HW4_GUO

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Problem 5

```
#install.packages("lintr")
#library(lintr)
#lint(filename="C:/Users/Administrator/Desktop/PAKG HW/STAT_5014_2019_-qguo0701-/HW3_GUO.Rmd")
```

Problem 6

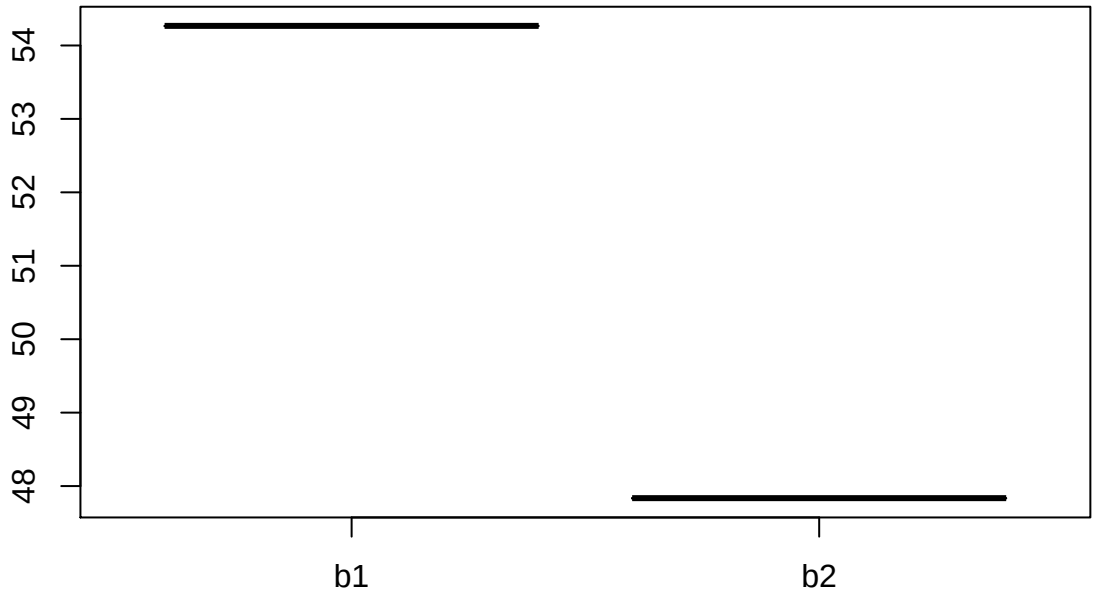
a

```
A<-readRDS("HW4_data.rds")
mysum<-function(dev1,dev2){
  mean_1<-mean(dev1)
  mean_2<-mean(dev2)
  sd_1<-sd(dev1)
  sd_2<-sd(dev2)
  correlation<-cor(dev1,dev2)
  a<-data.frame(mean_1,mean_2,sd_1,sd_2,correlation)
  return (a)
}
a1<-A[which(A$Observer == 1), ]
a2<-A[which(A$Observer == 2), ]
a3<-A[which(A$Observer == 3), ]
a4<-A[which(A$Observer == 4), ]
a5<-A[which(A$Observer == 5), ]
a6<-A[which(A$Observer == 6), ]
a7<-A[which(A$Observer == 7), ]
a8<-A[which(A$Observer == 8), ]
a9<-A[which(A$Observer == 9), ]
a10<-A[which(A$Observer == 10), ]
a11<-A[which(A$Observer == 11), ]
a12<-A[which(A$Observer == 12), ]
a13<-A[which(A$Observer == 13), ]
# aa<-data.frame
# for (i in 1:13){
#   a<-paste("a",i,sep="")
#   a<-mysum(a$dev1,a$dev1)
#   aa<-rbind(aa,a)
#   return(aa)
# }
aa1<-mysum(a1$dev1,a1$dev2)
aa2<-mysum(a2$dev1,a2$dev2)
aa3<-mysum(a3$dev1,a3$dev2)
aa4<-mysum(a4$dev1,a4$dev2)
aa5<-mysum(a5$dev1,a5$dev2)
aa6<-mysum(a6$dev1,a6$dev2)
aa7<-mysum(a7$dev1,a7$dev2)
```

```
aa8<-mysum(a8$dev1,a8$dev2)
aa9<-mysum(a9$dev1,a9$dev2)
aa10<-mysum(a10$dev1,a10$dev2)
aa11<-mysum(a11$dev1,a11$dev2)
aa12<-mysum(a12$dev1,a12$dev2)
aa13<-mysum(a13$dev1,a13$dev2)
aa<-rbind(aa1,aa2,aa3,aa4,aa5,aa6,aa7,aa8,aa9,aa10,aa11,aa12,aa13)
observer<-seq(1:13)
aa<-cbind(observer,aa)
```

b.

```
observer<-seq(1:13)
aa<-cbind(observer,aa)
b1<-aa$mean_1
b2<-aa$mean_2
c1<-aa$sd_1
c2<-aa$sd_2
b<-cbind(b1,b2)
b<-as.matrix(b)
boxplot(b)
```



c.

```
c<-cbind(c1,c2)
c<-as.matrix(c)
#install.packages("vioplot")
library(vioplot)
```

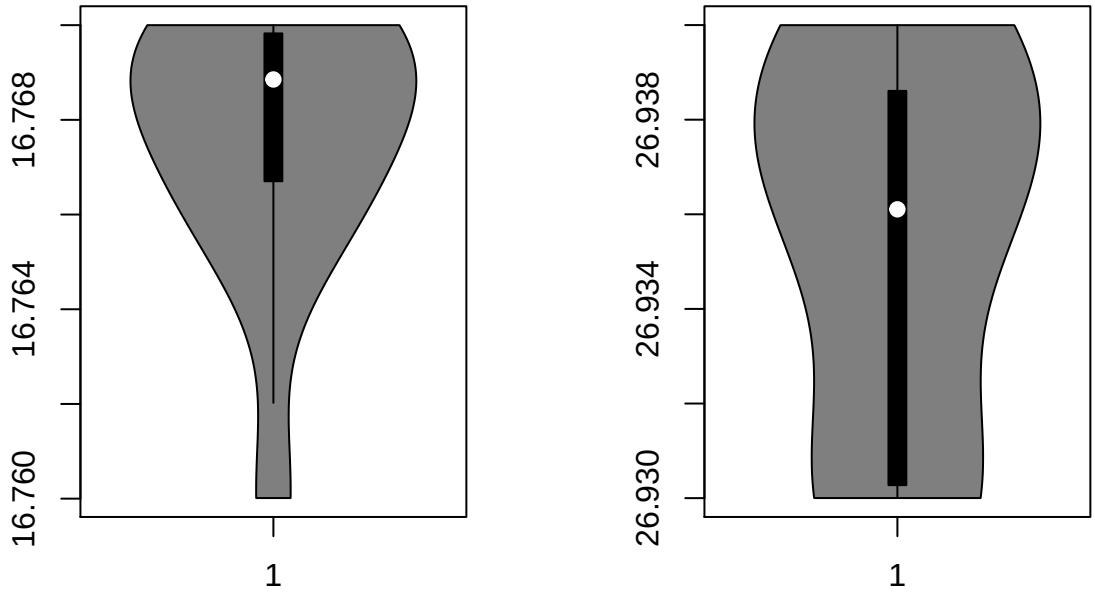
```
## Loading required package: sm
## Package 'sm', version 2.2-5.6: type help(sm) for summary information
## Loading required package: zoo
##
## Attaching package: 'zoo'
## The following objects are masked from 'package:base':
##
##     as.Date, as.Date.numeric
```

```
par(mfrow=c(1,2))
vioplot(c1)
```

```
## [1] 16.76001 16.77000
```

```
vioplot(c2)
```

```
## [1] 26.93 26.94
```



Problem 8

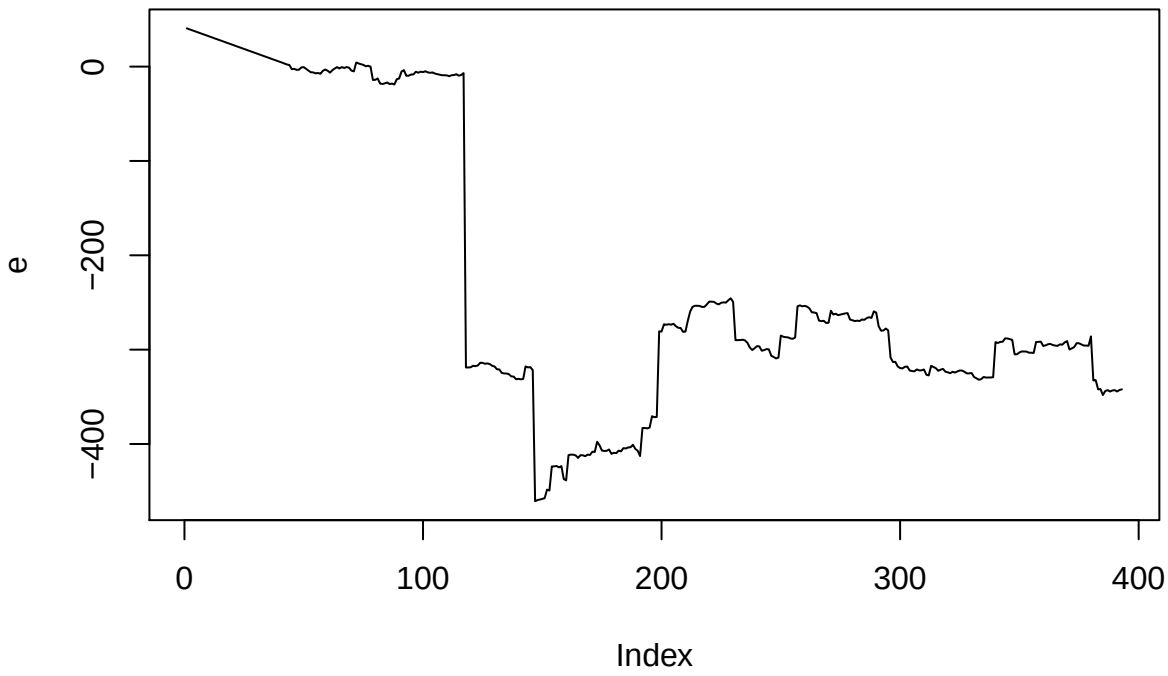
```
integration<-function(a,b,n){
  d<-(b-a)/n
  int<-0
  for (i in 1:n){
```

```
    c<-((b-a)/n)*i+a
    int<-int+d*exp(-c^2/2)
  }
  return(int)
}
integration(0,1,1000000)
```

```
## [1] 0.8556242
```

Problem 9

```
df<-function(x){
  df<-(3^x)*log(3)-cos(x)-5*sin(5*x)
  return(df)
}
f<-function(x){
  f<-3^x+sin(x)-5*cos(5*x)
  return(f)
}
e<-c()
d<-abs(f(0))
x<-0
while (d>0.05){
  x<-x-(f(x)/df(x))
  d<-abs(f(x))
  e<-c(e,x)
}
plot(e,type="l")
```


e
0
−200
−400
0
100
200
300
400
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