Sri Lanka Institute of Information Technology

Lab Submission
<Lab sheet No 09>

<IT 24 1033 21>

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Probability and Statistics | IT2120

B.Sc. (Hons) in Information Technology

Exercise:

```
>
> # Exercise (1)
> set.seed(42)
> sample <- rnorm(25, mean = 45, sd = 2)
> print(sample)
 [1] 47.74192 43.87060 45.72626 46.26573 45.80854 44.78775 48.02304 44.81068 49.03685 44.87457
[11] 47.60974 49.57329 42.22228 44.44242 44.73336 46.27190 44.43149 39.68709 40.11907 47.64023
[21] 44.38672 41.43738 44.65617 47.42935 48.79039
>
>
>
```

```
>
> # Exercise (2)
> result <- t.test(sample, mu = 46, alternative = "less")
> print(result)

        One Sample t-test

data:  sample
t = -1.1959, df = 24, p-value = 0.1217
alternative hypothesis: true mean is less than 46
95 percent confidence interval:
     -Inf 46.26909
sample estimates:
mean of x
 45.37507

> cat("Test Statistic (t):", result$statistic)
Test Statistic (t): -1.195929
> cat("p-value:", result$p.value)
p-value: 0.1217034
> cat("95% Confidence Interval:", result$conf.int)
95% Confidence Interval: -Inf 46.26909
>
```