IT2120 - Probability and Statistics

Lab Sheet 08

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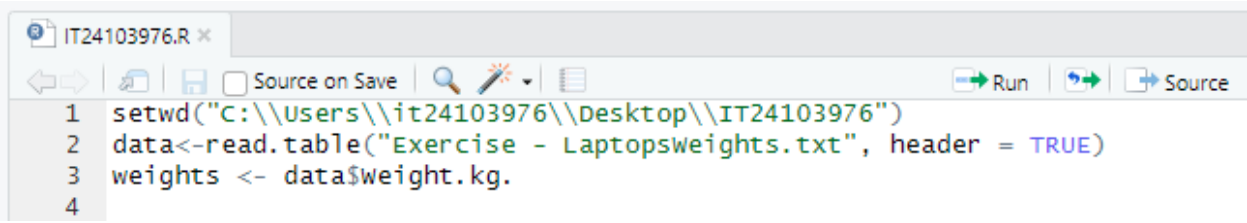


```
> setwd("C:\\Users\\it24103976\\Desktop\\IT24103976")
> data<-read.table("Exercise - LaptopsWeights.txt", header = TRUE)
> weights <- data$weight.kg.
```

1)

```
#1
pop_mean<-mean(weights)
pop_sd<-sd(weights)
pop_mean
pop_sd
```

```
> #1
> pop_mean<-mean(weights)
> pop_sd<-sd(weights)
> pop_mean
[1] 2.468
> pop_sd
[1] 0.2561069
```

2)

```r
#2
num_samples<-25
sample_size<-6

sample_means<-numeric(num_samples)
sample_sds<-numeric(num_samples)

set.seed(123)

for( i in 1:num_samples){
  samp<-sample(weights, size = sample_size, replace =TRUE)
  sample_means[i]<-mean(samp)
  sample_sds[i]<-sd(samp)
}

results<-data.frame(
  Sample=1:num_samples,
  Mean = round(sample_means,3),
  SD = round(sample_sds,3)

)
print(results)
```

```
> #2
> num_samples<-25
> sample_size<-6
>
> sample_means<-numeric(num_samples)
> sample_sds<-numeric(num_samples)
>
> set.seed(123)
>
> for( i in 1:num_samples){
+   samp<-sample(weights, size = sample_size, replace =TRUE)
+   sample_means[i]<-mean(samp)
+   sample_sds[i]<-sd(samp)
+ }
>
> results<-data.frame(
+   Sample=1:num_samples,
+   Mean = round(sample_means,3),
+   SD = round(sample_sds,3)
+
+ )
> print(results)
```

v

	Sample	Mean	SD
1	1	2.530	0.151
2	2	2.573	0.119
3	3	2.473	0.172
4	4	2.592	0.135
5	5	2.457	0.275
6	6	2.402	0.254
7	7	2.590	0.217
8	8	2.467	0.453
9	9	2.402	0.223
10	10	2.335	0.324
11	11	2.587	0.171
12	12	2.378	0.324
13	13	2.382	0.299
14	14	2.465	0.231
15	15	2.485	0.175
16	16	2.452	0.276
17	17	2.385	0.204
18	18	2.338	0.244
19	19	2.428	0.248
20	20	2.552	0.265
21	21	2.538	0.171
22	22	2.467	0.245
23	23	2.470	0.241
24	24	2.448	0.279
25	25	2.475	0.236

3)

```r
#3
mean_of_means <- mean(sample_means)
sd_of_means<-sd(sample_means)
mean_of_means
sd_of_means
```

```
> #3
> mean_of_means <- mean(sample_means)
> sd_of_means<-sd(sample_means)
> mean_of_means
[1] 2.4668
> sd_of_means
[1] 0.07624874
>
```