

MODULE : 5

GRAPHS AND CHARTS

I Bar plot

- * `barplot()`
- * we can supply a vector or matrix as I/p
- * If we supply a vector, the plot will have bars with their heights equal to the elmts. in the vector.

Eg: `temp = c(27, 26, 23, 24, 26, 28, 25)`
`barplot(temp)`

`main` - heading

`xlab` - x axis name

`ylab` - y axis name

`name.arg` - name of each bar

`col` - color name of bar.

`horiz` - horizontal graph (`horiz = TRUE`)

`density` - shading (`density = 10`)

`border` - bar border color.

legend. text - a vector of text
used to construct a legend.

las - to write the text
in the y axis horizontally.

las = 1 → horizontally

Stacked bar plot

Eg: table(mtcars \$ cyl)

4 6 8

11 7 14

> table(mtcars \$ gear)

3 4 5

15 12 5

> table(mtcars \$ cyl, mtcars \$ gear)

3 4 5

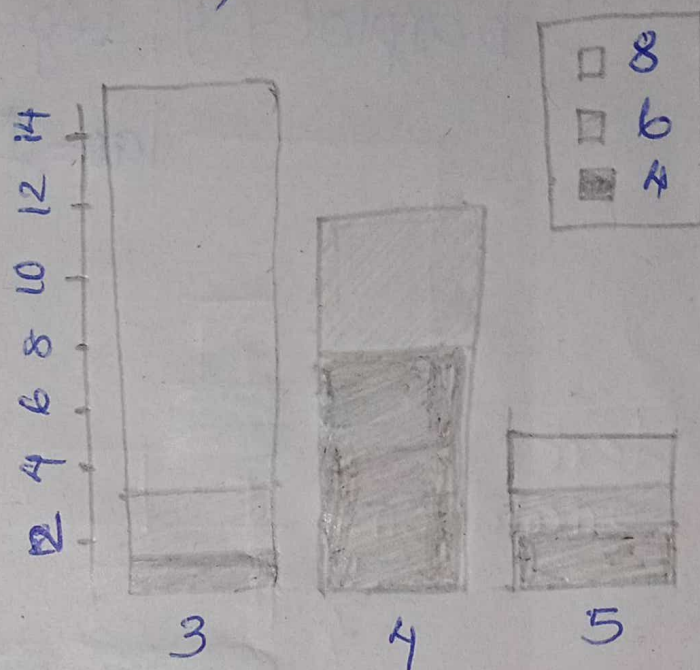
4 1 8 2

6 2 4 1

8 12 0 2

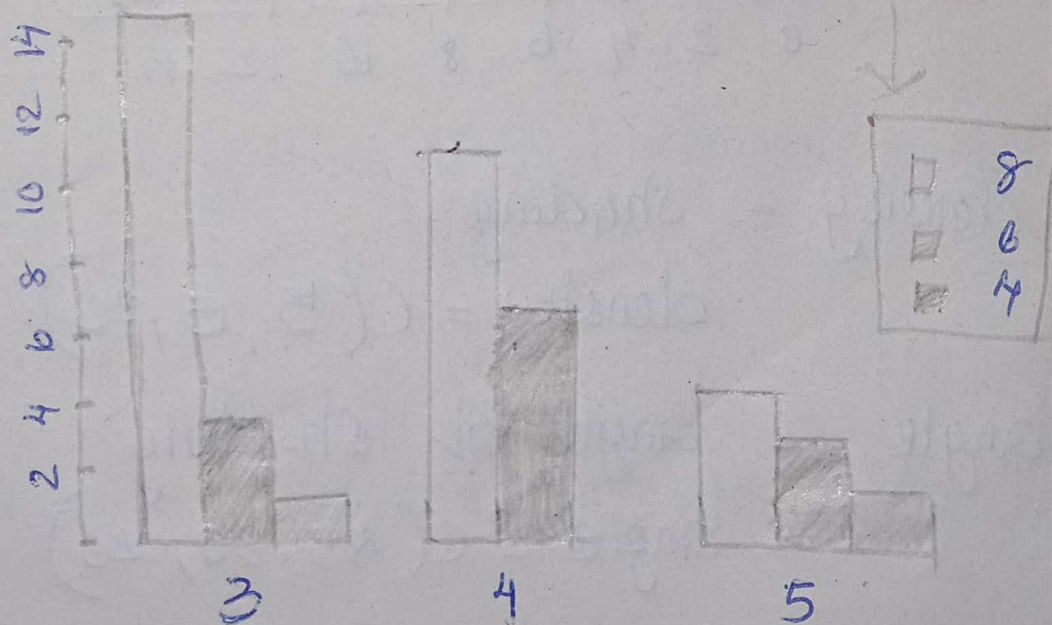
> y = table (mtcars\$ cyl, mtcars\$ gear)

> barplot (y, legend.text = T,



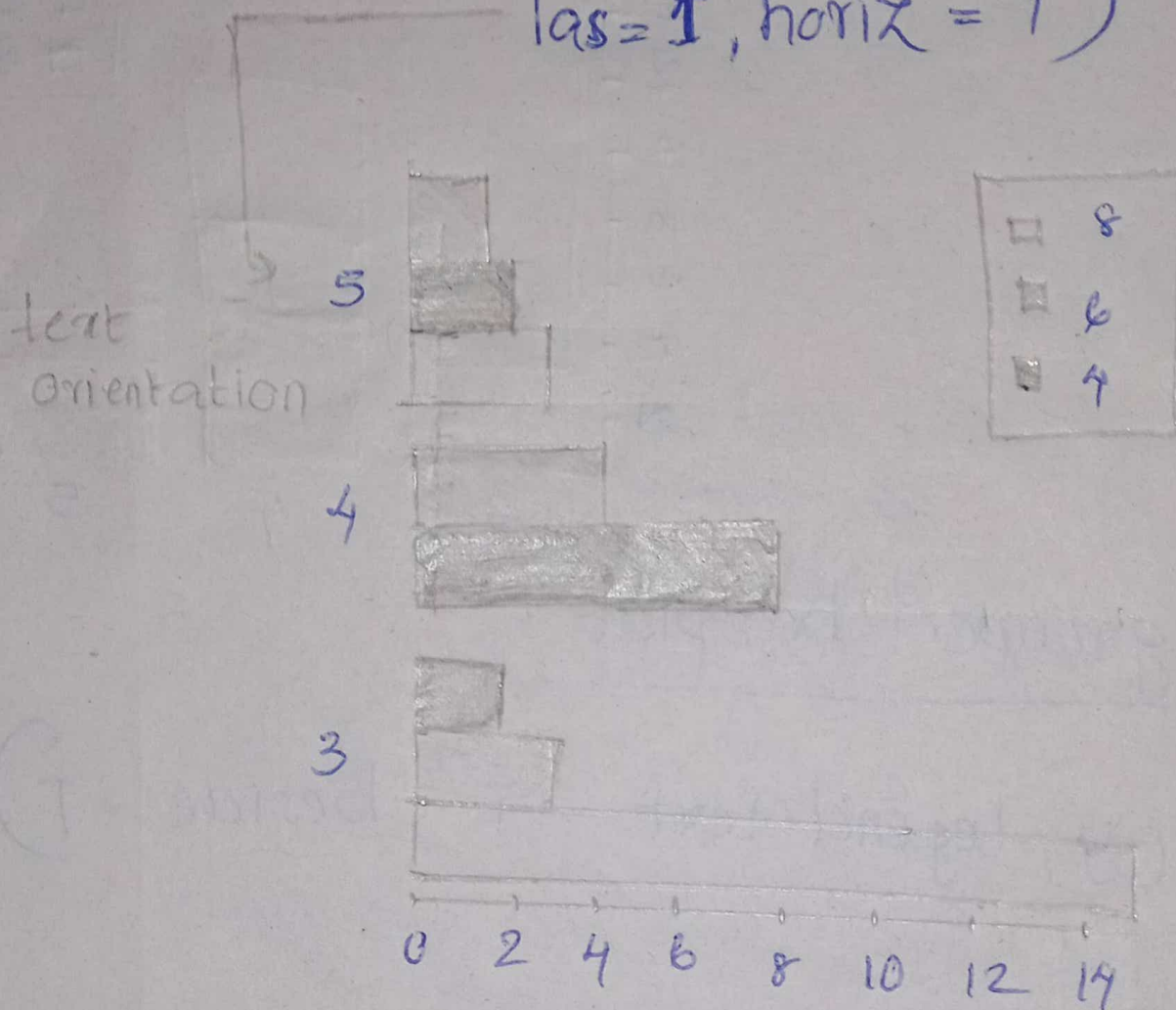
grouped bar plot

> barplot (y, legend.text = T, beside = T)



horizontal barplot

> barplot(y, legend.text = T, beside = T,
las = 1, horiz = T)



* density - shading

density = c(5, 15, 20)

* angle - angle of shading

angle = c(45, 30, 20)

different bar plot in a single window ;

`par(mfrow = c(2, 2))`

[2 row and 2 columns - 4 bar plots]

* `col` - coloring bars

Eg: `col = c(1, 2, 3)`

`col = rainbow(n = 15)`

`col = rainbow(s = 0.2, n = 15)`

↓
darkness

* `border` -

Eg: `border = F` (no border)

* `xlim` - to give x limit ; `xlim = c(0, 10)`

* `ylim` - to give y limit

* To insert symbols ;

Eg: `barplot(y, main = expression (sum(i)))`

O/P : Σ

> barplot(y, main = expression (x % x % y))

o/p: x x y

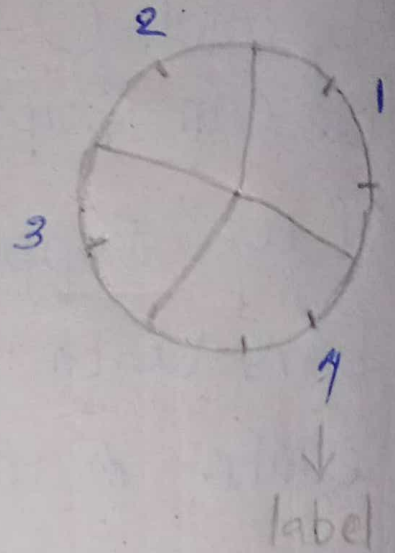
Pie chart

function ; pie(x)

Eg: $x = c(1, 1, 1, 2, 2, 3, 3, 4, 4, 4)$

$y = table(x)$

$pie(y)$



- * main :- heading
- > $pie(y, main = "First")$
- * x - input values
- * labels - to give labels names for slides
- * edges - circular o/p of pie is approximated by a polygon with many edges [default : 200]
- * radius - to change radius, default = 0.8
max = 1

• clockwise - to label in clockwise direction.
(clockwise = T)

* density - to shade pie.

Eg: `density = c(10, 20, 30, 40)` →
diff. shading. each slice

* col - to give colors.

`col = rainbow(15)`

* border - to give border

`border = F`

• we can make 3D by installing plotrix

Eg: `pie3D(y)`

> `pie3D(y, explode = .2)`

It make the pie chart into pieces.

HISTOGRAM

quantitative data plotting

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

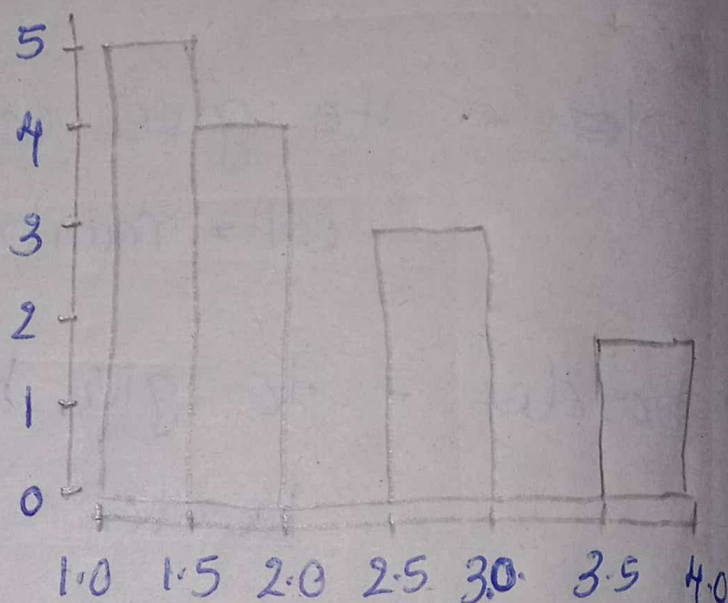
$y = table(x)$

$> y$

$> x$

1	2	3	4
5	4	3	2

$> hist(x)$



To see grouping ;

$> cut(x, 6)$

grouping

- * main - heading
- * xlab - x axis name
- * ylab - y axis name.
- * xlim - x limit
- * ylim - y limit
- * col - colour.
- * density - shading. $density = c(20, 30, 40)$

* freq - get the probability distri.
instead of freq.

freq = FALSE

* las - to show the limit values horizontally.

las = TRUE

* border - set border

border = F

* breaks - no: of cells we want.

- place where the break occur

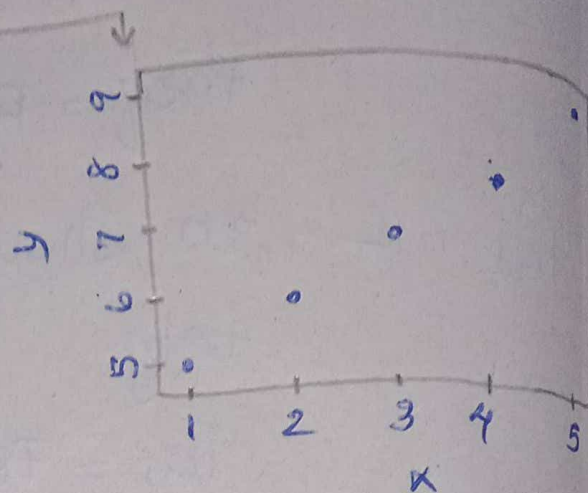
* Counts - no: of observations falling in that cell.

plot[bare]

SCATTER PLOT

plot()

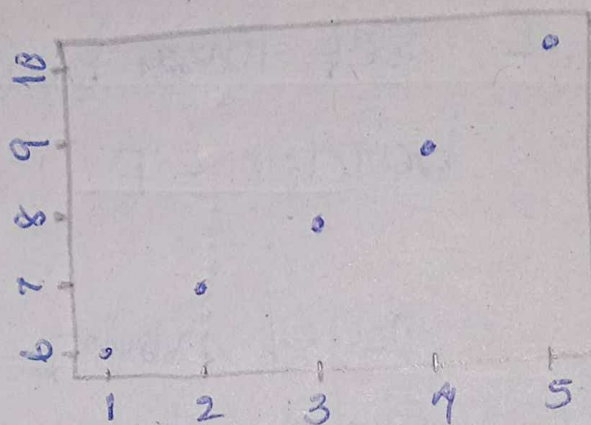
> plot(c(5,6,7,8,9))



> x = 1:5

> y = 6:10

> plot(x,y)



* main - heading

* xlab -

* ylab -

* col - color

* type - 'p' for points

'l' for lines

'b' both line & point —●—

'c' for lines part alone of 'b'

'o' over plotted —●—

'h' for histogram

's' for stair

's'

u

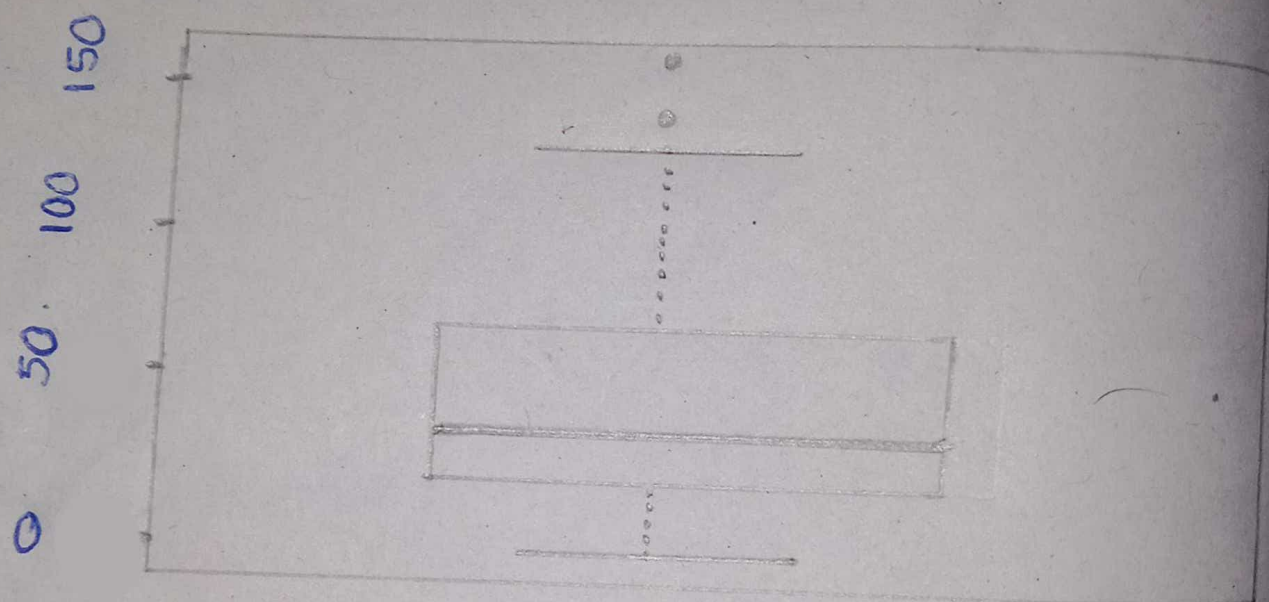
'n' no plotting.

Box PLOT

- Quantitative data plotting.
- function - `boxplot`

Example :

```
> boxplot(airquality$Ozone)
```



- * `main`
- * `xlab`
- * `ylab`
- * `col`
- * `notch` - notch in the plot - `notch = T`
- * `horizontal` - : `horizontal = T`
display box plot horizontally.

multiple box plot ;

- > oz = airquality \$ ozone
- > temp = airquality \$ temp
- > wind = airquality \$ wind
- > boxplot(oz, temp, wind)

* varwidth :

- changes the box width
- varwidth = 1

* border - it change border color.