PS-Lab 09

IT24102555

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IT24102555-Lab09.R

```
setwd('/Users/nandulee/Desktop/IT24102555')
getwd()

#1. Assume that the time taken to bake a batch of cookies is normally distributed with mean 45 minutes and standard dev

#i. Generate a random sample of size 25 for the baking time.
baking_times <- rnorm(25, mean=45, sd=2)
baking_times

#ii. Test whether the average baking time is less than 46 minutes at a 5% level of significance.
#Hypothesis: H0: μ >= 46 vs H1: μ < 46
t.test(baking_times, mu=46, alternative="less")
#Conclusion:Since p value (0.0005364) is less than 0.05, we can reject H0 at 5% level of significance. Therefore, we ca
```

```
> getwd()
[1] "C:/Users/weera/AppData/Local/Microsoft/Windows/INetCache/IE/HAKYYVUP"
> #i. Generate a random sample of size 25 for the baking time.
> baking_times <- rnorm(25, mean=45, sd=2)
> baking_times
 [1] 44.83126 45.77236 44.70066 44.87876 45.37095 45.64945 42.74263 42.42607 44.72434 46.86131 48.28351 43.03747
[13] 46.07662 42.46652 42.05604 44.28922 45.84689 41.91950 49.19827 41.62992 45.68495 49.03339 47.78820 44.40482
[25] 43.93384
> #ii. Test whether the average baking time is less than 46 minutes at a 5% level of significance.
> #Hypothesis: H0: μ >= 46 vs H1: μ < 46
> t.test(baking_times, mu=46, alternative="less")

        One Sample t-test

data:  baking_times
t = -2.4322, df = 24, p-value = 0.01142
alternative hypothesis: true mean is less than 46
95 percent confidence interval:
     -Inf 45.68691
sample estimates:
mean of x
 44.94428

>
```

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Values

baking_times	num [1:25] 44.8 45.8 44.7 44.9 45.4 ...