

Sri Lanka Institute of Information Technology



Lab Submission Lab sheet 09

IT24103021

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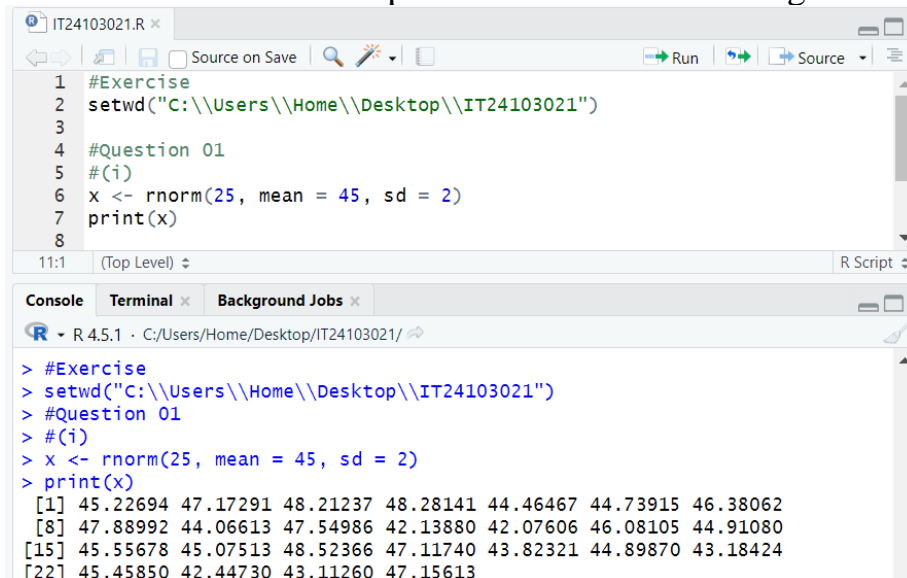
Probability and Statistics - IT2120

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.

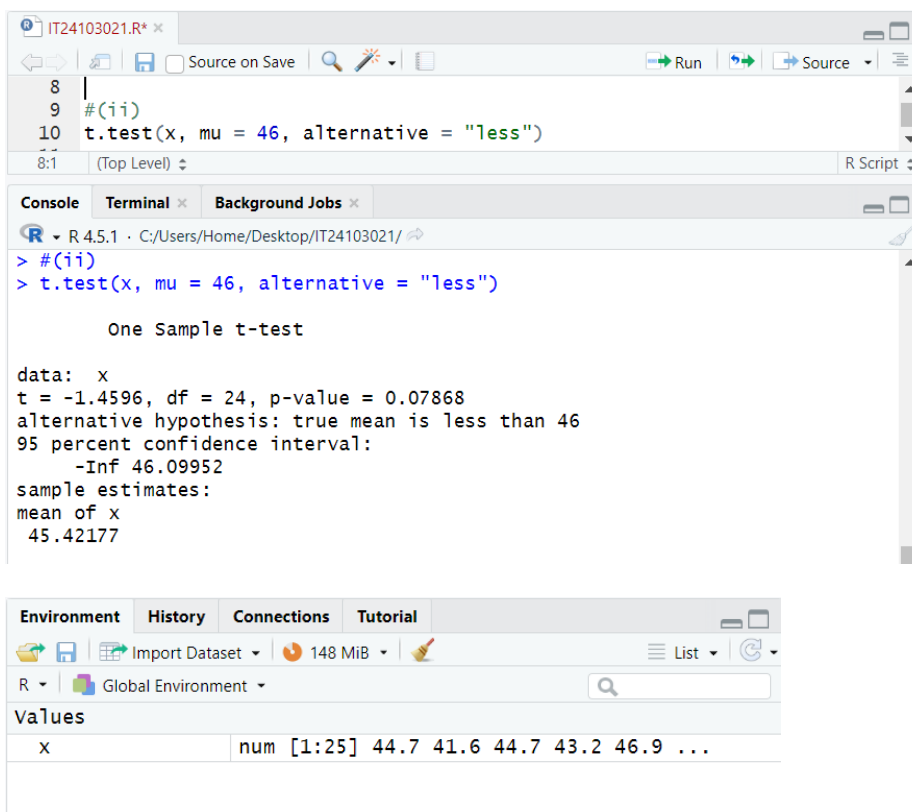


```
1 #Exercise
2 setwd("C:\\Users\\Home\\Desktop\\IT24103021")
3
4 #Question 01
5 #(i)
6 x <- rnorm(25, mean = 45, sd = 2)
7 print(x)
8
```

Console

```
> #Exercise
> setwd("C:\\Users\\Home\\Desktop\\IT24103021")
> #Question 01
> #(i)
> x <- rnorm(25, mean = 45, sd = 2)
> print(x)
[1] 45.22694 47.17291 48.21237 48.28141 44.46467 44.73915 46.38062
[8] 47.88992 44.06613 47.54986 42.13880 42.07606 46.08105 44.91080
[15] 45.55678 45.07513 48.52366 47.11740 43.82321 44.89870 43.18424
[22] 45.45850 42.44730 43.11260 47.15613
```

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



```
8
9 #(ii)
10 t.test(x, mu = 46, alternative = "less")
```

Console

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

One Sample t-test

data: x
t = -1.4596, df = 24, p-value = 0.07868
alternative hypothesis: true mean is less than 46
95 percent confidence interval:
 -Inf 46.09952
sample estimates:
mean of x
45.42177
```

Environment History Connections Tutorial

Import Dataset 148 MiB

R Global Environment

Values

x
num [1:25] 44.7 41.6 44.7 43.2 46.9 ...