

IT24101972

LAB 08

01.

```
R 4.4.2 · C:/Users/SANDARU/Desktop/ps lab 08/ ↗  
> setwd("C:\\Users\\SANDARU\\Desktop\\ps lab 08")  
>  
> #01  
> data <- read.table("Exercise - LaptopsWeights.txt", header = TRUE)  
> fix(data)  
> attach(data)  
  
> #population mean  
> popmn <- mean(weight.kg.)  
> popmn  
[1] 2.468  
> #population standard deviation  
> popsd <- sd(weight.kg.)  
> popsd  
[1] 0.2561069  
...  
...
```

02.

```
> #02
> samples <-c()
> n <- c()
> for(i in 1:25){
+   s<-sample(weight.kg.,6,replace=TRUE)
+   samples<-cbind(samples,s)
+   n<-c(n,paste('s', i))
+ }
> colnames(samples)=n
> #sample mean
> s.means <- apply(samples,2,mean)
> s.means
```

s 1	s 2	s 3	s 4	s 5	s 6	s 7	s 8
2.501667	2.613333	2.383333	2.585000	2.333333	2.271667	2.565000	2.485000
s 9	s 10	s 11	s 12	s 13	s 14	s 15	s 16
2.500000	2.335000	2.256667	2.533333	2.388333	2.500000	2.546667	2.506667
s 17	s 18	s 19	s 20	s 21	s 22	s 23	s 24
2.543333	2.546667	2.451667	2.525000	2.510000	2.425000	2.411667	2.440000
s 25							
2.415000							

```
> #sample standard deviation
> s.sds <- apply(samples,2,sd)
> s.sds
```

s 1	s 2	s 3	s 4	s 5	s 6
0.32560201	0.17095808	0.25687870	0.14010710	0.36456367	0.19477337
s 7	s 8	s 9	s 10	s 11	s 12
0.27609781	0.19097120	0.28788887	0.26478293	0.28338431	0.26971590
s 13	s 14	s 15	s 16	s 17	s 18
0.24975321	0.22387497	0.29655803	0.28528348	0.24146773	0.13515423
s 19	s 20	s 21	s 22	s 23	s 24
0.02136976	0.25422431	0.40649723	0.28891175	0.24862958	0.39145881
s 25					
0.19887182					

03.

```
> #03
>
> #Calculate mean and standard deviation of sample means stored in "s.means"
variable
> samplemean <- mean(s.means)
> samplemean
[1] 2.462933
> samplesds <- sd(s.means)
> samplesds
[1] 0.09515494
> #Compare the population mean and Mean of Sample means
> popmn
[1] 2.468
> samplemean
[1] 2.462933
> #Compare the population standard deviation and standard deviation of sample
means
> truesd = popsd /  $\sqrt{6}$ 
> truesd
[1] 0.04268449
> samplesds
[1] 0.09515494
> #Compare the population standard deviation and standard deviation of sample
means
> truesd = popsd / sqrt(6)
> truesd
[1] 0.1045552
> samplesds
[1] 0.09515494
> |
```