

LAB.-2-14-08-25.R

angel

2025-11-26

```
#####  
# LAB.2  
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# 14/08/25  
#####
```

```
# Importar nuestra base de datos desde Excel  
temperatura <- read.csv("temperatura.csv")  
View(temperatura)
```

```
# Algunas funciones  
head(temperatura) #Primeras 6 filas
```

```
##      Año  Ene  Feb  Mar  Abr  May  Jun  Jul  Ago  Sep  Oct  Nov  Dic  
## 1 2000 22.5 18.9 19.4 14.0 16.0 22.0 15.0 13.4 18.8 12.4 22.9 21.1  
## 2 2001 19.3 20.3 18.5 24.1 17.5 29.4 17.2 22.6 16.2 17.8 25.7 20.2  
## 3 2002 23.2 12.9 12.6 26.8 24.6 20.9 20.5 21.5 15.6 24.3 24.8 16.7  
## 4 2003 27.6 17.3 16.4 19.6 21.6 21.3 17.5 21.3 15.9 21.1 23.3 30.7  
## 5 2004 18.8 20.6 17.7 25.0 17.4 19.6 12.2 21.7 19.6 13.8 18.4 23.2  
## 6 2005 18.8 14.2 25.3 21.8 22.6 10.4 20.3 16.6 21.7 20.9 23.8 9.9
```

```
dim(temperatura) # Número de filas y columnas
```

```
## [1] 21 13
```

```
names(temperatura) # Nombres de las temperaturas
```

```
## [1] "Año" "Ene" "Feb" "Mar" "Abr" "May" "Jun" "Jul" "Ago" "Sep" "Oct" "Nov"  
## [13] "Dic"
```

```
str(temperatura) # Estructura del objeto
```

```
## 'data.frame': 21 obs. of 13 variables:  
## $ Año: int 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 ...  
## $ Ene: num 22.5 19.3 23.2 27.6 18.8 18.8 27.9 23.8 17.7 22.7 ...  
## $ Feb: num 18.9 20.3 12.9 17.3 20.6 14.2 21.9 17 18.5 17 ...  
## $ Mar: num 19.4 18.5 12.6 16.4 17.7 25.3 21.7 11.2 21.6 18.1 ...  
## $ Abr: num 14 24.1 26.8 19.6 25 21.8 16.8 21.8 27.7 19.8 ...
```

```
## $ May: num 16 17.5 24.6 21.6 17.4 22.6 20.5 24.8 16.5 18.4 ...
## $ Jun: num 22 29.4 20.9 21.3 19.6 10.4 19.9 20.3 32.3 19 ...
## $ Jul: num 15 17.2 20.5 17.5 12.2 20.3 14.7 22.4 15.4 27.7 ...
## $ Ago: num 13.4 22.6 21.5 21.3 21.7 16.6 21.2 21.5 16.4 29.3 ...
## $ Sep: num 18.8 16.2 15.6 15.9 19.6 21.7 21.4 24.1 20.1 27.3 ...
## $ Oct: num 12.4 17.8 24.3 21.1 13.8 20.9 21.9 15.6 20.8 20.3 ...
## $ Nov: num 22.9 25.7 24.8 23.3 18.4 23.8 16.1 18.8 17.6 20.4 ...
## $ Dic: num 21.1 20.2 16.7 30.7 23.2 9.9 20.9 16.7 24.3 16 ...
```

```
# Resumen estadístico
summary(temperatura)
```

```
##      Año      Ene      Feb      Mar      Abr
## Min.   :2000   Min.   :10.40   Min.   :10.2   Min.   :11.20   Min.   : 6.90
## 1st Qu.:2005   1st Qu.:17.20   1st Qu.:14.7   1st Qu.:16.60   1st Qu.:18.50
## Median :2010   Median :18.80   Median :18.9   Median :18.50   Median :20.50
## Mean   :2010   Mean   :19.53   Mean   :18.6   Mean   :19.25   Mean   :20.53
## 3rd Qu.:2015   3rd Qu.:22.70   3rd Qu.:21.0   3rd Qu.:21.70   3rd Qu.:24.10
## Max.   :2020   Max.   :27.90   Max.   :29.3   Max.   :25.30   Max.   :27.80
##      May      Jun      Jul      Ago      Sep
## Min.   :12.70   Min.   :10.4   Min.   :12.0   Min.   :13.40   Min.   :14.60
## 1st Qu.:17.40   1st Qu.:19.6   1st Qu.:15.0   1st Qu.:16.60   1st Qu.:16.20
## Median :18.40   Median :21.3   Median :18.4   Median :21.70   Median :19.60
## Mean   :18.88   Mean   :21.6   Mean   :18.8   Mean   :21.26   Mean   :20.43
## 3rd Qu.:21.30   3rd Qu.:24.0   3rd Qu.:21.3   3rd Qu.:23.90   3rd Qu.:22.40
## Max.   :24.80   Max.   :32.3   Max.   :27.7   Max.   :29.50   Max.   :33.60
##      Oct      Nov      Dic
## Min.   :12.40   Min.   :10.70   Min.   : 9.90
## 1st Qu.:15.60   1st Qu.:16.40   1st Qu.:16.70
## Median :21.10   Median :20.30   Median :20.20
## Mean   :20.67   Mean   :20.16   Mean   :20.08
## 3rd Qu.:22.60   3rd Qu.:23.40   3rd Qu.:23.20
## Max.   :39.30   Max.   :31.60   Max.   :30.70
```

```
#Modificar nombre de columnas (evitar ñ o nombres complicados)
names(temperatura) <- c("year", "Ene", "Feb", "Mar", "Abr", "May", "Jun", "Jul", "Ago",
                        "Sep", "Oct", "Nov", "Dic")
names (temperatura)
```

```
## [1] "year" "Ene" "Feb" "Mar" "Abr" "May" "Jun" "Jul" "Ago" "Sep"
## [11] "Oct" "Nov" "Dic"
```

```
temperatura$Ene
```

```
## [1] 22.5 19.3 23.2 27.6 18.8 18.8 27.9 23.8 17.7 22.7 17.7 17.7 21.2 10.4 11.4
## [16] 17.2 14.9 21.6 15.5 12.9 27.3
```

```
# Para crear columnas que no tenemos también se usa el símbolo de $
# La función de rowMeans nos permite sacar la media de una fila/filas
# Utiliza el [], y se separa por una coma, antes de la coma se indican las filas
# después de la coma se indican las columnas, en este caso como se quería abarcar
```

de la columna 2 a la 13 se utilizan los :

```
temperatura$Media_anual <- rowMeans(temperatura[,2:13])
head(temperatura)
```

```
##   year  Ene  Feb  Mar  Abr  May  Jun  Jul  Ago  Sep  Oct  Nov  Dic Media_anual
## 1 2000 22.5 18.9 19.4 14.0 16.0 22.0 15.0 13.4 18.8 12.4 22.9 21.1    18.03333
## 2 2001 19.3 20.3 18.5 24.1 17.5 29.4 17.2 22.6 16.2 17.8 25.7 20.2    20.73333
## 3 2002 23.2 12.9 12.6 26.8 24.6 20.9 20.5 21.5 15.6 24.3 24.8 16.7    20.36667
## 4 2003 27.6 17.3 16.4 19.6 21.6 21.3 17.5 21.3 15.9 21.1 23.3 30.7    21.13333
## 5 2004 18.8 20.6 17.7 25.0 17.4 19.6 12.2 21.7 19.6 13.8 18.4 23.2    19.00000
## 6 2005 18.8 14.2 25.3 21.8 22.6 10.4 20.3 16.6 21.7 20.9 23.8  9.9     18.85833
```

#Crear objeto con medias mensuales de temperatura

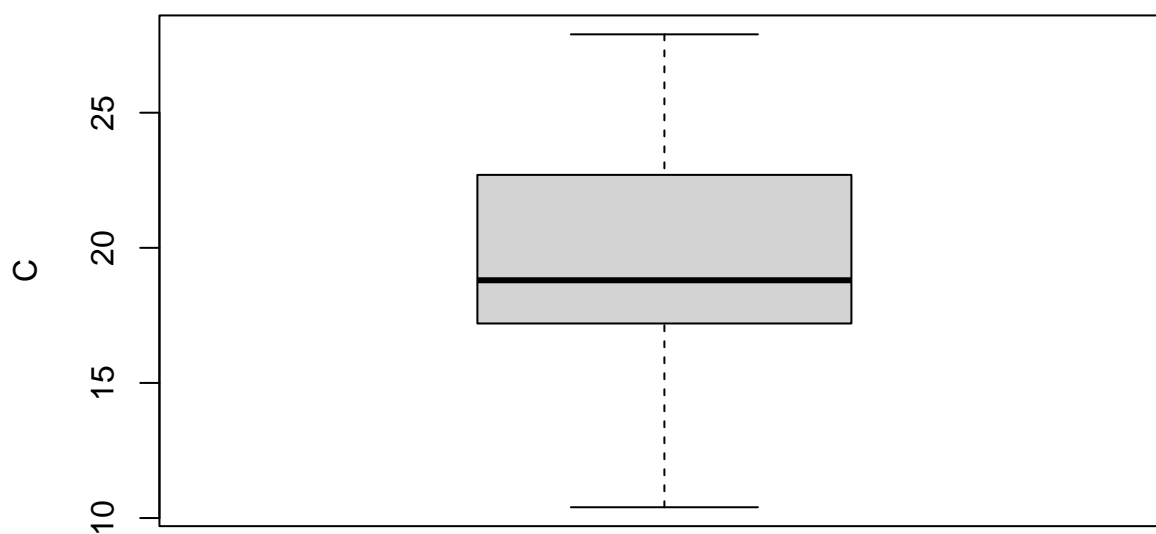
```
medias_mensuales <- colMeans(temperatura[,2:13])
medias_mensuales
```

```
##      Ene      Feb      Mar      Abr      May      Jun      Jul      Ago
## 19.52857 18.60476 19.24762 20.53333 18.88095 21.59524 18.80000 21.25714
##      Sep      Oct      Nov      Dic
## 20.43333 20.66667 20.16190 20.07619
```

*# Crear boxplot, en donde main se refiere al título de nuestro gráfico,
ylab es nuestro eje y y col el color del gráfico*

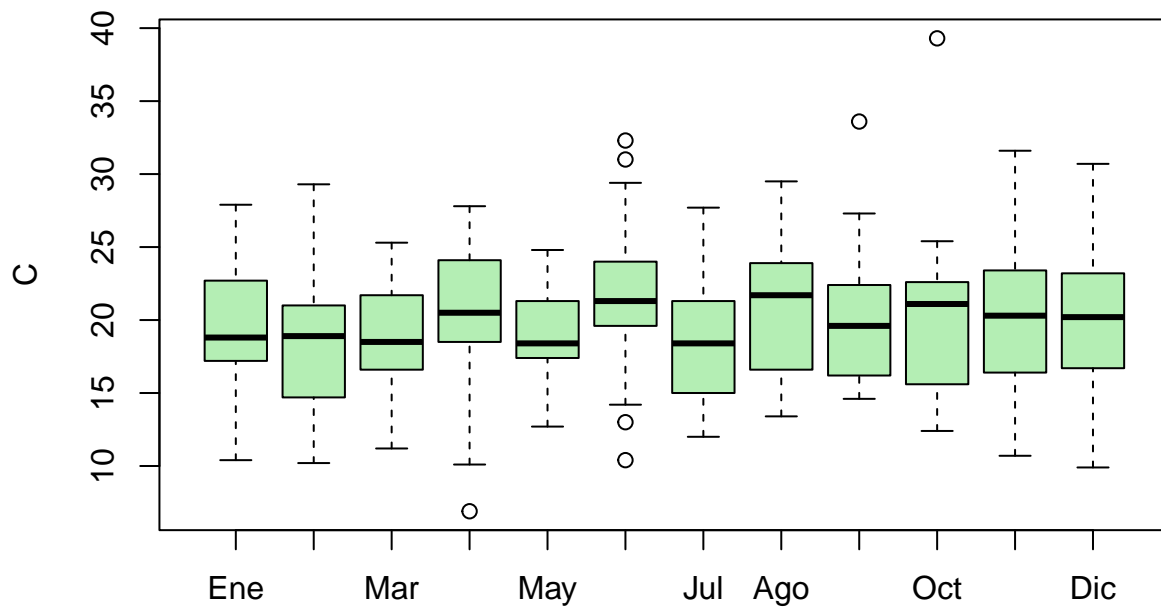
```
boxplot(temperatura$Ene,
        main="Temperatura de enero",
        ylab="C",
        fill="#528B8B")
```

Temperatura de enero



```
datos_meses <- temperatura [,2:13]
boxplot(datos_meses,
  main= "Temperatura",
  ylab= "C",
  col="#B4EEB4",
  names= c("Ene", "Feb", "Mar", "Abr", "May", "Jun", "Jul", "Ago", "Sep", "Oct", "Nov", "Dic"))
```

Temperatura



[#https://r-charts.com/es/colores/](https://r-charts.com/es/colores/)
`colors()`

## [1] "white"	"aliceblue"	"antiquewhite"
## [4] "antiquewhite1"	"antiquewhite2"	"antiquewhite3"
## [7] "antiquewhite4"	"aquamarine"	"aquamarine1"
## [10] "aquamarine2"	"aquamarine3"	"aquamarine4"
## [13] "azure"	"azure1"	"azure2"
## [16] "azure3"	"azure4"	"beige"
## [19] "bisque"	"bisque1"	"bisque2"
## [22] "bisque3"	"bisque4"	"black"
## [25] "blanchedalmond"	"blue"	"blue1"
## [28] "blue2"	"blue3"	"blue4"
## [31] "blueviolet"	"brown"	"brown1"
## [34] "brown2"	"brown3"	"brown4"
## [37] "burlywood"	"burlywood1"	"burlywood2"
## [40] "burlywood3"	"burlywood4"	"cadetblue"
## [43] "cadetblue1"	"cadetblue2"	"cadetblue3"
## [46] "cadetblue4"	"chartreuse"	"chartreuse1"
## [49] "chartreuse2"	"chartreuse3"	"chartreuse4"
## [52] "chocolate"	"chocolate1"	"chocolate2"
## [55] "chocolate3"	"chocolate4"	"coral"
## [58] "coral1"	"coral2"	"coral3"
## [61] "coral4"	"cornflowerblue"	"cornsilk"
## [64] "cornsilk1"	"cornsilk2"	"cornsilk3"
## [67] "cornsilk4"	"cyan"	"cyan1"

## [70]	"cyan2"	"cyan3"	"cyan4"
## [73]	"darkblue"	"darkcyan"	"darkgoldenrod"
## [76]	"darkgoldenrod1"	"darkgoldenrod2"	"darkgoldenrod3"
## [79]	"darkgoldenrod4"	"darkgray"	"darkgreen"
## [82]	"darkgrey"	"darkkhaki"	"darkmagenta"
## [85]	"darkolivegreen"	"darkolivegreen1"	"darkolivegreen2"
## [88]	"darkolivegreen3"	"darkolivegreen4"	"darkorange"
## [91]	"darkorange1"	"darkorange2"	"darkorange3"
## [94]	"darkorange4"	"darkorchid"	"darkorchid1"
## [97]	"darkorchid2"	"darkorchid3"	"darkorchid4"
## [100]	"darkred"	"darksalmon"	"darkseagreen"
## [103]	"darkseagreen1"	"darkseagreen2"	"darkseagreen3"
## [106]	"darkseagreen4"	"darkslateblue"	"darkslategray"
## [109]	"darkslategray1"	"darkslategray2"	"darkslategray3"
## [112]	"darkslategray4"	"darkslategrey"	"darkturquoise"
## [115]	"darkviolet"	"deeppink"	"deeppink1"
## [118]	"deeppink2"	"deeppink3"	"deeppink4"
## [121]	"deepskyblue"	"deepskyblue1"	"deepskyblue2"
## [124]	"deepskyblue3"	"deepskyblue4"	"dimgray"
## [127]	"dimgrey"	"dodgerblue"	"dodgerblue1"
## [130]	"dodgerblue2"	"dodgerblue3"	"dodgerblue4"
## [133]	"firebrick"	"firebrick1"	"firebrick2"
## [136]	"firebrick3"	"firebrick4"	"floralwhite"
## [139]	"forestgreen"	"gainsboro"	"ghostwhite"
## [142]	"gold"	"gold1"	"gold2"
## [145]	"gold3"	"gold4"	"goldenrod"
## [148]	"goldenrod1"	"goldenrod2"	"goldenrod3"
## [151]	"goldenrod4"	"gray"	"gray0"
## [154]	"gray1"	"gray2"	"gray3"
## [157]	"gray4"	"gray5"	"gray6"
## [160]	"gray7"	"gray8"	"gray9"
## [163]	"gray10"	"gray11"	"gray12"
## [166]	"gray13"	"gray14"	"gray15"
## [169]	"gray16"	"gray17"	"gray18"
## [172]	"gray19"	"gray20"	"gray21"
## [175]	"gray22"	"gray23"	"gray24"
## [178]	"gray25"	"gray26"	"gray27"
## [181]	"gray28"	"gray29"	"gray30"
## [184]	"gray31"	"gray32"	"gray33"
## [187]	"gray34"	"gray35"	"gray36"
## [190]	"gray37"	"gray38"	"gray39"
## [193]	"gray40"	"gray41"	"gray42"
## [196]	"gray43"	"gray44"	"gray45"
## [199]	"gray46"	"gray47"	"gray48"
## [202]	"gray49"	"gray50"	"gray51"
## [205]	"gray52"	"gray53"	"gray54"
## [208]	"gray55"	"gray56"	"gray57"
## [211]	"gray58"	"gray59"	"gray60"
## [214]	"gray61"	"gray62"	"gray63"
## [217]	"gray64"	"gray65"	"gray66"
## [220]	"gray67"	"gray68"	"gray69"
## [223]	"gray70"	"gray71"	"gray72"
## [226]	"gray73"	"gray74"	"gray75"
## [229]	"gray76"	"gray77"	"gray78"

## [232]	"gray79"	"gray80"	"gray81"
## [235]	"gray82"	"gray83"	"gray84"
## [238]	"gray85"	"gray86"	"gray87"
## [241]	"gray88"	"gray89"	"gray90"
## [244]	"gray91"	"gray92"	"gray93"
## [247]	"gray94"	"gray95"	"gray96"
## [250]	"gray97"	"gray98"	"gray99"
## [253]	"gray100"	"green"	"green1"
## [256]	"green2"	"green3"	"green4"
## [259]	"greenyellow"	"grey"	"grey0"
## [262]	"grey1"	"grey2"	"grey3"
## [265]	"grey4"	"grey5"	"grey6"
## [268]	"grey7"	"grey8"	"grey9"
## [271]	"grey10"	"grey11"	"grey12"
## [274]	"grey13"	"grey14"	"grey15"
## [277]	"grey16"	"grey17"	"grey18"
## [280]	"grey19"	"grey20"	"grey21"
## [283]	"grey22"	"grey23"	"grey24"
## [286]	"grey25"	"grey26"	"grey27"
## [289]	"grey28"	"grey29"	"grey30"
## [292]	"grey31"	"grey32"	"grey33"
## [295]	"grey34"	"grey35"	"grey36"
## [298]	"grey37"	"grey38"	"grey39"
## [301]	"grey40"	"grey41"	"grey42"
## [304]	"grey43"	"grey44"	"grey45"
## [307]	"grey46"	"grey47"	"grey48"
## [310]	"grey49"	"grey50"	"grey51"
## [313]	"grey52"	"grey53"	"grey54"
## [316]	"grey55"	"grey56"	"grey57"
## [319]	"grey58"	"grey59"	"grey60"
## [322]	"grey61"	"grey62"	"grey63"
## [325]	"grey64"	"grey65"	"grey66"
## [328]	"grey67"	"grey68"	"grey69"
## [331]	"grey70"	"grey71"	"grey72"
## [334]	"grey73"	"grey74"	"grey75"
## [337]	"grey76"	"grey77"	"grey78"
## [340]	"grey79"	"grey80"	"grey81"
## [343]	"grey82"	"grey83"	"grey84"
## [346]	"grey85"	"grey86"	"grey87"
## [349]	"grey88"	"grey89"	"grey90"
## [352]	"grey91"	"grey92"	"grey93"
## [355]	"grey94"	"grey95"	"grey96"
## [358]	"grey97"	"grey98"	"grey99"
## [361]	"grey100"	"honeydew"	"honeydew1"
## [364]	"honeydew2"	"honeydew3"	"honeydew4"
## [367]	"hotpink"	"hotpink1"	"hotpink2"
## [370]	"hotpink3"	"hotpink4"	"indianred"
## [373]	"indianred1"	"indianred2"	"indianred3"
## [376]	"indianred4"	"ivory"	"ivory1"
## [379]	"ivory2"	"ivory3"	"ivory4"
## [382]	"khaki"	"khaki1"	"khaki2"
## [385]	"khaki3"	"khaki4"	"lavender"
## [388]	"lavenderblush"	"lavenderblush1"	"lavenderblush2"
## [391]	"lavenderblush3"	"lavenderblush4"	"lawngreen"

## [394]	"lemonchiffon"	"lemonchiffon1"	"lemonchiffon2"
## [397]	"lemonchiffon3"	"lemonchiffon4"	"lightblue"
## [400]	"lightblue1"	"lightblue2"	"lightblue3"
## [403]	"lightblue4"	"lightcoral"	"lightcyan"
## [406]	"lightcyan1"	"lightcyan2"	"lightcyan3"
## [409]	"lightcyan4"	"lightgoldenrod"	"lightgoldenrod1"
## [412]	"lightgoldenrod2"	"lightgoldenrod3"	"lightgoldenrod4"
## [415]	"lightgoldenrodyellow"	"lightgray"	"lightgreen"
## [418]	"lightgrey"	"lightpink"	"lightpink1"
## [421]	"lightpink2"	"lightpink3"	"lightpink4"
## [424]	"lightsalmon"	"lightsalmon1"	"lightsalmon2"
## [427]	"lightsalmon3"	"lightsalmon4"	"lightseagreen"
## [430]	"lightskyblue"	"lightskyblue1"	"lightskyblue2"
## [433]	"lightskyblue3"	"lightskyblue4"	"lightslateblue"
## [436]	"lightslategray"	"lightslategrey"	"lightsteelblue"
## [439]	"lightsteelblue1"	"lightsteelblue2"	"lightsteelblue3"
## [442]	"lightsteelblue4"	"lightyellow"	"lightyellow1"
## [445]	"lightyellow2"	"lightyellow3"	"lightyellow4"
## [448]	"limegreen"	"linen"	"magenta"
## [451]	"magenta1"	"magenta2"	"magenta3"
## [454]	"magenta4"	"maroon"	"maroon1"
## [457]	"maroon2"	"maroon3"	"maroon4"
## [460]	"mediumaquamarine"	"mediumblue"	"mediumorchid"
## [463]	"mediumorchid1"	"mediumorchid2"	"mediumorchid3"
## [466]	"mediumorchid4"	"mediumpurple"	"mediumpurple1"
## [469]	"mediumpurple2"	"mediumpurple3"	"mediumpurple4"
## [472]	"mediumseagreen"	"mediumslateblue"	"mediumspringgreen"
## [475]	"mediumturquoise"	"mediumvioletred"	"midnightblue"
## [478]	"mintcream"	"mistyrose"	"mistyrose1"
## [481]	"mistyrose2"	"mistyrose3"	"mistyrose4"
## [484]	"moccasin"	"navajowhite"	"navajowhite1"
## [487]	"navajowhite2"	"navajowhite3"	"navajowhite4"
## [490]	"navy"	"navyblue"	"oldlace"
## [493]	"olivedrab"	"olivedrab1"	"olivedrab2"
## [496]	"olivedrab3"	"olivedrab4"	"orange"
## [499]	"orange1"	"orange2"	"orange3"
## [502]	"orange4"	"orangered"	"orangered1"
## [505]	"orangered2"	"orangered3"	"orangered4"
## [508]	"orchid"	"orchid1"	"orchid2"
## [511]	"orchid3"	"orchid4"	"palegoldenrod"
## [514]	"palegreen"	"palegreen1"	"palegreen2"
## [517]	"palegreen3"	"palegreen4"	"paleturquoise"
## [520]	"paleturquoise1"	"paleturquoise2"	"paleturquoise3"
## [523]	"paleturquoise4"	"palevioletred"	"palevioletred1"
## [526]	"palevioletred2"	"palevioletred3"	"palevioletred4"
## [529]	"papayawhip"	"peachpuff"	"peachpuff1"
## [532]	"peachpuff2"	"peachpuff3"	"peachpuff4"
## [535]	"peru"	"pink"	"pink1"
## [538]	"pink2"	"pink3"	"pink4"
## [541]	"plum"	"plum1"	"plum2"
## [544]	"plum3"	"plum4"	"powderblue"
## [547]	"purple"	"purple1"	"purple2"
## [550]	"purple3"	"purple4"	"red"
## [553]	"red1"	"red2"	"red3"

## [556]	"red4"	"rosybrown"	"rosybrown1"
## [559]	"rosybrown2"	"rosybrown3"	"rosybrown4"
## [562]	"royalblue"	"royalblue1"	"royalblue2"
## [565]	"royalblue3"	"royalblue4"	"saddlebrown"
## [568]	"salmon"	"salmon1"	"salmon2"
## [571]	"salmon3"	"salmon4"	"sandybrown"
## [574]	"seagreen"	"seagreen1"	"seagreen2"
## [577]	"seagreen3"	"seagreen4"	"seashell"
## [580]	"seashell1"	"seashell2"	"seashell3"
## [583]	"seashell4"	"sienna"	"sienna1"
## [586]	"sienna2"	"sienna3"	"sienna4"
## [589]	"skyblue"	"skyblue1"	"skyblue2"
## [592]	"skyblue3"	"skyblue4"	"slateblue"
## [595]	"slateblue1"	"slateblue2"	"slateblue3"
## [598]	"slateblue4"	"slategray"	"slategray1"
## [601]	"slategray2"	"slategray3"	"slategray4"
## [604]	"slategrey"	"snow"	"snow1"
## [607]	"snow2"	"snow3"	"snow4"
## [610]	"springgreen"	"springgreen1"	"springgreen2"
## [613]	"springgreen3"	"springgreen4"	"steelblue"
## [616]	"steelblue1"	"steelblue2"	"steelblue3"
## [619]	"steelblue4"	"tan"	"tan1"
## [622]	"tan2"	"tan3"	"tan4"
## [625]	"thistle"	"thistle1"	"thistle2"
## [628]	"thistle3"	"thistle4"	"tomato"
## [631]	"tomato1"	"tomato2"	"tomato3"
## [634]	"tomato4"	"turquoise"	"turquoise1"
## [637]	"turquoise2"	"turquoise3"	"turquoise4"
## [640]	"violet"	"violetred"	"violetred1"
## [643]	"violetred2"	"violetred3"	"violetred4"
## [646]	"wheat"	"wheat1"	"wheat2"
## [649]	"wheat3"	"wheat4"	"whitesmoke"
## [652]	"yellow"	"yellow1"	"yellow2"
## [655]	"yellow3"	"yellow4"	"yellowgreen"