Sri Lanka Institute of Information Technology

Lab Submission
<Lab sheet 09>

<IT24104201>

<Anupadha H.M.I>

IT2120- Probability and Statistics

B.Sc. (Hons) in Information Technology

Exercise

1. Assume that the time taken to bake a batch of cookies is normally distributed with mean 45 minutes and standard deviation 2 minutes.

i. Generate a random sample of size 25 for the baking time.

ii. Test whether the average baking time is less than 46 minutes at a 5% level of significance.

```r
setwd("C:\\Users\\User\\Desktop\\IT24104201")
getwd()

#01
#i
baking_time <- rnorm(25, mean = 45, sd = 2)
print(baking_time)

#ii
t.test (baking_time, mu = 46, alternative = "less")
```

```
> #01
> #i
> baking_time <- rnorm(25, mean = 45, sd = 2)
> print(baking_time)
 [1] 43.75761 45.06982 41.82235 43.39288 46.24510 41.83162 47.71287 45.81724 44.68656
[10] 43.79494 46.25697 45.98141 46.03986 45.46858 46.15153 44.91960 44.70536 42.02223
[19] 43.50828 46.22121 44.33902 45.68324 42.21004 43.86820 45.17657
> #ii
> t.test (baking_time, mu = 46, alternative = "less")

        One Sample t-test

data:  baking_time
t = -4.1977, df = 24, p-value = 0.0001597
alternative hypothesis: true mean is less than 46
95 percent confidence interval:
     -Inf 45.21049
sample estimates:
mean of x
 44.66732
```