Faculty of Computing

Year 2 Semester 1 (2025)

IT2120 - Probability and Statistics

Lab Sheet 10

Exercise

```
> #Part1
> #Here, the vendimg machine owner claims that customers choose the four snack types with equal probability.
> #That means probability of customer choosing each of the four snack types would be 0.25.
> #Alternative hypothesis will be at least one snack type exist such that probability of customer choosing
> #it will be different from 0.25.
>
```

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>
> #Part2
> #To test the null hypothesis we need to conduct goodness of fit test which is a chi-squared test.
> observed <- c(120, 95, 85, 100)
> prob <- c(.25, .25, .25, .25)
> chisq.test(x=observed, p=prob)

        Chi-squared test for given probabilities

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

```
> #Part3
> #Consider 5% level of significance for the test.
> #Rejection Region: If the p value for the test is less than 0.05,
> #reject the null hypothesis at 5% level of significant.
> #P value for the test got as 0.08966
> #Conclusion: Since the p value (0.08966) is greater than 0.05, do not reject null hypothesis at 5%
> #level pf significance. Therefore we can conclude that probability of customers choosing four snack types
> #wil be the same which is 0.25
>
```