

Sri Lanka Institute of Information Technology



Lab Submission
Lab sheet No 09

IT24102615

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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.

```
IT24102615.r x IT24102615.r x it24102615.r x it24102615.r x
Source on Save Run Source
1 setwd("C:\\Users\\ASUS\\Desktop\\PS_Lab_09\\IT24102615")
2
3 ##Exercise
4 #1)
5 #i)
6 y <- rnorm(25, mean = 45, sd = 2)
7 y
8
```

```
> setwd("C:\\Users\\ASUS\\Desktop\\PS_Lab_09\\IT24102615")
> ##Exercise
> #1)
> #i)
> y <- rnorm(25, mean = 45, sd = 2)
> y
[1] 47.20803 44.72612 43.45373 44.17173
[5] 44.94796 42.93478 47.09042 45.06487
[9] 45.39979 45.57630 44.92311 43.34891
[13] 46.41111 41.02802 46.53168 40.93862
[17] 47.28509 41.31984 44.78847 47.37107
[21] 46.72734 46.10434 50.33889 45.74018
[25] 39.48502
```

```
Environment History Connections Tutorial
Import Dataset 139 MiB
R Global Environment
Values
y num [1:25] 47.2 44.7 43.5 44.2 44.9 ...
```

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

```
9 #ii)
10 t.test(y, mu=46, alternative="less")
11 |
```

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

One Sample t-test

data: y
t = -2.2082, df = 24, p-value =
0.01852
alternative hypothesis: true mean is less than 46
95 percent confidence interval:
 -Inf 45.75602
sample estimates:
mean of x
 44.91662
```