IT24104177 PS LAB08

```r
data<-read.table("Data - Lab 8.txt",header=TRUE)
fix(data)
attach(data)

#Q1
popmn<-mean(Nicotine)
popvar<-var(Nicotine)

#Q2
samples<-c()
n<-c()

for (i in 1:30){
  s<-sample(Nicotine,5,replace=TRUE)
  samples<-cbind(samples,s)
  n<-c(n,paste('S',i))
}
```

```r
for (i in 1:30){
  s<-sample(Nicotine,5,replace=TRUE)
  samples<-cbind(samples,s)
  n<-c(n,paste('S',i))
}
colnames(samples)=n
s.means<-apply(samples,2,mean)
s.vars<-apply(samples,2,var)

#Q3
samplemean<-mean(s.means)
samplevars<-var(s.means)

#Q4
popmn
```

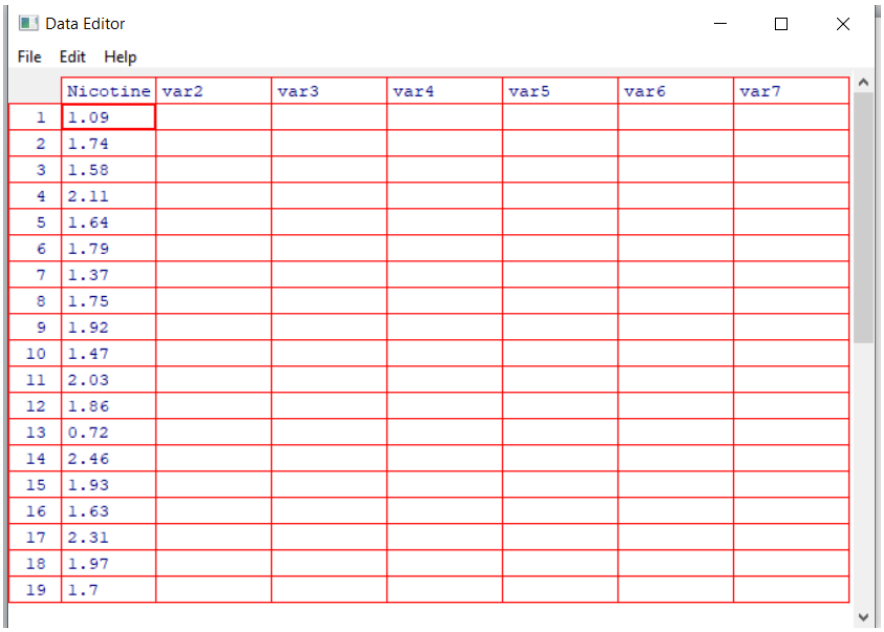
```r
  samples<-cbind(samples,s)
  n<-c(n,paste('S',i))
}
colnames(samples)=n
s.means<-apply(samples,2,mean)
s.vars<-apply(samples,2,var)

#Q3
samplemean<-mean(s.means)
samplevars<-var(s.means)

#Q4
popmn
samplemean

#Q5
truevar=popvar/5
samplevars
```

40:1 (Top Level) R Script



	Nicotine	var2	var3	var4	var5	var6	var7
1	1.09						
2	1.74						
3	1.58						
4	2.11						
5	1.64						
6	1.79						
7	1.37						
8	1.75						
9	1.92						
10	1.47						
11	2.03						
12	1.86						
13	0.72						
14	2.46						
15	1.93						
16	1.63						
17	2.31						
18	1.97						
19	1.7						

Q1

```
popmn<-mean(Nicotine)
popvar<-var(Nicotine)
```

Q2

```
> #Q2
> samples<-c()
> n<-c()
> for (i in 1:30){
+   s<-sample(Nicotine,5,replace=TRUE)
+   samples<-cbind(samples,s)
+   n<-c(n,paste('S',i))
+ }
> colnames(samples)=n
> colnames(samples)=n
> s.means<-apply(samples,2,mean)
> s.vars<-apply(samples,2,var)
```

Q3

```
> #Q3
> samplemean<-mean(s.means)
> samplevars<-var(s.means)
```

Q4

```
> #Q4
> popmn
[1] 1.77425
> samplemean
[1] 1.7716
```

Q5

```
> #Q5
> truevar=popvar/5
> samplevars
[1] 0.02835846
```

Exercise

Q1

```r
data<-read.table("Exercise - LaptopsWeights.txt",header=TRUE)
fix(data)
attach(data)

weight <- as.numeric(data$weight.kg.)
weight <- weight
popmn <- mean(weight)
popsd <- sd(weight)

#Q2
samples <- c()
n <- c()

set.seed(123)
num_samples <- 25
```

40:1 (Top Level) R Script

Source on Save | Run | Source

```r
n <- c()

set.seed(123)
num_samples <- 25
sample_size <- 6

sample_means <- numeric(num_samples)
sample_sds   <- numeric(num_samples)

for (i in 1:num_samples) {
  s <- sample(weight, sample_size, replace = TRUE)
  sample_means[i] <- mean(s)
  sample_sds[i]   <- sd(s)
}

#Q3
mean_of_sample_means <- mean(sample_means)
sd_of_sample_means   <- sd(sample_means)
```

40:1 (Top Level) R Script

```
> popmn <- mean(weight)
> popsd <- sd(Weight)
```

Q2

```
> #Q2
> samples <- c()
> n <- c()
> for (i in 1:25) {
+   s <- sample(Weight, 6, replace = TRUE
+   samples <- cbind(samples, s)
+   n <- c(n, paste("S", i))
+ }
> colnames(samples) <- n
> s.means <- apply(samples, 2, mean)
> s.vars  <- apply(samples, 2, var)
```

Q3

```
> #Q3
> mean_of_sample_means <- mean(sample_means)
> sd_of_sample_means   <- sd(sample_means)
```