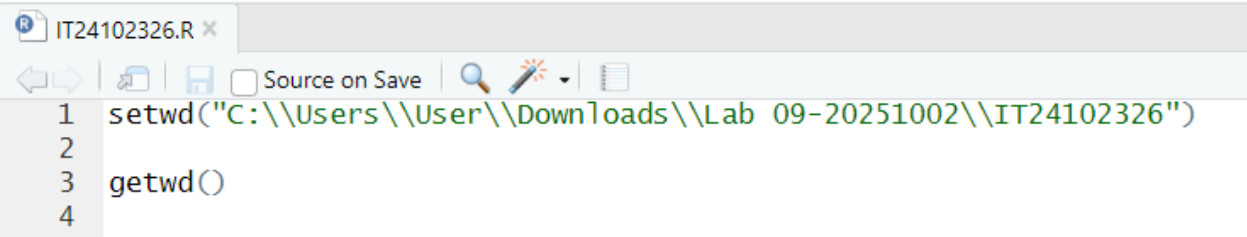
IT24102326

Dadallage.S

Lab 09

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.




```
> setwd("C:\\Users\\User\\Downloads\\Lab 09-20251002\\IT24102326")
> getwd()
[1] "C:/Users/User/Downloads/Lab 09-20251002/IT24102326"
```

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

```
6 #(i)
7 set.seed(123)
8 print(rnorm(25, mean = 45, sd = 2))
9
```

```
> set.seed(123)
> print(rnorm(25, mean = 45, sd = 2))
 [1] 43.87905 44.53965 48.11742 45.14102 45.25858 48.43013 45.92183 42.46988 43.62629 44.10868 47.44816
[12] 45.71963 45.80154 45.22137 43.88832 48.57383 45.99570 41.06677 46.40271 44.05442 42.86435 44.56405
[23] 42.94799 43.54222 43.74992
```

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

```
#(ii)
print(t.test(rnorm(25, mean = 45, sd = 2), mu = 46, alternative = "less"))
```

```
> print(t.test(rnorm(25, mean = 45, sd = 2), mu = 46, alternative = "less"))

        One Sample t-test

data:  rnorm(25, mean = 45, sd = 2)
t = -2.1649, df = 24, p-value = 0.02028
alternative hypothesis: true mean is less than 46
95 percent confidence interval:
     -Inf 45.83311
sample estimates:
mean of x
 45.20427
```