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MODUL 10

LATIHAN

10.4.1. Algoritma K-Means Menggunakan RapidMiner

a) SVD (Singular Value Decomposition)

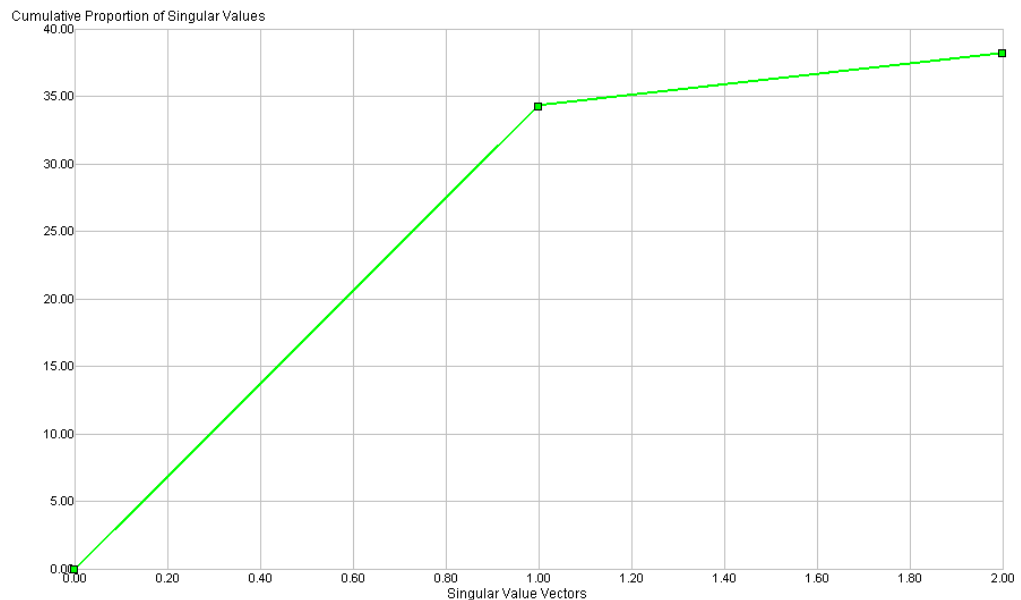
i. Nilai Eigenvalue

Component	Singular Value	Proportion of Singular Valu...	Cumulative Singular Values	Cumulative Proportion of S...
SVD 1	34.340	0.898	34.340	0.898
SVD 2	3.906	0.102	38.246	1.000

ii. Nilai Svd vectors

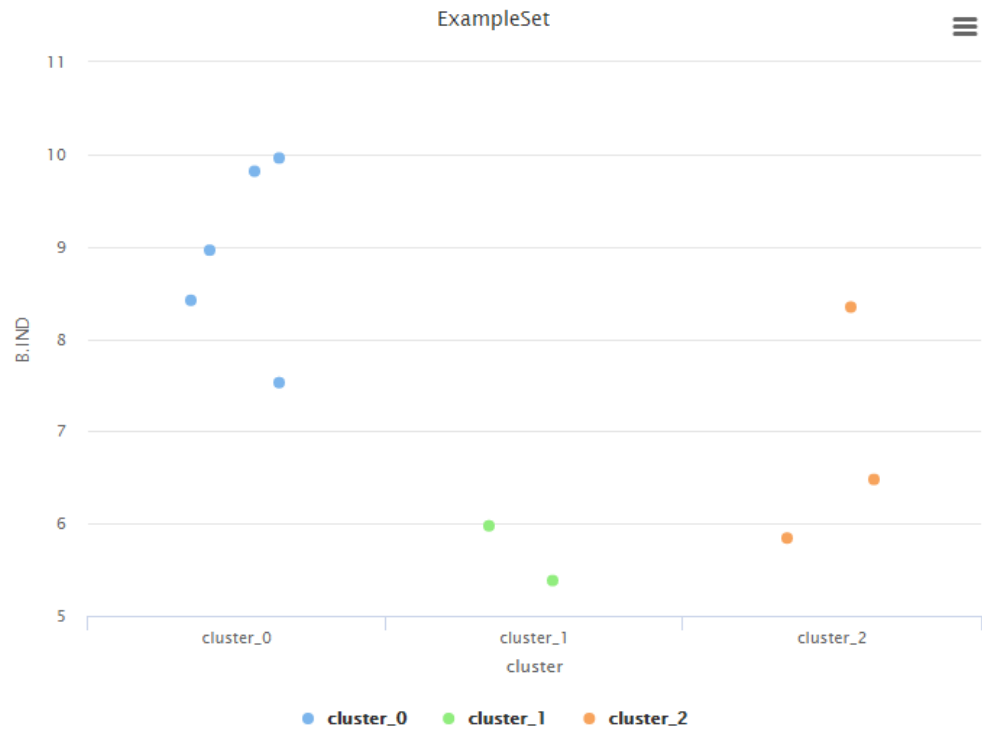
Attribute	SVD Vector 1
B.IND	0.723
B.ING	0.690

iii. Nilai Cumulative variance

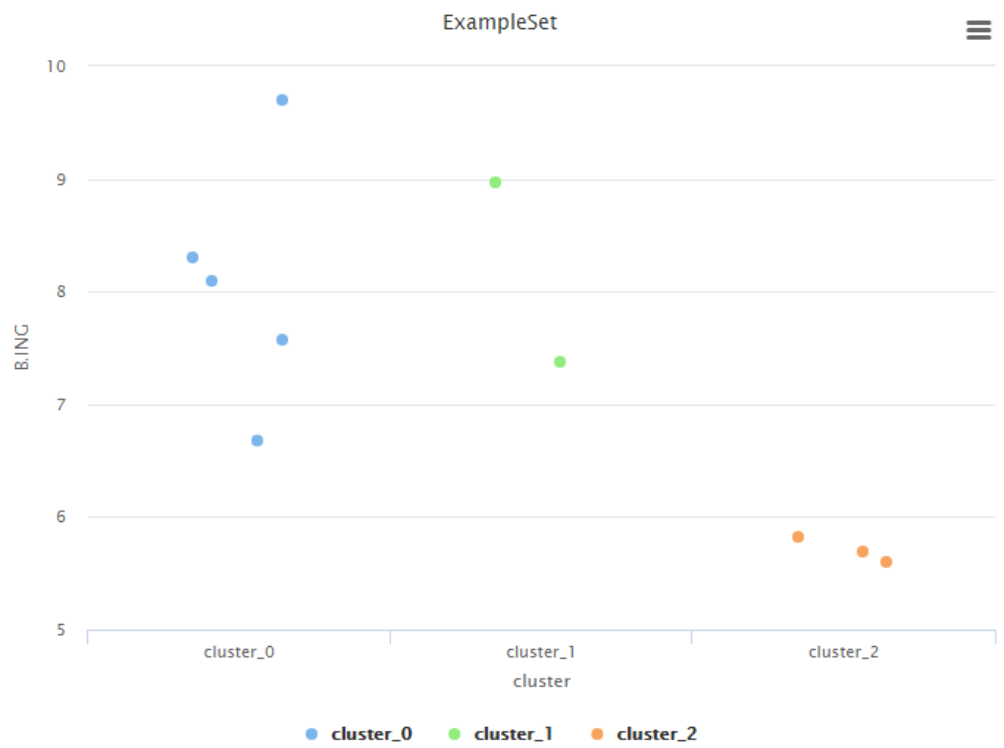


b) ExampleSet (k-Means)



i. Kelompok Siswa bidang B.Indonesia



ii. Kelompok Siswa bidang B. Inggris



c) ExampleSet (SVD)

Open in  Turbo Prep  Auto Model

Row No.	NAMA	cluster ↑	svd_1
1	JOKO	cluster_0	0.349
2	AGUS	cluster_0	0.347
7	EKO	cluster_0	0.317
9	WAWAN	cluster_0	0.353
10	MAHMUD	cluster_0	0.399
3	SUSI	cluster_1	0.315
4	DYAH	cluster_1	0.256
5	WATI	cluster_2	0.235
6	IKA	cluster_2	0.299
8	YANTO	cluster_2	0.254

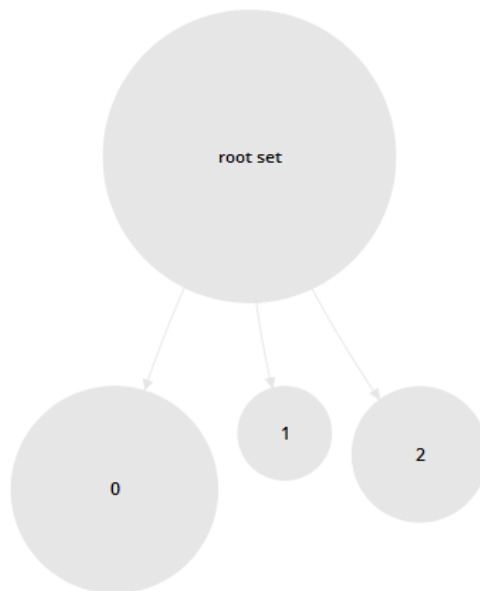
d) Cluster Model (Clustering)

i. Description



Cluster Model

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

ii. Graph



10.4.2 Interpretasi Hasil Algoritma K-Means

Open in  Turbo Prep  Auto Model

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

TUGAS

1. Tabel Data Nilai Ujian 30 Siswa:

1	NO_SISWA	NAMA	B.IND	B.ING	MTK	IPA
2	S-101	JOKO	6,371383748	7,531170666	8,140024362	7,10167916
3	S-102	AGUS	7,32711448	5,617147376	5,025077012	6,471443561
4	S-103	SUSI	5,928826942	9,685929843	7,603980335	9,805383828
5	S-104	DYAH	6,32481651	9,688798472	5,472880971	5,77312631
6	S-105	WATI	7,97346425	8,653436684	7,87238671	7,740406989
7	S-106	IKA	5,030145372	5,946323692	5,948660448	9,058817507
8	S-107	EKO	5,512418958	7,950047133	7,299097021	7,418088581
9	S-108	YANTO	6,763366923	6,06016986	8,559446924	5,219872382
10	S-109	WAWAN	7,93199777	8,199252763	6,207554097	5,200616879
11	S-110	MAHMUD	8,022265415	6,528634976	8,211892747	6,074298286
12	S-111	BUDI	7,386540037	6,183143902	5,439829868	7,549730063
13	S-112	SANTI	9,463708459	9,283794932	7,393175685	9,574263051
14	S-113	DIAN	5,612070234	7,108592794	6,099383851	5,329635778
15	S-114	DANI	8,201171643	5,771723809	7,724869182	8,328851332
16	S-115	AHMAD	7,564183012	5,923011077	7,761944138	6,656880599
17	S-116	BAYU	5,802457459	8,484109185	7,236349165	5,152543849
18	S-117	RISA	9,039935569	7,375687391	7,416864706	7,793294232
19	S-118	RANI	5,057922132	8,706282024	6,69313115	8,408784531
20	S-119	YANI	9,913419635	5,053052916	6,979272444	6,095635689
21	S-120	RATIH	9,579248432	6,893669041	7,409046016	7,651694932
22	S-121	INDAH	8,577353709	7,550934273	7,604990668	8,39543297
23	S-122	JONO	6,291872722	6,218291787	8,897367103	6,365807433
24	S-123	SARAH	7,872148155	5,888535304	9,759130726	5,315824673
25	S-124	RAMA	5,413156917	5,0410983	7,410056228	5,027222124
26	S-125	BAMBANG	5,1339468	6,417659621	8,567473407	8,455412673
27	S-126	HADI	6,585554814	8,845128006	5,223714494	6,867624094
28	S-127	NANA	5,738671813	9,44647136	6,996021061	7,60699594
29	S-128	FEBRI	9,083270006	5,430187666	9,839598936	6,86373506
30	S-129	DENI	7,846052288	6,361062168	6,415681334	9,719758698
31	S-130	TONI	9,801338407	8,372626869	5,640469599	5,646569557

2. Lakukan kembali kegiatan 10.4.1 dan 10.4.2

a) SVD (Singular Value Decomposition)

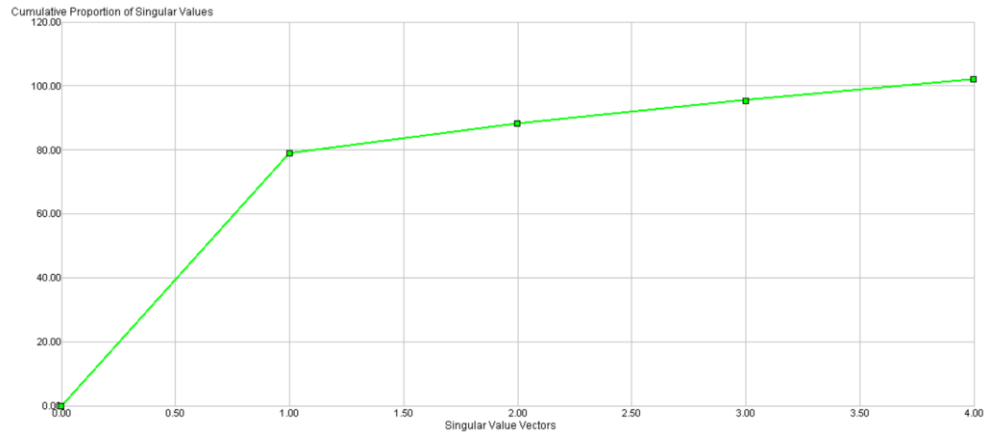
i. Nilai Eigenvalue

Component	Singular Value	Proportion of Singular Values	Cumulative Singular Values	Cumulative Proportion of Singular...
SVD 1	79.123	0.775	79.123	0.775
SVD 2	9.204	0.090	88.327	0.865
SVD 3	7.196	0.070	95.523	0.935
SVD 4	6.634	0.065	102.157	1.000

ii. Nilai Svd vectors

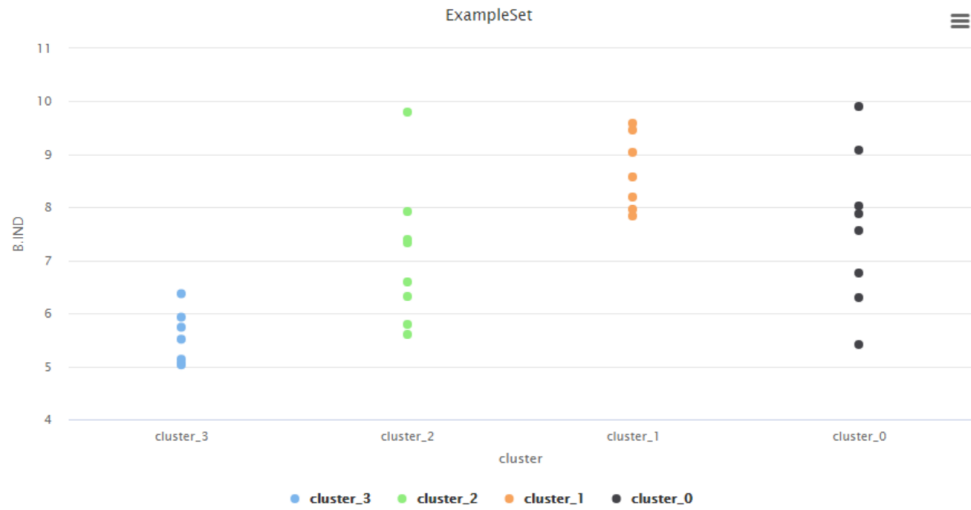
Attribute	SVD Vector 1	SVD Vector 2	SVD Vector 3
B.IND	0.504	-0.586	0.606
B.ING	0.501	0.636	0.348
MTK	0.501	-0.375	-0.640
IPA	0.494	0.333	-0.321

iii. Nilai Cumulative variance

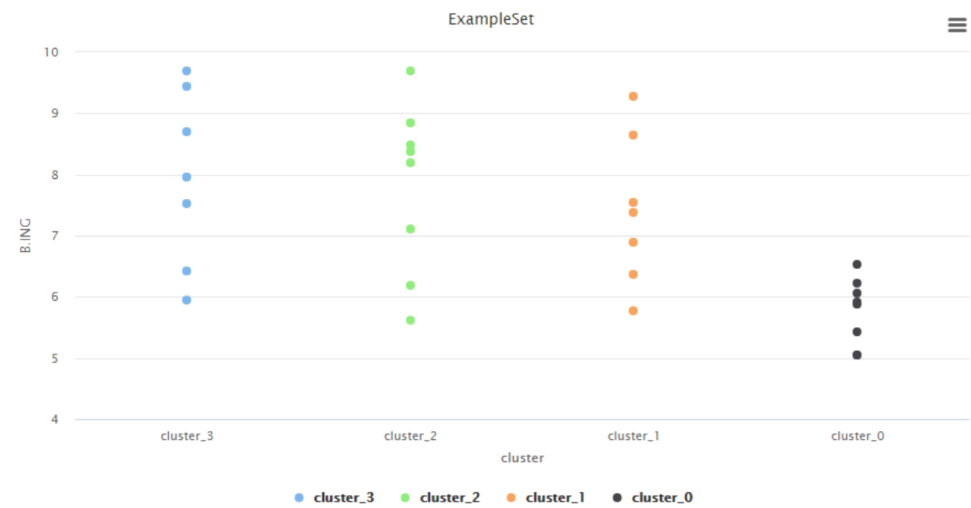


b) ExampleSet (K-Means)

i. Kelompok siswa bidang B.Indonesia



ii. Kelompok siswa bidang B.Ingggris



iii. Kelompok siswa bidang Matematika



iv. Kelompok siswa bidang IPA



c) ExampleSet (SVD)

Row No.	NAMA	cluster ↑	svd_1
8	YANTO	cluster_0	0.168
10	MAHMUD	cluster_0	0.182
15	AHMAD	cluster_0	0.176
19	YANI	cluster_0	0.177
22	JONO	cluster_0	0.176
23	SARAH	cluster_0	0.182
24	RAMA	cluster_0	0.145
28	FEBRI	cluster_0	0.197
5	WATI	cluster_1	0.204
12	SANTI	cluster_1	0.226
14	DANI	cluster_1	0.190
17	RISA	cluster_1	0.200
20	RATIH	cluster_1	0.199
21	INDAH	cluster_1	0.203
29	DENI	cluster_1	0.192
2	AGUS	cluster_2	0.154
4	DYAH	cluster_2	0.172
9	WAWAN	cluster_2	0.174
11	BUDI	cluster_2	0.168
13	DIAN	cluster_2	0.153
16	BAYU	cluster_2	0.169
26	HADI	cluster_2	0.174
30	TONI	cluster_2	0.186
1	JOKO	cluster_3	0.184

3	SUSI	cluster_3	0.208
6	IKA	cluster_3	0.164
7	EKO	cluster_3	0.178
18	RANI	cluster_3	0.182
25	BAMBANG	cluster_3	0.180
27	NANA	cluster_3	0.188

d) Cluster Model (Clustering)

i. Description

Cluster Model

```
Cluster 0: 8 items
Cluster 1: 7 items
Cluster 2: 8 items
Cluster 3: 7 items
Total number of items: 30
```

ii. Graph



e) Interpretasi hasil algoritma K-Means

Row No.	NAMA	cluster ↑	B.IND	B.ING	MTK	IPA
8	YANTO	cluster_0	6.763	6.060	8.559	5.220
10	MAHMUD	cluster_0	8.022	6.529	8.212	6.074
15	AHMAD	cluster_0	7.564	5.923	7.762	6.657
19	YANI	cluster_0	9.913	5.053	6.979	6.096
22	JONO	cluster_0	6.292	6.218	8.897	6.366
23	SARAH	cluster_0	7.872	5.889	9.759	5.316
24	RAMA	cluster_0	5.413	5.041	7.410	5.027
28	FEBRI	cluster_0	9.083	5.430	9.840	6.864
5	WATI	cluster_1	7.973	8.653	7.872	7.740
12	SANTI	cluster_1	9.464	9.284	7.393	9.574
14	DANI	cluster_1	8.201	5.772	7.725	8.329
17	RISA	cluster_1	9.040	7.376	7.417	7.793
20	RATIH	cluster_1	9.579	6.894	7.409	7.652
21	INDAH	cluster_1	8.577	7.551	7.605	8.395
29	DENI	cluster_1	7.846	6.361	6.416	9.720
2	AGUS	cluster_2	7.327	5.617	5.025	6.471
4	DYAH	cluster_2	6.325	9.689	5.473	5.773
9	WAWAN	cluster_2	7.932	8.199	6.208	5.201
11	BUDI	cluster_2	7.387	6.183	5.440	7.550
13	DIAN	cluster_2	5.612	7.109	6.099	5.330
16	BAYU	cluster_2	5.802	8.484	7.236	5.153
26	HADI	cluster_2	6.586	8.845	5.224	6.868
30	TONI	cluster_2	9.801	8.373	5.640	5.647
1	JOKO	cluster_3	6.371	7.531	8.140	7.102
3	SUSI	cluster_3	5.929	9.686	7.604	9.805
6	IKA	cluster_3	5.030	5.946	5.949	9.059
7	EKO	cluster_3	5.512	7.950	7.299	7.418
18	RANI	cluster_3	5.058	8.706	6.693	8.409
25	BAMBANG	cluster_3	5.134	6.418	8.567	8.455
27	NANA	cluster_3	5.739	9.446	6.996	7.607

3. Tulislah masing-masing nama siswa yang terdapat dalam kelompok Cluster 0, Cluster 1, Cluster 2, dan Cluster 3.
- Cluster 0 : YANTO, MAHMUD, AHMAD, YANI, JONO, SARAH, RAMA, FEBRI.
 - Cluster 1 : WATI, SANTI, DANI, RISA, RATIH, INDAH, DENI.
 - Cluster 2 : AGUS, DYAH, WAWAN, BUDI, DIAN, BAYU, HADI, TONI.
 - Cluster 3 : JOKO, SUSI, IKA, EKO, RANI, BAMBANG, NANA.