Sri Lanka Institute of Information Technology

Lab Submission
Lab sheet No 09

IT24100861

Fernando M.S.F.

Probability and Statistics | IT2120

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.

```
> #(01)
>       #i
> bake <- rnorm(25, mean = 45, sd = 2)
> bake
 [1] 44.22114 46.22662 45.58778 43.59910 48.26649 42.00518 43.90810 44.96091 46.94433 45.15330 46.00676 46.60275 43.16268 44.70355 46.16186 45.54328
[17] 49.85836 44.63146 42.32661 44.42752 47.39519 48.07140 42.23424 46.27179 46.01954
>
```

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

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

        One Sample t-test

data:  bake
t = -1.6137, df = 24, p-value = 0.05983
alternative hypothesis: true mean is less than 46
95 percent confidence interval:
     -Inf 46.03784
sample estimates:
mean of x
  45.3716
```