Probability and Statistics - IT2120

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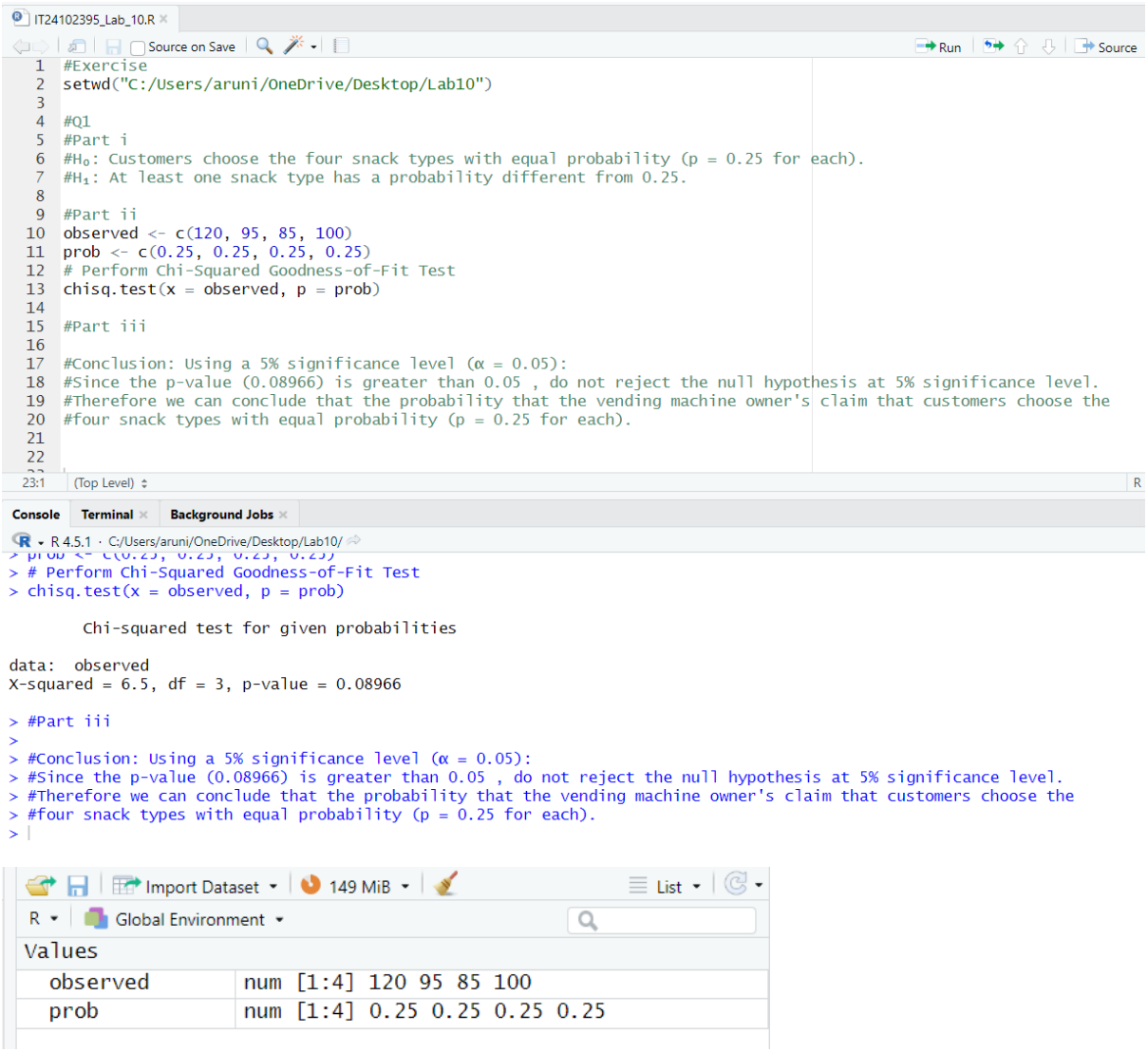

```r
#Exercise
setwd("C:/Users/aruni/OneDrive/Desktop/Lab10")

#Q1
#Part i
#H₀: Customers choose the four snack types with equal probability (p = 0.25 for each).
#H₁: At least one snack type has a probability different from 0.25.

#Part ii
observed <- c(120, 95, 85, 100)
prob <- c(0.25, 0.25, 0.25, 0.25)
# Perform Chi-Squared Goodness-of-Fit Test
chisq.test(x = observed, p = prob)

#Part iii

#Conclusion: Using a 5% significance level (α = 0.05):
#Since the p-value (0.08966) is greater than 0.05 , do not reject the null hypothesis at 5% significance level.
#Therefore we can conclude that the probability that the vending machine owner's claim that customers choose the
#four snack types with equal probability (p = 0.25 for each).
```

```
> # Perform Chi-Squared Goodness-of-Fit Test
> chisq.test(x = observed, p = prob)

        Chi-squared test for given probabilities

data:  observed
X-squared = 6.5, df = 3, p-value = 0.08966

> #Part iii
>
> #Conclusion: Using a 5% significance level (α = 0.05):
> #Since the p-value (0.08966) is greater than 0.05 , do not reject the null hypothesis at 5% significance level.
> #Therefore we can conclude that the probability that the vending machine owner's claim that customers choose the
> #four snack types with equal probability (p = 0.25 for each).
>
```


Values	
observed	num [1:4] 120 95 85 100
prob	num [1:4] 0.25 0.25 0.25 0.25