Sri Lanka Institute of Information Technology

Lab Submission
Lab sheet No 08

It24102242

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Probability and Statistics | IT2120

B.Sc. (Hons) in Information Technology

```r
setwd("C:\\Users\\it24102242\\Downloads\\Lab 08-20250926")

data<-read.table("Data - Lab 8.txt",header=TRUE)
fix(data)
attach(data)

##Q1
popmn<-mean(Nicotine)
popvar<-var(Nicotine)

##Q2
samples<-c()
n<-c()

for(i in 1:30){
  s<-sample(Nicotine,5,replace = TRUE)
  samples<-cbind(samples,s)
  n<-c(n,paste('S',i))
}

colnames(samples)=n

s.means<-apply(samples,2,mean)
s.vars<-apply(samples,2,var)

##Q3
samplemean<-mean(s.means)
samplevars<-var(s.means)

##Q4
popmn
samplemean

##Q5
truevar=popvar/5
samplevars
```

```
> setwd("C:\\Users\\it24102242\\Downloads\\Lab 08-20250926")
> data<-read.table("Exercise - LaptopsWeights.txt",header=TRUE)
> fix(data)
> attach(data)
The following object is masked from data (pos = 3):

    Weight.kg.

> popmn <- mean(weight(kg))
Error in weight(kg) : could not find function "Weight"
> pop_mean_laptop <-mean(weight.kg.)
> pop_sd_laptop <-sd(weight.kg.)
> # Creating null vectors to store sample data sets
> samples_laptop <- c()
> n_laptop <- c()
> for (i in 1:25){
+   s_laptop <- sample(weight.kg.,6,replace = TRUE)
+   samples_laptop <-cbind(samples_laptop,s_laptop)
+   n_laptop <-c(n_laptop,paste('S',i))
+ }
> #Assigning column names
> colnames(samples_laptop) =n_laptop
> #calculating sample means and standard deviations
> s.mean_laptop <- apply(samples_laptop,2,mean)
> s.sd_laptop <- apply(samples_laptop,2,sd)
> mean_of_s_means <- mean(s.mean_laptop)
> sd_of_s_means <- sd(s.mean_laptop)
> pop_mean_laptop
[1] 2.468
> mean_of_s_means
[1] 2.495133
> pop_sd_laptop
[1] 0.2561069
> sd_of_s_means
[1] 0.1087683
```