PS LB –08

IT24100326

```r
setwd("C:\\Users\\it24100326\\Desktop\\It24100326")

data <- read.table("Data - Lab 8.txt", header = TRUE)
laptop_bag_weights <- data[[1]]   # Extract the first column (adjust if necessary

population_mean <- mean(laptop_bag_weights)
population_sd <- sd(laptop_bag_weights)

cat("Population Mean:", population_mean, "\n")
cat("Population Standard Deviation:", population_sd, "\n")

num_samples <- 25
sample_size <- 6

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

set.seed(42)
for (i in 1:num_samples) {
  sample_data <- sample(laptop_bag_weights, size = sample_size, replace = TRUE)
  sample_means[i] <- mean(sample_data)
  sample_sds[i] <- sd(sample_data)
}

cat("Sample Means:\n", sample_means, "\n")
cat("Sample Standard Deviations:\n", sample_sds, "\n")

mean_sample_means <- mean(sample_means)
sd_sample_means <- sd(sample_means)

cat("Mean of Sample Means:", mean_sample_means, "\n")
cat("Standard Deviation of Sample Means:", sd_sample_means, "\n")
cat("True Population Mean:", population_mean, "\n")
cat("True Population Standard Deviation:", population_sd, "\n")
```

```
> setwd("C:\\Users\\it24100326\\Desktop\\It24100326")
> data <- read.table("Data - Lab 8.txt", header = TRUE)
> laptop_bag_weights <- data[[1]]   # Extract the first column (adjust if necessary)
> population_mean <- mean(laptop_bag_weights)
> population_sd <- sd(laptop_bag_weights)
> cat("Population Mean:", population_mean, "\n")
Population Mean: 1.77425
> cat("Population Standard Deviation:", population_sd, "\n")
Population Standard Deviation: 0.3904559
> num_samples <- 25
> sample_size <- 6
> sample_means <- numeric(num_samples)
> sample_sds <- numeric(num_samples)
> set.seed(42)
> for (i in 1:num_samples) {
+     sample_data <- sample(laptop_bag_weights, size = sample_size, replace = TRUE)
+     sample_means[i] <- mean(sample_data)
+     sample_sds[i] <- sd(sample_data)
+ }
> cat("Sample Standard Deviations:\n", sample_sds, "\n")
Sample Standard Deviations:
 0.3181457 0.3476013 0.4422669 0.2150736 0.2880972 0.2148178 0.5365352 0.3629141 0.2762
185 0.1900263 0.3324706 0.2728186 0.08863784 0.5295533 0.244983 0.606347 0.4775772 0.33
88215 0.281851 0.2517737 0.5529346 0.4495516 0.2351808 0.4954459 0.5869497
> mean_sample_means <- mean(sample_means)
> sd_sample_means <- sd(sample_means)
> cat("Mean of Sample Means:", mean_sample_means, "\n")
Mean of Sample Means: 1.764067
> cat("Standard Deviation of Sample Means:", sd_sample_means, "\n")
Standard Deviation of Sample Means: 0.140468
> cat("True Population Mean:", population_mean, "\n")
True Population Mean: 1.77425
> cat("True Population Standard Deviation:", population_sd, "\n")
True Population Standard Deviation: 0.3904559
> |
```