

IT24102399

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```
setwd("C:\\Users\\IT24102399\\Downloads\\Lab 08-20250926")
#importing the data set
data <- read.table("Exercise - Laptopsweights.txt",header=TRUE)
fix(data)
attach(data)

# Question 01
# Calculating population mean & standard deviation
pop_mean_laptop <- mean(weight.kg.)
pop_sd_laptop <- sd(weight.kg.)

# Question 02
# Creating null vectors to store sample data sets
samples_laptop <- c()
n_laptop <- c()

# Drawing 25 sample of size 6
for (i in 1:25){
  s_laptop <- sample(weight.kg.,6,replace = TRUE)
  samples_laptop <- cbind(samples_laptop,s_laptop)
  n_laptop <- c(n_laptop,paste('s',i))
}

#Assigning column names
colnames(samples_laptop) =n_laptop

#calculating sample means and standard deviations
s.mean_laptop <- apply(samples_laptop,2,mean)
s.sd_laptop <- apply(samples_laptop,2,sd)

# Question 03
#calculating the mean and standard deviation of the sample means
mean_of_s_means <- mean(s.mean_laptop)
sd_of_s_means <- sd(s.mean_laptop)

# comparing the values
pop_mean_laptop
mean_of_s_means

pop_sd_laptop
sd_of_s_means
```

```

> setwd("C:\\Users\\IT24102399\\Downloads\\Lab 08-20250926")
> #importing the data set
> data <- read.table("Exercise - Laptopsweights.txt",header=TRUE)
> fix(data)
> attach(data)
The following object is masked from data (pos = 3):

    weight.kg.

The following object is masked from data (pos = 4):

    weight.kg.

> data <- read.table("Exercise - Laptopsweights.txt",header=TRUE)
> fix(data)
> attach(data)
The following object is masked from data (pos = 3):

    weight.kg.

The following object is masked from data (pos = 4):

    weight.kg.

The following object is masked from data (pos = 5):

    weight.kg.

> pop_mean_laptop <- mean(weight.kg.)
> pop_sd_laptop <- sd(weight.kg.)
> samples_laptop <- c()
> n_laptop <- c()
> for (i in 1:25){
+   s_laptop <- sample(weight.kg.,6,replace = TRUE)
+   samples_laptop <- cbind(samples_laptop,s_laptop)
+   n_laptop <- c(n_laptop,paste('s',i))
+ }
> colnames(samples_laptop) =n_laptop
> s.mean_laptop <- apply(samples_laptop,2,mean)
> s.sd_laptop <- apply(samples_laptop,2,sd)
> mean_of_s_means <- mean(s.mean_laptop)
> sd_of_s_means <- sd(s.mean_laptop)
> pop_mean_laptop
[1] 2.468
> mean_of_s_means
[1] 2.461867
> pop_sd_laptop
[1] 0.2561069
> sd_of_s_means
[1] 0.1129675

```

R	Global Environment	
Data		
data	40 obs. of 1 variable	
samples_laptop	num [1:6, 1:25] 2.42 2.7 2.73 2.71 2.89 2.05 2.89 2.45 2.85 2.46 ...	
values		
i	25L	
mean_of_s_means	2.46186666666667	
n_laptop	chr [1:25] "s 1" "s 2" "s 3" "s 4" "s 5" "s 6" "s 7" "s 8" "s 9" "s 10" "s...	
pop_mean_laptop	2.468	
pop_sd_laptop	0.256106948813907	
s_laptop	num [1:6] 2.32 2.66 2.46 2.13 2.53 2.05	
s.mean_laptop	Named num [1:25] 2.58 2.56 2.21 2.52 2.36 ...	
s.sd_laptop	Named num [1:25] 0.302 0.312 0.293 0.114 0.45 ...	
sd_of_s_means	0.112967464998327	