

Sri Lanka Institute of Information  
Technology



Lab Submission  
Lab sheet No 09

**IT24102384**

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**Probabilities 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.

```
IT24102384.R
1 getwd()
2 setwd("C:\\Users\\User\\Desktop\\IT24102384")
3
4 #part i
5 y <- rnorm(25, 45, 2)
6 print(y)
7
8 #part ii
9 t.test(y, mu = 46, alternative = "less")
10
```

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

```
> setwd("C:\\Users\\User\\Desktop\\IT24102384")
> y <- rnorm(25, 45, 2)
> print(y)
[1] 46.82858 46.12406 43.91166 43.81682 41.65015 43.08734
[7] 49.16522 48.02779 42.07911 45.68163 43.69410 43.38016
[13] 45.09965 48.62979 44.40131 44.62180 47.49512 44.15599
[19] 46.05585 43.08421 46.97701 44.91015 47.54427 49.84112
[25] 44.77129
```

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

```
> t.test(y, mu = 46, alternative = "less")

One Sample t-test

data: y
t = -1.3546, df = 24, p-value = 0.09408
alternative hypothesis: true mean is less than 46
95 percent confidence interval:
 -Inf 46.15744
sample estimates:
mean of x
 45.40137
```