

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] "C:/Users/ASUS/OneDrive/Desktop/IT24100548"
> # Q - 1
> # (part i)
> b_time <- rnorm(25, mean = 45, sd = 2)
> print(b_time)
[1] 44.89632 46.22874 44.35487 44.51909 45.21849 45.91205 46.49965 44.79689 41.16816
[10] 43.14189 43.07912 45.00012 44.35355 50.87500 46.14145 45.37368 46.60793 41.85805
[19] 42.96435 47.32634 48.14539 48.88657 44.55599 46.20807 43.70835
```

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

```
> # (part ii)
> t_result <- t.test(b_time, mu = 46, alternative = "less")
> print(t_result)
```

One Sample t-test

```
data: b_time
t = -1.683, df = 24, p-value = 0.05267
alternative hypothesis: true mean is less than 46
95 percent confidence interval:
 -Inf 46.01204
sample estimates:
mean of x
 45.2728
```