This is an R HTML document. When you click the **Knit HTML** button a web page will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
who <- read.csv("C:/Users/prera/Downloads/Life Expectancy Data.csv")</pre>
head(who)
##
         Country Year
                          Status Life.expectancy Adult.Mortality infant.deaths
## 1 Afghanistan 2015 Developing
                                             65.0
                                                              263
                                                                              62
## 2 Afghanistan 2014 Developing
                                             59.9
                                                               271
                                                                              64
## 3 Afghanistan 2013 Developing
                                             59.9
                                                               268
                                                                              66
## 4 Afghanistan 2012 Developing
                                             59.5
                                                              272
                                                                              69
## 5 Afghanistan 2011 Developing
## 6 Afghanistan 2010 Developing
                                             58.8
                                                               279
                                                                              74
    Alcohol percentage.expenditure Hepatitis.B Measles BMI under.five.deaths
##
## 1
        0.01
                           71.279624
                                              65
                                                    1154 19.1
## 2
## 3
        0.01
0.01
                          73.523582
                                              62
                                                     492 18.6
                                                                              86
                          73.219243
                                                     430 18.1
                                              64
                                                                              89
## 4
        0.01
                          78.184215
                                              67
                                                    2787 17.6
## 5
        0.01
                           7.097109
                                              68
                                                    3013 17.2
                                                                              97
                          79.679367
## 6
        0.01
                                              66
                                                    1989 16.7
                                                                             102
    Polio Total.expenditure Diphtheria HIV
                                             AIDS
                                                        GDP Population
                                              0.1 584.25921
## 1
        6
                        8.16
                                      65
                                                              33736494
                                      62
                                              0.1 612.69651
                                                                 327582
## 2
        58
                        8.18
## 3
        62
                        8.13
                                      64
                                              0.1 631.74498
                                                               31731688
## 4
        67
                        8.52
                                      67
                                              0.1 669.95900
                                                                3696958
                                                                2978599
## 5
        68
                        7.87
                                      68
                                              0.1 63.53723
                        9.20
                                      66
                                              0.1 553.32894
                                                                2883167
## 6
    thinness..1.19.years thinness.5.9.years Income.composition.of.resources
## 1
                     17.2
                                        17.3
                                                                         0.479
## 2
                     17.5
                                         17.5
                                                                         0.476
## 3
                     17.7
                                         17.7
                                                                         9.479
                                         18.0
                                                                         0.463
## 4
                     17.9
## 5
                     18.2
                                         18.2
                                                                         0.454
## 6
                     18.4
                                         18.4
                                                                         9.448
##
    Schooling
## 1
          10.1
## 2
          10.0
## 3
           9.9
## 4
           9.8
## 5
           9.5
           9.2
## 6
dim(who)
## [1] 2938 22
                   TOP 10 DEVELPED & DEVELOPING Countires
                                                                #############################
status.of.countries <- who[(who$Status %in% c("Developing") & who$Life.expectancy<55) | (who$Status %in% c("Developed") & who$Life.expectancy>85) ,]
dim(status.of.countries)
## [1] 347 22
#View(status.of.countries)
class(status.of.countries)
## [1] "data.frame"
head(status.of.countries)
          Country Year
                           Status Life.expectancy Adult.Mortality infant.deaths
## 16 Afghanistan 2000 Developing
## 49 Angola 2015 Developing
                                              54.8
52.4
                                                                321
                                                                               88
                                                                335
                                                                               66
## 50
           Angola 2014 Developing
                                              51.7
                                                                348
                                                                               67
## 51
           Angola 2013 Developing
                                              51.1
                                                                355
                                                                               69
## 53
           Angola 2011 Developing
                                              51.0
                                                                361
                                                                               75
## 54
           Angola 2010 Developing
                                                                365
                                                                                78
                                              49.6
##
     Alcohol percentage.expenditure Hepatitis.B Measles BMI under.five.deaths
## 16
         0.01
                            10.42496
                                               62
                                                     6532 12.2
                                                                              122
## 49
                             0.00000
                                               64
                                                      118 23.3
                                                                               98
           NA
## 50
         8.33
                            23.96561
                                               64
77
                                                    11699 22.7
                                                                              101
## 51
         8.10
                            35.95857
                                                     8523 22.1
                                                                              105
                                               72
                                                     1449 21.0
## 53
         8.06
                            239.89139
                                                                              115
                                                     1190 2.4

GDP Population
## 54
         7.80
                            191.65374
                                               77
                                                                              121
      Polio Total.expenditure Diphtheria HIV.AIDS
##
## 16
                         8.20
                                       24
                                               0.1 114.5600
         24
                                                                  293756
## 49
## 50
                           NΑ
                                       64
                                               1.9 3695.7937
                                                                 2785935
         68
                         3.31
                                       64
                                                                 2692466
                                               2.0
                                                    479.3122
                                                    484.6169
                                       77
                                                                 2599834
                                       71
77
## 53
         73
                         3.38
                                               2.5 4299.1289
                                                                24218565
## 54
         81
                         3.39
                                               2.5 3529.5348
                                                                23369131
      thinness..1.19.years thinness.5.9.years Income.composition.of.resources
```

```
## 16
                      2.3
                                        2.5
                                                                     0.338
## 49
                      8.3
                                        8.2
                                                                     0.531
                      8.5
                                        8.3
                                                                     0.527
## 51
                                        8.5
                                                                     0.523
## 53
                      8.9
                                        8.8
                                                                     0.495
## 54
##
     Schooling
## 16
           5.5
## 49
          11.4
## 50
          11.4
## 51
          11.4
## 53
           9.4
## 54
           9.0
#View(status.of.countries)
WHONew<-status.of.countries
#resting the index values
row.names(WHONew) <- NULL
#View(WHONew)
dim(WHONew)
## [1] 347 22
# For 347 rows running the for loop for chechking any NA values and replacing it with the mean of the
for(i in 1:347)
 if(is.na(WHONew$Alcohol[i]))
   WHONew$Alcohol[i] <- with(WHONew, mean(WHONew$Alcohol[Country == WHONew$Country[i]], na.rm = TRUE))
for(i in 1:347)
 if(is.na(WHONew$Hepatitis.B[i]))
   WHONew$Hepatitis.B[i] <- with(WHONew, mean(WHONew$Hepatitis.B[Country == WHONew$Country[i]], na.rm = TRUE))
for(i in 1:347)
 if(is.na(WHONew$Total.expenditure[i]))
   WHONew$Total.expenditure[i] <- with(WHONew, mean(WHONew$Total.expenditure[Country == WHONew$Country[i]], na.rm = TRUE))
dim(WHONew)
## [1] 347 22
#View(WHONew)
# Deleting the Empty rows where there is no data present.
new.life<- na.omit(WHONew)
dim(new.life)</pre>
## [1] 223 22
#View(new.life)
attach(new.life)
                                           PCA
##Principal component analysis, or PCA, is a statistical procedure that allows you to summarize the information content in large data tables by means
##The main idea of principal component analysis (PCA) is to reduce the dimensionality of a data set consisting of many variables correlated with each
##Interpretation of the principal components is based on finding which variables are most strongly correlated with each component, i.e., which of the
life1 <- new.life[ ,c(5,7,11,16,17,19,20,21,22)]
cor(life1)
                                 Adult.Mortality
                                                     Alcohol
## Adult.Mortality
                                     1.000000000 -0.19225074 -0.06721729
## Alcohol
                                     -0.192250745 1.00000000
                                                             0.46694754
                                                             1.00000000
## BMI
                                    -0.067217294
                                                 0.46694754
## HIV.AIDS
                                     0.394715702 -0.11329837
                                                             0.09699188
## GDP
                                    -0.231255371 0.42974887
                                                             0.57394953
## thinness..1.19.years
                                     0.257498302 -0.05562543 -0.23693926
## thinness.5.9.years
## Income.composition.of.resources
                                     0.273199893 -0.02054980 -0.16875654
                                    -0.078980518 0.51149300
                                                             0.66648649
## Schooling
                                    -0.004568601 0.57827113 0.61719104
                                                   GDP thinness..1.19.years
2554 0.25749830
                                    HIV.AIDS
## Adult.Mortality
                                  0.39471570 -0.2312554
## Alcohol
                                  -0.11329837 0.4297489
                                                                -0.05562543
## BMI
                                  0.09699188 0.5739495
                                                                -0.23693926
## HIV.AIDS
                                  1.00000000 -0.1665007
                                                                 0.20223413
## GDP
                                  -0.16650074 1.0000000
                                                                -0.30655386
## thinness..1.19.years
                                  0.20223413 -0.3065539
                                                                 1.00000000
```

```
## thinness.5.9.years
                                    0.24995226 -0.2874579
                                                                     0.85533628
## Income.composition.of.resources 0.04943368 0.5439926
                                                                    -0.34061011
                                    0.15846629 0.4589088
## Schooling
                                   thinness.5.9.years
## Adult.Mortality
                                            0.2731999
                                            -0.0205498
## Alcohol
## BMI
                                            -0.1687565
## HIV.AIDS
                                            0.2499523
## GDP
                                            -0.2874579
## thinness..1.19.years
                                            0.8553363
                                            1.0000000
## thinness.5.9.vears
## Income.composition.of.resources
                                            -0.2793987
## Schooling
                                           -0.1491131
                                   Income.composition.of.resources
                                                                       Schooling
##
                                                        -0.07898052 -0.004568601
## Adult.Mortality
## Alcohol
## BMI
                                                        0.51149300 0.578271132
                                                        0.66648649
                                                                    0.617191043
                                                        0.04943368
## HIV.AIDS
                                                                    0.158466293
## GDP
                                                        0.54399258 0.458908802
## thinness..1.19.vears
                                                        -0.34061011 -0.203941757
## thinness.5.9.years
                                                        -0.27939874 -0.149113133
## Income.composition.of.resources
                                                        1.00000000 0.867317964
## Schooling
                                                        0.86731796 1.000000000
# Using prcomp to compute the principal components (eigenvalues and eigenvectors). With scale=TRUE, variable means are set to zero, and variances set
life_pca <- prcomp(life1,scale=TRUE)</pre>
#The first principal component increases with only two of the values, decreasing income composition and schooling. This component can be viewed as a c
#The second principal component is less Correlated with Alcohol and Income composition and Adult Mortality, BMI, Schooling are moderately correlated (
##The third principal component increases with increasing Adult Mortality and HIV/AIDs. This suggests that countries with high Adult Mortality and HIN
life_pca
## Standard deviations (1, .., p=9):
## [1] 1.9041882 1.4016711 1.0970509 0.7762820 0.7651177 0.6435997 0.5950811
## [8] 0.3760559 0.3287636
## Rotation (n \times k) = (9 \times 9):
                                           PC1
                                                       PC2
                                                                    PC3
## Adult.Mortality
## Alcohol
                                   ## BMI
                                    -0.40656283
                                                0.20461534 0.03047904
## HIV.AIDS
                                   0.05922995
-0.39233464
                                               0.44136974 0.50881513
-0.01980602 -0.15932739
## GDP
## thinness..1.19.years
                                    0.28556632
                                                0.46136350 -0.40465670
## thinness.5.9.years
                                    0.25874653
                                                0.50203599 -0.37957956
## Income.composition.of.resources -0.45891114 0.17568938 0.09796028
                                   -0.42430316 0.29001994 0.07123932
## Schooling
                                           PC4
##
                                                       PC5
                                                                   PC6
                                                                                PC7
                                   -0.713801546  0.2630123 -0.15362555
## Adult.Mortality
                                                                        0.01717352
## Alcohol
                                    0.069911396
                                                 0.4213173 -0.69624393
## RMT
                                   -0.089329233 -0.4005610 0.02007955
                                                                         0.78303921
## HIV.AIDS
                                    0.545102708 -0.3077228 -0.33178317
                                                                        -0.18530624
                                    -0.396021560 -0.5892660 -0.15759772 -0.53707026
## GDP
## thinness..1.19.vears
                                   -0.037104579 -0.0943236 0.16650997 -0.06566490
## thinness.5.9.years
                                   -0.005838548 -0.1080104
                                                            0.16810265 0.01569160
## Income.composition.of.resources 0.048855132 0.1843825 0.44765025 -0.12957487
## Schooling
                                     \hbox{\tt 0.140898321} \quad \hbox{\tt 0.3104502} \quad \hbox{\tt 0.31614627} \quad \hbox{\tt -0.20167106} 
                                            PC8
## Adult.Mortality
                                   -0.003374833 -0.01582092
## Alcohol
                                   -0.015235161 -0.12051623
                                    0.072871713 0.06795270
## BMI
## HIV.AIDS
                                    0.012225833 -0.07995943
## GDP
                                   -0.022684395 0.04932024
## thinness..1.19.years
                                    0.692872013 -0.13951986
## thinness.5.9.years
                                    -0.699952844 0.08240398
## Income.composition.of.resources -0.102977752 -0.69625358
## Schooling
                                    0.114769915 0.67879063
summary(life_pca)
## Importance of components:
                            PC1
                                   PC2
                                           PC3
                                                   PC4
                                                                    PC6
## Standard deviation 1.9042 1.4017 1.0971 0.77628 0.76512 0.64360 0.59508 ## Proportion of Variance 0.4029 0.2183 0.1337 0.06696 0.06505 0.04602 0.03935
## Cumulative Proportion 0.4029 0.6212 0.7549 0.82186 0.88691 0.93293 0.97228
##
                             PC8
                                     PC9
                          0.37606 0.32876
## Standard deviation
## Proportion of Variance 0.01571 0.01201
## Cumulative Proportion 0.98799 1.00000
(eigen_life <- life_pca$sdev^2)
## [1] 3.6259327 1.9646820 1.2035207 0.6026138 0.5854051 0.4142206 0.3541216
## [8] 0.1414180 0.1080855
```

```
names(eigen_life) <- paste("PC",1:9,sep="")</pre>
                     PC2
                                 PC3
                                            PC4
                                                        PC5
                                                                    PC6
                                                                               PC7
## 3.6259327 1.9646820 1.2035207 0.6026138 0.5854051 0.4142206 0.3541216 0.1414180
         PC9
## 0.1080855
sumlambdas <- sum(eigen_life)</pre>
sumlambdas
## [1] 9
propvar <- eigen_life/sumlambdas # eigan value/total varience</pre>
propvar #at this step we need to see till which PC we need to keep by adding the PC'S
## PC1 PC2 PC3 PC4 PC5 PC6 PC7
## 0.40288141 0.21829800 0.13372452 0.06695709 0.06504501 0.04602451 0.03934684
## PC8 PC9
## 0.01571311 0.01200950
cumvar_life <- cumsum(propvar)
cumvar_life</pre>
          PC1
                     PC2
                                 PC3
                                             PC4
                                                        PC5
                                                                    PC6
## 0.4028814 0.6211794 0.7549039 0.8218610 0.8869060 0.9329305 0.9722774 0.9879905
## 1.0000000
matlambdas <- rbind(eigen_life,propvar,cumvar_life)
rownames(matlambdas) <- c("Eigenvalues","Prop. variance","Cum. prop. variance")</pre>
round(matlambdas,4)
                             PC1 PC2 PC3 PC4
                                                             PC5 PC6
## Eigenvalues
## Prop. variance
                          3.6259 1.9647 1.2035 0.6026 0.5854 0.4142 0.3541 0.1414 0.4029 0.2183 0.1337 0.0670 0.0650 0.0460 0.0393 0.0157
## Cum. prop. variance 0.4029 0.6212 0.7549 0.8219 0.8869 0.9329 0.9723 0.9880
                             PC9
## Eigenvalues
                          0.1081
## Prop. variance
## Cum. prop. variance 1.0000
summary(life_pca)
## Importance of components:
                                 PC1
                                       PC2
                                                PC3
                                                          PC4
                                                                    PC5
                                                                             PC6
                            1.9042 1.4017 1.0971 0.77628 0.76512 0.64360 0.59508
## Standard deviation
## Proportion of Variance 0.4029 0.2183 0.1337 0.06696 0.06505 0.04602 0.03935 ## Cumulative Proportion 0.4029 0.6212 0.7549 0.82186 0.88691 0.93293 0.97228
                                 PC8
                           0.37606 0.32876
## Standard deviation
## Proportion of Variance 0.01571 0.01201
## Cumulative Proportion 0.98799 1.00000
life_pca$rotation
                                                 PC1
                                        ## Adult.Mortality
## Alcohol
## BMI
                                         ## HIV.AIDS
                                        ## GDP
## thinness..1.19.years
                                         ## thinness.5.9.years 0.25874653 0.50203599 -0.37957956 ## Income.composition.of.resources -0.45891114 0.17568938 0.09796028
                                        -0.42430316 0.29001994 0.07123932
## Schooling
                                        PC4 PC5 PC6 PC7
-0.713801546 0.2630123 -0.15362555 0.01717352
##
## Adult.Mortality
## Alcohol
                                         0.069911396
                                                        0.4213173 -0.69624393
## BMI
                                        -0.089329233 -0.4005610 0.02007955 0.78303921 0.545102708 -0.3077228 -0.33178317 -0.18530624
## HIV.AIDS
                                         -0.396021560 -0.5892660 -0.15759772 -0.53707026
## thinness..1.19.years
                                        -0.037104579 -0.0943236 0.16650997 -0.06566490
-0.005838548 -0.1080104 0.16810265 0.01569160
## thinness.5.9.years
## Income.composition.of.resources 0.048855132 0.1843825 0.44765025 -0.12957487  
## Schooling 0.140898321 0.3104502 0.31614627 -0.20167106
                                                 PC8
                                                               PC9
## Adult.Mortality
                                         -0.003374833 -0.01582092
## Alcohol
## BMI
                                        -0.015235161 -0.12051623 0.072871713 0.06795270
## HIV.AIDS
                                         0.012225833 -0.07995943
                                        -0.022684395 0.04932024
0.692872013 -0.13951986
## GDP
## thinness..1.19.vears
## thinness.5.9.years
                                        -0.699952844 0.08240398
```

```
## Income.composition.of.resources -0.102977752 -0.69625358
## Schooling 0.114769915 0.67879063
```

print(life_pca)

```
## Standard deviations (1, .., p=9):
## [1] 1.9041882 1.4016711 1.0970509 0.7762820 0.7651177 0.6435997 0.5950811
## [8] 0.3760559 0.3287636
##
## Rotation (n \times k) = (9 \times 9):
                                             PC1
                                                          PC2
                                                                       PC3
## Adult.Mortality
                                     0.14827666 0.38241516 0.47846329
                                     -0.34081600 0.19187743 -0.40418673
## Alcohol
                                     -0.40656283 0.20461534 0.03047904
## BMI
## HIV.AIDS
                                      0.05922995 0.44136974 0.50881513
## GDP
                                     -0.39233464 -0.01980602 -0.15932739
## thinness..1.19.years
                                      0.28556632 0.46136350 -0.40465670
                                      0.25874653 0.50203599 -0.37957956
## thinness.5.9.vears
## Income.composition.of.resources -0.45891114 0.17568938 0.09796028
                                     -0.42430316 0.29001994 0.07123932
## Schooling
                                             PC4
                                                         PC5
                                                                      PC6
## Adult.Mortality
                                     -0.713801546  0.2630123  -0.15362555
                                                                            0.01717352
## Alcohol
                                      0.069911396  0.4213173 -0.69624393
                                                                            0.04186678
## BMT
                                     -0.089329233 -0.4005610 0.02007955
                                                                            0.78303921
## HIV.AIDS
                                      0.545102708 -0.3077228 -0.33178317 -0.18530624
## GDP
                                     -0.396021560 -0.5892660 -0.15759772 -0.53707026
                                     -0.037104579 -0.0943236 0.16650997 -0.06566490
## thinness..1.19.years
                                     -0.005838548 -0.1080104 0.16810265 0.01569160
## thinness.5.9.years
## Income.composition.of.resources 0.048855132 0.1843825 0.44765025 -0.12957487  
## Schooling 0.140898321 0.3104502 0.31614627 -0.20167106
                                              PC8
## Adult.Mortality
                                     -0.003374833 -0.01582092
                                     -0.015235161 -0.12051623
## Alcohol
                                      0.072871713
## HIV.AIDS
                                      0.012225833 -0.07995943
                                     -0.022684395 0.04932024
## GDP
## thinness..1.19.years
                                      0.692872013 -0.13951986
## thinness.5.9.years
                                     -0.699952844 0.08240398
## Income.composition.of.resources -0.102977752 -0.69625358
## Schooling
                                      0.114769915 0.67879063
```

 $\label{life_pca} \mbox{life_pca$x \# this gives the new data set for our table}$

```
PC3
## 1
       0.91810581 \ -2.4301913899 \ \ 0.793531298 \ -0.533230594 \ -0.0175328973
      -0.57392169 0.4333515203 -0.793434928 -0.341606741 0.5782669139
## 2
      1.1191605992
      0.5116376584
## 7
       0.11915157   0.4749798502   -1.178959513   -0.521310879
       ## 8
       0.47083026  0.4261414199 -1.185820260 -0.574090941
## 10
       0.77259234   0.3756658089   -1.130857082   -0.537619431   0.3982003623
       0.24074672 -0.8139515341 -0.106945601 -0.525913286 0.4163370336
## 11
      -0.05400822 -2.1146446368 0.957498257 -0.532881908
## 12
                                                      0.5218295607
## 13
       0.06350173 -2.1288489021 0.892830645 -0.593385947 0.4280641594
       ## 14
## 15
       0.15961094 -2.8194280474
                              0.121556032 0.491540693 -0.1705449227
      0.37010621 -2.8679905052 0.152638681 0.432605187 -0.3141871536 
-4.06821259 -0.8547778602 0.043873650 1.304080152 3.1275144939
## 16
## 17
      -6.64575654 -0.2802188680 -1.325149015 -0.696923365 -1.2865332194
## 19
      ## 20
      -5.41091513 -0.1778042028 -0.227099501 0.661791844 1.0357444389
## 21

    -0.97027646
    1.8135566356
    -0.256676319
    -0.402366732
    0.2310707264

    -1.45913710
    1.1132384994
    1.065805280
    -0.298023175
    0.3687660074

## 22
## 23
## 24
      -1.68704136 0.3422697809
                              2.557863866 -0.255692018 0.3516604441
## 25
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                                   0.0810169185
## 246
       1.245401061
                     0.3397896616
                                                  0.3176622934
        1.501575498
                     0.2927615247
                                   0.0853730386
                                                  0.3483610434
## 247
## 248
       1.196671987
                     0.2778373631
                                   0.0751350358
                                                  0.3199010643
        0.382211957
                     0.3108131346
## 249
                                   0.0539620303
                                                  0.1676648421
## 250
        0.339679853
                     0.3128455275
                                    0.0493886276
                                                  0.1427174955
## 251
       0.272333677
                     0.2821491077
                                   0.0432632996
                                                  0.1237664936
## 252
        0.230594982
                    -0.8416026379
                                   -0.0844317511
                                                  0.0085119922
## 253
        0.493448959
                    -0.9139370088
                                   -0.0787432046
                                                  0.0506705769
## 254
       0.208501961
                     0.2303986665
                                   0.0148298907
                                                  0.1046049284
## 255
        0.479588688
                     0.1836426676
                                   0.0153782908
                                                  0.1114650885
        0.102498473
                     0.2163878162
                                   0.0033856463
                                                  0.0591537459
## 256
## 257
       0.381559599
                     0.1784858397
                                   -0.0126907619
                                                  0.0820877194
## 258
       -0.389245547
                     0.1716441019
                                   1.6752162639
                                                  -0.1363710643
## 259 -0.843812120
                     0.3288399317 -0.0456391343
                                                  0.1699016683
## 260
       -0.834385821
                     0.3416434151 -0.0516611225
                                                  0.1470501310
  276
       -0.122054806
                     0.7017769239
                                   -0.1949777398
                                                  0.0206843082
## 277 -0.500482151
                     0.8117089224 -1.9436261336
                                                  0.3491196647
## 278
       -0.068717887
                     0.5850027993 -0.2508985174
                                                  -0.0303068258
       0.389576101
                     0.5296151345
                                   -0.2639518334
                                                  0.0017668657
## 279
## 280
       0.536391050
                     0.5377580061 -0.3033411281
                                                  -0.0180403000
                     0.5774310269
                                   -0.3087342965
                                                  -0.0584579572
## 281
       0.719630324
## 291
        0.416374996
                     2.0092014824
                                   0.2330455454
                                                  0.0512028313
## 292
       -0.144939967
                     0.7308653697
                                   0.1718102148
                                                  0.1325579512
## 293
       -0.084900964
                     0.3031117121
                                   0.0519290762
                                                  0.0308599164
  294
       -0.101784443
                     0.0782387538
                                   0.0825168555
                                                  -0.0542869947
## 295
       -0.615400753 -0.1208795253
                                    0.0517016902
                                                  -0.1443082759
       -0.416404218 -0.0485450530
## 296
                                   0.0593111327
                                                 -0.1586898885
       -0.938873629 -0.1616584245
                                    0.0287124723
                                                  -0.3209162352
## 298 -0.632213818 -0.2959084422
                                    0.0390321776 -0.3279261486
                                   0.0265826592 -0.4259985785
## 299
       -0.809979426 -0.2956721217
       -0.692828035 -0.1878183109
                                    0.0210545815
                                                  -0.5107021146
## 301 -1.013812896 -0.2415150070
                                   0 0059536637 -0 5607192471
## 302
       -1.162820461 -0.2577099731
                                   -0.0006077228
                                                 -0.5967291894
       -1.104167037 -0.2735907198
                                   -0.0086716733
                                                  -0.6210712572
## 312 -0.655095750 -0.3289942717
                                   0.0143945031
                                                  0.1351904014
## 313 -0.978147488 -0.3298073975
                                   0.0196016073
                                                  0.1781774955
       -0.893744765 -0.3957038318
                                    0.0461424094
                                                  0.3417520118
## 315 -0.676983452 -0.4386452730
                                    0.0523048013
                                                  0.3709635470
## 316 -1.158980050 -0.3725655160
                                   0.0326332592
                                                  0.2633728593
       -1.258121610 -0.3927161158
                                    0.0276664010
                                                  0.2368110660
## 318
       -1.400867028 -0.3491969280
                                   -0.0023729041
                                                  0.0639644757
       0.732411892 -0.2601717912
                                   0.0774420737
## 329
                                                  0.2379730565
                                    0.0727505672
        0.446096864 -0.3384277231
                                                  0.2080884193
## 331
        0.355230593 -0.3167736986
                                    0.0705347690
                                                  0.1904367318
       0.672807428 -0.3840548625
## 332
                                   0.0732223880
                                                  0.2120663526
   333
        0.604346208 -0.3820927553
                                     .0697587958
                                                  0.1983231536
## 334
        0.136200828 -0.3317368810
                                   0.0384216311
                                                  0.1434583223
       0.102370126
                    -0.3334474108
                                   0.0329500363
                                                  0.1181813511
## 335
        0.257080073
                     0.5197949670
                                    0.1062420764
                                                  0.1017389297
## 337 -0.226438301
                     0.4691224565
                                   0.1147295523
                                                  0.1432494967
## 338 -0.224468784
                                                  0.1776789200
                     0.4526291710
                                   0.1247372724
```

```
## 339 -0.086614142 0.3775434869 0.1013527864 0.1413218432
## 340 0.174307889 0.2667711359 0.1105613230 0.1485799084
       0.003596959
                    0.2106684767
                                  0.1101663936
                                                0.1023728403
## 342 -0.499826069
                    0.1933050850
                                  0.0963412681 -0.0021015315
## 343 -0.608693414
                    0.1227078328
                                  0.0925235501 -0.0662285080
## 344 -0.523635226
                    0.0145686246
                                  0.0814254333 -0.0581095237
## 345 -0.923919520 -0.0041801105
                                  0.0887101944
                                                0.1667386462
## 346 -0.859599992 -0.0643255552 0.0833341997 0.1522508661
## 347 0.003806081 -0.2466760635 0.0776493647 -0.0332585063
# Identifying the scores by their status
sparrtyp pca <- cbind(data.frame(Status),life pca$x)</pre>
sparrtyp pca
          Status
                         PC1
                                       PC2
                                                    PC3
       Developing 0.91810581 -2.4301913899 0.793531298 -0.533230594
       Developing -0.57392169 0.4333515203 -0.793434928 -0.341606741
## 2
      Developing -0.67248183  0.6476715726 -1.078724527 -0.203817667
## 3
       Developing -0.59156828  0.6835643070 -1.058862820 -0.217214605
       Developing -0.28962900 0.5339951360 -1.218390415 -0.466143294
## 5
       Developing 0.47405423 0.2316448022 -1.268192090 -0.346765205
## 6
                  0.11915157  0.4749798502  -1.178959513  -0.521310879
       Developing
## 8
       Developing
                  ## 9
       Developing
## 10
                  Developing
      Developing
## 11
                  0.24074672 -0.8139515341 -0.106945601 -0.525913286
      Developing -0.05400822 -2.1146446368 0.957498257 -0.532881908
## 12
       Developing 0.06350173 -2.1288489021 0.892830645 -0.593385947
## 13
                  ## 14
       Developing
## 15
       Developing
       Developing
                  0.37010621 -2.8679905052 0.152638681
## 16
                                                         0.432605187
## 17
       Developed -4.06821259 -0.8547778602 0.043873650 1.304080152
Developed -6.64575654 -0.2802188680 -1.325149015 -0.696923365
## 18
        Developed -6.66448474 -0.2033388196 -1.185222178 -1.021489061
## 20
       Developed -7.06791306 -0.1905379137 -0.972201852 -0.899439726
       Developed -5.41091513 -0.1778042028 -0.227099501 0.661791844
## 21
       Developing -0.97027646 1.8135566356 -0.256676319 -0.402366732
## 23
       Developing -1.45913710 1.1132384994 1.065805280 -0.298023175
      Developing -1.68704136 0.3422697809
                                           2.557863866 -0.255692018
## 24
       Developing -1.56386258 0.6561647482 2.635247469 -0.204691476
## 26
       Developing -0.06544126 3.2998117025 0.676723162 -0.054463697
      Developing 0.89460798 2.9582740340 0.643297408
                                                        0.191098143
## 27
       Developing
                  0.11090756 3.4883815897 0.611366421
                                                         0.158009468
                  0.70190154 -1.8675768491 -0.942757339 0.541597223 1.85632464 -1.6531777408 -0.562276614 -0.473772896
## 29
      Developing
## 30
      Developing
       Developing
                  1.36813183 -2.8448366908 0.360041103 -0.520666793
      Developing
## 32
                  1.43016182 -2.7760648374 0.346164017 -0.535130258
                  2.24311340 -1.5635810597 -0.687775707 -0.633492519
## 33
      Developing
       Developing
                  3.07256819 -0.2602776962 -1.559830442 -0.679607244
      Developing
## 35
                  1.09064097 -0.3562681004 -0.701198012 -0.420909136
                  1.35781082 -0.4421401763 -0.742376312 -0.494460167
## 36
      Developing
                  1.34673543 -0.3640955357 -0.857577271 -0.485721421
## 37
       Developing
      Developing
## 38
                  1.43962907 -0.3316560582 -0.886812843 -0.514914988
                  1.53781103 -0.3275796257 -0.904103403 -0.551849913
## 39
      Developing
       Developing
                  1.62277394 -0.3036623388 -0.971538950 -0.562020551
      Developing
## 41
                  1.62099423 -0.2666948440 -1.004953649 -0.543584670
      Developing -0.32765016 -0.0628821353 -0.178847737 -0.248099034
## 58
       Developing -0.24903772 -0.0478410540 -0.206282733 -0.319697630
      Developing
## 60
                  0.02520158 -0.0936089839 -0.151612361 -0.356479861
                  0.06453709 -0.0516723207 -0.146379597
                                                        -0.333170388
## 61
      Developing
```

-0.18754802 -0.6989259294 -1.041341540 0.941033509

0.25507079 0.0566011033 -0.143760747 -0.414248546

0.01863446 -0.5211725236 -0.981661799 0.824462227

0.29079189 -0.6440672180 -1.043786855 0.785852506 1.26364288 -0.3343459680 -0.278204813 -0.270008448

1.12376328 -0.2191792263 -0.192343733 -0.648550991

1.31599452 -0.0885534809 0.058894720 -0.813765963

1.34838012 -0.0819188811 -0.005755765 -0.779780498

1.86467879 -0.2525182467 -0.251607808 -0.613832948

1.96164145 -0.2157903577 -0.256368399 -0.597523626 1.47824331 0.1158020886 -0.196711533 -0.730730455

1.82595389 0.4104047190 -0.058457170 -0.777283112

1.90864171 0.4647438253 -0.073921093 -0.755959738

0.38258231 -2.6155787283 0.821481296 0.911146373

1.28108579 -0.3070162800 -0.239079100 -0.571727427

1.23588756 -0.2302604693 -0.344369988 -0.593723045

1.29651729 -0.1705666724 -0.366067306 -0.577187292 1.45707752 -0.1893638918 -0.415297522 -0.589663717

1.53560576 -0.1515520328 -0.450143335 -0.577771661

1.80024122 -0.0753081796 -0.469168830 -0.692106090 0.67456051 -2.4250099938 1.396496216 -0.570079595

0.53959919 -2.9385916192 0.531881439 0.596597796

2.07582865 -0.5072683959 -1.538896975 0.468490728 2.12265740 -0.5621513859 -1.679216890 0.571652790

0.689406092

0.917208003

0.943178774

0.972740794

-0.571472898

0.582328699

0.578052965

1.379945143 -0.662062771

0.413968404

1.44867232 -0.4471227297 -1.100533602

0.30884625 -2.6619941820 0.817099866

0.43667946 -2.5669689778 0.780474298

0.47981938 -2.5526347814 0.761188568

1.16660836 -0.3282692893 -0.277867445

0.58522812 -2.9031683875 0.487220729

0.75346185 -2.3475826772

0.69312788 -2.8940877842

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```
Developing 3.00770460 -0.7723051211 -1.807726451 0.335840078
Developed -5.46876493 -0.1146148335 -0.159298136 0.715506687
## 97
## 124
        Developed -5.42049706 -0.1345702368 -0.146161752
## 125
        Developed -3.66324483 -1.0127525953 -0.306091010
                                                          1.109993121
## 126
## 143
       Developed -7.31538135 -0.3197903806 -0.717951071 -0.795122815
        Developed
                  -5.84522173
                              -0.7059455366 -0.233357913
                                                         -0.367477640
## 145
       Developed -5.78925731 -0.7196844830
                                            -0.269987223 -0.338094191
## 146 Developing
                  0.68595109
                              0.4429568003
                                            0.109820534 -0.190432591
## 147 Developing
                   0.91144883
                               0.4512008098
                                             0.220460922
                                                         -0.226985463
## 148 Developing
                  1.07697950
                               0.4647015183
                                             0.222403075 -0.219087689
                   1.05039772
                               0.5658093532
                                             0.236639133 -0.146154659
## 149 Developing
## 150 Developing
                   1.12215879
                               0.6077078274
                                             0.260512844
                                                         -0.075703303
## 151 Developing
                  1 16540133
                               0 6673606838
                                             0 277403345 -0 005974872
## 152 Developing -0.48885128
                               0.0710894653
                                             0.899048586 -0.533677868
## 153 Developing
                  -0.22950006
                               0.0972779142
                                             1.155226149 -0.731341190
## 154 Developing
                  -0.19162786
                               0.1874337983
                                             1.091722476 -0.697464872
## 155 Developing
                  0.76510260 -0.2289771404
                                             0.918775322 -0.523000421
## 156 Developing
                                             -0.426270298
                   0.31652912
                              -0.7789580641
                                                         1.119955431
## 157 Developing
                  -0.13962970
                               0.7110476648
                                             0.689562222 -0.521635838
                  0.03337833
                               1.0280403561
                                             0.874964106 -0.441894856
## 158 Developing
## 159 Developing
                   0.19576415
                               1.4768980630
                                             1.209522731
                                                         -0.142007998
## 160 Developing
                  0.35819872
                               1.7350943740
                                             1.314768365
                                                         -0.169822210
## 161 Developing
                  0.46635022
                               2.0168572971
                                             1.451681671 -0.061375649
## 162 Developing
                   0.57032663
                               2.2051843366
                                             1.412654899
                                                          -0.100030306
## 163 Developing
                  0.73074239
                               2.2451377818
                                             1.393745864 -0.094427918
## 164 Developing -0.50263072
                              -0.0686190010
                                             3.127366974
                                                          0.055907625
## 165 Developing
                  -0.54208710
                               0.0002955803
                                             2.806731541
                                                          0.102153753
## 166 Developing
                  0.86656682
                               2.3516651241
                                             0.646795271
                                                          0.035662204
                  0.97942624
                               2.2847456926
                                             0.352944490
                                                          0.088490229
## 167 Developing
## 172 Developed
                  -9.02562668
                               0.6987070657
                                             -1.906122220
                                                          -3.511676420
## 173 Developed
                  -5 25884243 -0 5544514492
                                            -0 402012201
                                                          0 192454027
                               0.0408378967
                                                         -0.267389719
## 174 Developing
                  0.36997386
                                             0.644550197
## 175 Developing
                   0.53359534
                               0.1252587802
                                             0.771864183
                                                         -0.250651292
## 176 Developing
                  0.67221833
                               0.2020887211
                                             0.844345394 -0.295207330
                                             0.945500191 -0.347887657
                   0.79101714
                               0.3146431225
## 177 Developing
## 178 Developing
                   0.89210492
                               0.4729088949
                                             1.107382791 -0.344225670
## 179 Developing
                   0.98607533
                               0.5983738710
                                             1.197485695 -0.375865760
## 180 Developing
                   0.68221937 -0.2677459818
                                             0.085221946
                                                          1.425871879
                                             1.310451202
## 181 Developing
                   1.05662917
                               0.8067261117
                                                         -0.351908886
## 182 Developing
                   1.06435280
                               0.8758743131
                                             1.328374323
                                                         -0.288268685
                   0.63253325 -0.0238430059
                                             0.122486863
                                                          1.564846218
## 183 Developing
                   1.07304407
                               0.9443751737
                                             1.277084871
## 184 Developing
                                                         -0.205538191
## 185 Developing
                   1.00147216
                               1.0364678740
                                             1,249072016
                                                         -0.121499241
                   1.58483777 -0.3448498978
                                            -0.780950728
                                                         -0.454058807
## 186 Developing
## 187 Developing
                   1.52458002 -0.7984692636 -1.414332780
                                                          0.398091284
## 188 Developing
                   0.49239049 -2.6547883189
                                             1.049416345
                                                          -0.394179204
## 189 Developing
                   0.61915136 -2.6389287911
                                             0.999649089
                                                          -0.409563758
                   0.55826890 -3.0947262736
                                             0.341018870
                                                          0.473210647
## 190 Developing
## 191 Developing
                  1.48827359 -1.9017314923
                                            -0.749568446
                                                          0.344150917
## 192 Developed
                  -5.41631717 -0.6954848252
                                             0.026724459
                                                          -0.169290253
## 195 Developing
                  -0.17544390 -1.7490850075
                                             0.209276421
                                                          0.787262393
## 196 Developing
                  0.44051708 -1.9184784328
                                             0.286129738
                                                          1.047023723
                                             0.324384962
## 197 Developing
                  0.50730971 -1.9075825943
                                                          1.095124292
## 198 Developing
                   0.50410397 -1.9784231562
                                             0.214009608
                                                          1.258844720
## 199 Developing
                   0.04191401 -1.5893880470
                                             0.346090608
                                                          1.053325917
## 200 Developing
                   0.47942874 -0.9481684709
                                             1.270098823
                                                         -0.198716221
                   0.55342265 -0.8872386719
                                             1.347681664
## 201 Developing
                                                         -0.141317524
## 202 Developing
                   0.73700693 -0.9845710460
                                             1.224414152 -0.176190304
## 203 Developing
                   0.82491605 -1.0295447678
                                             1.135861609
                                                         -0.196890993
## 204 Developing
                   0.87610956 -1.0923914991
                                             1.001876218 -0.216711423
## 205 Developing
                  0.73441103 -1.8363240837
                                             0.115872291
                                                          0.939050500
  206 Developing
                   0.92190285 -1.9666883195
                                             0.133439528
                                                          0.864443806
## 219 Developing
                  -0.45430961 0.9700859712
                                            -1.389401124 -0.292945334
## 220 Developing -0.24079452 -0.5647221184
                                             0.608353972 -0.448482856
## 221 Developing -1.57917705 -1.2598865258
                                             0.480185622 -0.282221490
## 222 Developing
                  -1.48410334 -1.1500763009
                                             0.409101958 -0.275950040
                  ## 223 Developing
## 224 Developing
                   0.02833083
                               1.3437668378
                                            -1.675471208
                                                         -0.352488113
## 225 Developing
                   0.21264910
                               1.4341536755 -1.747492733 -0.284206997
## 226 Developing
                   0.46221905
                               1.6903211079 -1.983359868
                                                         -0.336357233
## 227 Developing
                   0.27344995
                               1.0538532585 -2.928966673
                                                          0.970389837
## 228 Developing
                   0.44130499
                               1.1465445448 -2.931971674
                                                          0.784072558
                               0.7337544695 -3.276508499
                  1.73563411
                                                          0.665765796
## 229 Developing
## 230 Developing
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## 238 Developed
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## 246 Developing
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## 247 Developing
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## 257 Developing
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PC5
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## 156
## 157
        0.0533678575
                       0.511183015
                                    0.3857503807
                                                   0.1609334537
                                                                  0.3356326398
                                    0.3090956068
                                                   0.1659083263
       -0.0255455120
                       0.348903344
                                                                  0.3120163960
## 158
       -0.2430156635
                       0.099676761
                                    0.1569039870
                                                   0.1725345388
                                                                  0.2452134648
## 159
## 160
       -0.2919823634
                       0.023321453
                                    0.0959014406
                                                   0.1541869744
                                                                  0.2257252877
       -0.3786823675
                       -0.045136445
                                    0.0013335371
                                                   0.1621808532
                                                                  0.2265236540
## 161
                       -0.045527636
                                                                  0.2073630889
        -0.3712452475
                                    -0.0420507694
                                                   0.1604121730
## 163
       -0.4878414249
                       0.191297930
                                    -0.0842891693
                                                   0.1422683354
                                                                  0.2249314170
        0.0396225558
                      -0.600069616
                                    0.0626136319
                                                   0.1342128607
                                                                  0.3049963842
## 164
                                                   0.1007773331
                                                                  0.2278469131
        0.1469501407
                       -0.698878909
                                    0.0582094924
## 165
## 166
        -0.4176868590
                       0.219538135
                                   -0.0996990009
                                                   0.1126753916
                                                                  0.0774117563
       -0.4865064591
                       0.210092606
                                   -0.0728221427
                                                   0.0622821950
                                                                 -0.0897905812
## 167
        -5.2330004274
                       -1.402038067
                                   -3.6435322230
                                                   0.1428785568
                                                                 -0.1092664074
## 172
## 173
        0.2672143002
                       0.059166807
                                    1.3948245400
                                                   0.0668280928
                                                                 -0.5744733018
## 174
        0.2007331104
                       0.802447378
                                   -0.2622686321
                                                   0.0809168933
                                                                  0.3653156687
## 175
        0.1012385262
                       0.683990958 -0.2861463175
                                                   0.0748522470
                                                                  0.3158113442
                       0.560226778 -0.2688365948
## 176
        0.0978618246
                                                   0.0720684538
                                                                  0.2909666556
        0.0469609969
                       0.394464575
                                   -0.3061493586
                                                   0.0676916798
                                                                  0.2624804805
## 177
## 178
        0.0379248169
                       0.315859720 -0.3399951180
                                                   0.0804958780
                                                                  0.3171918495
                       0.221366022 -0.3917170039
## 179
        -0.0024807695
                                                   0.1002697699
                                                                  0.3148459510
## 180
        -0.6680529575
                       0.596612918
                                   -0.4631586667
                                                   0.1166851070
                                                                  0.3917123055
## 181
        0.0057044456
                       0.190187899 -0.4874717594
                                                   0.1014586587
                                                                  0.4287098068
## 182
        0.0239803129
                       0.209795175
                                   -0.5244006588
                                                   0.1150370348
                                                                  0.5032566314
## 183
        0.6107957776
                       0.669075192
                                   -0.6277156434
                                                   0.1103235504
                                                                  0.4545303681
        0.0047948980
                       0.244703172
                                   -0.6037875521
                                                   0.1080489591
                                                                  0.3410021107
## 184
                                                                  0.4549876124
## 185
        0.0514280819
                       0.321436666
                                    -0.6729107832
                                                   0.1083176437
  186
        0.5800290759
                       0.865243842
                                    0.2121300246
                                                   0.0094493949
                                                                  0.2147659927
       -0.9341047238
                       1.000051557
                                    0.1866336060
                                                   -0.0120521403
                                                                 -0.2221229991
## 187
## 188
       -0.1527811157
                       -0.021777763
                                    0.3225608156
                                                   -0.0624904385
                                                                 -0.1459464496
        -0.1866202990
                       0.090966684
                                    0.3198622790
                                                   0.0674561987
                                                                  -0.1624426998
## 190
       -0 5549488986
                       0 066450992
                                    0.2934077678
                                                   -0 0897537951
                                                                 -0.1739330655
## 191
       -0.8543101155
                       0.425820670
                                    0.1133191913
                                                   1.6293052084
                                                                 -0.5775494965
       -0.9560389403
                       0.833615383
                                    1.4661158617
                                                   0.2158650996
                                                                  0.1442672915
  192
## 195
       -0.3079895498
                       0.670164847
                                    0.1406748485
                                                   0.0694898974
                                                                  0.3546453214
                                    -1.0680759808
        0.2052894233
                       0.654562628
                                                   -0.0202986323
                                                                  0.3237486326
## 196
## 197
        0.1692593396
                       0.580985375
                                    -1.0867029329
                                                   0.0247270304
                                                                  0.296065475
## 198
        0.1232871299
                       0.521226928
                                   -1.1094577657
                                                   -0.0260221093
                                                                  0.2958748466
## 199
       -0.4147611633
                       0.367484584
                                    0.0320057492
                                                   0.0483533202
                                                                  0.3203052720
        -0.1252399937
                       0.053487406
                                    0.0381370596
                                                   0.0462471330
                                                                  0.2085195240
## 201
       -0.1701837163
                      -0.095182449
                                    0.0103992035
                                                   0.0380584483
                                                                  0.1465119822
## 202
       -0.2154085279
                      -0.289548193
                                    0.0464204596
                                                   0.0103311801
                                                                  0.0142926759
## 203
        -0.2246448100
                       -0.356654267
                                    0.0631241222
                                                   0.0041211463
                                                                  -0.0015712529
## 204
       -0.2025433197
                      -0.494000129
                                    0.0950179687
                                                   -0.0345254343 -0.0965263180
                      -0.257720788
                                    0.0905894470
                                                   -0.0201779351
## 205
       -0.6796270504
                                                                 -0.1032394714
  206
        -0.8164527054
                      -0.078668197
                                      .1004307831
                                                   -0.0301252832
                                                                 -0.1263914438
## 219
        0.6721627512
                      -0.020545381
                                    0.2223000733
                                                   0.0163010124 -0.2958311113
## 220
        -0.1623710099
                       1.301653737
                                    0.2042992008
                                                   -1.6418294709
                                                                  0.3568922241
## 221
        1.1228018079
                       -0.820592473
                                      .2571267326
                                                   0.0108227858
                                                                  -0.1635833964
## 222
        1.1444037754 -0.882011382
                                    0.2360016605
                                                   -0.0107721828 -0.1771829358
                                    0.0472683649
                                                   1.6987127748 -0.5355942948
## 223
        0.9319622183 -0.520961650
```

```
0.6802819407 -0.148013729 0.0665763027 0.0007683405 -0.3412538841
## 224
                                   0.1476606823 -0.0026583785 -0.3915069629
## 225
       0.7873635813 -0.149756295
        0.8313210925 -0.300038358
                                   0.0720945093 -0.0311057505 -0.4222387758
        0.3453183840 -0.023365628
                                   0.0086798986 -0.0299157547 -0.4142975009
## 227
## 228
       0.3131739227 -0.133833946
                                   -0.0108494219 -0.0388029471 -0.4416176883
       -0.2019115565
                     -1.276461867
                                   0.3170287984
                                                  0.1877260894
                                                                1.2379213336
                                                  0.1896746778
                                                                1.1437819453
## 230
       -0.2425162827 -1.269571678
                                   0.3107838867
## 231 -0.2066060119 -1.198192857
                                   0.2634486617
                                                  0.1988239708
                                                                1.2050116310
       -0.2922791111
                     -1.138727501
                                   0.2596448554
                                                  0.1643288475
                                                                1.1267472654
## 232
       2.7395543086
## 237
                      0.636175345
                                   -1.4216931643
                                                  -0.0218066204
                                                                0.0131484478
## 238
       1.6545320889
                      0.248139332 -2.3912307621 -0.0802569499
                                                                0.0223292651
## 239
        0.6911484503
                      -0.612431597
                                   -0.1141682646
                                                 -0.0675824810
                                                                -0.0638911373
## 240
       0.1739588144
                     -0.434174764 -0.1252195297 -0.0977575723
                                                               -0.1250521365
## 241
       0.4759157015
                     -0.612791887
                                   -0.0992047334 -0.0683994486 -0.1403292929
## 242
       0.5551439987
                      -0.977543426
                                   -0.0888806269
                                                  -0.0876834824
                                                                -0.2527802739
## 245
       0.2948836920
                      0.635319051
                                   0.3857436780
                                                  0.0668497109
                                                                0.1974861625
## 246
       -0.0006585536
                      1.245401061
                                   0.3397896616
                                                                0.3176622934
                                                  0.0810169185
## 247
       -0.5445926724
                      1.501575498
                                   0.2927615247
                                                  0.0853730386
                                                                0.3483610434
## 248
       -0.1523656521
                      1.196671987
                                   0.2778373631
                                                  0.0751350358
                                                                0.3199010643
                      0.382211957
                                   0.3108131346
                                                  0.0539620303
## 249
       0.2963568824
                                                                0.1676648421
## 250
        0.3019454697
                      0.339679853
                                    0.3128455275
                                                  0.0493886276
                                                                 0.1427174955
## 251
       0.2825838057
                      0.272333677
                                   0.2821491077
                                                  0.0432632996
                                                                0.1237664936
## 252
       0.8472420761
                      0.230594982 -0.8416026379
                                                 -0.0844317511
                                                                0.0085119922
## 253
       0.3150164030
                      0.493448959
                                   -0.9139370088
                                                  -0.0787432046
                                                                0.0506705769
## 254
       0.2237378818
                      0.208501961
                                   0.2303986665
                                                  0.0148298907
                                                                0.1046049284
                      0.479588688
                                                                0.1114650885
## 255 -0.3036960535
                                   0.1836426676
                                                  0.0153782908
       0.2413834160
                      0.102498473
                                    0.2163878162
                                                  0.0033856463
                                                                0.0591537459
## 257 -0.3143509589
                      0.381559599
                                   0.1784858397
                                                  -0.0126907619
                                                                0.0820877194
       0.4787688833
                     -0.389245547
                                   0.1716441019
                                                  1.6752162639
                                                                -0.1363710643
## 258
## 259
        0.7212266109
                     -0.843812120
                                   0.3288399317
                                                  -0.0456391343
                                                                0.1699016683
## 260
       0.6782331581
                     -0 834385821
                                   0.3416434151 -0.0516611225
                                                                0.1470501310
                     -0.122054806
                                   0.7017769239 -0.1949777398
                                                                0.0206843082
## 276 -0.2003681516
## 277 -0.0031092722
                     -0.500482151
                                   0.8117089224 -1.9436261336
                                                                0.3491196647
## 278 -0.2681420635
                     -0.068717887
                                   0.5850027993 -0.2508985174
                                                                -0.0303068258
                                   0.5296151345 -0.2639518334
## 279 -0.4924058077
                      0.389576101
                                                                0.0017668657
## 280 -0.4623520886
                      0.536391050
                                   0.5377580061 -0.3033411281
                                                                -0.0180403000
## 281 -0.3836109860
                      0.719630324
                                   0.5774310269 -0.3087342965 -0.0584579572
## 291 1.0061824008
                      0.416374996
                                   2.0092014824
                                                  0.2330455454
                                                                0.0512028313
       -0.2721194808
                      -0.144939967
                                    0.7308653697
                                                  0.1718102148
                                                                0.1325579512
## 293 0.2488430123 -0.084900964
                                   0.3031117121
                                                  0.0519290762
                                                                0.0308599164
                     -0.101784443
## 294 -0.5868775670
                                   0.0782387538
                                                  0.0825168555 -0.0542869947
                     -0.615400753
                                   -0.1208795253
## 295 -0.3913391169
                                                  0.0517016902 -0.1443082759
## 296 -0.7303708448 -0.416404218 -0.0485450530
                                                  0.0593111327 -0.1586898885
## 297 -0.3992459141 -0.938873629 -0.1616584245
                                                  0.0287124723 -0.3209162352
## 298 -1.2355161239 -0.632213818 -0.2959084422
                                                  0.0390321776 -0.3279261486
## 299 -1.1946445442 -0.809979426 -0.2956721217
                                                  0.0265826592 -0.4259985785
## 300 -1.2052246079 -0.692828035 -0.1878183109
                                                  0.0210545815 -0.5107021146
## 301 -0.5525968233 -1.013812896 -0.2415150070
                                                  0.0059536637 -0.5607192471
## 302 -0.4008214881 -1.162820461 -0.2577099731
                                                  - 0.0006077228 - 0.5967291894
       -0.3222992394 -1.104167037 -0.2735907198
                                                  -0.0086716733 -0.6210712572
## 303
                                                  0.0143945031
       0.9548458326 -0.655095750 -0.3289942717
                                                                0.1351904014
## 312
## 313
       1.5144733348 -0.978147488 -0.3298073975
                                                  0.0196016073
                                                                0.1781774955
## 314
       1.6073932680
                     -0.893744765 -0.3957038318
                                                  0.0461424094
                                                                0.3417520118
                                                  0.0523048013
## 315
       1.0859546619 -0.676983452 -0.4386452730
                                                                 0.3709635470
## 316
       1.6301280887
                     -1.158980050 -0.3725655160
                                                  0.0326332592
                                                                0.2633728593
       1.6124681018
                     -1.258121610 -0.3927161158
                                                  0.0276664010
                                                                0.2368110660
## 317
       1.4849647439
                                                                0.0639644757
                     -1.400867028 -0.3491969280
                                                  -0.0023729041
## 318
                      0.732411892 -0.2601717912
## 329
       0.3781098121
                                                  0.0774420737
                                                                0.2379730565
## 330
       0.3237606373
                      0.446096864 -0.3384277231
                                                  0.0727505672
                                                                0.2080884193
       0.3649610920
                      0.355230593 -0.3167736986
                                                  0.0705347690
                                                                0.1904367318
## 331
## 332 -0.3540249814
                      0.672807428 -0.3840548625
                                                  0.0732223880
                                                                0.2120663526
## 333
       -0.3631280734
                      0.604346208 -0.3820927553
                                                  0.0697587958
                                                                0.1983231536
       0.2914331543
## 334
                      0.136200828 -0.3317368810
                                                  0.0384216311
                                                                0.1434583223
                                                  0.0329500363
## 335
       0.2732614296
                      0.102370126 -0.3334474108
                                                                0.1181813511
       0.3241512573
                     -0.257080073
                                   0.5197949670
                                                  0.1062420764
## 336
                                                                0.1017389297
## 337
       0.2237718964
                     -0.226438301
                                   0.4691224565
                                                  0.1147295523
                                                                0.1432494967
       0.1659383216 -0.224468784
                                   0.4526291710
                                                  0.1247372724
                                                                0.1776789200
## 338
       -0.0110511685
                      -0.086614142
                                   0.3775434869
                                                  0.1013527864
                                                                0.1413218432
## 340 -0.7734405019
                      0.174307889
                                   0.2667711359
                                                  0.1105613230
                                                                0.1485799084
## 341 -0.8671777329
                      0.003596959
                                   0.2106684767
                                                  0.1101663936
                                                                0.1023728403
## 342 -0.1688662322
                     -0.499826069
                                   0.1933050850
                                                  0.0963412681
                                                                -0.0021015315
## 343 -0.2339196688
                     -0.608693414
                                   0.1227078328
                                                  0.0925235501
                                                               -0.0662285080
## 344 -0.3268556787
                     -0.523635226
                                   0.0145686246
                                                  0.0814254333
                                                                -0.0581095237
## 345 -0.5764605498
                     -0.923919520
                                   -0.0041801105
                                                  0.0887101944
                                                                0.1667386462
## 346 -0.2742532435 -0.859599992 -0.0643255552
                                                  0.0833341997
                                                                0.1522508661
## 347 -0.8388175966 0.003806081 -0.2466760635
                                                  0.0776493647 -0.0332585063
# Means of scores for all the PC's classified by status
tabmeansPC <- aggregate(sparrtyp_pca[,2:10],by=1ist(Status=new.life$Status),mean)# this tells mean which is a kind of t testS
tabmeansPC
                       PC1
                                   PC2
                                                PC3
         Status
## 1 Developed -5.6410454 -0.56681284 -0.48999157 -0.061933504 0.109415127
## 2 Developing 0.4953113 0.04976893 0.04302365 0.005438064 -0.009607182
## PC6 PC7 PC8 PC9
## 1 0.23093896 -0.057899320 0.087368532 0.044476129
## 2 -0.02027757 0.005083843 -0.007671383 -0.003905221
tabmeansPC <- tabmeansPC[rev(order(tabmeansPC$Status)),]
tabmeansPC
## 2 Developing 0.4953113 0.04976893 0.04302365 0.005438064 -0.009607182 ## 1 Developed -5.6410454 -0.56681284 -0.48999157 -0.061933504 0.109415127
```

```
## PC6 PC7 PC8 PC9
## 2 -0.02027757 0.005083843 -0.007671383 -0.003905221
## 1 0.23093896 -0.057899320 0.087368532 0.044476129
tabfmeans <- t(tabmeansPC[,-1])</pre>
tabfmeans
## PC1 0.495311302 -5.64104538
## PC4 0.005438064 -0.06193350
## PC5 -0.009607182 0.10941513
## PC6 -0.020277567 0.23093896
## PC7 0.005083843 -0.05789932
## PC8 -0.007671383 0.08736853
## PC9 -0.003905221 0.04447613
colnames(tabfmeans) <- t(as.vector(tabmeansPC[1]))</pre>
tabfmeans
## Developing Developed
## PC1 0.495311302 -5.64104538
## PC2 0.049768932 -0.56681284
## PC3 0.043023650 -0.48999157
## PC4 0.005438064 -0.06193350
## PC5 -0.009607182 0.10941513
## PC6 -0.020277567 0.23093896
## PC7 0.005083843 -0.05789932
## PC8 -0.007671383 0.08736853
## PC9 -0.003905221 0.04447613
# Standard deviations of scores for all the PC's classified by status
tabsdsPC <- aggregate(sparrtyp_pca[,2:10],by=list(Status=new.life$Status),sd)</pre>
tabfsds <- t(tabsdsPC[,-1])
colnames(tabfsds) <- t(as.vector(tabsdsPC[1]))</pre>
tabfsds
       Developed Developing
## PC1 1.4163380 0.8511136
## PC2 0.3873938 1.4473055
## PC3 0.5348674 1.1237566
## PC4 1.1343755 0.7403941
## PC5 1.9964649 0.5511383
## PC6 0.6030077 0.6444757
## PC7 1.6697355 0.3907827
## PC8 0.1214527 0.3897874
## PC9 0.2579177 0.3344983
t.test(PC1~new.life$Status,data=sparrtyp_pca)
         Welch Two Sample t-test
## data: PC1 by new.life$Status
## t = -18.097, df = 18.094, p-value = 4.88e-13
\mbox{\tt \#\#} alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -6.848484 -5.424229
## sample estimates:
## mean in group Developed mean in group Developing
## -5.6410454 0.4953113
t.test(PC2~new.life$Status,data=sparrtyp_pca)
##
         Welch Two Sample t-test
## data: PC2 by new.life$Status
## t = -4.5264, df = 74.836, p-value = 2.219e-05
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.8879525 -0.3452110
## sample estimates:
## mean in group Developed mean in group Developing
                  -0.56681284
                                                 0.04976893
t.test(PC3~new.life$Status,data=sparrtyp_pca)
##
##
         Welch Two Sample t-test
## data: PC3 by new.life$Status
## t = -3.5892, df = 32.327, p-value = 0.001082
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.8353894 -0.2306410
```

```
## sample estimates:
## mean in group Developed mean in group Developing
## -0.48999157 0.04302365
t.test(PC4~new.life$Status,data=sparrtyp_pca)
         Welch Two Sample t-test
##
## data: PC4 by new.life$Status
## t = -0.24739, df = 18.293, p-value = 0.8074
## alternative hypothesis: true difference in means is not equal to 0 \,
## 95 percent confidence interval:
## -0.6388576 0.5041145
## sample estimates:
## mean in group Developed mean in group Developing
                  -0.061933504
t.test(PC5~new.life$Status,data=sparrtyp_pca)
         Welch Two Sample t-test
## data: PC5 by new.life$Status
## t = 0.25209, df = 17.228, p-value = 0.804
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.8761083 1.1141529 ## sample estimates:
## mean in group Developed mean in group Developing
                  0.109415127
                                                -0.009607182
t.test(PC6~new.life$Status,data=sparrtyp_pca)
         Welch Two Sample t-test
##
## data: PC6 by new.life$Status
## t = 1.685, df = 20.564, p-value = 0.1071
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.05922897 0.56166202
## sample estimates:
## mean in group Developed mean in group Developing
## 0.23093896 -0.02027757
t.test(PC7~new.life$Status,data=sparrtyp_pca)
         Welch Two Sample t-test
## ## data: PC7 by new.life$Status
## t = -0.15965, df = 17.164, p-value = 0.875
## alternative hypothesis: true difference in means is not equal to 0 ## 95 percent confidence interval:
## -0.8947124 0.7687461
## sample estimates:
## mean in group Developed mean in group Developing
                  -0.057899320
t.test(PC8~new.life$Status,data=sparrtyp_pca)
##
         Welch Two Sample t-test
## data: PC8 by new.life$Status
## t = 2.4058, df = 57.72, p-value = 0.01936
## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## 0.01595432 0.17412552
## sample estimates:
## mean in group Developed mean in group Developing
                  0.087368532
                                               -0.007671383
t.test(PC9~new.life$Status,data=sparrtyp_pca)
##
         Welch Two Sample t-test
##
## data: PC9 by new.life$Status
## t = 0.74288, df = 22.352, p-value = 0.4653 ## alternative hypothesis: true difference in means is not equal to 0
## 95 percent confidence interval:
## -0.08655939 0.18332209
## sample estimates:
## mean in group Developed mean in group Developing
                  0.044476129
                                               -0.003905221
```

```
# F ratio tests
var.test(PC1~new.life$Status,data=sparrtyp_pca)
##
          F test to compare two variances
##
## data: PC1 by new.life$Status
## F = 2.7692, num df = 17, denom df = 204, p-value = 0.0007142
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 1.502879 6.335374
## sample estimates:
## ratio of variances
## 2.769229
var.test(PC2~new.life$Status,data=sparrtyp_pca)
          F test to compare two variances
##
## data: PC2 by new.life$Status
## F = 0.071645, num df = 17, denom df = 204, p-value = 1.867e-07
\mbox{\tt \#\#} alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.03888213 0.16390732
## sample estimates:
## ratio of variances
             0.07164484
var.test(PC3~new.life$Status,data=sparrtyp pca)
         F test to compare two variances
##
## data: PC3 by new.life$Status
## F = 0.22654, num df = 17, denom df = 204, p-value = 0.0009568 ## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.1229456 0.5182762
## sample estimates:
## ratio of variances
              0.2265415
var.test(PC4~new.life$Status,data=sparrtyp_pca)
          F test to compare two variances
##
## data: PC4 by new.life$Status
## F = 2.3474, num df = 17, denom df = 204, p-value = 0.005308
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 1.273951 5.370332
## sample estimates:
## ratio of variances
                2.347403
var.test(PC5~new.life$Status,data=sparrtyp_pca)
          F test to compare two variances
## data: PC5 by new.life$Status
## F = 13.122, num df = 17, denom df = 204, p-value < 2.2e-16
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval: ## 7.121432 30.020340
## sample estimates:
## ratio of variances
## 13.12207
var.test(PC6~new.life$Status,data=sparrtyp_pca)
          F test to compare two variances
## data: PC6 by new.life$Status
## F = 0.87545, num df = 17, denom df = 204, p-value = 0.7926 ## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.4751139 2.0028389
## sample estimates:
## ratio of variances
               0.8754525
var.test(PC7~new.life$Status,data=sparrtyp_pca)
```

```
F test to compare two variances
## data: PC7 by new.life$Status
## F = 18.257, num df = 17, denom df = 204, p-value < 2.2e-16
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 9.908087 41.767464
## sample estimates:
## ratio of variances
var.test(PC8~new.life$Status,data=sparrtyp_pca)
          F test to compare two variances
##
## data: PC8 by new.life$Status
## F = 0.097086, num df = 17, denom df = 204, p-value = 2.01e-06
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.05268948 0.22211208
## sample estimates:
## ratio of variances
             0.09708648
var.test(PC9~new.life$Status,data=sparrtyp_pca)
          F test to compare two variances
## data: PC9 by new.life$Status
## F = 0.59453, num df = 17, denom df = 204, p-value = 0.212
## alternative hypothesis: true ratio of variances is not equal to 1
## 95 percent confidence interval:
## 0.3226559 1.3601532
## sample estimates:
## ratio of variances
               0.5945309
```

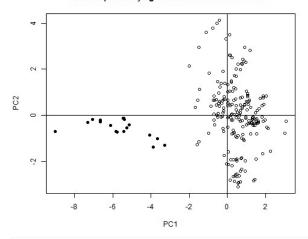
You can also embed plots, for example:

```
library(corrplot)
## corrplot 0.84 loaded
library(dplyr)
##
## Attaching package: 'dplyr'
## The following objects are masked from 'package:stats':
      filter, lag
## The following objects are masked from 'package:base':
      intersect, setdiff, setequal, union
##
#For plotting the scatter density plots
library(GGally)
## Loading required package: ggplot2
## Registered S3 method overwritten by 'GGally':
    method from
   +.gg ggplot2
## Attaching package: 'GGally'
## The following object is masked from 'package:dplyr':
##
##
       nasa
library(car)
## Loading required package: carData
```

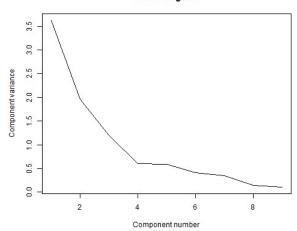
```
## Attaching package: 'car'
## The following object is masked from 'package:dplyr':
(LTPC1 <- leveneTest(PC1~new.life$Status,data=sparrtyp pca))</pre>
## Levene's Test for Homogeneity of Variance (center = median)
## Df F value Pr(>F)
## group 1 6.3462 0.01247 *
## ---
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
(LTPC1 <- leveneTest(PC1~new.life$Status,data=sparrtyp_pca))</pre>
## Levene's Test for Homogeneity of Variance (center = median)
## Df F value Pr(>F)
## group 1 6.3462 0.01247 *
## 221
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
(p_PC1_1sided <- LTPC1[[3]][1]/2)
## [1] 0.006235298
(LTPC2 <- leveneTest(PC2~new.life$Status,data=sparrtyp_pca))</pre>
## Levene's Test for Homogeneity of Variance (center = median) ## Df \ F \ Value \ Pr(\ VF) ## group 1 10.572 0.001327 ** ## 221
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
(p_PC2_1sided=LTPC2[[3]][1]/2)
## [1] 0.0006636975
({\tt LTPC3} \ {\tt <-} \ {\tt leveneTest}({\tt PC3}{\tt <-} new.life\${\tt Status}, {\tt data=sparrtyp\_pca}))
## Levene's Test for Homogeneity of Variance (center = median)
## Df F value Pr(>F)
## group 1 8.8989 0.003174 **
## 221
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
(p_PC3_1sided <- LTPC3[[3]][1]/2)
## [1] 0.001586892
(LTPC4 <- leveneTest(PC4~new.life$Status,data=sparrtyp_pca))</pre>
## Levene's Test for Homogeneity of Variance (center = median)
## Df F value Pr(>F)
## group 1 4.0487 0.04542 *
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
(p_PC4_1sided <- LTPC4[[3]][1]/2)
## [1] 0.02271001
(\texttt{LTPC5} \ \ {\ } \textbf{leveneTest}(\texttt{PC5} \sim \texttt{new.life} \textbf{\$Status,data=sparrtyp\_pca}))
## Levene's Test for Homogeneity of Variance (center = median)
          Df F value Pr(>F)
1 89.333 < 2.2e-16 ***
## group
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
(p_PC5_1sided <- LTPC5[[3]][1]/2)
```

```
## [1] 2.524963e-18
(LTPC6 <- leveneTest(PC6~new.life$Status,data=sparrtyp_pca))</pre>
## Levene's Test for Homogeneity of Variance (center = median)
## Df F value Pr(>F)
## group 1 0.4622 0.4973
## 221
(p_PC6_1sided <- LTPC6[[3]][1]/2)
## [1] 0.2486571
(LTPC7 <- leveneTest(PC7~new.life$Status,data=sparrtyp_pca))</pre>
## Levene's Test for Homogeneity of Variance (center = median) ## pf F value Pr(>F) ## group 1 143.5 < 2.2e-16 *** ## 221
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
(p_PC7_1sided <- LTPC7[[3]][1]/2)</pre>
## [1] 4.128881e-26
(LTPC8 <- leveneTest(PC8~new.life$Status,data=sparrtyp_pca))</pre>
## Levene's Test for Homogeneity of Variance (center = median)
## Df F value Pr(>F)
## group 1 0.3835 0.5364
## 221
(p_PC8_1sided <- LTPC8[[3]][1]/2)
## [1] 0.2681752
(LTPC9 <- leveneTest(PC9~new.life$Status,data=sparrtyp_pca))</pre>
## Levene's Test for Homogeneity of Variance (center = median)
## Df F value Pr(>F)
## group 1 3.2126 0.07444 .
## 221
## ---
## Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
(p PC9 1sided <- LTPC9[[3]][1]/2)
## [1] 0.03721944
# Plotting the scores for the first and second components
#legend("bottomLeft", legend=c("Developing","Developed"), pch=c(1,16))
plot(sparrtyp_pca$PC1, sparrtyp_pca$PC2,pch=ifelse(sparrtyp_pca$Status == "Developing",1,16),xlab="PC1", ylab="PC2", main="Life Expectancy against va.
abline(h=0)
abline(v=0)
```

Life Expectancy against values for PC1 & PC2

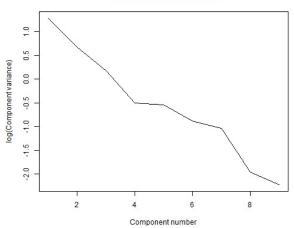


Scree diagram



plot(log(eigen_life), xlab = "Component number",ylab = "log(Component variance)", type="l",main = "Log(eigenvalue) diagram")

Log(eigenvalue) diagram



```
print(summary(life_pca))

## Importance of components:
## PC1 PC2 PC3 PC4 PC5 PC6 PC7
```

```
## Standard deviation 1.9042 1.4017 1.0971 0.77628 0.76512 0.64360 0.59508 ## Proportion of Variance 0.4029 0.2183 0.1337 0.06696 0.06505 0.04602 0.03935
## Cumulative Proportion 0.4029 0.6212 0.7549 0.82186 0.88691 0.93293 0.97228
                                PC8
                                        PC9
                           0.37606 0.32876
## Standard deviation
## Proportion of Variance 0.01571 0.01201
## Cumulative Proportion 0.98799 1.00000
#View(life pca)
diag(cov(life_pca$x))
         PC1
                    PC2
                               PC3
                                          PC4
                                                    PC5
                                                               PC6
## 3.6259327 1.9646820 1.2035207 0.6026138 0.5854051 0.4142206 0.3541216 0.1414180
## 0.1080855
xlim <- range(life_pca$x[,1])</pre>
life_pca$x[,1]
    0.91810581
                -0.57392169 -0.67248183 -0.59156828 -0.28962900 0.47405423
                                                   10
##
    0.11915157
                 0.22901749
                              0.47083026
                                           0.77259234
                                                        0.24074672
##
                                           0.37010621
##
    0.06350173
                 0.24179263
                              0.15961094
                                                       -4.06821259
                                                                    -6.64575654
##
             19
                          20
                                      21
                                                    22
                                                                23
##
    -6.66448474
                -7.06791306
                             -5.41091513
                                          -0.97027646
                                                        -1.45913710
                                                                       68704136
##
             25
                          26
                                      27
                                                   28
                                                                29
                                                        0.70190154
##
   -1.56386258
                -0.06544126
                              0.89460798
                                           0.11090756
                                                                     1.85632464
    1.36813183
                1.43016182
                              2.24311340
                                           3.07256819
##
                                                        1.09064097
                                                                    1.35781082
##
                                      39
                                                                41
             37
                          38
                                                   40
                                                                             58
##
    1.34673543
                 1.43962907
                              1.53781103
                                           1.62277394
                                                        1.62099423
                                                                    -0.32765016
##
             59
                         60
                                      61
                                                   62
                                                                63
##
    -0.24903772
                 0.02520158
                              0.06453709
                                          -0.18754802
                                                        0.20620013
                                                                     0.25507079
##
            65
                          66
                                                   68
                                                                69
                 0.29079189
##
    0.01863446
                             1.26364288
                                          1.12376328
                                                        1.31599452
                                                                    1.34838012
##
             71
                                                                             76
##
    1.86467879
                 1.96164145
                              1.47824331
                                           1.57126607
                                                        1.66089873
                                                                     1.44867232
##
             77
                          78
                                      79
                                                   80
                                                                81
                                                                             82
##
    1.82595389
                              0.30884625
                                           0.38258231
                1.90864171
                                                        0.43667946
                                                                     0.47981938
##
             83
                          84
                                       85
                                                   86
                                                                87
    1.16660836
                1.28108579
                             1.23588756
                                          1.29651729
                                                       1.45707752
                                                                    1.53560576
##
##
             89
                          90
                                      91
                                                   92
                                                                93
    1.80024122
                                                                     0.69312788
##
                 0.67456051
                              0.75346185
                                           0.53959919
                                                        0.58522812
##
            95
                          96
                                      97
                                                  124
                                                               125
                                                                            126
##
    2.07582865
                 2.12265740
                             3.00770460
                                          -5.46876493
                                                        -5.42049706
                                                                    -3.66324483
##
           143
                        144
                                     145
                                                  146
                                                               147
                                                                            148
   -7.31538135
                             -5.78925731
                                           0.68595109
                                                                     1.07697950
##
                -5.84522173
                                                        0.91144883
           149
                        150
                                     151
                                                  152
                                                               153
                                                                            154
                              1.16540133
                                                        -0.22950006
                                                                     -0.19162786
##
    1.05039772
                1.12215879
                                          -0.48885128
##
           155
                        156
                                     157
                                                  158
                                                               159
                                                                            160
                 0.31652912
                             -0.13962970
                                           0.03337833
                                                        0.19576415
    0.76510260
##
           161
                        162
                                     163
                                                  164
                                                               165
                                                                            166
    0.46635022
                0.57032663
                             0.73074239
                                          -0.50263072
                                                       -0.54208710
                                                                     0.86656682
##
##
           167
                        172
                                     173
                                                  174
##
    0.97942624
                -9.02562668
                             -5.25884243
                                           0.36997386
                                                        0.53359534
                                                                     0.67221833
##
           177
                        178
                                     179
                                                  180
                                                               181
                                                                            182
##
    0.79101714
                 0.89210492
                              0.98607533
                                           0.68221937
                                                        1.05662917
##
           183
                        184
                                     185
                                                  186
                                                               187
                                                                            188
    0.63253325
                                           1.58483777
                1.07304407
                             1.00147216
                                                        1.52458002
                                                                     0.49239049
##
                        190
##
    0.61915136
                 0.55826890
                             1.48827359
                                          -5.41631717
                                                        -0.17544390
                                                                     0.44051708
##
                                                               201
           197
                        198
                                     199
                                                  200
                                                                            202
    0.50730971
                 0.50410397
                              0.04191401
                                                                     0.73700693
                                                        0.55342265
##
           203
                        204
                                     205
                                                  206
                                                               219
                                                                            220
    0.82491605
                0.87610956
                                           0.92190285
                                                                    -0.24079452
                             0.73441103
                                                       -0.45430961
##
                        222
                                     223
                                                               225
           221
                                                  224
##
   -1.57917705
                -1.48410334
                             -0.68941944
                                           0.02833083
                                                        0.21264910
                                                                     0.46221905
##
                        228
                                     229
                                                               231
           227
                                                  230
                                                                            232
    0.27344995
                 0.44130499
                              1.73563411
                                           1.86610689
                                                        1.89026381
                                                                     2.02670387
##
           237
                        238
                                     239
                                                  240
                                                               241
                                                                            242
##
   -3.29942717
               -3.89925457
                              0.45538889
                                           0.37573157
                                                        0.95872356
                                                                     0.95573234
                        246
           245
                                     247
                                                               249
##
    0.18753324
                 0.60468345
                              0.42604787
                                           0.76876795
                                                        0.49812938
                                                                     0.60700721
##
           251
                        252
                                     253
                                                  254
                                                               255
                                                                            256
    0.68519375
                 1.39556635
                             1.20278028
                                           1.01375678
                                                        0.81642199
                                                                     1.20465062
##
           257
                        258
                                     259
                                                  260
                                                               276
                                                                            277
##
    0.99575970
                 0.80049039
                              0.16445063
                                           0.30748555
                                                       -1.50764914
                                                                    -2.00482756
           278
                        279
                                     280
                                                  281
                                                               291
                                                                            292
##
   -1.12432188
                -0.75753303
                             -0.56217116
                                          -0.40694303
                                                       -5.16205199
                                                                     6.11764755
##
           293
                        294
                                     295
                                                  296
                                                               297
                                                                            298
   -0.74938015
                -0.86993157
                             -0.52461999
                                          -0.69208560
                                                        -0.24755224
                                                                    -0.40251319
##
           299
                        300
                                     301
                                                  302
                                                               303
                                                                            312
   -0.32860411
                                          0.16013776
                                                        0.10413837
##
               -0.14311146
                              0.25544310
                                                                    -0.68237851
                         314
                                      315
                                                  316
                                                               317
##
   -0.43336197
               -0.45207083
                             -0.71163375
                                          -0.27114456
                                                       -0.20567418
                                                                     0.01832607
                        330
                                     331
                                                                            334
           329
                                                  332
                                                               333
    0.13714644
                 0.33025929
                              0.44448212
                                           0.19493070
                                                        0.26884620
                                                                     0.69241120
##
           335
                        336
                                     337
                                                  338
                                                               339
                                                                            340
               -0.41796026
    0.76344033
                             -0.16244534
                                          0.10214176
                                                        0.33060633
                                                                    0.02475298
           341
                        342
                                     343
                                                  344
                                                               345
    0.02653253   0.68145456   0.76220996
                                          0.80996501 -0.99599472 -0.20674409
```

life pca\$x

```
PC1
                            PC2
                                         PC3
        0.91810581 -2.4301913899
                                 0.793531298 -0.533230594 -0.0175328973
## 2
       -0.57392169
                   0.4333515203 -0.793434928 -0.341606741
                                                           0.5782669139
## 3
       -0.67248183
                   0.6476715726 -1.078724527 -0.203817667
                                                           1.1191605992
                                                           1.0980569937
                   0.6835643070 -1.058862820 -0.217214605
       -0.59156828
## 4
## 5
                                                           0.6713093431
       -0.28962900
                   0.5339951360 -1.218390415 -0.466143294
## 6
       0.47405423
                   0.2316448022 -1.268192090 -0.346765205
                                                           1.2210175853
        0.11915157
                   0.4749798502 -1.178959513 -0.521310879
                                                           0.5116376584
## 7
        0.22901749
                   0.4785534202 -1.245295735 -0.562259488
                                                           0.4420342438
## 8
## 9
        0.47083026
                   0.4261414199 -1.185820260 -0.574090941
                                                           0.3638281025
## 10
        0.77259234
                   0.3756658089 -1.130857082 -0.537619431
                                                           0.3982003623
        0.24074672 -0.8139515341 -0.106945601 -0.525913286
## 11
                                                           0.4163370336
## 12
       -0.05400822 -2.1146446368
                                 0.957498257 -0.532881908
                                                           0.5218295607
## 13
        0.06350173 -2.1288489021
                                 0.892830645
                                             -0.593385947
                                                           0.4280641594
## 14
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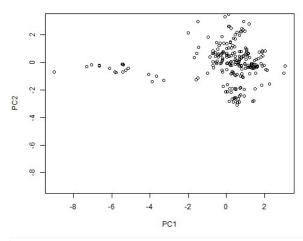
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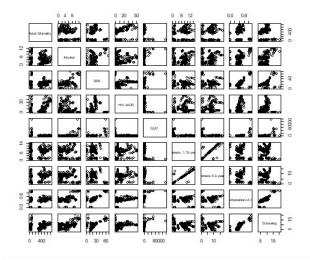
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                                                 -0.5355942948
                                   0.0007683405
## 224
       -0.148013729
                     0.0665763027
                                                  -0.3412538841
## 225 -0.149756295
                     0.1476606823 -0.0026583785 -0.3915069629
## 226 -0.300038358
                     0.0720945093
                                   -0.0311057505 -0.4222387758
## 227 -0.023365628
                     0.0086798986
                                   -0.0299157547
                                                 -0.4142975009
## 228 -0.133833946
                    -0.0108494219 -0.0388029471 -0.4416176883
## 229 -1.276461867
                     0.3170287984
                                   0.1877260894
                                                  1.2379213336
## 230
       -1.269571678
                     0.3107838867
                                    0.1896746778
                                                  1.1437819453
## 231 -1.198192857
                     0.2634486617
                                   0.1988239708
                                                  1.2050116310
## 232 -1.138727501
                    0.2596448554
                                   0.1643288475
                                                  1.1267472654
```

```
0.636175345 -1.4216931643 -0.0218066204
                                                 0.0131484478
## 238
       0.248139332 -2.3912307621 -0.0802569499
                                                 0.0223292651
       -0.612431597 -0.1141682646 -0.0675824810
                                                 -0.0638911373
## 240
      -0.434174764 -0.1252195297 -0.0977575723
                                                -0.1250521365
## 241 -0.612791887 -0.0992047334 -0.0683994486 -0.1403292929
       -0.977543426
                    -0.0888806269
                                  -0.0876834824
                                                 -0.2527802739
## 245
       0.635319051
                    0.3857436780
                                   0.0668497109
                                                 0.1974861625
## 246
       1.245401061
                    0.3397896616
                                   0.0810169185
                                                 0.3176622934
## 247
        1.501575498
                     0.2927615247
                                   0.0853730386
                                                 0.3483610434
## 248
        1.196671987
                     0.2778373631
                                   0.0751350358
                                                 0.3199010643
## 249
                     0.3108131346
                                   0.0539620303
       0.382211957
                                                 0.1676648421
## 250
       0.339679853
                     0.3128455275
                                   0.0493886276
                                                 0.1427174955
## 251
        0 272333677
                     0.2821491077
                                   0.0432632996
                                                 0.1237664936
## 252
       0.230594982 -0.8416026379
                                  -0.0844317511
                                                 0.0085119922
       0.493448959
## 253
                    -0.9139370088
                                  -0.0787432046
                                                 0.0506705769
## 254
       0.208501961
                     0.2303986665
                                   0.0148298907
                                                 0.1046049284
## 255
       0.479588688
                     0.1836426676
                                   0.0153782908
                                                 0.1114650885
       0.102498473
                     0.2163878162
                                   0.0033856463
## 256
                                                 0.0591537459
## 257
       0.381559599
                     0.1784858397
                                  -0.0126907619
                                                 0.0820877194
## 258 -0.389245547
                     0.1716441019
                                   1.6752162639
                                                 -0.1363710643
## 259 -0.843812120
                     0.3288399317 -0.0456391343
                                                 0.1699016683
## 260 -0.834385821
                     0.3416434151 -0.0516611225
                                                 0.1470501310
## 276 -0.122054806
                     0.7017769239 -0.1949777398
                                                 0.0206843082
## 277 -0.500482151
                     0.8117089224
                                  -1.9436261336
                                                 0.3491196647
## 278 -0.068717887
                     0.5850027993 -0.2508985174
                                                 0.0303068258
       0.389576101
                     0.5296151345 -0.2639518334
## 279
                                                 0.0017668657
## 280
       0.536391050
                     0.5377580061
                                  -0.3033411281
                                                 -0.0180403000
## 281
       0.719630324
                     0.5774310269 -0.3087342965
                                                 -0.0584579572
       0.416374996
                     2.0092014824
                                   0.2330455454
                                                 0.0512028313
## 291
## 292
       -0.144939967
                     0.7308653697
                                   0.1718102148
                                                 0.1325579512
## 293 -0.084900964
                     0.3031117121
                                   0.0519290762
                                                 0 0308599164
## 294 -0.101784443
                                   0.0825168555
                                                 -0.0542869947
                    0.0782387538
## 295 -0.615400753 -0.1208795253
                                   0.0517016902 -0.1443082759
## 296 -0.416404218 -0.0485450530
                                   0.0593111327 -0.1586898885
## 297 -0.938873629 -0.1616584245
                                   0.0287124723 -0.3209162352
## 298 -0.632213818 -0.2959084422
                                   0.0390321776 -0.3279261486
## 299 -0.809979426 -0.2956721217
                                   0.0265826592 -0.4259985785
## 300 -0.692828035 -0.1878183109
                                   0.0210545815 -0.5107021146
## 301 -1.013812896 -0.2415150070
                                   0.0059536637 -0.5607192471
## 302 -1.162820461 -0.2577099731
                                  -0.0006077228 -0.5967291894
## 303 -1.104167037 -0.2735907198
                                  -0.0086716733
                                                -0.6210712572
## 312 -0.655095750 -0.3289942717
                                   0.0143945031
                                                 0.1351904014
## 313 -0.978147488 -0.3298073975
                                   0.0196016073
                                                 0.1781774955
## 314 -0.893744765 -0.3957038318
                                   0.0461424094
                                                 0.3417520118
## 315 -0.676983452 -0.4386452730
                                   0.0523048013
                                                 0.3709635470
## 316 -1.158980050 -0.3725655160
                                   0.0326332592
                                                 0.2633728593
## 317 -1.258121610 -0.3927161158
                                   0.0276664010
                                                 0.2368110660
## 318 -1.400867028 -0.3491969280
                                   -0.0023729041
                                                 0.0639644757
## 329
       0.732411892 -0.2601717912
                                   0.0774420737
                                                 0.2379730565
       0.446096864 -0.3384277231
                                   0.0727505672
                                                 0.2080884193
## 330
## 331
        0.355230593 -0.3167736986
                                   0.0705347690
                                                 0.1904367318
## 332
       0.672807428 -0.3840548625
                                   0.0732223880
                                                 0.2120663526
## 333
       0.604346208 -0.3820927553
                                   0.0697587958
                                                 0.1983231536
        0.136200828 -0.3317368810
                                   0.0384216311
                                                 0.1434583223
## 335
       0.102370126 -0.3334474108
                                   0.0329500363
                                                 0.1181813511
## 336 -0.257080073
                    0.5197949670
                                   0.1062420764
                                                 0.1017389297
## 337 -0.226438301
                     0.4691224565
                                   0.1147295523
                                                 0.1432494967
## 338 -0.224468784
                    0.4526291710
                                   0.1247372724
                                                 0.1776789200
## 339 -0.086614142
                     0.3775434869
                                   0.1013527864
                                                 0.1413218432
## 340 0.174307889
                     0.2667711359
                                   0.1105613230
                                                 0.1485799084
## 341 0.003596959
                     0.2106684767
                                   0.1101663936
                                                 0.1023728403
  342 -0.499826069
                     0.1933050850
                                   0.0963412681
                                                 -0.0021015315
## 343 -0.608693414
                     0.1227078328
                                   0.0925235501
                                                -0.0662285080
## 344 -0.523635226
                    0.0145686246
                                   0.0814254333
                                                -0.0581095237
## 345 -0.923919520 -0.0041801105
                                   0.0887101944
                                                 0.1667386462
## 346 -0.859599992 -0.0643255552
                                   0.0833341997
                                                 0.1522508661
## 347 0.003806081 -0.2466760635
                                   0.0776493647 -0.0332585063
```

plot(life_pca\$x,xlim=xlim,ylim=xlim)



```
life\_pca\$rotation[\tt,1]
                       Adult.Mortality
##
                                                                       Alcohol
##
                             0.14827666
                                                                   -0.34081600
##
##
                                     BMT
                                                                     HIV.AIDS
                            -0.40656283
                                                                   0.05922995
                                                       thinness..1.19.years
                            -0.39233464
##
##
                                                                   0.28556632
                   thinness.5.9.years Income.composition.of.resources
                             0.25874653
                                                                   -0.45891114
                            Schooling
-0.42430316
##
##
life_pca$rotation
                                                   PC1
                                                                  PC2
                                                                                 PC3
## Adult.Mortality
                                           0.14827666
                                                          0.38241516
                                                                        0.47846329
## Alcohol
## BMI
                                          -0.34081600
-0.40656283
                                                         0.19187743 -0.40418673
0.20461534 0.03047904
## HIV.AIDS
                                           0.05922995
                                                          0.44136974
                                                                        0.50881513
## GDP
                                           -0.39233464
                                                         -0.01980602 -0.15932739
## thinness..1.19.years
                                           0.28556632
                                                          0.46136350 -0.40465670
## thinness.5.9.years
                                           0.25874653
                                                          0.50203599 -0.37957956
## Income.composition.of.resources -0.45891114
                                                          0.17568938 0.09796028
                                                          0.29001994 0.07123932
## Schooling
                                          -0.42430316
                                                    PC4
                                                                  PC5
                                                                                PC6
## Adult.Mortality
## Alcohol
                                                           0.2630123 -0.15362555
0.4213173 -0.69624393
                                          -0.713801546
                                                                                       0.01717352
                                           0.069911396
                                                                                       0.04186678
## BMI
                                           -0.089329233
                                                          -0.4005610
                                                                       0.02007955
                                                                                       0.78303921
## HIV.AIDS
## GDP
                                          0.545102708 -0.3077228 -0.33178317 -0.18530624
-0.396021560 -0.5892660 -0.15759772 -0.53707026
## thinness..1.19.years
                                           -0.037104579 -0.0943236
                                                                       0.16650997 -0.06566490
## thinness.5.9.years
## Income.composition.of.resources
                                           -0.005838548 -0.1080104
0.048855132 0.1843825
                                                                       0.16810265 0.01569160
0.44765025 -0.12957487
## Schooling
                                           0.140898321
                                                           0.3104502 0.31614627 -0.20167106
                                                     PC8
                                                                   PC9
## Adult.Mortality
                                          -0.003374833 -0.01582092
## Alcohol
                                           -0.015235161 -0.12051623
## BMI
                                           0.072871713 0.06795270
0.012225833 -0.07995943
## HIV.AIDS
## GDP
                                           -0.022684395
                                                           0.04932024
## thinness..1.19.years
## thinness.5.9.years
                                          0.692872013 -0.13951986
-0.699952844 0.08240398
## Income.composition.of.resources
                                          -0.102977752
                                                          -0.69625358
## Schooling
                                           0.114769915 0.67879063
plot(life1)
```



life_	_pca\$x							
## ## 1 ## 2 ## 3		-2.4301913899 0.4333515203		-0.341606741	0.5782669139	73 39		
## 4 ## 5 ## 6 ## 7	-0.59156828 -0.28962900 0.47405423 0.11915157	0.6835643070 0.5339951360 0.2316448022 0.4749798502	-1.058862820 -1.218390415 -1.268192090 -1.178959513	-0.217214605 -0.466143294 -0.346765205 -0.521310879	1.0980569937 0.6713093431 1.2210175853 0.5116376584	37 31 53 84		
## 8 ## 9 ## 10 ## 11	0.47083026 0.77259234 1 0.24074672	0.4785534202 0.4261414199 0.3756658089 0.8139515341 0.2.1146446368	-1.185820260 -1.130857082 -0.106945601	-0.574090941 -0.537619431 -0.525913286	0.3638281025 0.3982003623 0.4163370336	25 23 36		
## 13 ## 14 ## 15	0.06350173 0.24179263 0.15961094	3 -2.1146446366 3 -2.1288489021 3 -2.1763774455 4 -2.8194280474 -2.8679905052	0.892830645 0.931429855 0.121556032	-0.593385947 -0.636684257 0.491540693	0.4280641594 0.3162000173 -0.1705449227	94 73 27		
## 18 ## 18 ## 19	7 -4.06821259 8 -6.64575654 9 -6.66448474 0 -7.06791306	0 -0.8547778602 1 -0.2802188680 1 -0.2033388196 5 -0.1905379137	0.043873650 -1.325149015 -1.185222178 -0.972201852	1.304080152 -0.696923365 -1.021489061 -0.899439726	3.1275144939 -1.2865332194 -1.3751417048 -1.2263904883	39 94 48 83		
## 23 ## 23 ## 24 ## 25	2 -0.97027646 3 -1.45913710 4 -1.68704136	3 -0.1778042028 5 1.8135566356 6 1.1132384994 6 0.3422697809 8 0.6561647482	-0.256676319 1.065805280 2.557863866	-0.402366732 -0.298023175 -0.255692018	0.2310707264 0.3687660074 0.3516604441	64 74 41		
## 26 ## 25 ## 28	5 -0.06544126 7 0.89460798 8 0.11090756 9 0.70190154	3.2998117025 3.29582740340 3.4883815897 4-1.8675768491	0.676723162 0.643297408 0.611366421 -0.942757339	-0.054463697 0.191098143 0.158009468 0.541597223	0.1721049935 0.6644705051 -0.3187223924 -0.1936541729	35 51 24 29		
## 36 ## 31 ## 32 ## 33	1 1.36813183 2 1.43016182 3 2.24311340	-1.6531777408 -2.8448366908 -2.7760648374 -1.5635810597	0.360041103 0.346164017 -0.687775707	-0.520666793 -0.535130258 -0.633492519	-0.0314499645 -0.0315175812 -0.2782235800	45 12 00		
## 34 ## 35 ## 36 ## 37	1.09064097 1.35781082 1.34673543	0 -0.2602776962 0 -0.3562681004 1 -0.4421401763 3 -0.3640955357 0 -0.3316560582	-0.701198012 -0.742376312 -0.857577271	-0.420909136 -0.494460167 -0.485721421	0.2635627238 0.0966252232 0.2041438617	38 32 17		
## 39 ## 46 ## 43	9 1.53781103 9 1.62277394 1 1.62099423 3 -0.32765016	3 -0.3275796257 4 -0.3036623388 5 -0.2666948440 6 -0.0628821353	-0.904103403 -0.971538950 -1.004953649 -0.178847737	-0.551849913 -0.562020551 -0.543584670 -0.248099034	0.1418343969 0.1126199590 0.1350396673 0.5084790067	69 90 73 67		
## 59 ## 60 ## 61 ## 62	0.02520158 0.06453709 2 -0.18754802	2 -0.0478410540 3 -0.0936089839 0 -0.0516723207 2 -0.6989259294 0 .0232058609	-0.151612361 -0.146379597 -1.041341540	-0.356479861 -0.333170388 0.941033509	0.3382001226 0.3412978409 -0.2019853654	26 09 54		
## 64 ## 65 ## 66 ## 66	4 0.25507079 5 0.01863446 5 0.29079189	0.0232058609 0.0566011033 5-0.5211725236 0-0.6440672180 3-0.3343459680	-0.143760747 -0.981661799 -1.043786855	-0.414248546 0.824462227 0.785852506	0.2404697599 -0.1734359029 -0.3392799185	99 29 85		
## 68 ## 69 ## 70	3 1.12376328 9 1.31599452 9 1.34838012 1 1.86467879	3 -0.2191792263 2 -0.0885534809 2 -0.0819188811 3 -0.2525182467	-0.192343733 0.058894720 -0.005755765 -0.251607808	-0.648550991 -0.813765963 -0.779780498 -0.613832948	-0.3612474583 -0.4312579500 -0.4536915101 0.2852113206	83 90 91 96		
## 72 ## 73 ## 74 ## 75	1.47824331 1.57126607 1.66089873	5 -0.2157903577 0.1158020886 0.2072463133 0.2785369251 2 -0.4471227297	-0.196711533 -0.137659189 -0.105210063	-0.730730455 -0.774225471 -0.807316908	-0.3695354784 -0.3828490968 -0.3914003551	84 68 51		
## 78 ## 78 ## 79	7 1.82595389 8 1.90864171 9 0.30884625	0.4104047190 0.4647438253 6-2.6619941820 -2.6155787283	-0.058457170 -0.073921093 0.817099866	-0.777283112 -0.755959738 0.917208003	-0.4549783800 -0.4986175252 -0.5933490016	00 52 16		

```
0.943178774 -0.6399520355
        0.43667946 -2.5669689778
                                  0.780474298
## 81
## 82
        0.47981938 -2.5526347814 0.761188568
                                                0.972740794 -0.6653726912
## 83
        1.16660836 -0.3282692893
                                  -0.277867445
                                                0.571472898 -0.3377499252
## 84
        1.28108579 -0.3070162800 -0.239079100
                                                -0.571727427 -0.3459685484
## 85
        1.23588756 -0.2302604693 -0.344369988 -0.593723045 -0.3105120598
        1.29651729 -0.1705666724 -0.366067306
                                                -0.577187292
                                                             -0.3310778393
## 87
        1.45707752 -0.1893638918 -0.415297522
                                               -0.589663717 -0.4201972397
## 88
        1.53560576 -0.1515520328 -0.450143335 -0.577771661 -0.4374709452
## 89
        1.80024122 -0.0753081796
                                  -0.469168830
                                                -0.692106090 -0.5176271975
## 90
        0.67456051 -2.4250099938
                                  1.396496216
                                               -0.570079595 -0.0535134285
                                  1.379945143
## 91
        0.75346185 -2.3475826772
                                               -0.662062771 -0.0941116430
## 92
        0.53959919 -2.9385916192
                                   0.531881439
                                                0.596597796 -0.4992902257
## 93
        0.58522812 -2.9031683875
                                  0 487220729
                                                0 582328699 -0 5384801241
        0.69312788 -2.8940877842
                                  0.413968404
                                                0.578052965 -0.5593901024
## 94
## 95
        2.07582865 -0.5072683959
                                  -1.538896975
                                                0.468490728 -1.0531883557
## 96
        2.12265740 -0.5621513859 -1.679216890
                                                0.571652790 -1.1381284181
## 97
        3.00770460 -0.7723051211 -1.807726451
                                                0.335840078 -1.4303531638
        5.46876493 -0.1146148335 -0.159298136
                                                0.715506687
                                                             1.0570222874
## 125
       -5.42049706 -0.1345702368 -0.146161752
                                                0.710768112
                                                             1.0606292400
       -3.66324483 -1.0127525953 -0.306091010
                                                1.109993121 2.8381624070
## 126
       -7.31538135 -0.3197903806 -0.717951071
                                                  .795122815
## 144
       -5.84522173 -0.7059455366 -0.233357913
                                                -0.367477640 -0.7780745837
## 145
       -5.78925731 -0.7196844830 -0.269987223 -0.338094191 -0.7004846525
## 146
        0.68595109
                    0.4429568003
                                   0.109820534
                                               -0.190432591
## 147
        0.91144883
                    0.4512008098
                                  0.220460922 -0.226985463 -0.0297821792
        1.07697950
                    0.4647015183
                                  0.222403075 -0.219087689 -0.1254271710
## 148
        1.05039772
                    0.5658093532
                                   0.236639133
                                                -0.146154659 -0.0925551007
## 150
        1.12215879
                    0.6077078274
                                  0.260512844
                                               -0.075703303 -0.1170667491
        1.16540133
                    0.6673606838
                                   0.277403345 -0.005974872 -0.1663172844
## 151
        -0.48885128
                    0.0710894653
                                   0.899048586
                                               -0.533677868
                                                             0.0917126823
## 153
       -0 22950006
                    0 0972779142
                                   1.155226149
                                               -0 731341190 -0 1685032947
                    0.1874337983
                                   1.091722476
## 154
       -0.19162786
                                               -0.697464872 -0.1536231954
        0.76510260
                    -0.2289771404
                                                -0.523000421
## 155
                                   0.918775322
                                                             0.6997287932
## 156
        0.31652912
                    -0.7789580641
                                  -0.426270298
                                                1.119955431
                                                             0.3759787047
        -0.13962970
                    0.7110476648
                                  0.689562222
                                               -0.521635838
                                                             0.0533678575
## 157
        0.03337833
                    1.0280403561
                                   0.874964106
                                               -0.441894856 -0.0255455120
## 158
## 159
        0.19576415
                    1.4768980630
                                  1.209522731
                                               -0.142007998 -0.2430156635
## 160
        0.35819872
                    1.7350943740
                                  1.314768365
                                               -0.169822210 -0.2919823634
                    2.0168572971
## 161
        0.46635022
                                   1.451681671
                                                -0.061375649 -0.3786823675
## 162
        0.57032663
                    2.2051843366
                                   1.412654899
                                                -0.100030306 -0.3712452475
        0.73074239
                                   1.393745864
                                                -0.094427918 -0.4878414249
## 163
                    2.2451377818
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0.3237486326 0.654562628 -1.0680759808 -0.0202986323 ## 196 ## 197 0.580985375 -1.0867029329 -0.0247270304 0.2960654757 ## 198 0.521226928 -1.1094577657 -0.0260221093 0.2958748466 0.0320057492 ## 199 0.367484584 0.0483533202 0.3203052720 ## 200 0.053487406 0.0381370596 0.0462471330 0.2085195240 ## 201 0.095182449 0.0103992035 0.0380584483 0.1465119822 ## 202 -0.289548193 0.0464204596 0.0103311801 0.0142926759 ## 203 -0.356654267 0.0631241222 0.0041211463 -0.0015712529 -0.494000129 0.0950179687 -0.0345254343 -0.0965263180 ## 204 ## 205 -0.257720788 0.0905894470 -0.0201779351 -0.1032394714 ## 206 -0.078668197 0.1004307831 -0.0301252832 -0.1263914438 -0.2958311113 -0.020545381 0.2223000733 0.0163010124 ## 219 ## 220 1 301653737 0.2042992008 -1 6418294709 0 3568922241 ## 221 -0.820592473 0.2571267326 0.0108227858 -0.1635833964 ## 222 -0.882011382 0.2360016605 -0.0107721828 -0.1771829358 ## 223 -0.520961650 0.0472683649 1.6987127748 -0.5355942948 0.0007683405 -0.3412538841 ## 224 -0.148013729 0.0665763027 ## 225 -0.149756295 0.1476606823 -0.0026583785 -0.3915069629 ## 226 -0.300038358 0.0720945093 -0.0311057505 -0.4222387758 0.0086798986 -0.0299157547 ## 227 -0.023365628 -0.4142975009 ## 228 -0.133833946 -0.0108494219 -0.0388029471 -0.4416176883 ## 229 -1.276461867 0.3170287984 0.1877260894 1.2379213336 ## 230 -1.269571678 0.3107838867 0.1896746778 1.1437819453 -1.198192857 0.2634486617 0.1988239708 1.2050116310 ## 232 -1.138727501 0.2596448554 0.1643288475 1.1267472654 0.636175345 -1.4216931643 ## 237 -0.0218066204 0.0131484478 0.248139332 -2.3912307621 -0.0802569499 0.0223292651 ## 239 -0.612431597 -0.1141682646 -0.0675824810 0.0638911373 ## 240 -0.434174764 -0.1252195297 -0.0977575723 -0.1250521365 ## 241 -0.612791887 -0.0992047334 -0.0683994486 -0.1403292929 ## 242 -0.977543426 -0.0888806269 -0 0876834824 -a 25278a2739 ## 245 0.635319051 0.3857436780 0.0668497109 0.1974861625 1.245401061 0.3397896616 0.0810169185 ## 246 0.3176622934 ## 247 1.501575498 0.2927615247 0.0853730386 0.3483610434 ## 248 1.196671987 0.2778373631 0.0751350358 0.3199010643 ## 249 0.382211957 0.3108131346 0.0539620303 0.1676648421 ## 250 0.339679853 0.3128455275 0.0493886276 0.1427174955 ## 251 0.272333677 0.2821491077 0.0432632996 0.1237664936 0.230594982 ## 252 -0.8416026379 -0.0844317511 0.0085119922 ## 253 0.493448959 -0.9139370088 -0.0787432046 0.0506705769 0.208501961 0.2303986665 0.0148298907 ## 254 0.1046049284 0.479588688 0.1836426676 0.0153782908 ## 255 0.1114650885 ## 256 0.102498473 0.2163878162 0.0033856463 0.0591537459 0.381559599 0.1784858397 -0.0126907619 0.0820877194 ## 257 ## 258 -0.389245547 0.1716441019 1.6752162639 -0.1363710643 ## 259 -0.843812120 0.3288399317 -0.0456391343 0.1699016683 0.1470501310 -0.834385821 0.3416434151 -0.0516611225 ## 260 ## 276 -0.122054806 0.7017769239 -0.1949777398 0.0206843082 ## 277 -0.500482151 0.8117089224 -1.9436261336 0.3491196647 -0.068717887 0.5850027993 -0.2508985174 ## 278 -0.0303068258 ## 279 0.389576101 0.5296151345 -0.2639518334 0.0017668657 ## 280 0.536391050 0.5377580061 -0.3033411281 -0.0180403000 ## 281 0.719630324 0.5774310269 -0.3087342965 0.0584579572 ## 291 0.416374996 2.0092014824 0.2330455454 0.0512028313 ## 292 -0.144939967 0.7308653697 0.1718102148 0.1325579512 -0.084900964 0.3031117121 0.0519290762 0.0308599164 ## 293 -0.101784443 0.0782387538 0.0825168555 -0.0542869947 ## 294 ## 295 -0.615400753 -0.1208795253 0.0517016902 -0.1443082759 -0.416404218 -0.0485450530 0.0593111327 -0.1586898885 296 ## 297 -0.938873629 -0.1616584245 0.0287124723 -0.3209162352 ## 298 -0.632213818 -0.2959084422 0.0390321776 -0.3279261486 -0.809979426 -0.2956721217 0.0265826592 -0.4259985785 ## 300 -0.692828035 -0.1878183109 0.0210545815 -0.5107021146 ## 301 -1.013812896 -0.2415150070 0.0059536637 -0.5607192471 -1.162820461 -0.2577099731 -0.0006077228 -0.5967291894 ## 302 ## 303 -1.104167037 -0.2735907198 -0.0086716733 -0.6210712572 ## 312 -0.655095750 -0.3289942717 0.0143945031 0.1351904014 313 -0.978147488 -0.3298073975 0.0196016073 0.1781774955 ## 314 -0.893744765 -0.3957038318 0.0461424094 0.3417520118 ## 315 -0.676983452 -0.4386452730 0.0523048013 0.3709635470 316 -1.158980050 -0.3725655160 0.0326332592 0.2633728593 ## 317 -1.258121610 -0.3927161158 0.0276664010 0.2368110660 -1.400867028 -0.3491969280 -0.0023729041 ## 318 0.0639644757 0.732411892 -0.2601717912 0.0774420737 0.2379730565 ## 330 0.446096864 -0.3384277231 0.0727505672 0.2080884193 ## 331 0.355230593 -0.3167736986 0.0705347690 0.1904367318 0.672807428 -0.3840548625 0.0732223880 0.2120663526 ## 333 0.604346208 -0.3820927553 0 0697587958 0.1983231536 ## 334 0.136200828 -0.3317368810 0.0384216311 0.1434583223 335 0.102370126 -0.3334474108 0.0329500363 0.1181813511 ## 336 -0.257080073 0.5197949670 0.1062420764 0.1017389297 0.4691224565 0.1147295523 ## 337 -0.226438301 0.1432494967 338 -0.224468784 0.4526291710 0.1247372724 0.1776789200 ## 339 -0.086614142 0.3775434869 0.1013527864 0.1413218432 ## 340 0.174307889 0.2667711359 0.1105613230 0.1485799084 0.2106684767 0.003596959 0.1101663936 0.1023728403 ## 342 -0.499826069 0.1933050850 0.0963412681 -0.0021015315 0.1227078328 0.0925235501 ## 343 -0.608693414 -0.0662285080 0.0814254333 -0.523635226 0.0145686246 -0.0581095237 ## 345 -0.923919520 -0.0041801105 0.0887101944 0.1667386462 0.0833341997 ## 346 -0.859599992 -0.0643255552 0.1522508661 ## 347 0.003806081 -0.2466760635 0.0776493647 -0.0332585063

