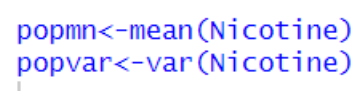
```
setwd("C:\\Users\\user\\Desktop\\IT24104172_PS_Lab_8")

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

fix(data)

attach(data)
```

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

s.means<-apply(samples,2,mean)

s.vars<-apply(samples,2,var)
```

```
> #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)

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

Q4

#Q4

popmn

samplemean

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

Q5

#Q5

truevar=popvar/5

samplevars

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

Exercise

Q1

#Q1

```
setwd("C:\\Users\\user\\Desktop\\IT24100556_PS_Lab_8")

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)
```

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

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)
```

```
> #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)
```

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