IT24103067

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PS Lab 09

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.

```
> setwd("C:\\Users\\USER\\Desktop\\IT24103067Lab9")
>
> set.seed(123)
> sample_data <- rnorm(25, mean = 45, sd = 2)
> sample_data
 [1] 43.87905 44.53965 48.11742 45.14102 45.25858 48.43013 45.92183 42.46988 43.62629
[10] 44.10868 47.44816 45.71963 45.80154 45.22137 43.88832 48.57383 45.99570 41.06677
[19] 46.40271 44.05442 42.86435 44.56405 42.94799 43.54222 43.74992
```

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

```
> t.test(sample_data, alternative = "less", mu = 46)

        One Sample t-test

data:  sample_data
t = -2.8167, df = 24, p-value = 0.004776
alternative hypothesis: true mean is less than 46
95 percent confidence interval:
     -Inf 45.58124
sample estimates:
mean of x
 44.93334
```