

Comparative analysis of commercial activity on Flipkart's Big Billion Days

Research Methodology:

The study for this project is based on qualitative data which was collected as primary data from the people who have answered our questionnaire, where 110 responses were received and set as the sample size. The questionnaire contains the following questions:

1. Have you heard about 'The Big Billion Days'? (Yes/No)
2. Have you shopped during the 'The Big Billion Days' (Yes/No)
3. Your age group range? (15-25/26-35/36-45/45+ years)
4. The city you stay (Metro city/Non-metro city/Tier II/Tier III)
5. Profession that you belong to (Student/Working/Homemaker)
6. How often do you shop from Flipkart? (Weekly/Monthly/Quarterly/Less Often)
7. Are you satisfied with the products on sale during 'The Big Billion Days' (Scale of 1-5)
8. Do you have Flipkart Plus Membership? (Yes/No)
9. Would you consider joining Flipkart Plus Membership to avail additional benefits from 'The Big Billion Days'? (Yes/No)
10. How satisfied would you be when considering to purchase products from the following e-commerce companies? (Very unsatisfied/Unsatisfied/Neutral/Satisfied/Very Satisfied)
11. Rate the following important factors that you would consider while shopping during the sale season. (Scale of 1-5)

The data collected is descriptive in nature since there is no intervening when gathering the required data. The questions were designed to suit the hypothesis testing and give insights to specific questions that suits the objective of this study i.e to analyze the commercial activity that goes on during Flipkart's Big Billion Days sale season, hence multiple choice answers and Likert scale(1-5) were used. The software used for this analysis is 'RStudio' and the programming language used is R. The statistical testing used for the study is Chi-Square since all the variables are categorical. Histograms are used to represent the distribution of data for multiple criteria dimensional analysis variables.

Analysis and Findings:

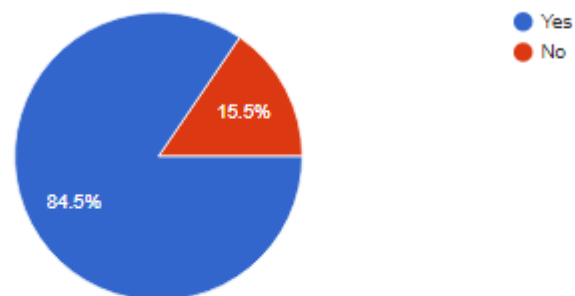
The analysis and interpretation were achieved using histogram charts and hypothesis testing using Chi-Square tests. 17 hypothesis questions were established from the 19 categorical data columns (variables) which helps to test the effects of one independent variable against each other resulting in a p-value (at 95% confidence level) where one can assess the influence of the variables. Null hypothesis and alternative hypothesis were set and acceptable when p-value was greater than and lesser than 0.05 respectively.

a. Google Form Responses:

The summarized responses illustrated using graphs given below gives us a brief overview of the 110 responses received from the questionnaire.

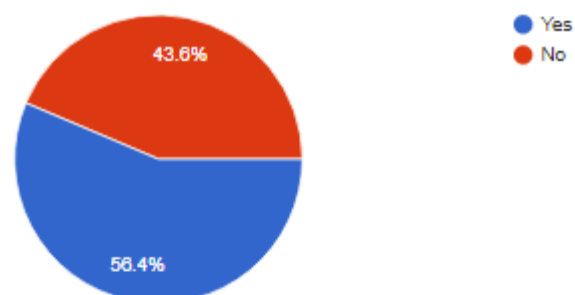
1. Have you heard about 'The Big Billion Days'?

110 responses



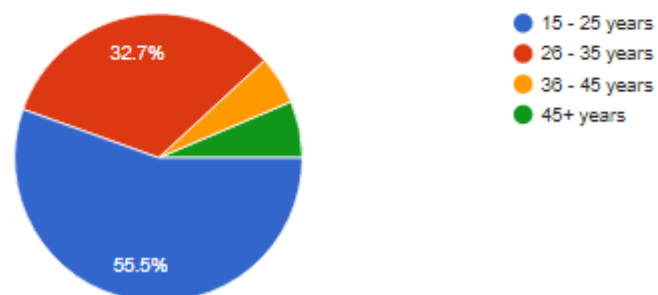
2. Have you shopped during 'The Big Billion Days'?

110 responses



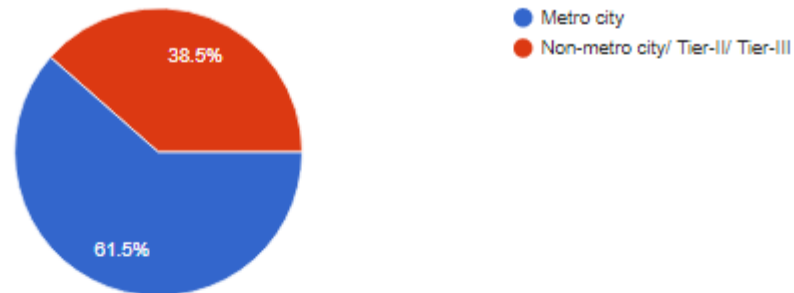
3. Your age group range

110 responses



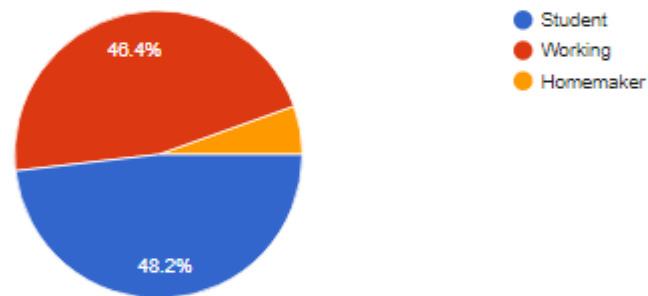
4. The city you stay

109 responses



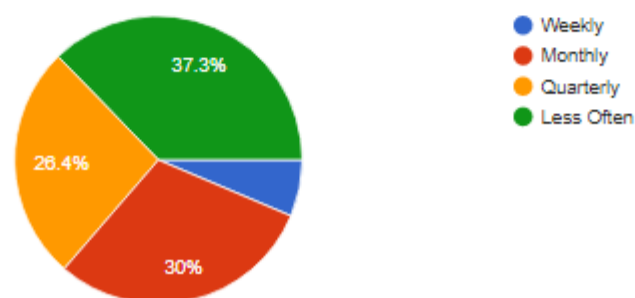
5. Profession that you belong to

110 responses



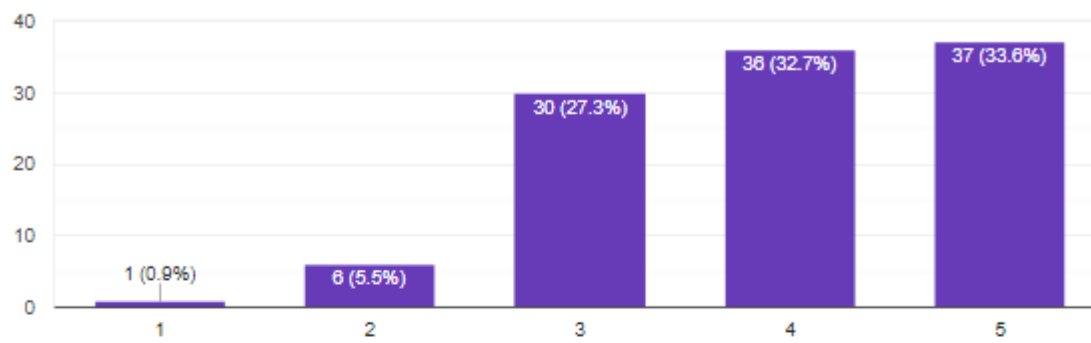
6. How often do you shop from Flipkart?

110 responses



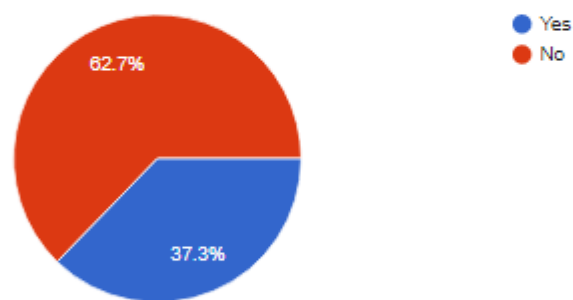
7. Are you satisfied with the products on sale during 'The Big Billion Days'?

110 responses



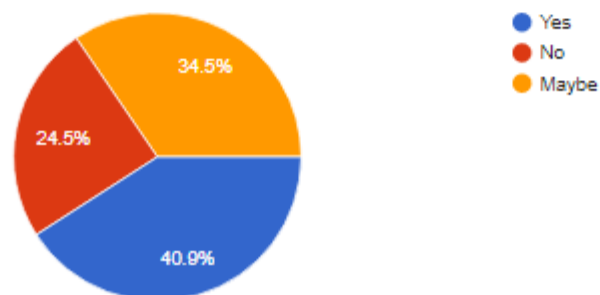
8. Do you have Flipkart Plus Membership?

110 responses

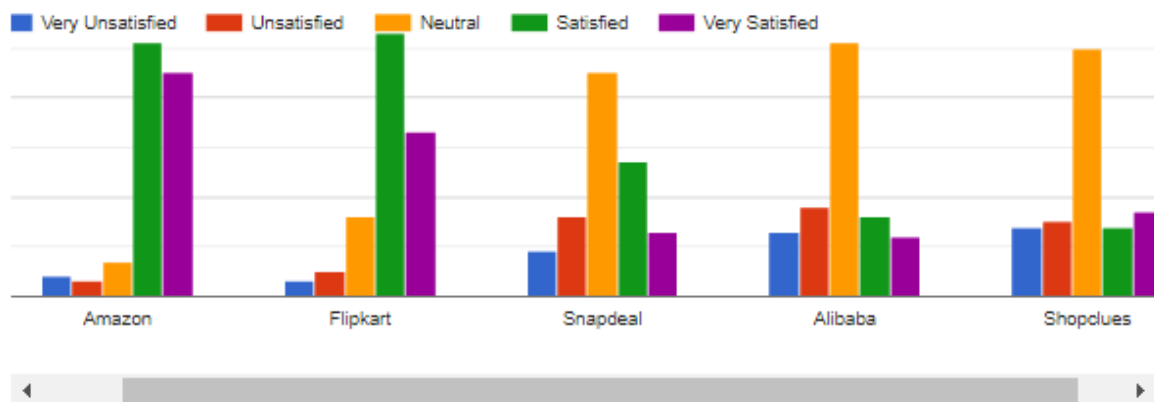


9. Would you consider joining Flipkart Plus Membership to avail additional benefits from 'The Big Billion Days'?

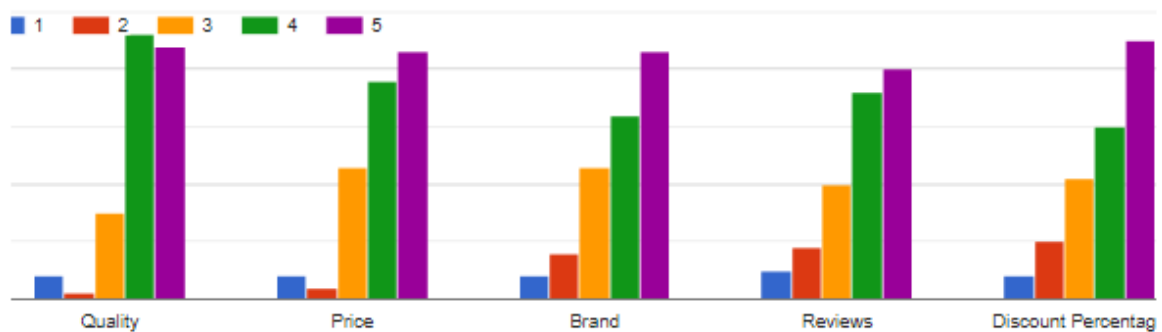
110 responses



10. How satisfied would you be when considering to purchase products from the following e-commerce companies?



11. On a scale of 1-5 (1 being least and 5 being most), rate the following important factors that you would consider while shopping during the sale season.



b. Hypothesis tests:

Q1. Does age affect the customers being aware of 'The Big Billion Days' sale?

Null hypothesis (H0): Age does not affect customers being aware of 'The Big Billion Days' sale.

Alternative hypothesis (H1): Age influences customers being aware of 'The Big Billion Days' sale.

X-squared = 12.044, df = 3, p-value = 0.007234

Since $p < 0.05$, we accept alternative hypothesis i.e age affects customers being aware of 'The Big Billion Days' sale.

Q2. Does age influence customers shopping during 'The Big Billion Days' sale?

Null hypothesis (H0): Age does not influence customers shopping during 'The Big Billion Days' sale.

Alternative hypothesis (H1): Age influences customers shopping during 'The Big Billion Days' sale.

X-squared = 6.3799, df = 3, p-value = 0.09452

Since $p > 0.05$, we accept null hypothesis i.e age does not influence customers shopping during 'The Big Billion Days' sale.

Q3. Does the customer's type of city that they live in affect their awareness of 'The Big Billion Days' sale?

Null hypothesis (H0): Customer's type of city does not affect their awareness of 'The Big Billion Days' sale.

Alternative hypothesis (H1): Customer's type of city affects their awareness of 'The Big Billion Days' sale.

X-squared = 0.11073, df = 1, p-value = 0.7393

Since $p > 0.05$, we accept null hypothesis i.e customer's type of city does not affect their awareness of 'The Big Billion Days' sale.

Q4. Does the customer's type of city that they live in affect their shopping during 'The Big Billion Days' sale?

Null hypothesis (H0): Customer's type of city does not affect their shopping during 'The Big Billion Days' sale.

Alternative hypothesis (H1): Customer's type of city does affect their shopping during 'The Big Billion Days' sale.

X-squared = 0.0068165, df = 1, p-value = 0.9342

Since $p > 0.05$, we accept null hypothesis i.e customer's type of city does not affect their shopping during 'The Big Billion Days' sale.

Q5. Does the customer's profession affect their awareness of 'The Big Billion Days' sale?

Null hypothesis (H0): Customer's profession does not affect their awareness of 'The Big Billion Days' sale.

Alternative hypothesis (H1): Customer's profession affects their awareness of 'The Big Billion Days' sale.

X-squared = 11.131, df = 2, p-value = 0.003828

Since $p < 0.05$, we accept alternative hypothesis i.e customer's profession affects their awareness of 'The Big Billion Days' sale.

Q6. Does the customer's profession affect their shopping during 'The Big Billion Days' sale?

Null hypothesis (H0): Customer's profession does not affect their shopping during 'The Big Billion Days' sale.

Alternative hypothesis (H1): Customer's profession affects their shopping during 'The Big Billion Days' sale.

X-squared = 0.77155, df = 2, p-value = 0.6799

Since $p > 0.05$, we accept null hypothesis i.e customer's profession does not affect their shopping during 'The Big Billion Days' sale.

Q7. Is there any association between the customers knowing about 'The Big Billion Days' sale and the customer's frequency of shopping?

Null hypothesis (H0): There is no association between the customers knowing about 'The Big Billion Days' sale and the customer's frequency of shopping.

Alternative hypothesis (H1): There is an association between the customers knowing about 'The Big Billion Days' sale and the customer's frequency of shopping.

X-squared = 1.5939, df = 3, p-value = 0.6608

Since $p > 0.05$, we accept null hypothesis i.e there is no association between the customers knowing about 'The Big Billion Days' sale and the customer's frequency of shopping.

Q8. Does customer satisfaction during the sale influence in making customers join the Flipkart Plus membership?

Null hypothesis (H0): Customer satisfaction during the sale does not influence in making customers join the Flipkart Plus membership.

Alternative hypothesis (H1): Customer satisfaction during the sale influences in making customers join the Flipkart Plus membership.

X-squared = 20.555, df = 8, p-value = 0.008427

Since $p < 0.05$, we accept alternative hypothesis i.e customer satisfaction from the products on sale during 'The Big Billion Days' influences in making customers join the Flipkart Plus membership.

Q9. Does frequency of shopping on Flipkart influence customers from joining Flipkart Plus Membership?

Null hypothesis (H0): Frequency of shopping on Flipkart does not influence customers from joining Flipkart Plus Membership?

Alternative hypothesis (H1): Frequency of shopping on Flipkart influences customers from joining Flipkart Plus Membership?

X-squared = 11.145, df = 6, p-value = 0.08399

Since $p > 0.05$, we accept null hypothesis i.e frequency of shopping on Flipkart does not influence customers from joining Flipkart Plus Membership.

Q10. Does customer profession influence in joining Flipkart Plus Membership to get additional benefits?

Null hypothesis (H0): Profession does not influence in joining Flipkart Plus Membership.

Alternative hypothesis (H1): Profession influences in joining Flipkart Plus Membership.

X-squared = 2.8826, df = 4, p-value = 0.5777

Since $p > 0.05$, we accept null hypothesis i.e profession does not influence customers joining in Flipkart Plus Membership.

Q11. Does customer's satisfaction to shop on Flipkart compared to other e-commerce companies influence whether the customer has shopped during 'The Big Billion Days'?

Null hypothesis (H0): Customer's satisfaction to shop on Flipkart does not influence whether the customer has shopped during 'The Big Billion Days'.

Alternative hypothesis (H1): Customer's satisfaction to shop on Flipkart influences whether the customer has shopped during 'The Big Billion Days'.

X-squared = 11.064, df = 4, p-value = 0.02585

Since $p < 0.05$, we accept alternative hypothesis i.e customer's satisfaction to shop on Flipkart compared to other e-commerce companies influences whether the customer has shopped during 'The Big Billion Days'.

Q12. Does customer satisfaction with the products on sale during 'The Big Billion Days' influence customer's satisfaction to shop on Flipkart compared to other e-commerce companies?

Null hypothesis (H0): Customer's satisfaction with the products on sale during 'The Big Billion Days' does not influence customer's satisfaction to shop on Flipkart.

Alternative hypothesis (H1): Customer's satisfaction with the products on sale during 'The Big Billion Days' influences customer's satisfaction to shop on Flipkart.

X-squared = 64.78, df = 16, p-value = 8.038e-08

Since $p < 0.05$, we accept alternative hypothesis i.e customer's satisfaction with the products on sale during 'The Big Billion Days' influences customer's satisfaction to shop on Flipkart compared to other e-commerce companies.

Q13. If the customer did or did not shop during the Big Billion Days sale, does it influence their preference of choosing quality as a factor before purchasing a product during the sale?

Null hypothesis (H0): Customer shopping status during the Big Billion Days sale does not influence their preference of choosing quality as a factor before purchasing a product during sale.

Alternative hypothesis (H1): Customer shopping status during the Big Billion Days sale does influence their preference of choosing quality as a factor before purchasing a product during sale.

X-squared = 7.3914, df = 4, p-value = 0.1166

Since $p > 0.05$, we accept alternative hypothesis i.e customer shopping status during the Big Billion Days sale does not influence their preference of choosing quality as a factor before purchasing a product during sale.

Q14. If the customer did or did not shop during the Big Billion Days sale, does it influence their preference of choosing brand as a factor before purchasing a product during the sale?

Null hypothesis (H0): Customer shopping status during the Big Billion Days sale does not influence their preference of choosing brand as a factor before purchasing a product during sale.

Alternative hypothesis (H1): Customer shopping status during the Big Billion Days sale does influence their preference of choosing brand as a factor before purchasing a product during sale.

X-squared = 6.0815, df = 4, p-value = 0.1931

Since $p > 0.05$, we accept alternative hypothesis i.e customer shopping status during the Big Billion Days sale does not influence their preference of choosing brand as a factor before purchasing a product during sale.

Q15. If the customer did or did not shop during the Big Billion Days sale, does it influence their preference of choosing price as a factor before purchasing a product during the sale?

Null hypothesis (H0): Customer shopping status during the Big Billion Days sale does not influence their preference of choosing price as a factor before purchasing a product during sale.

Alternative hypothesis (H1): Customer shopping status during the Big Billion Days sale does influence their preference of choosing price as a factor before purchasing a product during sale.

X-squared = 2.8916, df = 4, p-value = 0.5761

Since $p > 0.05$, we accept alternative hypothesis i.e customer shopping status during the Big Billion Days sale does not influence their preference of choosing price as a factor before purchasing a product during sale.

Q16. If the customer did or did not shop during the Big Billion Days sale, does it influence their preference of choosing reviews as a factor before purchasing a product during the sale?

Null hypothesis (H0): Customer shopping status during the Big Billion Days sale does not influence their preference of choosing reviews as a factor before purchasing a product during sale.

Alternative hypothesis (H1): Customer shopping status during the Big Billion Days sale does influence their preference of choosing reviews as a factor before purchasing a product during sale.

X-squared = 8.3268, df = 4, p-value = 0.08032

Since $p > 0.05$, we accept alternative hypothesis i.e customer shopping status during the Big Billion Days sale does not influence their preference of choosing reviews as a factor before purchasing a product during sale.

Q17. If the customer did or did not shop during the Big Billion Days sale, does it influence their preference of choosing discount percentage as a factor before purchasing a product during the sale?

Null hypothesis (H0): Customer shopping status during the Big Billion Days sale does not influence their preference of choosing discount percentage as a factor before purchasing a product during sale.

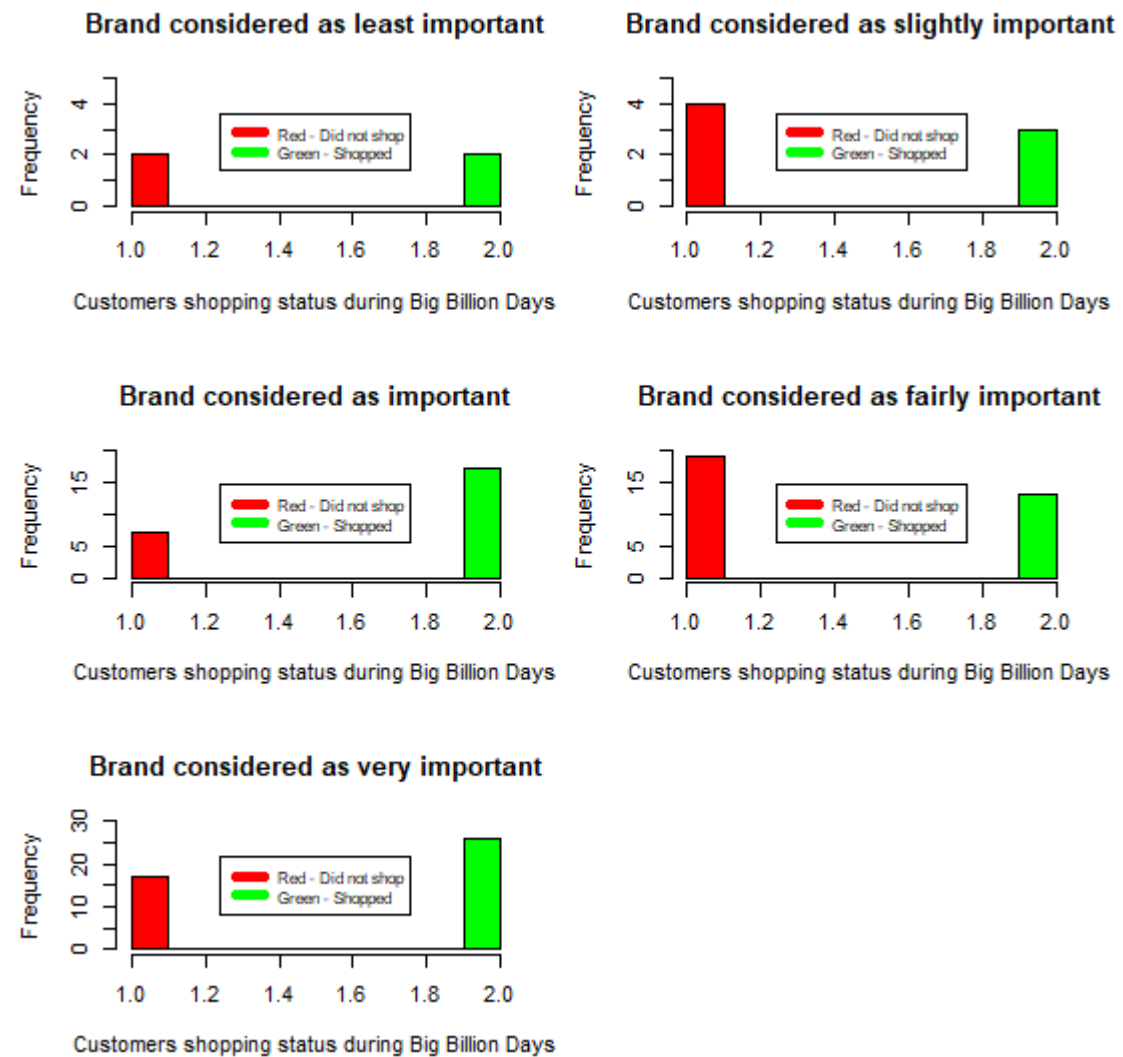
Alternative hypothesis (H1): Customer shopping status during the Big Billion Days sale does influence their preference of choosing discount percentage as a factor before purchasing a product during sale.

X-squared = 0.45028, df = 4, p-value = 0.9782

Since $p > 0.05$, we accept alternative hypothesis i.e customer shopping status during the Big Billion Days sale does not influence their preference of choosing discount percentage as a factor before purchasing a product during sale.

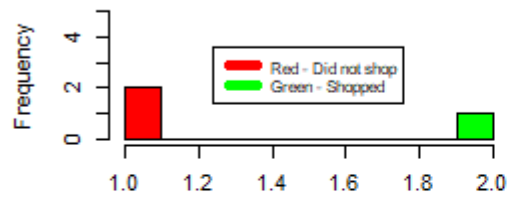
c. Histogram Visualizations

i. Brand considered as a factor for purchase



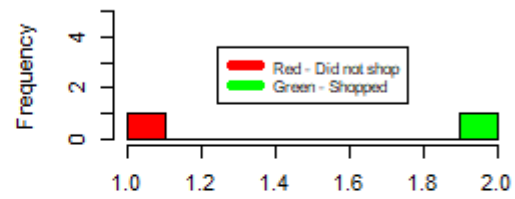
ii. Price considered as a factor for purchase

Price considered as least important



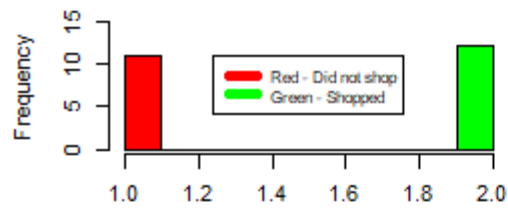
Customers shopping status during Big Billion Days

Price considered as slightly important



Customers shopping status during Big Billion Days

Price considered as important



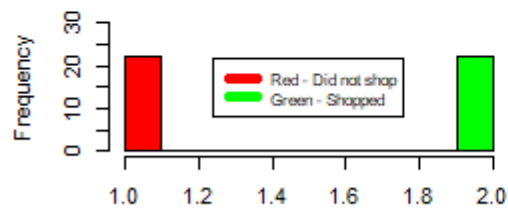
Customers shopping status during Big Billion Days

Price considered as fairly important



Customers shopping status during Big Billion Days

Price considered as very important



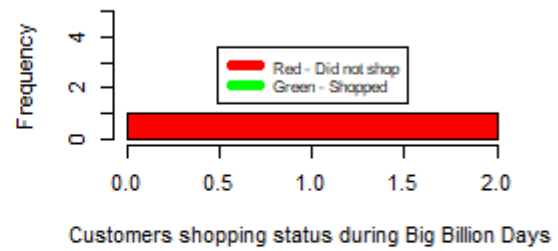
Customers shopping status during Big Billion Days

iii. Quality considered as a factor for purchase

Quality considered as least important



Quality considered as slightly important



Quality considered as important



Quality considered as fairly important

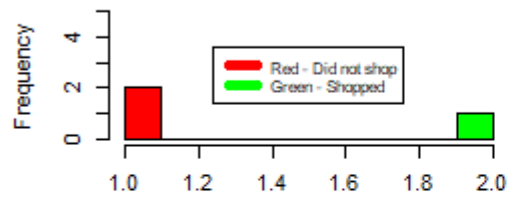


Quality considered as very important



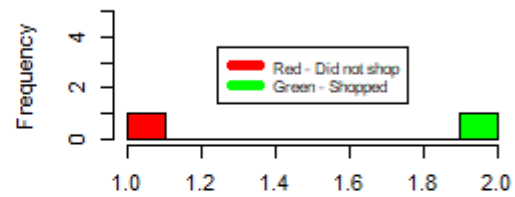
iv. Reviews considered as a factor for purchase

Reviews considered as least important



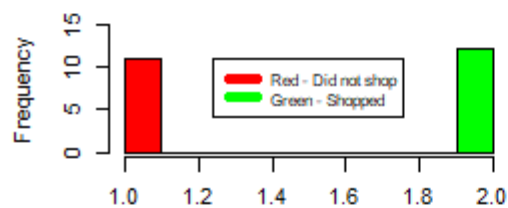
Customers shopping status during Big Billion Days

Reviews considered as slightly important



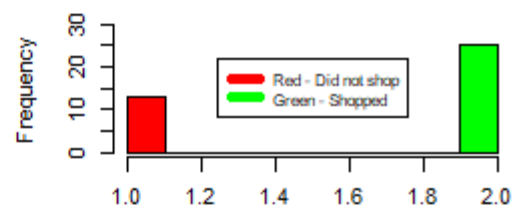
Customers shopping status during Big Billion Days

Reviews considered as important



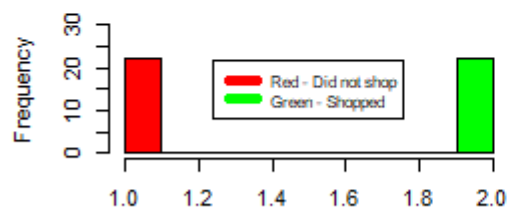
Customers shopping status during Big Billion Days

Reviews considered as fairly important



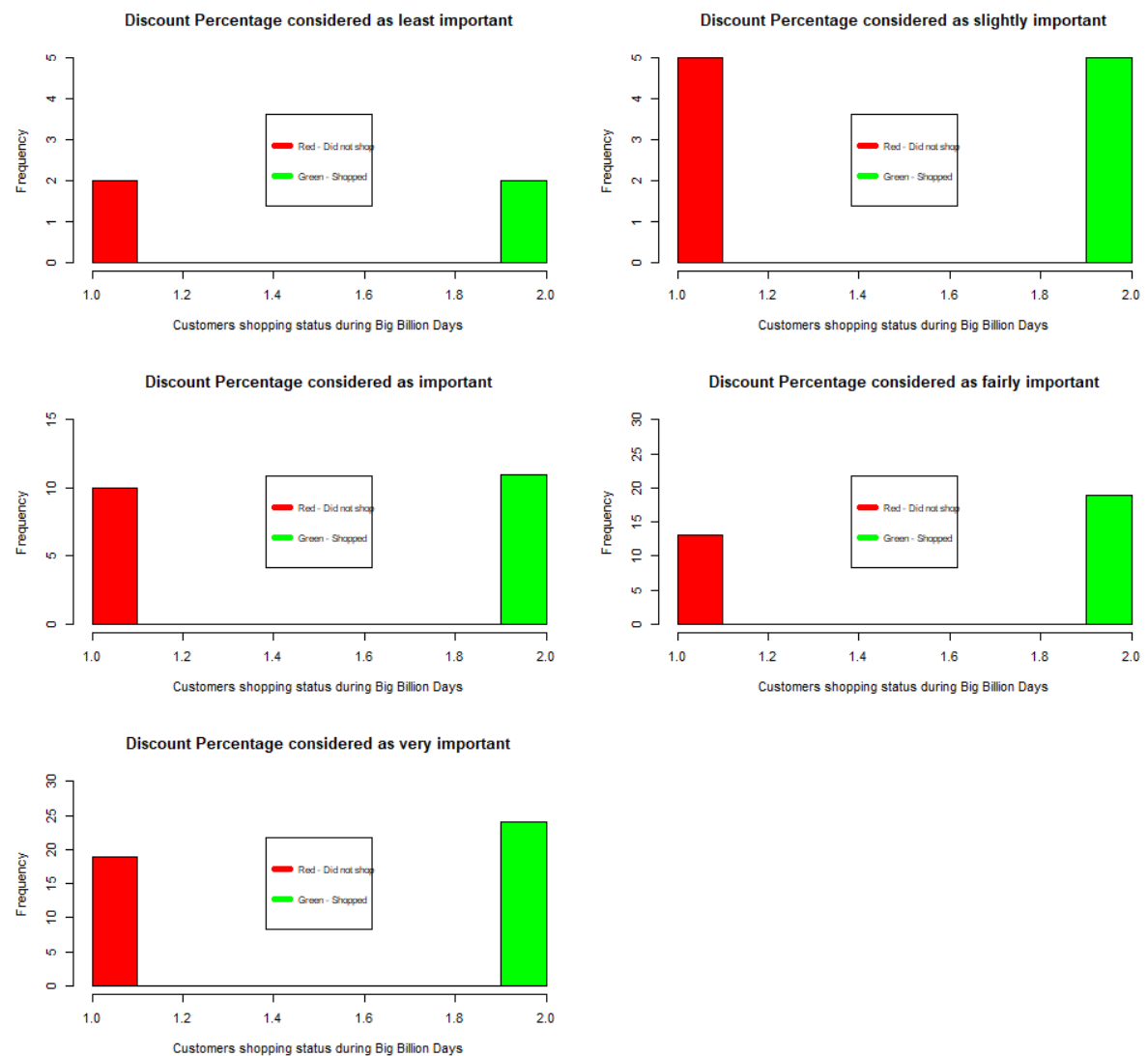
Customers shopping status during Big Billion Days

Reviews considered as very important



Customers shopping status during Big Billion Days

v. Discount Percentage considered as a factor for purchase



d. Results

- Age affects customers being aware of 'The Big Billion Days' sale and does not influence customers shopping during 'The Big Billion Days' sale.
- Customer's type of city does not affect their awareness and shopping during 'The Big Billion Days' sale.
- Customer's profession affects their awareness of 'The Big Billion Days' and does not affect their shopping during 'The Big Billion Days' sale. Profession further does not influence customers joining in Flipkart Plus Membership.
- Customers have no association between knowing about 'The Big Billion Days' sale and their frequency of shopping.
- Customer satisfaction from the products on sale during 'The Big Billion Days' influences in making customers join the Flipkart Plus membership.
- Frequency of shopping on Flipkart does not influence customers from joining Flipkart Plus Membership.

- Customer's satisfaction to shop on Flipkart compared to other e-commerce companies influences whether the customer has shopped during 'The Big Billion Days'.
- Customer's satisfaction with the products on sale during 'The Big Billion Days' influences customer's satisfaction to shop on Flipkart compared to other e-commerce companies.
- Customer's shopping status during the Big Billion Days sale does not influence their preference of choosing quality, brand, price, reviews and discount percentage as a factor before purchasing a product during sale.