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1 setwd('C:\\Users\\msi\\Desktop\\Sliit Uni\\2 YR 1 Sem\\Probability and Statistics - IT2120\\Labs\\Lab 9')
2 getwd()
3
4 #1. Assume that the time taken to bake a batch of cookies is normally distributed with mean 45 minutes and
5
6 #i. Generate a random sample of size 25 for the baking time.
7 baking_times <- rnorm(25, mean=45, sd=2)
8 baking_times
9
10 #ii. Test whether the average baking time is less than 46 minutes at a 5% level of significance.
11 #Hypothesis: H0:  $\mu \geq 46$  vs H1:  $\mu < 46$ 
12 t.test(baking_times, mu=46, alternative="less")
13 #Conclusion: Since p value (0.0005364) is less than 0.05, we can reject H0 at 5% level of significance. The
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> setwd('C:\\Users\\msi\\Desktop\\Sliit Uni\\2 YR 1 Sem\\Probability and Statistics - IT2120\\Labs\\Lab 9')
> getwd()
[1] "C:/Users/msi/Desktop/Sliit Uni/2 YR 1 Sem/Probability and Statistics - IT2120/Labs/Lab 9"
> #i. Generate a random sample of size 25 for the baking time.
> baking_times <- rnorm(25, mean=45, sd=2)
> baking_times
 [1] 46.43352 44.86977 46.34636 45.91836 43.83355 44.57869 44.49288 44.30970 44.45548 47.56666
[11] 44.71198 43.68183 42.66336 43.72659 44.95423 44.82817 45.18324 45.32149 44.29915 45.30216
[21] 44.91214 46.85326 40.75229 46.91529 43.15032
> #ii. Test whether the average baking time is less than 46 minutes at a 5% level of significance.
> #Hypothesis: H0:  $\mu \geq 46$  vs H1:  $\mu < 46$ 
> t.test(baking_times, mu=46, alternative="less")

One Sample t-test

data:  baking_times
t = -4.1022, df = 24, p-value = 0.0002034
alternative hypothesis: true mean is less than 46
95 percent confidence interval:
 -Inf 45.30189
sample estimates:
mean of x
 44.80242

> #Conclusion: Since p value (0.0005364) is less than 0.05, we can reject H0 at 5% level of significance. Therefore, we can conclude that the true mean baking time is less than 46.
> source("C:/Users/msi/Downloads/New folder (6)/IT24100387.R")
> |
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