Nama : Ardita Mahendra

NIM : L200170068

Kelas : C

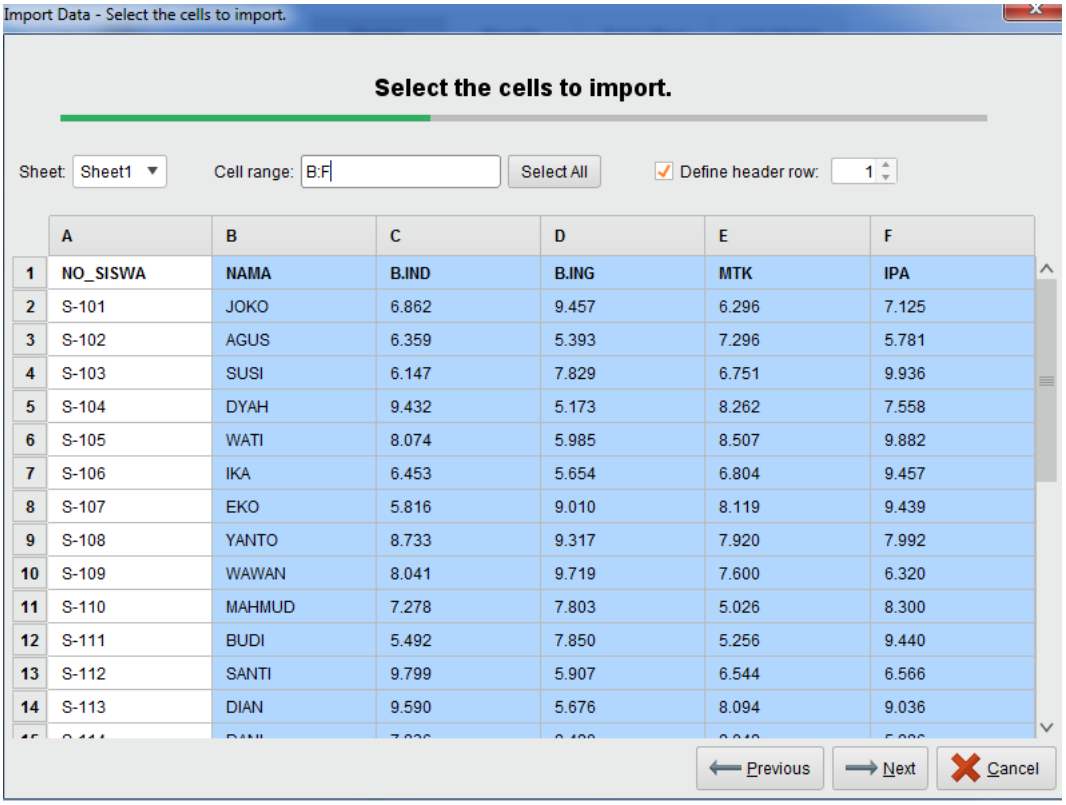
Modul 10

Tugas

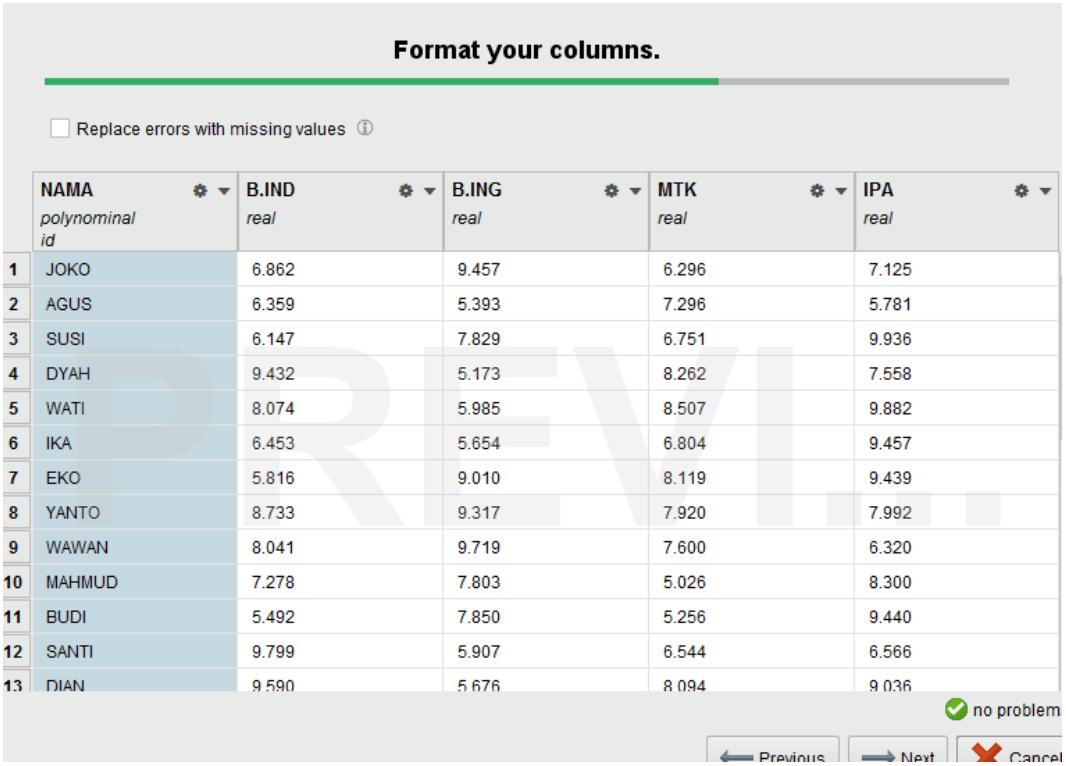
Table data nilai ujian

NO_SISWA	NAMA	B.IND	B.ING	MTK	IPA
S-101	JOKO	6.06	7.04	9.41	7.47
S-102	AGUS	6.27	6.14	8.91	5.12
S-103	SUSI	8.68	9.66	6.61	6.57
S-104	DYAH	9.39	9.51	6.83	5.08
S-105	WATI	8.21	9.39	5.81	8.15
S-106	IKA	6.90	5.98	9.90	6.60
S-107	EKO	7.36	6.19	8.76	7.87
S-108	YANTO	5.35	6.51	8.67	9.54
S-109	WAWAN	9.86	5.69	8.89	5.72
S-110	MAHMUD	9.54	6.98	8.90	5.04
S-111	BUDI	6.77	9.99	9.52	6.67
S-112	SANTI	9.57	8.61	8.72	8.93
S-113	DIAN	9.87	6.60	8.45	5.89
S-114	DANI	9.31	7.12	7.90	6.11
S-115	AHMAD	5.02	5.37	5.02	8.96
S-116	BAYU	7.24	8.68	6.28	9.75
S-117	RISA	8.25	7.28	6.16	7.51
S-118	RANI	7.60	9.51	6.58	7.66
S-119	YANI	8.49	7.70	8.45	6.04
S-120	RATIH	7.97	8.43	6.46	8.89
S-121	INDAH	5.27	6.67	9.52	6.85
S-122	JONO	9.92	8.23	7.36	7.83
S-123	SARAH	8.36	5.91	5.35	6.57
S-124	RAMA	6.91	8.62	7.39	6.38
S-125	BAMBANG	9.66	9.00	6.88	8.97
S-126	HADI	5.67	9.48	7.42	6.35
S-127	NANA	7.76	5.29	9.22	5.65
S-128	FEBRI	5.99	6.33	7.86	6.91
S-129	DENI	6.43	5.52	8.75	7.12
S-130	TONI	8.46	5.79	9.69	9.91

Proses clustering menggunakan RapidMiner

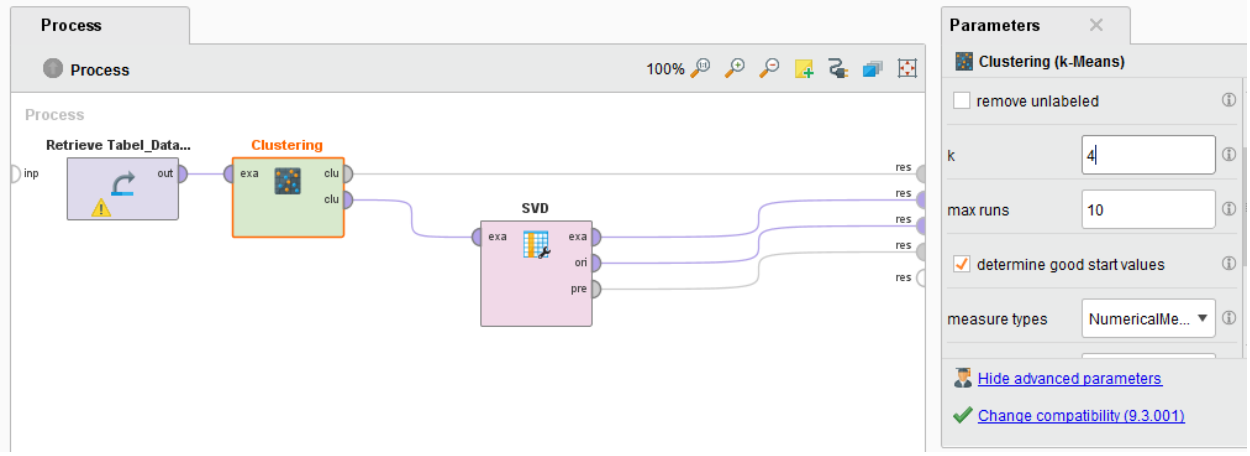


	A	B	C	D	E	F
1	NO_SISWA	NAMA	B.IND	B.ING	MTK	IPA
2	S-101	JOKO	6.862	9.457	6.296	7.125
3	S-102	AGUS	6.359	5.393	7.296	5.781
4	S-103	SUSI	6.147	7.829	6.751	9.936
5	S-104	DYAH	9.432	5.173	8.262	7.558
6	S-105	WATI	8.074	5.985	8.507	9.882
7	S-106	IKA	6.453	5.654	6.804	9.457
8	S-107	EKO	5.816	9.010	8.119	9.439
9	S-108	YANTO	8.733	9.317	7.920	7.992
10	S-109	WAWAN	8.041	9.719	7.600	6.320
11	S-110	MAHMUD	7.278	7.803	5.026	8.300
12	S-111	BUDI	5.492	7.850	5.256	9.440
13	S-112	SANTI	9.799	5.907	6.544	6.566
14	S-113	DIAN	9.590	5.676	8.094	9.036



	NAMA *polynominal* *id*	B.IND *real*	B.ING *real*	MTK *real*	IPA *real*
1	JOKO	6.862	9.457	6.296	7.125
2	AGUS	6.359	5.393	7.296	5.781
3	SUSI	6.147	7.829	6.751	9.936
4	DYAH	9.432	5.173	8.262	7.558
5	WATI	8.074	5.985	8.507	9.882
6	IKA	6.453	5.654	6.804	9.457
7	EKO	5.816	9.010	8.119	9.439
8	YANTO	8.733	9.317	7.920	7.992
9	WAWAN	8.041	9.719	7.600	6.320
10	MAHMUD	7.278	7.803	5.026	8.300
11	BUDI	5.492	7.850	5.256	9.440
12	SANTI	9.799	5.907	6.544	6.566
13	DIAN	9.590	5.676	8.094	9.036

Cluster k-Means ada 4 dan menambahkan SVD lalu di Run



Hasil proses Clustering dengan algoritma K-Means

a) SVD

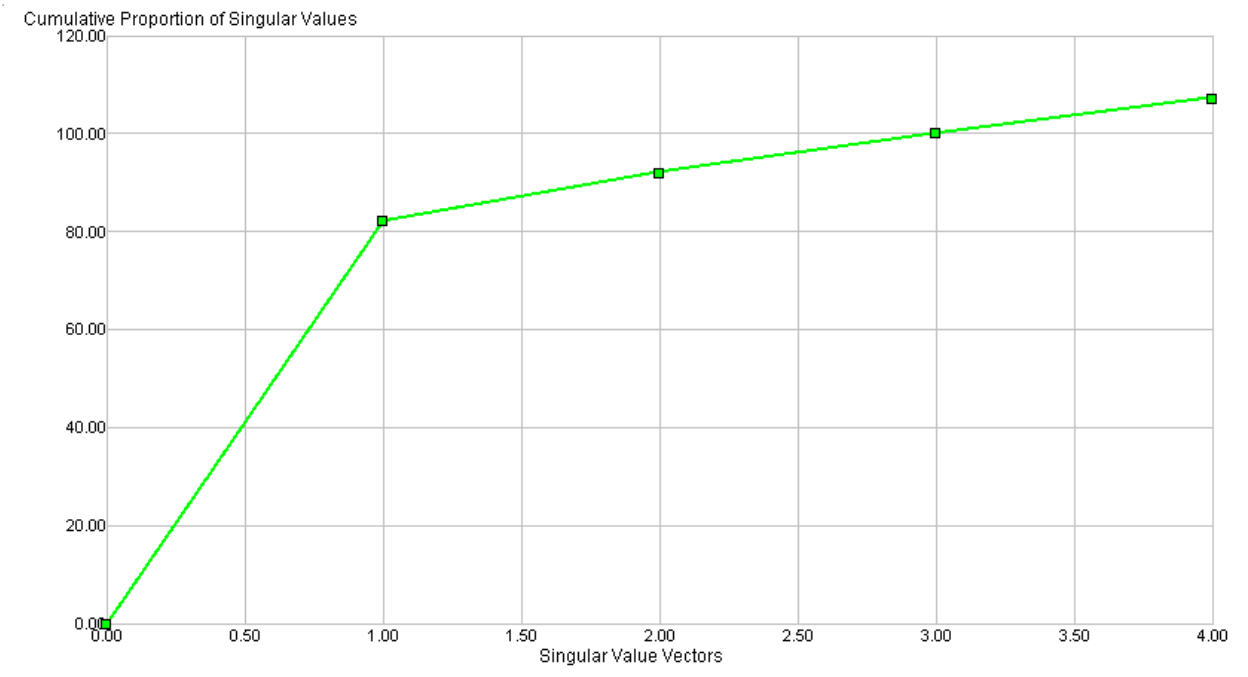
i. Nilai Eigenvalue

Component	Singular Value	Proportion of Singular V...	Cumulative Singular Val...	Cumulative Proportion o...
SVD 1	82.367	0.767	82.367	0.767
SVD 2	9.828	0.092	92.195	0.859
SVD 3	8.128	0.076	100.323	0.934
SVD 4	7.041	0.066	107.364	1.000

ii. Nilai SVD vectors

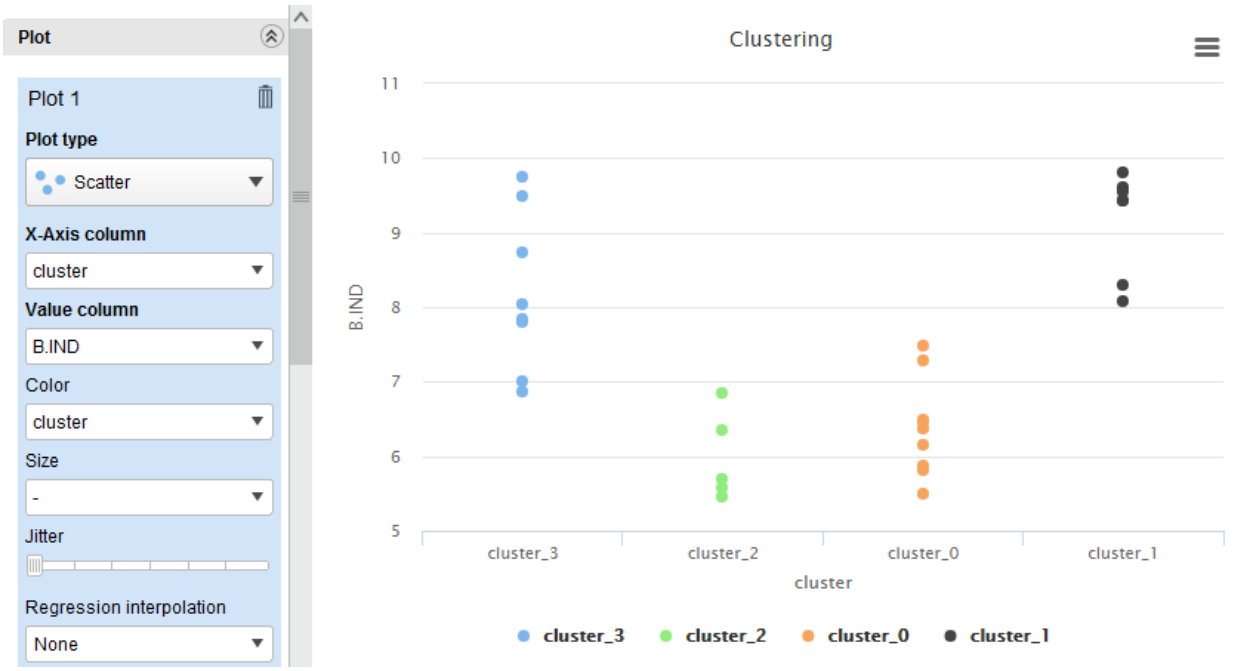
Attribute	SVD Vector 1	SVD Vector 2	SVD Vector 3
B.IND	0.504	-0.584	-0.207
B.ING	0.483	0.477	0.675
MTK	0.494	-0.409	0.246
IPA	0.517	0.514	-0.665

iii. Nilai Cumulative variance

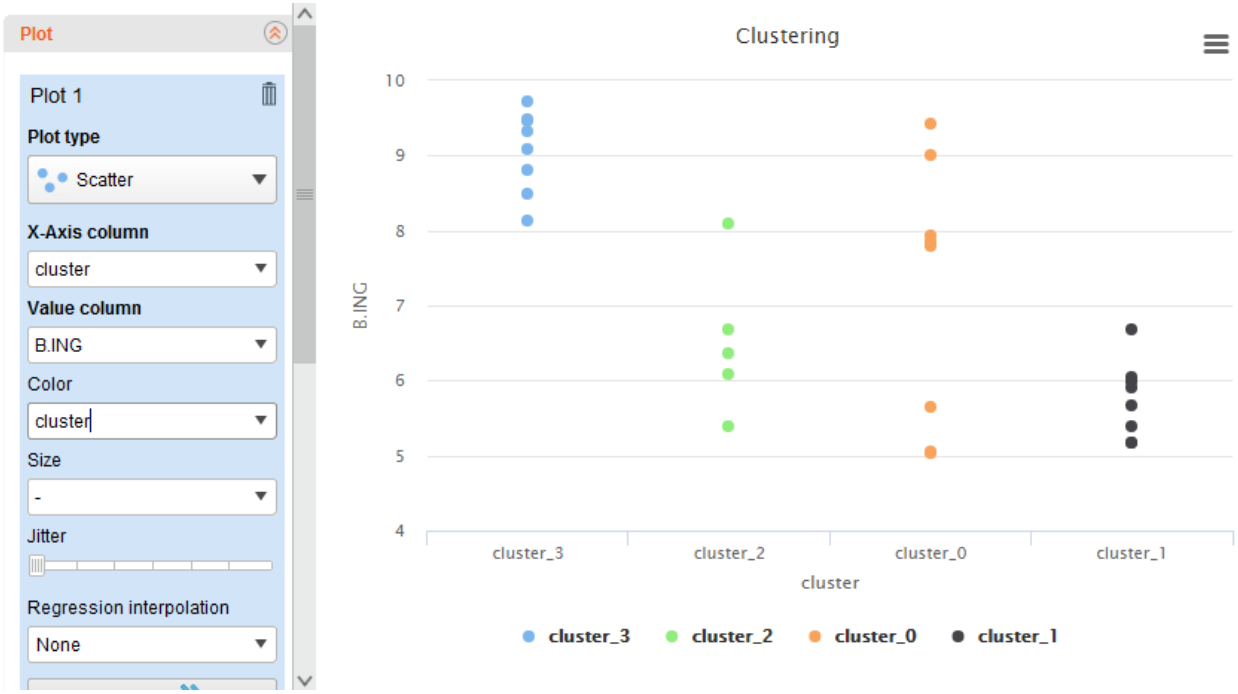


b) ExampleSet (k-Means)

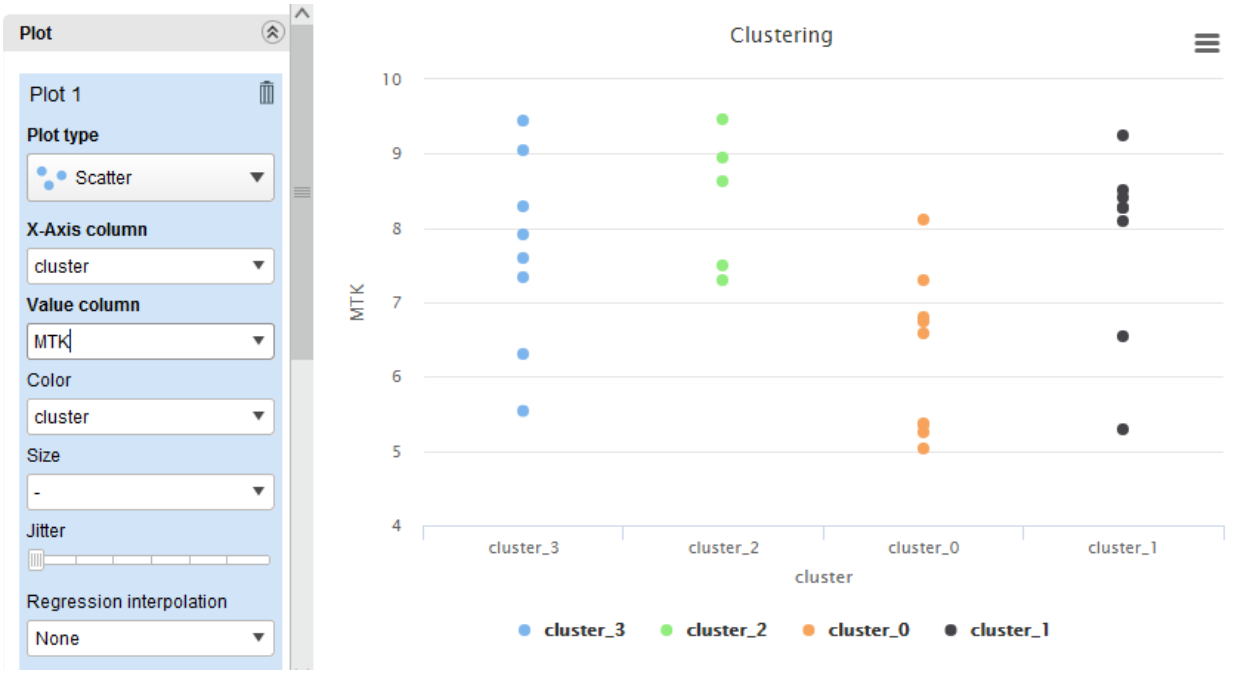
i. Kelompok siswa bidang B.Indonesia



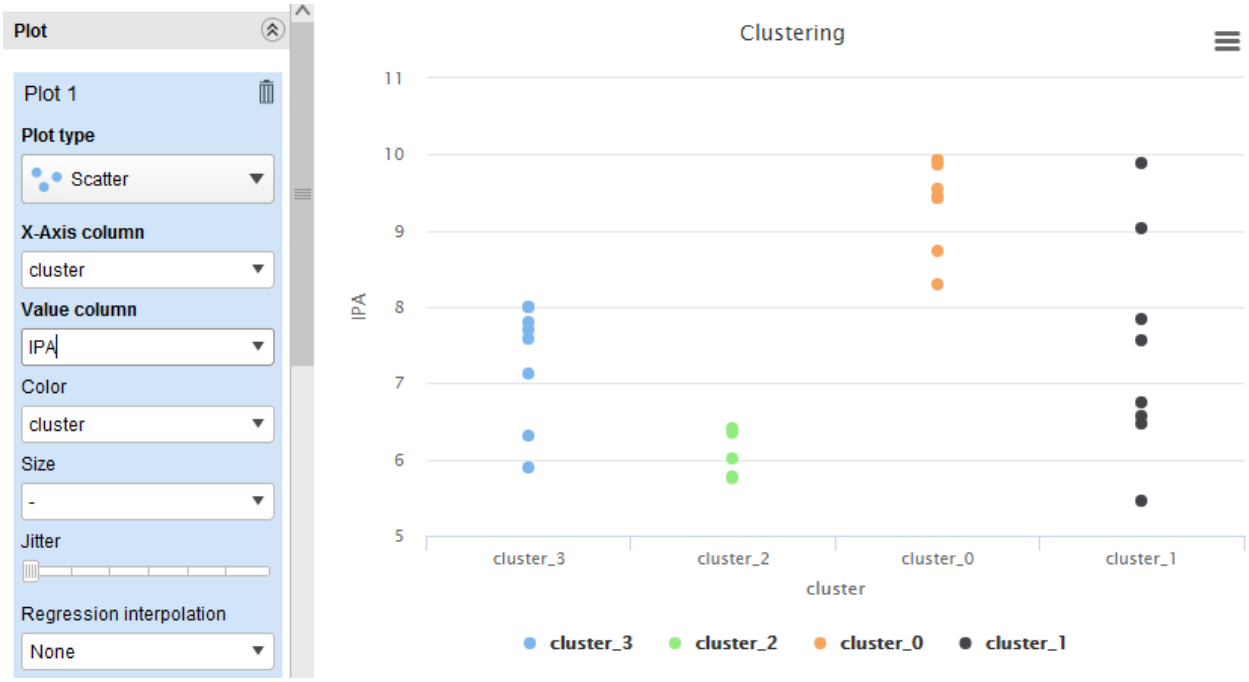
ii. Kelompok siswa bidang B.Inggris



iii. Kelompok siswa bidang Matematika



iv. Kelompok siswa bidang IPA



c) ExampleSet (SVD)

Row No.	NAMA	cluster ↑	svd_1
3	SUSI	cluster_0	0.187
6	IKA	cluster_0	0.173
7	EKO	cluster_0	0.197
10	MAHMUD	cluster_0	0.173
11	BUDI	cluster_0	0.171
15	AHMAD	cluster_0	0.192
20	RATIH	cluster_0	0.168
21	INDAH	cluster_0	0.162
23	SARAH	cluster_0	0.186
4	DYAH	cluster_1	0.185
5	WATI	cluster_1	0.198

ExampleSet (30 examples, 2 special attributes, 1 regular attribute)

Row No.	NAMA	cluster ↑	svd_1
12	SANTI	cluster_1	0.175
13	DIAN	cluster_1	0.197
19	YANI	cluster_1	0.186
24	RAMA	cluster_1	0.159
27	NANA	cluster_1	0.181
28	FEBRI	cluster_1	0.191
2	AGUS	cluster_2	0.151
18	RANI	cluster_2	0.157
25	BAMBANG	cluster_2	0.159
26	HADI	cluster_2	0.163
29	DENI	cluster_2	0.186

ExampleSet (30 examples, 2 special attributes, 1 regular attribute)

Row No.	NAMA	cluster	svd_1
25	BAMBANG	cluster_2	0.159
26	HADI	cluster_2	0.163
29	DENI	cluster_2	0.186
1	JOKO	cluster_3	0.180
8	YANTO	cluster_3	0.206
9	WAWAN	cluster_3	0.192
14	DANI	cluster_3	0.189
16	BAYU	cluster_3	0.191
17	RISA	cluster_3	0.195
22	JONO	cluster_3	0.197
30	TONI	cluster_3	0.213

ExampleSet (30 examples, 2 special attributes, 1 regular attribute)

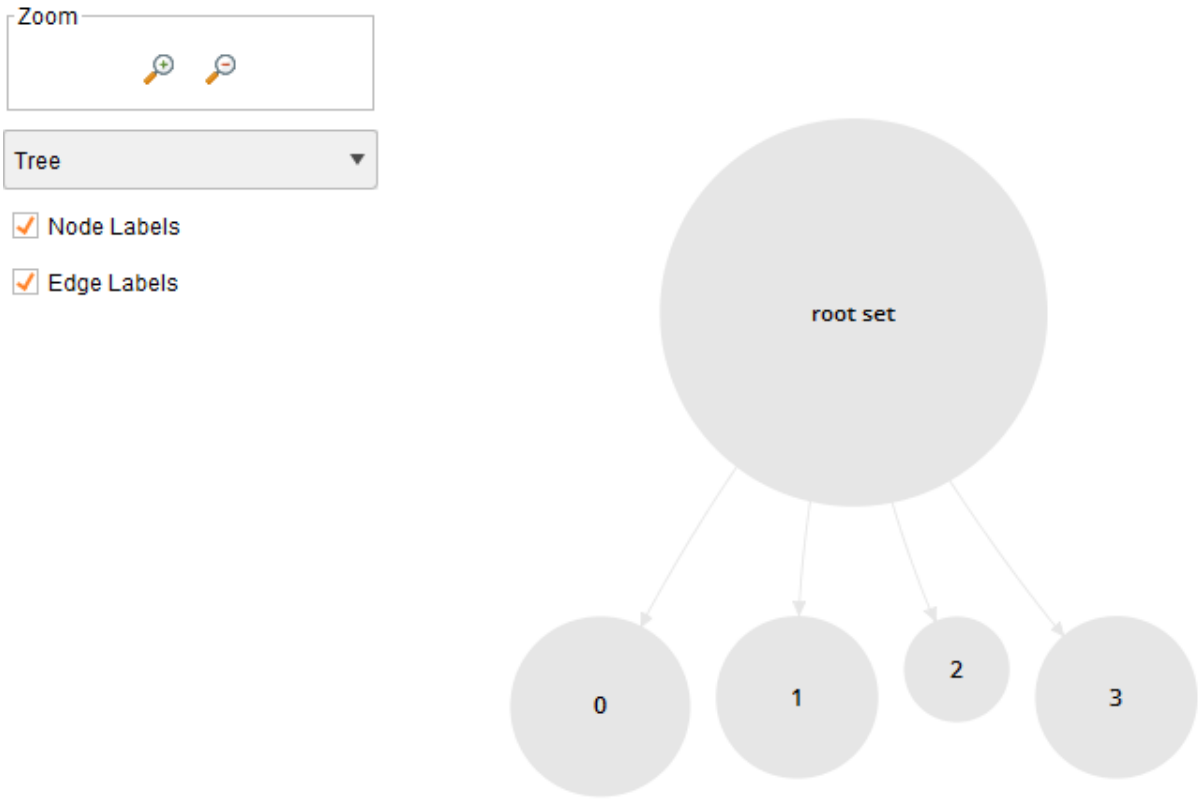
d) Cluster Model (Clusering)

i. Description

Cluster Model

```
Cluster 0: 9 items
Cluster 1: 8 items
Cluster 2: 5 items
Cluster 3: 8 items
Total number of items: 30
```

ii. Graph



Interpretasi hasil algoritma K-Means

Row No.	NAMA	cluster	B.IND	B.ING	MTK	IPA
3	SUSI	cluster_0	6.147	7.829	6.751	9.936
6	IKA	cluster_0	6.453	5.654	6.804	9.457
7	EKO	cluster_0	5.816	9.010	8.119	9.439
10	MAHMUD	cluster_0	7.278	7.803	5.026	8.300
11	BUDI	cluster_0	5.492	7.850	5.256	9.440
15	AHMAD	cluster_0	6.495	7.939	7.290	9.866
20	RATIH	cluster_0	6.376	5.046	6.575	9.547
21	INDAH	cluster_0	7.483	5.043	5.353	8.743
23	SARAH	cluster_0	5.877	9.423	5.373	9.917
4	DYAH	cluster_1	9.432	5.173	8.262	7.558
5	WATI	cluster_1	8.074	5.985	8.507	9.882

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

Row No.	NAMA	cluster	B.IND	B.ING	MTK	IPA
12	SANTI	cluster_1	9.799	5.907	6.544	6.566
13	DIAN	cluster_1	9.590	5.676	8.094	9.036
19	YANI	cluster_1	8.289	5.171	9.251	7.850
24	RAMA	cluster_1	9.427	6.048	5.292	5.453
27	NANA	cluster_1	9.603	5.399	8.280	6.462
28	FEBRI	cluster_1	9.555	6.680	8.419	6.747
2	AGUS	cluster_2	6.359	5.393	7.296	5.781
18	RANI	cluster_2	5.688	6.358	7.492	6.415
25	BAMBANG	cluster_2	5.579	6.082	8.634	6.004
26	HADI	cluster_2	5.455	6.692	8.955	5.755
29	DENI	cluster_2	6.857	8.083	9.468	6.355

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

Row No.	NAMA	cluster ↑	B.IND	B.ING	MTK	IPA
25	BAMBANG	cluster_2	5.579	6.082	8.634	6.004
26	HADI	cluster_2	5.455	6.692	8.955	5.755
29	DENI	cluster_2	6.857	8.083	9.468	6.355
1	JOKO	cluster_3	6.862	9.457	6.296	7.125
8	YANTO	cluster_3	8.733	9.317	7.920	7.992
9	WAWAN	cluster_3	8.041	9.719	7.600	6.320
14	DANI	cluster_3	7.836	8.490	9.049	5.886
16	BAYU	cluster_3	9.493	8.816	5.538	7.588
17	RISA	cluster_3	7.805	9.084	7.329	8.004
22	JONO	cluster_3	7.006	9.480	8.285	7.702
30	TONI	cluster_3	9.751	8.126	9.436	7.798

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