1. Test Pertama

K-means clustering with 2 clusters of sizes 199913, 87

Cluster means:

DAYA KWHLWBP KWHWBP

1 -0.01701271 -0.01600802 -0.01609205

2 39.09266180 36.78403009 36.97711770

Clustering vector:

[1] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[32] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[63] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[94] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[125] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[156] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[187] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[218] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[249] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[280] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[311] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[342] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[373] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[404] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[435] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[466] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[497] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[528] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[559] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[590] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[621] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[652] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[683] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[714] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[745] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[776] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[807] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[838] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[869] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[900] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[931] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[962] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[993] 1 1 1 1 1 1 1 1

[ reached getOption("max.print") -- omitted 199000 entries ]

Within cluster sum of squares by cluster:

[1] 87102.37 143104.85

(between\_SS / total\_SS = 61.6 %)

Available components:

[1] "cluster" "centers" "totss" "withinss"

[5] "tot.withinss" "betweenss" "size" "iter"

[9] "ifault"

Gap statictical Method

Clustering Gap statistic ["clusGap"] from call:

clusGap(x = data10, FUNcluster = kmeans, K.max = 10, B = 50, nstart = 25)

B=50 simulated reference sets, k = 1..10; spaceH0="scaledPCA"

--> Number of clusters (method 'firstmax'): 1

logW E.logW gap SE.sim

[1,] 7.790109 12.35337 4.563265 0.002367602

[2,] 7.684584 11.84400 4.159418 0.002597382

[3,] 7.565985 11.62427 4.058281 0.002214755

[4,] 7.513395 11.50754 3.994147 0.001753829

[5,] 7.319664 11.43821 4.118548 0.001933672

[6,] 7.247742 11.39381 4.146064 0.002039190

[7,] 7.069548 11.35497 4.285420 0.001895753

[8,] 7.111901 11.31383 4.201928 0.002029793

[9,] 6.903308 11.27381 4.370506 0.001992878

[10,] 6.873889 11.23599 4.362097 0.001919789

K-means clustering with 9 clusters of sizes 188, 55, 13, 179149, 66, 16916, 2949, 37, 627

Cluster means:

DAYA KWHLWBP KWHWBP

1 5.59020644 6.69453842 0.92248840

2 22.31943505 20.23538449 18.86752286

3 63.63518309 87.49592184 100.84423257

4 -0.08863443 -0.08653068 -0.01794770

5 13.46149503 8.81863467 6.62738080

6 0.28479215 0.29206140 -0.04581655

7 1.10971622 1.17511802 -0.04581655

8 44.57707259 33.84044423 31.88399612

9 3.42117671 2.79562851 -0.02196740

Clustering vector:

[1] 4 4 4 4 4 4 4 4 4 4 4 6 4 4 4 4 6 4 4 4 4 4 4 4 4 4 4 4 4 4 4

[32] 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 6 4 4 4 4

[63] 4 4 4 4 4 4 4 4 4 4 7 4 4 4 4 4 6 6 4 4 4 4 4 4 6 4 4 4 4 4 4

[94] 4 4 4 6 4 4 6 4 4 4 4 4 6 4 4 6 4 4 4 4 4 4 4 4 4 6 4 4 6 4 4

[125] 4 4 4 4 4 4 4 4 4 4 4 4 6 4 4 4 4 4 4 4 6 4 4 6 4 4 4 4 4 6 4

[156] 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 7 4 7 4 4 4 4 4

[187] 7 6 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 6 6 4 4 4 4 4 4

[218] 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 6 4 4 6 4 4 6 4 4 4 4 4 4 4 4

[249] 4 4 4 4 4 4 4 4 4 4 6 6 4 4 4 4 4 6 4 4 4 4 4 6 6 4 6 6 4 4 4

[280] 4 7 4 4 4 4 4 4 4 4 4 4 4 4 4 6 4 4 6 4 4 4 4 4 4 4 4 4 4 4 4

[311] 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 6 4 4 4 4 4

[342] 4 4 4 4 4 4 4 4 6 4 4 4 4 4 4 4 4 4 4 4 7 4 4 4 4 4 7 4 4 4 4

[373] 4 4 4 1 4 4 4 4 6 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 6 4 4 4 4 4 4

[404] 6 4 4 4 6 4 6 4 4 4 4 4 4 4 4 6 6 4 4 4 4 4 6 4 4 4 4 4 4 4 4

[435] 4 4 4 4 4 4 4 4 4 4 4 4 6 4 6 4 4 4 7 4 4 4 4 4 4 4 4 4 4 4 4

[466] 4 4 4 4 4 4 6 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 6 4 4 6 4 4

[497] 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 9 6 4 4 4 4 4 4 4 6 4 4 4 7 4 6

[528] 6 4 4 6 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 6 4

[559] 4 4 4 4 4 4 4 6 4 4 4 4 4 6 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4

[590] 4 4 4 4 4 4 4 4 4 4 4 4 4 9 4 4 4 4 4 4 4 4 4 4 4 4 6 4 4 4 4

[621] 4 4 4 4 4 6 4 4 4 4 4 4 7 7 4 4 4 4 4 4 4 4 6 4 4 4 4 4 4 4 4

[652] 4 6 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 6 4 6 4 7 4 4 4

[683] 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 6 6 4 4 4 4 6 4 4 4 4 4 4

[714] 4 4 4 4 4 4 4 4 6 4 4 4 4 4 4 6 4 6 4 4 4 4 4 4 4 4 4 4 4 4 4

[745] 4 4 4 4 4 1 4 4 4 4 4 4 4 4 4 4 4 7 6 4 4 7 4 4 4 4 4 4 4 6 4

[776] 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4

[807] 4 4 4 4 4 4 7 4 4 4 4 4 4 4 4 4 4 6 4 4 4 4 4 4 4 6 4 6 4 4 4

[838] 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 6 4 4 4

[869] 4 4 4 7 4 6 4 4 4 4 4 4 4 4 4 4 6 4 6 6 4 4 4 4 4 4 4 4 4 4 4

[900] 4 4 4 4 4 9 4 4 6 4 4 4 4 4 4 4 4 4 6 4 4 4 4 6 4 4 4 4 9 4 4

[931] 4 4 4 4 4 4 6 4 4 6 4 4 4 4 4 4 4 4 6 4 4 4 4 4 4 4 4 4 4 4 4

[962] 4 4 4 4 4 4 4 4 4 6 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 6 4

[993] 4 4 4 4 4 4 4 4

[ reached getOption("max.print") -- omitted 199000 entries ]

Within cluster sum of squares by cluster:

[1] 2596.156 6462.388 3266.157 1599.743 1891.831 1584.731

[7] 1757.366 11503.146 1900.830

(between\_SS / total\_SS = 94.6 %)

Available components:

[1] "cluster" "centers" "totss" "withinss"

[5] "tot.withinss" "betweenss" "size" "iter"

[9] "ifault"

K-means clustering with 7 clusters of sizes 37, 57, 10035, 818, 188933, 13, 107

Cluster means:

DAYA KWHLWBP KWHWBP

1 44.57707259 33.84044423 31.88399612

2 22.16176927 19.92860274 18.68676963

3 0.64186838 0.64351226 -0.04581655

4 3.57049103 3.48194423 0.02808244

5 -0.07565617 -0.07246416 -0.01939090

6 63.63518309 87.49592184 100.84423257

7 11.14305123 8.03291263 5.08925498

Clustering vector:

[1] 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5

[32] 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5

[63] 5 5 5 5 5 5 5 5 5 5 3 5 5 5 5 5 5 3 5 5 5 5 5 5 5 5 5 5 5 5 5

[94] 5 5 5 5 5 5 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 3 5 5 3 5 5

[125] 5 5 5 5 5 5 5 5 5 5 5 5 3 5 5 5 5 5 5 5 5 5 5 3 5 5 5 5 5 3 5

[156] 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 3 5 3 5 5 5 5 5

[187] 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 3 5 5 5 5 5 5 5

[218] 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 3 5 5 3 5 5 5 5 5 5 5 5 5 5 5

[249] 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 3 3 5 5 5 5 5 5

[280] 5 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 3 5 5 5 5 5 5 5 5 5 5 5 5

[311] 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 3 5 5 5 5 5

[342] 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 3 5 5 5 5 5 3 5 5 5 5

[373] 5 5 5 4 5 5 5 5 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 3 5 5 5 5 5 5

[404] 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 3 5 5 5 5 5 5 5 5

[435] 5 5 5 5 5 5 5 5 5 5 5 5 3 5 5 5 5 5 3 5 5 5 5 5 5 5 5 5 5 5 5

[466] 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5

[497] 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 4 5 5 5 5 5 5 5 5 3 5 5 5 3 5 3

[528] 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5

[559] 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5

[590] 5 5 5 5 5 5 5 5 5 5 5 5 5 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5

[621] 5 5 5 5 5 5 5 5 5 5 5 5 3 3 5 5 5 5 5 5 5 5 3 5 5 5 5 5 5 5 5

[652] 5 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 3 5 5 5

[683] 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 3 5 5 5 5 5 5 5 5 5 5 5

[714] 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 3 5 5 5 5 5 5 5 5 5 5 5 5 5

[745] 5 5 5 5 5 7 5 5 5 5 5 5 5 5 5 5 5 3 3 5 5 3 5 5 5 5 5 5 5 5 5

[776] 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5

[807] 5 5 5 5 5 5 3 5 5 5 5 5 5 5 5 5 5 3 5 5 5 5 5 5 5 5 5 3 5 5 5

[838] 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5

[869] 5 5 5 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5

[900] 5 5 5 5 5 4 5 5 5 5 5 5 5 5 5 5 5 5 3 5 5 5 5 3 5 5 5 5 4 5 5

[931] 5 5 5 5 5 5 5 5 5 3 5 5 5 5 5 5 5 5 3 5 5 5 5 5 5 5 5 5 5 5 5

[962] 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 3 5

[993] 5 5 5 5 5 5 5 5

[ reached getOption("max.print") -- omitted 199000 entries ]

Within cluster sum of squares by cluster:

[1] 11503.146 6711.760 4256.869 5356.217 3122.984 3266.157

[7] 3601.988

(between\_SS / total\_SS = 93.7 %)

Available components:

[1] "cluster" "centers" "totss" "withinss"

[5] "tot.withinss" "betweenss" "size" "iter"

[9] "ifault"

Clustering Gap statistic ["clusGap"] from call:

clusGap(x = data10, FUNcluster = kmeans, K.max = 10, B = 50, nstart = 25)

B=50 simulated reference sets, k = 1..10; spaceH0="scaledPCA"

--> Number of clusters (method 'firstmax'): 1

logW E.logW gap SE.sim

[1,] 7.790109 12.35337 4.563265 0.002367602

[2,] 7.684584 11.84400 4.159418 0.002597382

[3,] 7.565985 11.62427 4.058281 0.002214755

[4,] 7.513395 11.50754 3.994147 0.001753829

[5,] 7.319664 11.43821 4.118548 0.001933672

[6,] 7.247742 11.39381 4.146064 0.002039190

[7,] 7.069548 11.35497 4.285420 0.001895753

[8,] 7.111901 11.31383 4.201928 0.002029793

[9,] 6.903308 11.27381 4.370506 0.001992878

[10,] 6.873889 11.23599 4.362097 0.001919789

K-means clustering with 9 clusters of sizes 78508, 1005, 63999, 14331, 9, 773, 41238, 47, 90

Cluster means:

DAYA JAMNYALA KWHLWBP KWHWBP

1 -0.03647002 -0.84090629 -0.0963454583 -0.047264879

2 4.23731843 -0.08890392 3.8643242450 0.345389899

3 -0.01871418 -0.06098736 0.0003056271 -0.036553705

4 -0.10022787 2.11040865 -0.0201562261 0.081219460

5 67.73196765 0.49829813 85.7810647765 107.448254478

6 -0.11474928 6.21497775 0.0101405569 0.328530618

7 -0.07306567 0.84773533 -0.0037779937 0.006824758

8 40.15198440 0.19904739 38.9103258483 36.441161432

9 20.48655644 -0.12048901 16.6298420058 14.709292100

Clustering vector:

[1] 3 7 2 3 7 3 4 1 1 1 7 3 1 3 7 4 1 1 3 3 7 1 3 3 1 3 1 3 1 1 3

[32] 3 3 1 7 7 7 1 3 1 1 1 3 7 3 7 3 1 3 7 7 4 4 7 1 1 1 1 7 1 3 3

[63] 7 1 4 3 1 7 4 7 1 3 1 1 7 3 1 3 3 3 7 3 3 3 3 1 1 1 7 3 3 7 1

[94] 1 7 3 4 3 1 3 1 1 7 1 3 1 1 1 3 1 1 1 1 3 7 1 3 3 1 3 1 7 7 1

[125] 3 7 1 1 3 7 3 1 4 3 3 3 3 3 7 7 1 3 4 1 1 3 7 7 1 1 4 4 3 1 3

[156] 3 1 3 1 1 3 1 1 3 3 1 3 4 1 1 3 1 1 3 3 3 1 3 7 1 3 3 1 7 7 1

[187] 3 3 3 1 7 1 3 1 1 1 3 1 3 4 3 1 1 1 1 3 3 1 1 7 1 1 7 3 7 1 3

[218] 1 1 3 1 3 3 1 3 4 1 1 1 4 3 7 1 7 3 1 3 3 3 1 7 4 3 3 7 1 7 1

[249] 1 3 1 1 3 7 1 1 3 3 3 3 1 4 1 1 7 7 3 4 3 1 2 1 1 7 3 3 3 1 1

[280] 3 7 1 1 1 1 7 4 7 7 4 1 1 1 1 1 1 1 7 3 3 3 1 3 1 1 3 4 1 3 1

[311] 3 1 1 7 1 4 3 7 3 3 7 1 3 3 3 4 4 4 7 3 4 3 3 7 1 3 3 1 1 3 1

[342] 7 1 7 3 7 3 3 1 4 1 1 7 3 1 1 1 3 1 3 7 3 7 1 7 3 3 3 3 1 7 1

[373] 7 7 1 4 3 7 1 3 1 1 1 1 1 1 7 1 1 3 3 7 1 1 3 4 1 1 1 1 7 3 1

[404] 4 7 3 3 3 3 7 1 2 3 1 4 3 3 3 1 1 7 4 1 3 3 3 7 3 1 1 1 3 3 1

[435] 1 7 1 1 3 1 1 1 1 1 3 3 7 1 3 3 3 1 7 1 3 1 1 1 7 7 3 3 3 1 3

[466] 3 1 1 7 1 3 1 3 7 3 3 1 1 4 1 3 3 1 3 1 1 3 3 1 1 1 3 1 1 3 4

[497] 4 1 3 1 7 7 1 3 3 3 7 4 3 1 1 1 1 1 7 7 3 7 1 3 1 1 3 1 1 7 1

[528] 1 7 1 1 3 3 2 7 7 3 3 1 7 7 1 3 3 3 1 1 4 7 7 3 4 3 3 1 1 3 3

[559] 3 7 1 1 3 1 1 1 1 3 3 7 7 1 3 7 7 7 7 4 1 7 3 7 3 1 1 3 1 1 3

[590] 3 1 3 3 9 1 3 1 3 1 3 3 3 3 1 7 7 1 4 3 4 3 1 7 1 1 3 3 1 7 3

[621] 4 3 3 1 1 4 1 7 1 1 1 3 1 1 1 3 3 3 3 7 1 7 1 7 1 7 3 3 1 1 3

[652] 1 3 3 3 1 3 3 7 1 3 1 1 7 1 1 3 4 3 7 1 3 3 3 7 1 3 7 7 3 1 4

[683] 3 1 1 3 1 1 1 3 7 1 7 4 7 1 4 4 7 3 7 1 1 7 7 7 7 7 3 3 4 1 7

[714] 3 1 1 1 4 1 1 4 1 3 6 4 1 1 1 1 7 3 7 3 7 3 1 7 1 7 1 4 3 7 7

[745] 3 1 1 3 3 3 3 1 3 1 1 1 7 1 1 1 7 1 1 1 7 1 1 4 1 1 3 3 1 7 1

[776] 7 1 1 1 7 1 1 1 1 3 3 3 3 1 3 3 1 1 3 1 4 3 3 3 4 1 1 7 1 1 3

[807] 7 3 7 3 3 1 7 1 1 1 3 3 7 3 7 3 7 1 1 7 4 3 3 1 7 1 1 1 3 1 1

[838] 1 7 7 3 3 7 3 1 1 1 2 3 7 7 3 3 1 1 7 1 1 3 3 1 3 7 3 1 1 1 1

[869] 1 3 1 3 1 4 7 1 3 3 3 1 3 7 3 3 7 3 1 1 1 1 1 1 3 3 1 4 3 3 3

[900] 1 3 3 1 3 1 7 1 1 7 1 3 7 1 4 3 3 4 1 3 7 3 1 1 1 7 7 3 3 3 3

[931] 3 1 3 3 3 4 1 1 3 1 3 1 7 1 7 3 4 4 1 7 1 3 3 7 1 1 3 1 1 7 4

[962] 3 1 1 1 4 1 3 7 1 4 1 3 7 1 7 1 1 7 6 7 3 1 7 3 7 3 7 3 1 7 1

[993] 1 3 7 3 1 3 3 3

[ reached getOption("max.print") -- omitted 199000 entries ]

Within cluster sum of squares by cluster:

[1] 7687.895 13648.691 11878.269 5855.014 1786.077 4767.005

[7] 7225.359 18921.640 11388.228

(between\_SS / total\_SS = 89.6 %)

Available components:

[1] "cluster" "centers" "totss" "withinss"

[5] "tot.withinss" "betweenss" "size" "iter"

[9] "ifault"

K-means clustering with 10 clusters of sizes 60815, 76185, 1080, 47, 41021, 9, 15766, 85, 553, 4439

Cluster means:

DAYA JAMNYALA KWHLWBP KWHWBP

1 -0.06131894 -0.08552932 -0.04748393 -0.036917584

2 -0.04902224 -0.84980856 -0.10168513 -0.047274178

3 -0.11062948 5.57322852 0.01864881 0.286582077

4 40.15198440 0.19904739 38.91032585 36.441161432

5 -0.08155387 0.79838902 -0.02375461 0.004680425

6 67.73196765 0.49829813 85.78106478 107.448254478

7 -0.10152282 1.99945794 -0.02740919 0.075045181

8 20.64684719 -0.09112341 17.08586882 15.321398368

9 5.74610371 -0.15409259 4.96160831 0.705762046

10 1.14892377 -0.06082612 1.17687856 -0.047378852

Clustering vector:

[1] 1 5 10 1 5 1 7 2 2 2 5 1 2 1 5 7 2 2 1 1

[21] 5 2 1 1 2 1 2 1 2 2 1 1 1 2 5 5 7 2 1 2

[41] 2 2 1 5 10 5 1 2 1 5 5 7 7 5 2 2 2 2 5 2

[61] 1 1 5 2 7 1 1 5 7 5 2 1 2 2 5 1 2 1 1 1

[81] 10 1 1 1 1 2 2 2 5 1 1 5 2 2 5 1 7 1 2 1

[101] 2 2 5 2 10 2 2 2 1 2 2 2 2 1 5 2 1 10 2 1

[121] 2 5 5 2 1 5 2 2 1 5 1 2 7 1 10 10 1 1 5 5

[141] 2 1 7 2 1 1 5 5 2 2 3 7 10 2 1 1 2 1 2 1

[161] 1 2 2 1 1 2 1 3 2 2 1 2 2 1 1 1 2 1 5 2

[181] 1 1 2 5 5 2 1 1 1 2 5 2 1 2 1 2 1 2 10 7

[201] 1 2 2 1 2 1 1 2 2 5 2 2 5 1 5 2 1 2 2 1

[221] 2 5 10 2 10 7 2 2 2 7 1 5 2 5 1 2 1 1 5 2

[241] 5 7 1 1 5 2 5 2 2 1 2 2 1 5 2 1 1 1 1 1

[261] 2 7 2 2 5 5 5 7 1 2 10 2 2 5 1 1 1 2 2 1

[281] 5 1 2 2 2 5 7 5 5 7 2 2 2 2 2 2 2 5 1 5

[301] 1 2 1 2 2 1 7 2 1 2 1 2 2 5 2 7 1 7 1 1

[321] 5 2 1 1 1 7 3 7 5 1 7 1 1 5 2 1 5 2 2 1

[341] 2 5 2 5 5 5 10 1 2 7 2 2 5 1 2 2 2 1 2 1

[361] 5 1 5 2 5 1 1 1 1 2 5 2 5 5 2 7 1 5 2 1

[381] 2 2 2 2 2 2 5 1 2 10 10 5 2 2 1 7 2 2 2 2

[401] 5 1 2 7 5 1 1 1 1 5 2 9 1 2 7 1 1 1 2 2

[421] 5 3 2 10 1 1 5 1 2 2 2 1 1 2 2 5 2 2 1 2

[441] 2 2 2 2 1 10 5 2 1 1 1 2 5 2 1 2 2 2 5 5

[461] 1 1 10 2 1 1 2 2 5 2 1 2 1 5 5 1 2 2 7 2

[481] 1 1 2 1 2 2 1 1 2 2 2 1 2 2 1 7 7 2 1 2

[501] 5 7 2 5 1 1 5 7 1 2 2 2 2 2 5 5 1 5 2 1

[521] 2 2 1 2 10 5 1 2 5 2 2 1 1 10 5 5 1 1 2 5

[541] 5 2 1 1 1 2 1 7 5 5 1 7 1 1 2 2 1 1 1 5

[561] 2 2 1 2 2 2 2 1 1 5 7 2 1 5 5 5 5 7 2 5

[581] 1 5 1 1 2 1 2 2 1 1 2 1 1 8 2 1 2 1 1 1

[601] 1 10 1 2 7 5 2 7 1 7 1 2 5 2 2 1 1 2 5 1

[621] 7 1 1 2 2 7 2 5 2 10 1 1 2 2 2 1 1 1 1 5

[641] 2 5 2 5 2 5 1 1 2 2 1 2 1 5 1 10 1 1 5 2

[661] 1 2 2 5 2 2 1 3 1 5 2 1 1 1 5 2 1 5 5 1

[681] 2 7 1 2 2 1 2 2 2 1 5 2 5 7 5 2 7 7 5 1

[701] 5 2 2 5 5 5 5 5 1 1 7 2 5 1 2 2 2 7 2 2

[721] 7 2 1 3 7 2 2 2 10 5 1 5 1 10 1 2 5 2 5 2

[741] 7 1 5 5 10 2 2 1 1 1 1 2 1 2 2 2 5 2 2 2

[761] 5 2 2 2 5 2 2 7 2 2 1 1 2 5 2 5 2 2 2 5

[781] 2 2 2 2 1 1 1 1 2 1 10 2 2 1 2 7 1 1 1 7

[801] 2 2 5 2 2 1 5 1 5 1 1 2 5 2 2 2 1 1 5 1

[821] 5 1 5 2 2 5 7 1 5 2 5 2 2 2 1 2 2 2 5 5

[841] 1 5 5 1 2 2 2 10 1 5 5 1 10 2 2 5 2 2 1 1

[861] 2 1 5 1 2 2 2 2 2 1 2 1 2 3 5 2 1 1 1 2

[881] 1 5 1 1 5 1 2 2 2 2 2 2 1 1 2 7 10 1 1 2

[901] 1 1 2 1 2 5 2 2 10 2 1 5 2 7 1 1 7 2 1 5

[921] 1 2 2 1 5 5 1 1 1 1 1 2 1 1 1 7 2 2 1 10

[941] 1 2 5 2 5 1 7 3 2 5 2 1 1 5 2 2 1 2 2 5

[961] 7 1 2 2 2 7 2 1 5 2 7 2 1 5 2 5 2 2 5 3

[981] 5 1 2 5 1 5 1 5 1 2 5 2 2 1 5 1 2 1 10 1

[ reached getOption("max.print") -- omitted 199000 entries ]

Within cluster sum of squares by cluster:

[1] 5167.363 5206.192 5951.194 18921.640 5080.669 1786.077

[7] 5207.409 10331.963 9890.635 6046.354

(between\_SS / total\_SS = 90.8 %)

Available components:

[1] "cluster" "centers" "totss" "withinss"

[5] "tot.withinss" "betweenss" "size" "iter"

[9] "ifaul

K-means clustering with 2 clusters of sizes 199900, 100

Cluster means:

DAYA JAMNYALA KWHLWBP KWHWBP

1 -0.01771877 -7.812366e-05 -0.01770417 -0.01744488

2 35.41983112 1.561692e-01 35.39064298 34.87231433

Clustering vector:

[1] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[32] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[63] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[94] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[125] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[156] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[187] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[218] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[249] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[280] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[311] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[342] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[373] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[404] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[435] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[466] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[497] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[528] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[559] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[590] 1 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[621] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[652] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[683] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[714] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[745] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[776] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[807] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[838] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[869] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[900] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[931] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[962] 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

[993] 1 1 1 1 1 1 1 1

[ reached getOption("max.print") -- omitted 199000 entries ]

Within cluster sum of squares by cluster:

[1] 293574.1 133919.1

(between\_SS / total\_SS = 46.6 %)

Available components:

[1] "cluster" "centers" "totss" "withinss"

[5] "tot.withinss" "betweenss" "size" "iter"

[9] "ifault"

K-means clustering with 6 clusters of sizes 107325, 13, 71961, 19682, 103, 916

Cluster means:

DAYA JAMNYALA KWHLWBP KWHWBP

1 -0.02857393 -0.6927510 -0.07514934 -0.04650728

2 65.62077787 0.3323281 75.91418204 94.46406826

3 -0.04666436 0.4600895 0.01015537 -0.01327980

4 -0.09866417 2.1009811 -0.01792285 0.08081804

5 28.78966672 0.1248023 27.21688708 24.48937347

6 4.96529837 -0.1393986 4.25452640 0.66148662

Clustering vector:

[1] 1 3 6 1 4 1 4 1 1 1 3 1 1 1 3 4 1 1 3 3 3 1 1 1 1 3 1 1 1 1 1

[32] 1 1 1 3 3 4 1 1 1 1 1 3 3 1 3 3 1 1 3 3 4 4 3 1 1 1 1 3 1 1 1

[63] 3 1 4 1 1 3 4 3 1 3 1 1 3 3 1 3 1 3 4 3 3 1 1 1 1 1 3 1 3 3 1

[94] 1 4 3 4 1 1 1 1 1 3 1 1 1 1 1 3 1 1 1 1 1 3 1 3 1 1 3 1 3 3 1

[125] 3 4 1 1 3 3 3 1 4 3 3 3 3 3 3 3 1 1 4 1 1 1 3 3 1 1 4 4 1 1 1

[156] 3 1 1 1 1 1 1 1 1 1 1 3 4 1 1 1 1 1 3 3 3 1 3 3 1 3 3 1 3 3 1

[187] 1 3 3 1 3 1 3 1 1 1 3 1 3 4 3 1 1 1 1 3 1 1 1 4 1 1 3 3 3 1 1

[218] 1 1 3 1 3 1 1 3 4 1 1 1 4 1 3 1 3 3 1 3 3 3 1 3 4 3 3 3 1 3 1

[249] 1 3 1 1 3 3 1 1 3 3 1 3 1 4 1 1 3 4 3 4 1 1 1 1 1 3 3 3 3 1 1

[280] 1 3 1 1 1 1 3 4 3 3 4 1 1 1 1 1 1 1 3 1 3 3 1 1 1 1 1 4 1 3 1

[311] 3 1 1 3 1 4 1 4 3 3 3 1 1 3 1 4 4 4 3 3 4 1 3 3 1 3 3 1 1 3 1

[342] 3 1 3 3 3 3 1 1 4 1 1 3 1 1 1 1 3 1 3 3 1 3 1 3 1 1 3 1 1 3 1

[373] 3 4 1 4 1 3 1 1 1 1 1 1 1 1 3 1 1 3 3 3 1 1 3 4 1 1 1 1 3 1 1

[404] 4 3 1 3 1 1 3 1 6 3 1 4 3 1 1 1 1 3 4 1 3 1 3 3 1 1 1 1 3 1 1

[435] 1 3 1 1 1 1 1 1 1 1 1 3 3 1 1 3 3 1 3 1 1 1 1 1 3 3 3 1 1 1 3

[466] 3 1 1 3 1 3 1 1 3 3 3 1 1 4 1 1 3 1 3 1 1 1 1 1 1 1 3 1 1 1 4

[497] 4 1 1 1 3 4 1 3 3 3 3 4 1 1 1 1 1 1 3 3 3 3 1 1 1 1 3 1 1 3 1

[528] 1 3 1 1 1 3 6 3 3 1 3 1 4 4 1 3 3 3 1 1 4 3 3 1 4 3 3 1 1 3 3

[559] 1 3 1 1 3 1 1 1 1 3 3 3 4 1 1 3 3 3 3 4 1 3 3 3 1 1 1 3 1 1 1

[590] 1 1 1 3 5 1 3 1 3 1 1 3 1 3 1 4 3 1 4 1 4 3 1 3 1 1 3 3 1 4 3

[621] 4 3 1 1 1 4 1 3 1 1 1 3 1 1 1 3 3 1 3 3 1 3 1 3 1 3 1 3 1 1 3

[652] 1 3 3 3 1 1 3 3 1 1 1 1 3 1 1 1 4 3 3 1 1 1 1 3 1 3 3 3 3 1 4

[683] 3 1 1 3 1 1 1 3 3 1 3 4 3 1 4 4 3 1 3 1 1 3 3 3 3 3 1 3 4 1 3

[714] 3 1 1 1 4 1 1 4 1 3 4 4 1 1 1 1 3 3 3 3 3 1 1 3 1 3 1 4 1 3 3

[745] 1 1 1 1 1 3 3 1 1 1 1 1 3 1 1 1 4 1 1 1 3 1 1 4 1 1 1 1 1 4 1

[776] 3 1 1 1 3 1 1 1 1 3 3 3 1 1 3 3 1 1 1 1 4 3 3 1 4 1 1 3 1 1 3

[807] 3 3 3 3 1 1 3 1 1 1 1 3 3 3 3 1 3 1 1 3 4 1 3 1 3 1 1 1 3 1 1

[838] 1 3 3 1 3 3 3 1 1 1 6 3 3 3 1 3 1 1 3 1 1 3 3 1 3 3 3 1 1 1 1

[869] 1 3 1 3 1 4 3 1 3 1 1 1 1 3 3 3 3 3 1 1 1 1 1 1 1 3 1 4 3 3 3

[900] 1 3 3 1 1 1 3 1 1 3 1 3 3 1 4 1 3 4 1 3 3 1 1 1 1 3 4 3 3 3 1

[931] 3 1 1 3 3 4 1 1 3 1 3 1 3 1 3 1 4 4 1 3 1 3 3 3 1 1 3 1 1 3 4

[962] 3 1 1 1 4 1 1 3 1 4 1 1 3 1 3 1 1 3 4 4 1 1 3 1 3 3 3 3 1 3 1

[993] 1 3 3 3 1 1 1 3

[ reached getOption("max.print") -- omitted 199000 entries ]

Within cluster sum of squares by cluster:

[1] 18149.268 9728.595 19699.212 26618.197 39938.208 20886.710

(between\_SS / total\_SS = 83.1 %)

Available components:

[1] "cluster" "centers" "totss" "withinss"

[5] "tot.withinss" "betweenss" "size" "iter"

[9] "ifault"

K-means clustering with 7 clusters of sizes 47, 107301, 90, 1023, 19680, 71850, 9

Cluster means:

DAYA JAMNYALA KWHLWBP KWHWBP

1 40.15198440 0.19904739 38.910325848 36.44116143

2 -0.02955605 -0.69269752 -0.075695301 -0.04650708

3 20.48655644 -0.12048901 16.629842006 14.70929210

4 4.19898823 -0.08941406 3.831563520 0.33847901

5 -0.09897338 2.10078376 -0.019044011 0.08083107

6 -0.04894776 0.46029488 0.006677488 -0.01322712

7 67.73196765 0.49829813 85.781064777 107.44825448

Clustering vector:

[1] 2 6 4 2 5 2 5 2 2 2 6 2 2 2 6 5 2 2 6 6 6 2 2 2 2 6 2 2 2 2 2

[32] 2 2 2 6 6 5 2 2 2 2 2 6 6 2 6 6 2 2 6 6 5 5 6 2 2 2 2 6 2 2 2

[63] 6 2 5 2 2 6 5 6 2 6 2 2 6 6 2 6 2 6 5 6 6 2 2 2 2 2 6 2 6 6 2

[94] 2 5 6 5 2 2 2 2 2 6 2 2 2 2 2 6 2 2 2 2 2 6 2 6 2 2 6 2 6 6 2

[125] 6 5 2 2 6 6 6 2 5 6 6 6 6 6 6 6 2 2 5 2 2 2 6 6 2 2 5 5 2 2 2

[156] 6 2 2 2 2 2 2 2 2 2 2 6 5 2 2 2 2 2 6 6 6 2 6 6 2 6 6 2 6 6 2

[187] 2 6 6 2 6 2 6 2 2 2 6 2 6 5 6 2 2 2 2 6 2 2 2 5 2 2 6 6 6 2 2

[218] 2 2 6 2 6 2 2 6 5 2 2 2 5 2 6 2 6 6 2 6 6 6 2 6 5 6 6 6 2 6 2

[249] 2 6 2 2 6 6 2 2 6 6 2 6 2 5 2 2 6 5 6 5 2 2 4 2 2 6 6 6 6 2 2

[280] 2 6 2 2 2 2 6 5 6 6 5 2 2 2 2 2 2 2 6 2 6 6 2 2 2 2 2 5 2 6 2

[311] 6 2 2 6 2 5 2 5 6 6 6 2 2 6 2 5 5 5 6 6 5 2 6 6 2 6 6 2 2 6 2

[342] 6 2 6 6 6 6 2 2 5 2 2 6 2 2 2 2 6 2 6 6 2 6 2 6 2 2 6 2 2 6 2

[373] 6 5 2 5 2 6 2 2 2 2 2 2 2 2 6 2 2 6 6 6 2 2 6 5 2 2 2 2 6 2 2

[404] 5 6 2 6 2 2 6 2 4 6 2 5 6 2 2 2 2 6 5 2 6 2 6 6 2 2 2 2 6 2 2

[435] 2 6 2 2 2 2 2 2 2 2 2 6 6 2 2 6 6 2 6 2 2 2 2 2 6 6 6 2 2 2 6

[466] 6 2 2 6 2 6 2 2 6 6 6 2 2 5 2 2 6 2 6 2 2 2 2 2 2 2 6 2 2 2 5

[497] 5 2 2 2 6 5 2 6 6 6 6 5 2 2 2 2 2 2 6 6 6 6 2 2 2 2 6 2 2 6 2

[528] 2 6 2 2 2 6 4 6 6 2 6 2 5 5 2 6 6 6 2 2 5 6 6 2 5 6 6 2 2 6 6

[559] 2 6 2 2 6 2 2 2 2 6 6 6 5 2 2 6 6 6 6 5 2 6 6 6 2 2 2 6 2 2 2

[590] 2 2 2 6 3 2 6 2 6 2 2 6 2 6 2 5 6 2 5 2 5 6 2 6 2 2 6 6 2 5 6

[621] 5 6 2 2 2 5 2 6 2 2 2 6 2 2 2 6 6 2 6 6 2 6 2 6 2 6 2 6 2 2 6

[652] 2 6 6 6 2 2 6 6 2 2 2 2 6 2 2 2 5 6 6 2 2 2 2 6 2 6 6 6 6 2 5

[683] 6 2 2 6 2 2 2 6 6 2 6 5 6 2 5 5 6 2 6 2 2 6 6 6 6 6 2 6 5 2 6

[714] 6 2 2 2 5 2 2 5 2 6 5 5 2 2 2 2 6 6 6 6 6 2 2 6 2 6 2 5 2 6 6

[745] 2 2 2 2 2 6 6 2 2 2 2 2 6 2 2 2 5 2 2 2 6 2 2 5 2 2 2 2 2 5 2

[776] 6 2 2 2 6 2 2 2 2 6 6 6 2 2 6 6 2 2 2 2 5 6 6 2 5 2 2 6 2 2 6

[807] 6 6 6 6 2 2 6 2 2 2 2 6 6 6 6 2 6 2 2 6 5 2 6 2 6 2 2 2 6 2 2

[838] 2 6 6 2 6 6 6 2 2 2 4 6 6 6 2 6 2 2 6 2 2 6 6 2 6 6 6 2 2 2 2

[869] 2 6 2 6 2 5 6 2 6 2 2 2 2 6 6 6 6 6 2 2 2 2 2 2 2 6 2 5 6 6 6

[900] 2 6 6 2 2 2 6 2 2 6 2 6 6 2 5 2 6 5 2 6 6 2 2 2 2 6 5 6 6 6 2

[931] 6 2 2 6 6 5 2 2 6 2 6 2 6 2 6 2 5 5 2 6 2 6 6 6 2 2 6 2 2 6 5

[962] 6 2 2 2 5 2 2 6 2 5 2 2 6 2 6 2 2 6 5 5 2 2 6 2 6 6 6 6 2 6 2

[993] 2 6 6 6 2 2 2 6

[ reached getOption("max.print") -- omitted 199000 entries ]

Within cluster sum of squares by cluster:

[1] 18921.640 17733.661 11388.228 13813.681 26511.670 18734.159

[7] 1786.077

(between\_SS / total\_SS = 86.4 %)

Available components:

[1] "cluster" "centers" "totss" "withinss"

[5] "tot.withinss" "betweenss" "size" "iter"

[9] "ifault"

Clustering with PCA

K-means clustering with 3 clusters of sizes 282, 508615, 37

Cluster means:

PC1 PC2 PC3

1 -41.78178902 4.372685e+00 0.6661879800

2 0.03328301 -9.252981e-04 -0.0006385454

3 -139.07500902 -2.060748e+01 3.7002371026

Clustering vector:

[1] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

[32] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

[63] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

[94] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

[125] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

[156] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

[187] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

[218] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

[249] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

[280] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

[311] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

[342] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

[373] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

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[435] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

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[497] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

[528] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

[559] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

[590] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

[621] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

[652] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

[683] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

[714] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

[745] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

[776] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

[807] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

[838] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

[869] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

[900] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

[931] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

[962] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

[993] 2 2 2 2 2 2 2 2

[ reached getOption("max.print") -- omitted 507934 entries ]

Within cluster sum of squares by cluster:

[1] 109081.6 166991.5 20484.2

(between\_SS / total\_SS = 80.6 %)