SRT411A0

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Introduction: In this assignment, we are getting familiarized with R programming and the RStudio environment. This will be done using the document "A (very) short introduction to R" provided: https://cran.r-project.org/doc/contrib/Torfs+Brauer-Short-R-Intro.pdf

Acknowledgments: http://rmarkdown.rstudio.com/
http://nicercode.github.io/guides/reports/
http://kbroman.org/knitr_knutshell/page.html
http://kbroman.org/knitr_knutshell/pages/Rmarkdown.html
https://www.rstudio.com/wp-content/uploads/2015/02/rmarkdown-cheatsheet.pdf

GitHub Documents

This is an R Markdown format used for publishing markdown documents to GitHub. When you click the **Knit** button all R code chunks are run and a markdown file (.md) suitable for publishing to GitHub is generated.

```
##3.1
(2014-2016)/(2014-1998)*100
```

```
## [1] -12.5
```

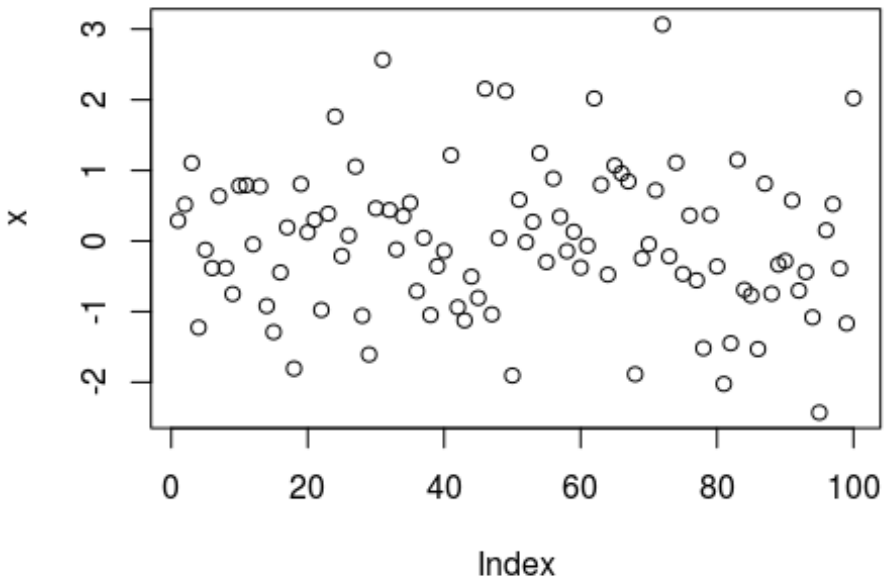
```
##3.2
startyear = 2016
DOB = 1998
a = 2014-startyear
b = 2014-DOB
a/b*100
```

```
## [1] -12.5
```

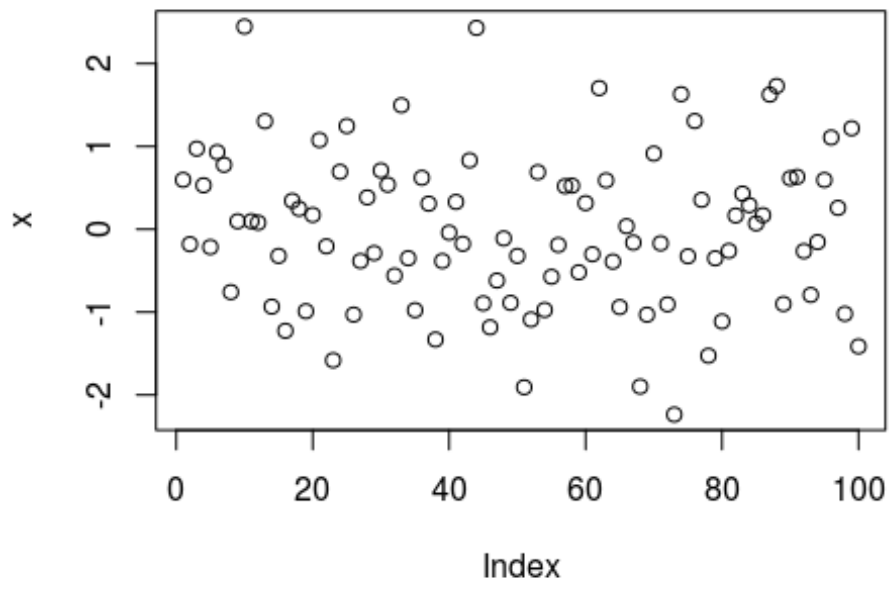
```
##3.4
b=c(4,5,8,11)
sum(x=b)
```

```
## [1] 28
```

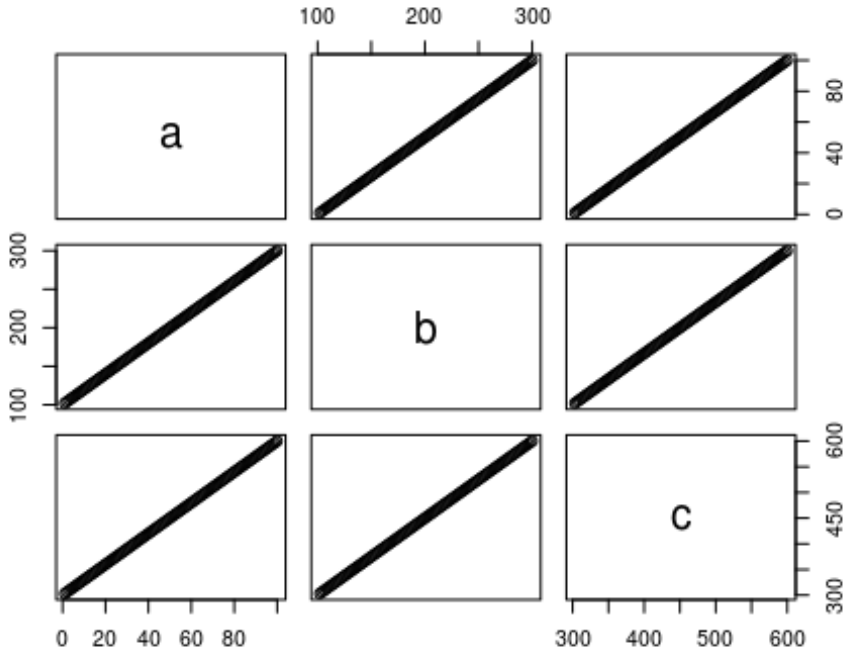
```
##3.5
x=rnorm(100)
plot(x)
```



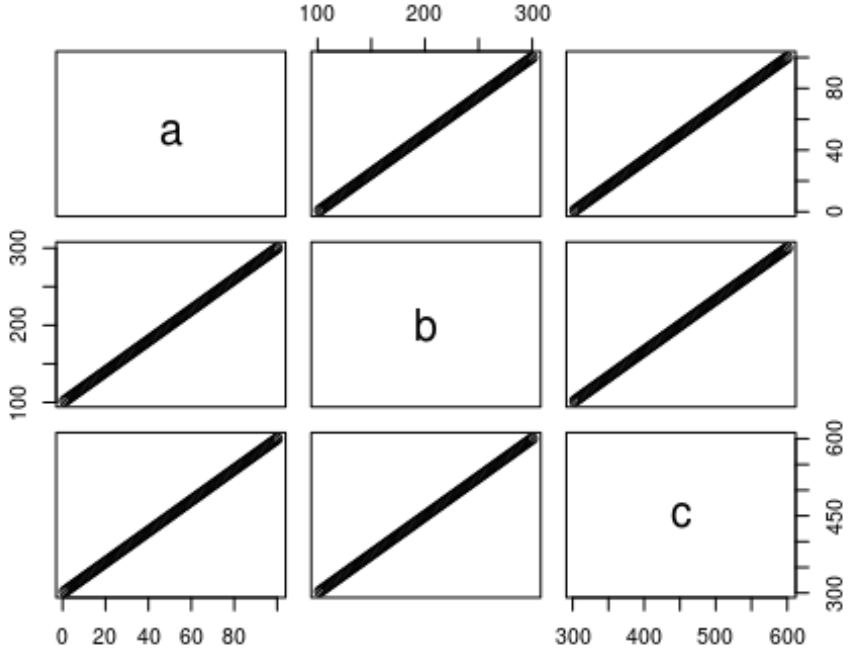

```
##4
help(sqrt)

##5
source("firstscript.R")
```



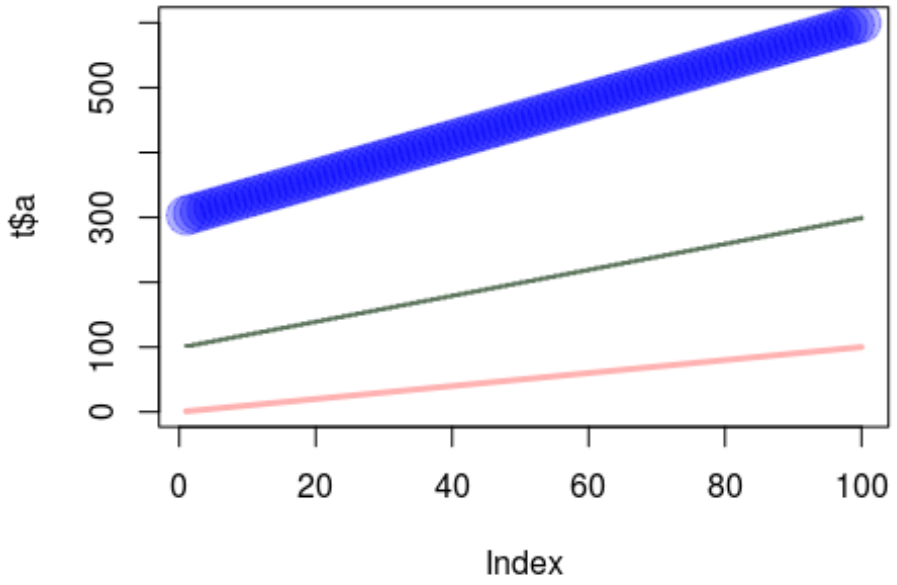

```
##6.2
P = c(seq(from = 31, to = 60, by = 1))
Q = matrix(data = P, ncol = 5, nrow = 6)
Q

##      [,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
source("secondscript.R")
```




```
##7
source("secondscript.R")
```



```
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))
```




```
##8
d2 = read.table(file="tst1.txt",header=TRUE)
d2$g*5
```

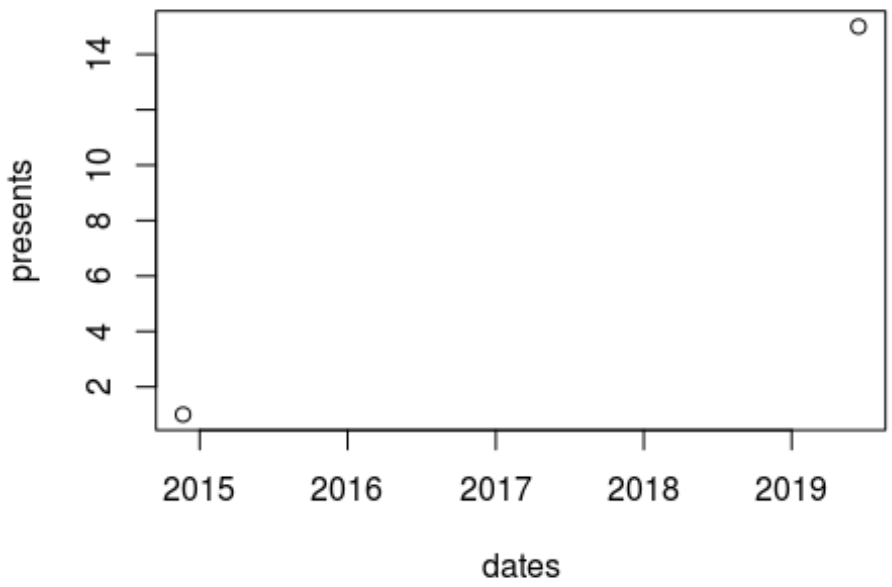
```
## [1]  10  20  40  80 160 320
```

```
##9
sqrt(mean(rnorm(100)))
```

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

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

```
##10.2
dates = c(strptime(c("20141121","20190615"),format="%Y%m%d"))
presents = c(1,15)
plot(dates,presents)
```




```
##11.2
vec1 = 1:100
for(i in 1:100)
{
  if (vec1[i] < 5 | vec1[i] > 90)
  {
    vec1[i] = vec1[i] * 10
    } else
    {
      vec1[i] = vec1[i] * 0.1
    }
  }
vec1
```

```
##   [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
vec=1:100
func = function(arg1)
{
  for(i in 1:length(arg1))
  {
    if (arg1[i] < 5 | arg1[i] > 90)
    {
      arg1[i] = arg1[i] * 10
    } else
    {
      arg1[i] = arg1[i] * 0.1
    }
  }
  return (arg1)
}
func(arg1=vec)
```

```
##   [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
```