R script

Version: RStudio 2023.06.1+524 "Mountain Hydrangea" Release (547dcf861cac0253a8abb52c135e44e02ba407a1, 2023-07-07) for windows

Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) RStudio/2023.06.1+524 Chrome/110.0.5481.208 Electron/23.3.0 Safari/537.36

## import data

food\_groups<-read.csv("C:\\Users\\Surya\\Desktop\\Ph.D\\Data\\Beneficiaries\\Food\_groups.csv",header= TRUE, row.names = 1)

View(food\_groups)

# head(food\_groups)

library("gplots")

# 1. convert the data as a table

dt <- as.table(as.matrix(food\_groups))

View(dt)

# 2. Graph

balloonplot(t(dt), main ="Food\_groups", xlab ="", ylab="",

 label = FALSE, show.margins = FALSE)

# Row margins

row.sum <- apply(food\_groups, 1, sum)

head(row.sum)

# Column margins

col.sum <- apply(food\_groups, 2, sum)

head(col.sum)

# grand total

n <- sum(food\_groups)

write.infile(row.sum, "row.csv", sep = ";")

library("graphics")

mosaicplot(dt, shade = TRUE, las=2,

 main = "Food\_groups")

# install.packages("vcd")

library("vcd")

# plot just a subset of the table

assoc(head(dt, 5), shade = TRUE, las=3)

chisq <- chisq.test(food\_groups)

chisq

write.infile(chisq, "chi.csv", sep = ";")

library(FactoMineR)

CA(food\_groups, ncp = 5, graph = TRUE)

res.ca <- CA(food\_groups, graph = FALSE)

# Export into a TXT file

write.infile(res.ca, "ca.txt", sep = "\t")

# Export into a CSV file

write.infile(res.ca, "ca.csv", sep = ";")

# repel= TRUE to avoid text overlapping (slow if many point)

library("factoextra")

fviz\_ca\_biplot(res.ca, repel = TRUE)

eig.val <- get\_eigenvalue(res.ca)

eig.val

fviz\_screeplot(res.ca, addlabels = TRUE, ylim = c(0, 100))

fviz\_screeplot(res.ca) +

 geom\_hline(yintercept=33.33, linetype=2, color="red")

row <- get\_ca\_row(res.ca)

row

# Coordinates

head(row$coord)

# Cos2: quality on the factore map

head(row$cos2)

# Contributions to the principal components

head(row$contrib)

# Color by cos2 values: quality on the factor map

fviz\_ca\_row(res.ca, col.row = "cos2",

 gradient.cols = c("#00AFBB", "#E7B800", "#FC4E07"),

 repel = TRUE)

# Change the transparency by cos2 values

fviz\_ca\_row(res.ca, alpha.row="cos2")

## Correlation plots

library("corrplot")

corrplot(row$cos2, is.corr=FALSE)

corrplot(row$contrib, is.corr=FALSE)

# Cos2 of rows on Dim.1 and Dim.2

fviz\_cos2(res.ca, choice = "row", axes = 1:2)

# Contributions of rows to dimension 1

fviz\_contrib(res.ca, choice = "row", axes = 1, top = 10)

# Contributions of rows to dimension 2

fviz\_contrib(res.ca, choice = "row", axes = 2, top = 10)

# Total contribution to dimension 1 and 2

fviz\_contrib(res.ca, choice = "row", axes = 1:2, top = 10)

fviz\_ca\_row(res.ca, col.row = "contrib",

 gradient.cols = c("#00AFBB", "#E7B800", "#FC4E07"),

 repel = TRUE)

# Change the transparency by contrib values

fviz\_ca\_row(res.ca, alpha.row="contrib",

 repel = TRUE)

col <- get\_ca\_col(res.ca)

col

# Coordinates of column points

head(col$coord)

# Quality of representation

head(col$cos2)

# Contributions

head(col$contrib)

fviz\_ca\_col(res.ca)

fviz\_ca\_col(res.ca, col.col = "cos2",

 gradient.cols = c("#00AFBB", "#E7B800", "#FC4E07"),

 repel = TRUE)

fviz\_cos2(res.ca, choice = "col", axes = 1:2)

fviz\_contrib(res.ca, choice = "col", axes = 1:2)

fviz\_ca\_biplot(res.ca, repel = TRUE)

fviz\_ca\_biplot(res.ca,

 map ="rowprincipal", arrow = c(TRUE, TRUE),

 repel = TRUE)

fviz\_ca\_biplot(res.ca, map ="colgreen", arrow = c(TRUE, FALSE),

 repel = TRUE)