

IT24100788 – Abeysinghe S.D

Probability and Statistics | Lab Sheet 08 Exercise

The screenshot displays the R Studio interface. The script editor on the left contains the following code:

```
1 setwd("C:\\Users\\User\\Desktop\\IT24100788_Lab_8")
2
3 #Part 1
4 data2<-read.table("Exercise - LaptopsWeights.txt",header=TRUE)
5 fix(data2)
6 attach(data2)
7
8 #1
9 pop_mean<-mean(weight.kg.)
10 pop_sd<-sd(weight.kg.)
11
12 cat("Population Mean (True Mean):",pop_mean,"\n")
13 cat("Population Standard Deviation (True SD):",pop_sd,"\n")
14
15 #2
16 samples<-c()
17 sample_names <- c()
18
19 for (i in 1:25){
20   S <- sample(weight.kg.,6,replace =TRUE)
21   samples <- cbind(samples,S)
22   sample_names<-c(sample_names, paste('S',i))
23 }
24
25 colnames(samples)= sample_names
26 s.means<-apply(samples,2,mean)
27 s.sds<-apply(samples,2,sd)
28
29 #3
30
31 samplemean<-mean(s.means)
32 samplesd<-sd(s.means)
33
34 pop_mean
35 pop_sd
36
37 truesd=pop_sd/6
38 samplesd
39
```

The Environment pane on the right shows the following data objects:

Object	Value
data2	40 obs. of 1 variable
samples	num [1:6, 1:25] 2.65 2.76 2.51 2.57 2.73 2.71 2.67 2.46...
i	25L
pop_mean	2.468
pop_sd	0.256106948813907
S	num [1:6] 2.71 2.2 2.73 2.45 2.2 2.47
s.means	Named num [1:25] 2.65 2.46 2.35 2.3 2.43 ...
s.sds	Named num [1:25] 0.0979 0.2027 0.2681 0.3914 0.2196 ...
sample_names	chr [1:25] "S 1" "S 2" "S 3" "S 4" "S 5" "S 6" "S 7" "S 8..."
samplemean	2.4626
samplesd	0.107545296227872
truesd	0.0426844914689845

The Functions pane shows a function definition for 'data'.

```
R > R 4.5.1 · C:/Users/User/Desktop/IT24100788_Lab_8/
> setwd("C:\\Users\\User\\Desktop\\IT24100788_Lab_8")
> data2<-read.table("Exercise - LaptopsWeights.txt",header=TRUE)
> fix(data2)
> attach(data2)
> #1
> pop_mean<-mean(weight.kg.)
> pop_sd<-sd(weight.kg.)
> cat("Population Mean (True Mean):",pop_mean,"\n")
Population Mean (True Mean): 2.468
> cat("Population Standard Deviation (True SD):",pop_sd,"\n")
Population Standard Deviation (True SD): 0.2561069
> #2
> samples<-c()
> sample_names <- c()
> for (i in 1:25){
+   S <- sample(weight.kg.,6,replace =TRUE)
+   samples <- cbind(samples,S)
+   sample_names<-c(sample_names, paste('S',i))
+ }
> colnames(samples)= sample_names
> s.means<-apply(samples,2,mean)
> s.sds<-apply(samples,2,sd)
> samplemean<-mean(s.means)
> samplesd<-sd(s.means)
> pop_mean
[1] 2.468
> pop_sd
[1] 0.2561069
> truesd=pop_sd/6
>
```