Statistical Analysis on Mobile Banking in Sri Lanka

CS5651 - Statistical Inference

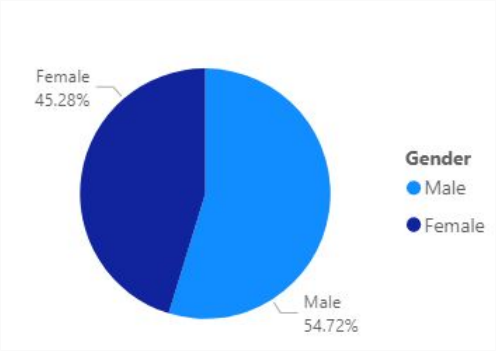
H.T.N. Rupasinghe - 209372N

Dataset

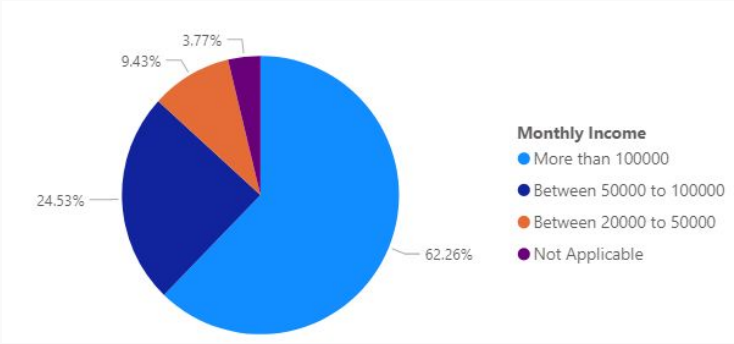
- Collected through an online survey.
- Questionnaire consists of,
  - Demographics (Gender, Age, Educational Level, Marital Status, Income Range etc)
  - Usages of the app
  - Tendency to do large payments
  - Willingness to do interbank transfers
  - Additional charges
  - Security
  - Overall Experience

Dataset

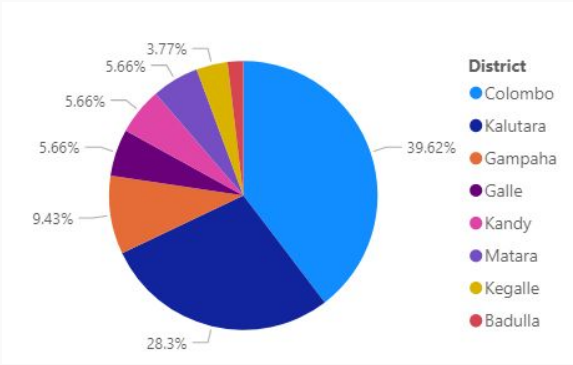
Gender



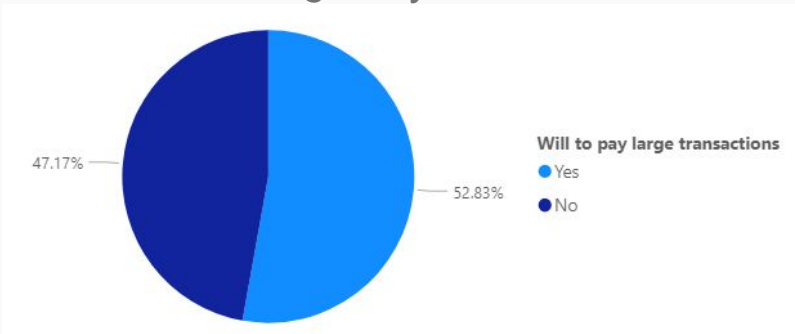
Monthly Income



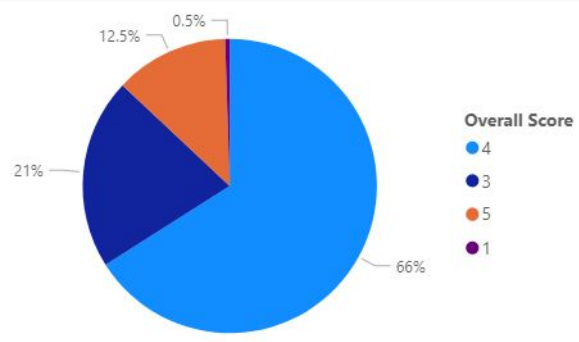
District



Large Payments



Overall Score



Hypotheses and Confidence Intervals

Hypotheses

- Is there an association between the age range and willingness to do large payments ?
- Do married people take bank loans than singles ?
- Is there an association between fully satisfying about the security of the app and the preference to do interbank transactions ?

Confidence Intervals

- 95% CI for the proportion of all Sri Lankan mobile banking app users who think their mostly used app is overall good ?

Statistical Inferences

Age Range and Willingness to do Large Payments

Is there an association between the age range and willingness to do large payments ?

- H_0 : There is no association between the age range and willingness to do large (more than 100,000) payments.
- H_a : Willingness to do large payments has association with the age range.

- Conducted a Chi Square Test
- Test statistic = $X^2 = 8.810$
- Degrees of freedom = 3
- P-Value = 0.031
- Significance level = $\alpha = 0.05$. Therefore reject H_0

Strong(not very strong) evidence that there is an association between age range and willingness to do large transactions at 95% confidence.

Marital Status and Bank Loans

Do married people take bank loans than singles ?

- H_0 : Proportion of married and unmarried are equal for taking bank loans.
- H_a : Proportion married people who take loans are greater than the singles.

- Conducted a Difference in Proportions Test
- Test statistic = 0.46428
- Pooled P = 0.4545
- P-Value = 0.00088
- Significance level = α = 0.05. Therefore reject H_0

There is very strong evidence that married people take more bank loans than singles at 95% confidence.

Score on security and interbank transactions

Is there an association between fully satisfying about the security of the app and the preference to do interbank transactions ?

- H_0 : There is no association between the fully satisfying about the security of the app and the preference to do interbank transactions.
- H_a : Preference to do interbank transactions has association with being fully satisfied about the security.

- Conducted a Chi Square Test
- Test statistic = $X^2 = 0.311$
- Degrees of freedom = 1
- P-Value = 0.577
- Significance level = $\alpha = 0.05$. Therefore do not reject H_0

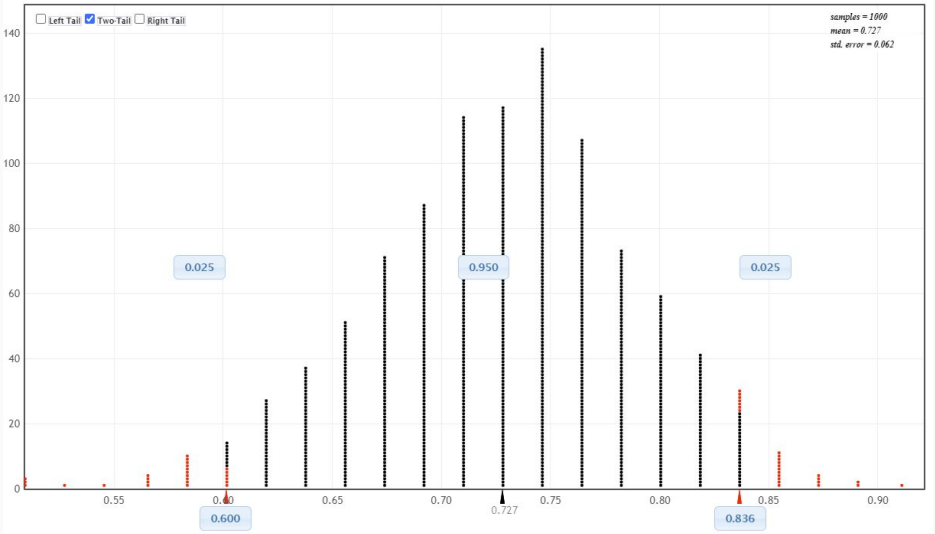
There is no sufficient evidence to prove the association between fully satisfying about the security of the app and the preference to do interbank transactions at 95% confidence.

95% CI for the mobile app is overall good

95% CI for the proportion of all Sri Lankan mobile banking app users who think their mostly used app is overall good ?

- Overall score <= neutral
- Overall score >= good

- Counts are greater than 10 in each category.
- $\hat{P}$ = 0.7273
- CI = (0.60, 0.84)



We are 95% confidence,
that between 60% and 84%
of all Sri Lankan mobile banking users think
that their mostly used app is overall good.

Summary

- Is there an association between the age range and willingness to do large payments ? - **Yes, Strong evidence**
- Do married people take bank loans than singles ? - **Yes, Very strong evidence**
- Is there an association between fully satisfying about the security of the app and the preference to do interbank transactions ? - **No, No sufficient evidence**
- We are 95% confidence, that between **60% and 84%** of all Sri Lankan mobile banking users think that their mostly used app is **overall good**.

Thank You !