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### **OBJECTIVES**

- > To study about number of active users of Smart phones.
- > To know about the student's preference level associated with different mobile phones.
- > To find whether income level and purchasing level are correlated or not.
- > Understand their view on whether students make use of social media in their education or not.
- > Factor that influence decision making in purchasing a mobile phone.
- > To know which advertisement media puts more impact on the buying decision of students.
- > Analysing the use pattern of Smartphones among male and female

## **INRODUCTION**

Though mobile company manufactures, regulatory, agency and service provider assure that mobile phones have best qualities. We tried to pick up us best mobile phone model chosen by male and female using statistical analysis in this project and finally we have suggested some suggestions.

Samsung was founded in 1977,43 years ago (as Telecommunication network) In Seoul, South Korea and headquarter in Suwon, South Korea. Samsung president is Choi Gee-sung mobile company founder is Pete Lau, Carl Pel W. industry in Futian District, Shenzhen, Guangdong Republic of china (Taiwan).

Redmi was founded on April 6,2010; 9 year ago, and this mobile company founder is Lei Jun. Redmi headquarters is in Haitians District, Beijing, China. The President of this mobile company President is Lin Bin and CEO is Lei Jun. Oppo mobile company was founded on Feb 2,2001; 19 years Ago (as legend) in Dongguan, Guangdong, China and the founder of this Oppo mobile company is Tony Chen. Oppo mobile company Headquarters is in the Dongguan District, Beijing, China & Morrisville, North Carolina, United States. This mobile company chairman and CEO are Tony Chen. Sony was founded On September 1,2001; 18 years ago. Sony company headquarter is located in Shinagawa, Tokyo, japan.

## **METHODOLOGY**

It is casual study directed towards determining the mobile company which is most popular in the science faculty students of Ahmednagar College, Ahmednagar. The data have been collected is primary data by sample survey with the help of the structured questionnaire. The respondents have been choosen aged above 17 years of all faculties students from Ahmednagar College, Ahmednagar.

## ## Questionnaire ##

Analysis of Brand Preference of Mobile Phones among Ahmednagar college, Ahmednagar Student by Using Statistical Technique.

### Questionnaire

(Please fill this questionnaire to help us to identify students use and attitude towards smartphone. The aim of this questionnaire is to obtain information about how many students use Smartphone. All data provided will be confidential. Your participation is greatly appreciated.)

- 1) Age:
- 2) Gender:
- a} Male b} Female
- 3) Faculty:
- a} science b} commerce c} arts d) other
- 4) Occupation of father?
- a) farmer b) service c) business d) other
- 5) Family income level (monthly)
- a} less than 10,000 b} 10,000 to 20,000 c} 20,000 to 30,000 d} above 30,000
- 6) Are you using smart phone?

| a} yes b}no   |
|---|
| 7) Which mobile you are using?  |
| a} RED-MI b} ONE+ c} HONOR d} SONY  |
| e} VIVO f} OPPO g} SAMSUNG h} OTHER   |
|   |
| 8) How long you are using the phone?  |
| a} less than 1 year b} 1 to 2 year c} 2 to 3 year d} above 3 year   |
| 9) You use mobile phone for:  |
| <ul><li>a) look up your course timetable</li><li>b) read lectures notes</li><li>d) read syllabus related PDF's</li></ul>  |
| 10) Do you have any application related to education?   |
| a} yes b} no  |
|   |
| <ul> <li>11) If yes, which application are most valuable for your studies?</li> <li>a} you tube b} chrome c} UC-browser d} other</li> <li>12) Do you think that social media is useful for your education?</li> <li>a} yes b} no</li> </ul> |
| 13) What rating you will give to features of your current smart phone?  |
| [(a)0 TO 1 –bad, b)1 to 2-average, c)2 to 3-good, e d)3 to 4-very good, e)4 to 5-excellent]   |
| A} camera: a} b} c} d} e}   |
| B} speaker: a} b} c} d} e} C} processor: a} b} c} d} e}   |
| C} processor: a} b} c} d} e} D} display : a} b} c} d} e}  |
| 14) How often do you change your smart phone?  a} less than 1-year b} 1 to 2-year c} 2 to 3-year d} above 3 year  15) Are you willing to buy a new smart phone?   |
| 15) Are you willing to buy a new smart phone?   |
| a} yes b}no   |
| 16) Why are you changing your current phone?  |

- a} broken or faulty b} not up to date
- c} less function d} better option available
- 17) Which is your favourite brand in smart phone available in market?

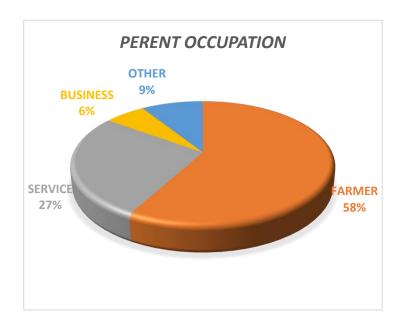
```
(1-most favourite, 2-favourite, 3-less favourite)
```

- a} REDMI
- 1] 2] 3]
- b} ONE+
- 2] 3] 1]
- c} HONOR
- 1] 2] 3]
- d} SONY
- 31 1] 2]
- e} VIVO
- 3] 1] 2]
- f} OPPO
- 1] 2] 3]
- g} SAMSUNG
- 2] 3] 1]
- h} OTHER
- 1] 2] 3]
- 18) How much you willing to pay for a new smart phone?
  - a} less than 5,000 b} 5,000 to 10,0000 c}10,000 to 15,000
- d} above 15,000
- 19) Where did you seen mobile advertisement?
  - c} social media a} T.V b] newspaper d} other
- 20) Which mobile company advertisement you like most?
  - A) REDMI B ONE+ C} HONOR D) SONY
  - E} VIVO F} OPPO G} SAMSUNG H) OTHER

## GRAPHICAL REPRESENTATION OF DATA: -

### > PIE CHART FOR PARENT OCCUPATION: -

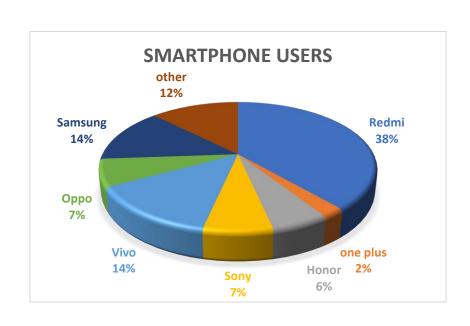
| Occupation | Count |
|------------|-------|
| FARMER     | 58    |
| SERVICE    | 27    |
| BUSINESS   | 6     |
| OTHER      | 9     |



Conclusion: The occupation of parents for 58 % of the participants in the survey is farming.

Pie chart for current Smartphone users: -

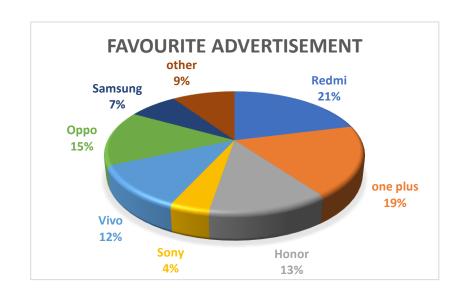
| Brand    | Count |
|----------|-------|
| Redmi    | 34    |
| One plus | 2     |
| Honor    | 5     |
| Sony     | 6     |
| Vivo     | 12    |
| Орро     | 6     |
| Samsung  | 12    |
| Other    | 11    |



Conclusion: Most of the students use Redmi smartphone.

> Pie chart for favourite Advertisement: -

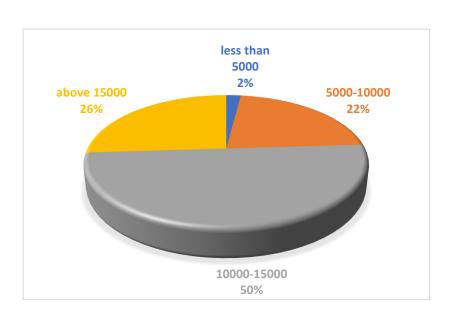
| Brand    | Count |
|----------|-------|
| Redmi    | 20    |
| one plus | 18    |
| Honor    | 12    |
| Sony     | 4     |
| Vivo     | 11    |
| Орро     | 14    |
| Samsung  | 7     |
| Other    | 9     |



Conclusion: Redmi company advertisement is most favourite advertisement.

Pie chart for budget of new Smartphone: -

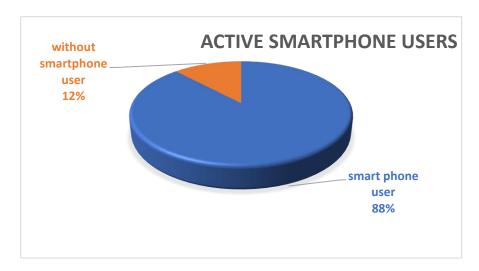
| Income         | Count |
|----------------|-------|
| less than 5000 | 1     |
| 5000-10000     | 11    |
| 10000-15000    | 25    |
| above 15000    | 13    |



Conclusion: most of the student have budget between 10000-15000

Pie chart for active smartphone user: -

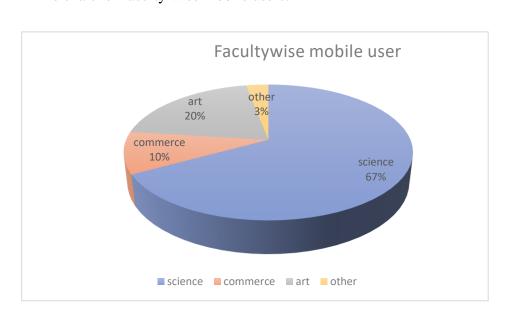
| Smart phone user | 88 |
|------------------|----|
| Without          |    |
| smartphone user  | 12 |



Conclusion: 88% student use smartphone.

Pie chart for faculty wise mobile users: -

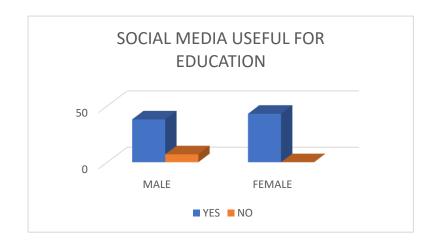
| Faculty  | Count |
|----------|-------|
| Science  | 67    |
| commerce | 10    |
| Art      | 20    |
| Other    | 3     |



Conclusion: 67% student of science faculty are used smartphone

Multiple Bar diagram for social media useful for education: -

|     | MALE | FEMALE |
|-----|------|--------|
| YES | 38   | 43     |
| NO  | 7    | 0      |

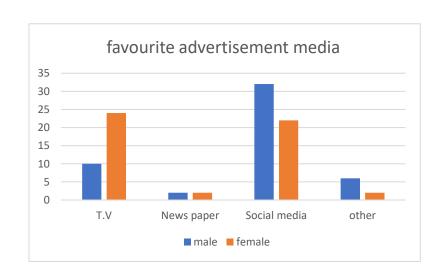


#### Conclusion:

In addition to social media, student uses different educational applications like you-tube, chrome, uc-browser etc.to improve their knowledge.

Multiple Bar chart for favourite advertisement media:

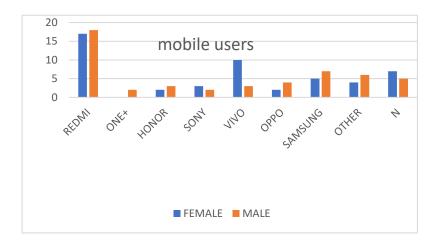
|              | Male | Female |
|--------------|------|--------|
| T. V         | 10   | 24     |
| News paper   | 2    | 2      |
| Social media | 32   | 22     |
| other        | 6    | 2      |



Conclusion: - Social media is favourite advertisement media.

## ➤ Gender-wise Classification of Smartphone Users

| Brand   | FEMALE | MALE |
|---------|--------|------|
| REDMI   | 17     | 18   |
| ONE+    | 0      | 2    |
| HONOR   | 2      | 3    |
| SONY    | 3      | 2    |
| VIVO    | 10     | 3    |
| OPPO    | 2      | 4    |
| SAMSUNG | 5      | 7    |
| OTHER   | 4      | 6    |
| N       | 7      | 5    |



Conclusion: From graph it can be concluded that male and female use Redmi phone more frequently.

## Analysis Technique: -

## Chi-square test for independent attributes (Theoretical Background)

H<sub>0</sub>: Two attributes are independent.

Against

H<sub>1</sub>: Two attributes are not independent.

Under H<sub>0</sub>, Test statistic is

$$x^{2}_{(m-1)*(n-1)} = \sum_{i=1}^{m} \sum_{j=1}^{n} \frac{o_{ij}^{2}}{e_{ij}} - N \sim x^{2}_{(m-1)*(n-1)}$$

Where,

m=no. of rows

n= no. of columns

$$x_{tab}^2 = x_{(m-1)*(n-1),\alpha}^2$$

If  $x_{cal}^2 < x_{tab}^2$ , accept H<sub>0</sub> at  $\alpha$  % level of significance.

### Chi-Square Test For Annual Income And Smartphone Budget: -

H<sub>0</sub>: Income and budget are independent.

 $H_1$ : Income and budget are dependent.

| BUDGET |                 |                      |                |                 |                |    |       |
|--------|-----------------|----------------------|----------------|-----------------|----------------|----|-------|
|        |                 | LESS<br>THAN<br>5000 | 5000-<br>10000 | 10000-<br>15000 | ABOVE<br>15000 | N  | Total |
| INCOME | LESS THAN 10000 | 0                    | 5              | 14              | 5              | 15 | 39    |
|        | 10000-20000     | 1                    | 2              | 7               | 1              | 6  | 17    |
|        | 20000-30000     | 0                    | 2              | 1               | 0              | 5  | 8     |
|        | ABOVE 30000     | 0                    | 2              | 3               | 7              | 24 | 36    |
|        | Total           | 1                    | 11             | 25              | 13             | 50 | 100   |

Chi-Square Tests

|                                      | Value               | df | Asymp. Sig. (2-sided) |
|--------------------------------------|---------------------|----|-----------------------|
| Pearson Chi-Square                   | 22.414 <sup>a</sup> | 12 | 0.033                 |
| Likelihood Ratio<br>N of Valid Cases | 22.935<br>100       | 12 | 0.028                 |

## Decision Rule:

Since p-value (Pearson Chi-Square = 0.033) is less than the < level of significance ( $\alpha$  = 0.05) we conclude that  $H_0$  is rejected.

Conclusion: Variable Annual Income and budget are dependent.

## Chi-Square Test for Independence Between Gender and Brand of Smartphone

 $H_0 \!\!=\! Gender$  and brand selection of smartphone are independent.

Vs

H<sub>1</sub>= Gender and brand selection of smartphone are not independent.

|        |        |       |          | ,     | WHICH | _MOB_ | USE  |         |       |    | Total |
|--------|--------|-------|----------|-------|-------|-------|------|---------|-------|----|-------|
|        |        | Redmi | One-plus | Honor | Sony  | Vivo  | Oppo | Samsung | Other | N  |       |
| Gender | Female | 17    | 0        | 2     | 3     | 10    | 2    | 5       | 4     | 7  | 50    |
|        | Male   | 17    | 2        | 3     | 3     | 3     | 4    | 7       | 6     | 5  | 50    |
| Total  |        | 34    | 2        | 5     | 6     | 13    | 6    | 12      | 10    | 12 | 100   |

**Chi-Square Tests** 

|                  | Value              | df | Asymp. Sig. (2-sided) |
|------------------|--------------------|----|-----------------------|
| Pearson Chi-     | 7.703 <sup>a</sup> | 8  | 0.463                 |
| Square           |                    |    |                       |
| Likelihood Ratio | 8.703              | 8  | 0.368                 |
| N of Valid Cases | 100                |    |                       |

Decision Rule: Since p-value (Pearson Chi-Square = 0.463) is greater than the level of significance ( $\alpha$  = 0.05) we may conclude that  $H_0$  is accepted.

CONLUSION: - Gender and brand selection of smartphone are independent.

## Chi-Square Test For independence between Faculty and use of Smartphone Apps for Education: -

 $H_0$ : Faculty and smartphone application related to education are independent.  $V_S$ 

H<sub>1</sub>: Faculty and smartphone application related to education are dependent.

|         |          | APP_R | ELATED_ | EDU |       |
|---------|----------|-------|---------|-----|-------|
|         |          | YES   | NO      | N   | Total |
| FACULTY | SCIENCE  | 56    | 5       | 6   | 67    |
|         | COMMERCE | 6     | 1       | 3   | 10    |
|         | ARTS     | 13    | 4       | 3   | 20    |
|         | OTHER    | 1     | 2       | 0   | 3     |
| Total   | _        | 76    | 12      | 12  | 100   |

**Chi-Square Tests** 

|                    | Value   | df | Asymp. Sig. (2-sided) |
|--------------------|---------|----|-----------------------|
| Pearson Chi-Square | 15.329a | 6  | 0.018                 |
| Likelihood Ratio   | 11.257  | 6  | 0.081                 |
| N of Valid Cases   | 100     |    |                       |

### Decision Rule: -

Since p-value (Pearson Chi-Square = 0.018) is less than the level of significance ( $\alpha$  = 0.05) we may conclude that  $H_0$  is rejected.

Conclusion: Faculty and use of smartphone apps for education are dependent

## Chi-Square Test for Independence Between Occupation And Income: -

H<sub>0</sub>: Annual Income and occupation of father are independent.

H<sub>1</sub>: Annual Income and occupation of father are dependent

|            |          |           | INCOME |        |       |       |  |  |
|------------|----------|-----------|--------|--------|-------|-------|--|--|
|            |          | LESS THAN | 10000- | 20000- | ABOVE |       |  |  |
|            |          | 10000     | 20000  | 30000  | 30000 | Total |  |  |
| OCCUPATION | FARMER   | 30        | 13     | 7      | 8     | 58    |  |  |
|            | SERVICE  | 4         | 3      | 1      | 19    | 27    |  |  |
|            | BUSINESS | 0         | 0      | 0      | 6     | 6     |  |  |
|            | OTHER    | 5         | 1      | 0      | 3     | 9     |  |  |
| Total      |          | 39        | 17     | 8      | 36    | 100   |  |  |

**Chi-Square Tests** 

|                  |                     |    | -                     |
|------------------|---------------------|----|-----------------------|
|                  | Value               | df | Asymp. Sig. (2-sided) |
| Pearson Chi-     | 38.857 <sup>a</sup> | 9  | 0.000                 |
| Square           |                     |    |                       |
| Likelihood Ratio | 42.657              | 9  | 0.000                 |
| N of Valid Cases | 100                 |    |                       |

#### Decision Rule:

Since p-value (Pearson Chi-Square = 0.000) is less than the level of significance ( $\alpha$  = 0.05) we may conclude that  $H_0$  is rejected.

Conclusion: Annual Income and occupation of father are dependent

## Chi-Square Test for Independence Between Annual Income Level And Smartphone Use: -

 $H_0$ : Mobile brand and family income level are independent

Vs

H<sub>1</sub>: Mobile brand are dependent on family income level.

|        |                 |     | WHICH_MOB_USE |     |      |      |      |         |       | Total |    |
|--------|-----------------|-----|---------------|-----|------|------|------|---------|-------|-------|----|
|        |                 | Red | One-          | Но  |      |      |      |         |       |       |    |
|        |                 | mi  | Plus          | nor | Sony | Vivo | Oppo | Samsung | Other | N     |    |
| INCOME | LESS THAN 10000 | 16  | 0             | 3   | 2    | 2    | 2    | 3       | 3     | 8     | 39 |
|        | 10000-20000     | 5   | 0             | 0   | 3    | 4    | 1    | 3       | 1     | 0     | 17 |
|        | 20000-30000     | 3   | 1             | 1   | 0    | 0    | 1    | 0       | 1     | 1     | 8  |
|        | ABOVE 30000     | 10  | 1             | 1   | 1    | 7    | 2    | 6       | 5     | 3     | 36 |
| Total  | 34              | 2   | 5             | 6   | 13   | 6    | 12   | 10      | 12    | 100   |    |

**Chi-Square Tests** 

| em square rests  |         |    |                       |  |  |  |  |  |
|------------------|---------|----|-----------------------|--|--|--|--|--|
|                  | Value   | df | Asymp. Sig. (2-sided) |  |  |  |  |  |
| Pearson Chi-     | 29.099a | 24 | 0.216                 |  |  |  |  |  |
| Square           |         |    |                       |  |  |  |  |  |
| Likelihood Ratio | 31.286  | 24 | 0.146                 |  |  |  |  |  |
| N of Valid Cases | 100     |    |                       |  |  |  |  |  |

Decision Rule: Since p-value (Pearson Chi-Square = 0.216) is greater than the level of significance ( $\alpha$  = 0.05) we may conclude that  $H_0$  is accepted.

Conclusion: Mobile brand and family income level are independent

## Chi-Square Test for Independence Between Faculty And General Use of Smartphone

H<sub>0</sub>=Mobile use for study is independent on faculty.

Vs

 $H_1$ = Mobile use for study is dependent on faculty.

|       |          |           | Genera   | al USE of Smart Pho | one           |    |       |
|-------|----------|-----------|----------|---------------------|---------------|----|-------|
|       |          | LOOK UP   |          |                     |               |    |       |
|       |          | COURSE    | READ LEC |                     | READ SYLLABUS |    |       |
|       |          | TIMETABLE | NOTES    | WATCH LEC           | RELATED PDF`S | N  | Total |
| FACU  | SCIENCE  | 15        | 11       | 9                   | 26            | 6  | 67    |
| LTY   | COMMERCE | 3         | 3        | 1                   | 0             | 3  | 10    |
|       | ARTS     | 5         | 3        | 2                   | 7             | 3  | 20    |
|       | OTHER    | 1         | 0        | 2                   | 0             | 0  | 3     |
| Total |          | 24        | 17       | 14                  | 33            | 12 | 100   |

**Chi-Square Tests** 

|                  |                     | 1 day C I Coto |                       |
|------------------|---------------------|----------------|-----------------------|
|                  | Value               | df             | Asymp. Sig. (2-sided) |
| Pearson Chi-     | 16.933 <sup>a</sup> | 12             | 0.152                 |
| Square           |                     |                |                       |
| Likelihood Ratio | 18.264              | 12             | 0.108                 |
| N of Valid Cases | 100                 |                |                       |

Decision Rule: Since p-value (Pearson Chi-Square = 0.152) is greater than the level of significance ( $\alpha = 0.05$ ) we may conclude that  $H_0$  is accepted.

Conclusion: Mobile use for study is dependent on faculty.

## Chi-Square Test for Independence Between Annual Income And Duration Of Switching To New Brand: -

H<sub>0</sub>: Duration of Switching To New Brand and family income level are independent.

H<sub>1</sub>: Duration of Switching To New Brand and family income level are dependent.

|        |             | CHANGING_DURATION |        |        |         |    |       |
|--------|-------------|-------------------|--------|--------|---------|----|-------|
|        |             | LESS THAN         | 1 TO 2 | 2 TO 3 | ABOVE 3 |    |       |
|        |             | 1 YEAR            | YEAR   | YEAR   | YEAR    | N  | Total |
| INCOME | < 10000     | 6                 | 5      | 8      | 12      | 8  | 39    |
|        | 10000-20000 | 2                 | 4      | 9      | 2       | 0  | 17    |
|        | 20000-30000 | 1                 | 3      | 1      | 2       | 1  | 8     |
|        | > 30000     | 3                 | 3      | 7      | 20      | 3  | 36    |
| Total  |             | 12                | 15     | 25     | 36      | 12 | 100   |

**Chi-Square Tests** 

|                  | Value   | df | Asymp. Sig. (2-sided) |  |  |  |  |  |  |
|------------------|---------|----|-----------------------|--|--|--|--|--|--|
| Pearson Chi-     | 24.023a | 12 | 0.020                 |  |  |  |  |  |  |
| Square           |         |    |                       |  |  |  |  |  |  |
| Likelihood Ratio | 24.361  | 12 | 0.018                 |  |  |  |  |  |  |
| N of Valid Cases | 100     |    |                       |  |  |  |  |  |  |

Decision Rule: Since p-value (Pearson Chi-Square = 0.020) is less than the level of significance ( $\alpha = 0.05$ ) we may conclude that H<sub>0</sub> is rejected.

Conclusion: The attributes Annual Income and Duration (years) Of Switching to New Brand are dependent.

## Test for Equality of Proportion Between Two Populations (Theoretical Background)

The test statistics for testing the difference in two population proportion that is for testing the null hypothesis

$$H_0: P_1 = P_2$$
  $V_S H_1: P_1 \neq P_2$ 

 $P_1$  = Population Proportion for the first Population

 $P_2$  = Population Proportion for the Second Population

$$Z = \frac{(p_1 - p_2)}{\sqrt{p * (1 - p) * (\frac{1}{n_1} + \frac{1}{n_2})}}$$

Where 
$$p = \frac{y_1 + y_2}{n_1 + n_2}$$

The proportion of "success" in two sample combined. A survey conducted in two distinct population will produce different result.

It often necessary to compare the survey response population between two population.

P1 = Population of the first sample with the characteristics of interest

P2 = Population of the second sample with the characteristics of interest

P = population of the combination of sample with the characteristic of interest

> 1] Proportion test for Redmi mobile users (male & female)

H<sub>0</sub>: Male & Female uses Redmi Smartphone in same proportion.

Vs

H<sub>1</sub>: Male & Female uses Redmi Smartphone is not in same proportion.

```
> x=c (17,17)
```

> n=c (34,34)

> prop.test(x, n)

2-sample test for equality of proportions without continuity correction

data: x out of n

X-squared = 0, df = 1, p-value = 1

alternative hypothesis: two. sided

95 percent confidence interval:

-0.2376805 0.2376805

sample estimates:

prop 1 prop 2

0.5 0.5

Conclusion:

Male & Female uses Redmi Smartphone in same proportion.

> 2] Proportion test for vivo mobile users (male & female)

 $H_{0=}$  Male & Female uses Vivo Smartphone in same proportion.

Vs

 $H_{1=}$  Male & Female uses Vivo Smartphone is not in same proportion.

```
> x=c (10,3)
> n=c(13,13)
> prop.test (x, n)
```

2-sample test for equality of proportions with continuity correction

```
data: x out of n

X-squared = 5.5385, df = 1, p-value = 0.0186
alternative hypothesis: two. Sided

95 percent confidence interval:
0.1376401 0.9392829
sample estimates:
prop 1 prop 2
0.7692308 0.2307692
```

#### Conclusion:

Male & Female uses Vivo Smartphone is not in same proportion.

> 3] Proportion test for Samsung mobile users (male & female)

 $H_{0=}$  Male & Female uses Samsung Smartphone in same proportion.

Vs

 $H_{1=}$  Male & Female uses Samsung Smartphone is not in same proportion.

```
> x=c (5,7)
> n=c (12,12)
> prop.test (x, n)
```

2-sample test for equality of proportions with continuity correction

```
data: x out of n

X-squared = 0.16667, df = 1, p-value = 0.6831
alternative hypothesis: two. sided

95 percent confidence interval:
-0.6444802 0.3111469
sample estimates:
prop 1 prop 2

0.4166667 0.5833333
```

conclusion:

Male & Female uses Samsung Smartphone in same proportion.

## LOGISTICS REGRESSION MODEL

Goodness-of-Fit

|          | Chi-Square | df | Sig.  |  |
|----------|------------|----|-------|--|
| Pearson  | 17.909     | 10 | 0.057 |  |
| Deviance | 11.373     | 10 | 0.329 |  |

Link function: Logit.

#### **Parameter Estimates**

|           |                           | Estimate | Std. Error | Wald    | df | Sig. | 95% Confidence Interval |             |
|-----------|---------------------------|----------|------------|---------|----|------|-------------------------|-------------|
|           |                           |          |            |         |    |      | Lower Bound             | Upper Bound |
| Threshold | [coding_education = 1.00] | 17.854   | 1.359      | 172.577 | 1  | .000 | 15.190                  | 20.518      |
| Location  | [faculy_science=1.00]     | 14.219   | 1.179      | 145.572 | 1  | .000 | 11.910                  | 16.529      |
|           | [faculy_commerce=2.0]     | 16.490   | 1.332      | 153.189 | 1  | .000 | 13.879                  | 19.101      |
|           | [faculty _arts=3.00]      | 17.502   | .000       |         | 1  |      | 17.502                  | 17.502      |
|           | [faculty_other=4.00]      | $O^a$    |            |         | 0  |      |                         |             |
|           | [mobile _REDMI=1.00]      | 597      | 1.465      | .166    | 1  | .684 | -3.467                  | 2.274       |
|           | [mobile _ONE+=2.00]       | -14.946  | 7659.415   | .000    | 1  | .998 | -15027.123              | 14997.232   |
|           | [mobile_Honor=3.00]       | -15.709  | 4288.822   | .000    | 1  | .997 | -8421.646               | 8390.228    |
|           | [mobile _Sony=4.00]       | .120     | 1.833      | .004    | 1  | .948 | -3.472                  | 3.712       |
|           | [mobile _Vivo=5.00]       | 969      | 1.689      | .329    | 1  | .566 | -4.279                  | 2.341       |
|           | [mobile _OPPO=6.00]       | -16.129  | 2586.572   | .000    | 1  | .995 | -5085.716               | 5053.458    |
|           | [mobile _SAMSUNG=7]       | .306     | 1.522      | .040    | 1  | .841 | -2.677                  | 3.289       |
|           | [mobile _OTHER=8.00]      | $0^a$    |            |         | 0  |      |                         | •           |

Link function: Logit.

a. This parameter is set to zero because it is redundant.

The model is,

$$\mathsf{Y} = \{ \frac{\exp\left\{\beta_0 + (\beta_{11}x_{11} + \beta_{12}x_{12} + \beta_{13}x_{13}) + (\beta_{21}x_{21} + \beta_{22}x_{22} + \beta_{23}x_{23} + \beta_{24}x_{24} + \beta_{25}x_{25} + \beta_{26}x_{26} + \beta_{27}x_{27} + \beta_{28}x_{28})\}}{1 - \exp\left\{\beta_0 + (\beta_{11}x_{11} + \beta_{12}x_{12} + \beta_{13}x_{13}) + (\beta_{21}x_{21} + \beta_{22}x_{22} + \beta_{23}x_{23} + \beta_{24}x_{24} + \beta_{25}x_{25} + \beta_{26}x_{26} + \beta_{27}x_{27} + \beta_{28}x_{28})\}} + \mathsf{E}_{\mathsf{S}} \} \}$$

### Where,

 $\beta_0$ =Estimate of

 $\beta_{11}$ =Estimate of science faculty

 $\beta_{12}$ =Estimate of commerce faculty

 $\beta_{13}$ =Estimate of arts faculty

 $\beta_{14}$ =Estimate of another faculty

 $\beta_{21}$ = Estimate of Redmi mobile

 $\beta_{22}$ = Estimate of one+ mobile

 $\beta_{23}$ = Estimate of Honor mobile

 $\beta_{24}$ = Estimate of Sony mobile

 $\beta_{25}$ = Estimate of Vivo mobile

 $\beta_{26}$ = Estimate of Oppo mobile

 $\beta_{27}$ = Estimate of Samsung mobile

 $\beta_{28}$ = Estimate of other mobile

 $x_{11}$ = science faculty

x<sub>12</sub>= commerce faculty

 $x_{13}$ = arts faculty

 $x_{14}$ = another faculty

x<sub>21</sub>=Redmi

x<sub>22</sub>=one+

x<sub>23</sub>=Honor

x<sub>24</sub>=Sony

x25=vivo

x<sub>26</sub>=oppo

x<sub>27</sub>=Samsung

x28=other

$$Y = \frac{\exp(a)}{1 - \exp(a)}$$

Where,

```
a = 17.854 + (14.219X_{11} + 16.490X_{12} + 17.502X) \\ + (-0.597x_{21} - 14.946x_{22} - 15.709x_{23} + 0.120x_{24} - 0.969x_{25} + 16.129x_{26} + 0.306x_{27})
```

Therefore, the model from the given tabular data is,

 $a=17.854 + (14.219 X_{11}+16.490 X_{12}+17.502 X13) + (-0.597 X21-14.946 X22-15.709 X23+0.120 X24-0.969 X25-16.129 X26+0.306 X27)$ 

#### Conclusion:

All Faculty are not significant & each brand of mobile company is significant

Redmi mobile brand is significant in social media.

One+ mobile brand is significant in social media.

Honor mobile brand is significant in social media.

Sony mobile brand is significant in social media.

Vivo mobile brand is significant in social media.

Oppo mobile brand is significant in social media.

Samsung mobile brand is significant in social media.

# Conclusion: 1. Redmi Smartphone's advertisement is most favourite advertisement. 2.most of the student have budget between 10000-15000. 3. 88% student use smartphone & 21% students currently using the Smartphone of Redmi. 4. 67% student of science faculty are using smartphone. 5.In addition to social media, student uses different educational applications like you-tube, chrome, uc-browser etc.to improve their knowledge. 6. Social media is favourite advertisement media. 7.Income and budget are dependent. 8. Faculty and smartphone application related to education are dependent. 9. Mobile brand is dependent on family income level. 10. Mobile changing duration and family income level are dependent. 11.Gender and brand selection of smartphone are independent.

- 12.Income and occupation of father are independent.
- 13. Mobile brand use for study is independent on faculty.
- 14.Male & Female uses Redmi Smartphone in same proportion.
- 15.Male & Female uses Samsung Smartphone in same proportion.
- 16.All Faculty are not significant & each brand of mobile company is significant.

## Reference

#### **REFERENCE BOOK: -**

- Applied Statistics
- Statistical Methods

#### STATISTICAL SOFTWARE: -

- SPSS SOFTWARE
- MICROSOFT EXCEL
- R-SOFTWARE

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