Sri Lanka Institute of Information Technology

Lab Submission
Lab sheet No 10

IT24102615

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Probability and Statistics | IT2120

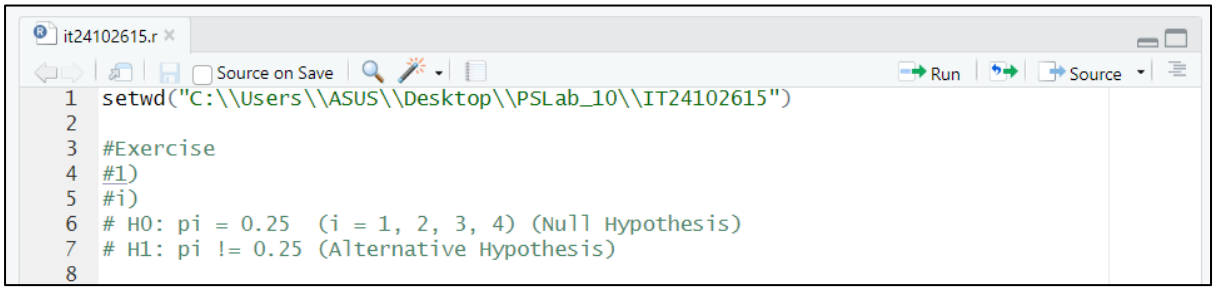
B.Sc. (Hons) in Information Technology

Exercise

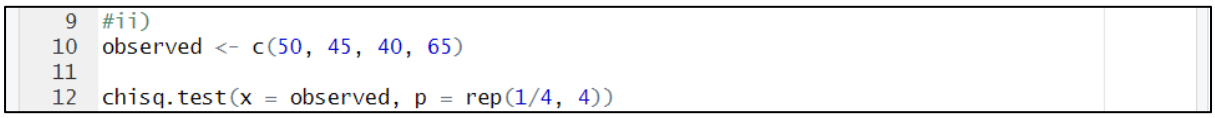
1. A vending machine owner claims that customers choose the four snack types (A, B, C, D) with equal probability. To test this claim, a researcher records the number of purchases for each snack type during one week and results are given below.

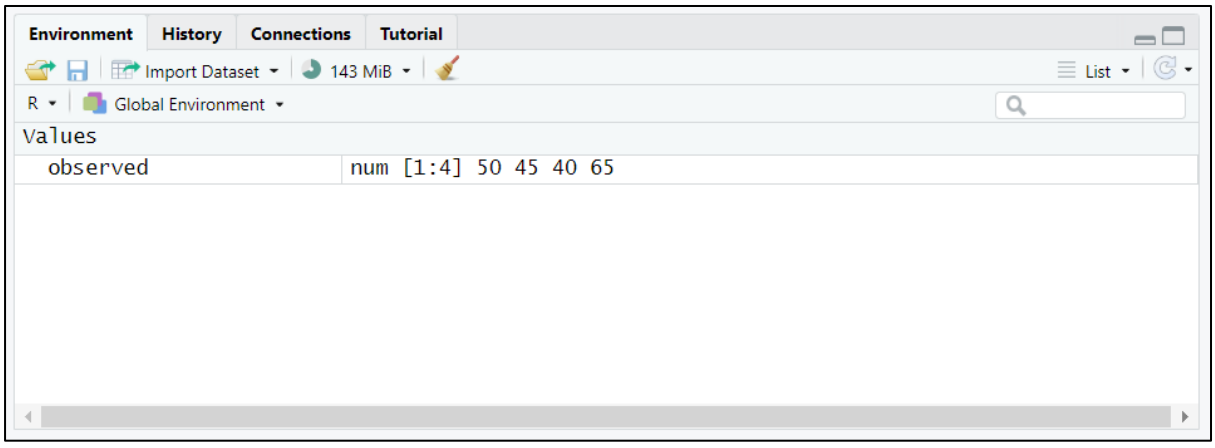
Snack_Type	Count
A	120
B	95
C	85
D	100

i. State the null and alternative hypotheses for the test.



ii. Perform a suitable chi-squared test to test the null hypothesis.





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> #ii)
> observed <- c(50, 45, 40, 65)
>
> chisq.test(x = observed, p = rep(1/4, 4))

        Chi-squared test for given probabilities

data:  observed
X-squared = 7, df = 3, p-value = 0.0719
```

iii. Give your conclusions based on the results

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#iii)
#Conclusions
#Significance level = 0.05
#p value = 0.0719 > 0.05, so we fail to reject H0
```