Sri Lanka Institute of Information Technology

Lab Submission
<Lab sheet 10>

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Probability and Statistics| IT2120

B.Sc. (Hons) in Information Technology

Exercise

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

```
#1
#i. State the null and alternative hypotheses for the test.

#Null Hypothesis - Customers choose each snack type with equal probability
#Alternative hypothesis -  Customers do not choose each snack type with equal probability
```

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

```
#ii. Perform a suitable chi-squared test to test the null hypothesis.
observed<-c(120,95,85,100)
total<-sum(observed)
expected<-rep(total/4,4)
chisq.test(observed,p=rep(1/4,4))
```

```
        Chi-squared test for given probabilities

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

Values	
expected	num [1:4] 100 100 100 100
observed	num [1:4] 120 95 85 100
total	400

iii. Give your conclusions based on the results.

```
#iii. Give your conclusions based on the results.

#If p-value>0.05, fail to reject H0.
#If p-value<=0.05, reject H0.

# p-value=0.08966>0.05
# Therefore, so we fail to reject the null hypothesis.
#It is because the data does not show a significant preference for any type.
```