Sri Lanka Institute of Information Technology

Lab Submission
<Worksheet 9>

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Probability and Statictics | IT2120

B.Sc. (Hons) in Information Technology

```
> setwd("C:\\Users\\Sahan Senadheera\\Desktop\\IT24102257 PS Lab9")
> #Q1
> x <- c(3, 7, 11, 0, 7, 0, 4, 5, 6, 2)
> t.test(x, mu = 3)

        One Sample t-test

data:  x
t = 1.3789, df = 9, p-value = 0.2012
alternative hypothesis: true mean is not equal to 3
95 percent confidence interval:
 2.0392 6.9608
sample estimates:
mean of x
      4.5

> #Q2
> Weight <- c(17.6, 20.6, 22.2, 15.3, 20.9, 21.0, 18.9, 18.9, 18.9, 18.2)
> t.test(Weight, mu = 25, alternative = "less")

        One Sample t-test

data:  Weight
t = -9.0783, df = 9, p-value = 3.977e-06
alternative hypothesis: true mean is less than 25
95 percent confidence interval:
     -Inf 20.41105
sample estimates:
mean of x
    19.25

> res <- t.test(Weight, mu = 25, alternative = "less")
> res$statistic
        t
-9.078319
> res$p.value
[1] 3.976692e-06
> res$conf.int
[1]     -Inf 20.41105
attr(,"conf.level")
[1] 0.95
```

```
> #Q3
> y <- rnorm(30, mean = 9.8, sd = 0.05)
> t.test(y, mu = 10, alternative = "greater")

        One Sample t-test

data:  y
t = -22.467, df = 29, p-value = 1
alternative hypothesis: true mean is greater than 10
95 percent confidence interval:
 9.780396      Inf
sample estimates:
mean of x
 9.795837
> #Excersise
> # Part i: Generate random sample
> baking_time <- rnorm(25, mean = 45, sd = 2)
> # Part ii: One-sample t-test
> t.test(baking_time, mu = 46, alternative = "less")

        One Sample t-test

data:  baking_time
t = -2.2144, df = 24, p-value = 0.01827
alternative hypothesis: true mean is less than 46
95 percent confidence interval:
     -Inf 45.84321
sample estimates:
mean of x
 45.31045
```