Probability and Statistics - IT2120

Lab-08

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```r
setwd('C:\\Users\\it24103676\\Desktop\\IT24103676')
getwd()

data<-read.table("Exercise - LaptopsWeights.txt", header=TRUE)
fix(data)
attach(data)

#1
popmn<-mean(data$weight.kg.)
popsd<-sd(data$weight.kg.)

cat("Population mean: ", popmn, "\n")
cat("Population standard deviation: ", popsd, "\n")

#2
samples<-c()
n<-c()

for (i in 1:25){
  s<-sample(weight.kg.,6,replace=TRUE)
  samples<-cbind(samples,s)
  n<-c(n,paste0('s',i))
}
colnames(samples)=n

print(s.means<-apply(samples,2,mean))
print(s.sds<-apply(samples,2,sd))

#3
print(truemean<-mean(s.means))
print(truesd<-sd(s.sds))

popmn
truemean


popsd
truesd
```

```
> setwd('C:\\Users\\it24103676\\Desktop\\IT24103676')
> getwd()
[1] "C:/Users/it24103676/Desktop/IT24103676"
> data<-read.table("Exercise - LaptopsWeights.txt", header=TRUE)
> fix(data)
> attach(data)
> #1
> popmn<-mean(data$Weight.kg.)
> popsd<-sd(data$Weight.kg.)
> cat("Population mean: ", popmn, "\n")
Population mean:  2.468
> cat("Population standard deviation: ", popsd, "\n")
Population standard deviation:  0.2561069
> #2
> samples<-c()
> n<-c()
> for (i in 1:25){
+   s<-sample(Weight.kg.,6,replace=TRUE)
+   samples<-cbind(samples,s)
+   n<-c(n,paste0('S',i))
+ }
> colnames(samples)=n
> print(s.means<-apply(samples,2,mean))
      S1       S2       S3       S4       S5       S6       S7       S8
2.700000 2.566667 2.491667 2.680000 2.541667 2.281667 2.421667 2.460000
      S9      S10      S11      S12      S13      S14      S15      S16
2.443333 2.566667 2.383333 2.491667 2.605000 2.413333 2.326667 2.506667
     S17      S18      S19      S20      S21      S22      S23      S24
2.516667 2.393333 2.586667 2.636667 2.350000 2.588333 2.541667 2.525000
     S25
2.416667
> print(s.sds<-apply(samples,2,sd))
        S1         S2         S3         S4         S5         S6
0.11278298 0.24146773 0.15184422 0.11610340 0.23025348 0.48412464
        S7         S8         S9        S10        S11        S12
0.20759737 0.38750484 0.25374528 0.24573699 0.39893191 0.34988093
       S13        S14        S15        S16        S17        S18
0.11202678 0.18736773 0.22357698 0.08594572 0.16293148 0.24402186
       S19        S20        S21        S22        S23        S24
0.21491083 0.16342174 0.38538293 0.17069466 0.32878058 0.28967223
       S25
0.39510336
> #3
> print(truemean<-mean(s.means))
[1] 2.4974
> print(truesd<-sd(s.sds))
[1] 0.1069424
> popmn
[1] 2.468
> truemean
[1] 2.4974
> popsd
[1] 0.2561069
> truesd
[1] 0.1069424
>
```