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| R version 3.5.3 (2019-03-11) -- "Great Truth"  Copyright (C) 2019 The R Foundation for Statistical Computing  Platform: x86\_64-w64-mingw32/x64 (64-bit)  R is free software and comes with ABSOLUTELY NO WARRANTY.  You are welcome to redistribute it under certain conditions.  Type 'license()' or 'licence()' for distribution details.  R is a collaborative project with many contributors.  Type 'contributors()' for more information and  'citation()' on how to cite R or R packages in publications.  Type 'demo()' for some demos, 'help()' for on-line help, or  'help.start()' for an HTML browser interface to help.  Type 'q()' to quit R.  [Workspace loaded from ~/.RData]  > mydata<-read.csv(file.choose())  > attach(mydata)  > names(mydata)  [1] "calory" "breakfast" "lunch" "dinner" "exercise"  [6] "body\_shape"  > X <- cbind(calory,breakfast,lunch,dinner,exercise,body\_shape)  > # mean,median,25th and 75th quartiles, min, max  > summary(X)  calory breakfast lunch dinner exercise  Min. :1200 Min. :0.00 Min. :0.00 Min. :0.00 Min. :0.00  1st Qu.:1700 1st Qu.:0.25 1st Qu.:0.25 1st Qu.:0.25 1st Qu.:0.00  Median :2900 Median :1.00 Median :1.50 Median :1.00 Median :1.00  Mean :2780 Mean :1.00 Mean :1.20 Mean :0.90 Mean :1.00  3rd Qu.:3375 3rd Qu.:1.75 3rd Qu.:2.00 3rd Qu.:1.00 3rd Qu.:1.75  Max. :5000 Max. :2.00 Max. :2.00 Max. :2.00 Max. :3.00  body\_shape  Min. :1.00  1st Qu.:1.00  Median :2.00  Mean :1.90  3rd Qu.:2.75  Max. :3.00  > cor(X)  calory breakfast lunch dinner exercise body\_shape  calory 1.0000000 0.7954175 0.6910415 0.8043890 -0.8386183 -0.9086200  breakfast 0.7954175 1.0000000 0.4442617 0.7377111 -0.6454972 -0.7770873  lunch 0.6910415 0.4442617 1.0000000 0.3605104 -0.6882472 -0.8009339  dinner 0.8043890 0.7377111 0.3605104 1.0000000 -0.5714286 -0.7051171  exercise -0.8386183 -0.6454972 -0.6882472 -0.5714286 1.0000000 0.8427010  body\_shape -0.9086200 -0.7770873 -0.8009339 -0.7051171 0.8427010 1.0000000  > pcal<-princomp(X, scores=TRUE, cor=TRUE)  > summary(pcal)  Importance of components:  Comp.1 Comp.2 Comp.3 Comp.4 Comp.5  Standard deviation 2.1384493 0.8791289 0.51753518 0.50438726 0.26545863  Proportion of Variance 0.7621609 0.1288113 0.04464044 0.04240108 0.01174471  Cumulative Proportion 0.7621609 0.8909722 0.93561260 0.97801369 0.98975840  Comp.6  Standard deviation 0.2478903  Proportion of Variance 0.0102416  Cumulative Proportion 1.0000000  > loadings(pcal)  Loadings:  Comp.1 Comp.2 Comp.3 Comp.4 Comp.5 Comp.6  calory 0.452 0.161 0.849 0.196  breakfast 0.395 0.398 -0.452 -0.647 -0.251  lunch 0.355 -0.670 0.397 -0.312 -0.413  dinner 0.374 0.562 0.565 0.282 -0.291 -0.245  exercise -0.412 0.231 0.557 -0.601 0.207 0.250  body\_shape -0.451 0.139 0.133 0.389 -0.779  Comp.1 Comp.2 Comp.3 Comp.4 Comp.5 Comp.6  SS loadings 1.000 1.000 1.000 1.000 1.000 1.000  Proportion Var 0.167 0.167 0.167 0.167 0.167 0.167  Cumulative Var 0.167 0.333 0.500 0.667 0.833 1.000  > #Visualize the Principal Components  > plot(pcal)  > screeplot(pcal,type="line",main="Screen Plot")  > biplot(pcal)  > pcal$scores[1:10,]  Comp.1 Comp.2 Comp.3 Comp.4 Comp.5 Comp.6  [1,] -2.59109145 0.5299328 -0.88134130 -0.57536372 -0.02092975 -0.16326214  [2,] -0.07458033 0.2518098 -0.01411247 0.13073782 0.02490101 -0.03071535  [3,] 2.06868027 -0.3637618 -0.59967830 -0.52491412 -0.18777364 -0.02319461  [4,] -3.02831180 -0.5103423 0.72826966 -0.67237432 0.32572792 -0.02916012  [5,] 3.18373372 0.5199074 0.31069477 0.08504295 0.48580055 -0.12167983  [6,] -2.52747388 0.8245447 0.51654810 0.67590686 -0.34358650 -0.17232714  [7,] -0.40427195 1.0306185 -0.45543050 0.51669496 0.19615400 0.47602800  [8,] 2.79669252 0.4663617 0.24206319 -0.05306066 -0.24065215 -0.28929364  [9,] -0.37680834 -2.0756515 -0.35385935 0.77759106 0.08402898 -0.11319351  [10,] 0.95343123 -0.6734193 0.50684621 -0.36026083 -0.32367042 0.46679833 |
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