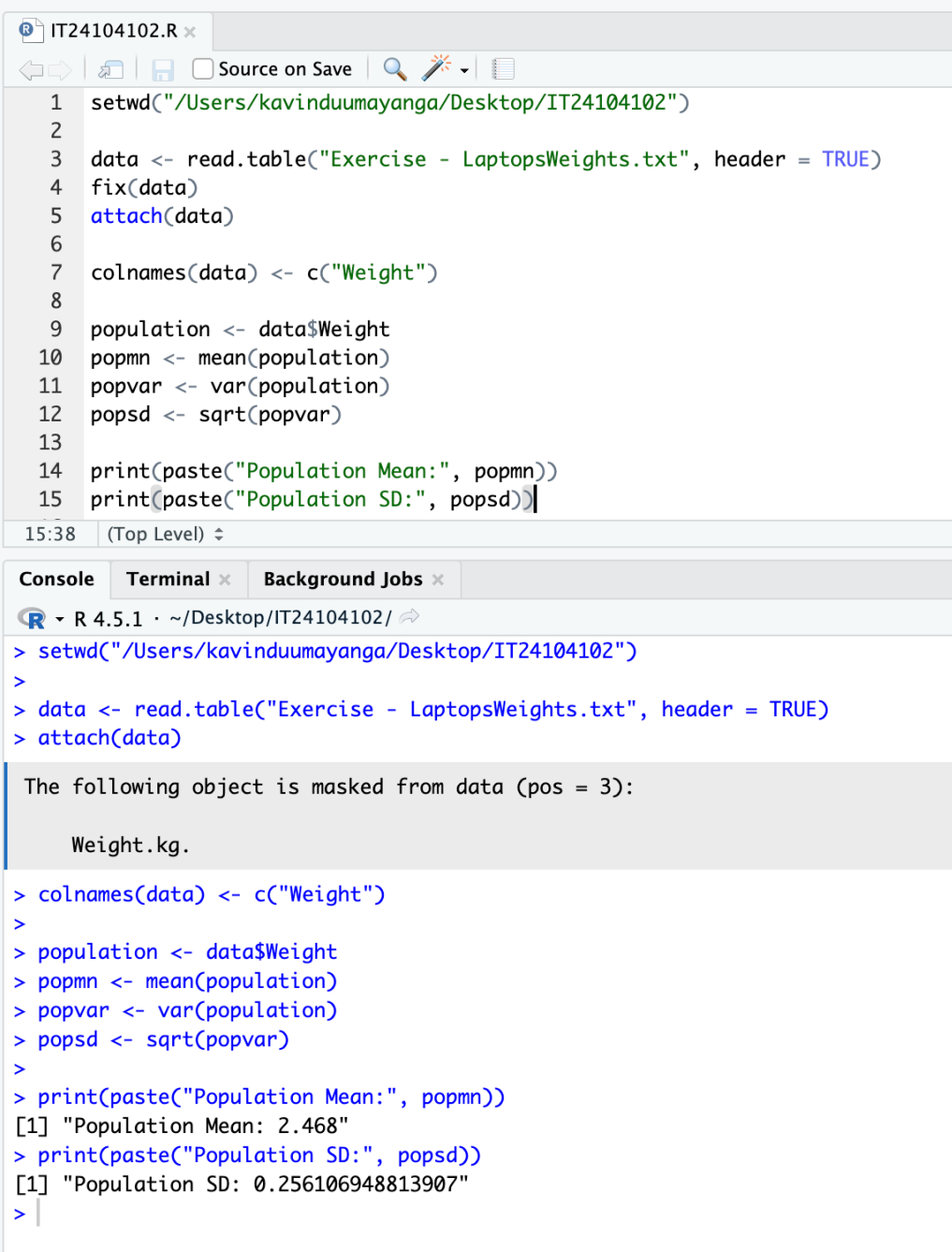


IT24104102

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PSLabsheet 08

Q1)



```
IT24104102.R x
Source on Save
1 setwd("/Users/kavinduumayanga/Desktop/IT24104102")
2
3 data <- read.table("Exercise - LaptopsWeights.txt", header = TRUE)
4 fix(data)
5 attach(data)
6
7 colnames(data) <- c("Weight")
8
9 population <- data$Weight
10 popmn <- mean(population)
11 popvar <- var(population)
12 popsd <- sqrt(popvar)
13
14 print(paste("Population Mean:", popmn))
15 print(paste("Population SD:", popsd))

15:38 (Top Level)
Console Terminal x Background Jobs x
R 4.5.1 · ~/Desktop/IT24104102/
> setwd("/Users/kavinduumayanga/Desktop/IT24104102")
>
> data <- read.table("Exercise - LaptopsWeights.txt", header = TRUE)
> attach(data)

The following object is masked from data (pos = 3):

  Weight.kg.

> colnames(data) <- c("Weight")
>
> population <- data$Weight
> popmn <- mean(population)
> popvar <- var(population)
> popsd <- sqrt(popvar)
>
> print(paste("Population Mean:", popmn))
[1] "Population Mean: 2.468"
> print(paste("Population SD:", popsd))
[1] "Population SD: 0.256106948813907"
>
```

Q2)

```
IT24104102.R x
Source on Save
Run

10
17 samples <- c()
18 n <- c()
19
20 for (i in 1:25){
21   s <- sample(population, 6, replace = TRUE)
22   samples <- cbind(samples, s)
23   n <- c(n, paste('s',i))
24 }
25
26 colnames(samples) = n
27
28 s.means <- apply(samples, 2, mean)
29 s.vars <- apply(samples, 2, var)
30 s.sd <- sqrt(s.vars)
31
32 print(paste("Sample Mean:", s.means))
33 print(paste("Sample SD:", s.sd))
34
15:38 (Top Level) ↕

Console Terminal Background Jobs x
R R 4.5.1 · ~/Desktop/IT24104102/ ↗

> samples <- c()
> n <- c()
>
> for (i in 1:25){
+   s <- sample(population, 6, replace = TRUE)
+   samples <- cbind(samples, s)
+   n <- c(n, paste('s',i))
+ }
>
> colnames(samples) = n
>
> s.means <- apply(samples, 2, mean)
> s.vars <- apply(samples, 2, var)
> s.sd <- sqrt(s.vars)
>
```

```
Console Terminal Background Jobs x
R R 4.5.1 · ~/Desktop/IT24104102/ ↗

>
> print(paste("Sample Mean:", s.means))
[1] "Sample Mean: 2.40333333333333" "Sample Mean: 2.345" "Sample Mean: 2.41166666666667"
[4] "Sample Mean: 2.59333333333333" "Sample Mean: 2.47" "Sample Mean: 2.445"
[7] "Sample Mean: 2.445" "Sample Mean: 2.455" "Sample Mean: 2.53333333333333"
[10] "Sample Mean: 2.52666666666667" "Sample Mean: 2.51333333333333" "Sample Mean: 2.28833333333333"
[13] "Sample Mean: 2.615" "Sample Mean: 2.45666666666667" "Sample Mean: 2.375"
[16] "Sample Mean: 2.485" "Sample Mean: 2.395" "Sample Mean: 2.44166666666667"
[19] "Sample Mean: 2.555" "Sample Mean: 2.495" "Sample Mean: 2.27166666666667"
[22] "Sample Mean: 2.52666666666667" "Sample Mean: 2.58333333333333" "Sample Mean: 2.39666666666667"
[25] "Sample Mean: 2.46833333333333"
> print(paste("Sample SD:", s.sd))
[1] "Sample SD: 0.226598028823436" "Sample SD: 0.317977986659454" "Sample SD: 0.265888447787163"
[4] "Sample SD: 0.0904802004123923" "Sample SD: 0.336035712387835" "Sample SD: 0.12723993083934"
[7] "Sample SD: 0.242960902204449" "Sample SD: 0.205109726731815" "Sample SD: 0.193769622662239"
[10] "Sample SD: 0.261814183471153" "Sample SD: 0.205783057287685" "Sample SD: 0.270437916473757"
[13] "Sample SD: 0.217692443598762" "Sample SD: 0.156418242755334" "Sample SD: 0.17603976823434"
[16] "Sample SD: 0.251376212080618" "Sample SD: 0.341745519356143" "Sample SD: 0.200241520835881"
[19] "Sample SD: 0.211163443805977" "Sample SD: 0.277470719175916" "Sample SD: 0.383323188271551"
[22] "Sample SD: 0.155263217365436" "Sample SD: 0.152796160510226" "Sample SD: 0.164641023644372"
[25] "Sample SD: 0.232242689156552"
>
```

Q3)



The screenshot shows an RStudio window with a script editor and a console. The script editor contains R code for calculating sample means, variances, and standard deviations. The console shows the execution of this code, with numerical results for each assignment.

```
IT24104102.R x
Source on Save
Run

34
35 samplemean <- mean(s.means)
36 samplevars <- var(s.means)
37 samplesd <- sqrt(samplevars)
38
39 popmn
40 samplemean
41
42 truevar = popsd / 6
43 samplesd
44
45 truevar = popvar/6
46 samplevars
47
48 truesd<-sqrt(truevar)
49 samplesd
50
51

51:1 (Top Level) ↕

Console Terminal x Background Jobs x
R R 4.5.1 · ~/Desktop/IT24104102/ ↗
[23] sample sd. 0.252242069150552
> samplemean <- mean(s.means)
> samplevars <- var(s.means)
> samplesd <- sqrt(samplevars)
>
> popmn
[1] 2.468
> samplemean
[1] 2.4598
>
> truevar = popsd / 6
> samplesd
[1] 0.08783576
>
> truevar = popvar/6
> samplevars
[1] 0.00771512
>
> truesd<-sqrt(truevar)
> samplesd
[1] 0.08783576
>
```

