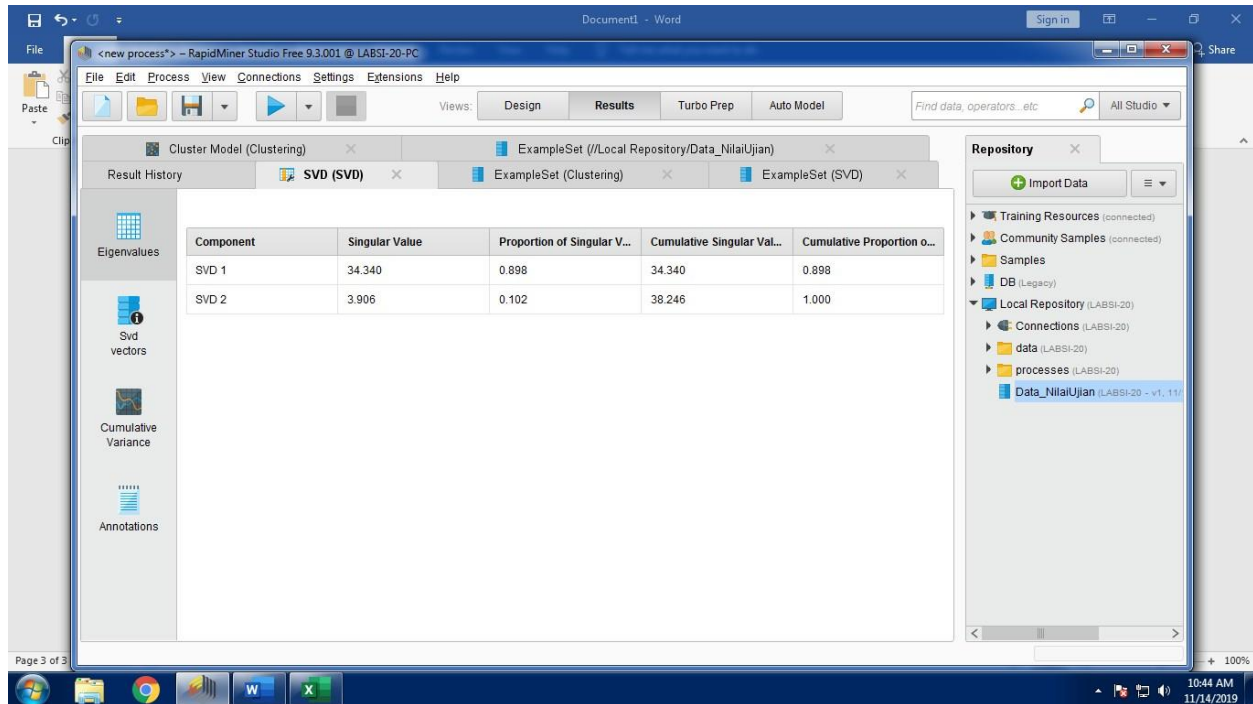
- dimensionality reduction: fixed number
- dimensions: 1

Help for Singular Value Decomposition:

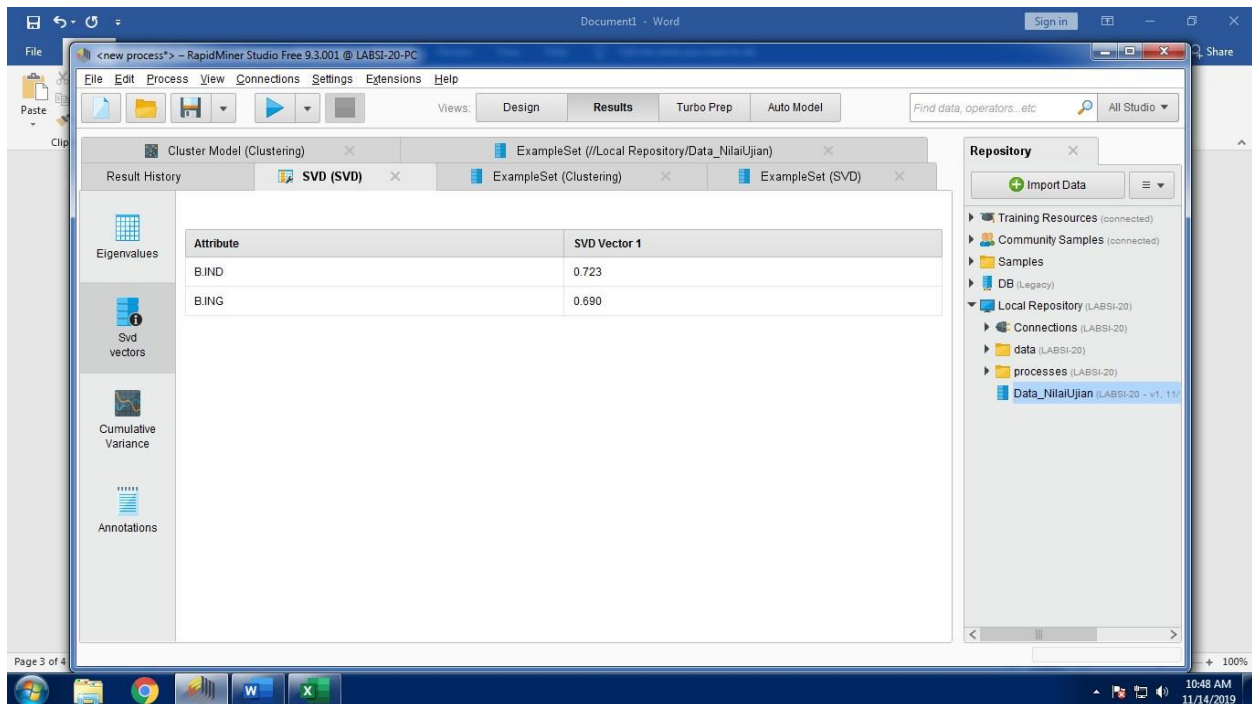
RapidMiner Studio Core

Tags: PCA, Components, Orthogonal, Eigenvalues, Decompositions, Reduction, Multicollinearity, SVD, Dimensionality Reduction

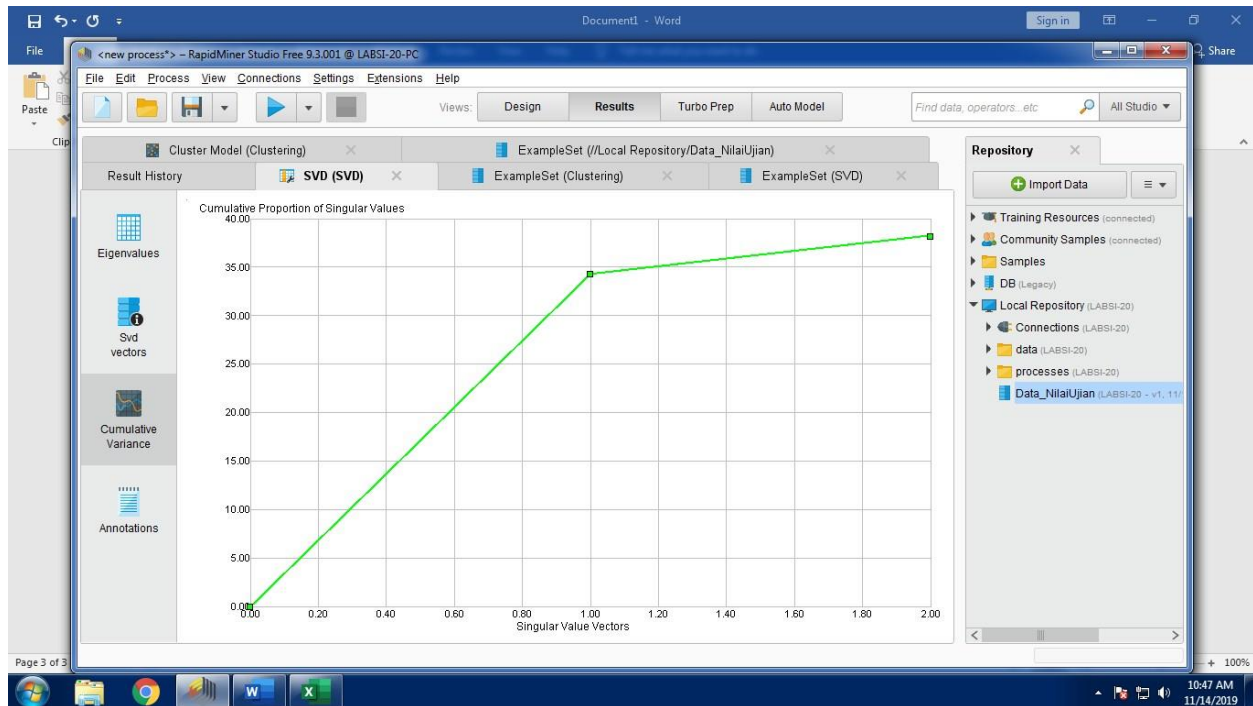
## Nilai Eigenvalue



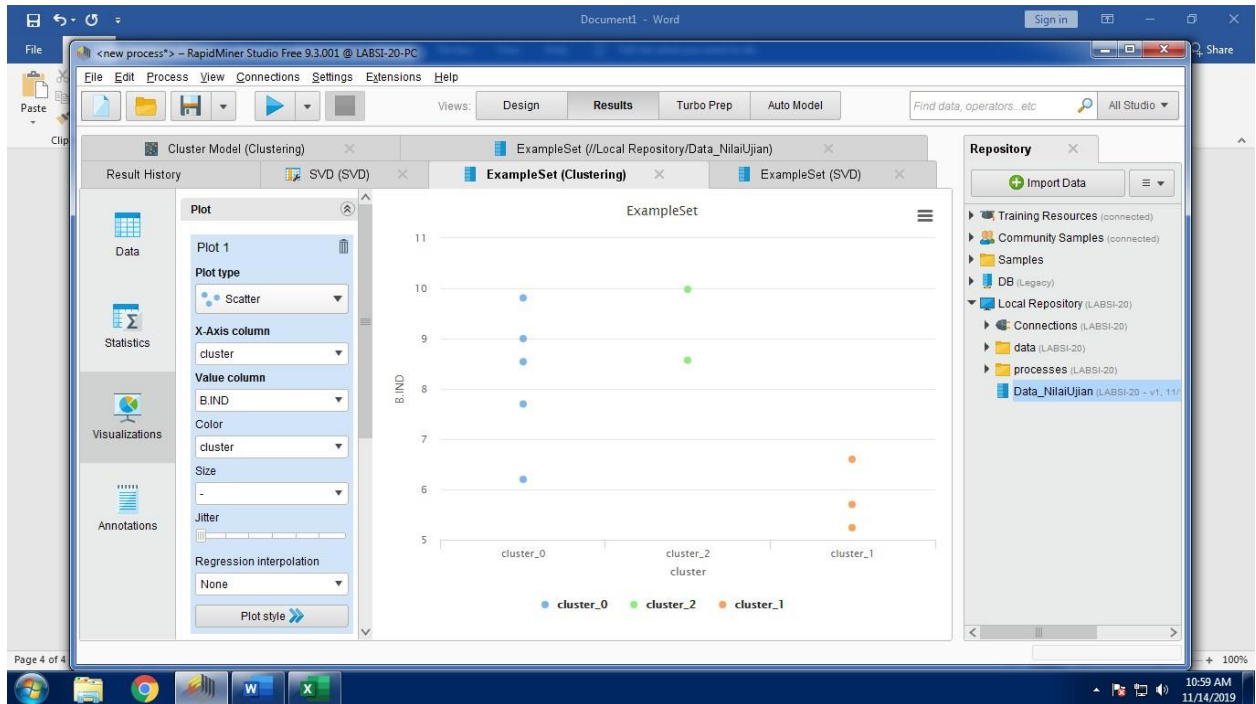
## Nilai Svd vectors



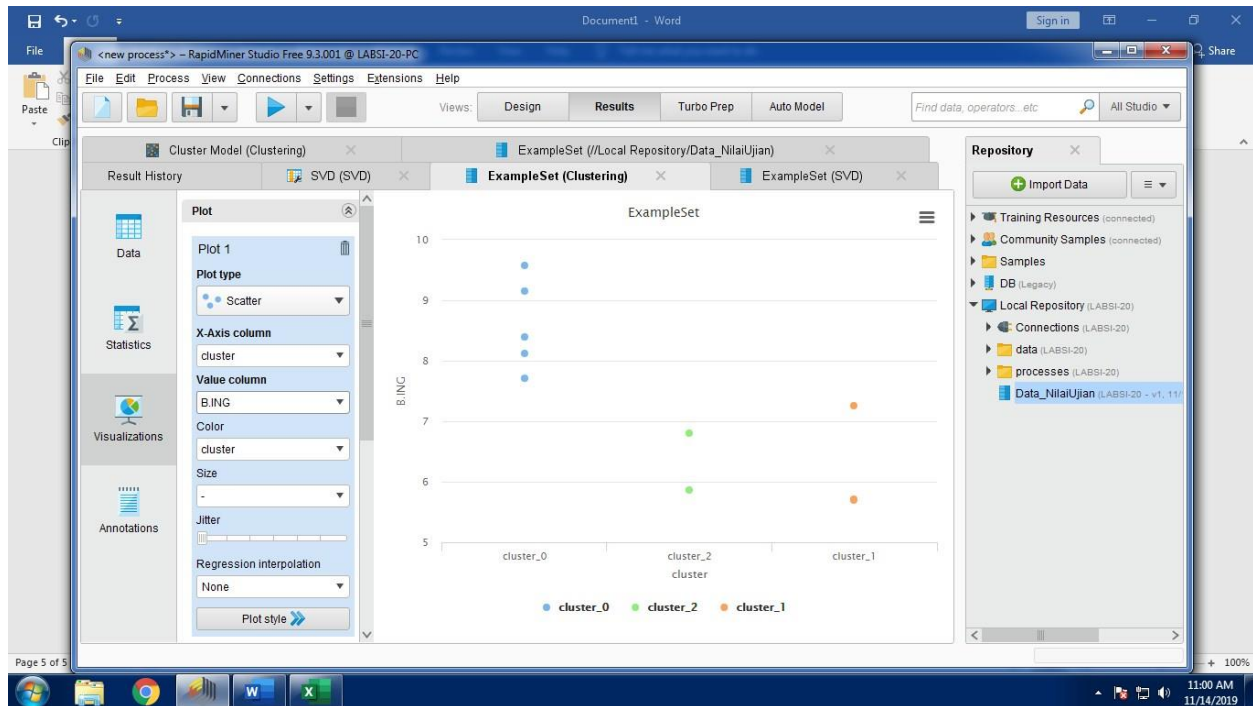
## Nilai Cumulative Variance



- Kelompok siswa bidang B.indonesia



Kelompok siswa bidang B.inggris





- Kelompok masing-masing siswa yang dikelompokkan berdasarkan cluster 0, cluster 1, cluster 2.

Row No.	NAMA	cluster ↑	B.INDO	B.ING
1	JOKO	cluster_0	8.540	8.400
3	SUSI	cluster_0	6.200	9.150
7	EKO	cluster_0	7.700	7.710
9	WAWAN	cluster_0	9	8.120
10	MAHMUD	cluster_0	9.810	9.580
4	DYAH	cluster_1	5.240	7.260
5	WATI	cluster_1	5.700	5.710
8	YANTO	cluster_1	6.600	5.700
2	AGUS	cluster_2	9.980	6.810
6	IKA	cluster_2	8.570	5.870



## Description

The screenshot displays the RapidMiner Studio Free 9.3.001 interface. The main window shows the 'Cluster Model (Clustering)' result. The 'Description' tab is active, displaying the following information:

- Cluster 0: 5 items
- Cluster 1: 3 items
- Cluster 2: 2 items
- Total number of items: 10

The 'Repository' panel on the right shows the data source 'Data\_NilaiUjian' (LABSI-20 - v1, 11/14/2019) under the 'Local Repository'.

The 'Result History' panel at the top shows the following steps:

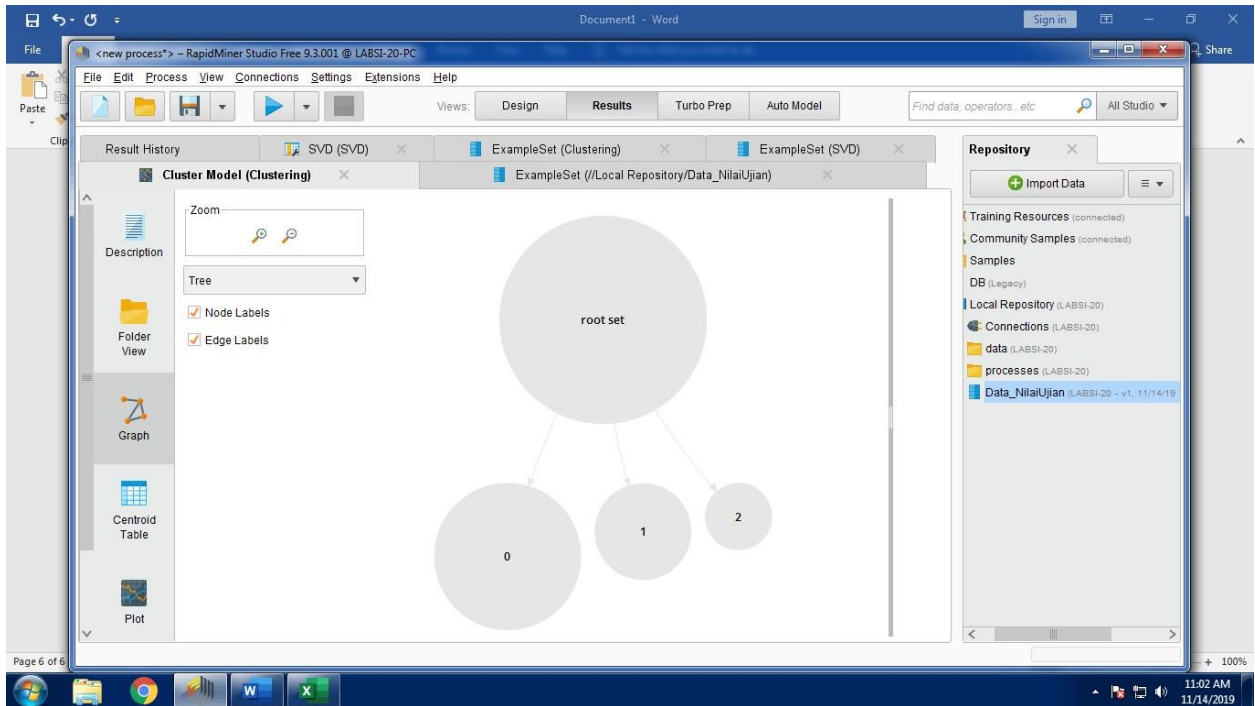
- SVD (SVD)
- ExampleSet (Clustering)
- ExampleSet (SVD)
- Cluster Model (Clustering)
- ExampleSet (/Local Repository/Data\_NilaiUjian)

The 'Views' panel at the bottom shows the following views:

- Design
- Results
- Turbo Prep
- Auto Model

The 'Find data, operators, etc.' search bar is visible at the top right of the main window.

- 
- Graph



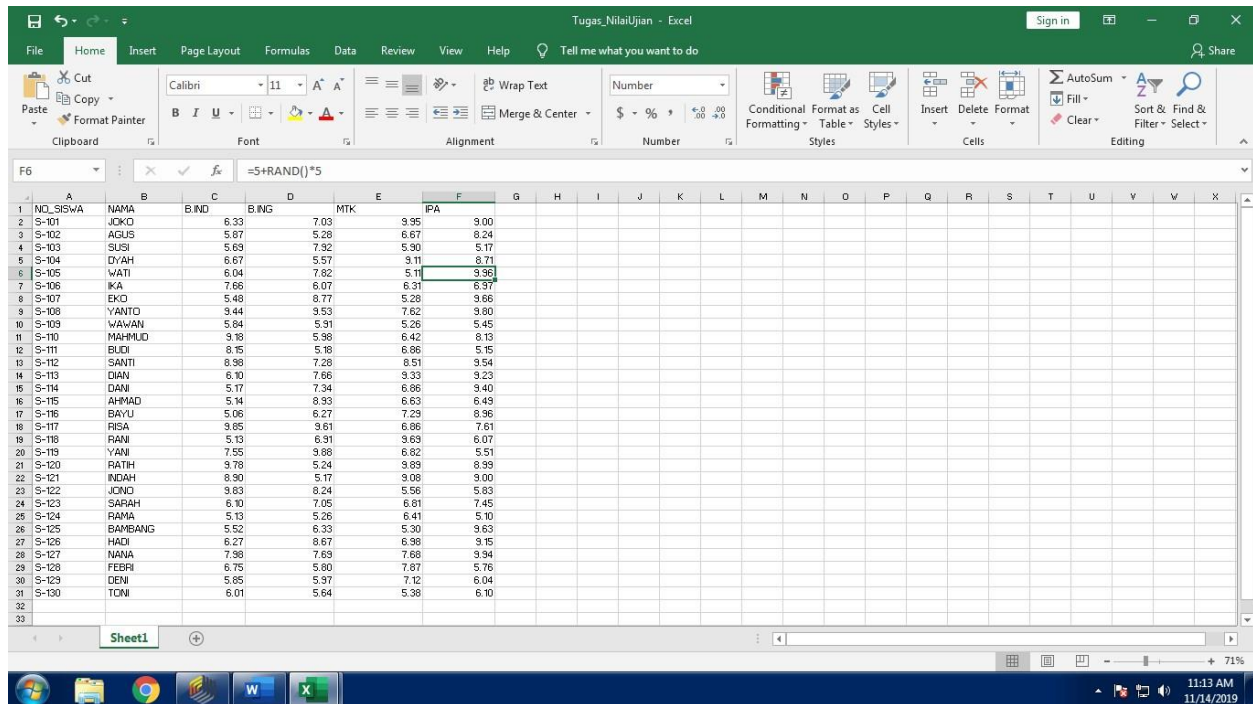
Kesimpulan :

Row No.	NAMA	cluster ↑	B.INDO	B.ING
1	JOKO	cluster_0	8.540	8.400
3	SUSI	cluster_0	6.200	9.150
7	EKO	cluster_0	7.700	7.710
9	WAWAN	cluster_0	9	8.120
10	MAHMUD	cluster_0	9.810	9.580
4	DYAH	cluster_1	5.240	7.260
5	WATI	cluster_1	5.700	5.710
8	YANTO	cluster_1	6.600	5.700
2	AGUS	cluster_2	9.980	6.810
6	IKA	cluster_2	8.570	5.870

1. Cluster 2 yang diajukan untuk lomba olimpiade bidang B.Indonesia
2. Cluster 0 yang diajukan untuk lomba olimpiade bidang B.Ingggris

## Tugas

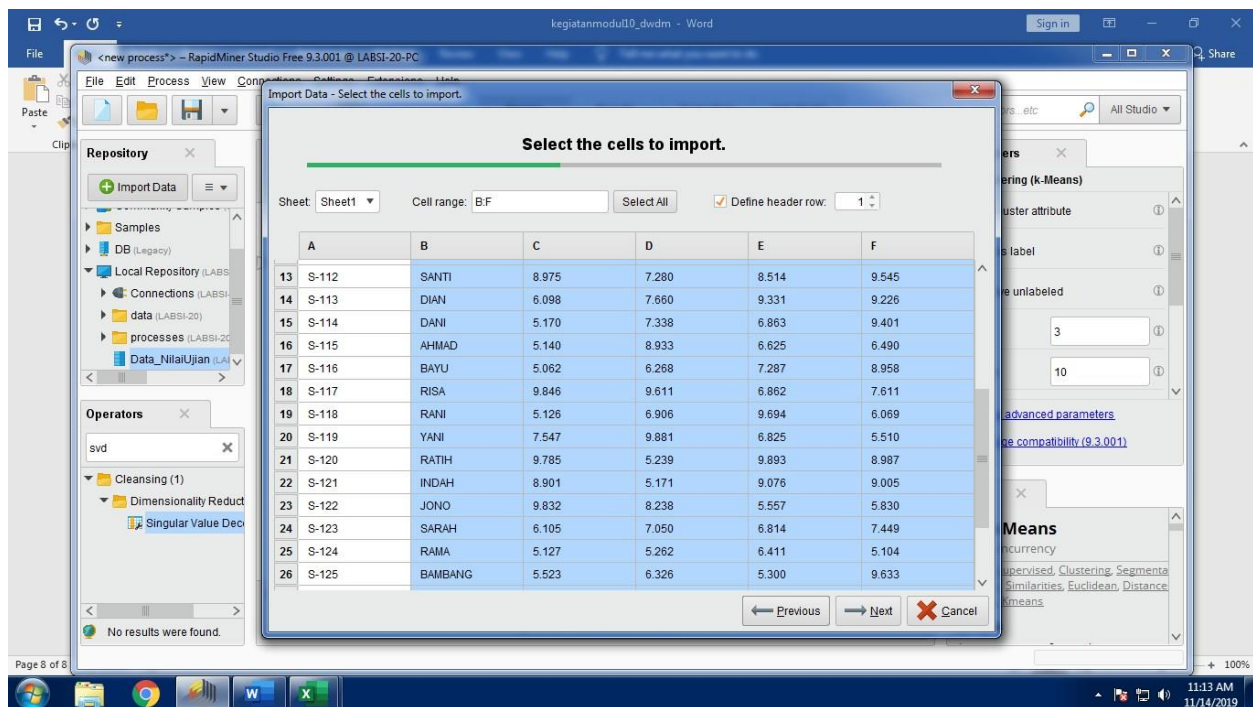
- Berikut adalah table siswa dan memasukkan nilai secara random dengan  $=5+RAND()*5$



The screenshot shows an Excel spreadsheet titled 'Tugas\_NilaiUjian - Excel'. The data is organized in columns: A (ID), B (Name), C (B.IND), D (B.BING), E (MTK), and F (IPA). The formula bar shows  $=5+RAND()*5$ . The table contains 30 rows of student data.

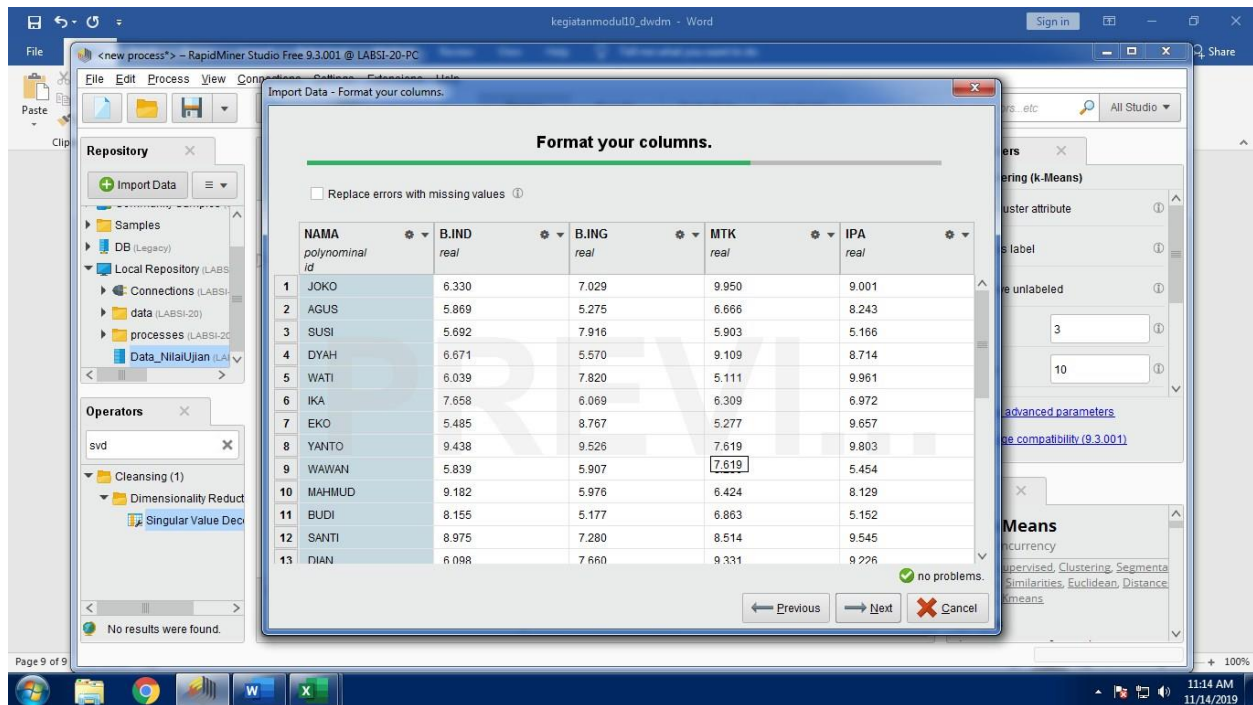
ID	Name	B.IND	B.BING	MTK	IPA
S-101	JOKO	6.33	7.03	9.95	9.00
S-102	AGUS	5.67	5.26	6.67	8.24
S-103	SUSI	5.69	7.32	5.30	5.17
S-104	DYAH	6.67	5.57	3.11	8.71
S-105	WATI	6.04	7.82	5.11	9.36
S-106	KA	7.66	6.07	6.31	6.37
S-107	DYO	5.48	8.77	5.28	9.66
S-108	YANTO	9.44	9.53	7.62	9.80
S-109	WAWAN	5.84	5.91	5.26	5.45
S-110	MAHMUD	9.18	5.98	6.42	8.13
S-111	BUDI	8.15	5.18	6.86	5.15
S-112	SANTI	8.98	7.28	6.51	9.54
S-113	DIAN	6.10	7.66	3.33	9.23
S-114	DANI	5.17	7.34	6.86	9.40
S-115	AHMAD	5.14	8.93	6.63	6.49
S-116	BAYU	5.06	6.27	7.29	8.96
S-117	RISA	9.85	9.61	6.86	7.61
S-118	RANI	5.13	6.91	9.63	6.07
S-119	YANI	7.55	9.88	6.82	5.51
S-120	RATIH	9.78	5.24	9.89	8.99
S-121	INDAH	8.90	5.17	9.08	9.00
S-122	JONO	9.63	8.24	5.56	5.83
S-123	SARAH	6.10	7.05	6.61	7.45
S-124	RAMA	5.13	5.26	6.41	5.10
S-125	BAMBANG	5.52	6.33	5.30	9.63
S-126	HADI	6.27	8.67	6.98	9.15
S-127	NAMA	7.98	7.68	7.68	9.94
S-128	FEBRI	6.75	5.80	7.87	5.76
S-129	DENI	5.85	5.97	7.12	6.04
S-130	TONI	6.01	5.64	5.38	6.10

- Gunakan file Tugas\_NilaiUjian.xlsx sebagai data yang akan digunakan dalam proses Clustering. Lalu import ke dalam aplikasi RapidMiner.

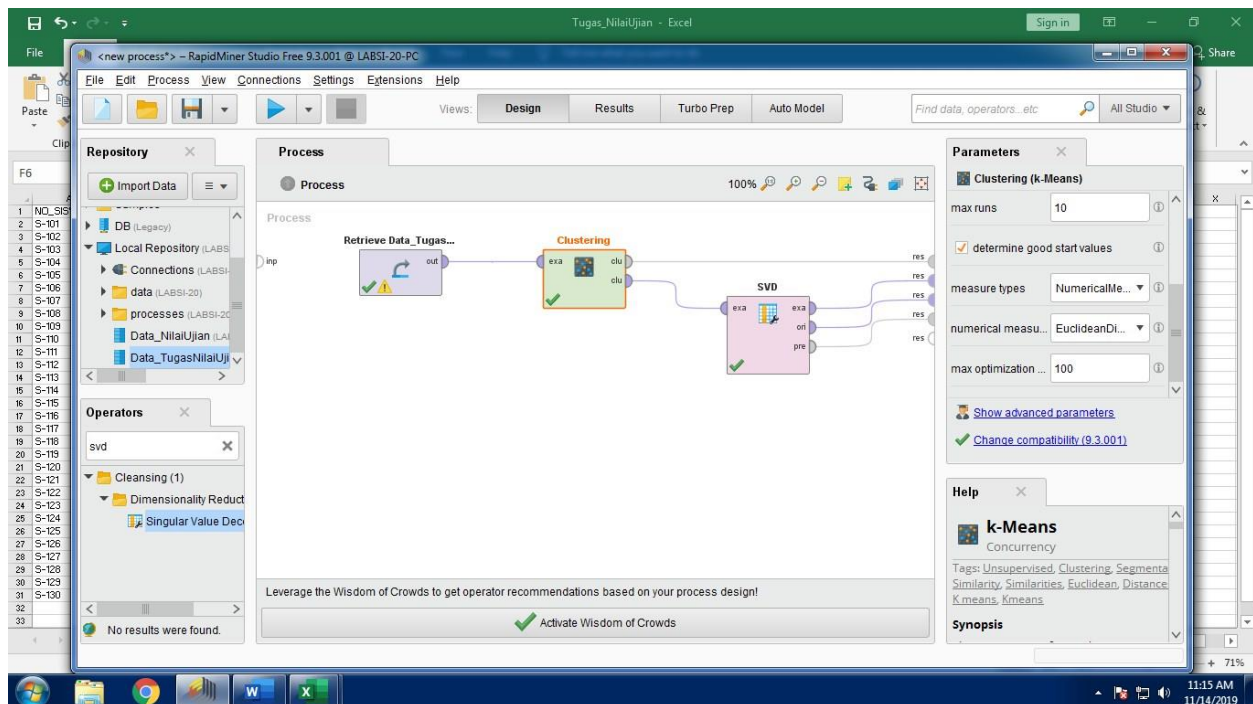


The screenshot shows the RapidMiner Studio interface. The 'Import Data' dialog box is open, displaying a table of student data. The 'Cell range' is set to 'B:F'. The 'Define header row' checkbox is checked and set to '1'. The table contains 30 rows of student data.

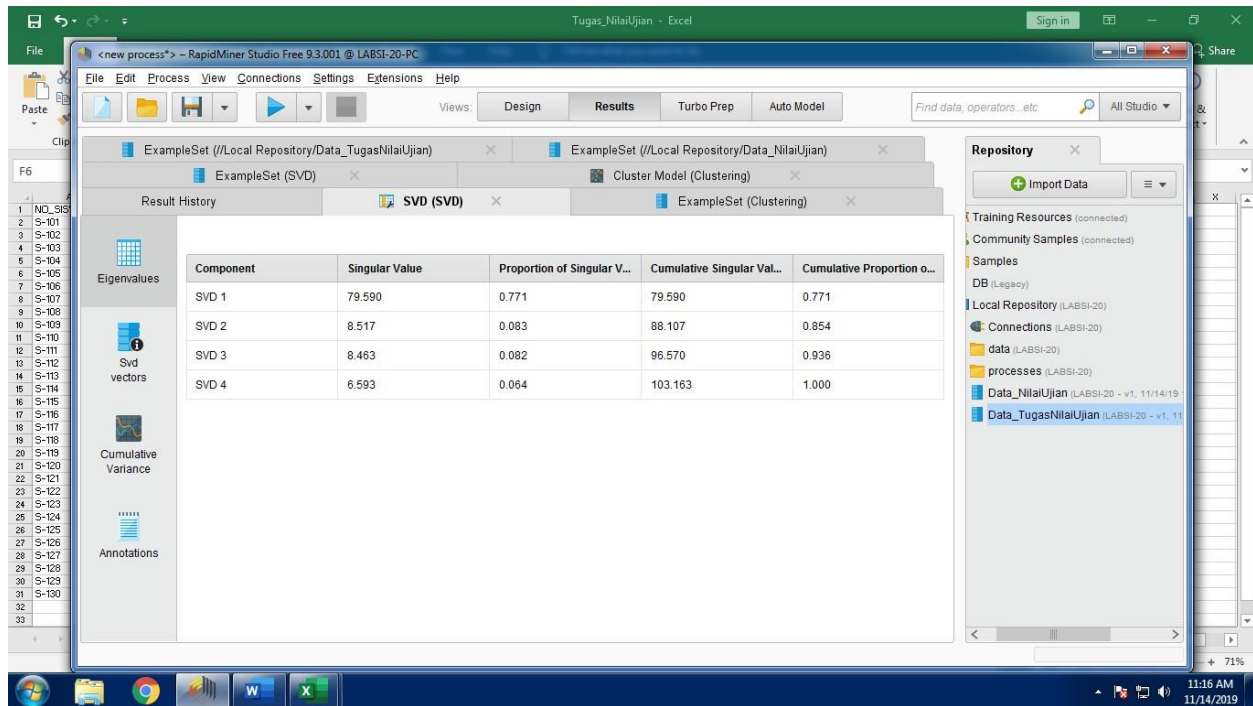
ID	Name	B.IND	B.BING	MTK	IPA
S-112	SANTI	8.975	7.280	6.514	9.545
S-113	DIAN	6.098	7.660	9.331	9.226
S-114	DANI	5.170	7.338	6.863	9.401
S-115	AHMAD	5.140	8.933	6.625	6.490
S-116	BAYU	5.062	6.268	7.287	8.958
S-117	RISA	9.846	9.611	6.862	7.611
S-118	RANI	5.126	6.906	9.694	6.069
S-119	YANI	7.547	9.881	6.825	5.510
S-120	RATIH	9.785	5.239	9.893	8.987
S-121	INDAH	8.901	5.171	9.076	9.005
S-122	JONO	9.832	8.238	5.557	5.830
S-123	SARAH	6.105	7.050	6.814	7.449
S-124	RAMA	5.127	5.262	6.411	5.104
S-125	BAMBANG	5.523	6.326	5.300	9.633



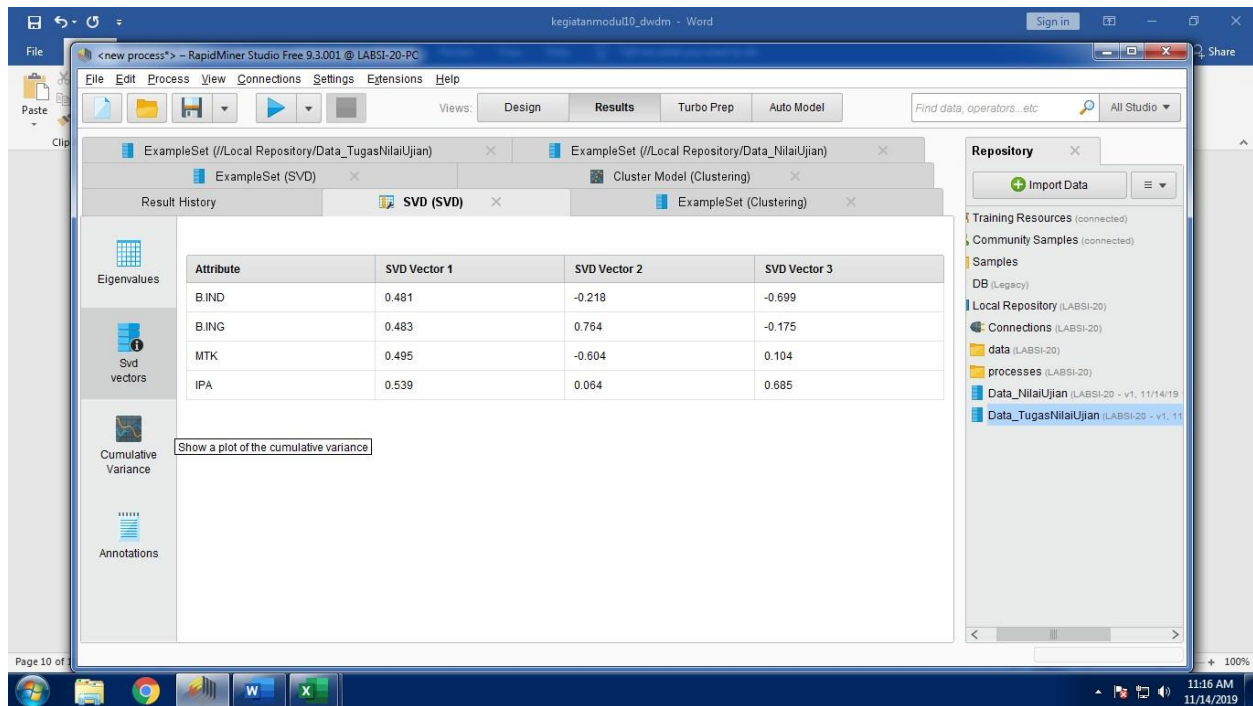
- Tambahkan operator k-Means. Lalu Jalankan dengan menekan tombol run (F11)



## Nilai Eigenvalue

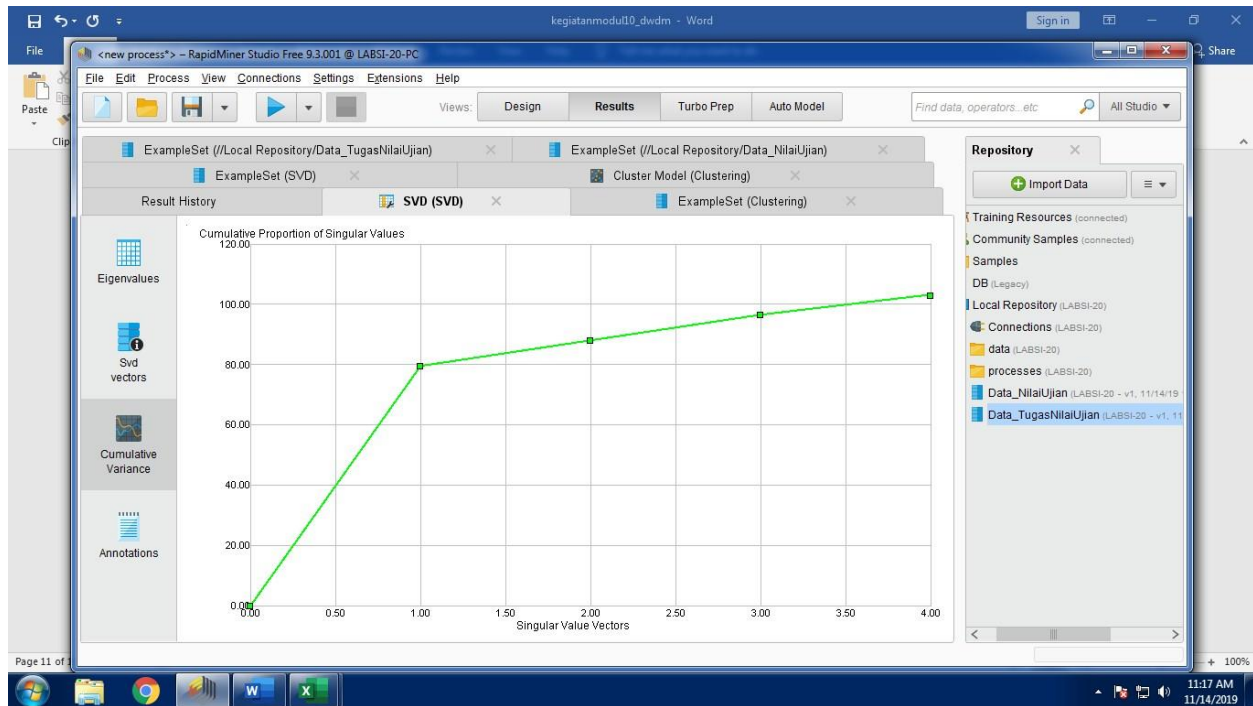


## Nilai Svd Vectors

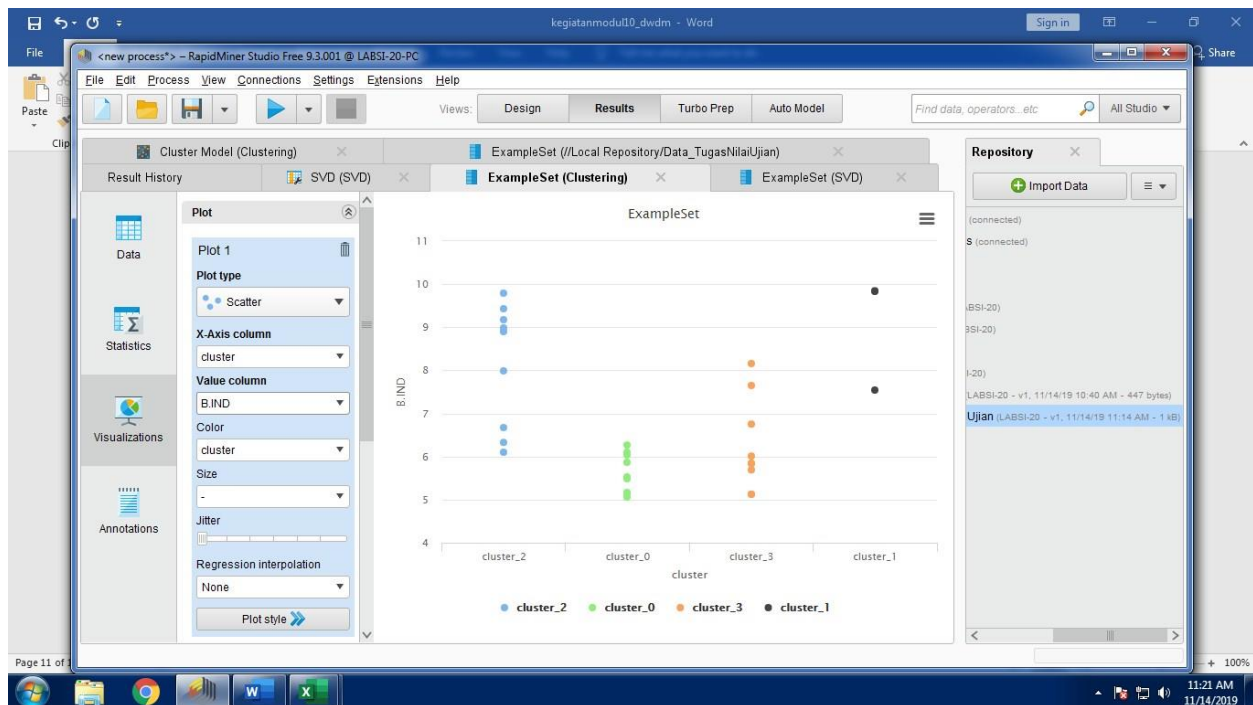




## Nilai Cumulative Variance

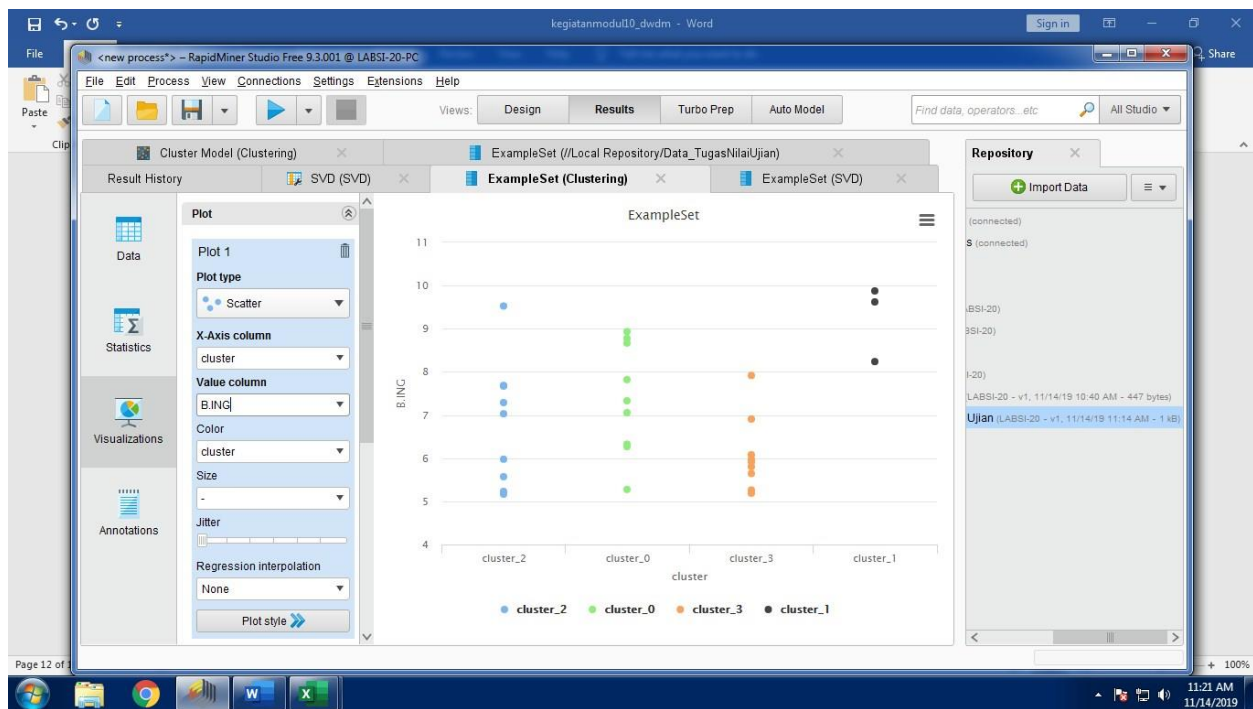


## Kelompok siswa bidang B.INDO

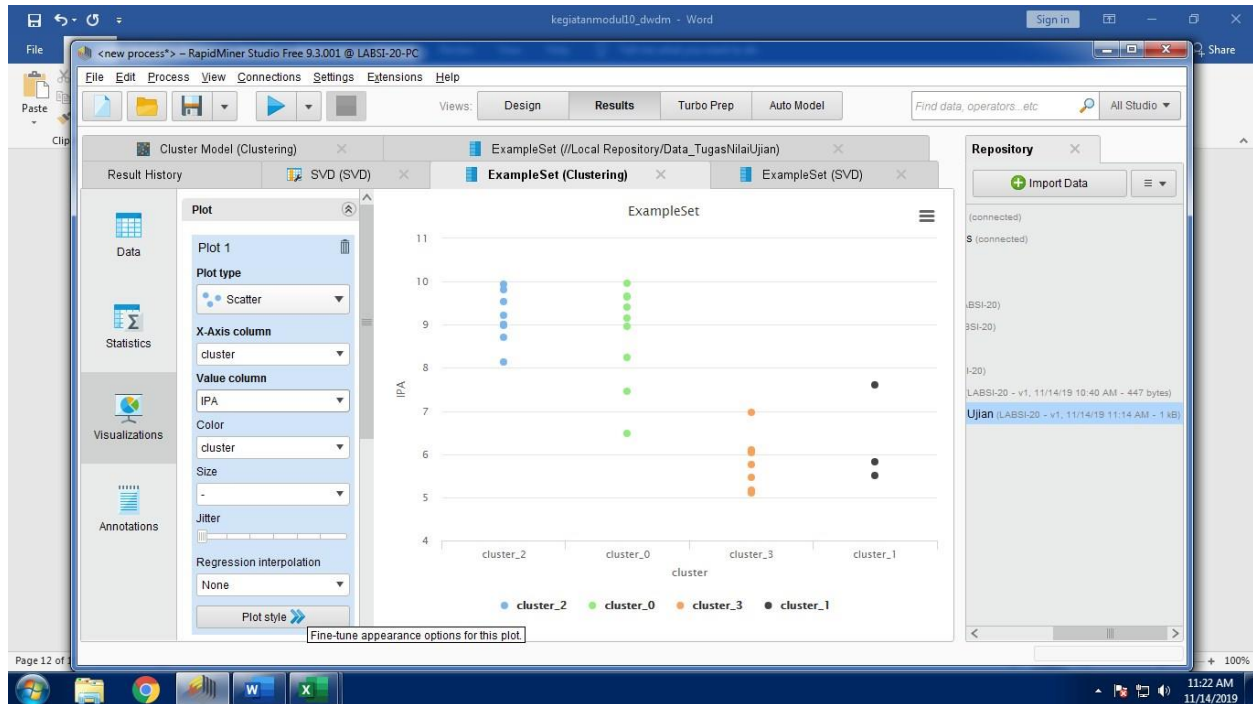


- Kelompok siswa kelompok B.ING

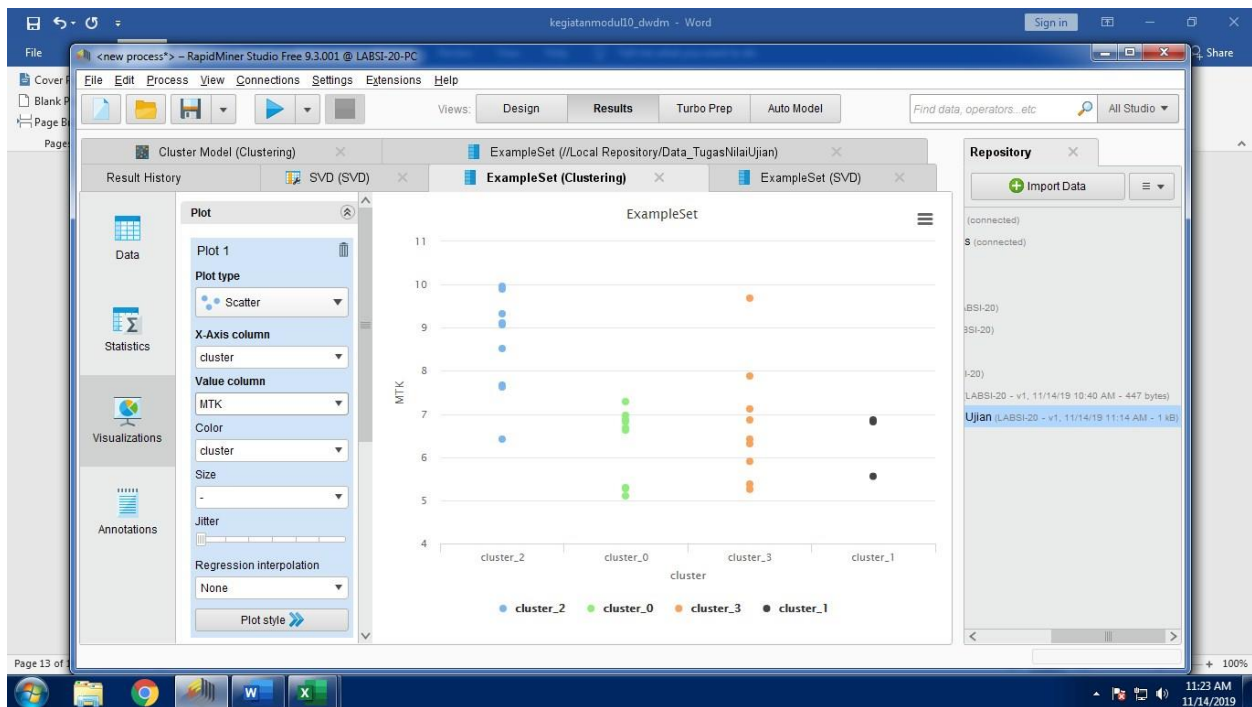




- Kelompok siswa bidang IPA



- Kelompok siswa bidang MTK



- Masing-masing nama siswa yang terdapat dalam kelompok cluster 0, cluster 1, cluster 2, cluster 3.

The screenshot shows the RapidMiner Studio interface with the 'Results' tab selected. The main data table displays 30 examples, with the first 22 rows highlighted in yellow. The table has columns: Row No., NAMA, cluster, B.IND, B.ING, MTK, and IPA. The 'cluster' column shows 'cluster\_0' for rows 2 through 16 and 'cluster\_1' for rows 17 through 22. The 'Repository' panel on the right shows the 'Ujian' dataset.

Row No.	NAMA	cluster	B.IND	B.ING	MTK	IPA
2	AGUS	cluster_0	5.869	5.275	6.666	8.243
5	WATI	cluster_0	6.039	7.820	5.111	9.961
7	EKO	cluster_0	5.485	8.767	5.277	9.657
14	DANI	cluster_0	5.170	7.338	6.863	9.401
15	AHMAD	cluster_0	5.140	8.933	6.625	6.490
16	BAYU	cluster_0	5.062	6.268	7.287	8.958
23	SARAH	cluster_0	6.105	7.050	6.814	7.449
25	BAMBANG	cluster_0	5.523	6.326	5.300	9.633
26	HADI	cluster_0	6.266	8.670	6.977	9.151
17	RISA	cluster_1	9.846	9.611	6.862	7.611
19	YANI	cluster_1	7.547	9.881	6.825	5.510
22	JONO	cluster_1	9.832	8.238	5.557	5.830

The screenshot shows the RapidMiner Studio interface with the 'Results' tab selected. The main data table displays 30 examples, with the last 14 rows highlighted in yellow. The table has columns: Row No., NAMA, cluster, B.IND, B.ING, MTK, and IPA. The 'cluster' column shows 'cluster\_1' for row 22, 'cluster\_2' for rows 1 through 13, and 'cluster\_3' for rows 20 through 27. The 'Repository' panel on the right shows the 'Ujian' dataset.

Row No.	NAMA	cluster	B.IND	B.ING	MTK	IPA
22	JONO	cluster_1	9.832	8.238	5.557	5.830
1	JOKO	cluster_2	6.330	7.029	9.950	9.001
4	DYAH	cluster_2	6.671	5.570	9.109	8.714
8	YANTO	cluster_2	9.438	9.526	7.619	9.803
10	MAHMUD	cluster_2	9.182	5.976	6.424	8.129
12	SANTI	cluster_2	8.975	7.280	8.514	9.545
13	DIAN	cluster_2	6.098	7.660	9.331	9.226
20	RATIH	cluster_2	9.785	5.239	9.893	8.987
21	INDAH	cluster_2	8.901	5.171	9.076	9.005
27	NANA	cluster_2	7.979	7.688	7.679	9.945
3	SUSI	cluster_3	5.692	7.916	5.903	5.166
6	IKA	cluster_3	7.658	6.069	6.309	6.972

The screenshot shows the 'Results' tab in RapidMiner Studio. The main view displays a table of 30 examples, filtered to show all 30. The table has the following columns: Row No., NAMA, cluster, B.IND, B.ING, MTK, and IPA. The data is grouped into four clusters: cluster\_2 (rows 20-27), cluster\_3 (rows 3-18), cluster\_3 (rows 24-29), and cluster\_3 (rows 28-30). The 'cluster' column is highlighted in yellow for each group.

Row No.	NAMA	cluster	B.IND	B.ING	MTK	IPA
20	RATIH	cluster_2	9.785	5.239	9.893	8.987
21	INDAH	cluster_2	8.901	5.171	9.076	9.005
27	NANA	cluster_2	7.979	7.688	7.679	9.945
3	SUSI	cluster_3	5.692	7.916	5.903	5.166
6	IKA	cluster_3	7.658	6.069	6.309	6.972
9	WAWAN	cluster_3	5.839	5.907	5.256	5.454
11	BUDI	cluster_3	8.155	5.177	6.863	5.152
18	RAINI	cluster_3	5.126	6.906	9.694	6.069
24	RAMA	cluster_3	5.127	5.262	6.411	5.104
28	FEBRI	cluster_3	6.754	5.798	7.874	5.763
29	DENI	cluster_3	5.846	5.969	7.120	6.037
30	TONI	cluster_3	6.011	5.644	5.378	6.099

ExampleSet (30 examples, 2 special attributes, 4 regular attributes)

- Description

The screenshot shows the 'Description' panel for the 'Cluster Model' in RapidMiner Studio. The panel displays the following information:

- Cluster 0: 9 items
- Cluster 1: 3 items
- Cluster 2: 9 items
- Cluster 3: 9 items
- Total number of items: 30

The 'Description' panel is selected in the left sidebar, and the 'Cluster Model' is selected in the top tab bar.

- Graph

