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INTRODUCTION

1. What is Customer Retention?

Customer retention refers to a company's ability to turn customers into repeat buyers and prevent them from switching to a competitor. It indicates whether your product and the quality of your service please your existing customers. It's also the lifeblood of most subscription-based companies and service providers.

Customer retention strategies are the processes and initiatives businesses put in place to build customer loyalty and improve customer lifetime value.

2. Why is customer retention important?

Keeping your current customers happy is generally more cost-effective than acquiring first-time customers. According to the Harvard Business Review, acquiring a new customer can be 5 to 25 times more expensive than holding on to an existing one.

You don't need to spend big on marketing, advertising, or sales outreach. It is easier to turn existing customers into repeating ones, since they already trust your brand from previous purchases. New customers, however, often require more convincing when it comes to that initial sale.

Customer loyalty won't just give you repeat business. Loyal customers are more likely to give free recommendations to their colleagues, friends, and family. Creating that cycle of retained customers and buzz marketing is one way your company can cultivate customer loyalty for long-term success.

3. Customer retention benefits :

- **Cost savings:** Customer retention is generally more cost-effective than acquiring first-time customers.
- **Positive word of mouth marketing:** Loyal customers are more likely to tell their friends and family about your brand.
- **A better bottom line:** Increasing retention rates by just 5 percent can increase revenue by 25 percent to 95 percent.

4. E-Commerce websites and Customer Retention :

For an e-commerce store, the customer retention rate is directly related to how much your customers trust you and how much they relish the experience of spending time on your website/app.

Trust is built by being honest and upfront about the product and service. Questions like how you guarantee quality, what your process of customer service is, what the options for customer grievance redressal are and the like need to be answered upfront and put into practice. This builds trust and subsequently word of mouth.

Coming to the experience that you create for your customers, aesthetics, ease of use and clarity are the three most important parameters.

Aesthetics - A good looking vibrant user interface that functions smoothly without bugs is an absolute must. Do make sure it functions equally on all kinds of interfaces like laptop, tablet, mobile etc.

Ease of use - Customers like to come back to e-commerce sites where they could view the product, compare options, read reviews and complete their transaction with minimum fuss and in the minimum time.

Clarity - People love clarity when buying online. Clarity in terms of - how is my product going to be packed? How many days would it take for delivery? Is there a tracking mechanism? I may know there is a return policy if am not satisfied with it, but how does the return actually work? All these and more questions provide clarity to the buyer and enhance his experience manifold.

Other than these, there can also be loyalty programs, tie-ups with other complimentary e-commerce providers and co-branded events with physical stores that will boost customer acquisition and retention. Tying up with a more known brand rubs off some of the reliability and trust onto us. That leads to further customer retention over a period of time.

5. Review of Literature :

Customer satisfaction has emerged as one of the most important factors that guarantee the success of online store; it has been posited as a key stimulant of purchase, repurchase intentions and customer loyalty. A comprehensive review of the literature, theories and models have been carried out to propose the models for customer activation and customer retention.

Five major factors that contributed to the success of an e-commerce store have been identified as: service quality, system quality, information quality, trust and net benefit. The research furthermore investigated the factors that influence the online customers repeat purchase intention.

The combination of both utilitarian value and hedonistic values are needed to affect the repeat purchase intention (loyalty) positively. The data is collected from the Indian online shoppers.

ANALYTICS OF THE BUSINESS PROBLEM

1. What is Analytical problem framing?

Analytic problem framing involves translating the business problem into terms that can be addressed analytically via data and modelling. It's at this stage that you work backwards from the results / outputs you want to the data/inputs you're going to need, where you identify potential drivers and hypotheses to test, and where you nail down your assumptions. Analytic problem framing is the antithesis of merely working with the ready-to-hand data and seeing what comes of it, hoping for something insightful. Typically, the process moves on from here to data collection, cleansing and transformation, Methodology selection and model building, never to return. But if you're willing to borrow and use a concept from complex adaptive systems – maps and models – you can make repeat use of this stage to improve your overall outcome.

2. Hardware Requirements

A mid level computer that runs on Intel i3/i5/i7 or A10/A11/M1 or ryzen 3/5 or any other equivalent chipset and a suitable processor.

3. Software Requirements

Windows / Linux /Mac OS

4. Tools, Libraries and Packages used

Tool: 1. Anaconda Navigator
2. Jupyter Notebook

Libraries and Packages:

1. Numpy
2. Pandas
3. Matplotlib
4. Seaborn

5. Data Pre- Processing

For understanding the factors influencing the customer retention, we should consider 4 important variables.

These 4 variables manipulate the 'customer satisfaction', which in turn makes the customer to stay.

These variables are:

1. Hedonic Value.
2. Utilitarian Value.
3. Perceived Risk.
4. Customer Experience.

By Analysing on the basis of these variables, we can find the basic factors influencing the 'customer satisfaction'. Thus, by achieving the 'customer satisfaction' we can make the customer to stay and make them buy more products.

So we will do the following Analysis in 5 parts. We will use different parts of the given data-set to help us find the customer retention factors.

By following these processes we can achieve a more efficient data-set. We will use **Python** through **Jupyter notebook** for data processing.

Also we will use Libraries such as **Pandas, Numpy for Analysis** and **Matplotlib, seaborn for visualization**.

6. Exploratory Data-Analysis

```
#importing libraries
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sn
import warnings
warnings.filterwarnings("ignore")
```

```
#Loading the data-set
```

```
#checking the shape of the data-set
df.shape
```

```
(269, 71)
```

1. checking the null values, data type and title of the columns :

Title : 1 Gender of respondent

Col dtype : object

NaN val: 0

Title : 2 How old are you? Col dtype : object

NaN val: 0

Title : 3 Which city do you shop online from?

Col dtype : object

NaN val: 0

Title : 4 What is the Pin Code of where you shop online from?

Col dtype : int64

NaN val: 0

Title : 5 Since How Long You are Shopping Online ?

Col dtype : object

NaN val: 0

Title : 6 How many times you have made an online purchase in the past 1 year?

Col dtype : object

NaN val: 0

Title : 7 How do you access the internet while shopping on-line?

Col dtype : object

NaN val: 0

Title : 8 Which device do you use to access the online shopping?

Col dtype : object

NaN val: 0

Title : 9 What is the screen size of your mobile device?

Col dtype : object

NaN val: 0

Title : 10 What is the operating system (OS) of your device?
Col dtype : object
NaN val: 0

Title : 11 What browser do you run on your device to access the website?
Col dtype : object
NaN val: 0

Title : 12 Which channel did you follow to arrive at your favorite online store for the first time?
Col dtype : object
NaN val: 0

Title : 13 After first visit, how do you reach the online retail store?
Col dtype : object
NaN val: 0

Title : 14 How much time do you explore the e- retail store before making a purchase decision?
Col dtype : object
NaN val: 0

Title : 15 What is your preferred payment Option?
Col dtype : object
NaN val: 0

Title : 16 How frequently do you abandon (selecting an items and leaving without making payment) your shopping cart?
Col dtype : object
NaN val: 0

Title : 17 Why did you abandon the “Bag”, “Shopping Cart”?
Col dtype : object
NaN val: 0

Title : 18 The content on the website must be easy to read and understand
Col dtype : object
NaN val: 0

Title : 19 Information on similar product to the one highlighted is important for product comparison
Col dtype : object
NaN val: 0

Title : 20 Complete information on listed seller and product being offered is important for purchase decision.
Col dtype : object
NaN val: 0

Title : 21 All relevant information on listed products must be stated clearly
Col dtype : object
NaN val: 0

Title : 22 Ease of navigation in website
Col dtype : object
NaN val: 0

Title : 23 Loading and processing speed
Col dtype : object
NaN val: 0

Title : 24 User friendly Interface of the website
Col dtype : object

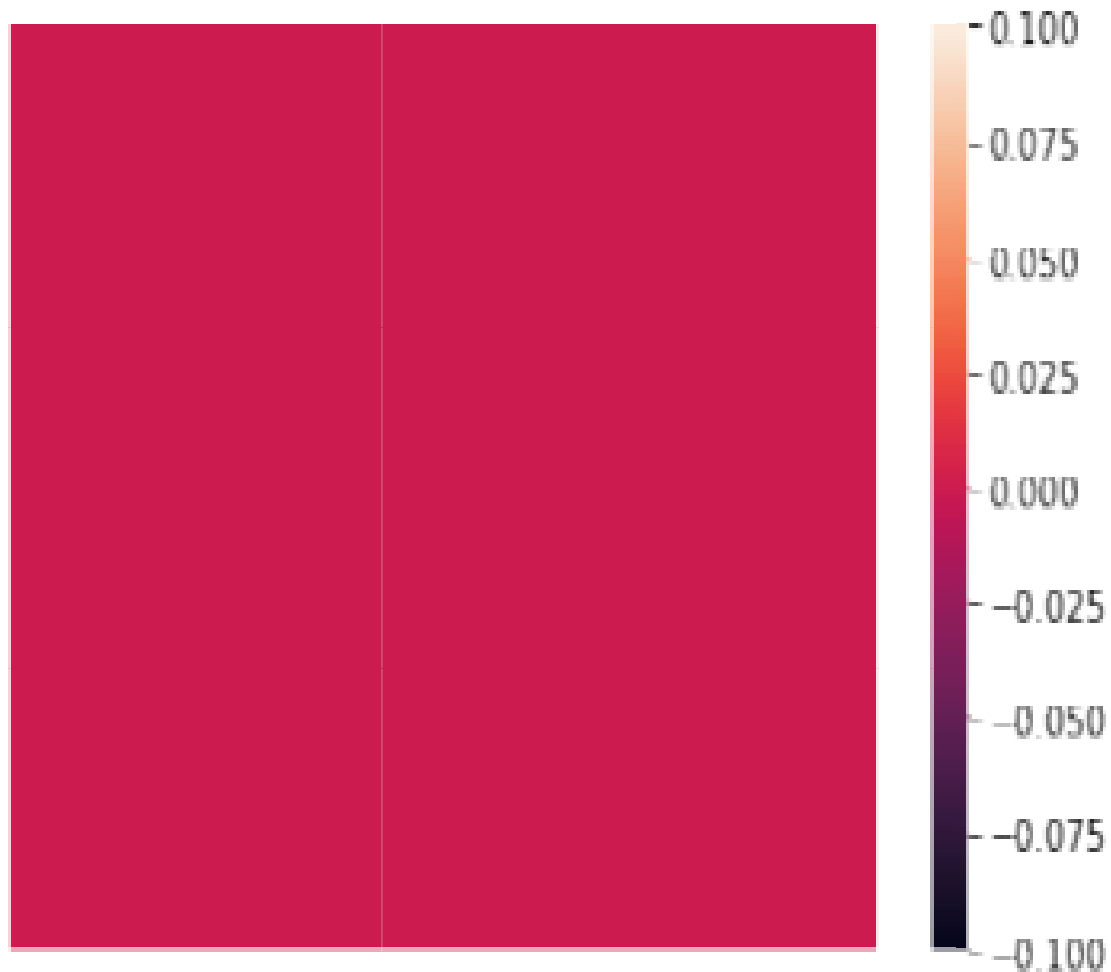
NaN val: 0
Title : 25 Convenient Payment methods
Col dtype : object
NaN val: 0
Title : 26 Trust that the online retail store will fulfill its part of the transaction at the stipulated time
Col dtype : object
NaN val: 0
Title : 27 Empathy (readiness to assist with queries) towards the customers
Col dtype : object
NaN val: 0
Title : 28 Being able to guarantee the privacy of the customer
Col dtype : object
NaN val: 0
Title : 29 Responsiveness, availability of several communication channels (email, online rep, twitter, phone etc.)
Col dtype : object
NaN val: 0
Title : 30 Online shopping gives monetary benefit and discounts
Col dtype : object
NaN val: 0
Title : 31 Enjoyment is derived from shopping online
Col dtype : object
NaN val: 0
Title : 32 Shopping online is convenient and flexible
Col dtype : object
NaN val: 0
Title : 33 Return and replacement policy of the e-tailer is important for purchase decision
Col dtype : object
NaN val: 0
Title : 34 Gaining access to loyalty programs is a benefit of shopping online
Col dtype : object
NaN val: 0
Title : 35 Displaying quality Information on the website improves satisfaction of customers
Col dtype : object
NaN val: 0
Title : 36 User derive satisfaction while shopping on a good quality website or application
Col dtype : object
NaN val: 0
Title : 37 Net Benefit derived from shopping online can lead to users satisfaction
Col dtype : object
NaN val: 0
Title : 38 User satisfaction cannot exist without trust
Col dtype : object
NaN val: 0
Title : 39 Offering a wide variety of listed product in several category

Col dtype : object
NaN val: 0
Title : 40 Provision of complete and relevant product information
Col dtype : object
NaN val: 0
Title : 41 Monetary savings
Col dtype : object
NaN val: 0
Title : 42 The Convenience of patronizing the online retailer
Col dtype : object
NaN val: 0
Title : 43 Shopping on the website gives you the sense of adventure
Col dtype : object
NaN val: 0
Title : 44 Shopping on your preferred e-tailer enhances your social status
Col dtype : object
NaN val: 0
Title : 45 You feel gratification shopping on your favorite e-tailer
Col dtype : object
NaN val: 0
Title : 46 Shopping on the website helps you fulfill certain roles
Col dtype : object
NaN val: 0
Title : 47 Getting value for money spent
Col dtype : object
NaN val: 0
Title : From the following, tick any (or all) of the online retailers you have shopped from;
Col dtype : object
NaN val: 0
Title : Easy to use website or application
Col dtype : object
NaN val: 0
Title : Visual appealing web-page layout
Col dtype : object
NaN val: 0
Title : Wild variety of product on offer
Col dtype : object
NaN val: 0
Title : Complete, relevant description information of products
Col dtype : object
NaN val: 0
Title : Fast loading website speed of website and application
Col dtype : object
NaN val: 0
Title : Reliability of the website or application
Col dtype : object
NaN val: 0
Title : Quickness to complete purchase

Col dtype : object
NaN val: 0
Title : Availability of several payment options
Col dtype : object
NaN val: 0
Title : Speedy order delivery
Col dtype : object
NaN val: 0
Title : Privacy of customers' information
Col dtype : object
NaN val: 0
Title : Security of customer financial information
Col dtype : object
NaN val: 0
Title : Perceived Trustworthiness
Col dtype : object
NaN val: 0
Title : Presence of online assistance through multi-channel
Col dtype : object
NaN val: 0
Title : Longer time to get logged in (promotion, sales period)
Col dtype : object
NaN val: 0
Title : Longer time in displaying graphics and photos (promotion, sales period)
Col dtype : object
NaN val: 0
Title : Late declaration of price (promotion, sales period)
Col dtype : object
NaN val: 0
Title : Longer page loading time (promotion, sales period)
Col dtype : object
NaN val: 0
Title : Limited mode of payment on most products (promotion, sales period)
Col dtype : object
NaN val: 0
Title : Longer delivery period
Col dtype : object
NaN val: 0
Title : Change in website/Application design
Col dtype : object
NaN val: 0
Title : Frequent disruption when moving from one page to another
Col dtype : object
NaN val: 0
Title : Website is as efficient as before
Col dtype : object
NaN val: 0
Title : Which of the Indian online retailer would you recommend to a friend?
Col dtype : object

NaN val: 0

2. visualising the null values using Heat-Map:



3. Observation about the Data-set:

- The Data-set seems to have 271 rows and 71 columns.
- The Data-set does not have any Null values.
- All the data's present in the Data-set seems to be Object type.

4. We will divide the given data-set into 5 parts for the EDA:

- 1.Part-1 will be informaiton about the cutomer.
- 2.Part-2 will be Utilitarian Value.
- 3.Part-3 will be Hedonic Value.

- 4.Part-4 will be Precieved Risk.
- 5.Part-5 will be Customer Experience.

For this we will divide the given Data-set into 5 parts.

PART-1

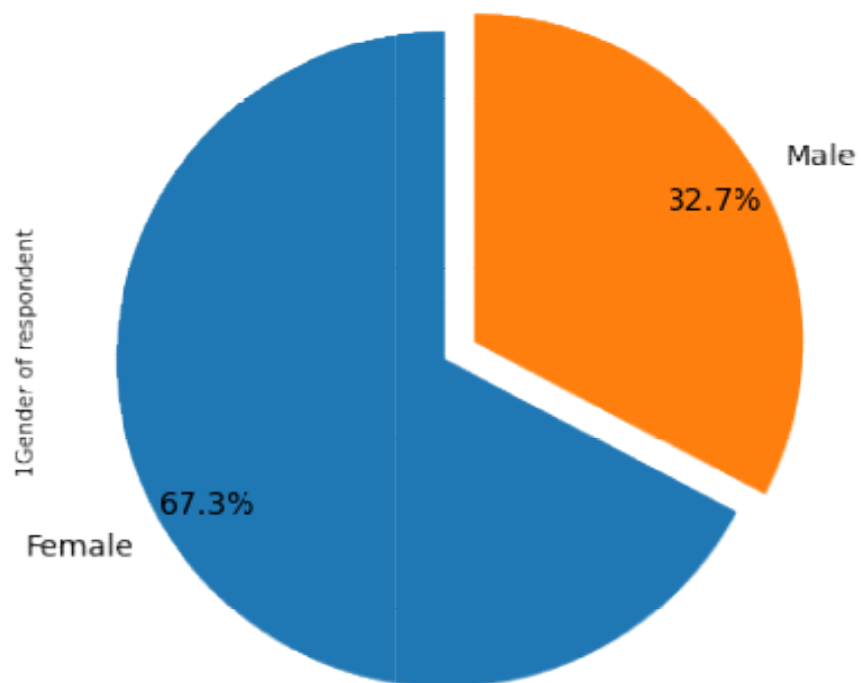
CUSTOMER INFORMATION

1. Visualising the Gender of respondent

Female 181

Male 88

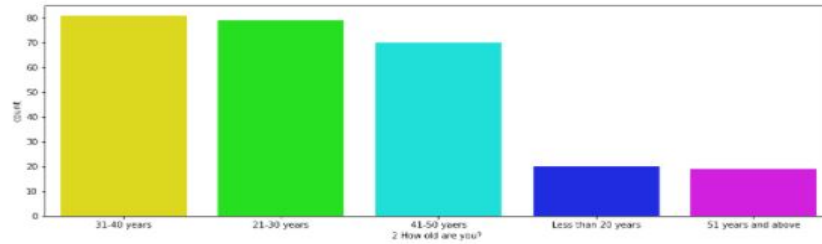
Name: 1Gender of respondent



```

31-40 years      81
21-30 years      79
41-50 years      70
Less than 20 years 20
51 years and above 19
Name: 2 How old are you?, dtype: int64

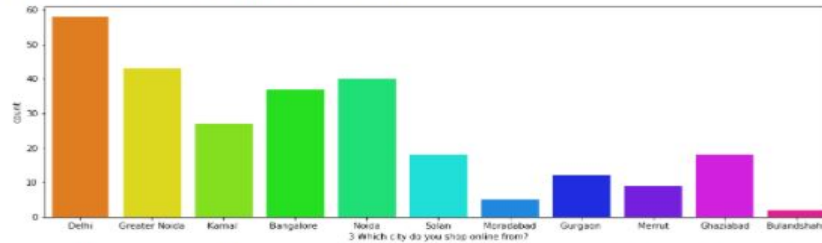
```



```

Delhi      58
Greater Noida 43
Noida      40
Bangalore  37
Karnal     27
Ghaziabad  18
Solani     18
Gurgaon    12
Merrut     9
Moradabad  5
Bulandshahr 2
Name: 3 Which city do you shop online from?, dtype: int64

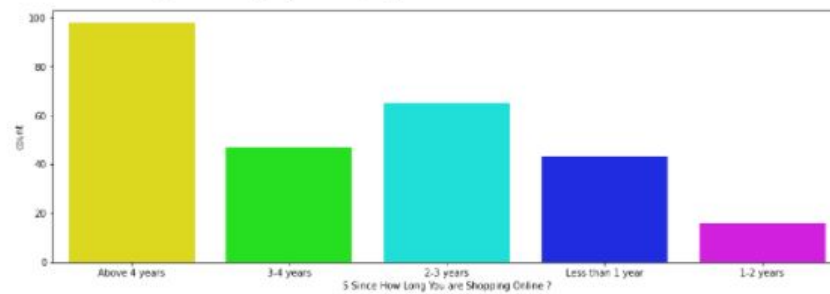
```



```

Above 4 years      98
2-3 years          65
3-4 years          47
Less than 1 year   43
1-2 years          45
Name: 5 Since How Long You are Shopping Online ?, dtype: int64

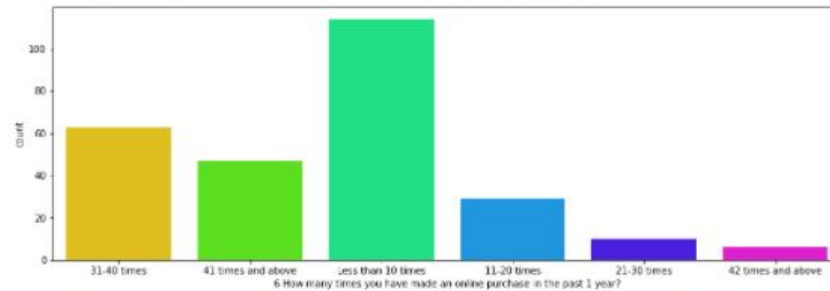
```



```

Less than 10 times 114
31-40 times        63
41 times and above 47
11-20 times        29
21-30 times        10
42 times and above  6
Name: 6 How many times you have made an online purchase in the past 1 year?, dtype: int64

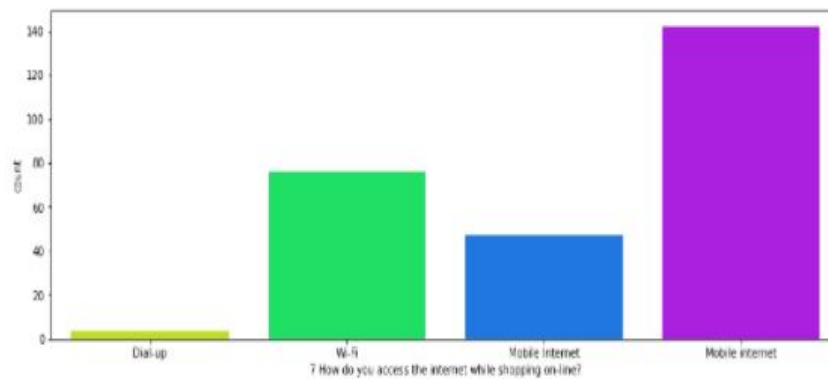
```



```

Mobile internet    142
Wi-Fi             76
Mobile Internet    47
Dial-up           4
Name: 7 How do you access the internet while shopping on-line?, dtype: int64

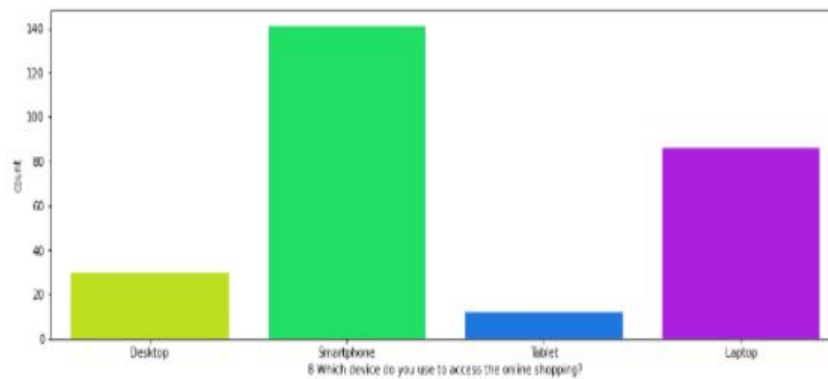
```



```

Smartphone        141
Laptop            86
Desktop           30
Tablet            12
Name: 8 Which device do you use to access the online shopping?, dtype: int64

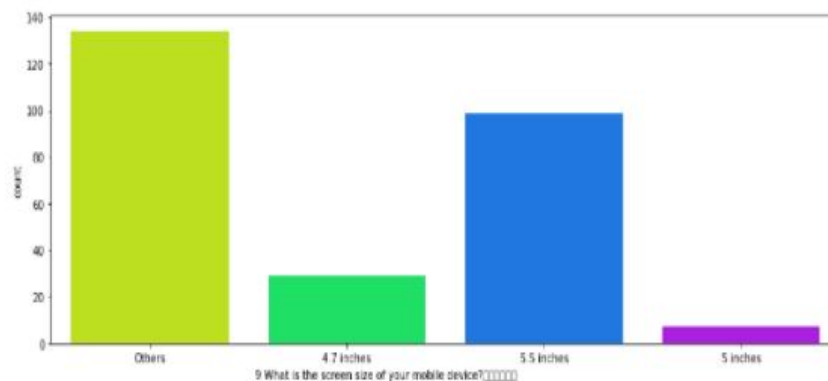
```



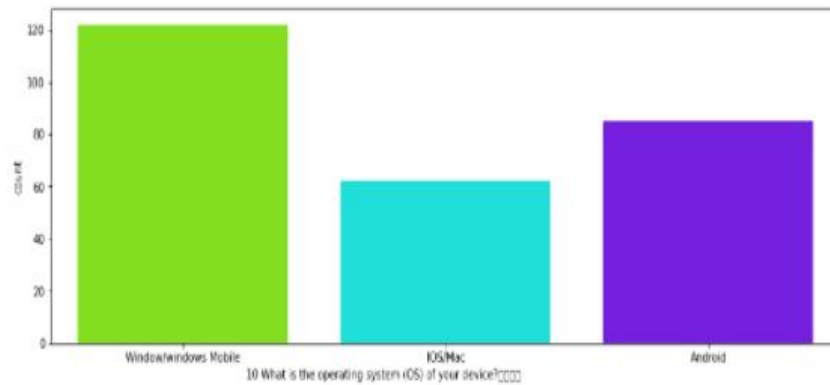
```

Others            134
5.5 inches        99
4.7 inches        29
5 inches          7
Name: 9 What is the screen size of your mobile device?(), dtype: int64

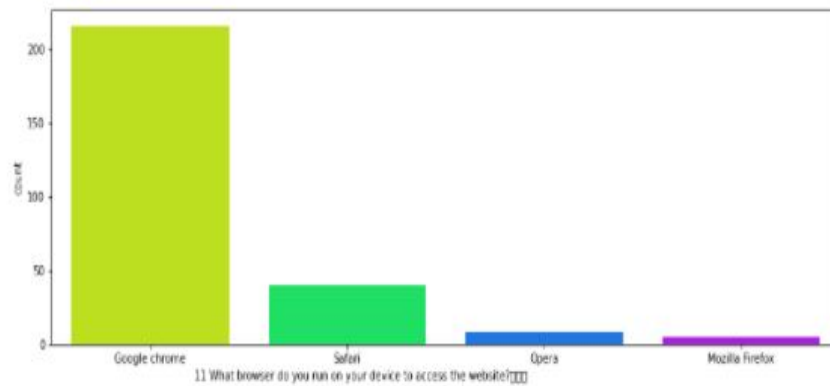
```



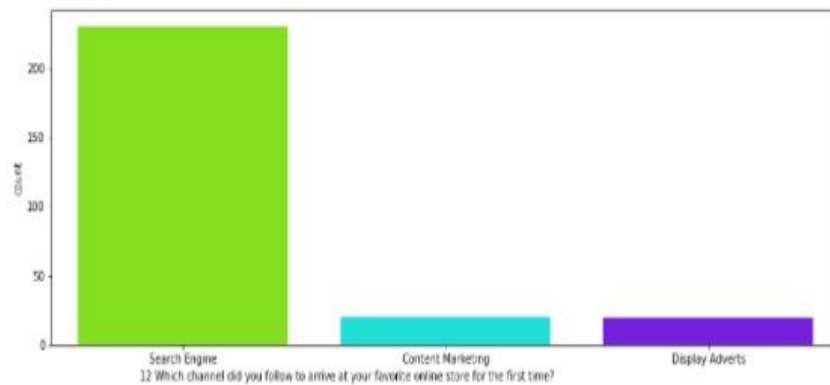
Window/windows Mobile 122
 Android 85
 IOS/Mac 62
 Name: 10 What is the operating system (OS) of your device?\t\t\t\t\t, dtype: int64



Google chrome 216
 Safari 48
 Opera 8
 Mozilla Firefox 5
 Name: 11 What browser do you run on your device to access the website?\t\t\t\t\t, dtype: int64

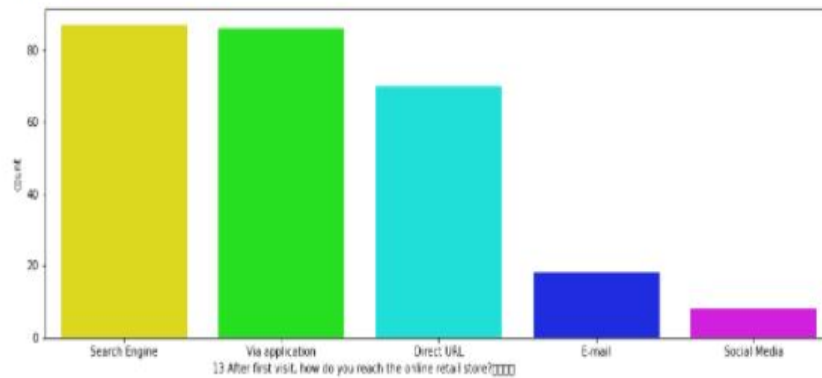


Search Engine 238
 Content Marketing 28
 Display Adverts 19
 Name: 12 Which channel did you follow to arrive at your favorite online store for the first time?, dtype: int64

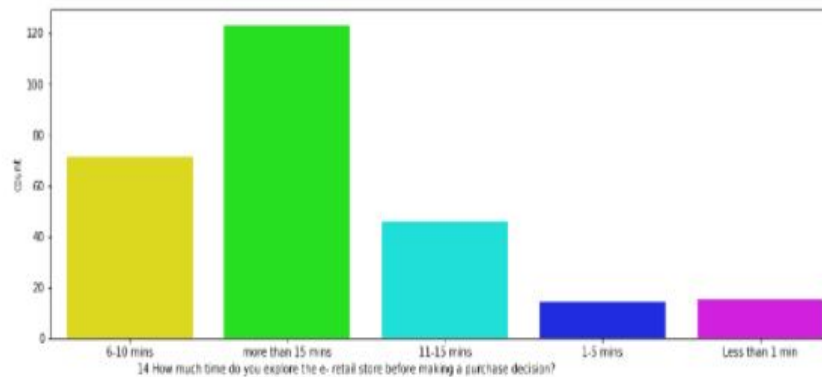


Search Engine	87
Via application	86
Direct URL	70
E-mail	18
Social Media	8

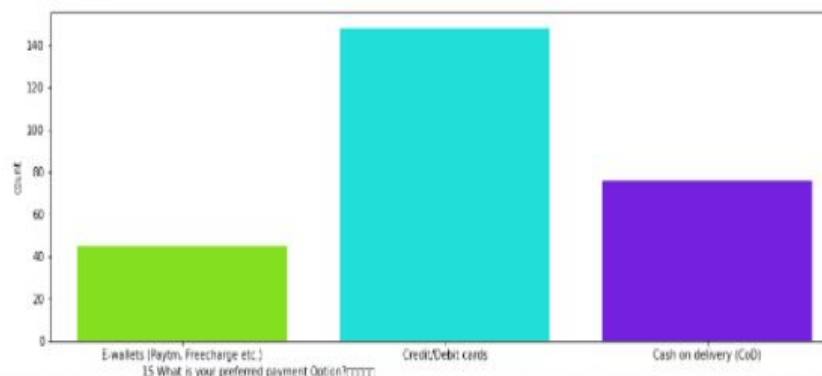
Name: 13 After first visit, how do you reach the online retail store?\t\t\t\t\t
, dtype: int64



more than 15 mins 123
6-10 mins 71
11-15 mins 46
Less than 1 min 15
1-5 mins 14
Name: 14 How much time do you explore the e- retail store before making a purchase decision?
, dtype: int64



Credit/Debit cards 148
Cash on delivery (CoD) 76
E-wallets (Paytm, Freecharge etc.) 45
Name: 15 What is your preferred payment Option?\t\t\t\t\t
, dtype: int64

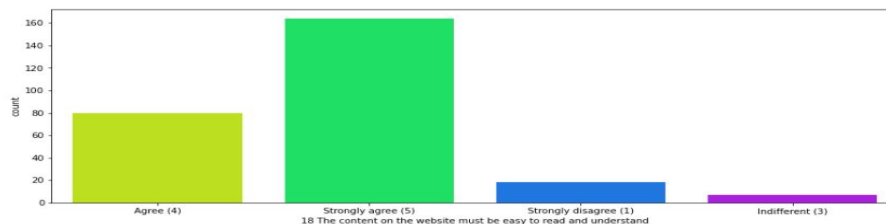


OBSERVATION ON CUSTOMER INFO:

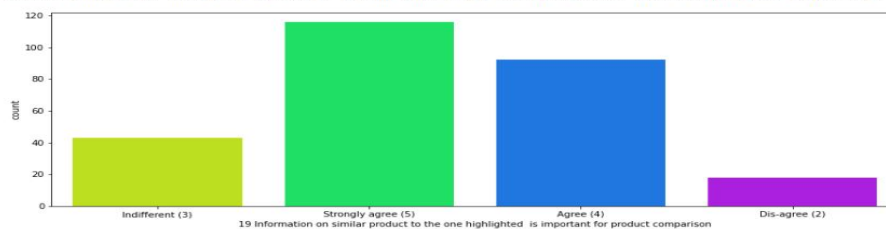
1. Out of the entire participant around 67.3 %(181 members) are women and 32.7 %(88 members) are men.
2. 80% (230 members) of the total participants are between the age group of 21-50 years, in which 21-30 years are 79 members, 31-40 years are 81 members and 41-50 years are 70 members.
3. Participants from Delhi, Noida, Greater Noida and Bangalore seem to be shopping in higher range when considered to other cities included for the survey. This may be due to the fact that many companies and colleges are around this area.
4. Around 65% of the total participants are shopping online for more than 3 years.
5. Major part of the customers seems to be shopping less than 10 times a year.
6. Most of the customers seem to be using Smart Phone and Mobile Internet for shopping. This means the E-commerce website should be compatible in all kinds of smart phone browsers to attract a lot more customers.
7. Many used search engine to find their favorite online store, which means the E-commerce website should be search engine optimized on all times.
8. Also after the search engine, E-commerce application seems to be the second favorite mode of logging in to the website. This means the application should be server and software supported at all times.
9. Most of the participants seem to be spending an average of more than 15mins in the website for shopping.
10. Most participants desire to pay via Credit/ Debit cards while shopping online.

PART-2: UTILITARIAN VALUE

```
Strongly agree (5)    164
Agree (4)            80
Strongly disagree (1) 18
Indifferent (3)       7
Name: 18 The content on the website must be easy to read and understand, dtype: int64
```

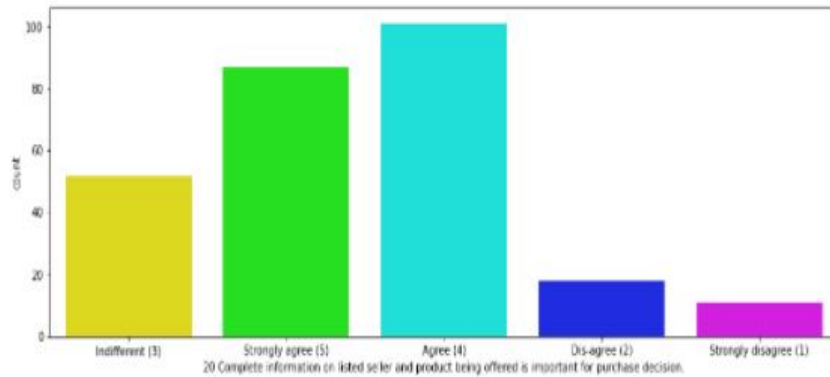


```
Strongly agree (5)    116
Agree (4)             92
Indifferent (3)       43
Dis-agree (2)         18
Name: 19 Information on similar product to the one highlighted is important for product comparison, dtype: int64
```



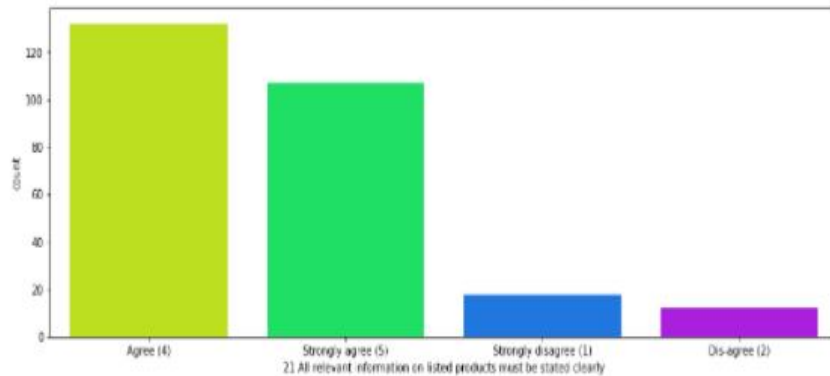
Agree (4)	181
Strongly agree (5)	87
Indifferent (3)	52
Dis-agree (2)	18
Strongly disagree (1)	11

Name: 20 Complete information on listed seller and product being offered is important for purchase decision., dtype: int64



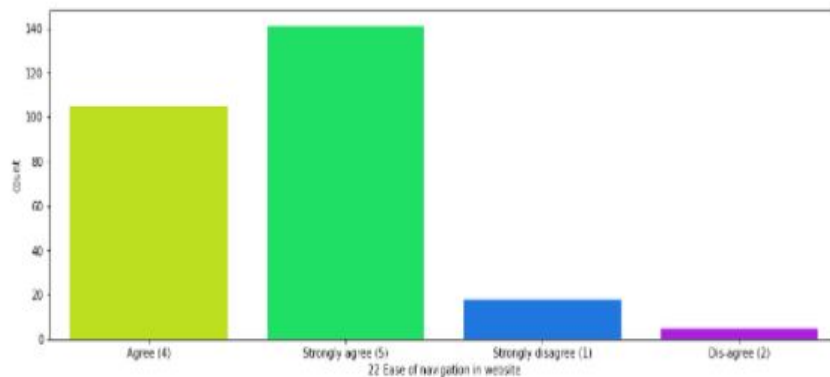
Agree (4)	132
Strongly agree (5)	107
Strongly disagree (1)	18
Dis-agree (2)	12

Name: 21 All relevant information on listed products must be stated clearly, dtype: int64

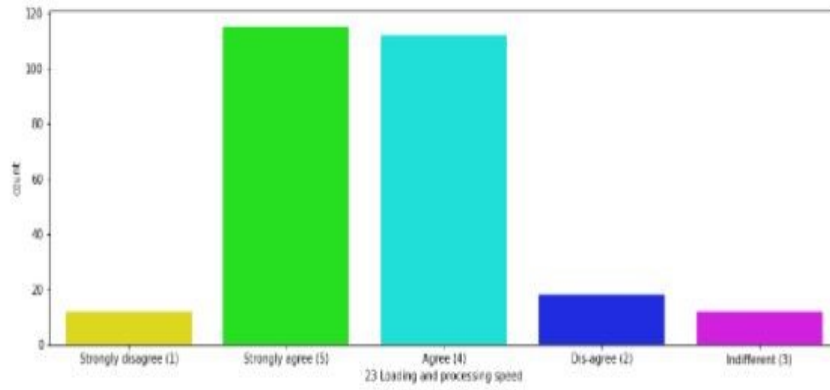


Strongly agree (5)	141
Agree (4)	105
Strongly disagree (1)	18
Dis-agree (2)	5

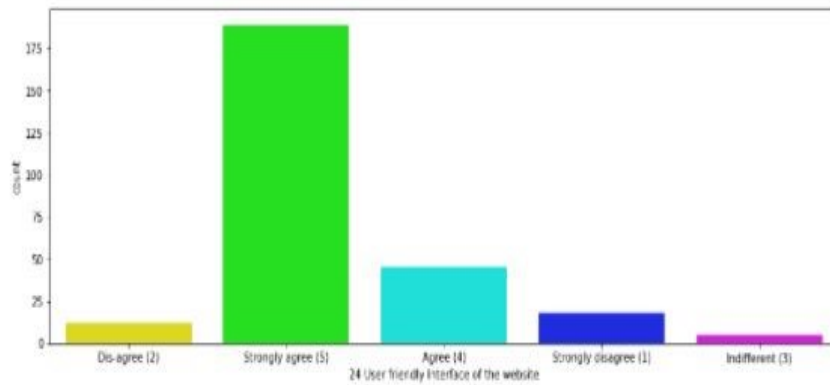
Name: 22 Ease of navigation in website, dtype: int64



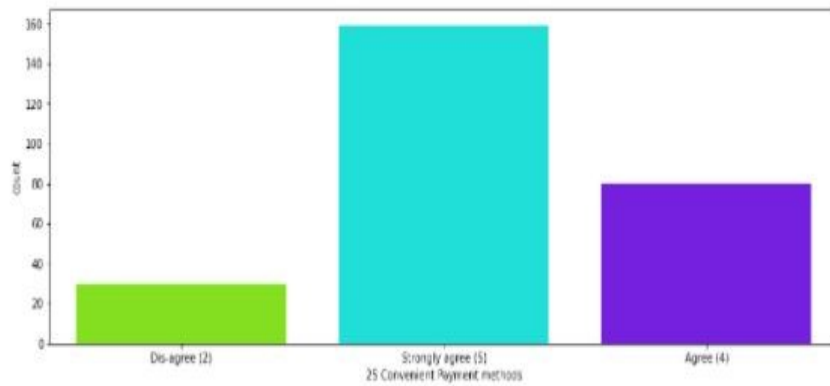
Strongly agree (5) 115
 Agree (4) 112
 Dis-agree (2) 18
 Strongly disagree (1) 12
 Indifferent (3) 12
 Name: 23 Loading and processing speed, dtype: int64



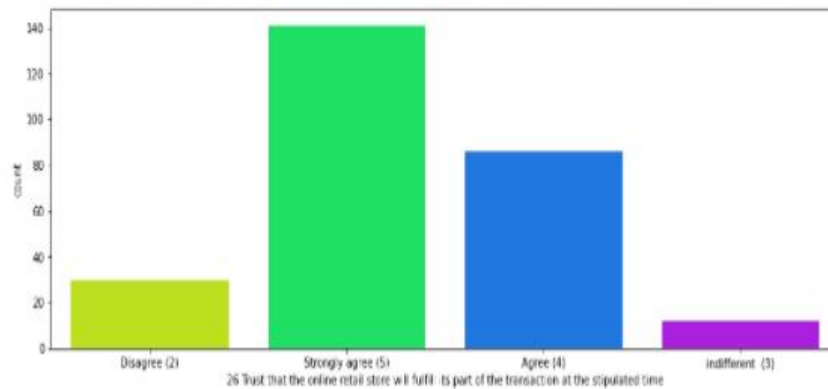
Strongly agree (5) 189
 Agree (4) 45
 Strongly disagree (1) 18
 Dis-agree (2) 12
 Indifferent (3) 5
 Name: 24 User friendly Interface of the website, dtype: int64



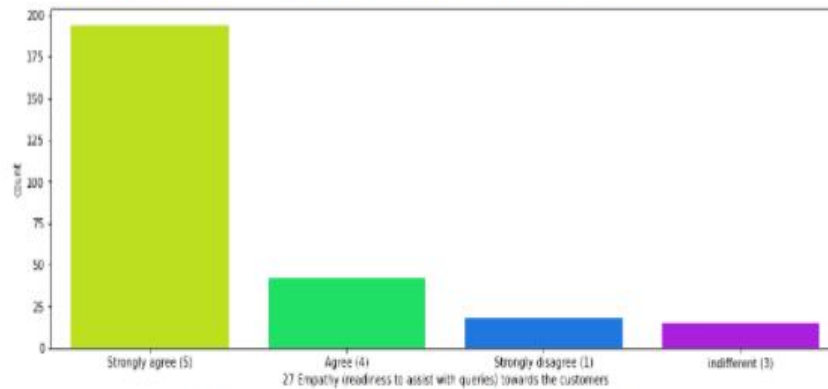
Strongly agree (5) 159
 Agree (4) 80
 Dis-agree (2) 30
 Name: 25 Convenient Payment methods, dtype: int64



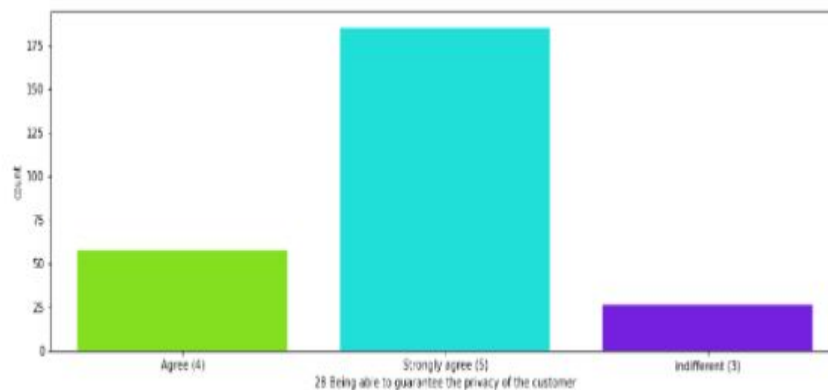
Strongly agree (5) 141
 Agree (4) 86
 Disagree (2) 38
 Indifferent (3) 12
 Name: 26 Trust that the online retail store will fulfill its part of the transaction at the stipulated time, dtype: int64



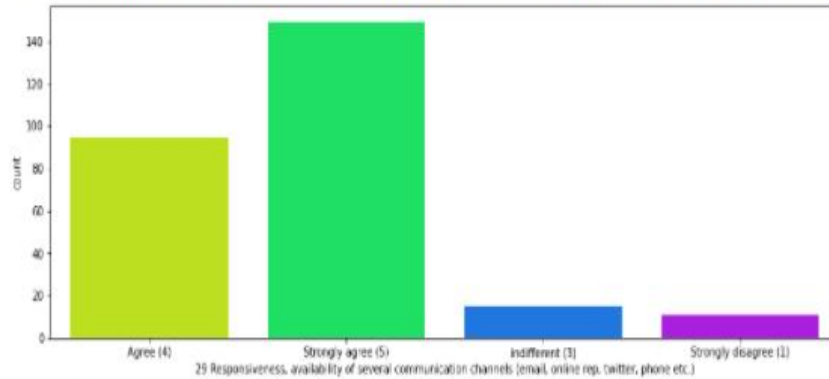
Strongly agree (5) 194
 Agree (4) 42
 Strongly disagree (1) 18
 Indifferent (3) 15
 Name: 27 Empathy (readiness to assist with queries) towards the customers, dtype: int64



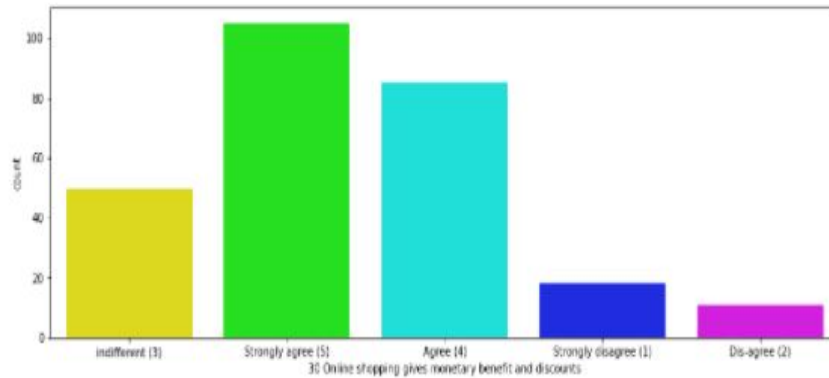
Strongly agree (5) 185
 Agree (4) 58
 Indifferent (3) 26
 Name: 28 Being able to guarantee the privacy of the customer, dtype: int64



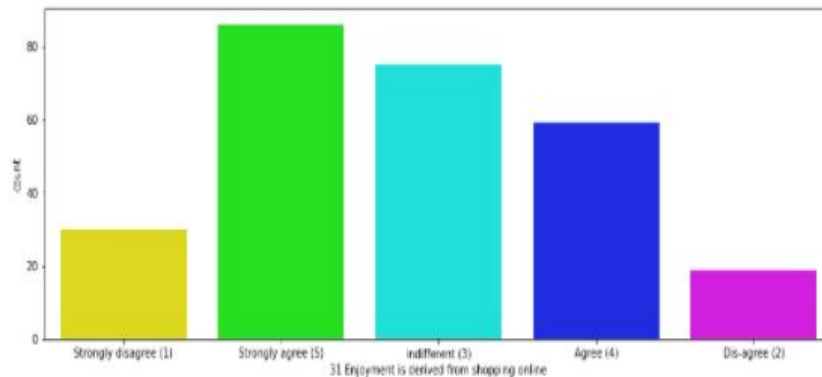
Strongly agree (5) 149
 Agree (4) 94
 Indifferent (3) 15
 Strongly disagree (1) 11
 Name: 29 Responsiveness, availability of several communication channels (email, online rep, twitter, phone etc.), dtype: int64



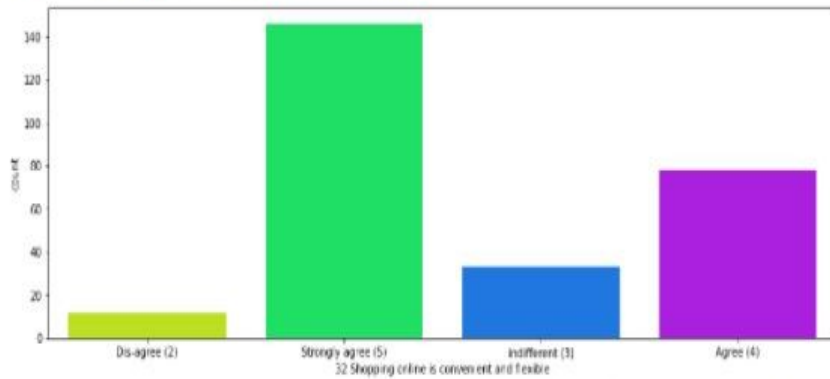
Strongly agree (5) 105
 Agree (4) 85
 Indifferent (3) 50
 Strongly disagree (1) 18
 Dis-agree (2) 11
 Name: 30 Online shopping gives monetary benefit and discounts, dtype: int64



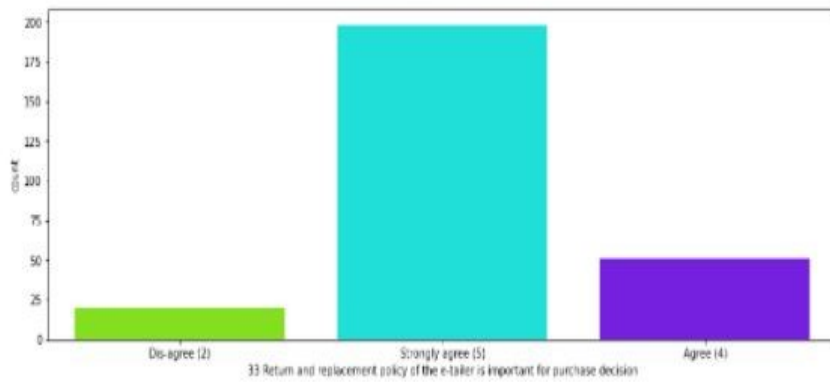
Strongly agree (5) 86
 Indifferent (3) 75
 Agree (4) 59
 Strongly disagree (1) 30
 Dis-agree (2) 19
 Name: 31 Enjoyment is derived from shopping online, dtype: int64



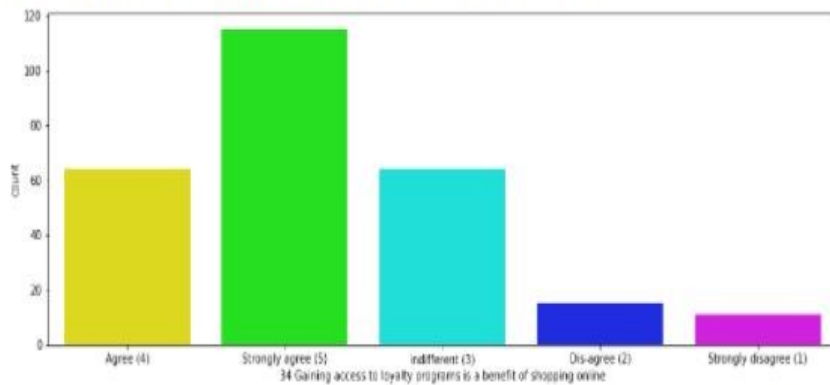
Strongly agree (5) 146
 Agree (4) 78
 Indifferent (3) 33
 Dis-agree (2) 12
 Name: 32 Shopping online is convenient and flexible, dtype: int64



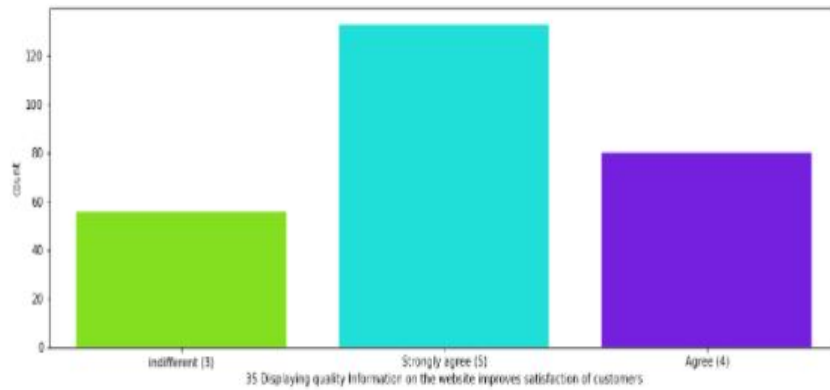
Strongly agree (5) 198
 Agree (4) 51
 Dis-agree (2) 20
 Name: 33 Return and replacement policy of the e-tailer is important for purchase decision, dtype: int64



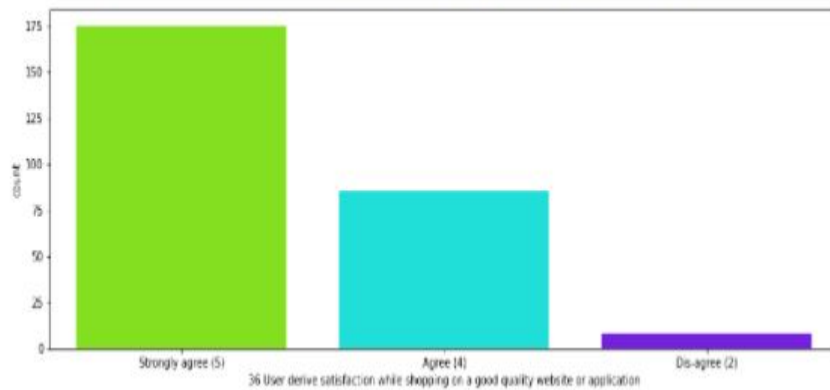
Strongly agree (5) 115
 Indifferent (3) 64
 Agree (4) 64
 Dis-agree (2) 15
 Strongly disagree (1) 11
 Name: 34 Gaining access to loyalty programs is a benefit of shopping online, dtype: int64



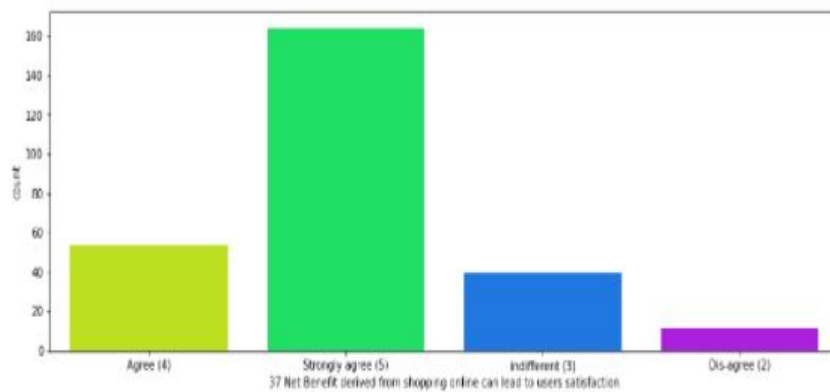
Strongly agree (5) 133
 Agree (4) 88
 Indifferent (3) 56
 Name: 35 Displaying quality Information on the website improves satisfaction of customers, dtype: int64



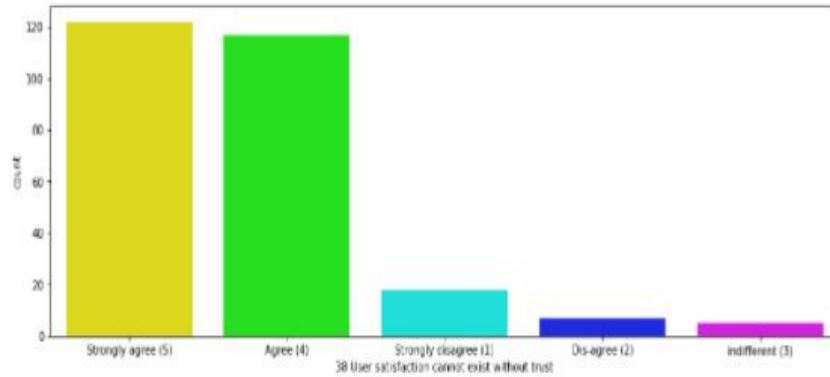
Strongly agree (5) 175
 Agree (4) 86
 Dis-agree (2) 8
 Name: 36 User derive satisfaction while shopping on a good quality website or application, dtype: int64



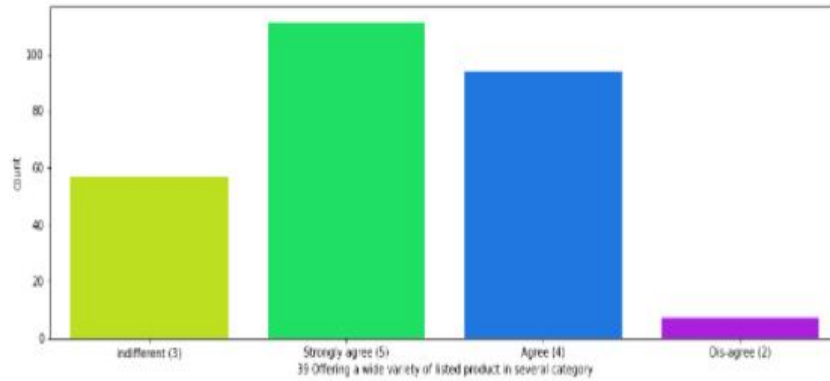
Strongly agree (5) 164
 Agree (4) 54
 Indifferent (3) 48
 Dis-agree (2) 11
 Name: 37 Net Benefit derived from shopping online can lead to users satisfaction, dtype: int64



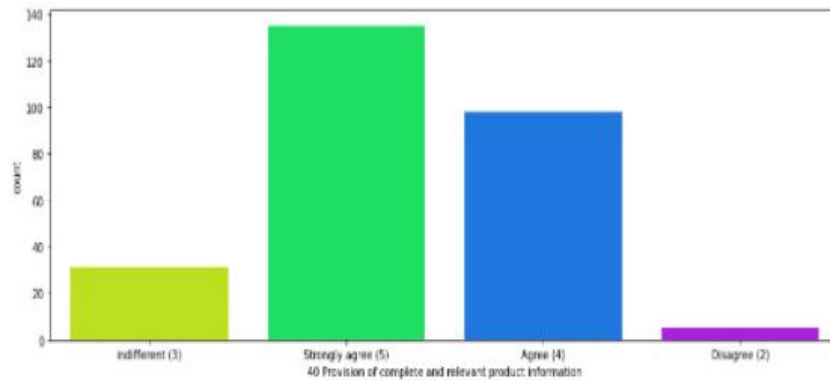
Strongly agree (5) 122
 Agree (4) 117
 Strongly disagree (1) 18
 Dis-agree (2) 7
 Indifferent (3) 5
 Name: 38 User satisfaction cannot exist without trust, dtype: int64



Strongly agree (5) 111
 Agree (4) 94
 Indifferent (3) 57
 Dis-agree (2) 7
 Name: 39 Offering a wide variety of listed product in several category, dtype: int64



Strongly agree (5) 135
 Agree (4) 98
 Indifferent (3) 31
 Disagree (2) 5
 Name: 40 Provision of complete and relevant product information, dtype: int64

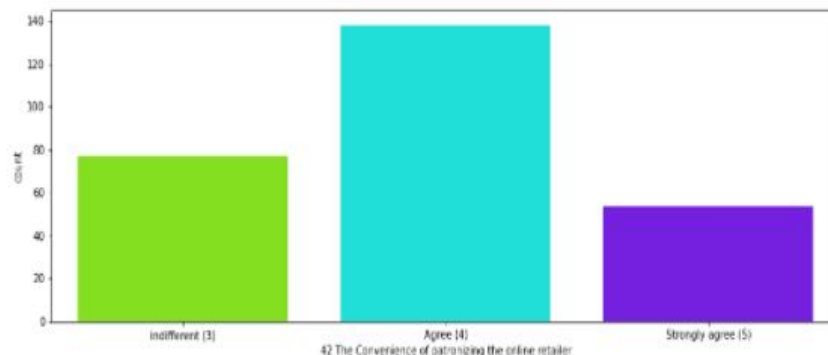


OBSERVATION ON UTILITARIAN VALUES:

1. Most of the participants strongly agree that the content on the website must be easy to read and understand.
2. Around 80% of the total customer strongly agrees that the information on similar product to the one highlighted is important for product comparison.
3. Most of the participants agree with the fact that provision of complete information on listed seller and product being offered is important for purchase decision.
4. Most of the customers expect that all relevant information on listed products must be stated clearly.
5. 90% of the customer expects a user friendly interface of the website along with ease of navigation; also they want the loading and processing speed to be less.
6. Most customers want many options for payment methods so that they can choose which is convenient them individually.
7. Most people expect the E-commerce website to have empathy towards its customers, they want to approach the in all platforms.
8. All the customers expect a guaranteed privacy.
9. Most customers choose online shopping because of the monetary benefit and discounts.
10. Also many enjoy the process of online shopping, when it is convenient and flexible.
11. Most customers strongly agree that return and replacement policy of the product is important for purchase decision.
12. Around 80% of the participants choose online shopping because of the wide range of category on products

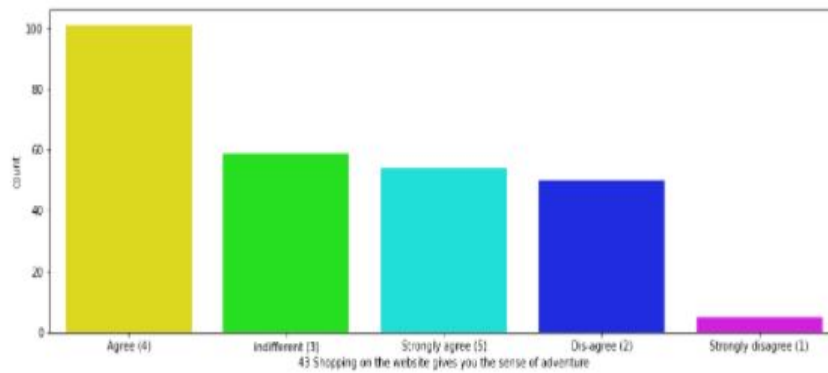
PART-3 : HEDONIC VALUE

```
Agree (4)          138
Indifferent (3)    77
Strongly agree (5) 54
Name: 42 The Convenience of patronizing the online retailer, dtype: int64
```



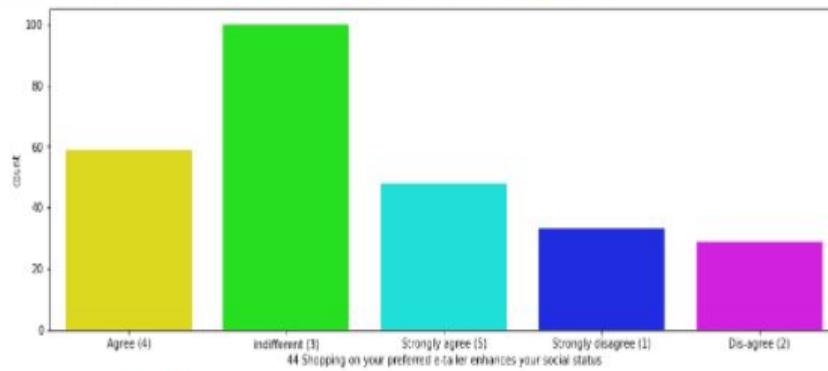
Agree (4)	101
Indifferent (3)	59
Strongly agree (5)	54
Dis-agree (2)	50
Strongly disagree (1)	5

Name: 43 Shopping on the website gives you the sense of adventure, dtype: int64



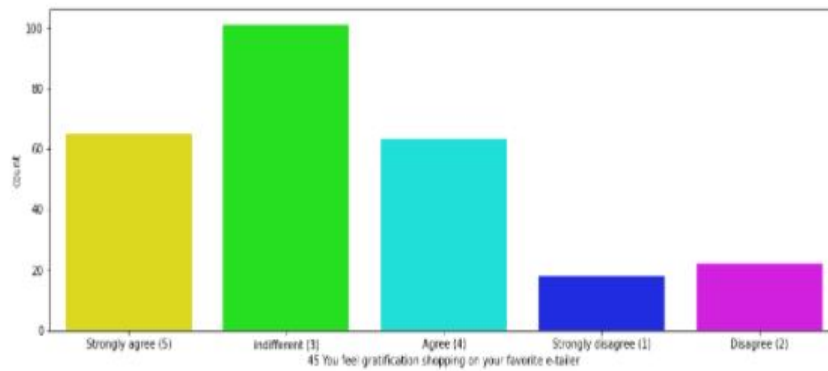
Indifferent (3)	100
Agree (4)	59
Strongly agree (5)	48
Strongly disagree (1)	33
Dis-agree (2)	29

Name: 44 Shopping on your preferred e-tailer enhances your social status, dtype: int64

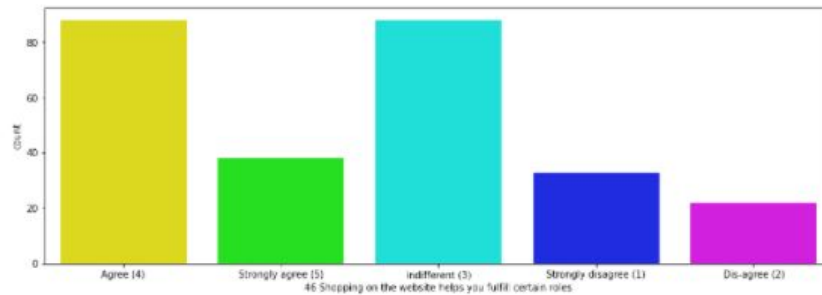


Indifferent (3)	101
Strongly agree (5)	65
Agree (4)	63
Disagree (2)	22
Strongly disagree (1)	18

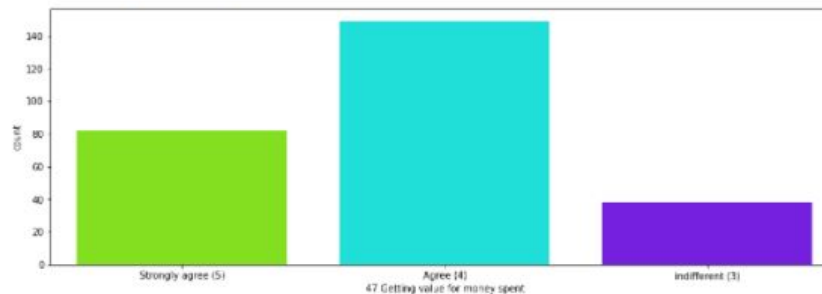
Name: 45 You feel gratification shopping on your favorite e-tailer, dtype: int64



indifferent (3) 88
 Agree (4) 88
 Strongly agree (5) 38
 Strongly disagree (1) 33
 Dis-agree (2) 22
 Name: 46 Shopping on the website helps you fulfill certain roles, dtype: int64



Agree (4) 149
 Strongly agree (5) 82
 indifferent (3) 38
 Name: 47 Getting value for money spent, dtype: int64



OBSERVATION ON HEDONIC VALUES:

- 1. 65% participants agree that they like the convenience of patronizing the online retailer.**
- 2. More than half of the customers doing online shopping accept that they like the sense of adventure while shopping online.**
- 3. Many customers don't agree that shopping on their preferred website enhances their social status.**
- 4. Half of the total participants say that shopping on the website helps them fulfill certain roles.**
- 5. 90% of the customer agrees that they are getting value for money spent while shopping online.**

```
Sometimes      171
Never          48
Frequently     35
Very frequently 15
Name: 16 How frequently do you abandon (selecting an items and leaving without making payment) your shopping cart?, dtype: int64
```



```

Better alternative offer      133
Promo code not applicable     54
Change in price              37
Lack of trust                31
No preferred mode of payment  14
Name: 17 Why did you abandon the "Bag", "Shopping Cart"?\\t\\t\\t\\t\\t\\t
dtype: int64

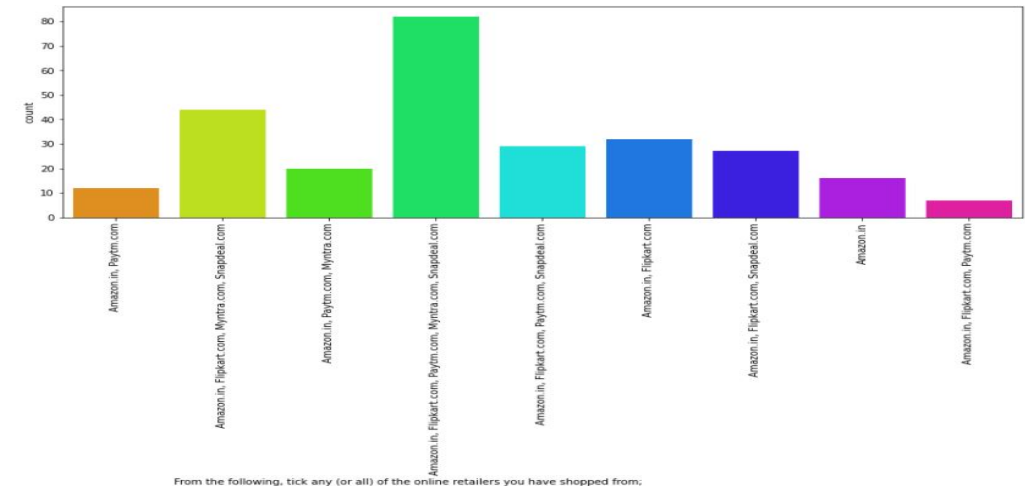
```



1. Many people abandon their shopping cart due to factors such as better alternative offer, promo code not applicable, change in price, lack of trust, and no preferred mode of payment.

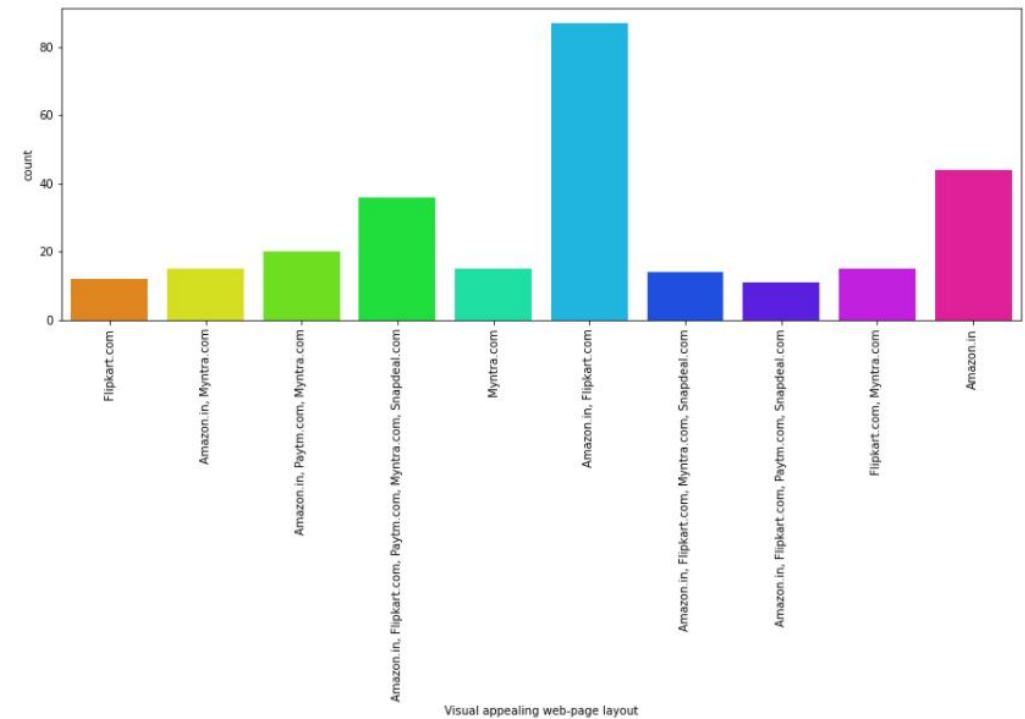
PART-5: CUSTOMER EXPERIENCE

Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com 82
Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com 44
Amazon.in, Flipkart.com 32
Amazon.in, Flipkart.com, Paytm.com, Snapdeal.com 29
Amazon.in, Flipkart.com, Snapdeal.com 27
Amazon.in, Paytm.com, Myntra.com 20
Amazon.in 16
Amazon.in, Paytm.com 12
Amazon.in, Flipkart.com, Paytm.com 7
Name: From the following, tick any (or all) of the online retailers you have shopped from;
, dtype: int64



From the following, tick any (or all) of the online retailers you have shopped from:

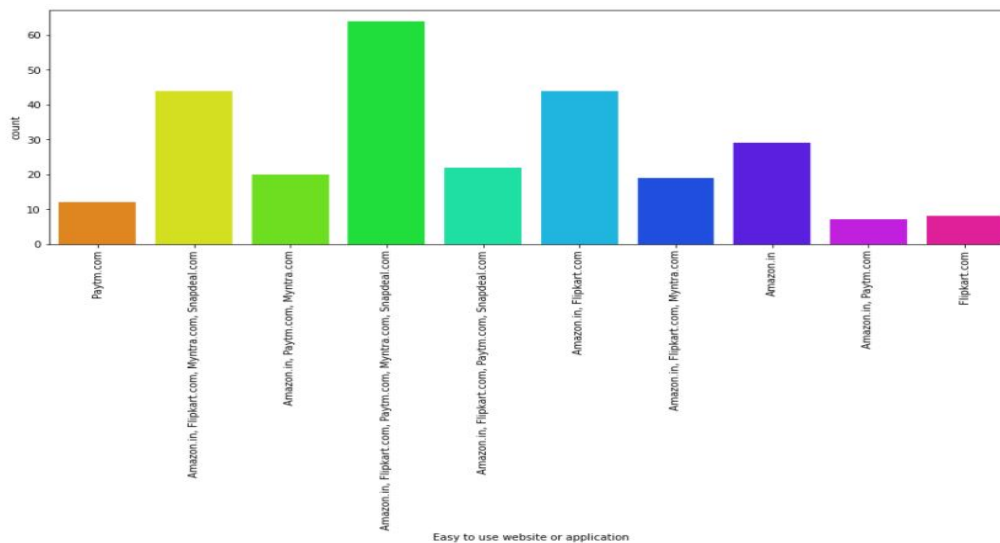
Amazon.in, Flipkart.com 87
Amazon.in 44
Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com 36
Amazon.in, Paytm.com, Myntra.com 20
Flipkart.com, Myntra.com 15
Myntra.com 15
Amazon.in, Myntra.com 15
Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com 14
Flipkart.com 12
Amazon.in, Flipkart.com, Paytm.com, Snapdeal.com 11
Name: Visual appealing web-page layout, dtype: int64



```

Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com 64
Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com            44
Amazon.in, Flipkart.com                                         44
Amazon.in                                                       29
Amazon.in, Flipkart.com, Paytm.com, Snapdeal.com              22
Amazon.in, Paytm.com, Myntra.com                               20
Amazon.in, Flipkart.com, Myntra.com                           19
Paytm.com                                                       12
Flipkart.com                                                    8
Amazon.in, Paytm.com                                           7
Name: Easy to use website or application, dtype: int64

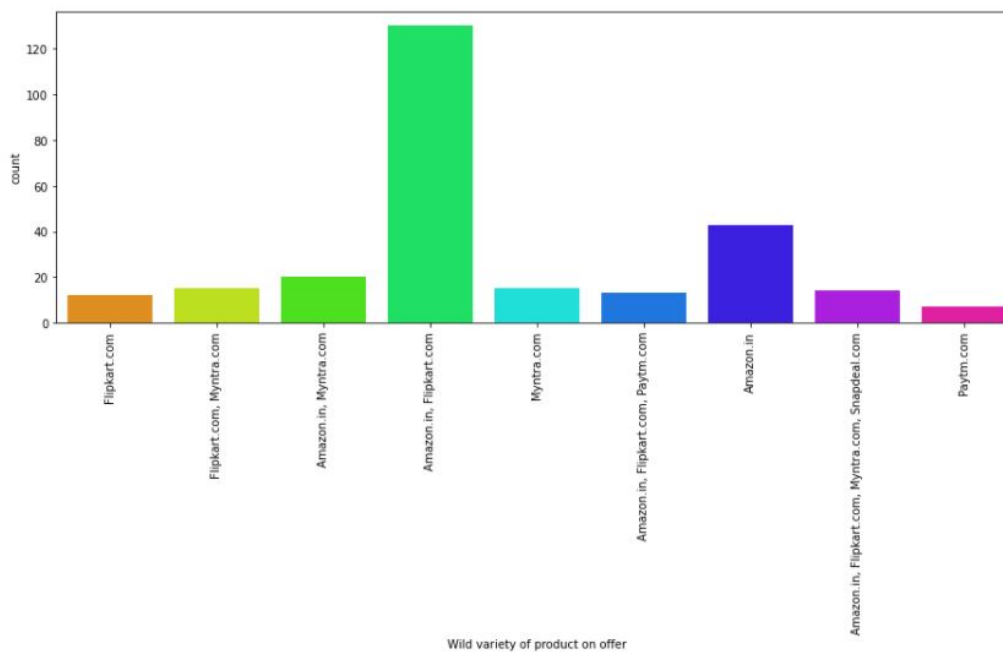
```



```

Amazon.in, Flipkart.com 130
Amazon.in               43
Amazon.in, Myntra.com   20
Flipkart.com, Myntra.com 15
Myntra.com              15
Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com 14
Amazon.in, Flipkart.com, Paytm.com                13
Flipkart.com                                       12
Paytm.com                                         7
Name: Wild variety of product on offer, dtype: int64

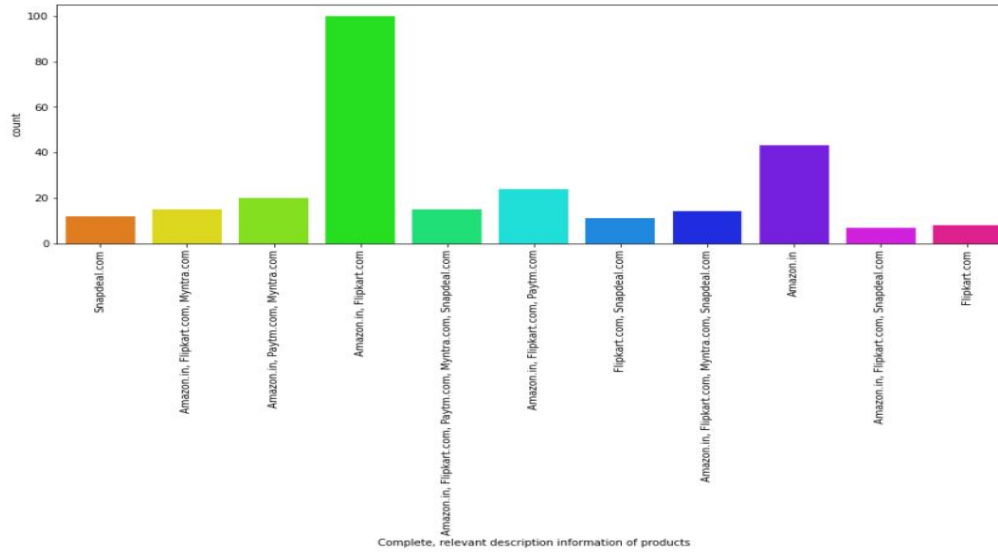
```



```

Amazon.in, Flipkart.com 100
Amazon.in 43
Amazon.in, Flipkart.com, Paytm.com 24
Amazon.in, Paytm.com, Myntra.com 20
Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com 15
Amazon.in, Flipkart.com, Myntra.com 15
Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com 14
Snapdeal.com 12
Flipkart.com, Snapdeal.com 11
Flipkart.com 8
Amazon.in, Flipkart.com, Snapdeal.com 7
Name: Complete, relevant description information of products, dtype: int64

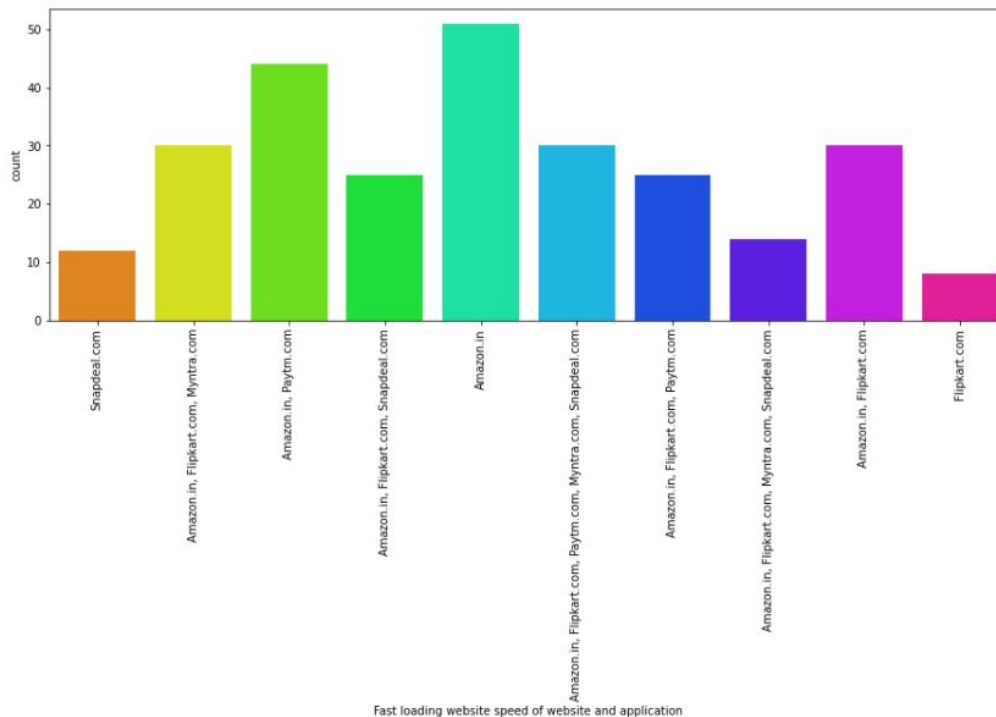
```



```

Amazon.in 51
Amazon.in, Paytm.com 44
Amazon.in, Flipkart.com, Myntra.com 30
Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com 30
Amazon.in, Flipkart.com 30
Amazon.in, Flipkart.com, Snapdeal.com 25
Amazon.in, Flipkart.com, Paytm.com 25
Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com 14
Snapdeal.com 12
Flipkart.com 8
Name: Fast loading website speed of website and application, dtype: int64

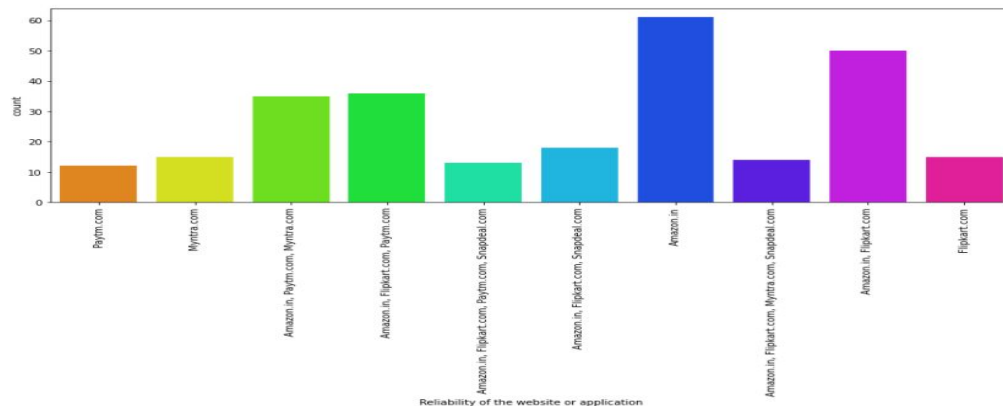
```




```

Amazon.in 61
Amazon.in, Flipkart.com 50
Amazon.in, Flipkart.com, Paytm.com 36
Amazon.in, Paytm.com, Myntra.com 35
Amazon.in, Flipkart.com, Snapdeal.com 18
Flipkart.com 15
Myntra.com 15
Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com 14
Amazon.in, Flipkart.com, Paytm.com, Snapdeal.com 13
Paytm.com 12
Name: Reliability of the website or application, dtype: int64

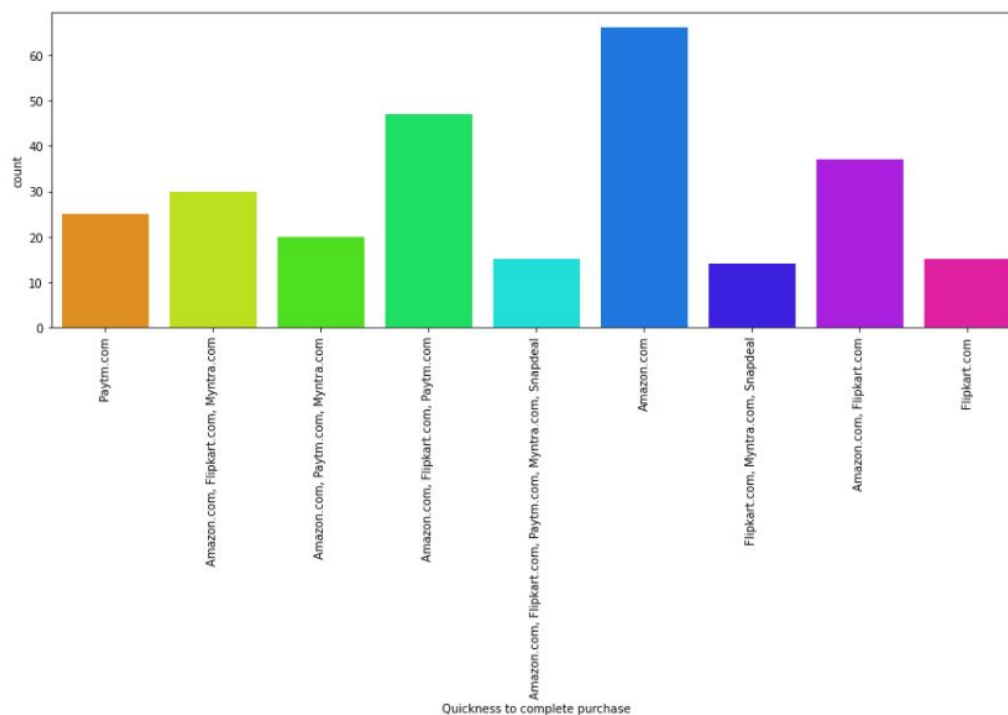
```



```

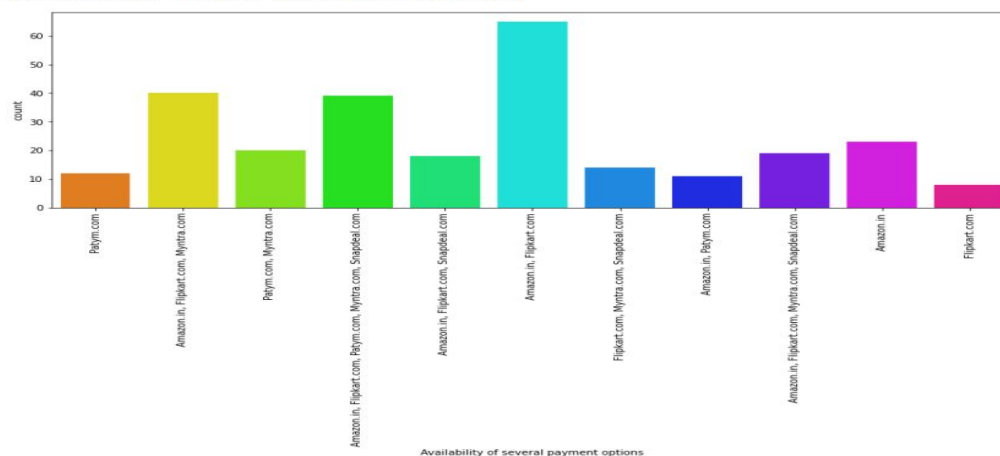
Amazon.com 66
Amazon.com, Flipkart.com, Paytm.com 47
Amazon.com, Flipkart.com 37
Amazon.com, Flipkart.com, Myntra.com 30
Paytm.com 25
Amazon.com, Paytm.com, Myntra.com 20
Flipkart.com 15
Amazon.com, Flipkart.com, Paytm.com, Myntra.com, Snapdeal 15
Flipkart.com, Myntra.com, Snapdeal 14
Name: Quickness to complete purchase, dtype: int64

```



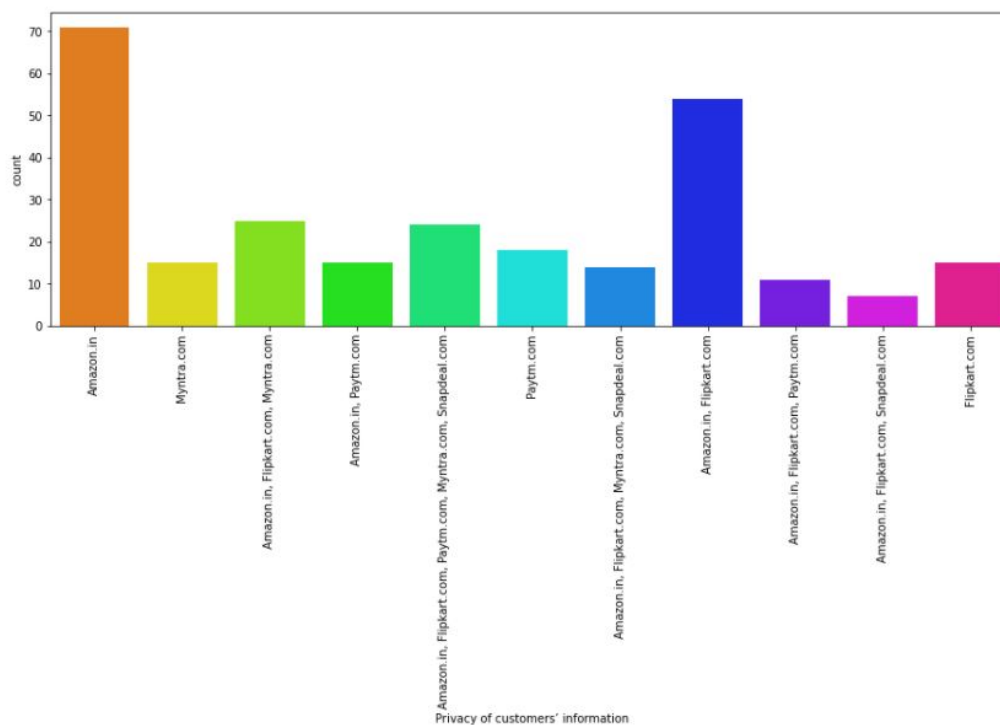
Amazon.in, Flipkart.com	65
Amazon.in, Flipkart.com, Myntra.com	40
Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com	39
Amazon.in	23
Paytm.com, Myntra.com	20
Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com	19
Amazon.in, Flipkart.com, Snapdeal.com	18
Flipkart.com, Myntra.com, Snapdeal.com	14
Paytm.com	12
Amazon.in, Paytm.com	11
Flipkart.com	8

Name: Availability of several payment options, dtype: int64



Amazon.in	71
Amazon.in, Flipkart.com	54
Amazon.in, Flipkart.com, Myntra.com	25
Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com	24
Paytm.com	18
Flipkart.com	15
Myntra.com	15
Amazon.in, Paytm.com	15
Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com	14
Amazon.in, Flipkart.com, Paytm.com	11
Amazon.in, Flipkart.com, Snapdeal.com	7

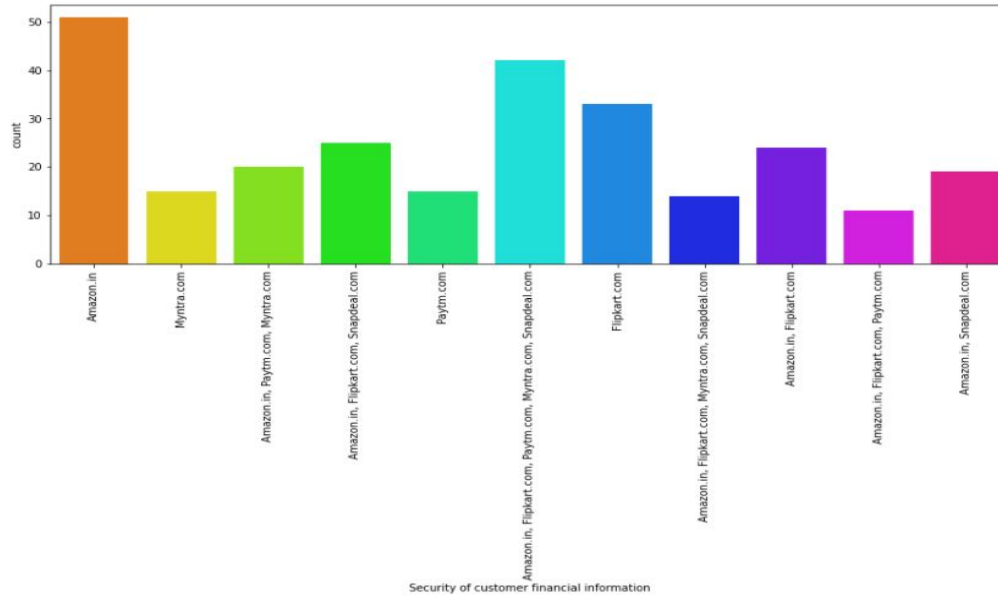
Name: Privacy of customers' information, dtype: int64



```

Amazon.in 51
Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com 42
Flipkart.com 33
Amazon.in, Flipkart.com, Snapdeal.com 25
Amazon.in, Flipkart.com 24
Amazon.in, Paytm.com, Myntra.com 20
Amazon.in, Snapdeal.com 19
Paytm.com 15
Myntra.com 15
Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com 14
Amazon.in, Flipkart.com, Paytm.com 11
Name: Security of customer financial information, dtype: int64

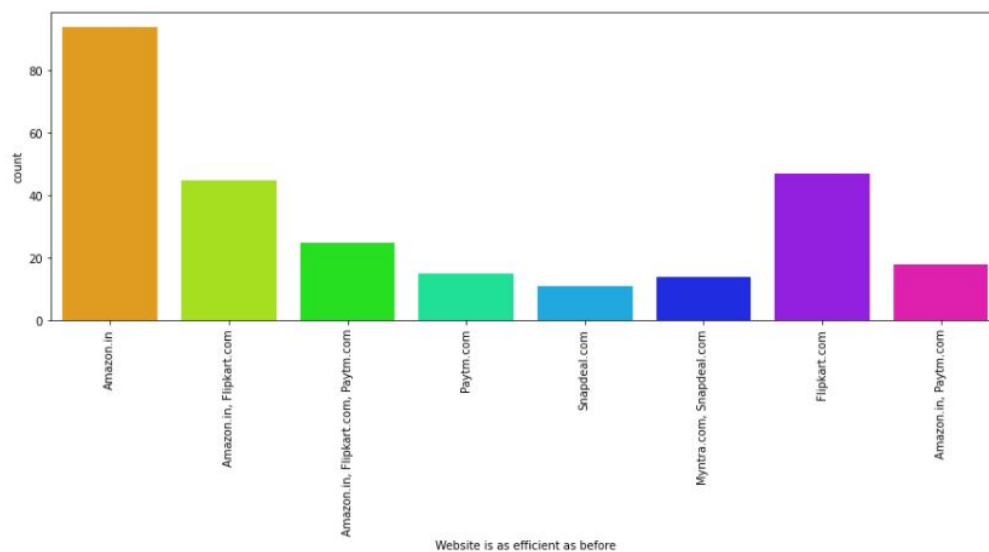
```



```

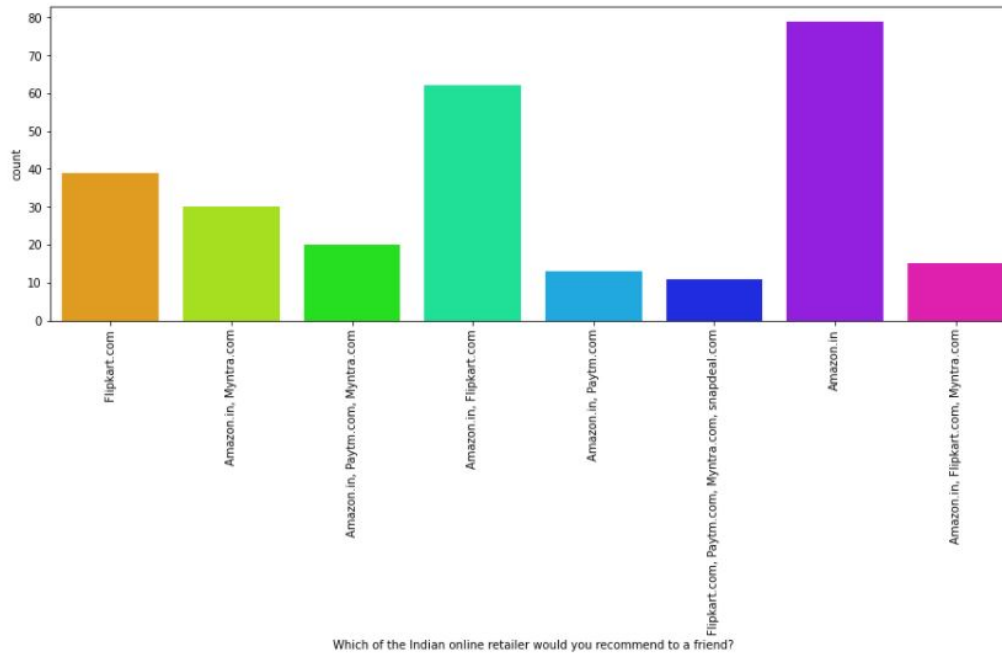
Amazon.in 94
Flipkart.com 47
Amazon.in, Flipkart.com 45
Amazon.in, Flipkart.com, Paytm.com 25
Amazon.in, Paytm.com 18
Paytm.com 15
Myntra.com, Snapdeal.com 14
Snapdeal.com 11
Name: Website is as efficient as before, dtype: int64

```



Amazon.in	79
Amazon.in, Flipkart.com	62
Flipkart.com	39
Amazon.in, Myntra.com	30
Amazon.in, Paytm.com, Myntra.com	20
Amazon.in, Flipkart.com, Myntra.com	15
Amazon.in, Paytm.com	13
Flipkart.com, Paytm.com, Myntra.com, snapdeal.com	11

Name: Which of the Indian online retailer would you recommend to a friend?, dtype: int64



OBSERVATIONS ON CUSTOMER EXPERIENCE:

1. Most of the customers shopping on line have shopped majorly from the following websites, Amazon. In, Flipkart.com, Snapdeal.com, paytm.com.
2. Amazon, flipkart, snapdeal, myntra seems to have easy to use website or application.
3. Amazon.in and Flipkart.com has a visually appealing web-page layout.
4. Amazon.in and Flipkart.com has a wild variety of products on offers.
5. Amazon.in and Flipkart.com has complete and relevant description information of products compared to all other websites.
6. Amazon. In, Flipkart.com, Snapdeal.com, paytm.com, myntra.com has fast loading websites.
7. Amazon.in and Flipkart.com has the reliability of the customer.
8. Amazon.in, Flipkart.com has quickness towards completing the purchase.
9. Amazon. In, Flipkart.com, Snapdeal.com has availability of several payment options.
10. Amazon.in and Flipkart.com has speedy order delivery.
11. According to customers the privacy and security of customer financial information is maintained by Amazon.in and Flipkart.com.
12. Amazon. In, Flipkart.com, Snapdeal.com has a Perceived Trustworthiness.
13. Presence of online assistance through multi-channel is mostly provided by Amazon.In, Flipkart.com, and Snapdeal.com.

14. Longer time to get logged in (promotion, sales period): Amazon.in, Flipkart.com, Paytm.com.
15. Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com takes longer time in displaying graphics and photos.
16. Myntra.com, Paytm.com, snapdeal.com has a practice of late declaration of prices.
17. Myntra.com, Paytm.com, snapdeal.com, Flipkart.com has a longer page loading time (promotion, sales period).
18. Amazon.in and snapdeal.com has limited mode of payment on most products.
19. Paytm.com, snapdeal.com, Flipkart.com has a longer delivery period.
20. Amazon.in, Paytm.com has regular change in website/application design.
21. Amazon.in, Myntra.com, Snapdeal.com, Paytm.com has frequent disruption when moving from one page to another.
22. Amazon.in and Flipkart.com Website are as efficient as before.
23. Amazon.in and Flipkart.com seems to be the most recommended Indian online retailer website.

The purpose of this study is to understand the influence of utilitarian values, hedonic values, customer experience and perceived risk on E-commerce customer satisfaction in India.

The analysis shows that the Utilitarian Value significantly influences Customer Satisfaction, meaning that the level of Utilitarian Value of e-commerce customers will affect the level of Customer Satisfaction. In other words, the better (higher) Utilitarian Value given by e-commerce products will lead to satisfaction with customers. Hedonic Value significantly influences Customer Satisfaction, meaning that the high and low Hedonic Value of e-commerce customers will affect the level of Customer Satisfaction. In other words, the higher the Hedonic Value given by e-commerce products will lead to the satisfaction of e-commerce customers.

The following factors should be considered by the E-commerce websites to improve the customer satisfaction:

1. Utilitarian Value

- Product offerings
- Product information
- Monetary savings

- Convenience

2. Hedonic Value

- Adventure Shopping
- Social Shopping
- Gratification Shopping
- Idea Shopping
- Role Shopping
- Value Shopping

3. Social Value

- Feel acceptable
- Good impression
- I am perceived
- Social approval

4. Perceived Risk

- Financial Risk
- Functional Risk
- Physical Risk
- Psychological Risk
- Social Risk
- Temporal Risk

5. Customer Satisfaction

- Purchasing Experience
- Site Selection

On the basis of these factors we could see that,

1. Amazon.in

2. Flipkart.com

are doing great in their performance on customer satisfaction and retention.

Model

Decision Trees

Introduction Decision Trees are a type of Supervised Machine Learning (that is you explain what the input is and what the corresponding output is in the training data) where the data is continuously split according to a certain parameter.

0.9833333333333333

cross validation

[0.8 0.97777778 1. 1. 1. 1.]
0.9629629629629629 0.07332959212304936

Logistic regression

Logistic regression is a supervised learning classification algorithm used to predict the probability of a target variable. The nature of target or dependent variable is dichotomous, which means there would be only two possible classes.

0.9166666666666666

cross validation

[0.75555556 0.95555556 1. 1. 1. 1.]
0.9518518518518518 0.0892738577273626

Random forest classifier

Random Forest is a classifier that contains a number of decision trees on various subsets of the given dataset and takes the average to improve the predictive accuracy of that dataset.

0.95

cross validation

[0.8 0.95555556 1. 1. 1. 1.]
0.9592592592592593 0.0730484552715408

Gaussian NB

Naive Bayes are a group of supervised machine learning classification algorithms based on the Bayes theorem. It is a simple classification technique, but has high functionality. They find use when the dimensionality of the inputs is high.

0.75

cross validation

[0.75555556 0.97777778 1. 1. 1. 1.]
0.9555555555555556 0.08981004187394179

SVC

The objective of a Linear SVC (Support Vector Classifier) is to fit to the data you provide, returning a "best fit" hyperplane that divides, or categorizes, your data.

0.8666666666666667

cross validation

```
[0.75555556 0.95555556 1.      1.      1.      1.      ]  
0.9518518518518518 0.0892738577273626
```

grid search

Grid search is a tuning technique that attempts to compute the optimum values of hyperparameters. It is an exhaustive search that is performed on a the specific parameter values of a model.

0.9833333333333333

Roc Auc

AUC - ROC curve is a performance measurement for the classification problems at various threshold settings. ROC is a probability curve and AUC represents the degree or measure of separability.