Probability and Statistics - IT2120

Lab-08

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```
setwd("C:\\Users\\ASUS\\OneDrive - Sri Lanka Institute of Information Technology\\PS\\IT24101667_LabShhet_08")
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\\ASUS\\OneDrive - Sri Lanka Institute of Information Technology\\PS\\IT24101667_LabShhet_08")
> getwd()
[1] "C:/Users/ASUS/OneDrive - Sri Lanka Institute of Information Technology/PS/IT24101667_LabShhet_08"
> data<-read.table("Exercise - Laptopsweights.txt", header=TRUE)
> fix(data)
> attach(data)

The following object is masked from data (pos = 3):

    Weight.kg.

The following object is masked from data (pos = 4):

    Weight.kg.

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

Warning message:
In mean.default(data$weight.kg.) :
  argument is not numeric or logical: returning NA


> popsd<-sd(data$Weight.kg.)
> cat("Population mean:",popmn, "\n")
Population mean: NA
> 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       s9      s10      s11      s12
2.441667 2.370000 2.593333 2.580000 2.531667 2.453333 2.533333 2.340000 2.463333 2.248333 2.303333 2.536667
     s13      s14      s15      s16      s17      s18      s19      s20      s21      s22      s23      s24
2.523333 2.493333 2.455000 2.580000 2.326667 2.635000 2.493333 2.495000 2.345000 2.348333 2.546667 2.445000
     s25
2.486667

> print(s.sds<-apply(samples,2,sd))
        s1         s2         s3         s4         s5         s6         s7         s8         s9        s10
0.31770531 0.24690079 0.19561868 0.23417942 0.23515243 0.24410380 0.25017327 0.42801869 0.19541409 0.16104865
       s11        s12        s13        s14        s15        s16        s17        s18        s19        s20
0.40212767 0.19986662 0.09092121 0.22597935 0.33393113 0.12425780 0.20925264 0.17340704 0.18640458 0.25618353
       s21        s22        s23        s24        s25
0.25240840 0.38091556 0.14320149 0.27732652 0.23491843
> #3
> print(truemean<-mean(s.means))
[1] 2.462733
> print(truesd<-sd(s.sds))
[1] 0.08257735
> popmn
[1] NA
> truemean
[1] 2.462733
> popsd
[1] 0.2561069
> truesd
[1] 0.08257735
>
```