

# SRT411A0

*Soruban Vinayagamoorthy*

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## ##Information

```
##link to the assignment: Assignments -> Assignment 0
##link to the gitHub Repository: https://github.com/ShadowOfZed/SRT411-Assignment-0.git
##gitHub Username: ShadowOfZed
##sources 1: Short Introduction to R (https://cran.r-project.org/doc/contrib/Torfs+Brauer-Short-R-Intro
##sources 2: How to present your data science portfolio on Github (https://www.dataquest.io/blog/how-to
##sources 3: R Markdown " Dynamic Documents for R (large resource) (http://rmarkdown.rstudio.com/)
##sources 4: Writing reproducible reports in R with markdown, knitr and pandoc (http://nicercode.github
##sources 5: Markdown (http://kbroman.org/knitr_knutshell/pages/markdown.html)
##sources 6: knitr with R Markdown (http://kbroman.org/knitr_knutshell/pages/Rmarkdown.html)
##sources 7: R markdown cheatsheet (https://www.rstudio.com/wp-content/uploads/2015/02/rmarkdown-cheats
##description: This is an introduction to R Programming and GitHub
```

## ##Task 1

### *#3.1 Calculator*

*#Task 1: Calculating amount of time spent in university*

```
timeSpent=((2017-2014)/(2014-1995))*100
print(timeSpent)
```

```
## [1] 15.78947
```

## ##Task 2

### *#3.2 Workspace*

*#Task 1 with multiple steps*

```
studyDifferent=2017-2014
lifeDifferent=2014-1995
studyRatio=studyDifferent/lifeDifferent
studyRatioPercentage=studyRatio*100
print(studyRatioPercentage)
```

```
## [1] 15.78947
```

## ##Task 3

### *#3.4 Functions*

*#Using Functions*

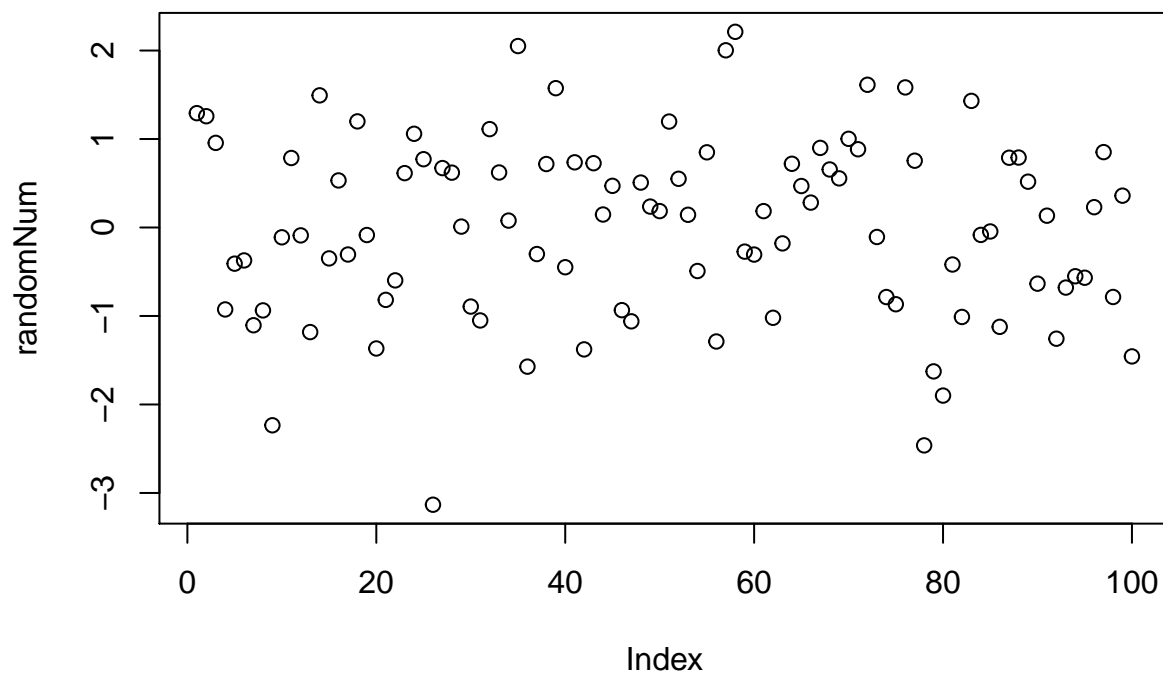
*#Compute the sum of 4, 5, 8 and 11 by first combining  
#them into a vector and then using the  
#function sum.*

```
vector1=c(4,5,8,11)
sum(x=vector1)
```

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

## ##Task 4

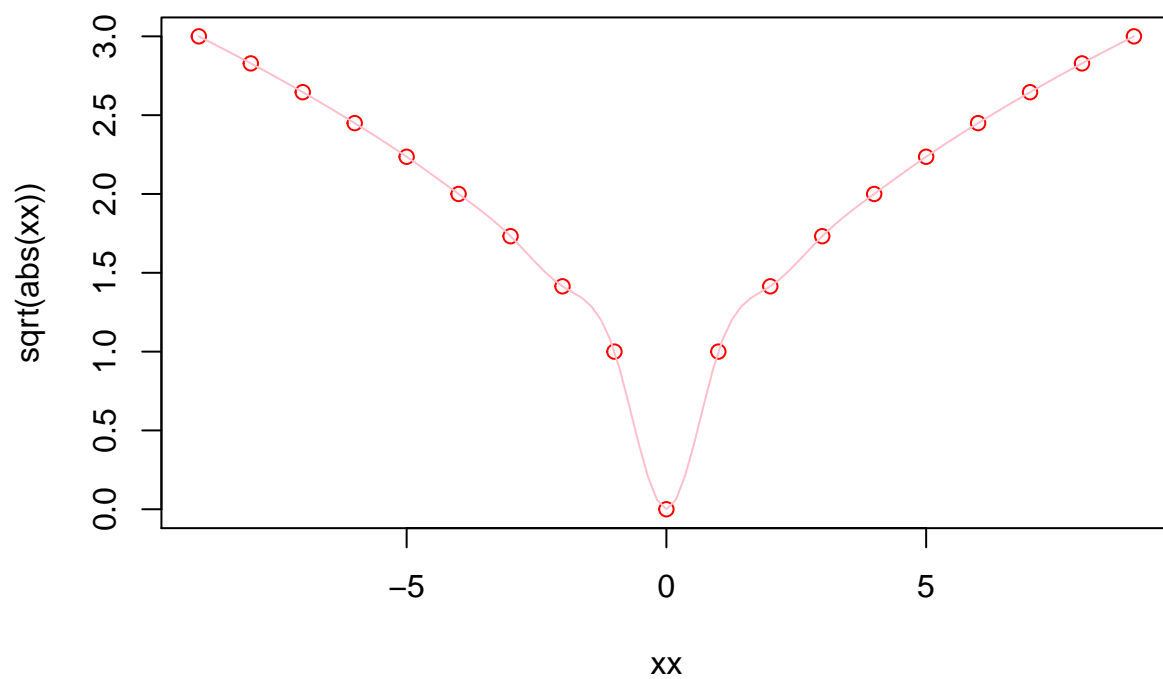
```
#3.5 Plots
#Plot 100 normal random numbers.
randomNum = rnorm(100)
plot(randomNum)
```



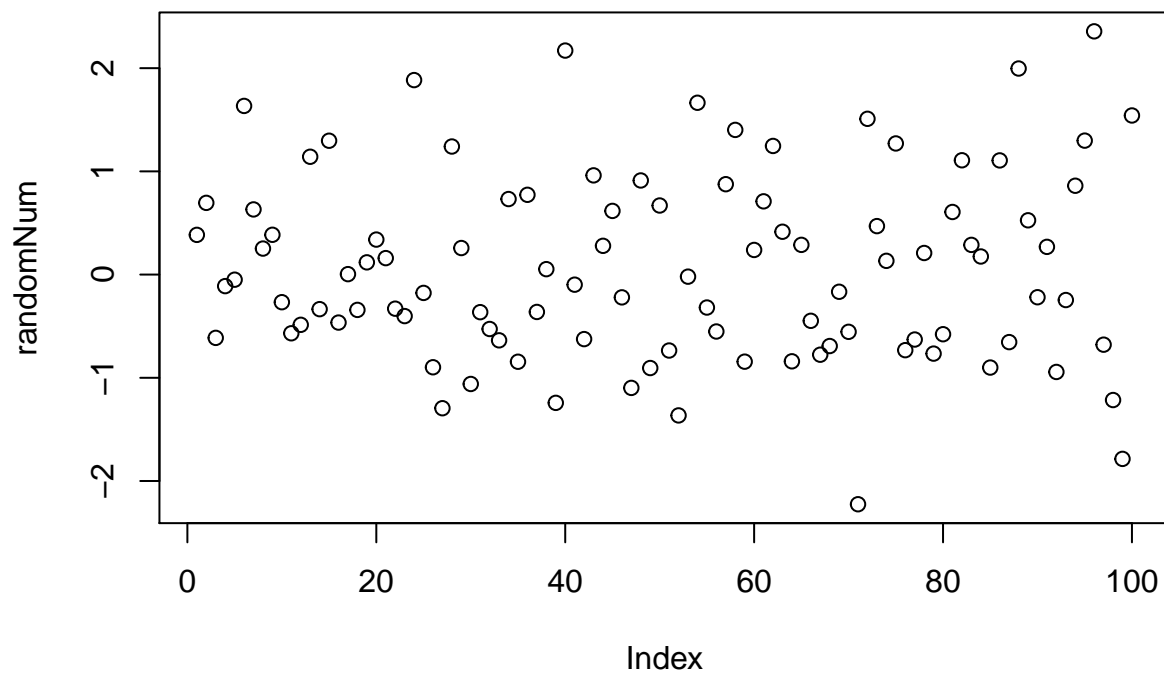
```
##Task 5
#4 Help and documentation
help(sqrt)

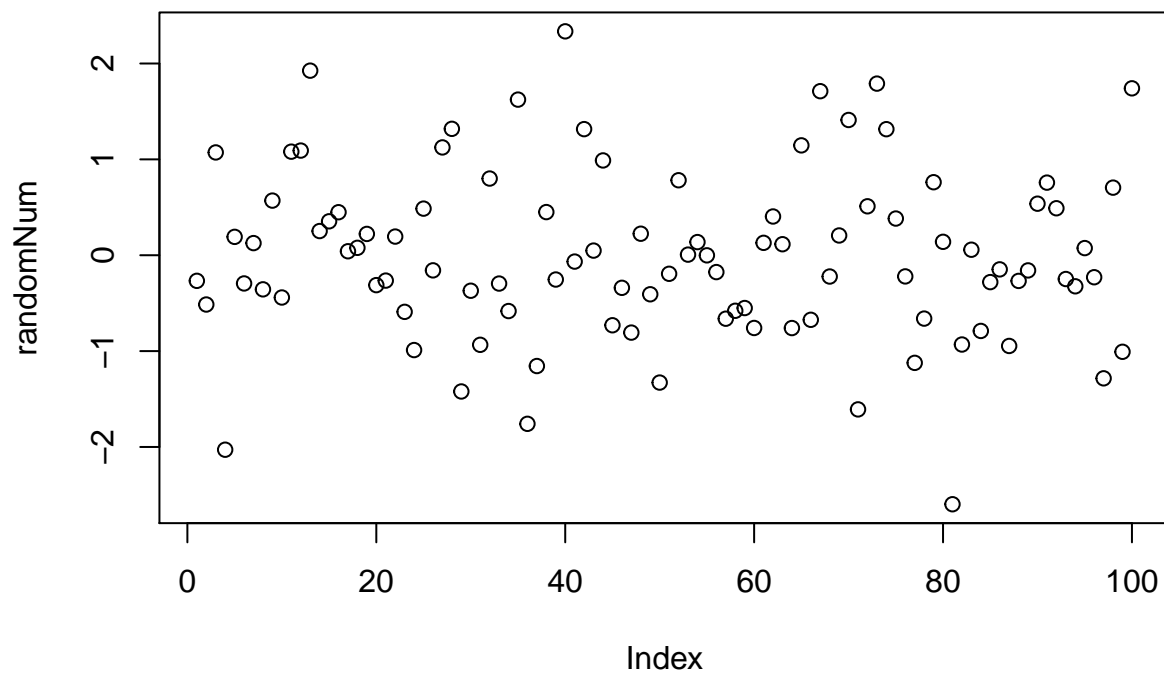
## starting httpd help server ... done
example(sqrt)

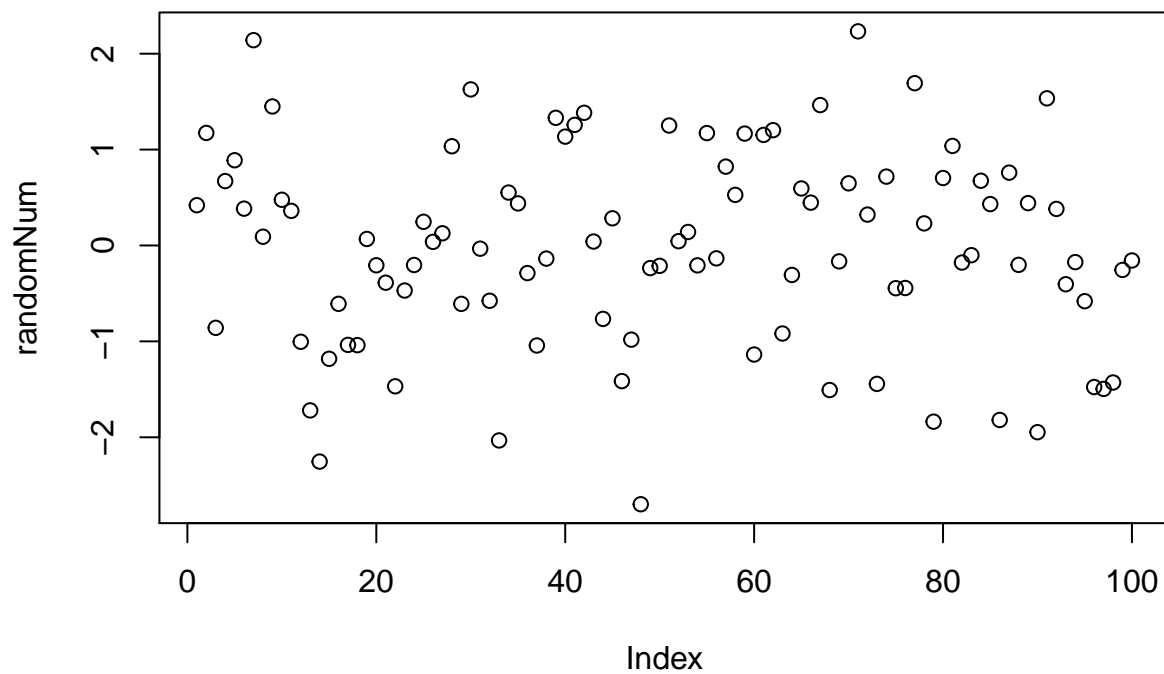
##
## sqrt> require(stats) # for spline
##
## sqrt> require(graphics)
##
## sqrt> xx <- -9:9
##
## sqrt> plot(xx, sqrt(abs(xx)), col = "red")
```

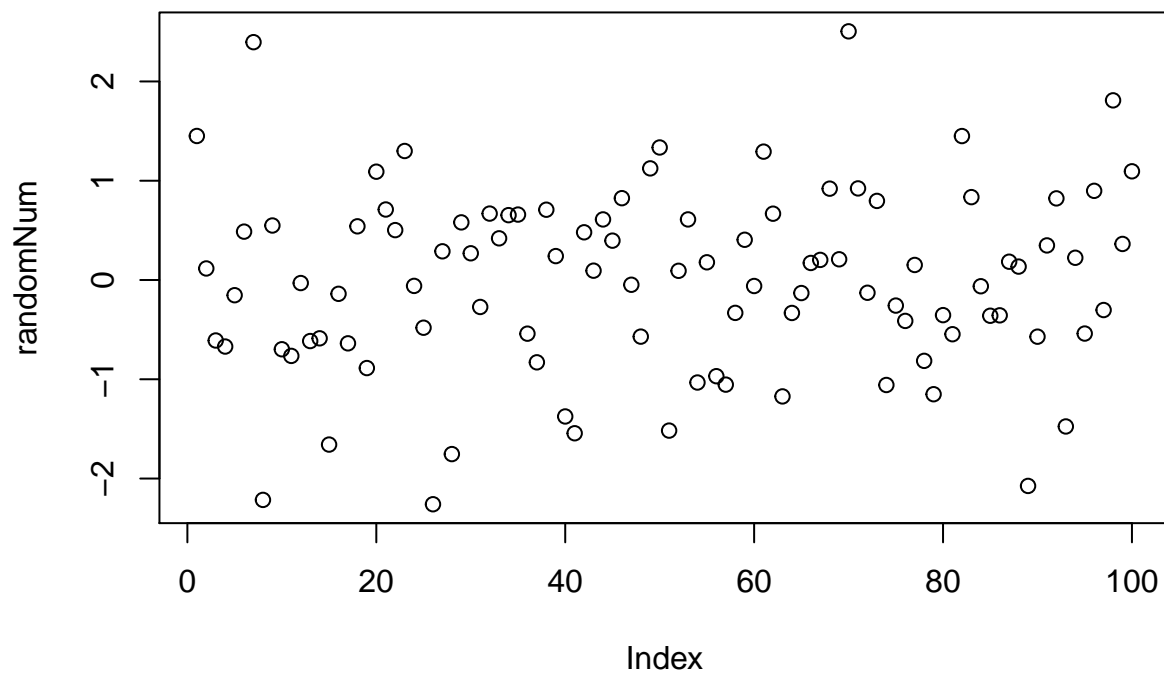


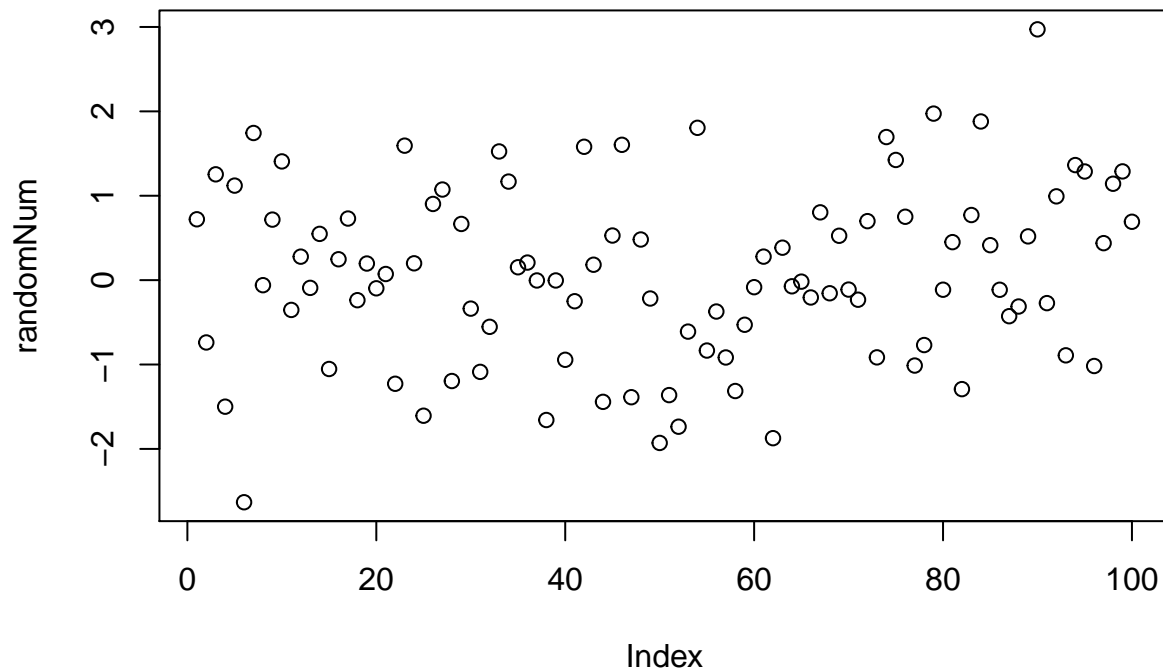
```
##  
## sqrt> lines(spline(xx, sqrt(abs(xx)), n=101), col = "pink")  
##Task 6  
#5 Scripts  
#Using if loop to run the function 5 times  
for(i in 1:5){  
  source("firstscript.R")  
}
```











```
##Task 7
```

```
#6.1 Vectors
```

```
#6.2 Matrices
```

```
P = seq(from=31, to=60, by=1)
```

```
Q = matrix(P,ncol=5, nrow=6)
```

```
#OR
```

```
P=c()
```

```
for(i in 1:30){
```

```
  P[i]=30+i
```

```
}
```

```
Q=matrix(P,ncol=5,nrow=6)
```

```
print(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
```

```
##Task 8
```

```
#6.3 Data frames
```

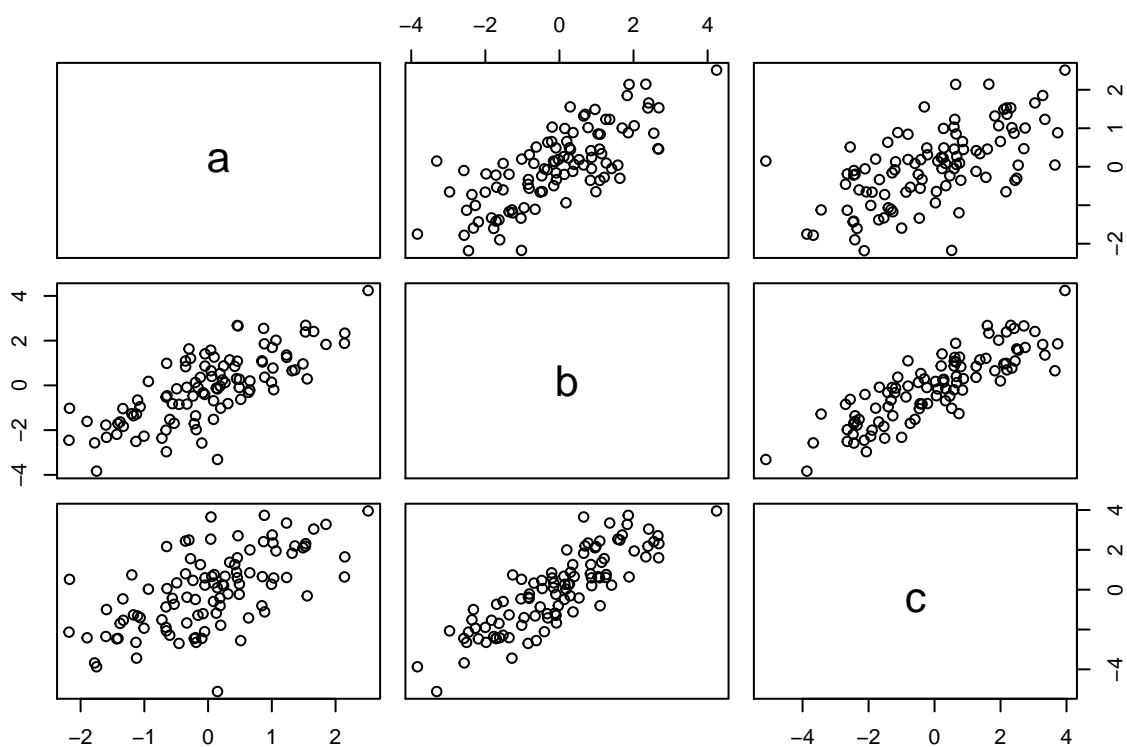
```
#Calling function
```

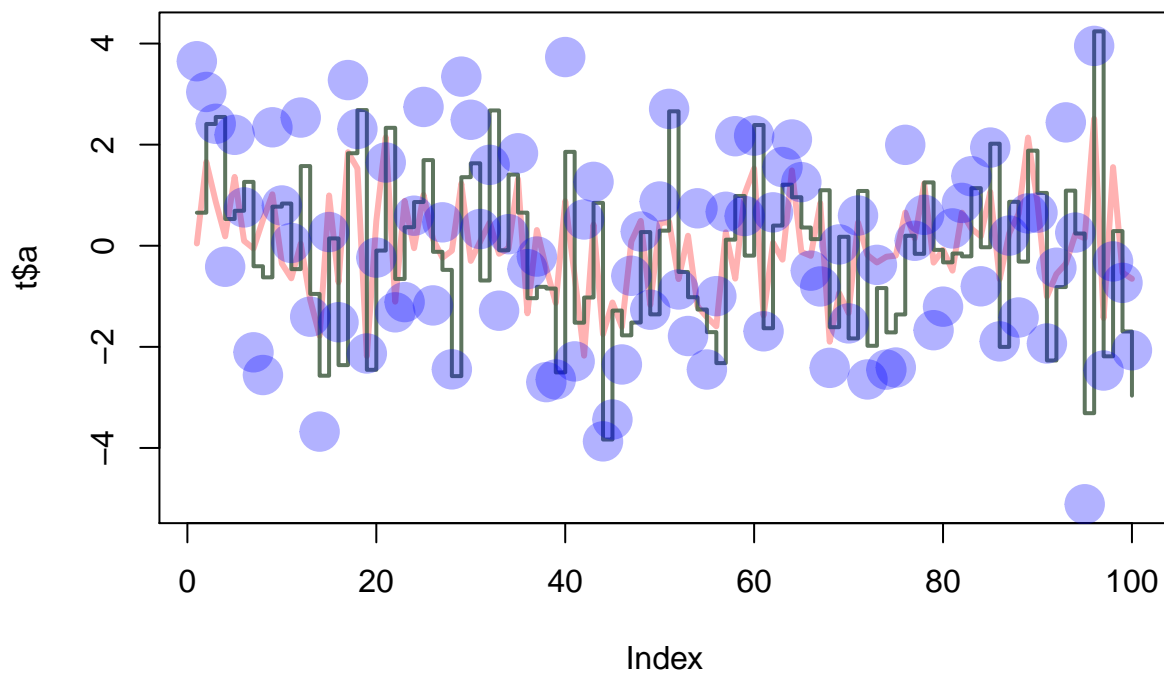
```
for(i in 1:5){
```

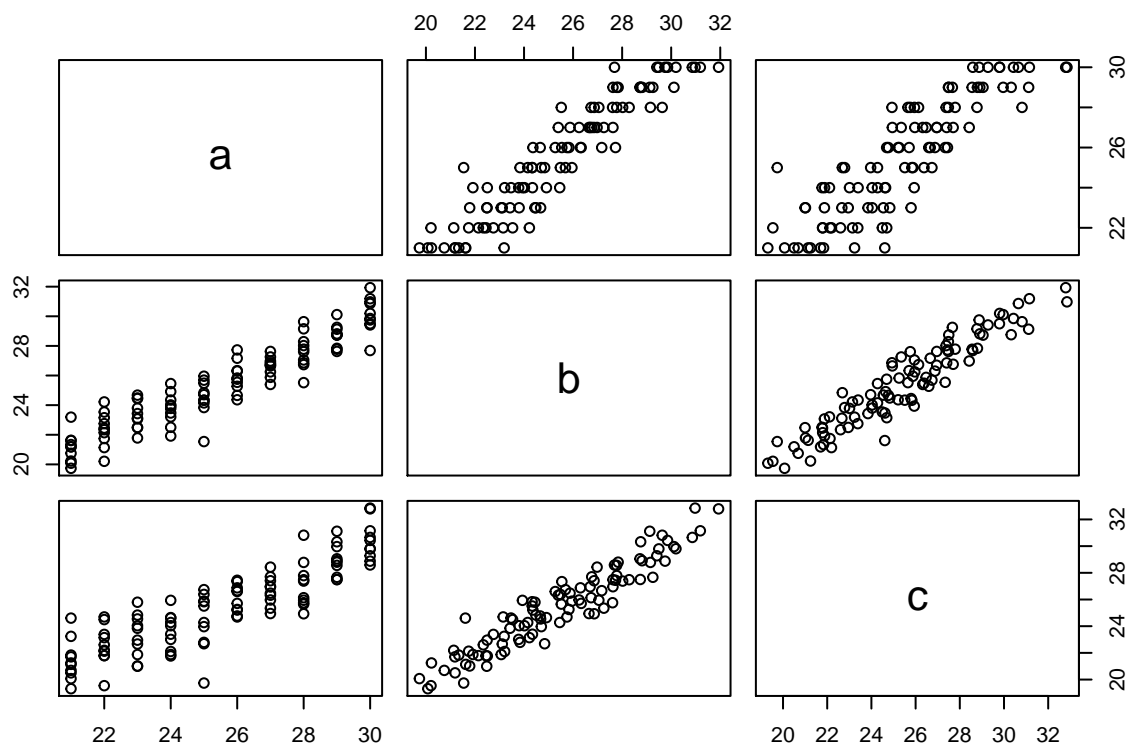
```
  source("randomMatrix.R")
```

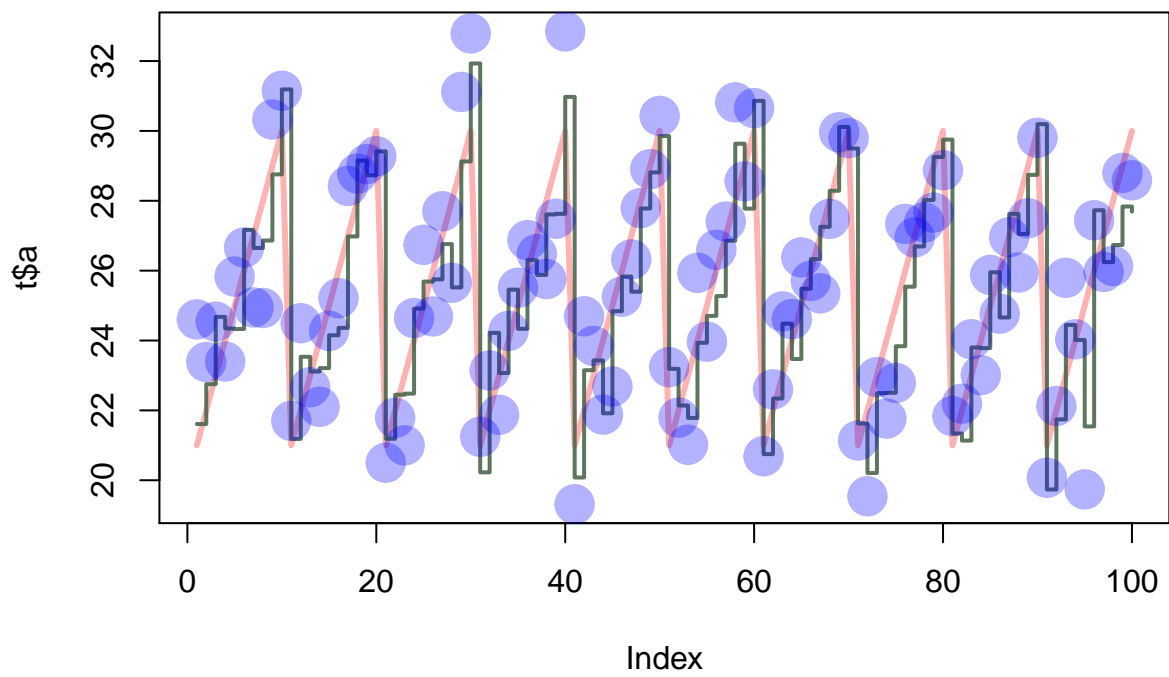


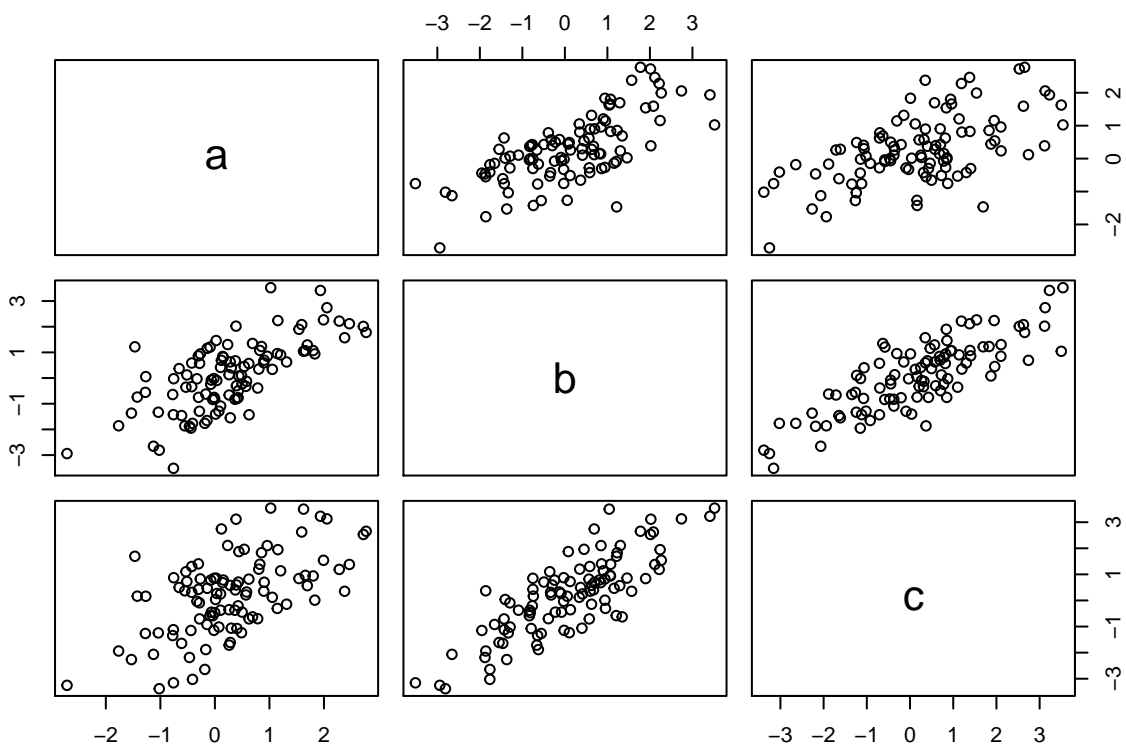
}

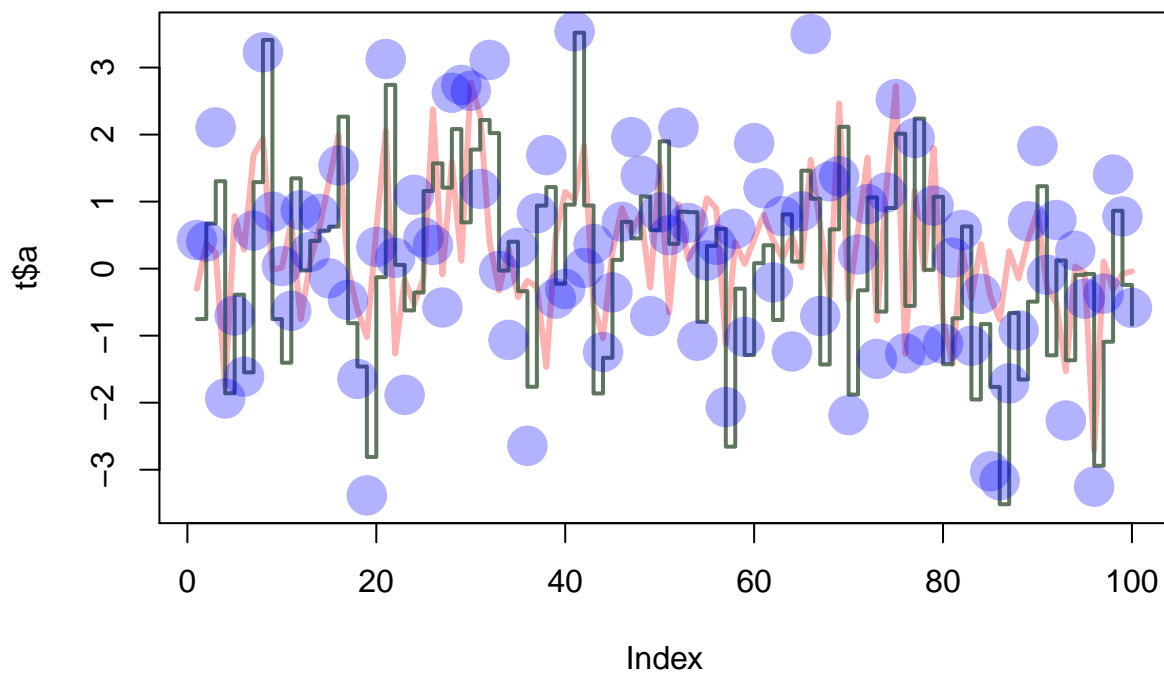


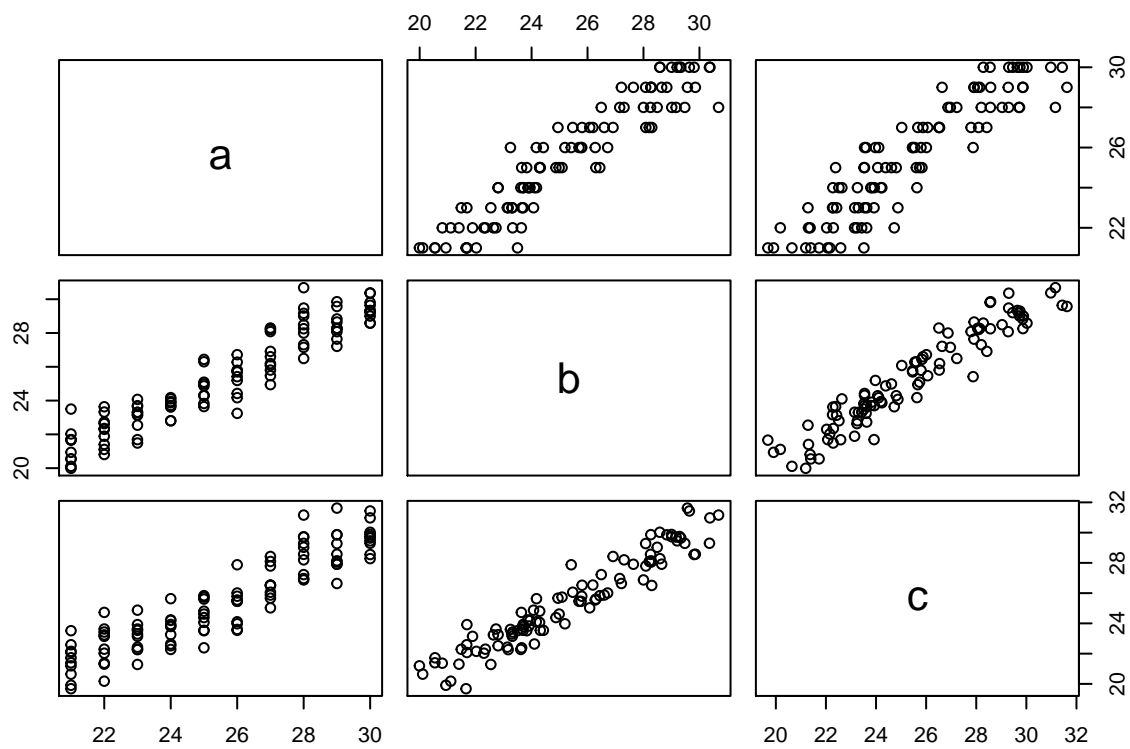


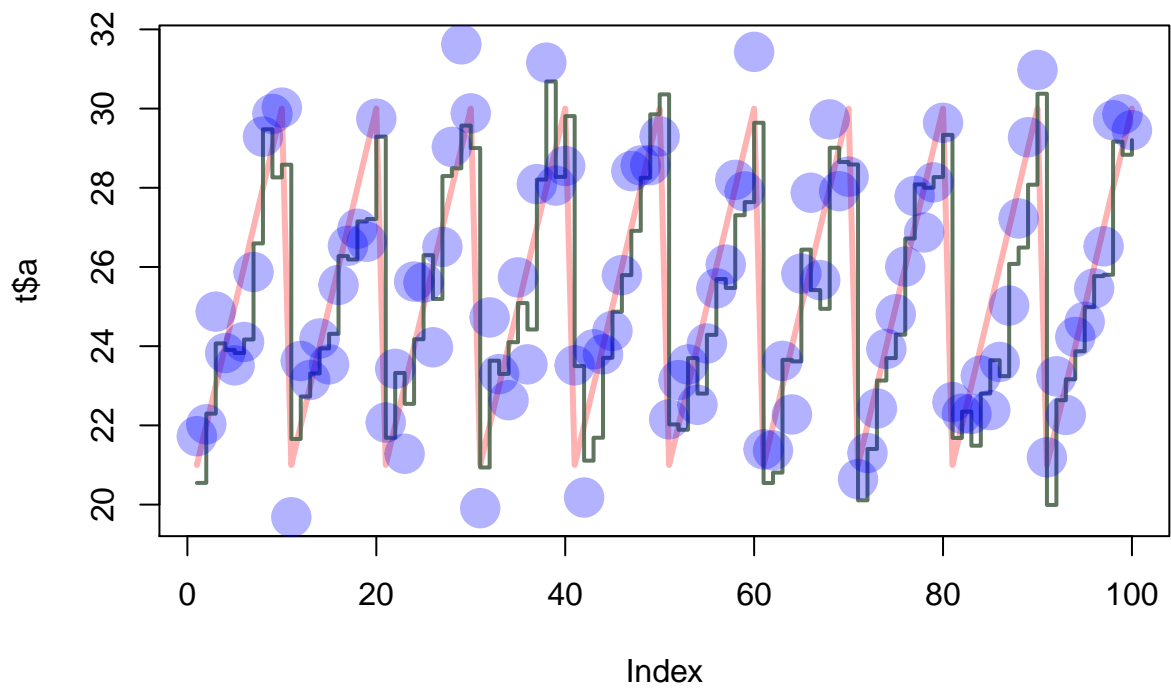




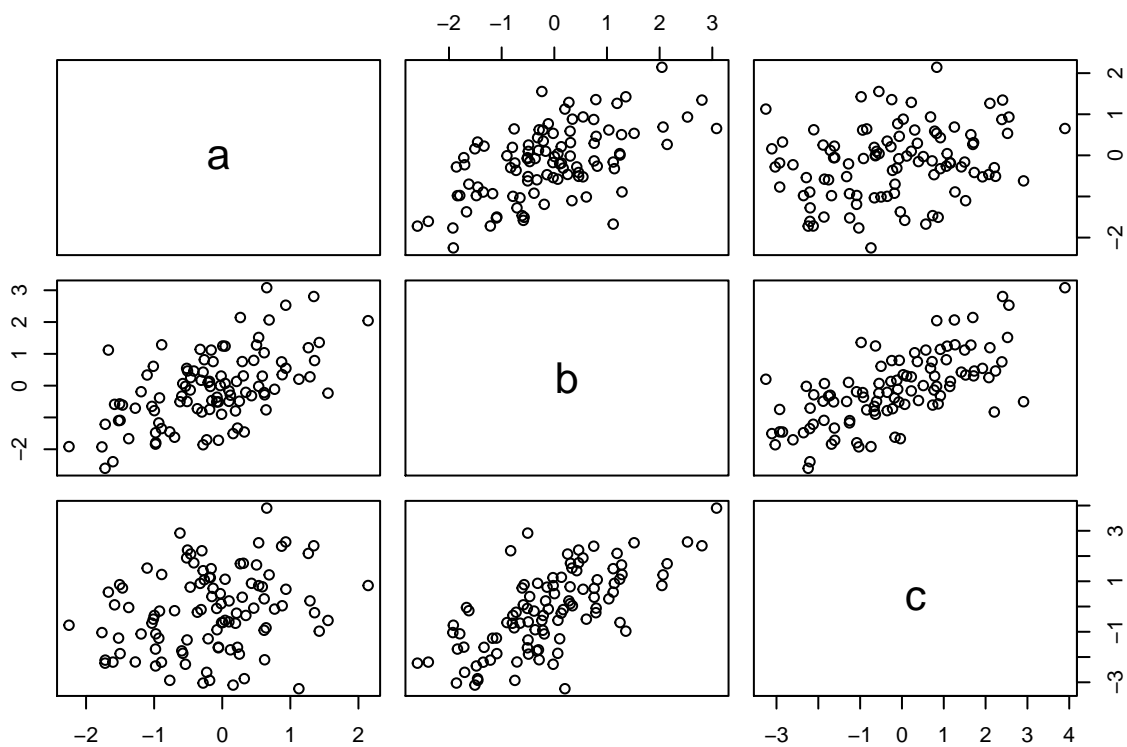


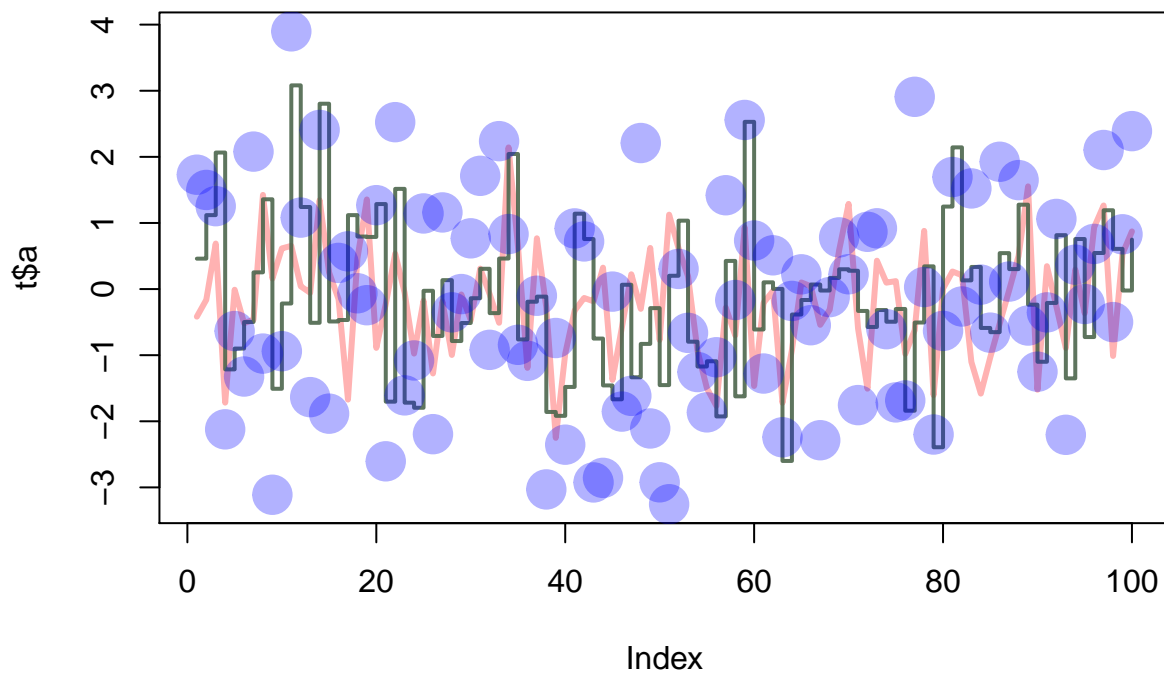


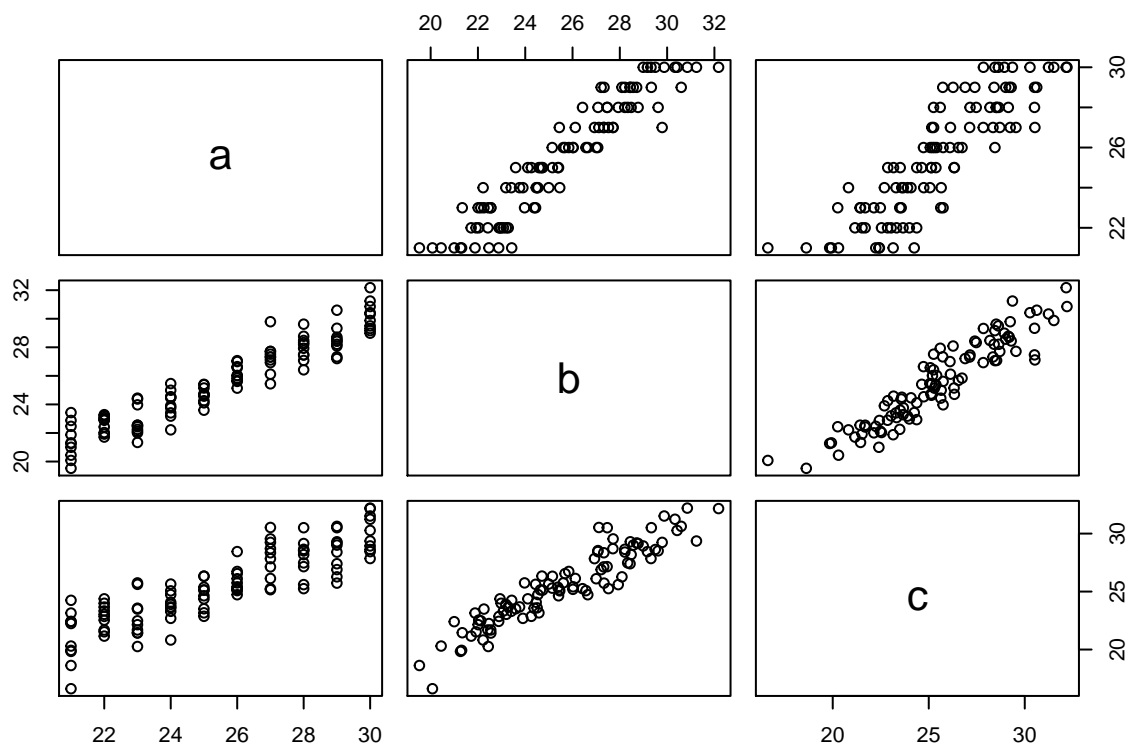


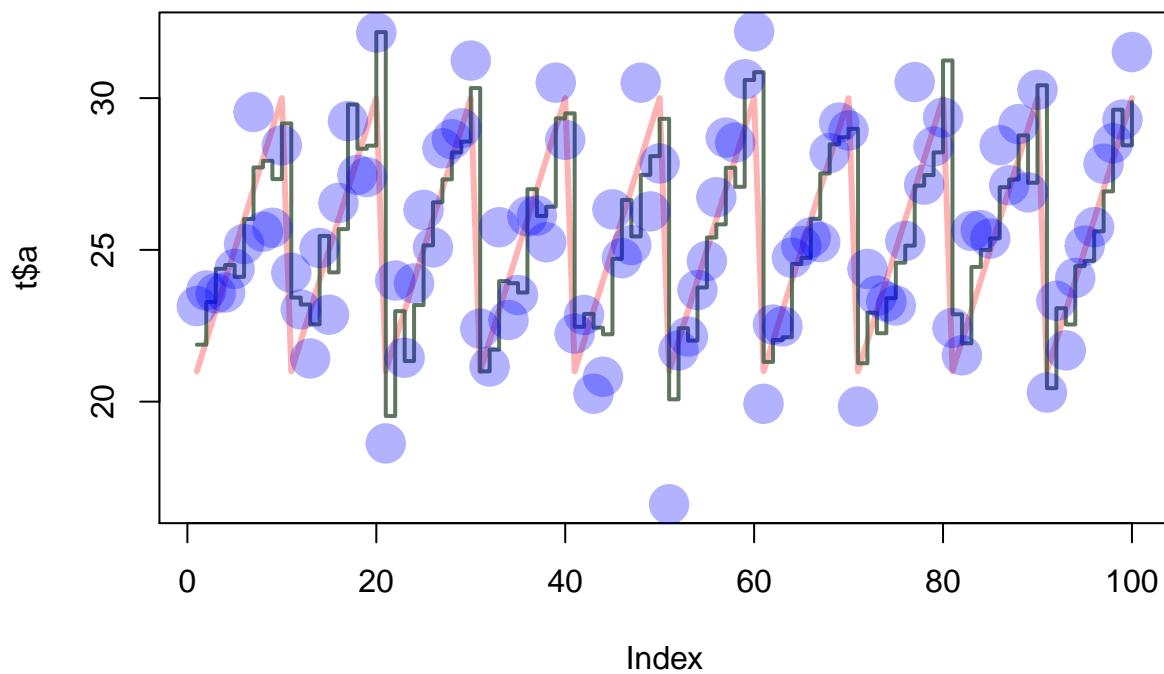


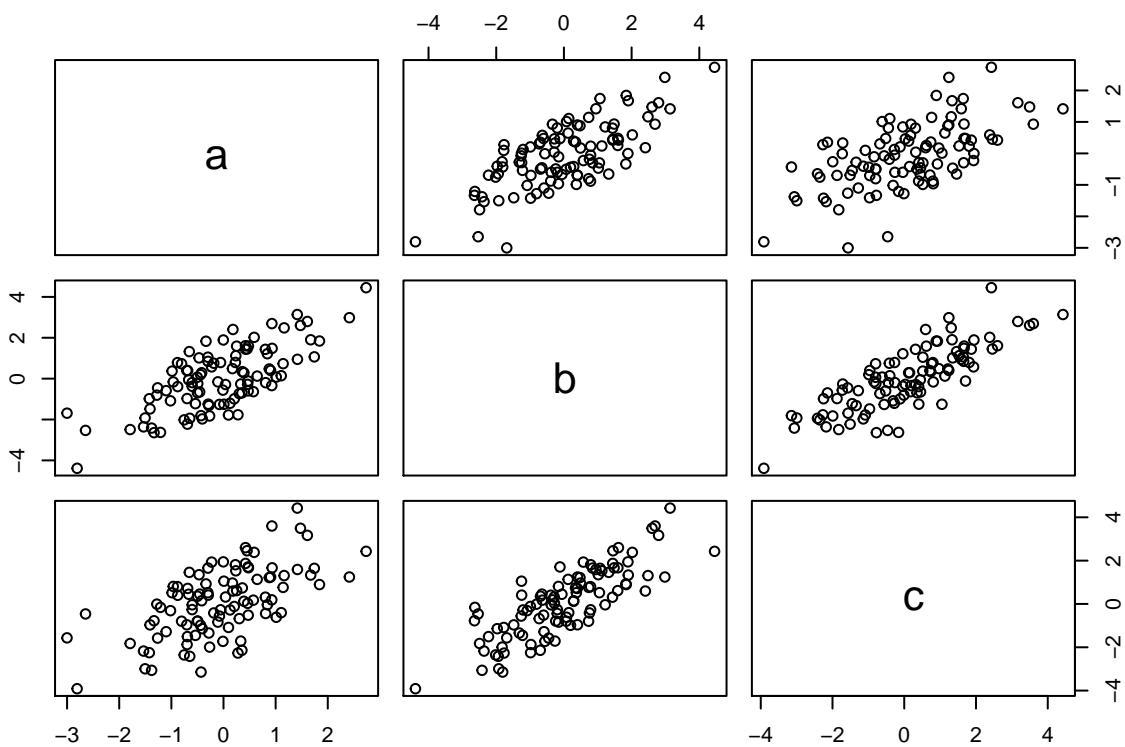


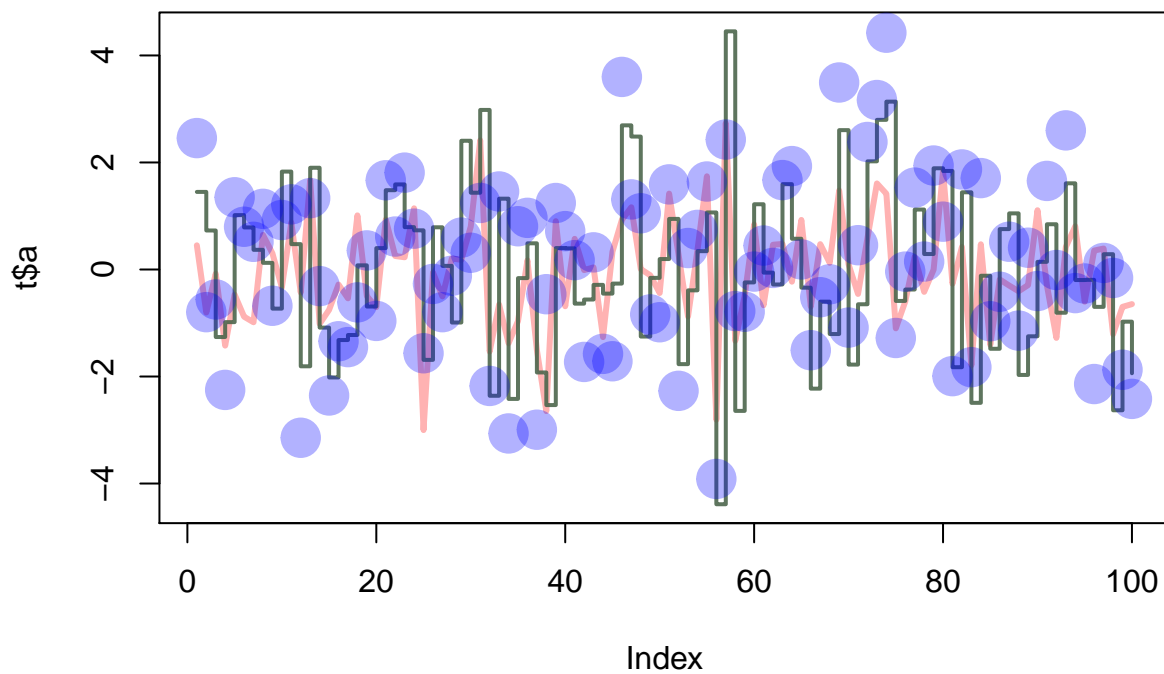


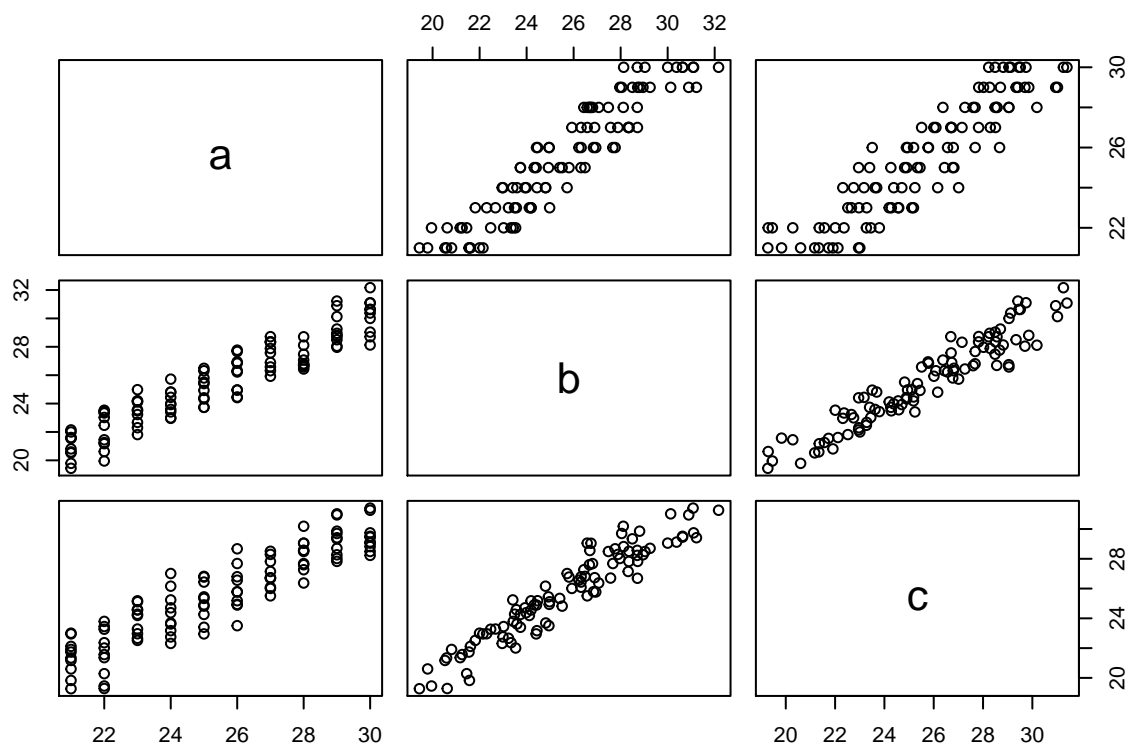


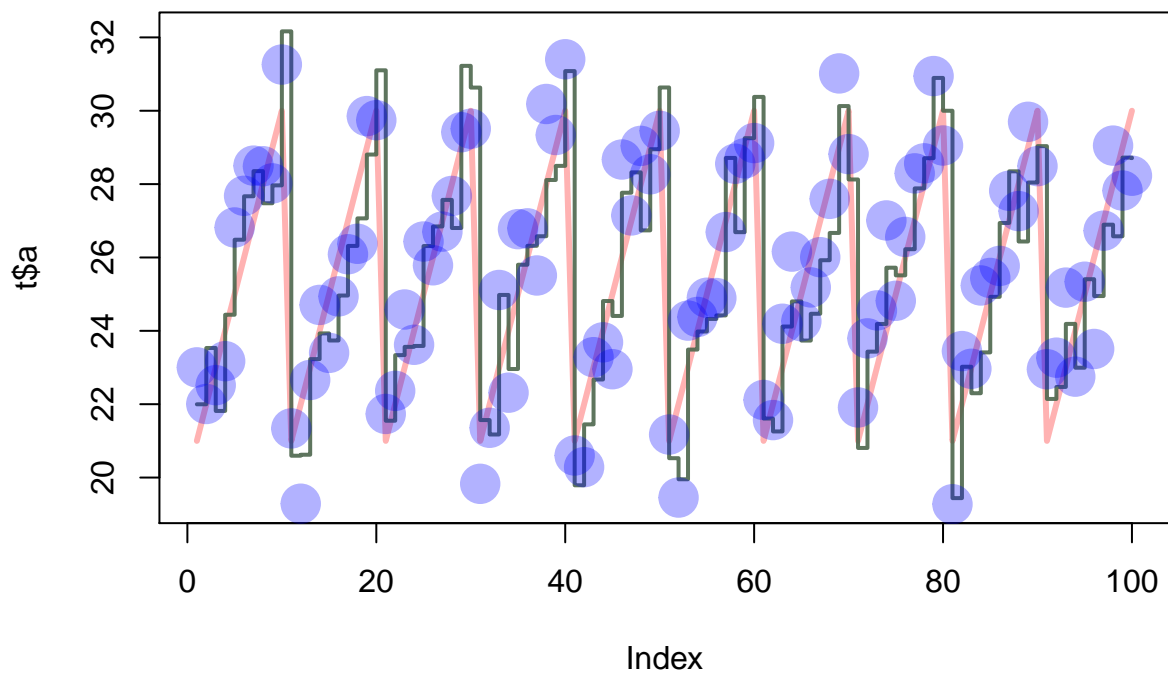




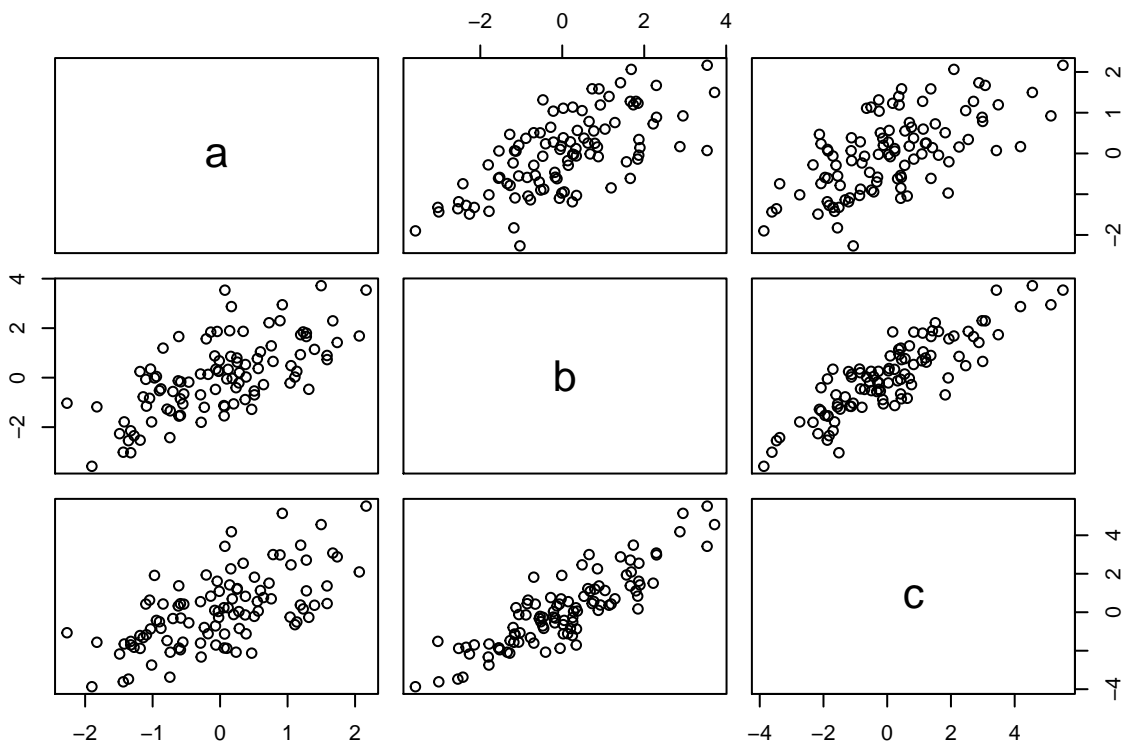


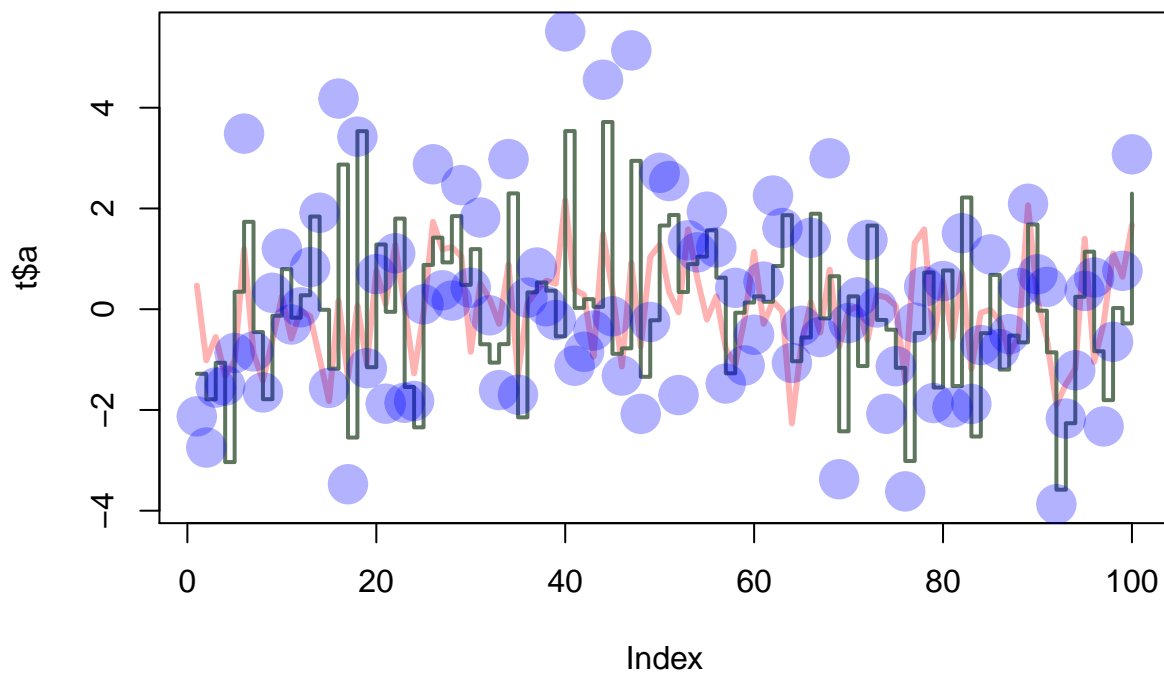


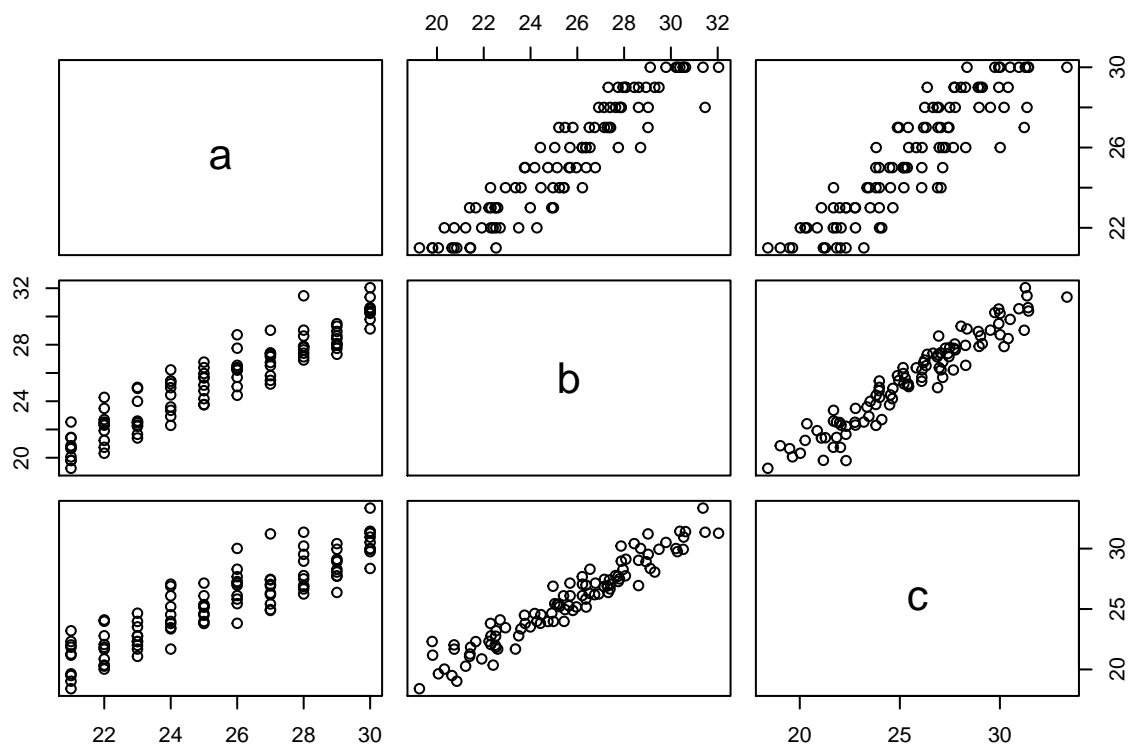


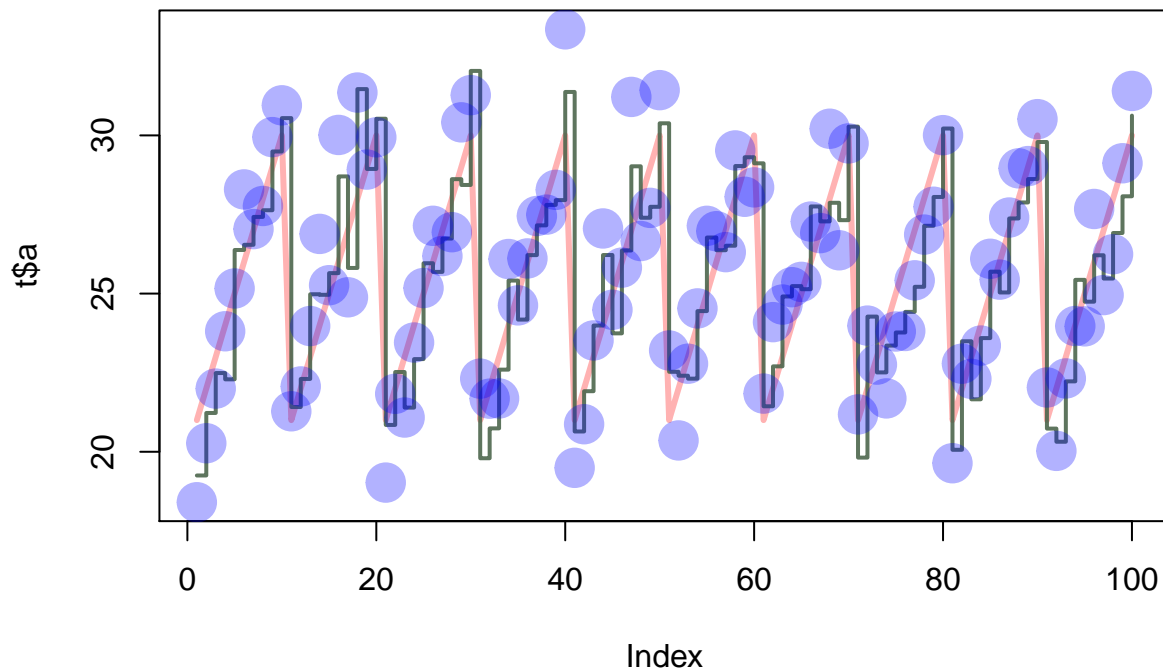












```
##Task 9
```

```
#7 Graphics
```

```
#Meanings
```

```
#rgb = r=red, g=green, b=blue, and the values goes in an order, (r,g,b,a(alpha/opacity))
```

```
#lwd = line width, lty is line type
```

```
#pch = plotting symbol
```

```
#cex = plotting text and symbol scale size
```

```
##Task 10
```

```
#8 Reading and writing data files
```

```
#reading file
```

```
file1 = read.table(file="tst1.txt",header=TRUE)
```

```
#multiplying the column "g" by 5
```

```
file1$g=(file1$g)*5
```

```
#wring new file with new values
```

```
write.table(file1, file="tst2.txt",row.names=FALSE)
```

```
##Task 11
```

```
#9 Not available data
```

```
randomNumForMean = rnorm(100)
```

```
sqrtOfVector=sqrt(randomNumForMean)
```

```
## Warning in sqrt(randomNumForMean): NaNs produced
```

```
meanOfSqrt=mean(sqrtOfVector)
```

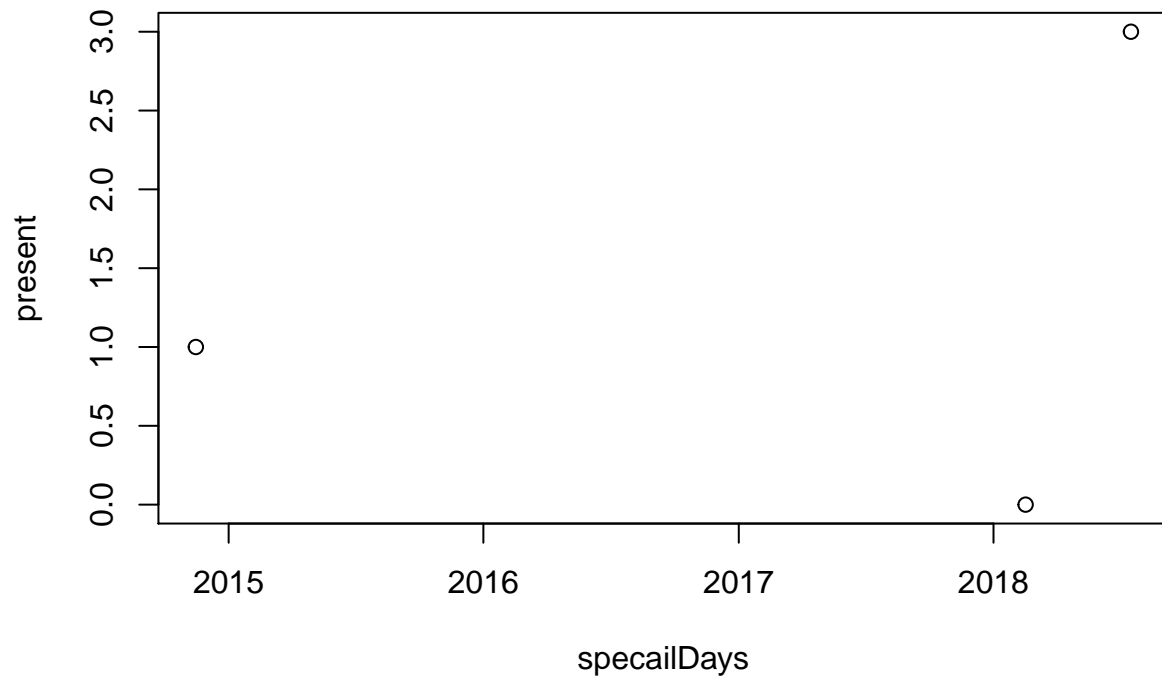
```
#Since NaNs produced when calculation sqrt, therefore we cant take to further to calculate the mean, but
```

##Task 12

*#10 Classes*

*#10.2 Dates*

```
specailDays=strptime( c("20180216","20141115","20180717"),format="%Y%m%d")
present=c(0,1,3)
plot(specailDays, present)
```



##Task 13

*#11.2 For-loop*

*#making vector from 1 to 100*

```
oneToHundred=seq(from=1, to=100, by=1)
```

```
s=c()
```

```
for(i in 1:100){
```

```
  if (i<5 | i>90) {
```

```
    s[i]=oneToHundred[i]*10
```

```
  }
```

```
  else{
```

```
    s[i]=oneToHundred[i]*0.1
```

```
  }
```

```
}
```

```
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
```

##Task 14

*#Writing function to previous task*

```
function1=function(arg1){
  vector=arg1
  s=c()
  for(i in length(vector)){
    if (i<5 | i>90) {
      s[i]=vector[i]*10
    }
    else{
      s[i]=vector[i]*0.1
    }
  }
  s
}
```

```
test=c(1,2,3)
function1(arg1=test)
```

```
## [1] NA NA 30
```