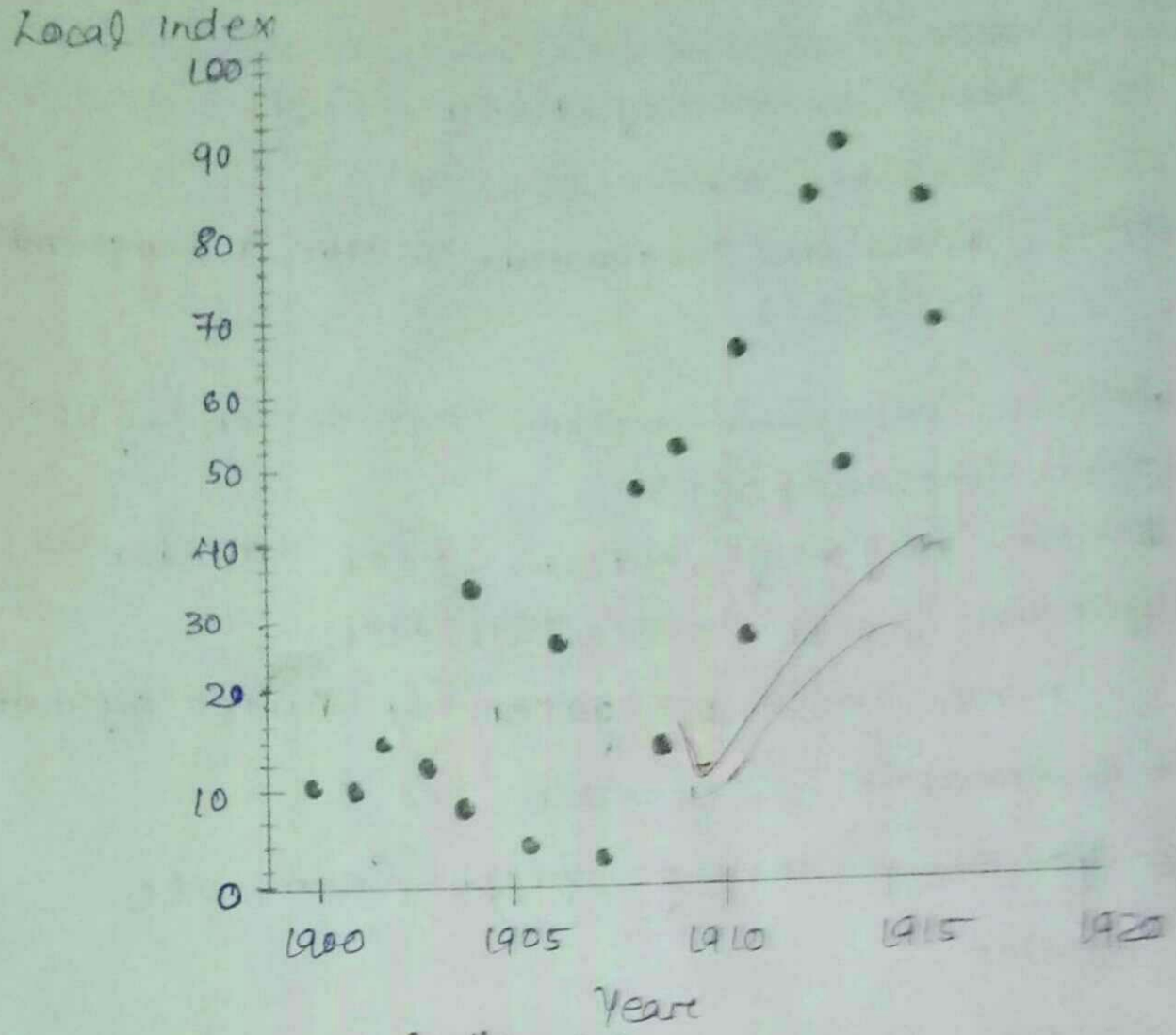
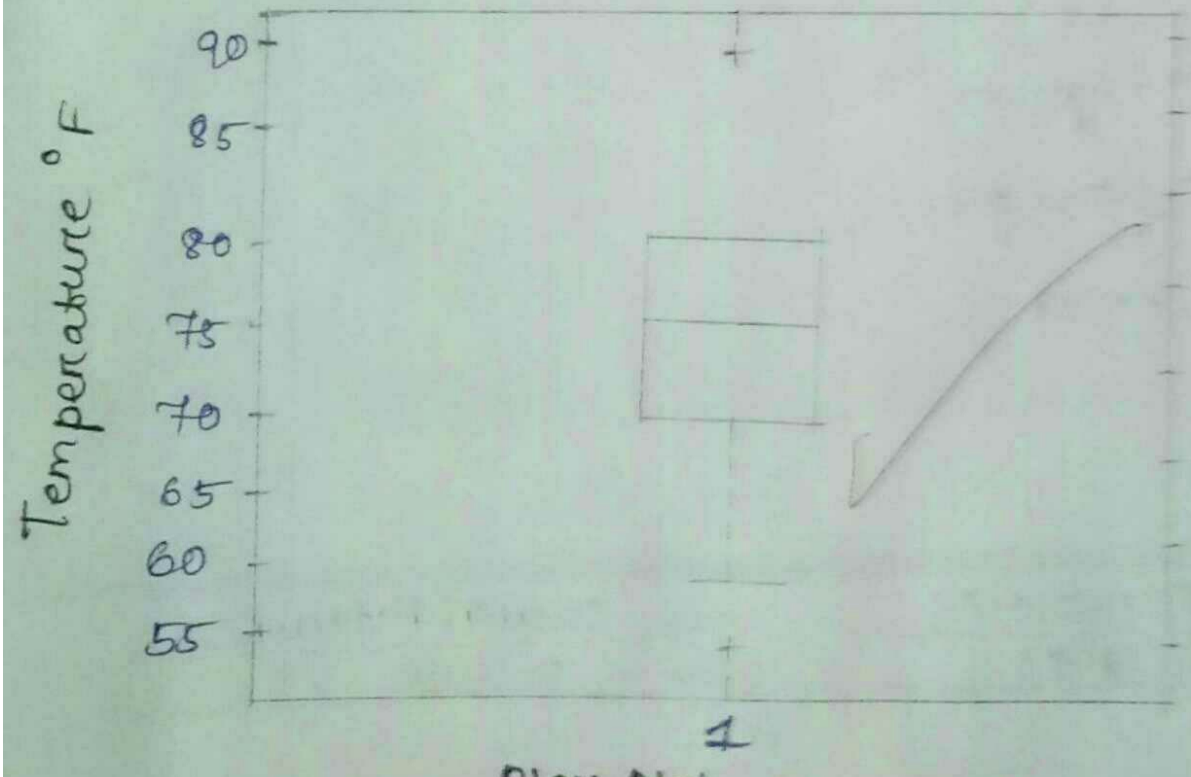


Scatter plot

outliers



Blox Plot

```
with(subset(airquality, Month==9), plot(wind, Ozone,
col='steelblue', Pch=20, cex=1.5))
title('wind and Temperature in NYC in semptember
      of 1973')

mtcars<- transform(mtcars, cyl= factor(cyl))
class(mtcars$cyl)
boxplot(mpg~cyl, mtcars, xlab='Number of
cylinders', ylab='miles per gallon',
    main='miles per gallon for varied cylinders
in automobiles', cex.main=1.2)
```

2. plot the following graph from the dataset.

(I) Piechart

(II) Barchart

(III) Histogram

(IV) Scatter plot

(V) Boxplot

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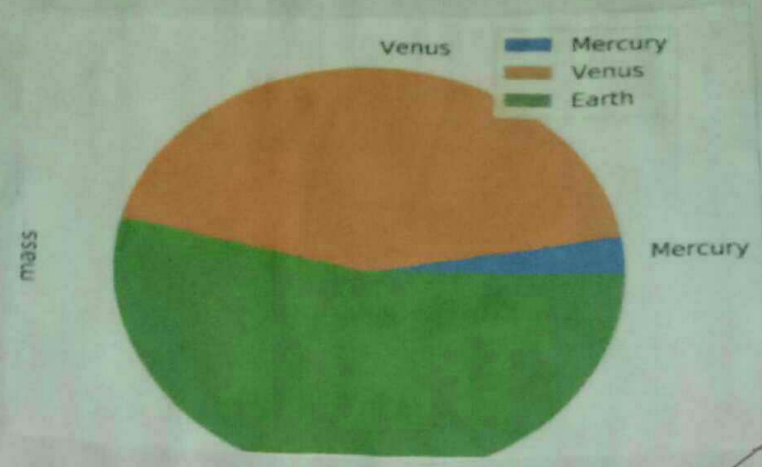
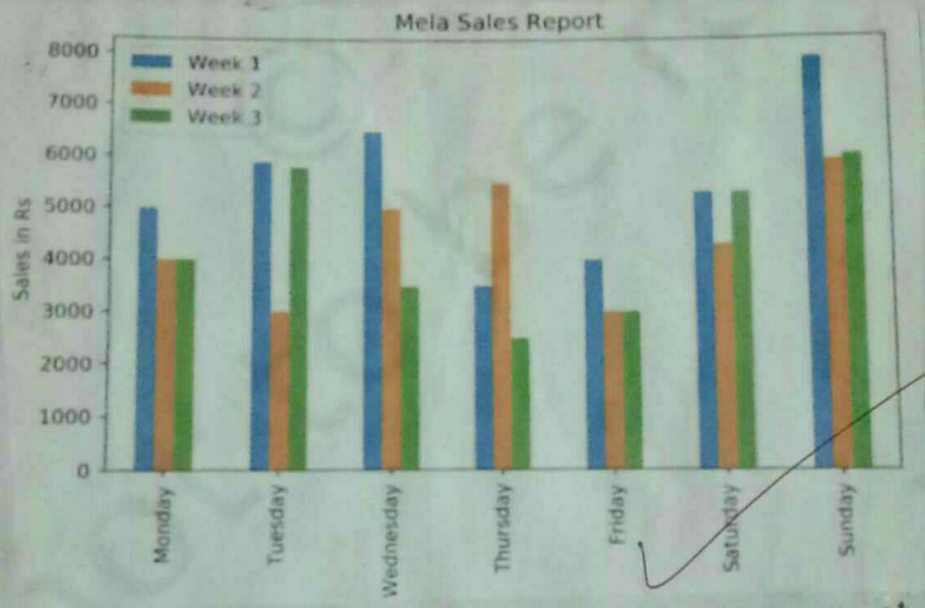
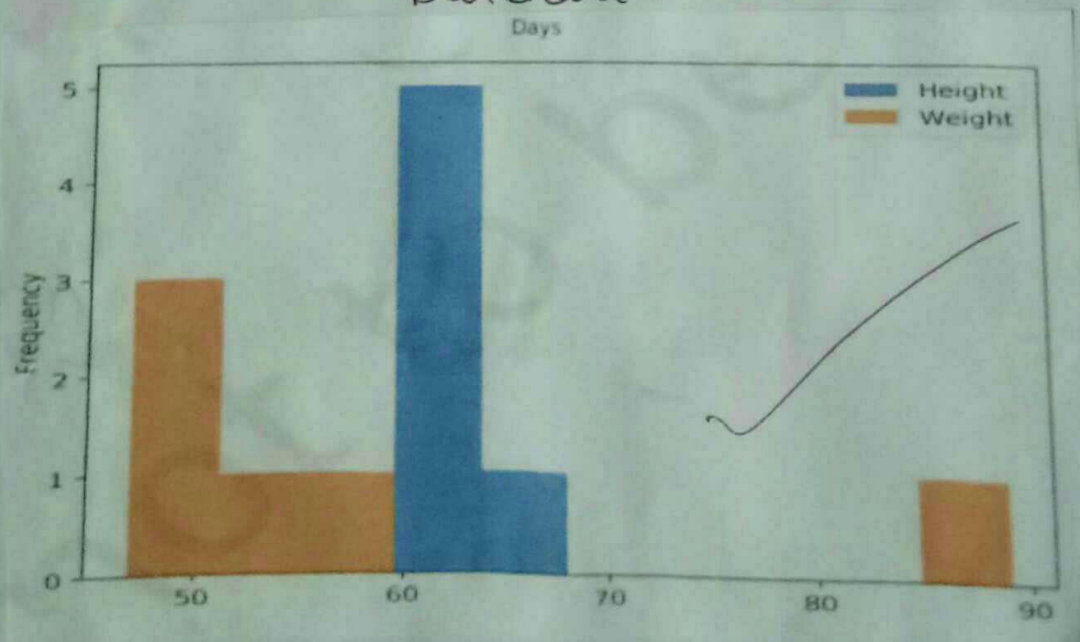


Pie chart



Barchart.



Histogram

Assignment - 5

① As per your choice download any dataset from Kaggle upload it in R environment and perform the visualisation techniques.

In[1]:

```
## Importing Packages
Library (data.table) # Import big files (CSV or Text)
Library (readx1)  # Import Excel files.
```

In[2]:

```
# Listing files in this directory dir ("../input/")
  'CardBase.csv' 'CardBase.XlSX'
  'Credit card Data.XlSX'
  'Customer Base.csv'
  'Customer Base.XlSX' 'fraudBase.csv'
  'fraudBase.XlSX'
  'TransactionBase.csv'
  'TransactionBase.XlSX'
```

In[3]:

```
CardBase <- read.csv("../input/cardBase.csv")
CustomerBase <- read.csv("../input/CustomerBase.csv")
FraudBase <- read.csv("../input/input/FraudBase.csv")
TransactionBase <- read.csv("../input/TransactionBase.csv")
```

4. write a program to check a number is Perfect or not.

```
n ← as.Integer(readline(prompt = "Enter a no"))
i = 1
s = 0
while (i < n) {
if (n %% i == 0) {
    s = s + i
}
  i = i + 1
}
if (s == n) {
  print ("Perfect number")
  }
else {
print ("not Perfect number")
  }
```

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```
for(i in 2:num){
 if(num%%i==0)
 {
 print(i)}

 }
}
```

2. write a program to check a number is armstrong or not.

```
a ← readline(prompt = "enter a number")
a ← as.integer(a)
  n ← a
  s ← 0
while(n>0){
 j ← n%%10
 s ← s+(j*j*j)
 n ← floor(n/10)
 }
if(s==a){
  cat("armstrong")
  }
 else
  {
  cat("not armstrong")
 }
```

output
```
enter a number 153
armstrong
enter a number 14
not armstrong
```

Assignment-4

1. Solve the following question using defined function,

(i) write a program to design a menu driven program

(a) factorial of a number

(b) factor of a number

(c) cube root of a number.

```
St ← readline (Prompt = "enter operation");
if (st = = factorial)
{
  n ← as.Integer (readline ("enter no"))
  if (num<0):{
      print ("factorial not exist")
  }
else if (num = =0){
print ("factorial is 0")
}
else {
for (i in : num) {
factorial = factorial * i
}
print (paste ("factorial =", Facterial))
}
 else if (st = = factor) {
n ← as. integer (readline ("enter number"));
```

Output

- Enter your name Sid
Enter total unit you have consumed 256
Enter the date 21-2-21
- 87.04 you have to pay

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```
a <- readline (prompt = "Enter your name")
b <- readline (prompt = "Enter the total unit you
have consumed"))
b <- as.double(b)
c <- readline (prompt = ("Enter the data"))
if (b < 200) {
    d <- b * 2.50
} else if (b > 201 && b < 300) {
    d <- b * 3.40
} else if (b > 301 && b < 400) {
    d <- b * 4.20
} else if (b > 401 && b < 500) {
    d <- b * 5.00
} if (c > 0 & c < 20)
  { e <- d * (15/100)
} else if (c > 20 && c < 25) {
    e <- d * (10/100)
}
print (Paste (e, "you have to Pay"))
```

6. write a Program to input an alphabet and check whether it is vowel or consonant.

```
alpha = readline (Prompt = "Enter an alphabet")
if (alpha = "a" || alpha = "e" || alpha = "i" || alpha = "o" ||
    alpha = "u")
{
  Print ("Enter alphabet is vowel")
} else
  { Print ("it is consonant")
  }
```

Output

Enter an alphabet e

It is consonant.

7. write a Program to enter the customer name, total unit of consumption, date of Payment. If the person is paying before 20th of the month, then the customer will get a 10% discount on calculated amount. If the Person is paying before 25th of the month then the Customer will get a 5% discount on calculated amount. So calculate the electricity bill of a person and print the receipt.

units	cost per unit
<300, <500, <700, other	1.5, 2.1, 3.0, 4.5

Output

Enter 3 number
10
20
30
C is greatest

4. Program to check a triangle is valid or not.

```
Print ("enter 3 sides")
a ← readline()
b ← readline()
c ← readline()
a ← as.integer(a)
b ← as.integer(b)
c ← as.integer(c)
if((a+b)>c & (b+c)>a & (c+a)>b)
 {
   Print ("Triangle is valid")
 }
 else
    {
      Print ("Triangle is not valid")
    }
```

Output Enter 3 sides.
20
20
30
Triangle is valid.

Output

5
10
2
r1 : -5.63
r2 : -44.36

3. Program to find greatest among 3 unequal numbers.

```
Print ("Enter 3 unequal number")
a ← readline( )
b ← readline( )
c ← readline( )
a ← as.integer(a)
b ← as.integer(b)
c ← as.integer(c)
If [a>b && a>c]
  {
   Print ("a is greatest")
  }
else if (b>a && b>c)
   {
    Print ("b is greatest")
   }
 else
    {
     Print ("c is greatest")
    }
```

Assignment - 3

1. write a program to test a number is even or odd.

```
num= as. integer ( readline( Prompt = "enter a number: "))
if((num %.% 2) == 0) {
Print(Paste(num," is Even"))
} else {
Print (Paste (num," is odd "))
}
```

output

Prompt = enter a number : 7

[1] " 7 is odd "

Prompt = enter a number : 4

[1] " 4 is even"

2. Program to input 3 coefficient values and find the read roots.

```
a ← readline()
b ← readline()
c ← readline()
a ← as.integer(a)
b ← as.integer(b)
c ← as.integer(c)
r1 ← (-b+sqrt(b*b-4*a*c))/2*a
r2 ← (-b-sqrt(b*b-4*a*c))/2*a
Print(Paste("r1",r1,"r2=",r2)
```

```
Peri ← side 1 + side 2 + base
area ← 0.5 * base * height
Print (area)
Print (Peri)
```

Output

6
10

5. write a program to find the volume of a sphere.

```
radius ← 2
volume ← 4/3 * pi * radius * radius * radius
Print (volume)
```

Output

33.51032

6. write a program to create a list by initializing with 5 different fruits name and display them.

```
fruits ← list ("apple", "banana", "orange", "lemon", "litchi")
Print(fruits)
```

Output

```
[[1]]
[1] "apple"
[[2]]
[1] "banana"
[[3]]
[1] "orange"
[[4]]
[1] "lemon"
[[5]]
[1] "litchi"
```

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```
Print (sub1);
Print (sub2);
Print (sub3);
Sum← sub1+sub2+sub3
Per1 = (sub1/sum) * 100
Per2 = (Sub2/sum) * 100
Per3 = (sub3/sum) * 100
Print (Per1)
Print (Per2)
Print (Per3)
```

Output

[1] $\frac{20}{80} * 100 = 25\%$

[1] $\frac{30}{80} * 100 = 37.5\%$

[1] $\frac{30}{80} * 100 = 37.5\%$

3. Write a program to find the area of a circle.

```
radius ← 2
area = pi * radius * radius
Print (area)
```

Output

12.56637

4. Write a program to find the area and perimeter of a triangle.

```
base ← 2
side1 ← 4
side2 ← 4
height ← 6
```

Assignment - 2

1. Write a program to input your name, age and address and Print them.

```
name ← readline (Prompt = "Enter your name")
age ← readline (Prompt = "Enter your age")
address ← readline (Prompt = "Enter your address")
Print (name)
Print (age)
Print (address)
```

Output

```
Print(name)
[1] "Yash"

> Print age
[1] "22"

> Print (address)
[1] "Near Indiagate"
```

2. Write a program to input your marks for three Subjects then find sum and Percentage.

```
sub 1 ← read line ("sub 1:")
Sub 2 ← readline ("sub 2:")
Sub 3 ← readline ("sub 3:")
sub 1 = as.float (sub1)
Sub 2 = as.float (sub 2)
Sub3 = as.float (sub 3)
```

Installation of R

→ open an internet browser and go to www.r-project.org

→ Click the "download R" link in the middle of the page under "Getting started".

→ Select CRAN location (a mirror site) and click the corresponding link.

→ Click on the "Download R for windows" link at the top of the Page.

→ Click on the "Install R for first time" link at the top of the page.

→ Click "Download R for windows" and save the executable file somewhere on your computers. Run the .exe file and follow the installation instruction.

→ Now that R is installed, you need to download and install R studio.

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Installation of RStudio

Go to www.rstudio and click on the "Download R studio" button.

Click on "Download R studio Desktop".

Click on the version recommened for your system, or the latest windows version and save the executable file. Run the .exe file and follow the installation instructions.

Assignment-1

Installation

'R' is a programming language for data analysis and statistics. It has many built-in functions and libraries, and is extensible, allowing users to define their own functions and procedures using R. It also has a simple object system.

Advantages

→ Open source
→ Data wrangling
→ Array of Packages
→ Quality plotting and graphing
→ platform independent
→ machine learning operations
→ Continuously growing

Disadvantages

→ Weak origin
→ Data Handling
→ Basic Security
→ Complicated language
→ Lesser speed

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SESSIONAL REPORT ON: DA LAB

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