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Kelas   : E

Laporan Tugas Praktikum DWDM
Modul 10 (Clustering : K-Means)

- Tabel data nilai siswa

	NAMA polynominal id	B.IND real	B.ING real	MTK real	IPA real
1	JOKO	8.900	6.852	8.605	6.887
2	AGUS	5.498	8.557	8.480	6.810
3	SUSI	5.483	5.072	5.767	6.173
4	DYAH	8.663	6.160	9.301	5.023
5	WATI	6.937	9.437	5.735	9.007
6	IKA	8.390	7.450	8.234	8.494
7	EKO	6.082	5.341	7.973	7.357
8	YANTO	7.413	5.219	8.108	7.984
9	WAWAN	9.885	5.871	7.991	6.502
10	MAHMUD	5.580	5.222	6.844	9.192
11	BUDI	9.656	7.772	9.391	8.375
12	SANTI	9.382	8.575	7.977	7.154
13	DIAN	9.922	9.640	8.555	9.675

✔ no problems.

- Area Design Process
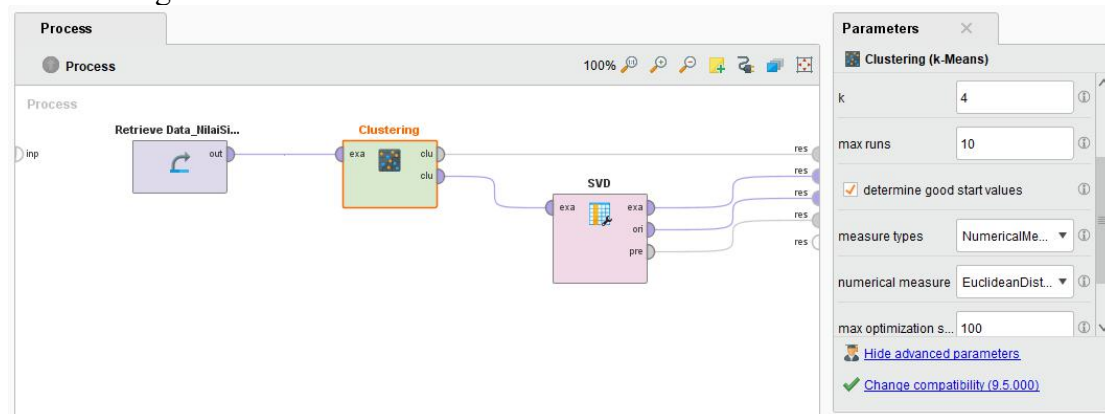
Hasil proses Clustering dengan Algoritma k-Means
a. SVD (Singular Value Decomposition)
    i.   Nilai Eigenvalue

Component	Singular Value	Proportion of Singular Values	Cumulative Singular Values	Cumulative Proportion of Sin...
SVD 1	81.661	0.778	81.661	0.778
SVD 2	8.538	0.081	90.199	0.859
SVD 3	7.708	0.073	97.906	0.933
SVD 4	7.081	0.067	104.987	1.000

ii. Nilai SVD Vectors

Attribute	SVD Vector 1	SVD Vector 2	SVD Vector 3
B.IND	0.518	-0.552	0.587
B.ING	0.467	0.412	0.322
MTK	0.512	-0.406	-0.723
IPA	0.502	0.600	-0.170

iii. Nilai Cumulative Variance
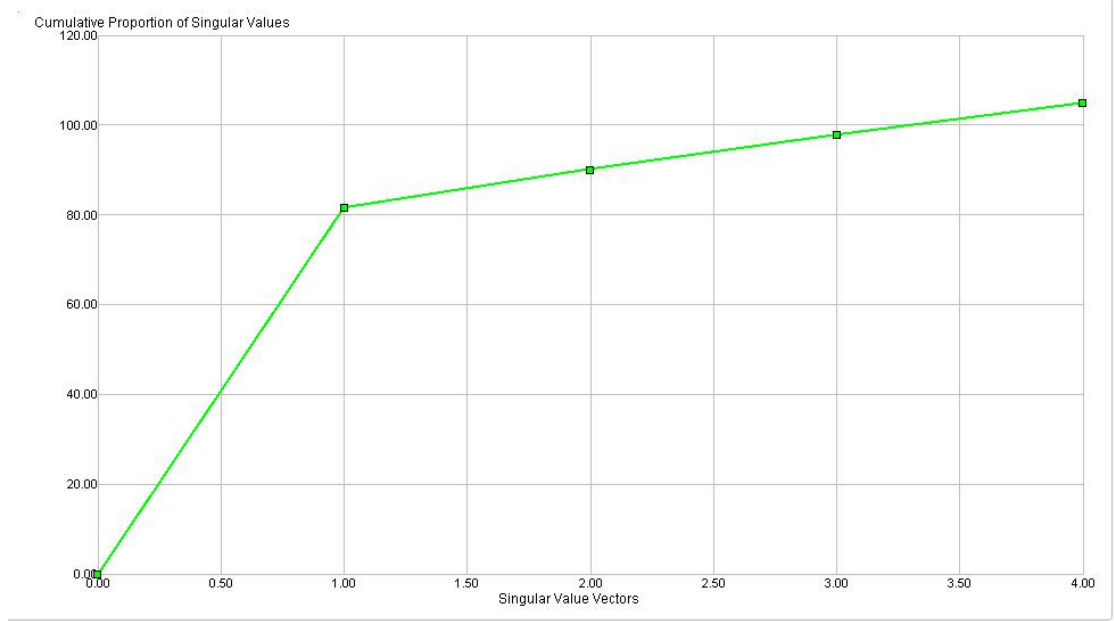
b. ExampleSet (k-Means)
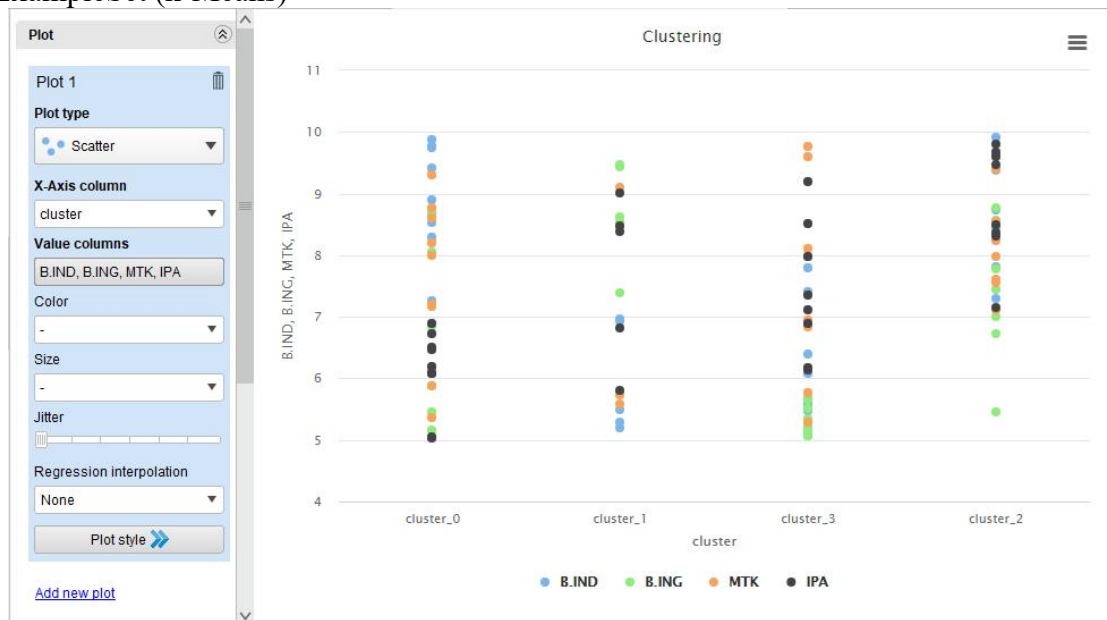
c. ExampleSet (SVD)

Row No.	NAMA	cluster ↑	svd_1
1	JOKO	cluster_0	0.192
4	DYAH	cluster_0	0.179
9	WAWAN	cluster_0	0.186
15	AHMAD	cluster_0	0.178
17	RISA	cluster_0	0.176
19	YANI	cluster_0	0.162
22	JONO	cluster_0	0.193
23	SARAH	cluster_0	0.174
24	RAMA	cluster_0	0.176
2	AGUS	cluster_1	0.179
5	WATI	cluster_1	0.189
14	DANI	cluster_1	0.175
20	RATIH	cluster_1	0.174
30	TONI	cluster_1	0.175

Row No.	NAMA	cluster ↑	svd_1
6	IKA	cluster_2	0.200
11	BUDI	cluster_2	0.216
12	SANTI	cluster_2	0.202
13	DIAN	cluster_2	0.231
16	BAYU	cluster_2	0.190
21	INDAH	cluster_2	0.191
25	BAMBANG	cluster_2	0.194
28	FEBRI	cluster_2	0.211
3	SUSI	cluster_3	0.138
7	EKO	cluster_3	0.164
8	YANTO	cluster_3	0.177
10	MAHMUD	cluster_3	0.165
18	RANI	cluster_3	0.174
26	HADI	cluster_3	0.171
27	NANA	cluster_3	0.152
29	DENI	cluster_3	0.164

d. Cluster Model (Clustering)
   i. Description

Cluster Model

```
Cluster 0: 9 items
Cluster 1: 5 items
Cluster 2: 8 items
Cluster 3: 8 items
Total number of items: 30
```
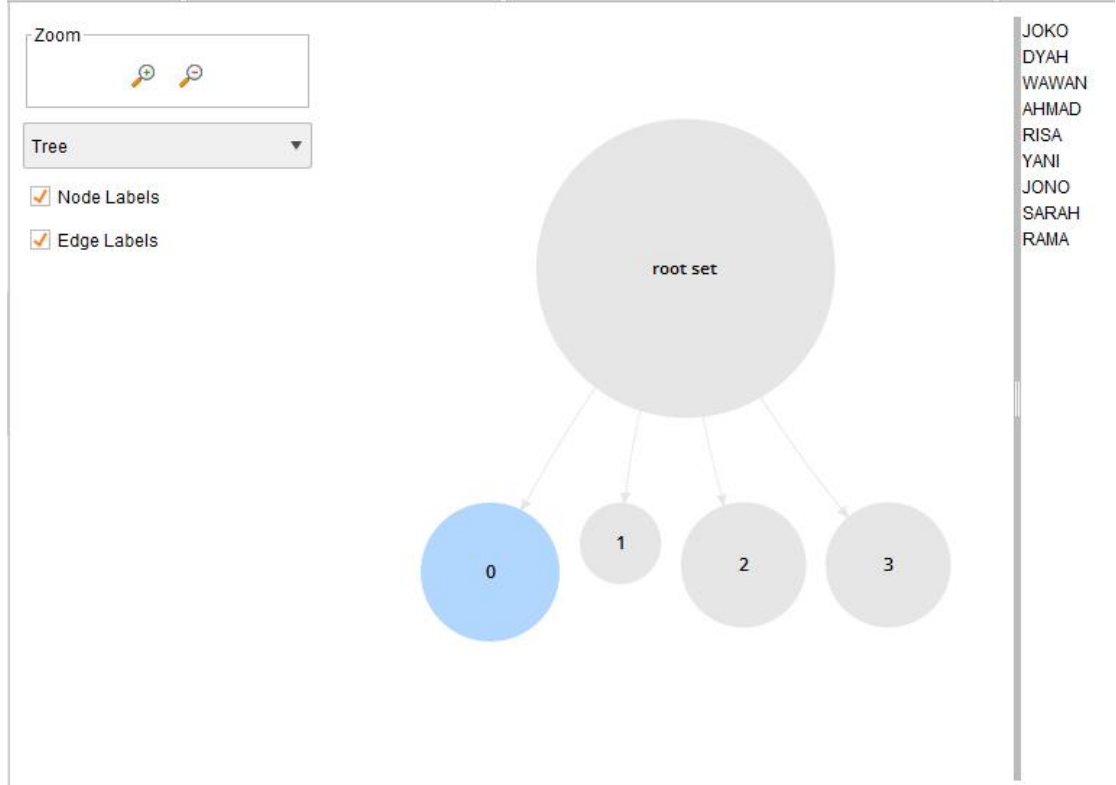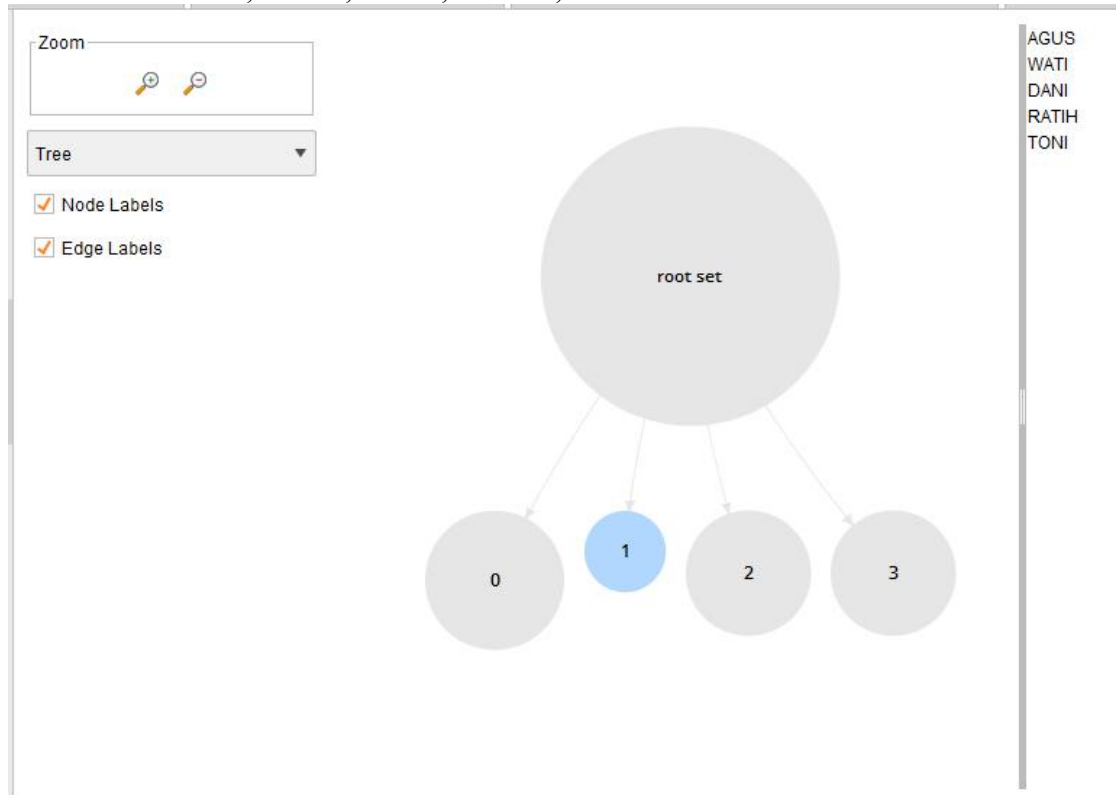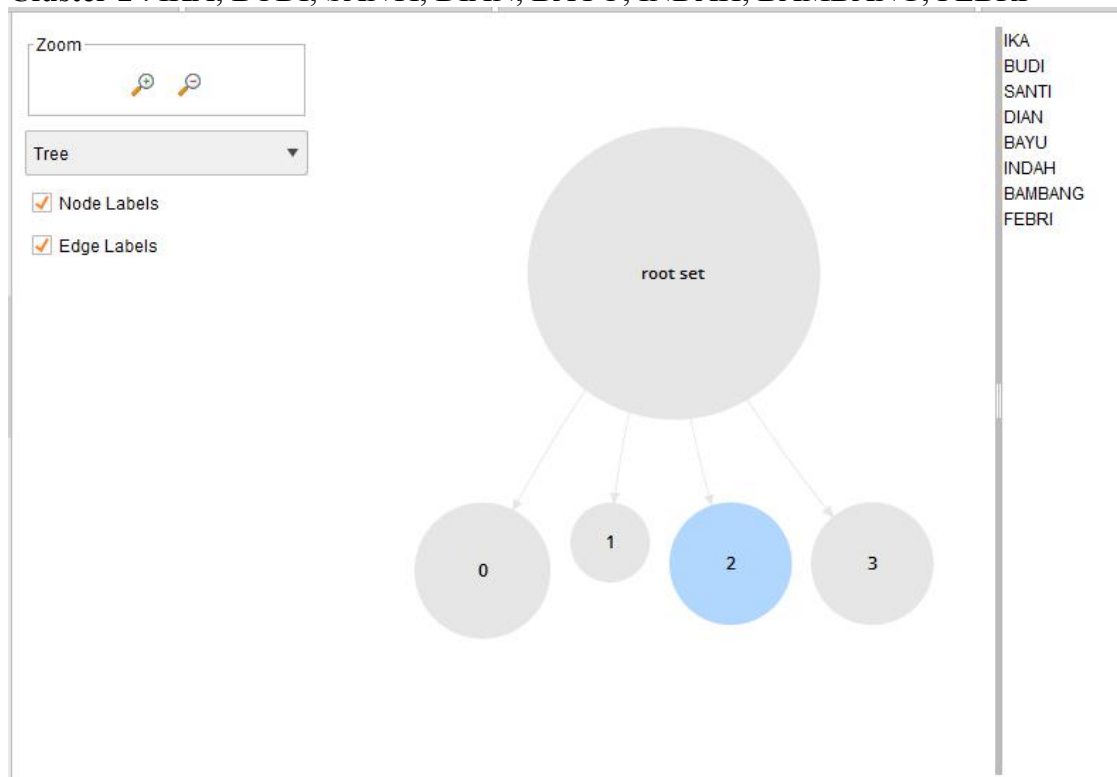
   ii. Graph
   Cluster 0 : JOKO, DYAH, WAWAN, AHMAD, RISA, YANI, JONO, SARAH, RAMA

Cluster 1 : AGUS, WATI, DANI, RATIH, TONI

Cluster 2 : IKA, BUDI, SANTI, DIAN, BAYU, INDAH, BAMBANG, FEBRI

Cluster 3 : SUSI, EKO, YANTO, MAHMUD, RANI, HADI, NANA, DENI