LAMPIRAN

Lampiran 1. Syntax Program RStudio

```
#Memanggil Data dari Excel
DATA.SDM.KESEHATAN=read.delim("clipboard")
DATA.SDM.KESEHATAN

#Memisahkan Data
DATA.1<-DATA.SDM.KESEHATAN[2:12]
DATA.1

# Menentukan Klaster k =3
klaster<-kmeans(DATA.1, centers = 3, nstart = 25)
klaster

#Menentukan Kelompok Klaster
k<-data.frame(klaster$cluster)
k

#Plot k=3
p2<-fviz_cluster(klaster, geom="point", data=DATA.1)+ggtitle("k=3")
p2

# Menentukan Klaster k =4
klaster<-kmeans(DATA.1, centers = 4, nstart = 25)
klaster

# Menentukan Kelompok Klaster
k<-data.frame(klaster$cluster)
k

#Plot k=4
p2<-fviz_cluster(klaster, geom="point", data=DATA.1)+ggtitle("k=4")
p2

# Menentukan Klaster k =5
klaster<-kmeans(DATA.1, centers = 5, nstart = 25)
klaster

# Menentukan Kelompok Klaster
k<-data.frame(klaster$cluster)
k

#Plot k=5
p2<-fviz_cluster(klaster, geom="point", data=DATA.1)+ggtitle("k=5")
```

```
#Menentukan Klaster k=6
klaster<-kmeans(DATA.1, centers = 6, nstart = 25)
klaster

# Menentukan Kelompok Klaster
k<-data.frame(klaster$cluster)
k

#Plot k=6
p2<-fviz_cluster(klaster, geom="point", data=DATA.1)+ggtitle("k=6")
p2

#Menentukan Klaster Terbaik menggunakan Silhouette Coeficent
DATA.1<-DATA.SDM.KESEHATAN[2:12]
DATA.1
summary(Data.1)

library(cluster)
jarak<-as.matrix(dist(DATA.1))
jarak
evaluasi<-NULL
evaluasi
for(k in 3:6){
  clustering<-kmeans(DATA.1,centers=k, iter.max=20)
  koef.sil<-mean(silhouette(clustering$cluster,dmatrix=jarak)[,3])
  evaluasi<-rbind(evaluasi,c(k,koef.sil))
}
 plot(evaluasi[,1],evaluasi[,2],type="b",xlab="banyaknya
cluster",ylab="koefisien silhouette")
```

Lampiran 2. Data Hasil Pengelompokkan Iterasi Pertama untuk 4 Klaster

Data ke-i	C1	C2	C3	C4	Terdekat	Klaster
1	6016,665272	9439,777752	1341,350812	2861,835076	1341,350812	3
2	5152,476783	10224,85482	1474,956949	2517,283456	1474,956949	3
3	5985,624696	10221,31195	667,1521566	1533,160787	667,1521566	3
4	5793,615452	10498,82351	778,1317369	1299,463351	778,1317369	3
5	6431,424104	11282,06528	1247,679847	528,8147124	528,8147124	4
6	6111,422993	10240,08506	0	1603,743122	0	3
7	6761,28723	11663,4284	1603,743122	0	0	4
8	5860,099487	9947,823028	673,7974473	1748,561981	673,7974473	3
9	6805,773064	11679,51463	1821,119436	474,2594227	474,2594227	4
10	6551,007632	11447,78721	1673,674401	568,7547802	568,7547802	4
11	4857,534457	7978,914838	2742,436508	3939,304507	2742,436508	3
12	8270,313597	2242,090096	8414,585551	9901,811147	2242,090096	2
13	8525,646662	2083,158659	8459,287913	9951,503002	2083,158659	2
14	6239,960417	10607,66313	1120,97859	1168,597022	1120,97859	3
15	10056,21037	0	10240,08506	11663,4284	0	2
16	5777,721956	9499,702627	1322,495369	2236,885335	1322,495369	3
17	0	10056,21037	6111,422993	6761,28723	0	1
18	6263,070174	10300,40198	787,0216007	1421,531217	787,0216007	3
19	6251,157493	9770,827959	821,0487196	2181,874653	821,0487196	3
20	6307,453765	10622,28008	880,7621699	1136,56852	880,7621699	3
21	6601,685845	11227,47314	1354,949077	551,5387566	551,5387566	4
22	6336,775442	10624,60183	852,100933	1157,081674	852,100933	3
23	6207,788817	10267,68849	954,8670064	1437,253979	954,8670064	3
24	6945,201797	11865,92993	2020,37942	575,5458279	575,5458279	4
25	6469,241455	11530,7534	1497,636805	446,295866	446,295866	4
26	6623,608684	11253,68122	1082,204694	707,2686901	707,2686901	4
27	6011,028365	9729,879393	965,2414206	2437,487436	965,2414206	3
28	6741,774766	11454,96041	1273,157492	944,9698408	944,9698408	4
29	6890,563257	11727,49031	1758,998863	283,8115572	283,8115572	4
30	6883,29703	11721,66042	1742,971887	267,3406067	267,3406067	4
31	6812,918538	11734,24476	1706,150638	282,8533189	282,8533189	4
32	6977,854685	12030,48648	1931,848597	380,8188546	380,8188546	4
33	6895,433851	11952,55701	1986,471495	431,0023202	431,0023202	4
34	6579,686239	11276,01437	1241,14141	441,0759572	441,0759572	4

Lampiran 3. Data Hasil Pengelompokkan Iterasi Kedua untuk 4 Klaster

Data ke-1	C1	C2	C3	C4	Terdekat	Klaster
1	6016,665272	8173,57187	1486,75338	2822,470648	1486,75338	3
2	5152,476783	8942,566621	1565,938828	2495,142005	1565,93883	3
3	5985,624696	9028,781965	409,5282001	1438,642888	409,5282	3
4	5793,615452	9303,575161	655,9159092	1227,638313	655,915909	3
5	6431,424104	10092,63696	1353,603861	435,072515	435,072515	4
6	6111,422993	9018,009635	497,2992526	1549,402732	497,299253	3
7	6761,28723	10485,91416	1761,945936	155,4040755	155,404075	4
8	5860,099487	8756,558234	281,8963403	1667,293803	281,89634	3
9	6805,773064	10525,07839	1884,034823	407,5052883	407,505288	4
10	6551,007632	10293,00894	1684,742596	486,6351405	486,635141	4
11	4857,534457	6823,830042	2340,602262	3850,95978	2340,60226	3
12	8270,313597	848,8720621	8168,923055	9826,31033	848,872062	2
13	8525,646662	701,0309868	8214,898726	9872,544327	701,030987	2
14	6239,960417	9450,495478	964,1582581	1061,911277	964,158258	3
15	10056,21037	1427,803363	9963,430902	11582,68026	1427,80336	2
16	5777,721956	8348,462121	909,0328267	2151,9843	909,032827	3
17	0	8924,898773	5863,575696	6716,445555	0	1
18	6263,070174	9126,820372	616,9018939	1328,595534	616,901894	3
19	6251,157493	8558,069103	815,9618945	2107,822121	815,961895	3
20	6307,453765	9443,040812	823,5339378	1030,371596	823,533938	3
21	6601,685845	10062,09502	1403,721843	436,4914203	436,49142	4
22	6336,775442	9441,353246	816,9009814	1060,617757	816,900981	3
23	6207,788817	9111,140147	755,924035	1357,172782	755,924035	3
24	6945,201797	10718,19544	2093,077976	551,3764231	551,376423	4
25	6469,241455	10343,88066	1605,598293	350,6474393	350,647439	4
26	6623,608684	10052,99717	1370,203226	695,9852201	695,98522	4
27	6011,028365	8474,734221	1072,410655	2384,151217	1072,41066	3
28	6741,774766	10233,83374	1625,605696	974,3542272	974,354227	4
29	6890,563257	10566,04613	1881,012975	265,339958	265,339958	4
30	6883,29703	10557,74885	1867,509058	236,2212804	236,22128	4
31	6812,918538	10559,72129	1841,574511	269,0593986	269,059399	4
32	6977,854685	10851,22132	2116,894064	469,1898976	469,189898	4
33	6895,433851	10789,03895	2093,817203	445,0647444	445,064744	4
34	6579,686239	10093,84603	1384,948139	408,1522918	408,152292	4

Lampiran 4. Data Hasil Pengelompokkan Iterasi Pertama untuk 5 Klaster

Data ke-i	C1	C2	C3	C4	C5	Terdekat	Klaster
1	6016,665272	7586,230289	0	2383,304639	2675,84958	0	3
2	5152,476783	8368,105042	1461,07016	2270,794795	2441,12085	1461,070156	3
3	5985,624696	8485,405117	1815,93722	678,5197123	1124,02891	678,5197123	4
4	5793,615452	8768,615227	1957,1349	720,5608926	1012,46333	720,5608926	4
5	6431,424104	9550,474386	2543,17577	831,1750718	385,61639	385,6163897	5
6	6111,422993	8459,287913	1341,35081	1120,97859	1354,94908	1120,97859	4
7	6761,28723	9951,503002	2861,83508	1168,597022	551,538757	551,5387566	5
8	5860,099487	8220,753433	1669,6871	851,0088131	1358,46531	851,0088131	4
9	6805,773064	10001,85093	3122,74879	1082,129844	520,973128	520,9731279	5
10	6551,007632	9775,628573	2978,36532	870,4315022	443,58201	443,5820105	5
11	4857,534457	6335,756151	2633,3397	2884,423166	3514,49072	2633,339705	3
12	8270,313597	620,833311	7550,64156	8884,287085	9490,57475	620,833311	2
13	8525,646662	0	7586,23029	8929,343257	9532,0909	0	2
14	6239,960417	8929,343257	2383,30464	0	681,821091	0	4
15	10056,21037	2083,158659	9439,77775	10607,66313	11227,4731	2083,158659	2
16	5777,721956	7846,285618	2024,73801	1171,292022	1801,73167	1171,292022	4
17	0	8525,646662	6016,66527	6239,960417	6601,68585	0	1
18	6263,070174	8589,977241	1980,2063	595,4007054	971,066424	595,4007054	4
19	6251,157493	7985,06437	1182,07318	1564,502477	1862,47201	1182,073179	3
20	6307,453765	8902,894024	2166,00877	433,6161897	677,019202	433,6161897	4
21	6601,685845	9532,090904	2675,84958	681,8210909	0	0	5
22	6336,775442	8898,300624	2121,09689	602,3047401	730,527891	602,3047401	4
23	6207,788817	8595,338446	2115,40942	488,1639069	1010,98269	488,1639069	4
24	6945,201797	10198,99088	3311,73927	1283,063521	730,959643	730,9596432	5
25	6469,241455	9803,236812	2741,60975	1063,856663	559,966963	559,9669633	5
26	6623,608684	9503,158054	2231,959	1162,558386	819,033577	819,0335768	5
27	6011,028365	7892,217116	737,211639	1949,083374	2216,72145	737,2116385	3
28	6741,774766	9671,25907	2269,1126	1559,959935	1165,63159	1165,631588	5
29	6890,563257	10037,47184	3019,32625	1194,915897	576,593444	576,5934443	5
30	6883,29703	10028,22861	3014,67527	1171,463188	545,481439	545,4814387	5
31	6812,918538	10023,39224	2949,95932	1246,050962	616,751976	616,7519761	5
32	6977,854685	10313,61823	3154,30706	1517,813559	879,851124	879,8511238	5
33	6895,433851	10261,43825	3264,51512	1372,459107	750,057331	750,0573311	5
34	6579,686239	9556,919692	2525,4164	901,4149988	404,080438	404,0804375	5

Lampiran 5. Data Hasil Pengelompokkan Iterasi Kedua untuk 5 Klaster

Data ke-i	C1	C2	C3	C4	C5	Terpendek	Klaster
1	6016,665272	8173,57187	820,0584857	1817,85104	2822,470648	820,05849	3
2	5152,476783	8942,56662	1228,585496	1884,79745	2495,142005	1228,5855	3
3	5985,624696	9028,78197	1273,048122	284,98107	1438,642888	284,98107	4
4	5793,615452	9303,57516	1430,253306	614,493784	1227,638313	614,49378	4
5	6431,424104	10092,637	2172,483767	1096,89435	435,072515	435,07252	5
6	6111,422993	9018,00964	1044,412524	633,173918	1549,402732	633,17392	4
7	6761,28723	10485,9142	2572,911021	1490,7806	155,4040755	155,40408	5
8	5860,099487	8756,55823	1106,875296	345,654466	1667,293803	345,65447	4
9	6805,773064	10525,0784	2760,124475	1560,64314	407,5052883	407,50529	5
10	6551,007632	10293,0089	2569,405752	1370,44139	486,6351405	486,63514	5
11	4857,534457	6823,83004	2056,211351	2568,47173	3850,95978	2056,2114	3
12	8270,313597	848,872062	7517,832794	8438,01542	9826,31033	848,87206	2
13	8525,646662	701,030987	7564,637726	8477,65997	9872,544327	701,03099	2
14	6239,960417	9450,49548	1884,44361	616,578308	1061,911277	616,57831	4
15	10056,21037	1427,80336	9378,830115	10198,8514	11582,68026	1427,8034	2
16	5777,721956	8348,46212	1414,784478	938,27246	2151,9843	938,27246	4
17	0	8924,89877	5548,07802	6107,4773	6716,445555	0	1
18	6263,070174	9126,82037	1499,051473	257,391938	1328,595534	257,39194	4
19	6251,157493	8558,0691	905,9360463	984,999599	2107,822121	905,93605	3
20	6307,453765	9443,04081	1717,762591	471,321981	1030,371596	471,32198	4
21	6601,685845	10062,095	2289,368498	1071,40348	436,4914203	436,49142	5
22	6336,775442	9441,35325	1676,271076	505,696757	1060,617757	505,69676	4
23	6207,788817	9111,14015	1634,912756	475,636426	1357,172782	475,63643	4
24	6945,201797	10718,1954	2966,14324	1769,87068	551,3764231	551,37642	5
25	6469,241455	10343,8807	2394,739635	1363,83027	350,6474393	350,64744	5
26	6623,608684	10052,9972	2053,655989	1204,78555	695,9852201	695,98522	5
27	6011,028365	8474,73422	645,646126	1384,63801	2384,151217	645,64613	3
28	6741,774766	10233,8337	2179,143116	1517,67975	974,3542272	974,35423	5
29	6890,563257	10566,0461	2719,465264	1580,21701	265,339958	265,33996	5
30	6883,29703	10557,7488	2710,269603	1565,15738	236,2212804	236,22128	5
31	6812,918538	10559,7213	2650,046928	1560,98098	269,0593986	269,0594	5
32	6977,854685	10851,2213	2902,102569	1852,47127	469,1898976	469,1899	5
33	6895,433851	10789,0389	2934,319362	1795,11877	445,0647444	445,06474	5
34	6579,686239	10093,846	2204,440954	1114,90386	408,1522918	408,15229	5