

R Programming Tutorial 1

Index No: - 18001149

1) Start R and run the following commands.

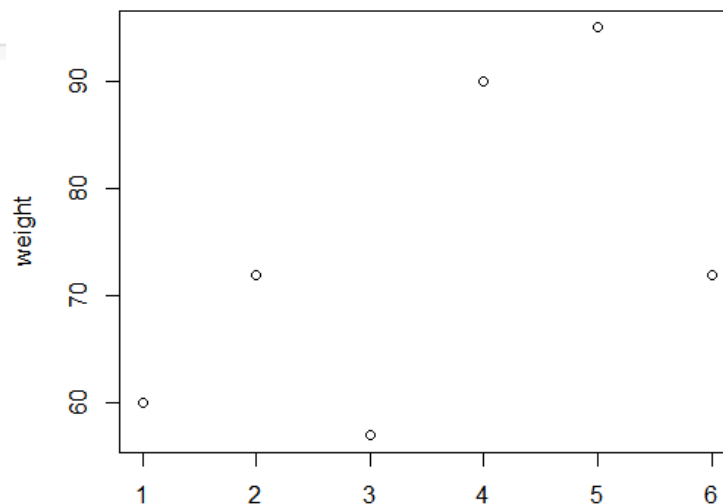
```
> 2+2
[1] 4
> exp(-2)
[1] 0.1353353
> log(100, base=10)
[1] 2
> runif(10)
[1] 0.74523859 0.34733282 0.73875550 0.05586321 0.62977766 0.29046936
[7] 0.59927772 0.12955098 0.82267958 0.89299821
> |
```

2) Variables

```
> x<-2
> x+x
[1] 4
> yvar2=x+3
> yvar2
[1] 5
> s<-"This Is Character String"
> s
[1] "This Is Character String"
> |
```

3) Create a vector

```
> weight<-c(60,72,57,90,95,72)
> weight
[1] 60 72 57 90 95 72
> polt(weight)
Error in polt(weight) :
> plot(weight)
> |
```



4) Create a vector of regularly spaced numbers,

```
> seq(0,1,length=11)
[1] 0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0
> 1:10
[1] 1 2 3 4 5 6 7 8 9 10
> seq(4,10,0.5)
[1] 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5 10.0
> seq(length=10)
Error in seq(length = 10) : could not find function "seq"
> seq(length=10)
[1] 1 2 3 4 5 6 7 8 9 10
> |
```

```
> x<-seq(0,1,length=6)
> c(x,1:10,100)
[1] 0.0 0.2 0.4 0.6 0.8 1.0 1.0 2.0 3.0 4.0 5.0
[12] 6.0 7.0 8.0 9.0 10.0 100.0
> |
```

5) Summaries

```
> height<-c(1.75,1.80,1.65,1.90,1.74,1.91)
> height^2
[1] 3.0625 3.2400 2.7225 3.6100 3.0276 3.6481
> bmi<-weight/height^2
> bmi
[1] 19.59184 22.22222 20.93664 24.93075 31.37799 19.73630
> log(bmi)
[1] 2.975113 3.101093 3.041501 3.216102 3.446107 2.982460
> |
```

```
> sum(weight)
[1] 446
> lenght(weight)
Error in lenght(weight) : could not find function "lenght"
> length(weight)
[1] 6
> avg.weight<-mean(weight)
> avg.weight
[1] 74.33333
> |
```

Summarization of Statistical Functions

```
> x<-rnorm(100)
> mean(x)
[1] -0.004804895
> x<-rnorm(100)
> mean(x)
[1] 0.09653036
> x<-rnorm(100)
> mean(x)
[1] -0.1024666
> sd(x)
[1] 1.040129
> var(x)
[1] 1.081868
> median(x)
[1] 0.04116809
> |
```

6) Quantiles can be computed using the **quantile()** function.

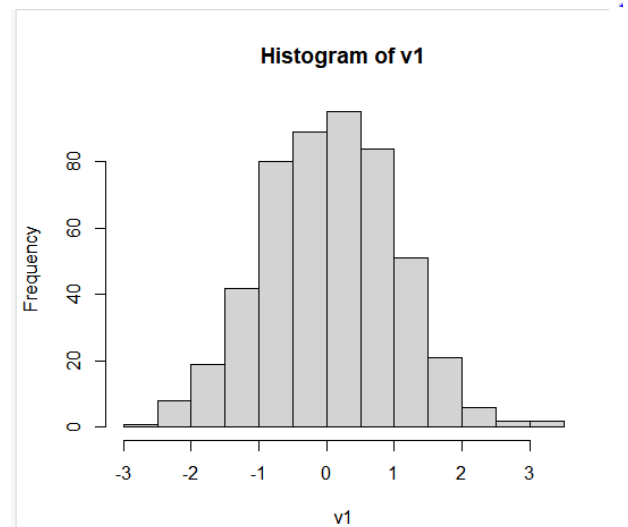
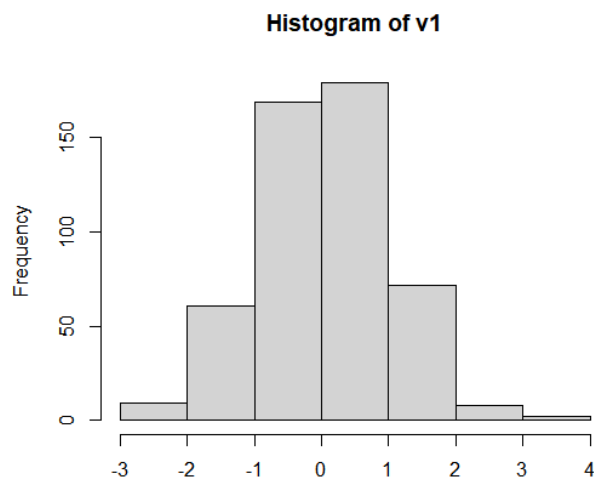
```
> xquants<-quantile(x)
> xquants
      0%      25%      50%      75%     100%
-3.21374414 -0.83890946  0.04116809  0.53757762  2.15960155
> xquants[4]-xquants[2]
      75%
1.376487
> IQR(x)
[1] 1.376487
```

The five-number summary (minimum, maximum, and quartiles)

```
> quantile(x,probs = c(0.2,0.4,0.6,0.8))
      20%      40%      60%      80%
-1.0056649 -0.2789266  0.1974986  0.7136484
> fivenum(x)
[1] -3.21374414 -0.85345732  0.04116809  0.54355720  2.15960155
> summary(x)
      Min.      1st Qu.      Median      Mean      3rd Qu.      Max.
-3.21374 -0.83891  0.04117 -0.10247  0.53758  2.15960
```

7) Simple File reading

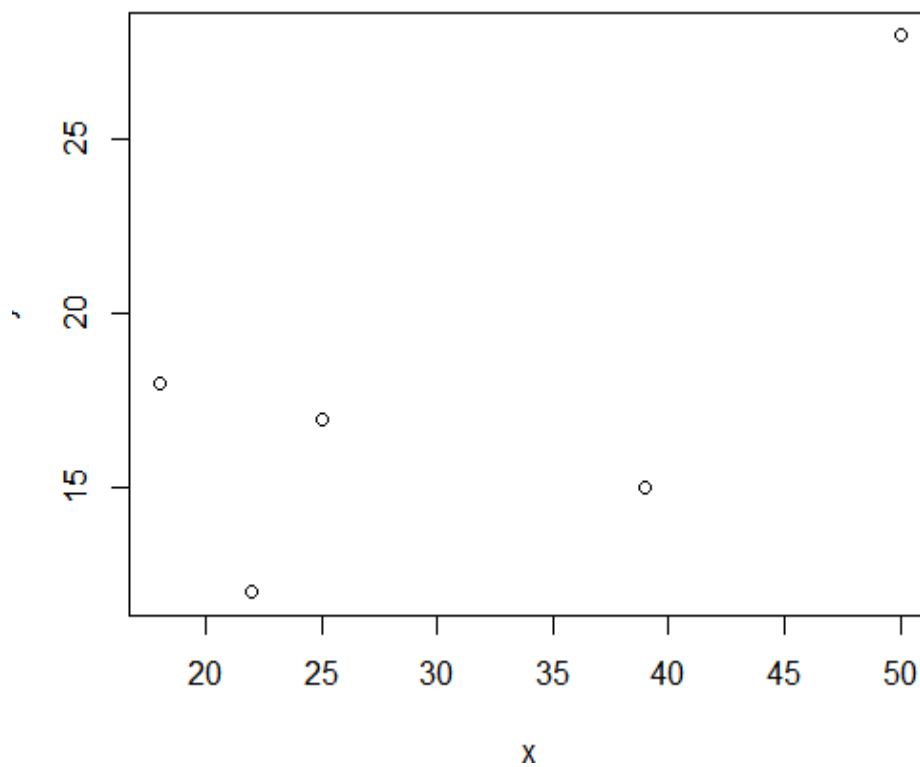
```
> d1<-read.table("d1.txt")
> summary(d1)
      v1      v2
Min.   :-2.77120  Min.   :-2.819800
1st Qu.: -0.58403  1st Qu.: -0.688750
Median :  0.03610  Median :  0.038650
Mean   :  0.05106  Mean   :  0.003601
3rd Qu.:  0.73395  3rd Qu.:  0.685400
Max.   :  3.26620  Max.   :  2.689000
> plot(d1)
> coll<-d1[1]
> v1<-as.numeric(unlist(coll))
> hist(v1)
```



hist(v1,5)

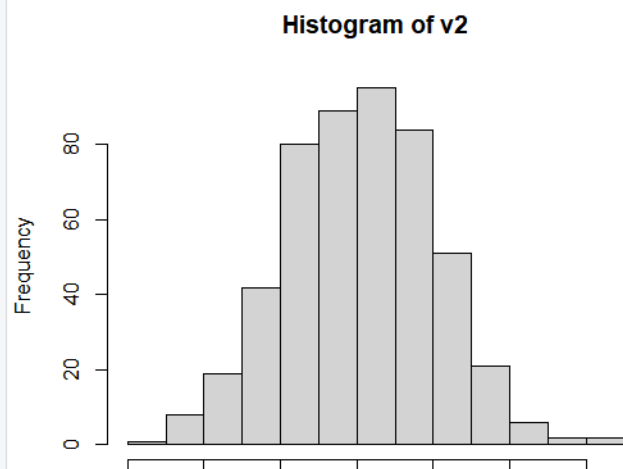
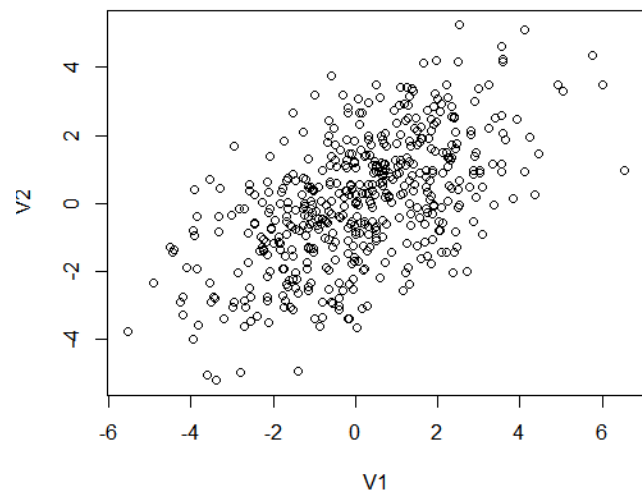
8) Scripts

```
> source("myscript.txt")  
> |
```



```
> d2<-read.table("d2.txt")  
> summary(d2)  
      v1      v2  
Min.   :-5.54240  Min.   :-5.20030  
1st Qu.: -1.16805  1st Qu.: -1.15187  
Median :  0.07215  Median :  0.07225  
Mean    :  0.10212  Mean    :  0.05646  
3rd Qu.:  1.46790  3rd Qu.:  1.26317  
Max.    :  6.53240  Max.    :  5.24060  
> plot(d2)
```

```
> plot(d2)  
> coll<-d2[1]  
> v2<-as.numeric(unlist(coll))  
> hist(v2)  
> |
```



9) **write a function**

```
> myfunc<-function(a=1,b=2,c)
+ return(list(sum=a+b+c,product=a*b*c))
> myfunc(6,7,8)
$sum
[1] 21

$product
[1] 336

> args(myfunc)
function (a = 1, b = 2, c)
NULL
> |
```