IT24103508

Lab 8

IT24103508_lab8.R*

Source on Save

```r
setwd("C:\\Users\\it24103508\\Desktop\\IT24103508")
getwd()
nicotine <- scan("Data - Lab 8.txt", what = numeric(), skip = 1)
weights  <- scan("Exercise - LaptopsWeights.txt", what = numeric(), skip = 1)

pop_mean_nic <- mean(nicotine)

pop_var_nic  <- sum((nicotine - pop_mean_nic)^2) / length(nicotine)
pop_sd_nic   <- sqrt(pop_var_nic)

pop_mean_nic
pop_var_nic
pop_sd_nic
var(nicotine)
sd(nicotine)

set.seed(123)
nic_sample_means <- replicate(30, mean(sample(nicotine, size = 5, replace = TRUE)))
nic_sample_sds   <- replicate(30, sd(sample(nicotine, size = 5, replace = TRUE)))
```

```
[1] "C:/Users/it24103508/Desktop/IT24103508"
> nicotine <- scan("Data - Lab 8.txt", what = numeric(), skip = 1)
Error in file(file, "r") : cannot open the connection
In addition: Warning message:
In file(file, "r") :
  cannot open file 'Data - Lab 8.txt': No such file or directory
> nicotine <- scan("Data - Lab 8.txt", what = numeric(), skip = 1)
Read 40 items
> weights  <- scan("Exercise - LaptopsWeights.txt", what = numeric(), skip = 1)
Read 40 items
>
> pop_mean_nic <- mean(nicotine)
>
> pop_var_nic  <- sum((nicotine - pop_mean_nic)^2) / length(nicotine)
> pop_sd_nic   <- sqrt(pop_var_nic)
>
> pop_mean_nic
[1] 1.77425
> pop_var_nic
[1] 0.1486444
> pop_sd_nic
[1] 0.3855443
> var(nicotine)
[1] 0.1524558
> sd(nicotine)
[1] 0.3904559
>
> set.seed(123)
> nic_sample_means <- replicate(30, mean(sample(nicotine, size = 5, replace = TRUE)))
> nic_sample_sds   <- replicate(30, sd(sample(nicotine, size = 5, replace = TRUE)))
```

Values	
nic_sample_means	num [1:30] 1.89 1.78 2.03 1.52 2.05 ...
nic_sample_sds	num [1:30] 0.371 0.346 0.236 0.549 0.608 ...
nicotine	num [1:40] 1.09 1.74 1.58 2.11 1.64 1.79 1.37 1.75 1.92 1.47 ...
pop_mean_nic	1.77425
pop_sd_nic	0.385544339214052
pop_var_nic	0.1486444375
weights	num [1:40] 2.46 2.45 2.47 2.71 2.46 2.05 2.6 2.42 2.43 2.53 ...

```
nic_sample_means
mean(nic_sample_means)
sd(nic_sample_means)

pop_sd_nic / sqrt(5)

pop_mean_w <- mean(weights)
pop_var_w  <- sum((weights - pop_mean_w)^2) / length(weights)
pop_sd_w   <- sqrt(pop_var_w)


pop_mean_w
pop_var_w
pop_sd_w
var(weights)
sd(weights)

set.seed(123)
w_sample_means <- replicate(25, mean(sample(weights, size = 6, replace = TRUE)))
w_sample_sds   <- replicate(25, sd(sample(weights, size = 6, replace = TRUE)))
```

```
> nic_sample_means
 [1] 1.886 1.782 2.034 1.518 2.046 1.688 1.772 1.638 1.716 1.850 1.598 1.848 1.604 1.800 1.916 2.116 1.606 1.594 1.884
[20] 2.124 1.590 1.562 1.836 1.744 1.494 1.542 1.854 1.914 1.834 1.538
> mean(nic_sample_means)
[1] 1.764267
> sd(nic_sample_means)
[1] 0.1811235
>
> pop_sd_nic / sqrt(5)
[1] 0.1724207
>
> pop_mean_w <- mean(weights)
> pop_var_w  <- sum((weights - pop_mean_w)^2) / length(weights)
> pop_sd_w   <- sqrt(pop_var_w)
>
>
> pop_mean_w
[1] 2.468
> pop_var_w
[1] 0.063951
> pop_sd_w
[1] 0.2528853
> var(weights)
[1] 0.06559077
> sd(weights)
[1] 0.2561069
>
> set.seed(123)
> w_sample_means <- replicate(25, mean(sample(weights, size = 6, replace = TRUE)))
> w_sample_sds   <- replicate(25, sd(sample(weights, size = 6, replace = TRUE)))
```

```
w_sample_means
mean(w_sample_means)
sd(w_sample_means)

pop_sd_w / sqrt(6)

write.csv(data.frame(nicotine = nicotine), "nicotine_data.csv", row.names = FALSE)
write.csv(data.frame(weights = weights),  "weights_data.csv",  row.names = FALSE)
```

```
>
> w_sample_means
 [1] 2.530000 2.573333 2.473333 2.591667 2.456667 2.401667 2.590000 2.466667 2.401667 2.335000 2.586667 2.378333 2.381667
[14] 2.465000 2.485000 2.451667 2.385000 2.338333 2.428333 2.551667 2.538333 2.466667 2.470000 2.448333 2.475000
> mean(w_sample_means)
[1] 2.4668
> sd(w_sample_means)
[1] 0.07624874
>
> pop_sd_w / sqrt(6)
[1] 0.10324
>
> write.csv(data.frame(nicotine = nicotine), "nicotine_data.csv", row.names = FALSE)
> write.csv(data.frame(weights = weights),  "weights_data.csv",  row.names = FALSE)
>
```

values	
nic_sample_means	num [1:30] 1.89 1.78 2.03 1.52 2.05 ...
nic_sample_sds	num [1:30] 0.371 0.346 0.236 0.549 0.608 ...
nicotine	num [1:40] 1.09 1.74 1.58 2.11 1.64 1.79 1.37 1.75 1.92 1.47 ...
pop_mean_nic	1.77425
pop_mean_w	2.468
pop_sd_nic	0.385544339214052
pop_sd_w	0.252885349516337
pop_var_nic	0.1486444375
pop_var_w	0.063951
w_sample_means	num [1:25] 2.53 2.57 2.47 2.59 2.46 ...
w_sample_sds	num [1:25] 0.249 0.36 0.154 0.372 0.153 ...
weights	num [1:40] 2.46 2.45 2.47 2.71 2.46 2.05 2.6 2.42 2.43 2.53 ...