



The image shows a screenshot of the R Studio interface. The top pane displays an R script file named "IT24101027_Lab_08.R". The script contains the following code:

```
1 #setting the directory
2 setwd("C:/Users/IT24101020/Desktop/it24101020")
3
4 #importing the data set
5 data <- read.table("Exercise - Laptopsweights.txt",header=TRUE)
6 fix(data)
7 attach(data)
8
9 # Question 01
10 # Calculating population mean & standard deviation
11 pop_mean_laptop <- mean(weight.kg.)
12 pop_sd_laptop <- sd(weight.kg.)
13
14 # Question 02
15 # Creating null vectors to store sample data sets
16 samples_laptop <- c()
17 n_laptop <- c()
18
19 # Drawing 25 sample of size 6
20
```

The bottom pane shows the R console output, which is the execution of the script. The output is as follows:

```
R 4.2.2 - C:/Users/IT24101020/Desktop/it24101020/
> #setting the directory
> setwd("C:/Users/IT24101020/Desktop/it24101020")
> #importing the data set
> data <- read.table("Exercise - Laptopsweights.txt",header=TRUE)
> fix(data)
attach(data)
# Question 01
pop_sd_laptop <- sd(weight.kg.)
# Question 02
n_laptop <- c()
# Drawing 25 sample of size 6
#Assigning column names
#calculating sample means and standard deviations
s.sd_laptop <- apply(samples_laptop,2,sd)
# question 03
```

```
IT24101027_Lab_08.R*  
Source on Save  
Run  
Source  
19 # Drawing 25 sample of size 6  
20 for (i in 1:25){  
21   s_laptop <- sample(weight.kg.,6,replace = TRUE)  
22   samples_laptop <- cbind(samples_laptop,s_laptop)  
23   n_laptop <- c(n_laptop,paste('s',i))  
24 }  
25  
26 #Assigning column names  
27 colnames(samples_laptop) =n_laptop  
28  
29 #calculating sample means and standard deviations  
30 s.mean_laptop <- apply(samples_laptop,2,mean)  
31 s.sd_laptop <- apply(samples_laptop,2,sd)  
32  
33 # Question 03  
34 #calculating the mean and standard deviation of the sample means  
35 mean_of_s_means <- mean(s.mean_laptop)  
36 sd_of_s_means <- sd(s.mean_laptop)  
1:23 (Top Level) R Script  
Console Terminal Background Jobs  
R 4.2.2 · C:/Users/IT24101020/Desktop/it24101020/  
pop_sd_laptop <-sd(weight.kg.)  
# Question 02  
n_laptop <- c()  
# Drawing 25 sample of size 6  
#Assigning column names  
#calculating sample means and standard deviations  
s.sd_laptop <- apply(samples_laptop,2,sd)  
# Question 03  
sd_of_s_means <- sd(s.mean_laptop)  
# comparing the values  
mean_of_s_means  
pop_sd_laptop  
sd_of_s_means
```

```
27 colnames(samples_laptop) = n_laptop
28
29 #calculating sample means and standard deviations
30 s.mean_laptop <- apply(samples_laptop,2,mean)
31 s.sd_laptop <- apply(samples_laptop,2,sd)
32
33 # Question 03
34 #calculating the mean and standard deviation of the sample means
35 mean_of_s_means <- mean(s.mean_laptop)
36 sd_of_s_means <- sd(s.mean_laptop)
37
38 # comparing the values
39 pop_mean_laptop
40 mean_of_s_means
41
42 pop_sd_laptop
43 sd_of_s_means
44
45
```

1:23 (Top Level) ↕

R Script ↕

Console

Terminal x

Background Jobs x

R 4.2.2 · C:/Users/IT24101020/Desktop/it24101020/ ↗

```
pop_sd_laptop <-sd(weight.kg.)
# Question 02
n_laptop <- c()
# Drawing 25 sample of size 6
#Assigning column names
#calculating sample means and standard deviations
s.sd_laptop <- apply(samples_laptop,2,sd)
# Question 03
sd_of_s_means <- sd(s.mean_laptop)
# comparing the values
mean_of_s_means
pop_sd_laptop
sd_of_s_means
```