INSTITUTO DE CIENCIAS ECONÓMICO ADMINISTRATIVAS

DOCTORADO EN CIENCIAS ECONÓMICO ADMINISTRATIVAS

LABORATORIO Rstudio

Labs_44

GRADO: 3ER. SEMESTRE

MATERIA: COMPLEJIDAD ECONÓMICA

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10 DE MARZO DEL 2023

title: “LABS_44”

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date: “2023-03-08”

output: html_document

INSTALAR PROGRAMAS install.packages(“viridis”)

```
library(viridis)
```

```
## Loading required package: viridisLite
```

CARACTERISTICAS DE LOS AUTOS GENERAR DATOS PARA TRABAJAR

```
?mtcars
```

```
## starting httpd help server ... done
```

```
mtcars
```

```
##                     mpg cyl  disp  hp drat    wt  qsec vs am gear carb
## Mazda RX4           21.0   6 160.0 110 3.90 2.620 16.46  0  1    4    4
## Mazda RX4 Wag       21.0   6 160.0 110 3.90 2.875 17.02  0  1    4    4
## Datsun 710          22.8   4 108.0  93 3.85 2.320 18.61  1  1    4    1
## Hornet 4 Drive      21.4   6 258.0 110 3.08 3.215 19.44  1  0    3    1
## Hornet Sportabout   18.7   8 360.0 175 3.15 3.440 17.02  0  0    3    2
## Valiant             18.1   6 225.0 105 2.76 3.460 20.22  1  0    3    1
## Duster 360          14.3   8 360.0 245 3.21 3.570 15.84  0  0    3    4
## Merc 240D           24.4   4 146.7  62 3.69 3.190 20.00  1  0    4    2
## Merc 230            22.8   4 140.8  95 3.92 3.150 22.90  1  0    4    2
## Merc 280            19.2   6 167.6 123 3.92 3.440 18.30  1  0    4    4
## Merc 280C           17.8   6 167.6 123 3.92 3.440 18.90  1  0    4    4
## Merc 450SE          16.4   8 275.8 180 3.07 4.070 17.40  0  0    3    3
## Merc 450SL          17.3   8 275.8 180 3.07 3.730 17.60  0  0    3    3
## Merc 450SLC         15.2   8 275.8 180 3.07 3.780 18.00  0  0    3    3
## Cadillac Fleetwood  10.4   8 472.0 205 2.93 5.250 17.98  0  0    3    4
## Lincoln Continental 10.4   8 460.0 215 3.00 5.424 17.82  0  0    3    4
## Chrysler Imperial   14.7   8 440.0 230 3.23 5.345 17.42  0  0    3    4
## Fiat 128            32.4   4  78.7  66 4.08 2.200 19.47  1  1    4    1
## Honda Civic         30.4   4  75.7  52 4.93 1.615 18.52  1  1    4    2
## Toyota Corolla      33.9   4  71.1  65 4.22 1.835 19.90  1  1    4    1
## Toyota Corona       21.5   4 120.1  97 3.70 2.465 20.01  1  0    3    1
## Dodge Challenger    15.5   8 318.0 150 2.76 3.520 16.87  0  0    3    2
## AMC Javelin         15.2   8 304.0 150 3.15 3.435 17.30  0  0    3    2
## Camaro Z28          13.3   8 350.0 245 3.73 3.840 15.41  0  0    3    4
## Pontiac Firebird    19.2   8 400.0 175 3.08 3.845 17.05  0  0    3    2
## Fiat X1-9           27.3   4  79.0  66 4.08 1.935 18.90  1  1    4    1
## Porsche 914-2       26.0   4 120.3  91 4.43 2.140 16.70  0  1    5    2
## Lotus Europa        30.4   4  95.1 113 3.77 1.513 16.90  1  1    5    2
## Ford Pantera L      15.8   8 351.0 264 4.22 3.170 14.50  0  1    5    4
## Ferrari Dino        19.7   6 145.0 175 3.62 2.770 15.50  0  1    5    6
## Maserati Bora       15.0   8 301.0 335 3.54 3.570 14.60  0  1    5    8
## Volvo 142E          21.4   4 121.0 109 4.11 2.780 18.60  1  1    4    2
```

```
class(mtcars)
```

```
## [1] "data.frame"
```

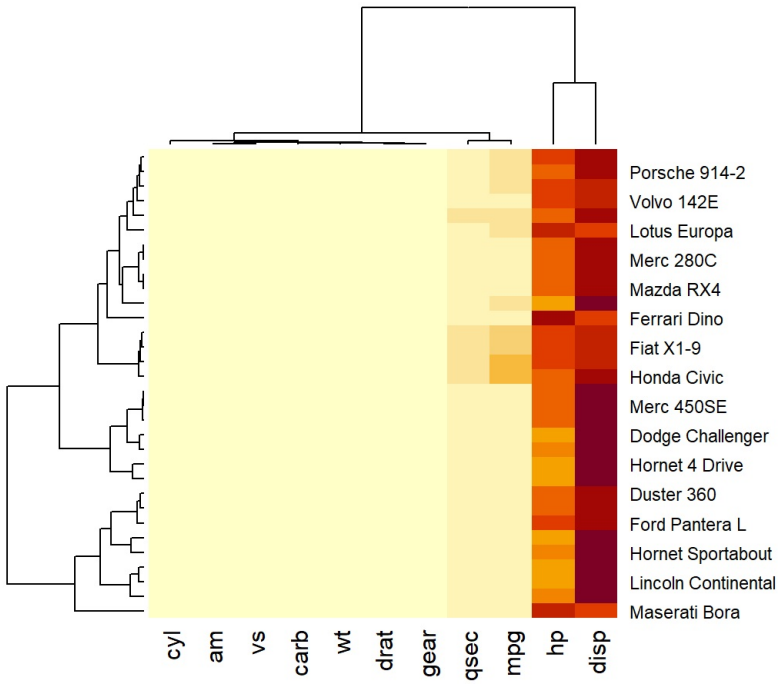
FORMAR MATRIZ

```
mtcars_matrix <- data.matrix(mtcars)
head(mtcars)
```

```
##                   mpg cyl disp  hp drat    wt  qsec vs am gear carb
## Mazda RX4         21.0   6  160 110 3.90 2.620 16.46  0  1    4    4
## Mazda RX4 Wag     21.0   6  160 110 3.90 2.875 17.02  0  1    4    4
## Datsun 710        22.8   4  108  93 3.85 2.320 18.61  1  1    4    1
## Hornet 4 Drive    21.4   6  258 110 3.08 3.215 19.44  1  0    3    1
## Hornet Sportabout 18.7   8  360 175 3.15 3.440 17.02  0  0    3    2
## Valiant           18.1   6  225 105 2.76 3.460 20.22  1  0    3    1
```

VISUALIZAR

```
heatmap(mtcars_matrix)
```

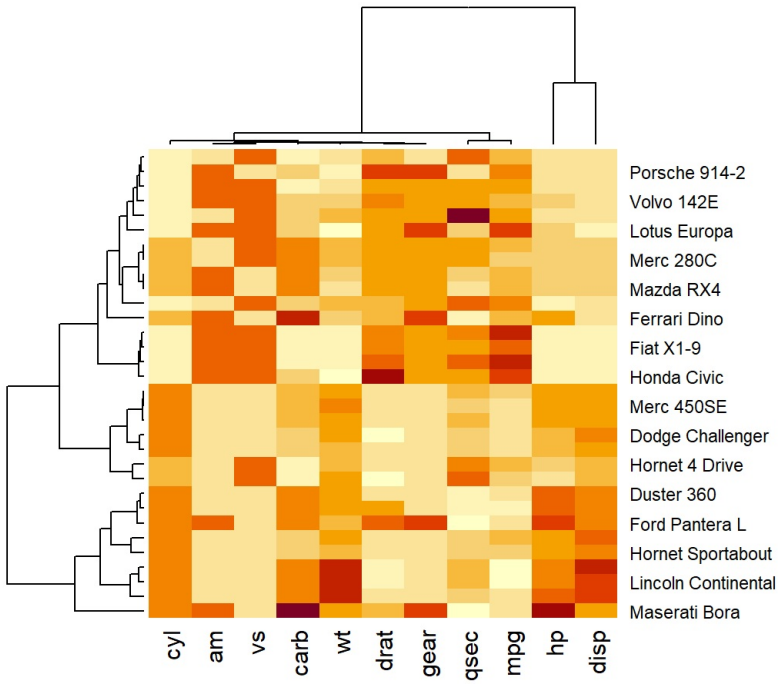


DESCRIPCION Y DATOS DE HEATMAPS

```
?heatmap
```

ESCALADO DE LAS COLUMNAS Y NO EN LOS RENGLONES La escala es importante: los valores deben centrarse y escalarse en filas o columnas.En nuestro caso, queremos visualizar altibajos en cada variable, que estAn en columnas.

```
heatmap(mtcars_matrix, scale = "column")
```

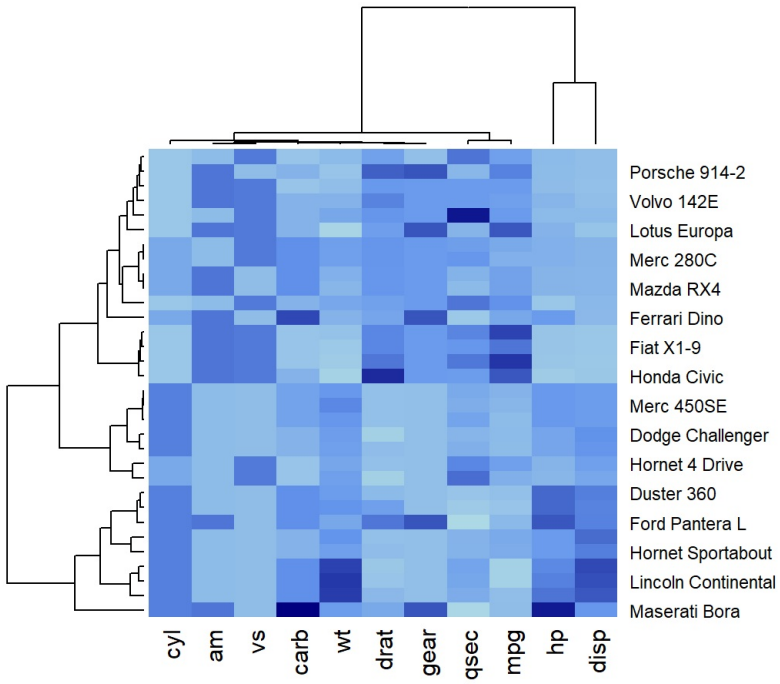


CREAR NUESTRA PALETA DE COLORES

```
colores_blue <- colorRampPalette(c("lightblue","cornflowerblue", "navyblue")) (256)
```

Con AMBOS denogramas por default, se ordenan las variables por cluster de pertenencia

```
heatmap(mtcars_matrix,
        scale = "column",
        col= colores_blue)
```



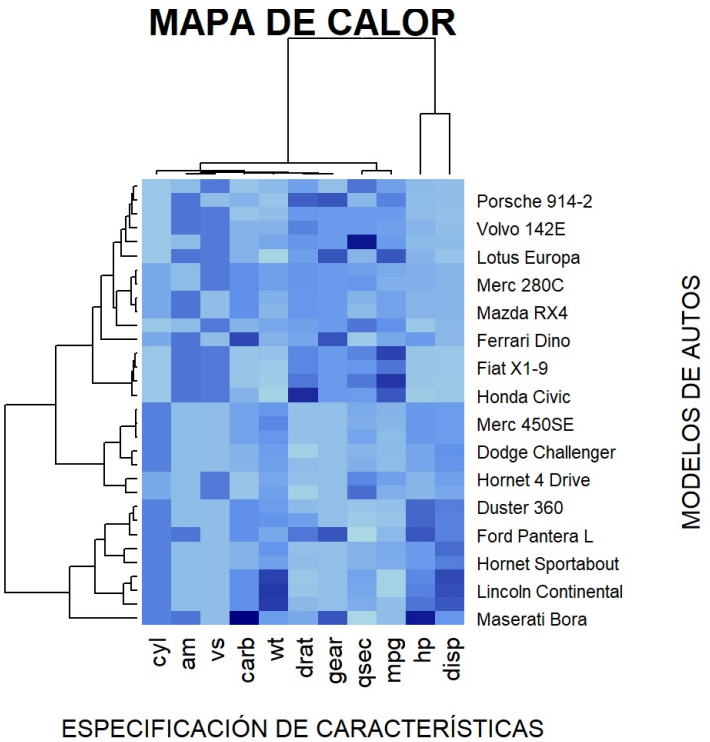
Eliminar dendrogramas horizontal de las caracteristicas de los coches Nos interesan los tipos de coches por que no tenemos datos normalizados

```
heatmap(mtcars_matrix,
        scale = "column",
        col= colores_blue,
        colv= NA,
        margins = c(5,10),
        xlab = "ESPECIFICACIÓN DE CARACTERÍSTICAS",
        ylab = "MODELOS DE AUTOS",
        main= "MAPA DE CALOR")
```

```
## Warning in plot.window(...): "colv" is not a graphical parameter
```

```
## Warning in plot.xy(xy, type, ...): "colv" is not a graphical parameter
```

```
## Warning in title(...): "colv" is not a graphical parameter
```



OTROS COLORES LLAMAR VIRIDIS

```
library(viridis)
```

paletas por defecto rainbow, heat.colors, terrain.colors, topo.colors, cm.colors

```
viridis_pal()
```

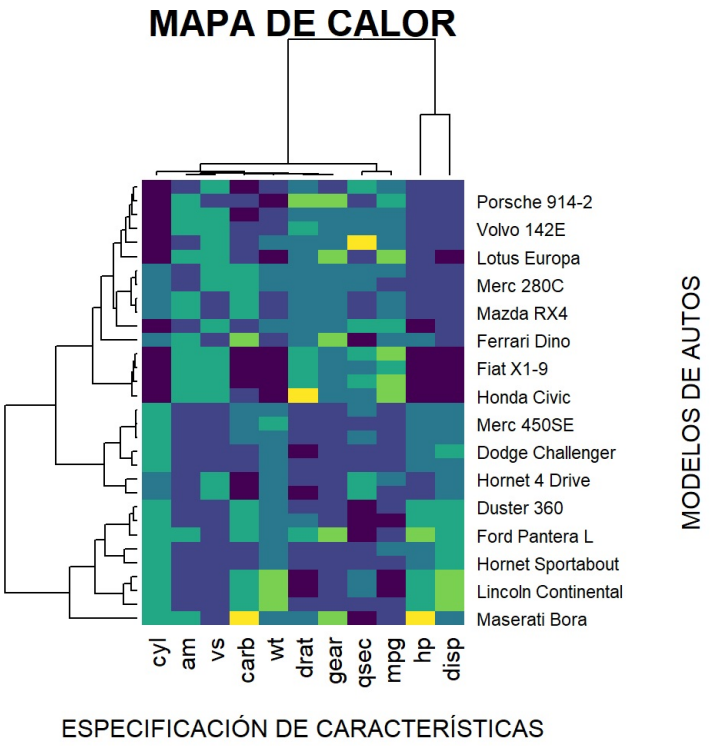
```
## function (n)
## {
##     viridisLite::viridis(n, alpha, begin, end, direction, option)
## }
## <bytecode: 0x0000020d7d0aa4d8>
## <environment: 0x0000020d7d0aac10>
```

```
heatmap(mtcars_matrix,
        scale = "column",
        col= viridis_pal(option = "viridis") (6),
        colv= NA,
        margins = c(5,10),
        xlab = "ESPECIFICACIÓN DE CARACTERÍSTICAS",
        ylab = "MODELOS DE AUTOS",
        main= "MAPA DE CALOR")
```

```
## Warning in plot.window(...): "colv" is not a graphical parameter
```

```
## Warning in plot.xy(xy, type, ...): "colv" is not a graphical parameter
```

```
## Warning in title(...): "colv" is not a graphical parameter
```



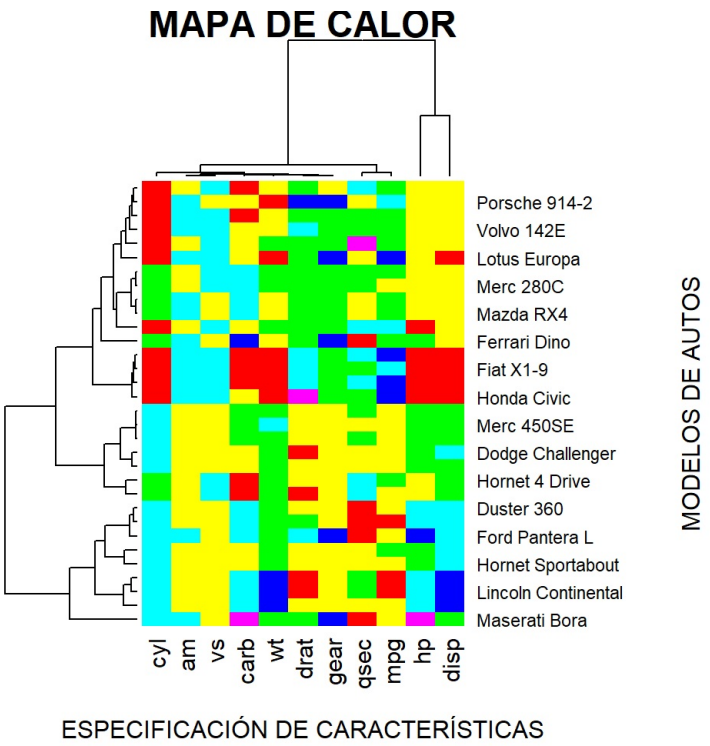
COLOR RAINBOW

```
heatmap(mtcars_matrix,
        scale = "column",
        col= rainbow (6),
        colv= NA,
        margins = c(5,10),
        xlab = "ESPECIFICACIÓN DE CARACTERÍSTICAS",
        ylab = "MODELOS DE AUTOS",
        main= "MAPA DE CALOR")
```

```
## Warning in plot.window(...): "colv" is not a graphical parameter
```

```
## Warning in plot.xy(xy, type, ...): "colv" is not a graphical parameter
```

```
## Warning in title(...): "colv" is not a graphical parameter
```

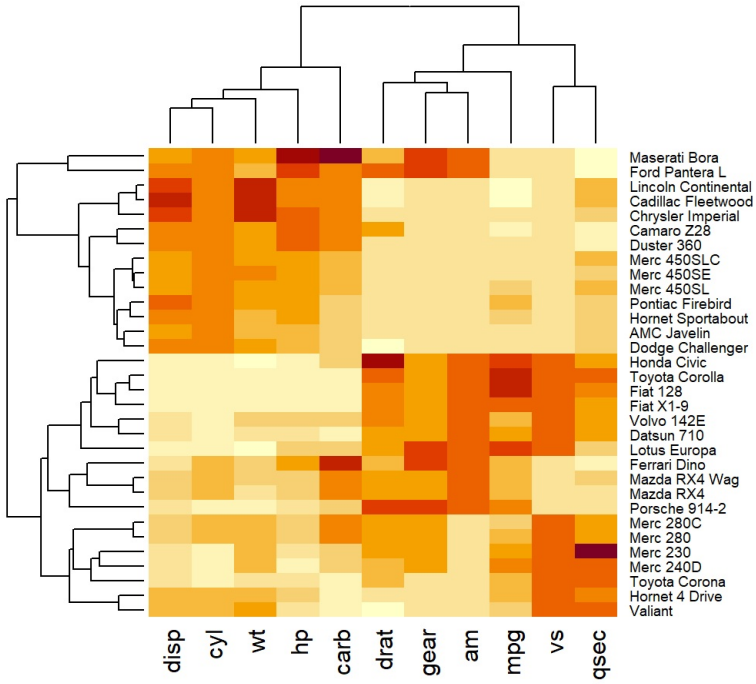


CONTINUAR LA PRACTICA ESTANDARIZANDO DATOS

```
datos <- mtcars
```

Para que las variables sean comparables bajo un mismo esquema de colores seestandarizan. ESTANDARIZACION DATOS COLORES UNO

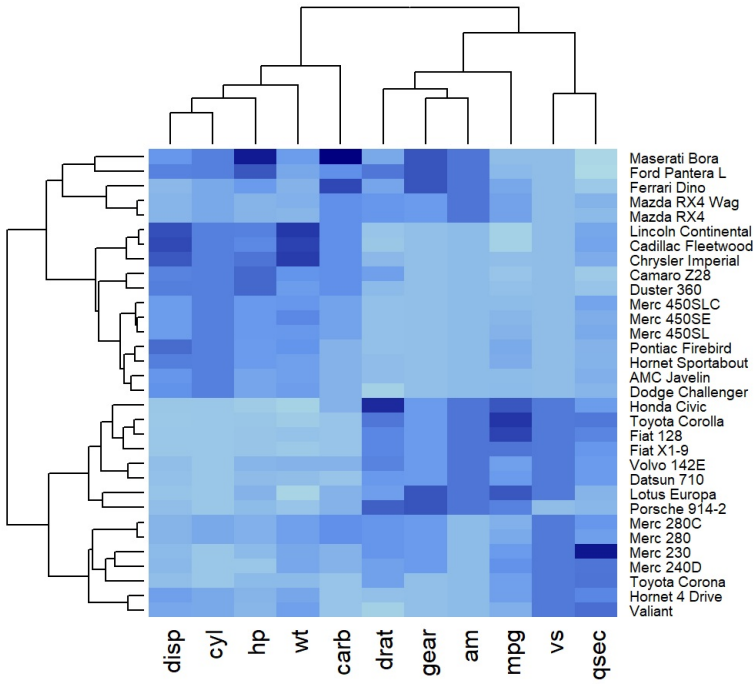
```
datos <- scale(datos)
heatmap(x = datos, scale = "none",
        distfun = function(x){dist(x, method = "euclidean")},
        hclustfun = function(x){hclust(x, method = "average")},
        cexRow = 0.7)
```




```
colores1 <- colorRampPalette(c("red", "white", "blue"))(256)
```

ESTANDARIZACION DE DATOS COLOR 2

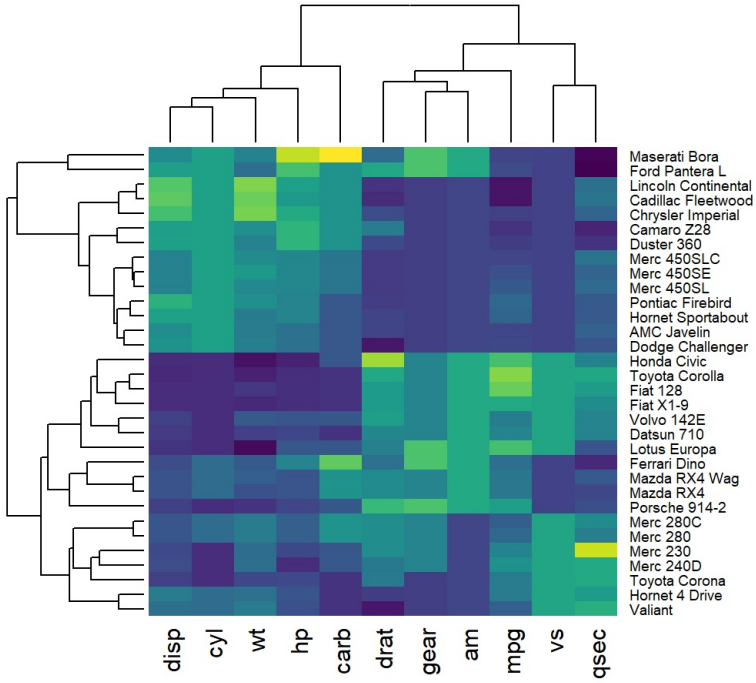
```
heatmap(x = datos, scale = "none", col = colores_blue, cexRow = 0.7)
```




```
colores_blue <- colorRampPalette(c("lightblue", "cornflowerblue", "navyblue"))(256)
```

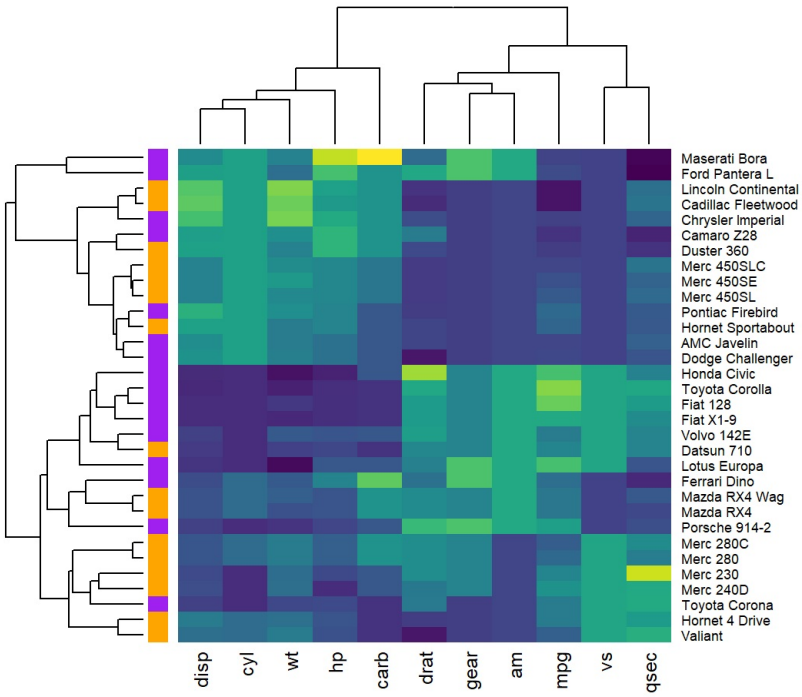
Paleta de color viridis LLAMAR LIBRERIA

```
library(viridis)
colores2 <- viridis(256)
heatmap(x = datos, scale = "none", col = colores2,
        distfun = function(x){dist(x, method = "euclidean")},
        hclustfun = function(x){hclust(x, method = "average")},
        cexRow = 0.7)
```



Es posible aÑadir informaciOn adicional (annotate) en las filas o columnas con los argumentos RowSideColors y ColSideColors. Por ejemplo, supOngase que los primeros 16 coches proceden de China y los 16 ?ltimos de AmErica. Se codifica con color naranja a los coches procedentes de China y con morado a los de AmErica

```
colores2 <- viridis(256)
heatmap(x = datos, scale = "none", col = colores2,
        distfun = function(x){dist(x, method = "euclidean")},
        hclustfun = function(x){hclust(x, method = "average")},
        RowSideColors = rep(c("orange", "purple"), each = 16))
```


Maserati Bora
Ford Pantera L
Lincoln Continental
Cadillac Fleetwood
Chrysler Imperial
Camaro Z28
Duster 360
Merc 450SLC
Merc 450SE
Merc 450SL
Pontiac Firebird
Hornet Sportabout
AMC Javelin
Dodge Challenger
Honda Civic
Toyota Corolla
Fiat 128
Fiat X1-9
Volvo 142E
Datsun 710
Lotus Europa
Ferrari Dino
Mazda RX4 Wag
Mazda RX4
Porsche 914-2
Merc 280C
Merc 280
Merc 230
Merc 240D
Toyota Corona
Hornet 4 Drive
Valiant
disp
cyl
wt
hp
carb
drat
gear
am
mpg
vs
qsec