

# Weerasingha Arachchige K N W (IT24101657)

## PS-Lab8

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RStudio
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IT24101657A
Source on Save
Run Go to Function Addins
1 setwd("C:\\Users\\it24101657\\Desktop\\IT24101657_PS_Lab8")
2
3 nicotine <- scan("Data - Lab 8.txt", what = numeric(), skip = 1)
4 weights <- scan("Exercise - Laptopsweights.txt", what = numeric(), skip = 1)
5
6 pop_mean_nic <- mean(nicotine)
7
8 pop_var_nic <- sum((nicotine - pop_mean_nic)^2) / length(nicotine)
9 pop_sd_nic <- sqrt(pop_var_nic)
10
11 pop_mean_nic
12 pop_var_nic
13 pop_sd_nic
14 var(nicotine)
15 sd(nicotine)
16
17 set.seed(123)
18 nic_sample_means <- replicate(30, mean(sample(nicotine, size = 5, replace = TRUE)))
19 nic_sample_sds <- replicate(30, sd(sample(nicotine, size = 5, replace = TRUE)))
20
21 nic_sample_means
22 mean(nic_sample_means)
23 sd(nic_sample_means)
24
25 pop_sd_nic / sqrt(5)
26
27 pop_mean_w <- mean(weights)
28 pop_var_w <- sum((weights - pop_mean_w)^2) / length(weights)
29 pop_sd_w <- sqrt(pop_var_w)
30
31
32 pop_mean_w
33 pop_var_w
34 pop_sd_w
35 var(weights)
36 sd(weights)
37
38 set.seed(123)
39 w_sample_means <- replicate(25, mean(sample(weights, size = 6, replace = TRUE)))
40 w_sample_sds <- replicate(25, sd(sample(weights, size = 6, replace = TRUE)))
41
42 w_sample_means
43 mean(w_sample_means)
44 sd(w_sample_means)
45
46 pop_sd_w / sqrt(6)
47
48 write.csv(data.frame(nicotine = nicotine), "nicotine_data.csv", row.names = FALSE)
49 write.csv(data.frame(weights = weights), "weights_data.csv", row.names = FALSE)
50
51
501 (Top Level) z R Script z
Environment History Connections Tutorial
R Global Environment
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 0.216 0.549 0.608 ...
nicotine num [1:140] 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_var_nic 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 [1:140] 2.46 2.45 2.47 2.71 2.46 2.05 2.6 2.42 2.43 2.53 ...
Files Plots Packages Help Viewer Presentation
Type here to search Rainy days ahead 8:42 AM 8/25/2025
> setwd("C:\\Users\\it24101657\\Desktop\\IT24101657_PS_Lab8")
> 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)))
> 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
[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)
```