# Sri Lanka Institute of Information Technology



# Lab Submission
# 08

**IT24102244**

**Dias M B N S**

**Probability and Statistics - IT2120**

B.Sc. (Hons) in Information Technology

```
> setwd("E:/SLIIT_Bacholer/_2_Year_sem1/Probability&Statistic/Lab8")
> getwd()
[1] "E:/SLIIT_Bacholer/_2_Year_sem1/Probability&Statistic/Lab8"
>

> # Load the dataset
> data <- read.table("Exercise - LaptopsWeights.txt", header = TRUE)
> attach(data)

> # Question 1: Population statistics
> popmn <- mean(Weight.kg.)
> pop_dev <- sd(Weight.kg.)
> # view Population Mean
> popmn
[1] 2.468
> # view Population Standard Deviation
> pop_dev
[1] 0.2561069
```

```
> # Question 2: 25 random samples of size 6 with replacement
> set.seed(123)
> samples <- matrix(nrow = 6, ncol = 25)
> for (i in 1:25) {
+     samples[, i] <- sample(Weight.kg., size = 6, replace = TRUE)
+ }
> # Calculate sample means standard deviations
> s.means <- apply(samples, 2, mean)
> # Calculate standard deviations
> s.dev <- apply(samples, 2, sd)
> # View sample means
```

```
 [1] 2.530000 2.573333 2.473333 2.591667 2.456667 2.401667 2.590000 2.466667 2.401667 2.335000 2.586667 2.378333 2.381667
[14] 2.465000 2.485000 2.451667 2.385000 2.338333 2.428333 2.551667 2.538333 2.466667 2.470000 2.448333 2.475000
> # View sample standard deviations
> s.dev
 [1] 0.1513935 0.1191078 0.1718914 0.1345239 0.2749303 0.2544340 0.2167026 0.4530195 0.2230172 0.3237746 0.1706068
[12] 0.3235686 0.2993604 0.2314951 0.1745566 0.2762909 0.2042303 0.2436733 0.2481465 0.2654367 0.1708118 0.2451666
[23] 0.2405826 0.2792430 0.2358601
```

```
> # Question 3: Mean and SD of the sample means
> samplemean <- mean(s.means)
> sampledev <- sd(s.means)
> # Mean of Sample Means
> samplemean
[1] 2.4668
> # SD of Sample Means
> sampledev
[1] 0.07624874
> # True Population Mean
> popmn
[1] 2.468
> # True Population SD
> pop_dev
[1] 0.2561069
```