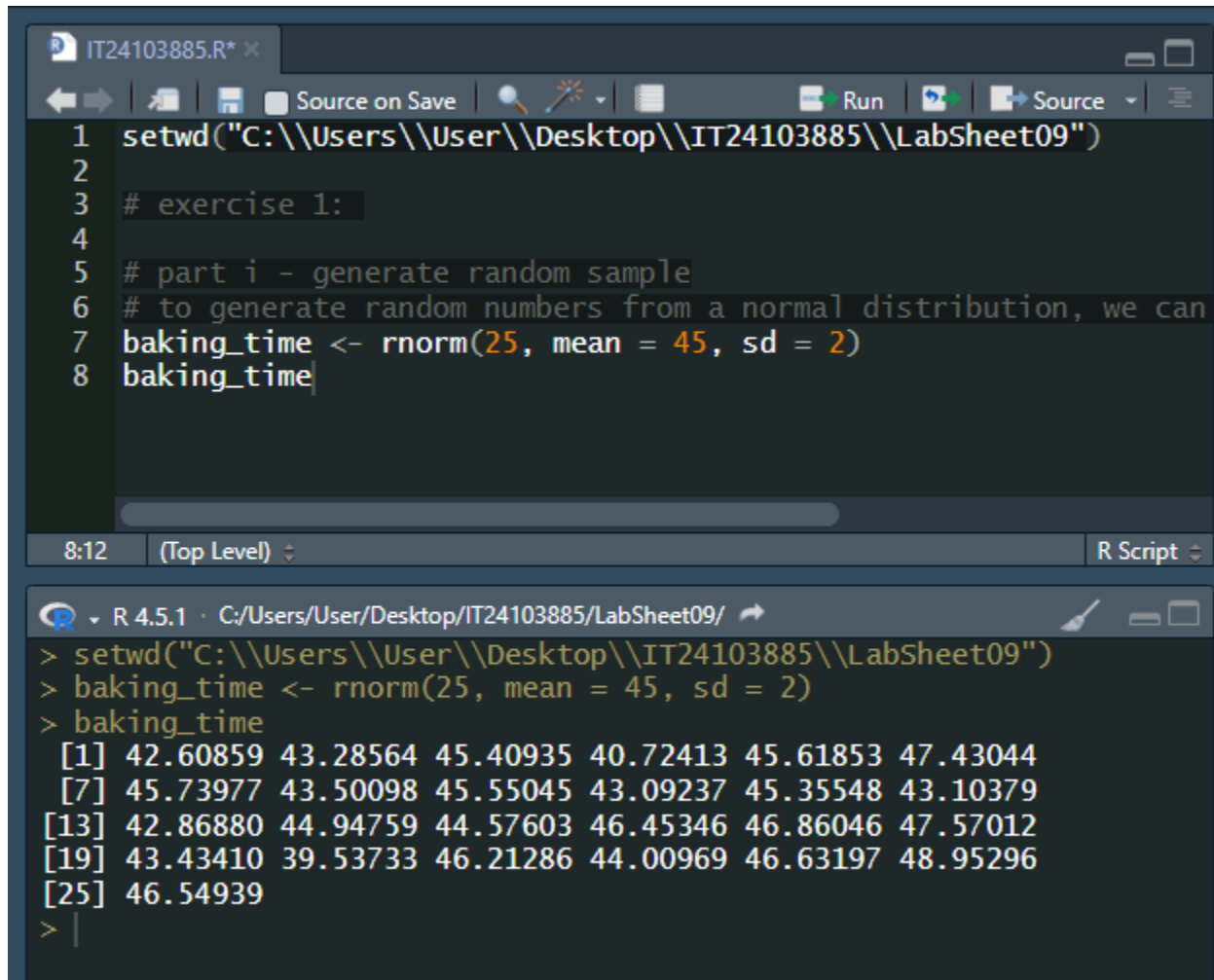


IT2120 - Lab Sheet 09

IT24103885 - Senarathna Y.M.C.S

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



```
IT24103885.R* x
Source on Save Run Source
1 setwd("C:\\Users\\User\\Desktop\\IT24103885\\LabSheet09")
2
3 # exercise 1:
4
5 # part i - generate random sample
6 # to generate random numbers from a normal distribution, we can
7 baking_time <- rnorm(25, mean = 45, sd = 2)
8 baking_time

8:12 (Top Level) R Script
R 4.5.1 C:/Users/User/Desktop/IT24103885/LabSheet09/
> setwd("C:\\Users\\User\\Desktop\\IT24103885\\LabSheet09")
> baking_time <- rnorm(25, mean = 45, sd = 2)
> baking_time
[1] 42.60859 43.28564 45.40935 40.72413 45.61853 47.43044
[7] 45.73977 43.50098 45.55045 43.09237 45.35548 43.10379
[13] 42.86880 44.94759 44.57603 46.45346 46.86046 47.57012
[19] 43.43410 39.53733 46.21286 44.00969 46.63197 48.95296
[25] 46.54939
> |
```

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

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

9:1 (Top Level) R Script

R 4.5.1 · C:/Users/User/Desktop/IT24103885/LabSheet09/

```
[1] 42.60859 43.28564 45.40935 40.72413 45.61853 47.43044
[7] 45.73977 43.50098 45.55045 43.09237 45.35548 43.10379
[13] 42.86880 44.94759 44.57603 46.45346 46.86046 47.57012
[19] 43.43410 39.53733 46.21286 44.00969 46.63197 48.95296
[25] 46.54939
> t.test(baking_time, mu = 46, alternative = "less")
```

One Sample t-test

```
data:  baking_time
t = -2.7363, df = 24, p-value = 0.005752
alternative hypothesis: true mean is less than 46
95 percent confidence interval:
 -Inf 45.55066
sample estimates:
mean of x
44.80097
```