Promedios

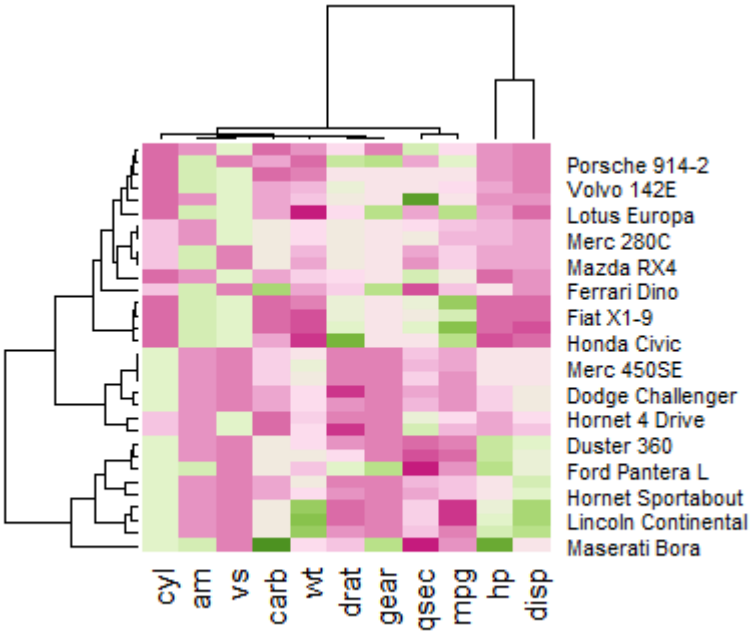
```
mtc <- data.frame(mtcars)
for (i in seq_len(ncol(mtc))) {
    current_ncol <- mtc[,i]
}
prom <- colMeans(mtc)

print(prom)
```

```
      mpg       cyl      disp        hp      drat        wt      qsec
20.090625  6.187500 230.721875 146.687500  3.596563  3.217250 17.848750
       vs        am      gear      carb
 0.437500  0.406250  3.687500  2.812500
```

Heatmap

```
library(RColorBrewer)
data <- as.matrix(mtcars)
heatmap(data)
coul <- colorRampPalette(brewer.pal(8, "PiYG"))(25)
heatmap(data, scale="column", col = coul)
row_means <- rowMeans(data, na.rm = TRUE)
```



PCA

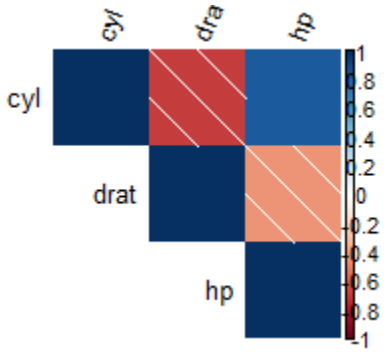
```
> library(tidyverse)
> PCA_cars<-prcomp(mtcars, scale=TRUE)
> PCA_cars
Standard deviations (1, .., p=11):
 [1] 2.5706809 1.6280258 0.7919579 0.5192277 0.4727061 0.4599958 0.3677798 0.3505730
 [9] 0.2775728 0.2281128 0.1484736

Rotation (n x k) = (11 x 11):
            PC1         PC2         PC3          PC4         PC5         PC6
mpg  -0.3625305  0.01612440 -0.22574419 -0.022540255 -0.10284468 -0.10879743
cyl   0.3739160  0.04374371 -0.17531118 -0.002591838 -0.05848381  0.16855369
disp  0.3681852 -0.04932413 -0.06148414  0.256607885 -0.39399530 -0.33616451
hp    0.3300569  0.24878402  0.14001476 -0.067676157 -0.54004744  0.07143563
drat -0.2941514  0.27469408  0.16118879  0.854828743 -0.07732727  0.24449705
wt    0.3461033 -0.14303825  0.34181851  0.245899314  0.07502912 -0.46493964
qsec -0.2004563 -0.46337482  0.40316904  0.068076532  0.16466591 -0.33048032
vs   -0.3065113 -0.23164699  0.42881517 -0.214848616 -0.59953955  0.19401702
am   -0.2349429  0.42941765 -0.20576657 -0.030462908 -0.08978128 -0.57081745
gear -0.2069162  0.46234863  0.28977993 -0.264690521 -0.04832960 -0.24356284
carb  0.2140177  0.41357106  0.52854459 -0.126789179  0.36131875  0.18352168
              PC7          PC8          PC9         PC10          PC11
mpg   0.367723810  0.754091423 -0.235701617 -0.13928524 -0.124895628
cyl   0.057277736  0.230824925 -0.054035270  0.84641949 -0.140695441
disp  0.214303077 -0.001142134 -0.198427848 -0.04937979  0.660606481
hp   -0.001495989  0.222358441  0.575830072 -0.24782351 -0.256492062
drat  0.021119857 -0.032193501  0.046901228  0.10149369 -0.039530246
wt   -0.020668302  0.008571929 -0.359498251 -0.09439426 -0.567448697
qsec  0.050010522  0.231840021  0.528377185  0.27067295  0.181361780
vs   -0.265780836 -0.025935128 -0.358582624  0.15903909  0.008414634
am   -0.587305101  0.059746952  0.047403982  0.17778541  0.029823537
gear  0.605097617 -0.336150240  0.001735039  0.21382515 -0.053507085
carb -0.174603192  0.395629107 -0.170640677 -0.07225950  0.319594676
>
```

Correlaciones

```
a_num <- function(df, columnas) {
    for (col in columnas) {
        df[[col]] <- as.numeric(df[[col]])
    }
    return(df)
}

mtcars <- a_num(df = mtcars, columnas = c("cyl", "drat", "hp"))
CORmtcars <- a_num(df = mtcars, columnas = c("cyl", "drat", "hp"))
COR <- cor(mtcars[, c("cyl", "drat", "hp")])
corrplot(COR, method = "shade", type = "upper", tl.col = "black", tl.srt = 70)
```



ANOVA

```
> modelo_anova <- aov(mpg ~ cyl, data = mtcars)
> summary(modelo_anova)
            Df Sum Sq Mean Sq F value   Pr(>F)
cyl          1  817.7   817.7   79.56 6.11e-10 ***
Residuals   30  308.3    10.3
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```