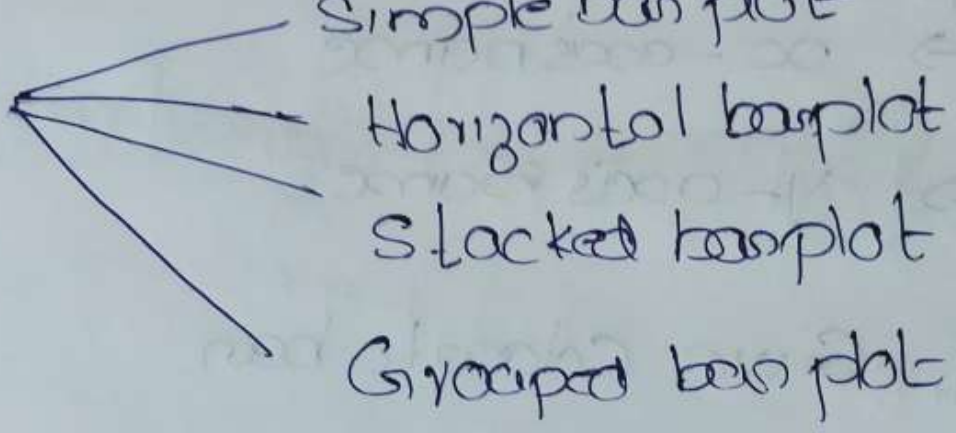
5: Graphs and charts

Barplots in R



R Bar plot

* Created by using → barplot() function
* Inputs can be vector, matrix
* If we supply a vector, the plot will have bars with their heights equal to the elements in the vector

eg: temp = c(27, 26, 23, 24, 30)
barplot(temp)

Argument used

* main → used to give heading
  xlab → x-axis name
  ylab → y-axis name
  col → Give colour to bar
  horiz → TRUE
  names.arg → name of each bar

eg:- temp = c(
barplot(temp,
main = "max temp 100 week",
xlab = "celcius",
ylab = "Dry",
col = "blue")

* space = space b/w bars
* density = Give line inside bar
* borders = borders to bars
* width = size of bars

eg:

```
x=c(1,1,1,1,1,1,2,2,2,2,3,3,3,1,1,2,2,3,3)
y= table(x)
barplot(height = y, width=c(5,8))
```

or

```
(height= y, space=5)
```

or

```
(height=y, name.arg = LETTERS(1:3))
```

or

```
(height=y, name.arg = letters(1:3))
```

or

```
(height =y, name.arg = "", (1:3)
  Legend.text = T)
```

or

```
(height= y:      "      , las=1, 2, 3)
```

or

* barplot (height=y)

---

* data("mtcars")
  names(mtcars)

> mtcars$cyl

[1] 6 6 4 6 . . . .

> mtcars$gear

[1] 4 4 4 3 . . . .

> table(mtcars$cyl)

[1] 4 6 8
11 7 14

> table(mtcars$gear)

[1] 3 4 5
15 12 5

>

> table (mtcars$cyl, mtcars$gear)

	3	4	5
4	1	8	2
6	2	4	1
8	12	0	2

> y1 = table (mtcars$cyl, mtcars$gear)

> barplot (y1)

* barplot (y1, legend.text = T, beside = T)

* barplot (y1, legend.text = T, horiz = T)

---

* barplot (y, horiz = T, las = 1)

* barplot (y, horiz = T, las = 1, density = c(5, 10, 15))

* barplot (y, horiz. las = 1, density = c(5, 10, 15), angle = c(45, 50, 75))

* barplot(y, col = "red")

* barplot(y, col = "red1") } change to dark colours
* barplot(y, col = "red2")

---

* par(mfrow = c(1,1))

> barplot(y, col = c(1,2,3))

> barplot(y, col = rainbow(13))

> barplot(y, col = rainbow(n=15))

> barplot(y, col = rainbow(s=2, n=15))

> barplot(y, col = rainbow(s=2, n=15), border = F)

> par(mfrow = c(1,2))

> barplot(y, col = rainbow(s=5, n=15), border = F)

> barplot(y, col = rainbow(s=5, n=15), border = T)

```
>barplot(y, main="beades", sub="-faces")
>barplot(y)
>barplot(y, ylim= c(0,10))
>barplot(y, xlim= c(0,5))

>barplot(y, main = expression(sum()))

>barplot(y, main = expression(x+y))
>                    "      (x * y))
>                    "      (x %* % y))
>                    "      (x %. / %. y))
>                    "      (alpha)
>                    "      (beta)
```

Piechart

(plotrise)

```
>?Pie

>x=c(1,1,1,2,2,3,3,4,4,4)

>y=table(x)

>pie(y)

>pie(y,main="my first plot")

>pie(y, labels = LETTERS(1:4))
```

or

```
(y, labels = c("red","blue","green","black"))

>pie(y, edges = 5)

>pie (y, radius = 5)

>pie (y, clockwise = T or F)
```

> pie(y, col = rainbow(15))

or

(y, col = 1:4)

or

(y, col = c("red", "blue", ...))

> pie(y, border = F or T)

(install plotrix) for 3d

> library(plotrix)

> ?pie 3D

> y

> pie 3D(y)

> pie 3D(y, explode = 0.5)

> pie 3D(y, explode = 0.2)

Histogram

```
> x=c(1,1,1,1,1,2,2,2,2,3,3,3,4,4)
> x
 [1] 1 1 1 1 1 2 2 2 2 3 3 3 4 4
> y=table(x)
> y
```

~~1 2 3~~ 4

```
> hist(x)
```

[To show the grouping cut(x,6)]

```
> data.frame(x, cut(x,6))
```

> data("cars")
> head(cars)
speed dist

1	4	2
2	4	10
3	7	4
4	7	22
5	8	16
6	9	10

> cars$speed

[1] 4 4 7 7 . . . . .
. . . . . .

> hist(cars$speed)

> hist(cars$dist)

> cars$dist

[1] 2 10 4 . . . . .
. . . . . .

> hist(cars$dist, breaks = 22)

> hist(cars$dist, main = "my first histogram"

x lab = "dist, values", ylab = "no of times"

>head(airquality)

	Ozone	solar.R	wind	temp	month	day
1				62		
2				72		
3				74		
4				62		
5				56		
6				66		

> temp = airquality $ temp

> hist (temp)

```
> str(airquality)
```

```
> hist(temp, freq = F)
```

```
hist(temp,
     main="maximum daily temperature at La
           Guardia Airport"
     xlab = "Temperature in degrees fahrenheit",
     xlim = c(50,100),
     col = rainbow(20), density=40
     freq = FALSE, las = T)
     density = c(20,30,40)
     border = "red"
```

* breaks - place where the breaks occurs
* counts - the number of observations falling in that cell
* density - the density of cells
* mids - the midpoint of cells
* xname - the x argument name and
* equidist - a logical value indicating, if the breaks are equally spaced or not

---

```
>hist(temp, main = "maximum daily temperature
                    at La Guardia Airport",
      xlab = "Temp in degree fabrenheit",
      xlim = c(10,100), col = c(2,4,6,8,10),
      boder = "brown" breaks = c(55,60,70,
                                 75,80,100)
```

scatterplot

> plot

```
> plot(1)
> plot(2)
> plot(3)
>plot(c(1,2,3,4))
>plot (c(5,6,7,8,9))
```

```
> x = 1:5
> y = 6:10
>plot (x,y)
```

```
>head(airquality)
```

	Ozone	Solar.R	Wind	Temp	Month	Day
.	.	.	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.

```
> tem = airquality$Day
> day = airquality$Day
```

```
> temp = airquality $temp
> plot (day, temp)
```

```
> x = 1:50
> y = sin(x)
> x
> plot(x,y)
```

```
> x = 1:10
> y = 20:30
> plot(x,y)
> plot(x,y, main = "scatterplot", xlab =
      "x value", ylab = "y values",
      col = 1:10, type = "p or l or b or c
                          or o or h or s
                          or s or n"
```

```
>x=1:100
>y=sin(x)
>plot(x,y)
>plot(x,y,type="l")
```

```
>x=seq(0.10,0.01)
>y=sin(x)
>x
```

Boxplot

```
>x=c(1,1,1,1,2,2,2,3,3,3,4,4,100,900)
>boxplot(x)
>str(airquality)
'data.frame': 153 obs. of 6 variables:
 $ Ozone  : int 41 36 12 18 NA 28 23 19 8 NA ...
 $ Solar.R: int 190 118 149 313 NA NA 299 99 19 194 ...
 $ Wind   : num 7.4 8 12.6 11.5 14.3 14.9 8.6 13.8 20.1 8.6 ...
 $ Temp   : int 67 72 74 62 56 66 65 59 61 69 ...
 $ Month  : int 5 5 5 5 5 5 5 5 5 5 ...
 $ Day    : int 1 2 3 4 5 6 7 8 9 10 ...
>boxplot(airquality$Ozone)
>boxplot(airquality$Ozone,main="heading"
        xlab="parts per billion",ylab
        ylab="Ozone",col="orange",
```

notch=T, horizontal = T, border = "red")

> ozone = airquality $ozone

> temp = airquality $ temp

> wind = airquality $ wind

> boxplot(ozone, temp, wind)