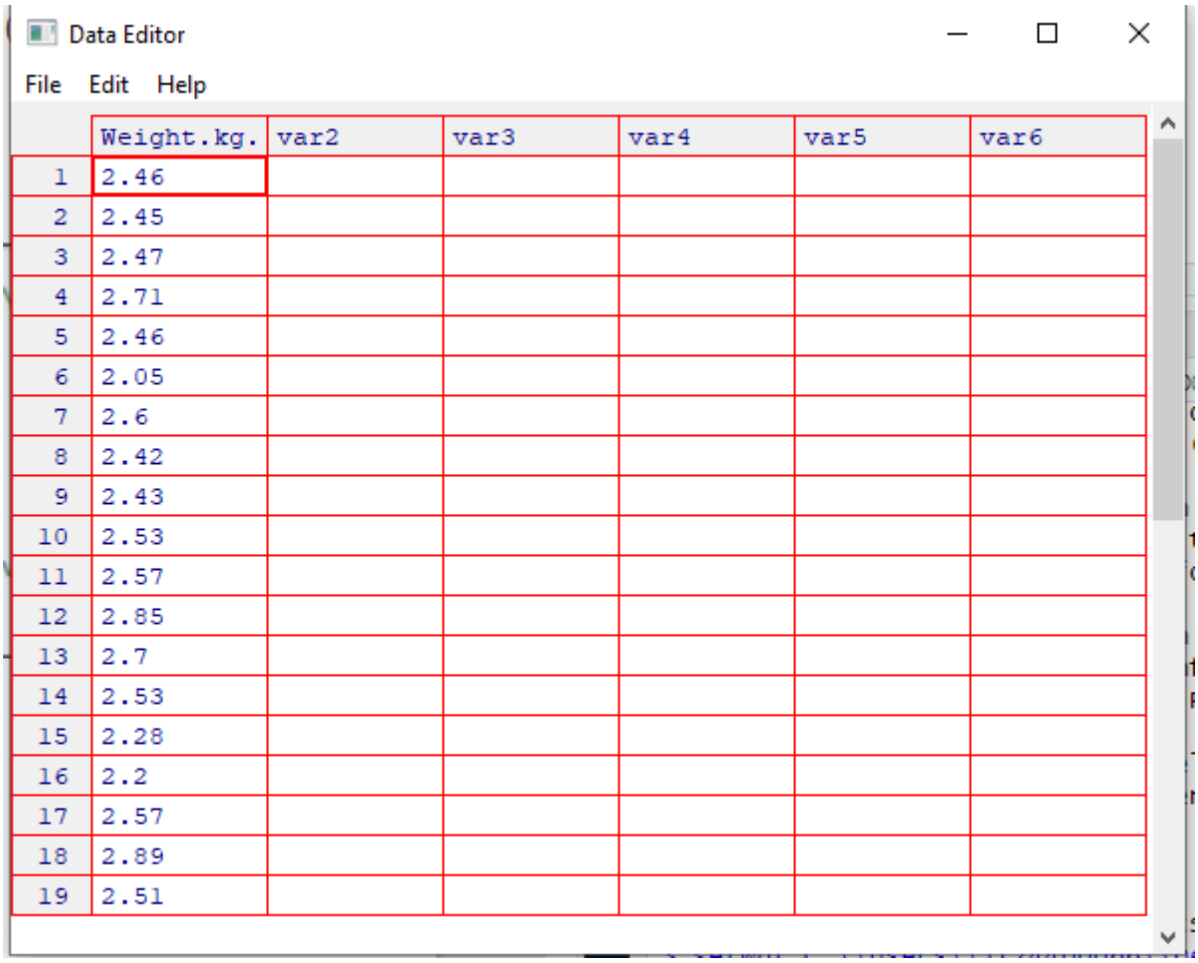
Probability and Statistics - IT2120

Lab Sheet 08

Exercise

1.



	Weight.kg.	var2	var3	var4	var5	var6
1	2.46					
2	2.45					
3	2.47					
4	2.71					
5	2.46					
6	2.05					
7	2.6					
8	2.42					
9	2.43					
10	2.53					
11	2.57					
12	2.85					
13	2.7					
14	2.53					
15	2.28					
16	2.2					
17	2.57					
18	2.89					
19	2.51					

Untitled1*

Source on Save

```
1  getwd()
2  setwd("/Users/kasunathauda/Desktop/IT24400066")
3  getwd()
4
5  #1
6  data<-read.table("Exercise - LaptopsWeights.txt",header=TRUE)
7  fix(data)
8  attach(data)
9
```

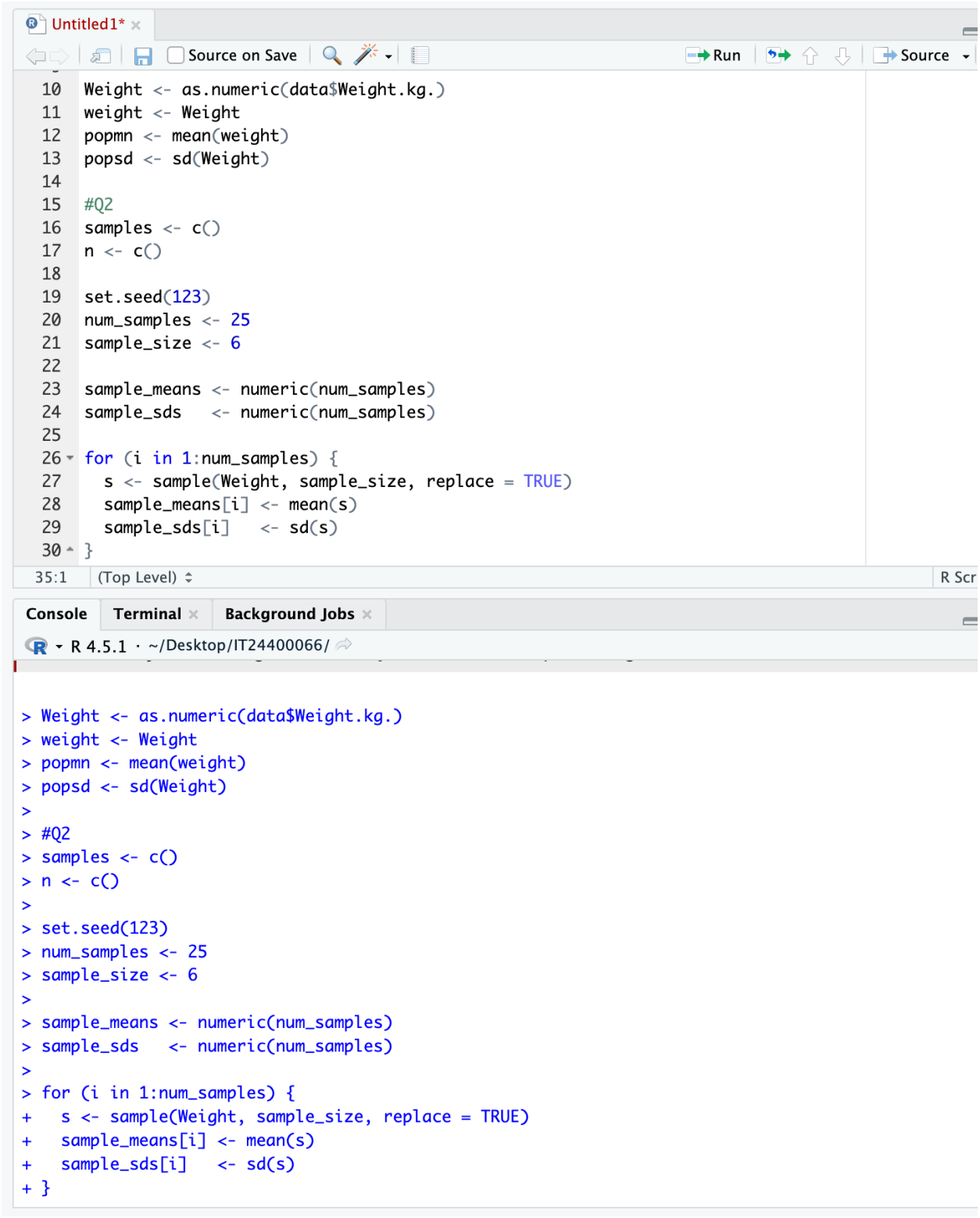
8:13 (Top Level)

Console | Terminal | Background Jobs

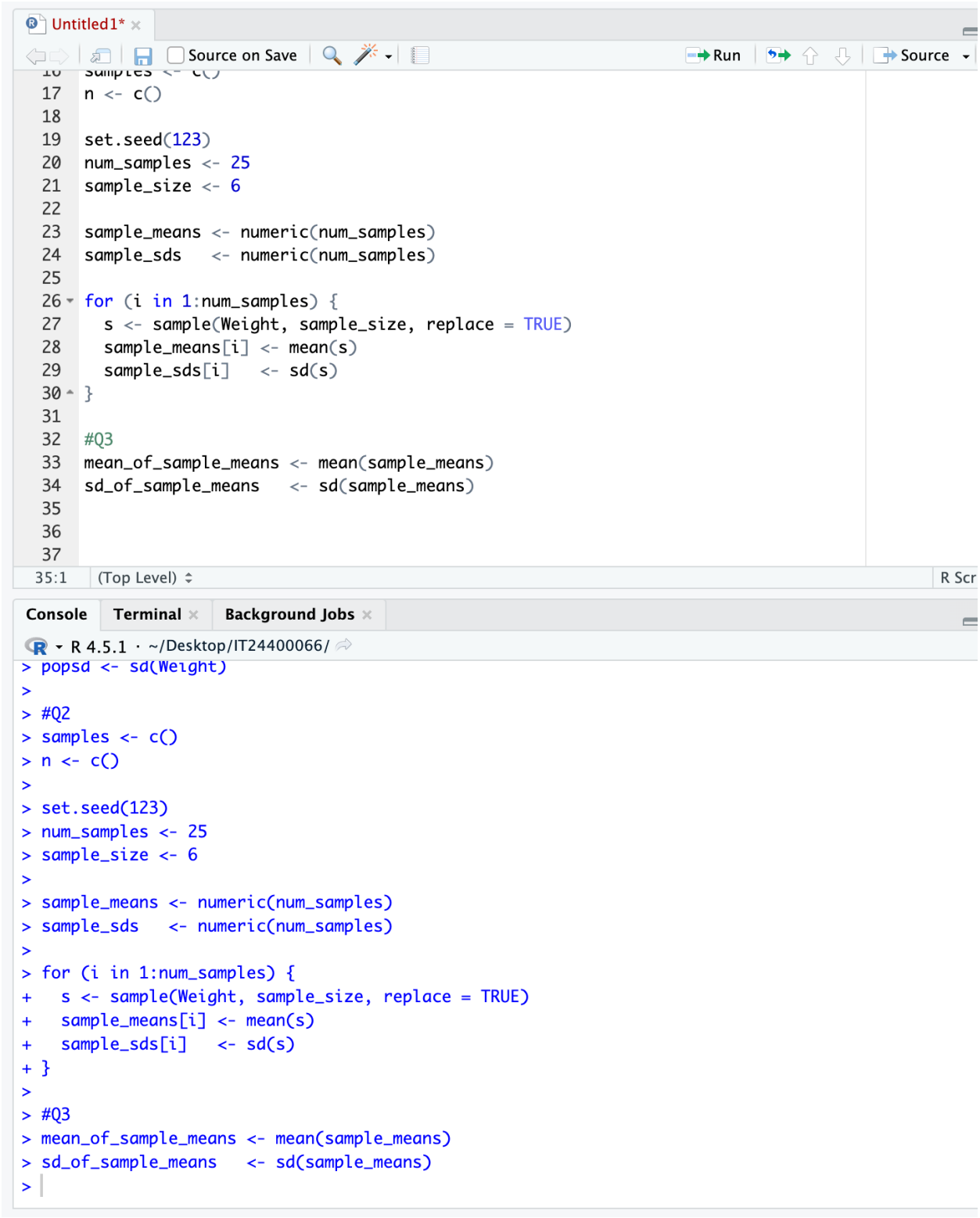
R 4.5.1 · ~/Desktop/IT24400066/

```
R version 4.5.1 (2025-06-13) -- "Great Square Root"
Copyright (C) 2025 The R Foundation for Statistical Computing
Platform: aarch64-apple-darwin20

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

  Natural language support but running in an English locale

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

> getwd()
[1] "/Users/kasunathauda"
> setwd("/Users/kasunathauda/Desktop/IT24400066")
> getwd()
[1] "/Users/kasunathauda/Desktop/IT24400066"
>
> #1
> data<-read.table("Exercise - LaptopsWeights.txt",header=TRUE)
> fix(data)
```

2.


Untitled1*
Source on Save
Run
Source
Weight <- as.numeric(data$Weight.kg.)
weight <- Weight
popmn <- mean(weight)
popsd <- sd(Weight)
#Q2
samples <- c()
n <- c()
set.seed(123)
num_samples <- 25
sample_size <- 6
sample_means <- numeric(num_samples)
sample_sds <- numeric(num_samples)
for (i in 1:num_samples) {
s <- sample(Weight, sample_size, replace = TRUE)
sample_means[i] <- mean(s)
sample_sds[i] <- sd(s)
}
35:1
(Top Level)
R Scr
Console
Terminal
Background Jobs
R 4.5.1 · ~/Desktop/IT24400066/
> Weight <- as.numeric(data$Weight.kg.)
> weight <- Weight
> popmn <- mean(weight)
> popsd <- sd(Weight)
>
> #Q2
> samples <- c()
> n <- c()
>
> set.seed(123)
> num_samples <- 25
> sample_size <- 6
>
> sample_means <- numeric(num_samples)
> sample_sds <- numeric(num_samples)
>
> for (i in 1:num_samples) {
+ s <- sample(Weight, sample_size, replace = TRUE)
+ sample_means[i] <- mean(s)
+ sample_sds[i] <- sd(s)
+ }

3.


Untitled1*
Source on Save
Run
Source
samples <- c()
n <- c()
set.seed(123)
num_samples <- 25
sample_size <- 6
sample_means <- numeric(num_samples)
sample_sds <- numeric(num_samples)
for (i in 1:num_samples) {
s <- sample(Weight, sample_size, replace = TRUE)
sample_means[i] <- mean(s)
sample_sds[i] <- sd(s)
}
#Q3
mean_of_sample_means <- mean(sample_means)
sd_of_sample_means <- sd(sample_means)
35:1
(Top Level)
R Scr
Console
Terminal
Background Jobs
R 4.5.1 · ~/Desktop/IT24400066/
> popsd <- sd(Weight)
>
> #Q2
> samples <- c()
> n <- c()
>
> set.seed(123)
> num_samples <- 25
> sample_size <- 6
>
> sample_means <- numeric(num_samples)
> sample_sds <- numeric(num_samples)
>
> for (i in 1:num_samples) {
+ s <- sample(Weight, sample_size, replace = TRUE)
+ sample_means[i] <- mean(s)
+ sample_sds[i] <- sd(s)
+ }
>
> #Q3
> mean_of_sample_means <- mean(sample_means)
> sd_of_sample_means <- sd(sample_means)
>