install.packages("FactoMineR")

install.packages("factoextra")

install.packages("openxlsx")

library(FactoMineR)

library(factoextra)

library(openxlsx)

library(readxl)

Ecology <- read\_excel("Documents/Accunique/5-Principal Component Analysis-Ecology-600/Ecology.xlsx")

View(Ecology)

head(Ecology)

Ecology <- Ecology

eco.pca <- PCA(Ecology, graph = FALSE)

print(eco.pca)

eig.val <- get\_eigenvalue(eco.pca)

eig.val

#based on the result, we choose 4 principal components as they explain 70% of the variation. 70% is an acceptable large percentage

fviz\_eig(eco.pca, addladbles = TRUE, ylim = c(0,50), barfill = "grey", barcolor = "black", ncp = 15, hhjust = 0.5, choice = "variance", ggtheme = theme\_minimal())

var <- get\_pca\_var(eco.pca)

var

#plots:quality and contribution

fviz\_pca\_ind(eco.pca, pointsize = "cos2", pointshape = 21, fill = "#E7B800", repel = T, xlim = c(-1, 14))