Analysis of the influencing factors on Mobile Banking Application Usage

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Introduction

- Mobile banking application has made banking process easy
- Here, Mobile banking app usage has been analysed
- Online survey was used to gather data
- Efficiency, satisfaction and other factors have been analysed
- Descriptive statistics and inferential statistics were used

Questionnaire Description

- **What is your gender?**
  - Collected data as a selective method as female or male to find whether the gender affects the using mobile banking apps and also popularity of mobile banking apps among both genders.
- **Which age group do you belong to?**
  - Several age categories used to collect data to have a clear idea of which
  - is the age category that used the mobile banking most.
- **Marital status ?**
  - Collected data as married or unmarried by selective method to find whether online banking is popular among both categories.
- **What district do you currently live in?**
  - Collected data as selection by given district list to find whether the district affect to the online banking
- **What is your best current job description ?**
  - Data was collected as selective method to find popularity of mobile banking among different occupations
- **What is your highest educational qualification ?**
  - Collected data as selective method under basic categories as Degree, Diploma, A/L and O/L to find the effect of educational level on mobile banking apps usage

Questionnaire Description

- **How much time do you spend using the Internet (approximately) ?**
  - Several time periods were given to select. This collection of data helps to identify correlation between internet usage and mobile banking apps usage
- **What is the bank where you get banking services through a mobile app?**
  - Collected data by selective method by adding well known banks in sri lanka to find the preference of mobile banking according to the bank.
- **Which type of account do you use at the bank you mentioned above?**
  - Collected data selectively to find the necessity of mobile banking related to their account type.
- **Do you spend extra money on banking mobile application service?**
  - Collected data as yes,no question to find the extra money they have to spend for mobile banking application facilities
- **What are the main necessities you fulfill with your bank ?**
  - Entered each facility given by mobile banking by analyzing services offered by each bank to identify the most popular necessity among customers.
- **What is your most used service in mobile banking?**
  - Collected data as selectively to find the service that was used frequently in mobile banking process
- **How far (km) is your nearest bank branch ?**
  - Here gave the opportunity to enter the distance by using

Analysis

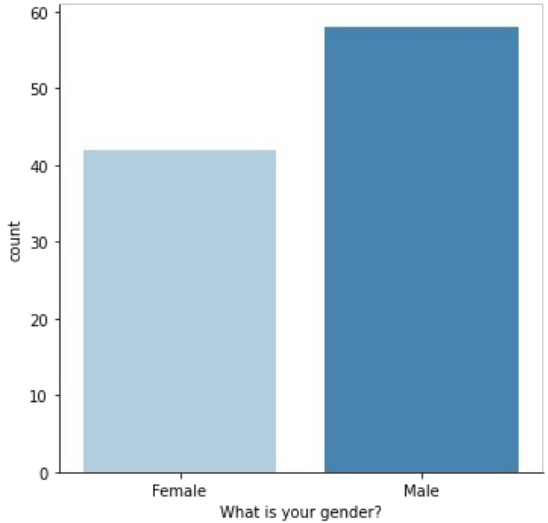
There are two statistical methods for the analysis of data collected from the survey.

1. Descriptive Statistics
2. Inferential Statistics

Descriptive statistics

- Tabular, graphical and numerical summaries of data are included
- Interpretation of data and presentations can be facilitated
- Relationships and patterns can be identified
- Do not draw conclusions

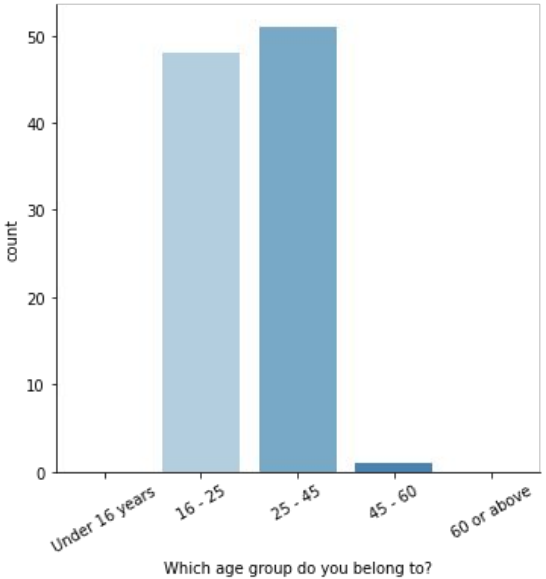
What is your gender?



Summary Statistics

	Count	Proportion
Female	42	0.42
Male	58	0.58
Total	100	1.000

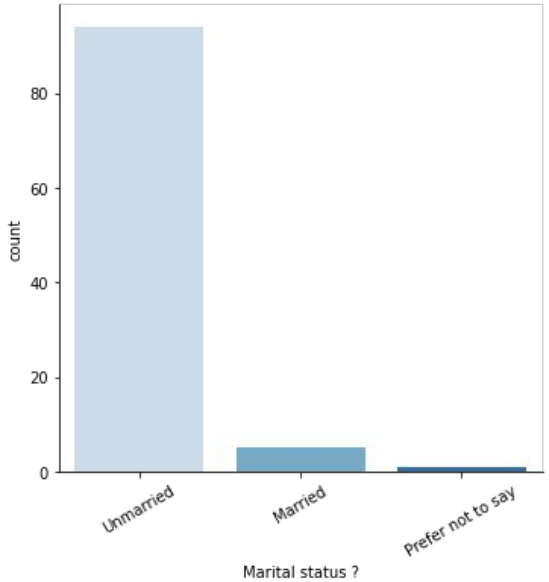
Which age group do you belong to?



Summary Statistics

	Count	Proportion
25 - 45	51	0.51
16 - 25	48	0.48
45 - 60	1	0.01
Total	100	1.000

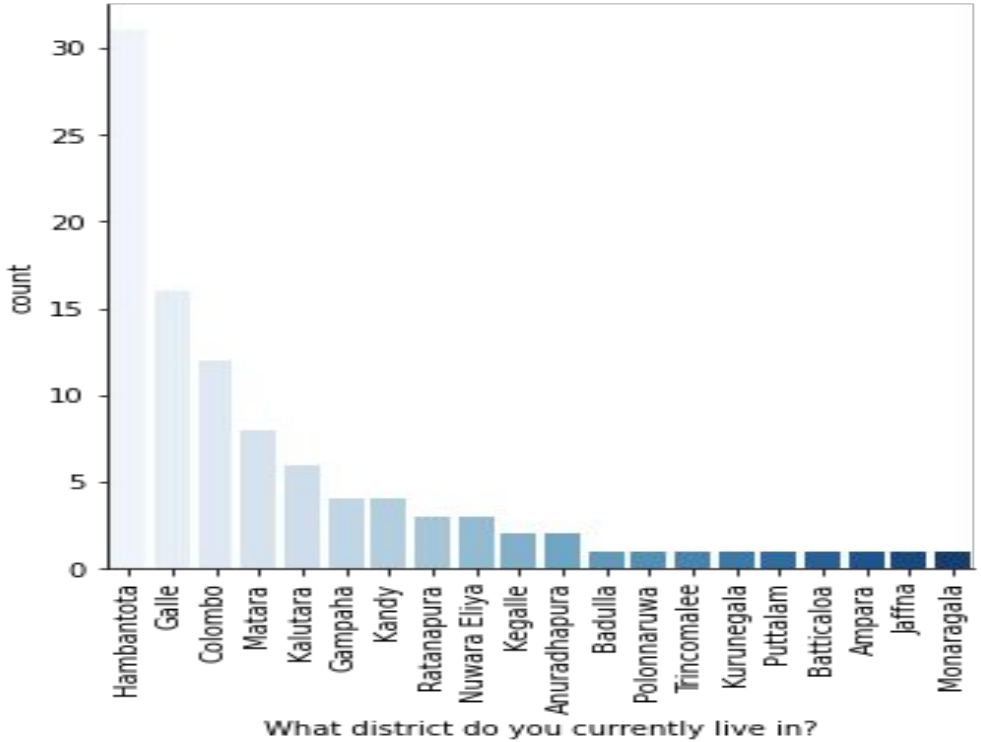
Marital Status ?



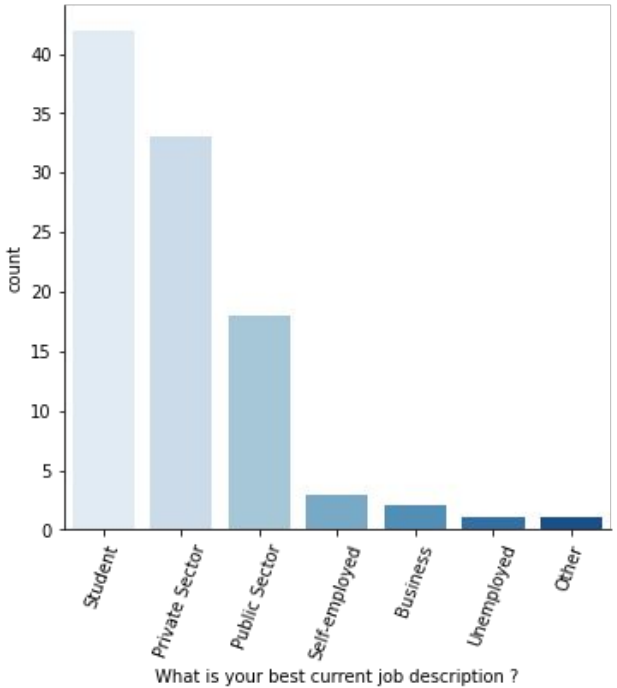
Summary Statistics

	Count	Proportion
Unmarried	94	0.94
Married	5	0.05
Prefer not to say	1	0.01
Total	100	1.000

Living District ?



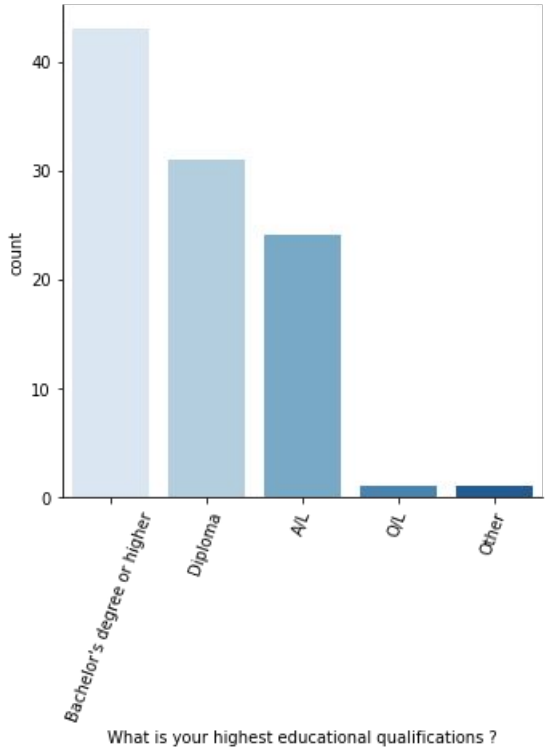
What is your best current job description ?



Summary Statistics

	Count	Proportion
Public Sector	18	0.18
Private Sector	33	0.33
Student	42	0.42
Unemployed	1	0.01
Self-employed	3	0.03
Business	2	0.02
Other	1	0.01
Total	100	1.000

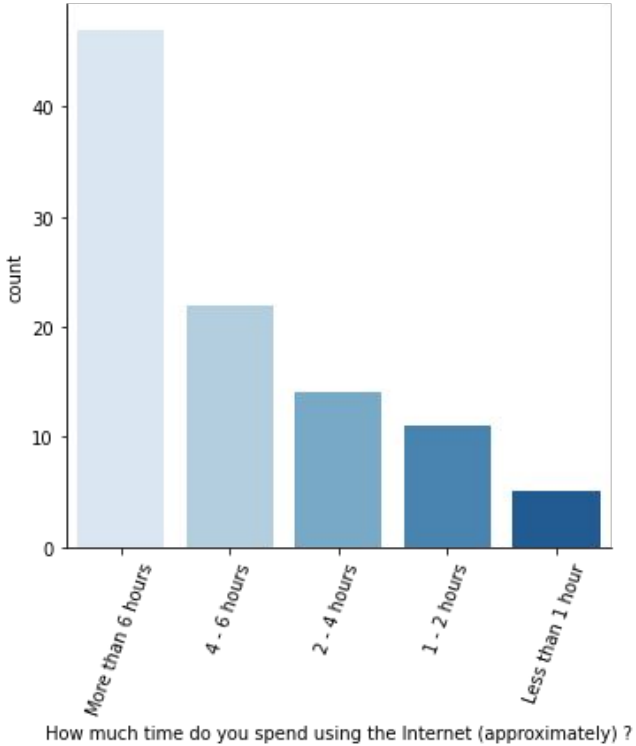
What is your highest educational qualification ?



Summary Statistics

	Count	Proportion
Diploma	31	0.31
Bachelor's degree or higher	43	0.43
A/L	24	0.24
Other	1	0.01
O/L	1	0.01
Total	100	1.000

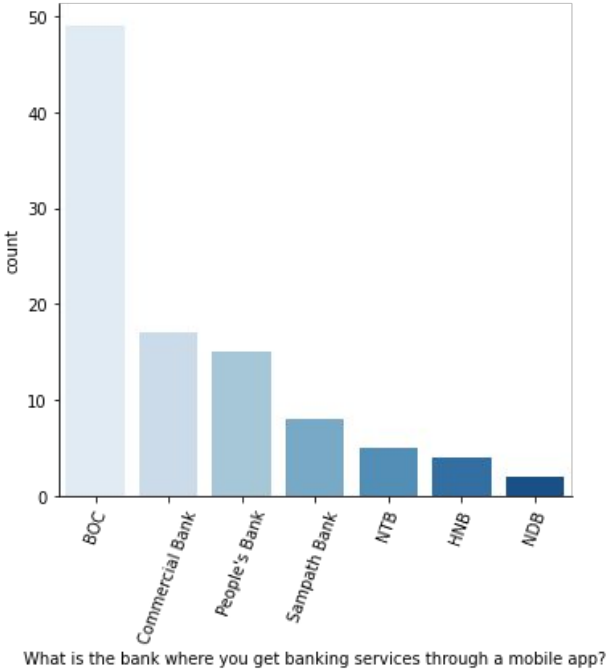
Internet Usage ?



Summary Statistics

	Count	Proportion
2 - 4 hours	14	0.141
More than 6 hours	47	0.475
1 - 2 hours	11	0.111
4 - 6 hours	22	0.222
Less than 1 hour	5	0.051
Total	99	1.000

What is the bank where you get banking services through a mobile app?

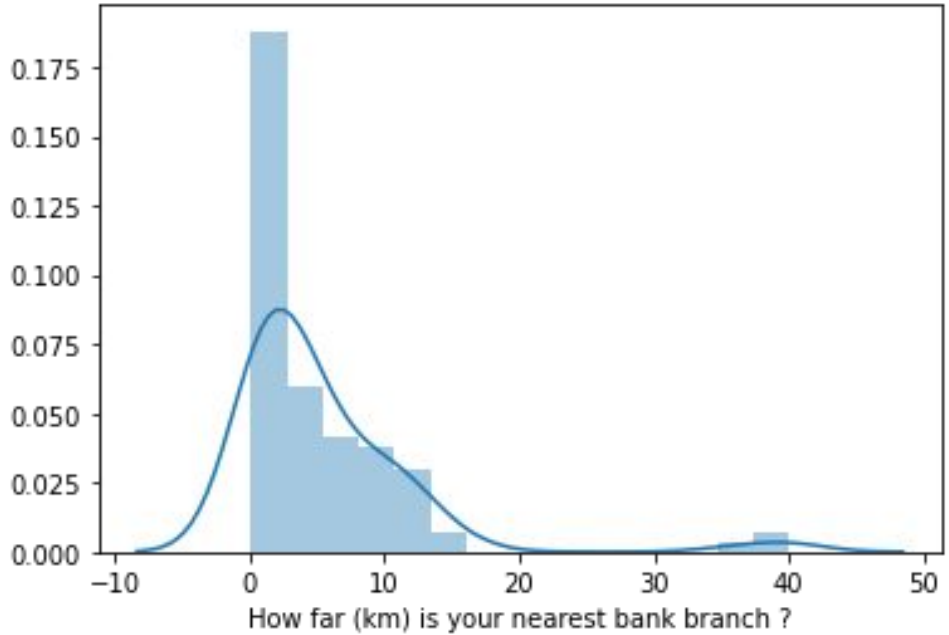


What is the bank where you get banking services through a mobile app?

Summary Statistics

	Count	Proportion
People's Bank	15	0.15
BOC	49	0.49
NTB	5	0.05
Commercial Bank	17	0.17
HNB	4	0.04
NDB	2	0.02
Sampath Bank	8	0.08
Total	100	1.000

How far (km) is your nearest bank branch ?

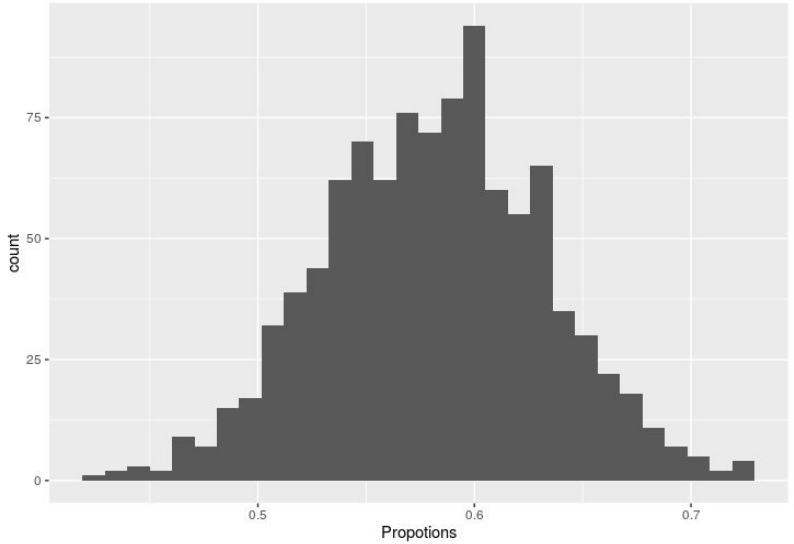


Inferential statistic

- Draw inferences concerning population characteristics based on sample data.
- There are two main areas of inferential statistics.
    1. Parameter Estimation
    2. Hypothesis testing

Population proportion of Male Mobile banking app users - Parameter Estimation

- Construct a 95% confidence Interval for the population proportion of Male mobile banking application users.



Sample proportion = 0.58
Size of the sample = 100
Number of samples = 1000
SE = 0.0495

Confidence Interval = statistic +/- ME

*95% CI : Margin of error (ME) = 2 * SE (Std. error)*

*CI = (0.58 - 2*0.0495, 0.58+ 2*0.0495)*

= (0.481 , 0.679)

Population proportion of Male Mobile banking app users - Hypothesis Testing

- Test the null hypothesis that the p, true proportion of male mobile banking app users is 0.5, against the alternative hypothesis that it differs from 0.5.

$H_0 : p = 0.5,\ H_a :\ p \neq 0.5$

Since the sample size is greater than 30, we can use the z-test.

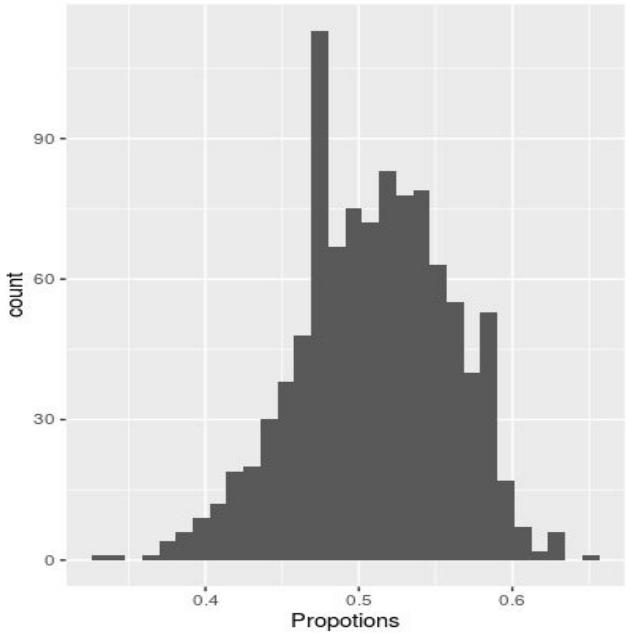
$$z = \frac{\hat{p} - p_0}{SE} = \frac{0.58 - 0.5}{0.0495} = 1.6$$

P-value = 0.1095 > 0.05

There is no very strong evidence that the true proportion of male mobile banking users differs from 0.5.

Population proportion in age range 25 to 45 - Parameter Estimation

- Construct a 95% confidence Interval for the population proportion of mobile banking application users between 25-45 age range.



Sample proportion = 0.51
Size of the sample = 100
Number of samples = 1000
SE = 0.0494

Confidence Interval = statistic +/- ME

*95% CI : Margin of error (ME) = 2 * SE (Std. error)*

*CI = (0.51 - 2*0.0494, 0.51+ 2*0.0494)*

= (0.4112 , 0.6088)

Population proportion in age range 25 to 45 - Hypothesis Testing

- Test the null hypothesis that the true proportion of Mobile banking users in age range 25 to 45 is 0.5, against the alternative hypothesis that it differs from 0.5.

$H_0 : p = 0.5,\ H_a :\ p \neq 0.5$

Since the sample size is greater than 30, we can use the z-test.

$$z = \frac{\hat{p} - p_0}{SE} = \frac{0.51 - 0.5}{0.0494} = 0.2024$$

P-value = 0.839604 > 0.05

There is no very strong evidence that the true proportion of Mobile banking users in age range 25 to 45 differs from 0.5.

What is the average distance to the nearest bank? - Parameter Estimation

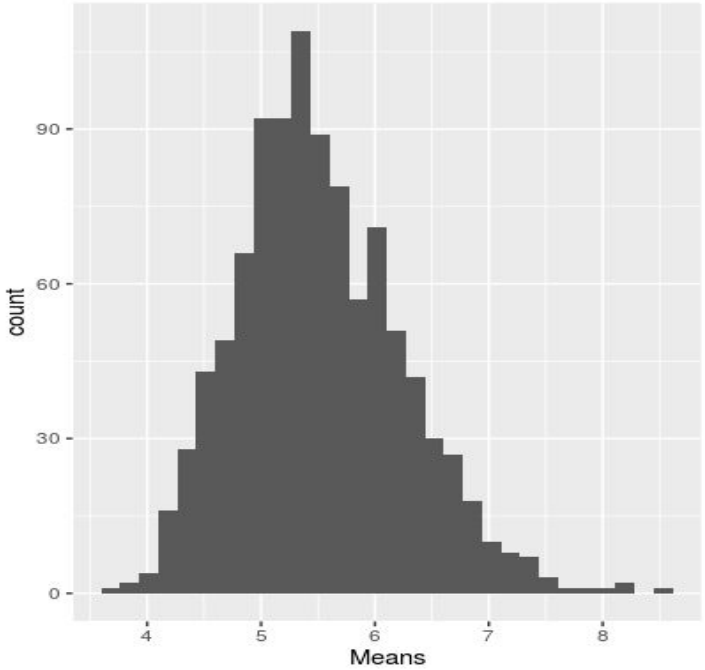
- *Construct a 95% confidence Interval for the average distance to the nearest bank for mobile banking application users.*

Sample mean = 5.549
Size of the sample = 100
Number of samples = 1000
SE = 0.7260071
Confidence Interval = statistic +/- ME

*95% CI : Margin of error (ME) = 2 * SE (Std. error)*

*CI = (5.549 - 2*0.7260071 , 5.549+ 2*0.7260071)*

= (4.097 , 7.001)



What is the average distance to the nearest bank ? - Hypothesis Testing

Let's test the null hypothesis that the mean of the distance to the nearest bank is 5km, against the alternative hypothesis that it differs from 5.

$H_0 : \mu = 5,\ H_a : \mu \neq 5$

Since the sample size is greater than 30, we can use the z-test.

$$z = \frac{\bar{x} - \mu}{SE} = \frac{5.549 - 5}{0.7260071} = 0.7562$$

P-value = 0.449589 > 0.05

There is no very strong evidence that the mean of the distance to the nearest bank differs from 5 km.

Conclusions

- There is no very strong evidence that the true proportion of male mobile banking users differs from 0.5.
- There is no very strong evidence that the true proportion of Mobile banking users in age range 25 to 45 differs from 0.5.
- There is no very strong evidence that the mean of the distance to the nearest bank differs from 5 km.

Thank You