

Testing Modeling

- Menggunakan Rapid Miner

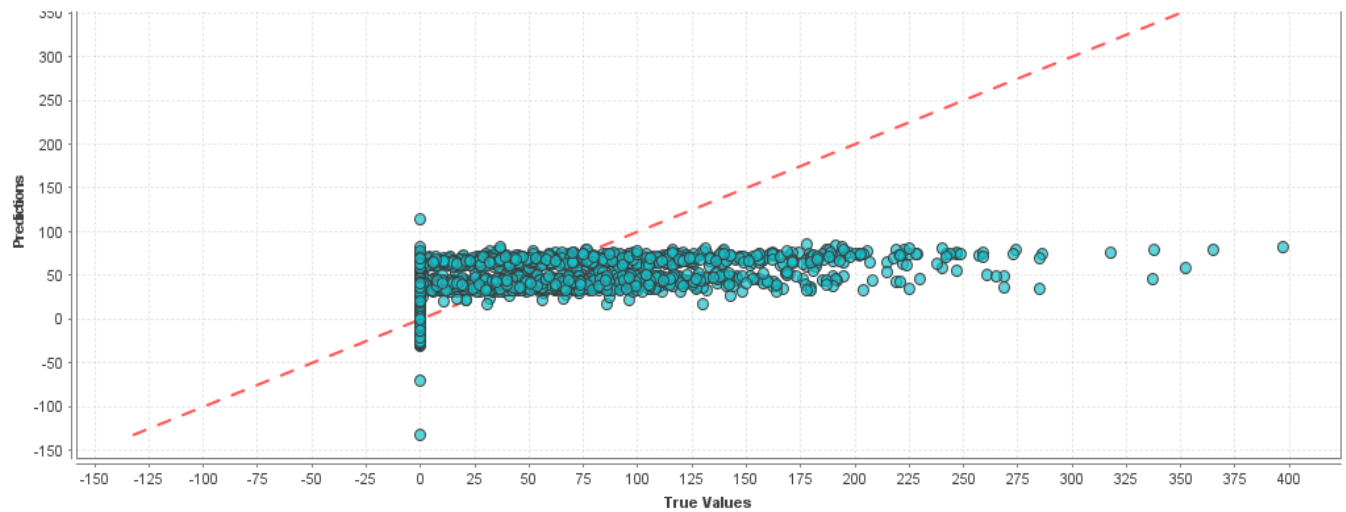
A. Regresi Linear

1. Memilih variable Blok3 sebagai predictor

Result

BLOK3	prediction(BLOK3)
0,0	8,7
0,0	-9,6
0,0	-5,4
0,0	0,4
0,0	11,2
0,0	-3,3
0,0	33,8
0,0	61,5
13,0	45,3
0,0	39,8
6,0	63,9
142,0	44,2
0,0	62,6
84,0	47,1
0,0	48,3
181,0	49,8
133,0	45,7
0,0	-2,7
0,0	2,6
0,0	3,9
0,0	-4,2

Generalized Linear Model - Predictions Chart



Generalized Linear Model - Production Model

Attribute	Coefficient	Std. Coefficient
TARIP.B1	-21.888	-21.888
TARIP.B2	0	0
TARIP.B3	0	0
TARIP.I1	0	0
TARIP.I2	0	0
TARIP.I3	0	0
TARIP.I3P	0	0
TARIP.LB1	0	0
TARIP.LB2	0	0

Generalized Linear Model - Production Model

Attribute	Coefficient	Std. Coefficient
TARIP.LI2	0	0
TARIP.LI3	0	0
TARIP.LP1	0	0
TARIP.LR3	0	0
TARIP.LS2	0	0
TARIP.LS3	0	0
TARIP.P1	0	0
TARIP.P2	0	0
TARIP.P3	0	0

Generalized Linear Model - Production Model

Attribute	Coefficient	Std. Coefficient
SENEWBP	0.000	0.000
SAHLWBP	0.000	5.267
KWHLWBP	0	0
KWHWBP	0.007	3.023
RPLWBP	-0.000	-4.476
RPBEBAN	0.002	14.675
RPPTL	0	0
RPBPJU	0.000	1.384
RPPLN	0	0
RPTAG	0	0

Generalized Linear Model - Production Model

Attribute	Coefficient	Std. Coefficient
KWHLWBP	0	0
KWHWBP	0.007	3.023
RPLWBP	-0.000	-4.476
RPBEBAN	0.002	14.675
RPPTL	0	0
RPBPJU	0.000	1.384
RPPLN	0	0
RPTAG	0	0
RPTAG_MAT	0	0
Intercept	313198.018	10.772

2. Memilih Variable KDPEMBAYARAN sebagai Predictor

Result

- Model

Generalized Linear Model - Model

Attribute	Coefficient M	Coefficient E	Coefficient P	Coefficient A	Std. Coefficien...	Std. Coefficien...	Std. Coefficien...	Std. Coefficien...
TARIP.B1	0	0	0	0	0	0	0	0
TARIP.B2	-0.902	0.545	0	0	-0.902	0.545	0	0
TARIP.B3	0	0	0	0	0	0	0	0
TARIP.I1	0	0	0	0	0	0	0	0
TARIP.I2	0	0	0	0	0	0	0	0
TARIP.I3	0	0	0	0	0	0	0	0
TARIP.I3P	0	0	0	0	0	0	0	0
TARIP.LB1	0	0	0	0	0	0	0	0
TARIP.LB2	0	0	0	0	0	0	0	0

Generalized Linear Model - Model

Attribute	Coefficient M	Coefficient E	Coefficient P	Coefficient A	Std. Coefficien...	Std. Coefficien...	Std. Coefficien...	Std. Coefficien...
TARIP.LR3	0	0	0	0	0	0	0	0
TARIP.LS2	0	0	0	0	0	0	0	0
TARIP.LS3	0	0	0	0	0	0	0	0
TARIP.P1	0	0	0	0.058	0	0	0	0.058
TARIP.P2	0	0	0	0	0	0	0	0
TARIP.P3	-0.254	0.626	0.276	-0.803	-0.254	0.626	0.276	-0.803
TARIP.R1	0.315	0	0	0	0.315	0	0	0
TARIP.R1M	0.493	0	0	0	0.493	0	0	0
TARIP.R2	0	0	0	0	0	0	0	0

Generalized Linear Model - Model

Attribute	Coefficient M	Coefficient E	Coefficient P	Coefficient A	Std. Coefficien...	Std. Coefficien...	Std. Coefficien...	Std. Coefficien...
RPBLOK3	0	0	0	0	0	0	0	0
RPBEBAN	0.000	0.000	-0.000	0	0.111	0.027	-0.073	0
RPPTL	-0.000	0.000	0	0.000	-0.120	0.127	0	0.055
RPBPJU	-0.000	0	0	0.000	-0.197	0	0	0.451
RPPLN	-0.000	0.000	0	0.000	-0.122	0.126	0	0.056
RPTAG	-0.000	0.000	0	0.000	-0.185	0.140	0	0.067
RPTAG_MAT	-0.000	0.000	0	0.000	-0.190	0.141	0	0.068
NOREK	0.000	-0.000	0	0.000	0.012	-0.065	0	0.202
Intercept	1175329.269	1037621.992	775288.800	-1975640.340	5.312	-10.868	-7.308	-13.193

- Prediction

Generalized Linear Model - Predictions

Row No.	KDPEMBME...	prediction(K...	confidence(...	confidence(E)	confidence(P)	confidence(A)	cost	NAMA_UP	PNJ	TARI
1	M	M	0.498	0.336	0.001	0.164	-0.004	ULP SOLOK	XX	R1M
2	M	M	0.538	0.323	0.001	0.138	0.075	ULP SOLOK	KL	R1M
3	M	M	0.994	0.005	0.001	0.000	0.987	ULP SOLOK	XX	R1M
4	M	M	0.979	0.020	0.001	0.000	0.957	ULP SOLOK	JL	R1M
5	M	M	0.513	0.331	0.001	0.155	0.025	ULP SOLOK	JL	R1M
6	M	M	0.686	0.282	0.002	0.030	0.373	ULP SIJUNJ...	XX	R1
7	M	M	0.725	0.272	0.001	0.002	0.449	ULP SIJUNJ...	PS	R1
8	M	M	0.497	0.336	0.001	0.165	-0.006	ULP SIJUNJ...	PS	R1
9	M	M	0.502	0.337	0.001	0.160	0.005	ULP SIJUNJ...	KL	R1
10	M	M	0.994	0.005	0.001	0.000	0.987	ULP SOLOK	JL	R1

confidence(M)	confidence(E)	confidence(P)	confidence(A)	prediction(KDPEMBMETER)	cost
0,5	0,3	0,0	0,2	M	0,0
0,5	0,3	0,0	0,1	M	0,1
1,0	0,0	0,0	0,0	M	1,0
1,0	0,0	0,0	0,0	M	1,0
0,5	0,3	0,0	0,2	M	0,0
0,7	0,3	0,0	0,0	M	0,4
0,7	0,3	0,0	0,0	M	0,4
0,5	0,3	0,0	0,2	M	0,0
0,5	0,3	0,0	0,2	M	0,0
1,0	0,0	0,0	0,0	M	1,0
1,0	0,0	0,0	0,0	M	1,0
0,8	0,2	0,0	0,0	M	0,6
1,0	0,0	0,0	0,0	M	1,0
0,8	0,2	0,0	0,0	M	0,6
0,8	0,2	0,0	0,0	M	0,7
1,0	0,0	0,0	0,0	M	1,0
1,0	0,0	0,0	0,0	M	1,0
1,0	0,0	0,0	0,0	M	1,0
1,0	0,0	0,0	0,0	M	1,0
0,9	0,1	0,0	0,0	M	0,9
1,0	0,0	0,0	0,0	M	1,0

- Production Model

Generalized Linear Model - Production Model

Attribute	Coefficient M	Coefficient E	Coefficient P	Coefficient A	Std. Coefficien...	Std. Coefficien...	Std. Coefficien...	Std. Coefficien...
TARIP.B1	0	0	0	0	0	0	0	0
TARIP.B2	-0.690	0.248	0	0	-0.690	0.248	0	0
TARIP.B3	0	0	0	0	0	0	0	0
TARIP.I1	0	0	0	0	0	0	0	0
TARIP.I2	0	0	0	0	0	0	0	0
TARIP.I3	0	0	0	0	0	0	0	0
TARIP.I3P	0	0	0	0	0	0	0	0
TARIP.LB1	0	0	0	0	0	0	0	0
TARIP.LB2	-0.033	0	0	0	-0.033	0	0	0

Generalized Linear Model - Production Model

Attribute	Coefficient M	Coefficient E	Coefficient P	Coefficient A	Std. Coefficient...	Std. Coefficient...	Std. Coefficient...	Std. Coefficient...
RPBLOK3	0	0.000	-0.000	0	0	0.036	-0.004	0
RPBEBAN	0.000	0.000	-0.000	0	0.105	0.053	-0.053	0
RPPTL	-0.000	0.000	0	0	-0.128	0.079	0	0
RPBPJU	-0.000	-0.000	0	0.000	-0.382	-0.032	0	0.194
RPPLN	-0.000	0.000	0	0	-0.131	0.078	0	0
RPTAG	-0.000	0.000	0	0	-0.183	0.065	0	0
RPTAG_MAT	-0.000	0.000	0	0	-0.190	0.066	0	0
NOREK	-0.000	-0.000	0	0.000	-0.011	-0.050	0	0.312
Intercept	813672.460	882009.189	419203.151	-1861491.527	6.142	-10.997	-7.325	-11.157

3. Memilih Kode Golongan Sebagai Prediktor

- Model

Attribute	Coefficient 0	Coefficient 3	Coefficient 2	Coefficient 1	Coefficient 4	Std. Coeffic...	Std. Coeffic...	Std. Coeffic...	Std. Coeffic...	Std. Coeffic...
TGLBACALA...	0	0	0	0	0	0	0	0	0	0
TGLBACALA...	0	0	0	0	0	0	0	0	0	0
TGLBACALA...	0	0	0	0	0	0	0	0	0	0
TGLBACALA...	0	0	0	-0.082	0	0	0	0	-0.082	0
TGLBACALA...	0	0	0	-0.207	0	0	0	0	-0.207	0
TGLBACALA...	0	0	0	0.408	-0.077	0	0	0	0.408	-0.077
TGLBACALA...	0.006	0.086	0	-0.011	-0.001	0.006	0.086	0	-0.011	-0.001
TGLBACALA...	-0.045	-0.007	0.001	0	0	-0.045	-0.007	0.001	0	0
TGLBACALA...	0	-0.335	0	0.142	0.029	0	-0.335	0	0.142	0.029

Generalized Linear Model - Model

Attribute	Coefficient 0	Coefficient 3	Coefficient 2	Coefficient 1	Coefficient 4	Std. Coeffic...	Std. Coeffic...	Std. Coeffic...	Std. Coeffic...	Std. Coeffic...
RPBEBAN	0.000	0.000	-0.000	-0.000	-0.000	0.105	0.072	-0.027	-0.237	-0.137
RPPTL	-0.000	0.000	0	0.000	-0.000	-0.883	0.003	0	0.061	-0.641
RPBPJU	0.000	-0.000	-0.000	-0.000	0.000	0.091	-1.348	-1.393	-0.551	0.084
RPPLN	-0.000	0.000	0	0.000	-0.000	-0.894	0.003	0	0.061	-0.636
RPTAG	-0.000	0.000	-0.000	0	-0.000	-0.498	0.009	-0.020	0	-0.650
RPTAG_MAT	-0.000	0.000	-0.000	0	-0.000	-0.510	0.010	-0.019	0	-0.645
RPBK1	0.000	-0.000	-0.000	-0.000	0.000	1.443	-3.087	-4.853	-0.392	1.273
RPBK2	0.000	-0.000	-0.000	-0.000	0.000	1.443	-3.087	-4.853	-0.392	1.273
RPBK3	0.000	-0.000	-0.000	-0.000	0.000	1.443	-3.087	-4.853	-0.392	1.273
Intercept	-3.535	-5.534	-7.281	-9.034	-8.601	-3.194	-7.238	-9.586	-9.533	-8.941

- Performance

Performances

Criterion	Value	Standard Deviation
Accuracy	1.6%	± 0.1%
Classification Error	98.4%	± 0.1%

Confusion Matrix

	true 0	true 3	true 2	true 1	true 4	class precision
pred. 0	398	0	0	0	22	94.76%
pred. 3	47	7	1	0	0	12.73%
pred. 2	33140	225	160	22	17	0.48%
pred. 1	101	4	0	0	0	0.00%
pred. 4	490	2	2	0	2	0.40%
class recall	1.16%	2.94%	98.16%	0.00%	4.88%	

- Prediction

Generalized Linear Model - Predictions

Row No.	KOGOL	prediction(K...	confidence(0)	confidence(3)	confidence(2)	confidence(1)	confidence(4)	cost
1	0	2	0.166	0.001	0.499	0.166	0.167	-0.002
2	0	2	0.166	0.001	0.499	0.164	0.169	-0.002
3	0	2	0.166	0.001	0.499	0.166	0.167	-0.002
4	0	2	0.166	0.001	0.499	0.166	0.168	-0.002
5	0	2	0.166	0.001	0.499	0.166	0.168	-0.002
6	0	2	0.166	0.001	0.499	0.166	0.167	-0.002
7	0	2	0.166	0.001	0.499	0.166	0.167	-0.002
8	0	2	0.166	0.001	0.499	0.166	0.167	-0.002
9	0	2	0.166	0.001	0.499	0.165	0.168	-0.002
10	0	2	0.166	0.001	0.499	0.165	0.169	-0.002

- Production Model

Generalized Linear Model - Production Model

Attribute	Coefficient 0	Coefficient 3	Coefficient 2	Coefficient 1	Coefficient 4	Std. Coeffic...	Std. Coeffic...	Std. Coeffic...	Std. Coeffic...	Std. Coeffic...
TGLBACALA...	0	0	0	0	0	0	0	0	0	0
TGLBACALA...	0	0	0	0	0	0	0	0	0	0
TGLBACALA...	0	0	0	0	0	0	0	0	0	0
TGLBACALA...	0	0	0	0	0	0	0	0	0	0
TGLBACALA...	0	0.087	0	-0.178	-0.006	0	0.087	0	-0.178	-0.006
TGLBACALA...	0.060	0	0	0	-0.057	0.060	0	0	0	-0.057
TGLBACALA...	0.046	0	0	-0.138	0	0.046	0	0	-0.138	0
TGLBACALA...	-0.035	0	0	0.172	0	-0.035	0	0	0.172	0
TGLBACALA...	-0.036	0	0.018	0	0.082	-0.036	0	0.018	0	0.082

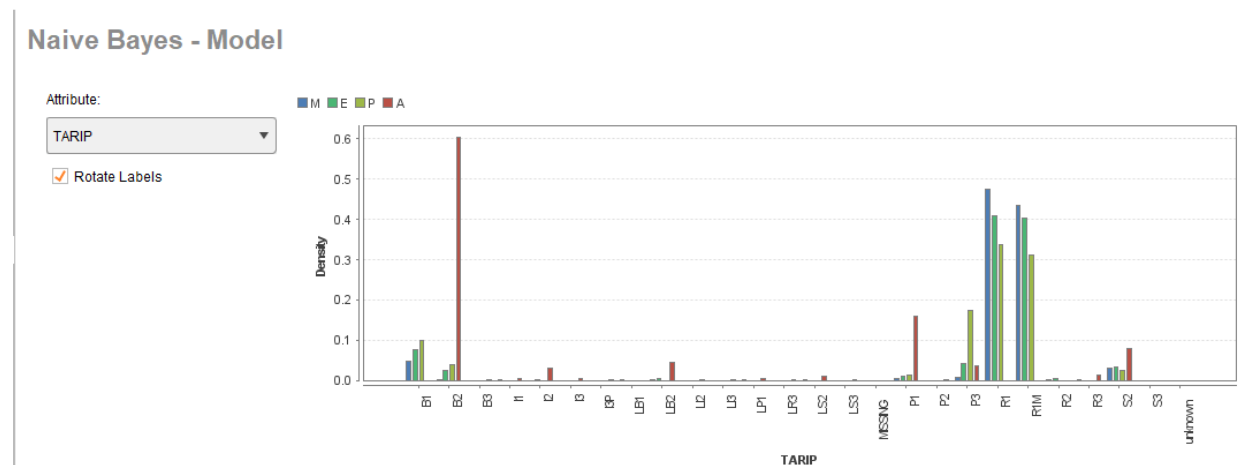
Generalized Linear Model - Production Model

Attribute	Coefficient 0	Coefficient 3	Coefficient 2	Coefficient 1	Coefficient 4	Std. Coeffic...	Std. Coeffic...	Std. Coeffic...	Std. Coeffic...	Std. Coeffic...
RPBDAV	0.000	0.000	-0.000	-0.000	-0.000	0.190	0.000	-0.023	-0.107	-0.109
RPPTL	-0.000	0	0	0.000	-0.000	-0.658	0	0	0.076	-0.500
RBPBJU	0.000	-0.000	-0.000	-0.000	0.000	0.090	-1.361	-1.292	-0.477	0.066
RPPLN	-0.000	0	0	0.000	-0.000	-0.670	0	0	0.077	-0.496
RPTAG	-0.000	0	-0.000	0	-0.000	-0.395	0	-0.053	0	-0.484
RPTAG_MAT	-0.000	0	-0.000	0	-0.000	-0.409	0	-0.050	0	-0.480
RPBK1	0.000	-0.000	-0.000	-0.000	0.000	1.261	-3.091	-4.713	-0.396	1.102
RPBK2	0.000	-0.000	-0.000	-0.000	0.000	1.261	-3.091	-4.713	-0.396	1.102
RPBK3	0.000	-0.000	-0.000	-0.000	0.000	1.261	-3.091	-4.713	-0.396	1.102
Intercept	-3.510	-5.281	-7.339	-8.985	-8.643	-3.198	-7.001	-9.662	-9.474	-9.051

B. Naïve Bayes

1. Predictor KD PEMBAYARAN

- Model



- Performance

Naive Bayes - Performance

Performances

Criterion	Value	Standard Deviation
Accuracy	96.3%	± 0.1%
Classification Error	3.7%	± 0.1%

Confusion Matrix

	true M	true E	true P	true A	class precision
pred. M	38530	1140	41	307	96.28%
pred. E	0	0	0	0	0.00%
pred. P	0	0	0	0	0.00%
pred. A	0	0	0	0	0.00%
class recall	100.00%	0.00%	0.00%	0.00%	

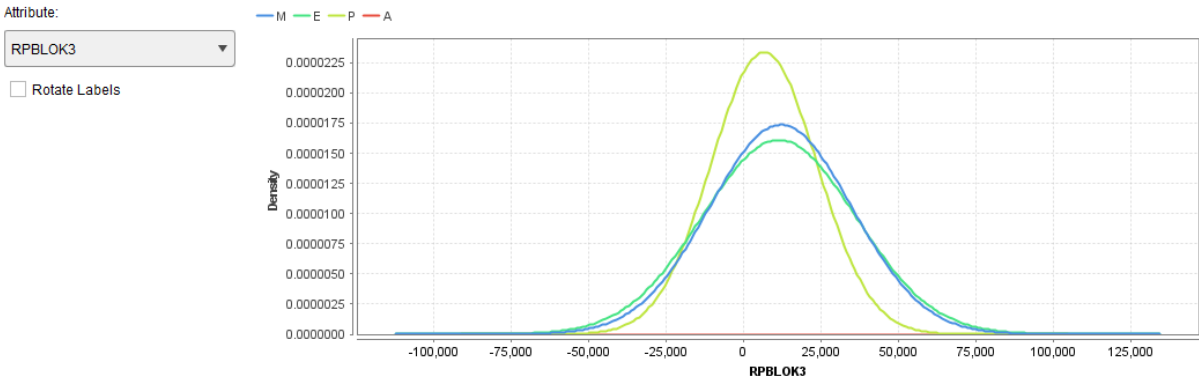
- Prediction

Naive Bayes - Predictions

Row No.	KDPEMBME...	prediction(K...	confidence(...	confidence(E)	confidence(P)	confidence(A)	cost	NAMA_UP	PNJ
1	M	M	0.767	0.222	0.004	0.007	0.534	ULP SOLOK	XX
2	M	M	0.767	0.222	0.004	0.007	0.534	ULP SOLOK	KL
3	M	M	0.767	0.222	0.004	0.007	0.534	ULP SOLOK	XX
4	M	M	0.767	0.222	0.004	0.007	0.534	ULP SOLOK	JL
5	M	M	0.767	0.222	0.004	0.007	0.534	ULP SOLOK	JL
6	M	M	0.767	0.222	0.004	0.007	0.534	ULP SIJUNJ...	XX
7	M	M	0.767	0.222	0.004	0.007	0.534	ULP SIJUNJ...	PS
8	M	M	0.767	0.222	0.004	0.007	0.534	ULP SIJUNJ...	PS
9	M	M	0.767	0.222	0.004	0.007	0.534	ULP SIJUNJ...	KL
10	M	M	0.767	0.222	0.004	0.007	0.534	ULP SOLOK	JL

- Production Model

Naive Bayes - Production Model



C. Cluster using K Means

- Summary

k-Means - Summary

Number of Clusters: 6

Cluster 0

138,968

RPWBP is on average 41.11% smaller, RPLWBP is on average 36.36% smaller, RPPTL is on average 33.61% smaller

Cluster 1

1

RPWBP is on average 1,721,231.56% larger, KWHWBP is on average 650,341.95% larger, KWHLWBP is on average 458,014.21% larger

Cluster 2

2

RPWBP is on average 464,635.06% larger, KWHWBP is on average 175,510.08% larger, KWHLWBP is on average 106,974.03% larger

Cluster 3

2

RPWBP is on average 936,245.51% larger, KWHWBP is on average 347,525.81% larger, KWHLWBP is on average 294,517.54% larger

Cluster 4

10

RPWBP is on average 98,183.22% larger, DAYA is on average 66,213.70% larger, KWHLWBP is on average 61,858.93% larger

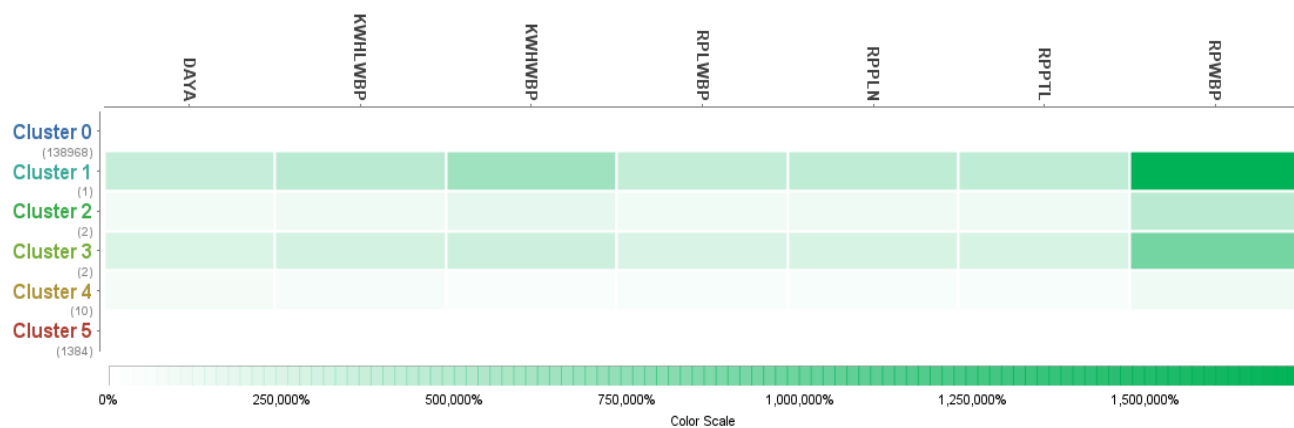
Cluster 5

1,384

RPLWBP is on average 2,560.15% larger, RPPTL is on average 2,229.52% larger, RPPLN is on average 2,227.45% larger

- Heat Map

k-Means - Heat Map



- Cluster Tree

- Centroid Chart

RPPLN	RPPTL	RPTAG	RPTAG_...	RPWBP	SAHLW...	SLALW...	TARIP	TGLBAC...	TGLRUB...	THBLMUT	UNITUP
128234.360	127884.970	139769.586	140085.090	6060.039	15154.860	15085.494	18	20190225...	19741139...	197670.052	13335.031
82830787...	82830187...	85315092...	85315692...	17712770...	15339.000	15273.000	5	20190301...	20150422...	201505.000	13339.000
20002547...	20001947...	21210493...	21211093...	47821962...	15339.000	15273.000	2	20190301...	20165970...	201660.500	13335.500
52286222...	52285622...	53854191...	53854791...	96351413...	15339.000	15273.000	5	20190301...	20176063...	201761.500	13338.500
10554588...	10553988...	10966892...	10967492...	10113496...	22690.571	154605.429	5	20190290...	20152075...	201552.571	13334.286
4448550....	4443207....	4696149....	4701492....	47568.794	33780.749	33337.531	1	20190300...	20152724...	201557.846	13334.558

- Clustered Data

k-Means - Clustered Data

Row No.	id	cluster	IDPEL	UNITUP	PEMDA	DAYA	THBLMUT	TGLBAC...	TGLRUB...	SLALW...	SAHLW...	KWHL...	KWHW...	BLOK
1	1	cluster_0	1330123...	13331.000	62.000	900.000	201505...	2019022...	2008050...	42757.000	42927.000	170.000	0	0
2	2	cluster_0	1330123...	13331.000	62.000	900.000	201607....	2019022...	2016062...	2581.000	2648.000	67.000	0	0
3	3	cluster_0	1329998...	13331.000	60.000	900.000	190001....	2019022...	1900010...	40500.000	40634.000	134.000	0	0
4	4	cluster_0	1330123...	13331.000	62.000	900.000	201506....	2019022...	2012020...	38370.000	38512.000	142.000	0	0
5	5	cluster_0	1329999...	13331.000	60.000	900.000	201810....	2019022...	2018092...	1147.000	1375.000	228.000	0	0
6	6	cluster_0	1329999...	13331.000	60.000	900.000	190001....	2019022...	1900010...	30958.000	31144.000	186.000	0	0
7	7	cluster_0	1330123...	13331.000	62.000	900.000	201609....	2019022...	1900010...	10474.000	10531.000	57.000	0	0
8	8	cluster_0	1329998...	13331.000	60.000	900.000	190001....	2019022...	1900010...	22080.000	22252.000	172.000	0	0
9	9	cluster_0	1330123...	13331.000	62.000	900.000	190001....	2019022...	1900010...	34190.000	34378.000	188.000	0	0
10	10	cluster_0	1329999...	13331.000	60.000	900.000	190001....	2019022...	1900010...	10713.000	10829.000	116.000	0	0