# Assignment0


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### Document: link


### Abstract

In this assignment, we are displaying basic applications and my ability to complete them correctly using R programming. There are 14 ToDo's plus a final extra Todo requested to be done that are found in the document linked above and the results with their code can be found below.


#### 3.1 - Calculator

```
((2018-2015)/(2018-1997))*100
```

```
## [1] 14.28571
```

#### 3.2 - Workspace

```
ysu=2018-2015
ysa=2018-1997
a=ysu/ysa
a=a*100
a
```

```
## [1] 14.28571
```

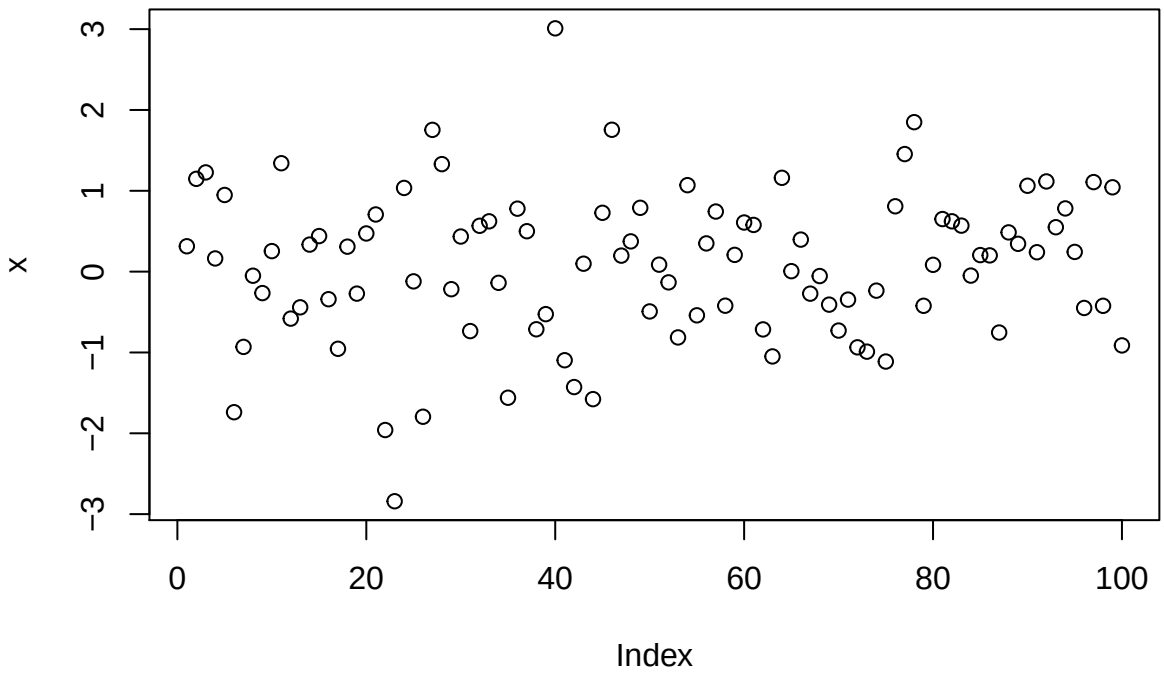
#### 3.4 - Functions

```
a=c(4,5,6,11)
sum(a)
```

```
## [1] 26
```

#### 3.5 - Plots

```
x=rnorm(100)
plot(x)
```




### 4 - Help & Documentation

```
help(sqrt)
```

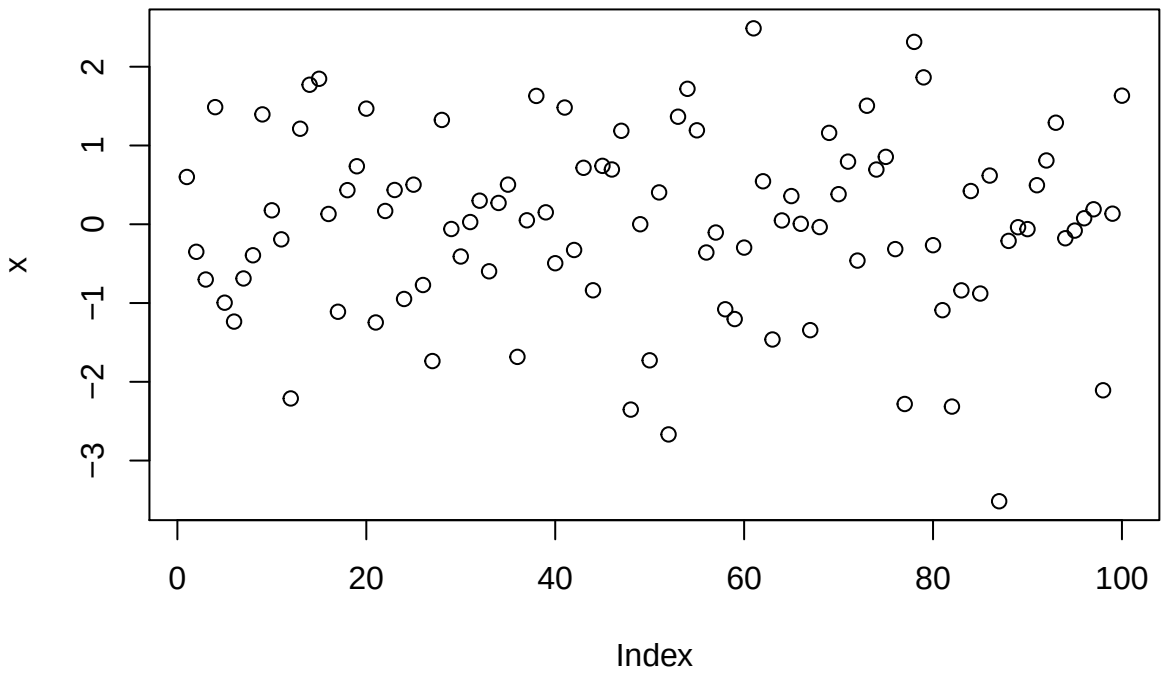
```
## starting httpd help server ... done
```

### 5 - Scripts

```
file.create("firstscript.R")
```

```
## [1] TRUE
```

```
x=rnorm(100)
plot(x)
```




```
source("firstscript.R")
```

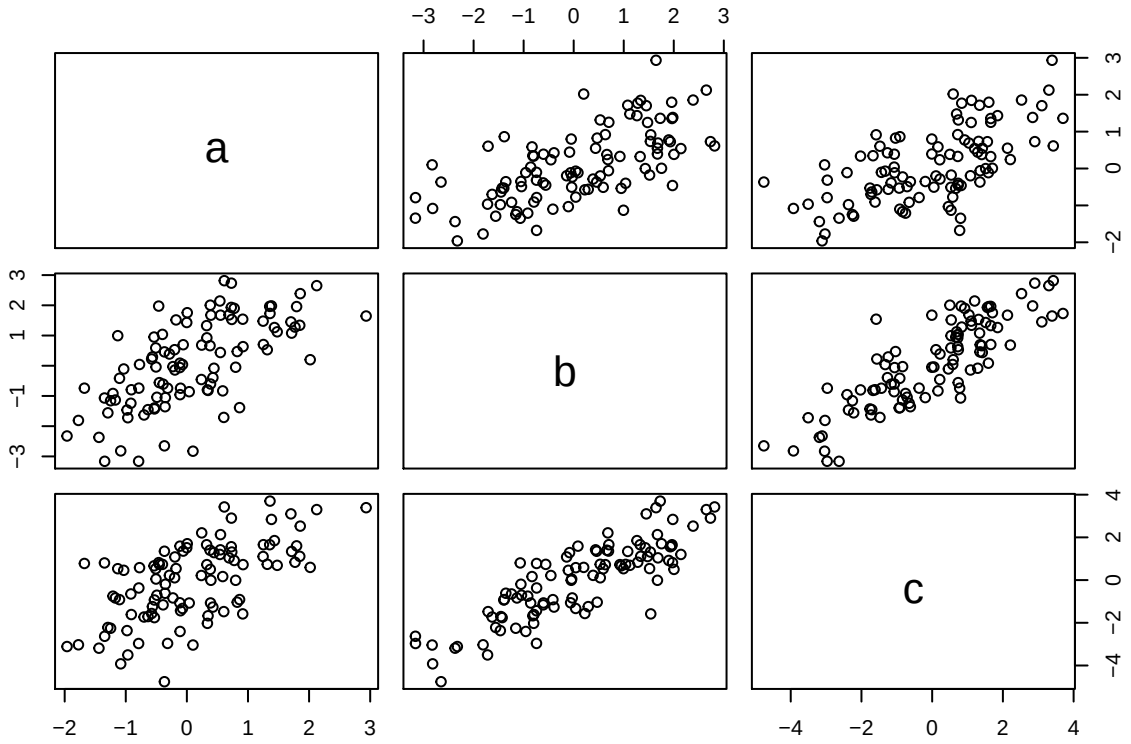
### 6.2 - Matrices

```
p = 31:60
Q = matrix(data=p, nrow = 6, ncol = 5)
Q
```

```
##      [,1] [,2] [,3] [,4] [,5]
## [1,]   31   37   43   49   55
## [2,]   32   38   44   50   56
## [3,]   33   39   45   51   57
## [4,]   34   40   46   52   58
## [5,]   35   41   47   53   59
## [6,]   36   42   48   54   60
```

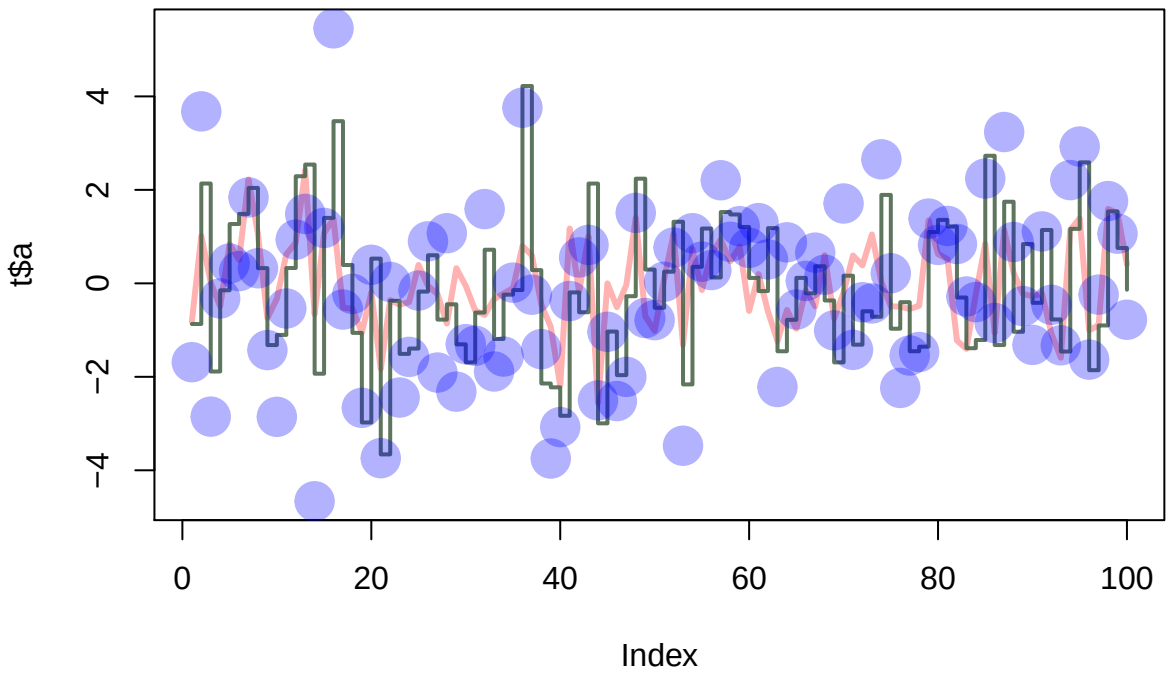
### 6.3 - Data Frames

```
x1=rnorm(100)
x2=rnorm(100)
x3=rnorm(100)
t=data.frame(a=x1, b=x1+x2, c=x1+x2+x3)
plot(t)
```




**7 - Graphics**

```
x1=rnorm(100)
x2=rnorm(100)
x3=rnorm(100)
t=data.frame(a=x1, b=x1+x2, c=x1+x2+x3)
plot(t$a, type="l", ylim=range(t), lwd=3, col=rgb(1,0,0,0.3))
lines(t$b, type="s",lwd=2, col=rgb(0.3,0.4,0.3,0.9))
points(t$c, pch=20, cex=4, col=rgb(0,0,1,0.3))
```




```
?rgb
```

### 8 - R&W data Files

```
a=read.table("tst1.txt", header=TRUE)
write.table(a$g*5, file = "tst2.txt", row.names = FALSE)
```

### 9 - not available data

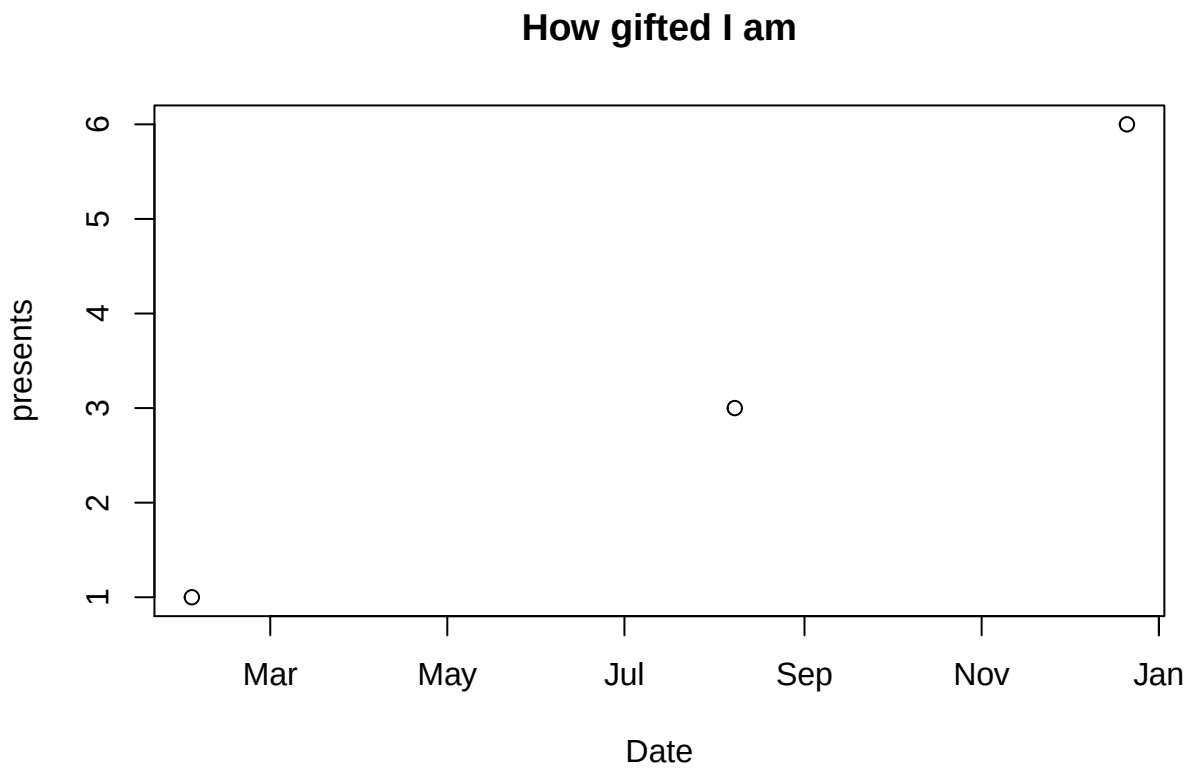
```
mean(sqrt(rnorm(100)))
```

```
## Warning in sqrt(rnorm(100)): NaNs produced
```

```
## [1] NaN
```

### 10.2 - dates

```
x = c(strptime(c("20180202", "20181221","20180808"),format="%Y%m%d"))
y = c(1,6,3)
plot(x,y, xlab = "Date",ylab="presents",main = "How gifted I am")
```




### 11.2 - For Loop

```
a=seq(from=1, to=100)
s=c()

for(i in 1:100)
  {
  if(a[i]<5 | a[i]>90)
    {
      s[i]=a[i]*10
  }else{
      s[i]=a[i]*.1
    }
  }
s
```

```
##   [1]   10.0   20.0   30.0   40.0    0.5    0.6    0.7    0.8    0.9    1.0
##  [11]    1.1    1.2    1.3    1.4    1.5    1.6    1.7    1.8    1.9    2.0
##  [21]    2.1    2.2    2.3    2.4    2.5    2.6    2.7    2.8    2.9    3.0
##  [31]    3.1    3.2    3.3    3.4    3.5    3.6    3.7    3.8    3.9    4.0
##  [41]    4.1    4.2    4.3    4.4    4.5    4.6    4.7    4.8    4.9    5.0
##  [51]    5.1    5.2    5.3    5.4    5.5    5.6    5.7    5.8    5.9    6.0
##  [61]    6.1    6.2    6.3    6.4    6.5    6.6    6.7    6.8    6.9    7.0
##  [71]    7.1    7.2    7.3    7.4    7.5    7.6    7.7    7.8    7.9    8.0
##  [81]    8.1    8.2    8.3    8.4    8.5    8.6    8.7    8.8    8.9    9.0
```

```
##  [91]  910.0  920.0  930.0  940.0  950.0  960.0  970.0  980.0  990.0 1000.0
```

### 11.3 - Writing your own function

```
p=1:100
fun1 <- function(arg)
{
s=c()
for(i in 1:length(arg))
  {
  if(arg[i]<5 | a[i]>90)
    {
      s[i]=arg[i]*10
  }else{
      s[i]=arg[i]*.1
    }
  }
return(s)
}
fun1(p)
```

```
##   [1]   10.0   20.0   30.0   40.0    0.5    0.6    0.7    0.8    0.9    1.0
##  [11]    1.1    1.2    1.3    1.4    1.5    1.6    1.7    1.8    1.9    2.0
##  [21]    2.1    2.2    2.3    2.4    2.5    2.6    2.7    2.8    2.9    3.0
##  [31]    3.1    3.2    3.3    3.4    3.5    3.6    3.7    3.8    3.9    4.0
##  [41]    4.1    4.2    4.3    4.4    4.5    4.6    4.7    4.8    4.9    5.0
##  [51]    5.1    5.2    5.3    5.4    5.5    5.6    5.7    5.8    5.9    6.0
##  [61]    6.1    6.2    6.3    6.4    6.5    6.6    6.7    6.8    6.9    7.0
##  [71]    7.1    7.2    7.3    7.4    7.5    7.6    7.7    7.8    7.9    8.0
##  [81]    8.1    8.2    8.3    8.4    8.5    8.6    8.7    8.8    8.9    9.0
##  [91]  910.0  920.0  930.0  940.0  950.0  960.0  970.0  980.0  990.0 1000.0
```

### FINAL TODO

```
p=1:100

fun2 <- function(a)
{
b=(a[a <5 | a >90])*10
c=(a[a<=90 & a>=5])*.1
s=c(b,c)
return(s)
}
fun2(p)
```

```
##   [1]   10.0   20.0   30.0   40.0  910.0  920.0  930.0  940.0  950.0  960.0
##  [11]  970.0  980.0  990.0 1000.0    0.5    0.6    0.7    0.8    0.9    1.0
##  [21]    1.1    1.2    1.3    1.4    1.5    1.6    1.7    1.8    1.9    2.0
##  [31]    2.1    2.2    2.3    2.4    2.5    2.6    2.7    2.8    2.9    3.0
##  [41]    3.1    3.2    3.3    3.4    3.5    3.6    3.7    3.8    3.9    4.0
##  [51]    4.1    4.2    4.3    4.4    4.5    4.6    4.7    4.8    4.9    5.0
##  [61]    5.1    5.2    5.3    5.4    5.5    5.6    5.7    5.8    5.9    6.0
```

```
##  [71]  6.1  6.2  6.3  6.4  6.5  6.6  6.7  6.8  6.9  7.0
##  [81]  7.1  7.2  7.3  7.4  7.5  7.6  7.7  7.8  7.9  8.0
##  [91]  8.1  8.2  8.3  8.4  8.5  8.6  8.7  8.8  8.9  9.0
```