

Sri Lanka Institute of Information Technology



Lab Submission Lab sheet No 08

IT23756564

Karunaratne B.C.M.L

Probability and Statistics | IT2120

B.Sc. (Hons) in Information Technology

The screenshot shows an RStudio interface with two tabs open: "Untitled5*" and "IT24104168.R*". The code in the editor is as follows:

```
1 setwd("C:\\\\users\\\\IT23756564\\\\Desktop\\\\IT23756564 LAb Sheet 08 PS")
2 getwd()
3
4 data<- read.table("Exercise - LaptopsWeights.txt" , header = TRUE)
5 fix(data)
6 attach(data)
7
8 #Q1
9 pop_mean <- mean(weight.kg.)
10 pop_sd <- sd(weight.kg.)
11
12
13 #Q2
14 samples <- c()
15 sample_names <- c()
16
17 for(i in 1:25) {
18   s <- sample(weight.kg., 6, replace=TRUE)
19   samples <- cbind(samples, s)
20   sample_names <- c(sample_names, paste("s", i)))
21 }
22
23 colnames(samples) <- sample_names
24
25 #Q3
26 sample_means <- apply(samples, 2, mean)
27 sample_sds <- apply(samples, 2, sd)
28
29 mean_of_sample_means <- mean(sample_means)
30 sd_of_sample_means <- sd(sample_means)
31
32 pop_mean
33 pop_sd
34 mean_of_sample_means
35 sd_of_sample_means
```

This screenshot shows the same RStudio interface as the first one, but with additional lines of code at the top and bottom. Lines 1 through 3 have been prepended to the beginning of the script, and line 37 has been appended to the end.

```
4 data<- read.table("Exercise - LaptopsWeights.txt" , header = TRUE)
5 fix(data)
6 attach(data)
7
8 #Q1
9 pop_mean <- mean(weight.kg.)
10 pop_sd <- sd(weight.kg.)
11
12
13 #Q2
14 samples <- c()
15 sample_names <- c()
16
17 for(i in 1:25) {
18   s <- sample(weight.kg., 6, replace=TRUE)
19   samples <- cbind(samples, s)
20   sample_names <- c(sample_names, paste("s", i)))
21 }
22
23 colnames(samples) <- sample_names
24
25 #Q3
26 sample_means <- apply(samples, 2, mean)
27 sample_sds <- apply(samples, 2, sd)
28
29 mean_of_sample_means <- mean(sample_means)
30 sd_of_sample_means <- sd(sample_means)
31
32 pop_mean
33 pop_sd
34 mean_of_sample_means
35 sd_of_sample_means
36
37
```

```

> setwd("C:\\\\Users\\\\IT23756564\\\\Desktop\\\\IT23756564 LAB Sheet 08 PS")
> getwd()
[1] "C:/Users/IT23756564/Desktop/IT23756564 LAB Sheet 08 PS"
> data<- read.table("Exercise - Laptopsweights.txt" , header = TRUE)
> fix(data)
> attach(data)
> #Q1
> pop_mean <- mean(weight.kg.)
> pop_sd <- sd(weight.kg.)
> #Q2
> 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
> #Q3
> sample_means <- apply(samples, 2, mean)
> sample_sds <- apply(samples, 2, sd)
> mean_of_sample_means <- mean(sample_means)
> sd_of_sample_means <- sd(sample_means)
> pop_mean
[1] 2.468
> pop_sd
[1] 0.2561069
> mean_of_sample_means
[1] 2.456533
> sd_of_sample_means
[1] 0.1201301

```

Environment		History	Connections	Tutorial		
		Import Dataset	242 MiB		List	C
R		Global Environment				
Data						
	data	40 obs. of 1 variable				
	samples	num [1:6, 1:25] 2.51 2.73 2.57 2.47 2.47 ...				
values						
	i	25L				
	mean_of_sample_m...	2.45653333333333				
	n	chr [1:30] "s 1" "s 2" "s 3" "s 4" "s 5" "s 6" ...				
	pop_mean	2.468				
	pop_sd	0.256106948813907				
	popMean	1.77425				
	popVar	0.152455833333333				
	s	num [1:6] 2.71 2.66 2.13 2.61 2.53 2.89				
	s.Mean	Named num [1:30] 1.75 2.06 1.64 1.79 2.11 ...				
	s.var	Named num [1:30] 0.1408 0.0873 0.0657 0.0967 0... ...				
	sample_means	Named num [1:25] 2.58 2.47 2.43 2.5 2.46 ...				
	sample_names	chr [1:25] "s 1" "s 2" "s 3" "s 4" "s 5" "s 6" ...				
	sample_sds	Named num [1:25] 0.117 0.181 0.19 0.262 0.252 ...				
	sd_of_sample_me...	0.12013006069041				