Sri Lanka Institute of Information Technology

Lab Submission
<Lab sheet No 09>

<IT24101739>

<Maddegoda M.V.S.>

Probability and Statistics | IT2120

B.Sc. (Hons) in Information Technology

Exercise

IT24101739.R*

```r
setwd("C:\\Users\\Maleesha\\OneDrive\\Desktop\\IT24101739")
getwd()

set.seed(123)

# Part (i) Generate random sample
sample_size <- 25
mu <- 45
sigma <- 2
baking_times <- rnorm(sample_size, mean = mu, sd = sigma)
print(baking_times)

# Part (ii) Hypothesis test
# H0: mean = 46
# H1: mean < 46
t_test_result <- t.test(baking_times, mu = 46, alternative = "less")
print(t_test_result)
```

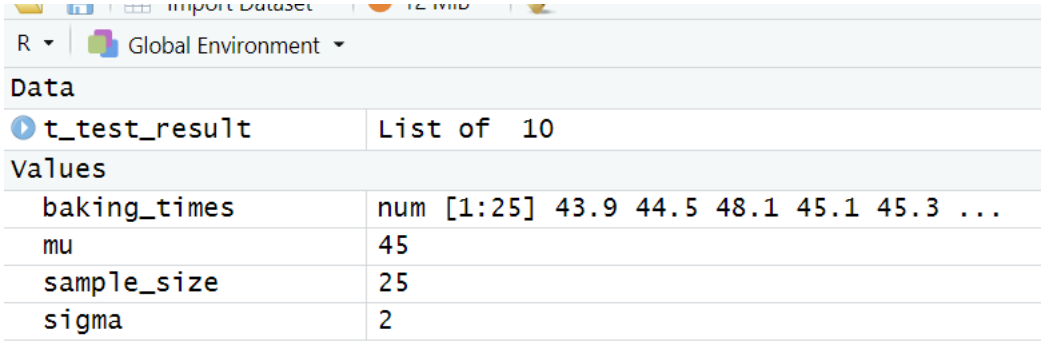
Console | Terminal | Background Jobs

R 4.5.1 · C:/Users/Maleesha/OneDrive/Desktop/IT24101739/

```
> setwd("C:\\Users\\Maleesha\\OneDrive\\Desktop\\IT24101739")
> getwd()
[1] "C:/Users/Maleesha/OneDrive/Desktop/IT24101739"
> set.seed(123)
> # Part (i) Generate random sample
> sample_size <- 25
> mu <- 45
> sigma <- 2
> baking_times <- rnorm(sample_size, mean = mu, sd = sigma)
> print(baking_times)
 [1] 43.87905 44.53965 48.11742 45.14102 45.25858 48.43013 45.92183 42.46988 43.62629 44.10868
[11] 47.44816 45.71963 45.80154 45.22137 43.88832 48.57383 45.99570 41.06677 46.40271 44.05442
[21] 42.86435 44.56405 42.94799 43.54222 43.74992
> # Part (ii) Hypothesis test
> # H0: mean = 46
> # H1: mean < 46
> t_test_result <- t.test(baking_times, mu = 46, alternative = "less")
> print(t_test_result)

        One Sample t-test

data:  baking_times
t = -2.8167, df = 24, p-value = 0.004776
alternative hypothesis: true mean is less than 46
95 percent confidence interval:
     -Inf 45.58124
sample estimates:
mean of x
 44.93334
```


R
Global Environment
Data
t_test_result
List of 10
Values
baking_times
num [1:25] 43.9 44.5 48.1 45.1 45.3 ...
mu
45
sample_size
25
sigma
2