

IT24103260

Lab 8

Code:

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```
setwd("C:/Users/HP/Desktop/Data")
nicotine<- scan("Data - Lab 8.txt",skip=1)
nicotine
length(nicotine)
#mean & variance
pop_mean <- mean(nicotine)
pop_var <- var(nicotine)
pop_mean
pop_var

set.seed(123)
sample_means <- numeric(30)
sample_vars <- numeric(30)

for (i in 1:30) {
  sample_data <- sample(nicotine, size = 5, replace = TRUE)
  sample_means[i] <- mean(sample_data)
  sample_vars[i] <- var(sample_data)
}

mean_sample_means <- mean(sample_means)
var_sample_means <- var(sample_means)

mean_sample_means
var_sample_means

cat("Population Mean =", pop_mean, "\n")
```

The screenshot displays the R Studio interface with three main panes: Source, Console, and Environment.

**Source Pane:** Contains an R script with the following code:

```
8 pop_mean
9 pop_var
10
11 set.seed(123)
12 sample_means <- numeric(30)
13 sample_vars <- numeric(30)
14
15 for (i in 1:30) {
16   sample_data <- sample(nicotine, size = 5, replace = TRUE)
17   sample_means[i] <- mean(sample_data)
18   sample_vars[i] <- var(sample_data)
19 }
20
21 mean_sample_means <- mean(sample_means)
22 var_sample_means <- var(sample_means)
23
24 mean_sample_means
25 var_sample_means
26
27 cat("Population Mean =", pop_mean, "\n")
28
```

**Console Pane:** Shows the execution output:

```
> mean_sample_means <- mean(sample_means)
> var_sample_means <- var(sample_means)
>
> mean_sample_means
[1] 1.764267
> var_sample_means
[1] 0.03280572
>
> cat("Population Mean =", pop_mean, "\n")
Population Mean = 1.77425
>
```

**Environment Pane:** Displays the current environment variables:

Values	
i	30L
mean_sample_means	1.76426666666667
nicotine	num [1:40] 1.09 1.74 1.58 2.11 1.64 1.79 1.37 1.7...
pop_mean	1.77425
pop_var	0.152455833333333
sample_data	num [1:5] 1.75 1.69 1.74 0.72 1.79
sample_means	num [1:30] 1.89 1.78 2.03 1.52 2.05 ...
sample_vars	num [1:30] 0.122 0.375 0.114 0.179 0.141 ...
var_sample_means	0.0328057195402299