



CUSTOMER RETENTION DATASET

**Submitted by:
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ACKNOWLEDGMENT

I would like to thank Flip Robo Technologies for providing me with the opportunity to work on this project from which I have learned a lot. I am also grateful to Mr. Shubham Yadav for his constant guidance and support.

Some of the reference sources are as follows:

- Internet
- Coding Ninjas
- Medium.com
- Analytics Vidhya
- Stackoverflow.com

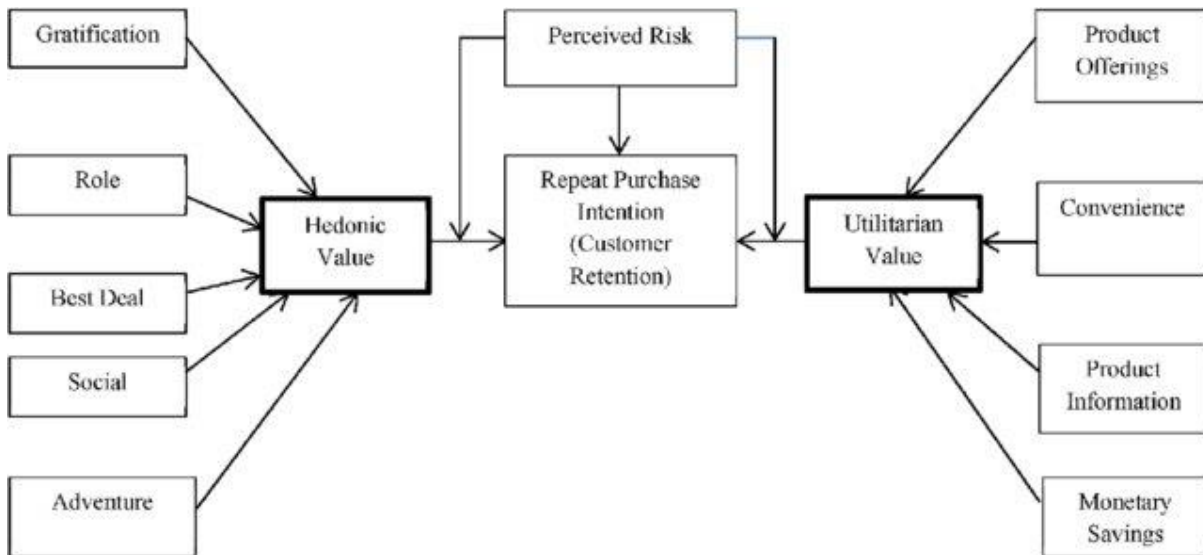
INTRODUCTION

BUSINESS PROBLEM FRAMING

Business Problem Framing Data Scientists have to apply their analytical skills to give findings and conclusions in detailed data analysis written in Jupyter notebook

CONCEPTUAL BACKGROUND OF THE DOMAIN PROBLEM

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. Results indicate the e-retail success factors, which are very much critical for customer satisfaction.



ANALYTICAL PROBLEM FRAMING

DATA SOURCES AND THEIR FORMATS

The data which I received from the Flip Robo Technologies was in Excel format. There are two sheets (one is detailed) and second is encoded in the excel file. Using the `df.shape()` we can see that the dataset contains 269 rows and 71 columns.

Using the `df.head()` we can display the first five rows of the dataset.

1Gender of respondent	2 How old are you?	3 Which city do you shop online from?	4 What is the Pin Code of where you shop online from?	5 Since How Long You are Shopping Online ?	6 How many times you have made an online purchase in the past 1 year?	7 How do you access the internet while shopping on-line?	8 Which device do you use to access the online shopping?	9 What is the screen size of your mobile device?	10 What is the operating system (OS) of your device?	11 What browser do you run on your device to access the website?	12 Which channel did you follow to arrive at your favorite online store for the first time?	13 After first visit, how do you reach the online retail store?	14 How much time do you explore the e-retail store before making a purchase decision?	15 Why prefer payment Option?
Male	31-40 years	Delhi	110009	Above 4 years	31-40 times	Dial-up	Desktop	Others	Window/windows Mobile	Google chrome	Search Engine	Search Engine	6-10 mins	E-wallets (Paytm, Freecharge etc.)
Female	21-30 years	Delhi	110030	Above 4 years	41 times and above	Wi-Fi	Smartphone	4.7 inches	IOS/Mac	Google chrome	Search Engine	Via application	more than 15 mins	Credit/Debit cards
Female	21-30 years	Greater Noida	201308	3-4 years	41 times and above	Mobile Internet	Smartphone	5.5 inches	Android	Google chrome	Search Engine	Via application	11-15 mins	E-wallets (Paytm, Freecharge etc.)
Male	21-30 years	Karnal	132001	3-4 years	Less than 10 times	Mobile Internet	Smartphone	5.5 inches	IOS/Mac	Safari	Search Engine	Search Engine	6-10 mins	Credit/Debit cards
Female	21-30 years	Bangalore	530068	2-3 years	11-20 times	Wi-Fi	Smartphone	4.7 inches	IOS/Mac	Safari	Content Marketing	Via application	more than 15 mins	Credit/Debit cards
15 What is your preferred payment Option?	16 How frequently do you abandon (selecting an item and leaving without making payment) your shopping cart?	17 Why did you abandon the "Bag", "Shopping Cart"?	18 The content on the website must be easy to read and understand	19 Information on similar product to the one highlighted is important for product comparison	20 Complete information on listed seller and product being offered is important for purchase decision.	21 All relevant information on listed products must be stated clearly	22 Ease of navigation in website	23 Loading and processing speed	24 User friendly Interface of the website	25 Convenient Payment methods	26 Trust that the online retail store will fulfill its part of the transaction at the stipulated time	27 Empathy (readiness to assist with queries) towards the customers		
E-wallets (Paytm, Freecharge etc.)	Sometimes	Lack of trust	Agree (4)	Indifferent (3)	Indifferent (3)	Agree (4)	Agree (4)	Strongly disagree (1)	Dis-agree (2)	Dis-agree (2)	Disagree (2)	Strongly agree (5)		
Credit/Debit cards	Very frequently	Promo code not applicable	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	
E-wallets (Paytm, Freecharge etc.)	Sometimes	Promo code not applicable	Strongly agree (5)	Agree (4)	Agree (4)	Agree (4)	Agree (4)	Agree (4)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	
Credit/Debit cards	Never	Better alternative offer	Agree (4)	Agree (4)	Indifferent (3)	Agree (4)	Strongly agree (5)	Agree (4)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Agree (4)	Strongly agree (5)	
Credit/Debit cards	Frequently	Better alternative offer	Strongly agree (5)	Indifferent (3)	Indifferent (3)	Agree (4)	Agree (4)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Agree (4)	Strongly agree (5)	

28 Being able to guarantee the privacy of the customer	29 Responsiveness, availability of several communication channels (email, online rep, twitter, phone etc.)	30 Online shopping gives monetary benefit and discounts	31 Enjoyment is derived from shopping online	32 Shopping online is convenient and flexible	33 Return and replacement policy of the e-tailer is important for purchase decision	34 Gaining access to loyalty programs is a benefit of shopping online	35 Displaying quality information on the website improves satisfaction of customers	36 User derive satisfaction while shopping on a good quality website or application	37 Net Benefit derived from shopping online can lead to users satisfaction	38 User satisfaction cannot exist without trust	39 Offering a wide variety of listed product in several category	40 Provision of complete and relevant product information
Agree (4)	Agree (4)	indifferent (3)	Strongly disagree (1)	Dis-agree (2)	Dis-agree (2)	Agree (4)	indifferent (3)	Strongly agree (5)	Agree (4)	Strongly agree (5)	indifferent (3)	indifferent (3)
Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)
Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Agree (4)	Strongly agree (5)	Strongly agree (5)
Strongly agree (5)	Agree (4)	Agree (4)	indifferent (3)	indifferent (3)	Agree (4)	indifferent (3)	indifferent (3)	Agree (4)	indifferent (3)	Agree (4)	Agree (4)	Agree (4)
Agree (4)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Dis-agree (2)	Agree (4)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Agree (4)	Agree (4)

Fast loading website speed of website and application	Reliability of the website or application	Quickness to complete purchase	Availability of several payment options	Speedy order delivery	Privacy of customers' information	Security of customer financial information	Perceived Trustworthiness	Presence of online assistance through multi-channel	Longer time to get logged in (promotion, sales period)	Longer time in displaying graphics and photos (promotion, sales period)	de
Snapdeal.com	Paytm.com	Paytm.com	Paytm.com	Amazon.in	Amazon.in	Amazon.in	Flipkart.com	Paytm.com	Amazon.in	Amazon.in	Flip
Amazon.in, Flipkart.com, Myntra.com	Myntra.com	Amazon.com, Flipkart.com, Myntra.com	Amazon.in, Flipkart.com, Myntra.com	Amazon.in, Flipkart.com	Myntra.com	Myntra.com	Myntra.com	Amazon.in, Flipkart.com, Myntra.com	Amazon.in, Flipkart.com	Myntra.com	snap
Amazon.in, Paytm.com	Amazon.in, Paytm.com, Myntra.com	Amazon.com, Paytm.com, Myntra.com	Paytm.com, Myntra.com	Amazon.in	Amazon.in	Amazon.in, Paytm.com, Myntra.com	Amazon.in, Myntra.com	Myntra.com	Myntra.com	Myntra.com	My
Amazon.in, Flipkart.com, Snapdeal.com	Amazon.in, Flipkart.com, Paytm.com	Amazon.com, Flipkart.com, Paytm.com	Amazon.in, Flipkart.com, Myntra.com	Amazon.in, Flipkart.com, Snapdeal.com	Amazon.in, Flipkart.com, Myntra.com	Amazon.in, Flipkart.com, Snapdeal.com	Amazon.in, Flipkart.com, Snapdeal.com	Amazon.in, Flipkart.com, Myntra.com, Snapdeal	Snapdeal.com	Myntra.com, Snapdeal.com	My
Amazon.in	Amazon.in, Paytm.com, Myntra.com	Amazon.com, Flipkart.com, Paytm.com, Myntra.co...	Amazon.in, Flipkart.com, Paytm.com, Myntra.com...	Amazon.in	Amazon.in, Paytm.com	Paytm.com	Amazon.in, Myntra.com	Amazon.in, Myntra.com	Flipkart.com, Paytm.com	Paytm.com	Pz

Fast loading website speed of website and application	Reliability of the website or application	Quickness to complete purchase	Availability of several payment options	Speedy order delivery	Privacy of customers' information	Security of customer financial information	Perceived Trustworthiness	Presence of online assistance through multi-channel	Longer time to get logged in (promotion, sales period)	Longer time in displaying graphics and photos (promotion, sales period)	de: (pri sale:
Snapdeal.com	Paytm.com	Paytm.com	Patym.com	Amazon.in	Amazon.in	Amazon.in	Flipkart.com	Paytm.com	Amazon.in	Amazon.in	Flip
Amazon.in, Flipkart.com, Myntra.com	Myntra.com	Amazon.com, Flipkart.com, Myntra.com	Amazon.in, Flipkart.com, Myntra.com	Amazon.in, Flipkart.com	Myntra.com	Myntra.com	Myntra.com	Amazon.in, Flipkart.com, Myntra.com	Amazon.in, Flipkart.com	Myntra.com	snap
Amazon.in, Paytm.com	Amazon.in, Paytm.com, Myntra.com	Amazon.com, Paytm.com, Myntra.com	Patym.com, Myntra.com	Amazon.in	Amazon.in	Amazon.in, Paytm.com, Myntra.com	Amazon.in, Myntra.com	Myntra.com	Myntra.com	Myntra.com	My
Amazon.in, Flipkart.com, Snapdeal.com	Amazon.in, Flipkart.com, Paytm.com	Amazon.com, Flipkart.com, Paytm.com	Amazon.in, Flipkart.com, Myntra.com	Amazon.in, Flipkart.com, Snapdeal.com	Amazon.in, Flipkart.com, Myntra.com	Amazon.in, Flipkart.com, Snapdeal.com	Amazon.in, Flipkart.com, Snapdeal.com	Amazon.in, Flipkart.com, Myntra.com, Snapdeal	Snapdeal.com	Myntra.com, Snapdeal.com	My
Amazon.in	Amazon.in, Paytm.com, Myntra.com	Amazon.com, Flipkart.com, Paytm.com, Myntra.co...	Amazon.in, Flipkart.com, Patym.com, Myntra.com...	Amazon.in	Amazon.in, Paytm.com	Paytm.com	Amazon.in, Myntra.com	Amazon.in, Myntra.com	Flipkart.com, Paytm.com	Paytm.com	P
Presence of online assistance through multi-channel	Longer time to get logged in (promotion, sales period)	Longer time in displaying graphics and photos (promotion, sales period)	Late declaration of price (promotion, sales period)	Longer page loading time (promotion, sales period)	Limited mode of payment on most products (promotion, sales period)	Longer delivery period	Change in website/Application design	Frequent disruption when moving from one page to another	Website is as efficient as before	Which of the Indian online retailer would you recommend to a friend?	
Paytm.com	Amazon.in	Amazon.in	Flipkart.com	Flipkart.com	Amazon.in	Paytm.com	Flipkart.com	Amazon.in	Amazon.in	Flipkart.com	
Amazon.in, Flipkart.com, Myntra.com	Amazon.in, Flipkart.com	Myntra.com	snapdeal.com	Snapdeal.com	Snapdeal.com	Snapdeal.com	Amazon.in	Myntra.com	Amazon.in, Flipkart.com	Amazon.in, Myntra.com	
Myntra.com	Myntra.com	Myntra.com	Myntra.com	Myntra.com	Amazon.in	Paytm.com	Paytm.com	Paytm.com	Amazon.in	Amazon.in, Paytm.com, Myntra.com	
Amazon.in, Flipkart.com, Myntra.com, Snapdeal	Snapdeal.com	Myntra.com, Snapdeal.com	Myntra.com	Paytm.com	Paytm.com	Paytm.com	Amazon.in, Flipkart.com	Amazon.in, Flipkart.com	Amazon.in, Flipkart.com, Paytm.com	Amazon.in, Flipkart.com	
Amazon.in, Myntra.com	Flipkart.com, Paytm.com	Paytm.com	Paytm.com	Paytm.com	Snapdeal.com	Paytm.com	Amazon.in	Snapdeal.com	Paytm.com	Amazon.in, Myntra.com	

Dataset Datatypes are as follows:

Using `df.info()`, we get information about the dataset that it contains 70 features of “Object” datatype and 1 column “Int64” datatype. It also tell us about memory usage of the dataset which is 149.3+ KB in this case.

```
-----
0  1Gender of respondent
269 non-null    object
1  2 How old are you?
269 non-null    object
2  3 Which city do you shop online from?
269 non-null    object
3  4 What is the Pin Code of where you shop online from?
269 non-null    int64
4  5 Since How Long You are Shopping Online ?
269 non-null    object
5  6 How many times you have made an online purchase in the past 1 year?
269 non-null    object
6  7 How do you access the internet while shopping on-line?
269 non-null    object
7  8 Which device do you use to access the online shopping?
269 non-null    object
8  9 What is the screen size of your mobile device?
269 non-null    object
9  10 What is the operating system (OS) of your device?
269 non-null    object
10 11 What browser do you run on your device to access the website?
269 non-null    object
11 12 Which channel did you follow to arrive at your favorite online store for the first time?
269 non-null    object
12 13 After first visit, how do you reach the online retail store?
269 non-null    object
13 14 How much time do you explore the e- retail store before making a purchase decision?
269 non-null    object
14 15 What is your preferred payment Option?
269 non-null    object
15 16 How frequently do you abandon (selecting an items and leaving without making payment) your shopping cart?
269 non-null    object

269 non-null    object
16 17 Why did you abandon the “Bag”, “Shopping Cart”?
269 non-null    object
17 18 The content on the website must be easy to read and understand
269 non-null    object
18 19 Information on similar product to the one highlighted is important for product comparison
269 non-null    object
19 20 Complete information on listed seller and product being offered is important for purchase decision.
269 non-null    object
20 21 All relevant information on listed products must be stated clearly
269 non-null    object
21 22 Ease of navigation in website
269 non-null    object
22 23 Loading and processing speed
269 non-null    object
23 24 User friendly Interface of the website
269 non-null    object
24 25 Convenient Payment methods
269 non-null    object
25 26 Trust that the online retail store will fulfill its part of the transaction at the stipulated time
269 non-null    object
26 27 Empathy (readiness to assist with queries) towards the customers
269 non-null    object
27 28 Being able to guarantee the privacy of the customer
269 non-null    object
28 29 Responsiveness, availability of several communication channels (email, online rep, twitter, phone etc.)
269 non-null    object
29 30 Online shopping gives monetary benefit and discounts
269 non-null    object
30 31 Enjoyment is derived from shopping online
269 non-null    object
31 32 Shopping online is convenient and flexible
269 non-null    object
```

32 33 Return and replacement policy of the e-tailer is important for purchase decision
 269 non-null object
 33 34 Gaining access to loyalty programs is a benefit of shopping online
 269 non-null object
 34 35 Displaying quality Information on the website improves satisfaction of customers
 269 non-null object
 35 36 User derive satisfaction while shopping on a good quality website or application
 269 non-null object
 36 37 Net Benefit derived from shopping online can lead to users satisfaction
 269 non-null object
 37 38 User satisfaction cannot exist without trust
 269 non-null object
 38 39 Offering a wide variety of listed product in several category
 269 non-null object
 39 40 Provision of complete and relevant product information
 269 non-null object
 40 41 Monetary savings
 269 non-null object
 41 42 The Convenience of patronizing the online retailer
 269 non-null object
 42 43 Shopping on the website gives you the sense of adventure
 269 non-null object
 43 44 Shopping on your preferred e-tailer enhances your social status
 269 non-null object
 44 45 You feel gratification shopping on your favorite e-tailer
 269 non-null object
 45 46 Shopping on the website helps you fulfill certain roles
 269 non-null object
 46 47 Getting value for money spent
 269 non-null object
 47 From the following, tick any (or all) of the online retailers you have shopped from;
 269 non-null object
 48 Easy to use website or application
 49 Visual appealing web-page layout
 269 non-null object
 50 Wild variety of product on offer
 269 non-null object
 51 Complete, relevant description information of products
 269 non-null object
 52 Fast loading website speed of website and application
 269 non-null object
 53 Reliability of the website or application
 269 non-null object
 54 Quickness to complete purchase
 269 non-null object
 55 Availability of several payment options
 269 non-null object
 56 Speedy order delivery
 269 non-null object
 57 Privacy of customers' information
 269 non-null object
 58 Security of customer financial information
 269 non-null object
 59 Perceived Trustworthiness
 269 non-null object
 60 Presence of online assistance through multi-channel
 269 non-null object
 61 Longer time to get logged in (promotion, sales period)
 269 non-null object
 62 Longer time in displaying graphics and photos (promotion, sales period)
 269 non-null object
 63 Late declaration of price (promotion, sales period)
 269 non-null object
 64 Longer page loading time (promotion, sales period)
 269 non-null object
 65 Limited mode of payment on most products (promotion, sales period)

Checking for the null values:

Using the `df.isnull().sum()` and plotting using the heatmap we have plotted the graph for seeing if there are some null values in the dataset.



From the graph, we can see that there no null values present in the dataset.

As there are more number of features in the dataset, we have divided the dataset in three types.

1. `categorical_columns` = This will contain demographic features and other person specific features like age, gender, browser]
2. `rating_columns` = This will contain all questions which have answers in the form of (Agree, Strongly Agree, Indifferent etc.)
3. `ecommerce_columns` = This will contain all questions which have answers in the form of (amazon, flipkart, myntra etc.)

```
# categorical_columns can be located from column index 0 to 16
categorical_columns=df.iloc[:,17].columns
categorical_columns=categorical_columns.to_list()

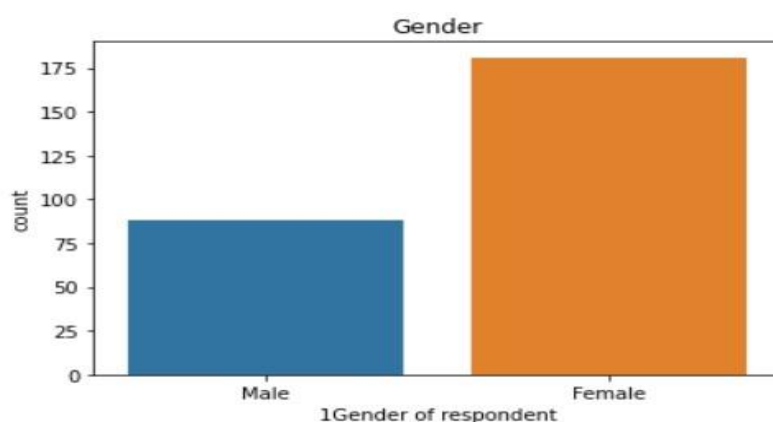
# rating_columns can be located from column index 17 to 46
rating_columns=df.iloc[:,17:47].columns
rating_columns=rating_columns.to_list()

# ecommerce_columns can be located from column index 47 and above
ecommerce_columns=df.iloc[:,47:].columns
ecommerce_columns=ecommerce_columns.to_list()
```

DATA VISUALIZATION:

```
print(df['1Gender of respondent'].value_counts())
sns.countplot(x=df['1Gender of respondent'])
plt.title('Gender')
```

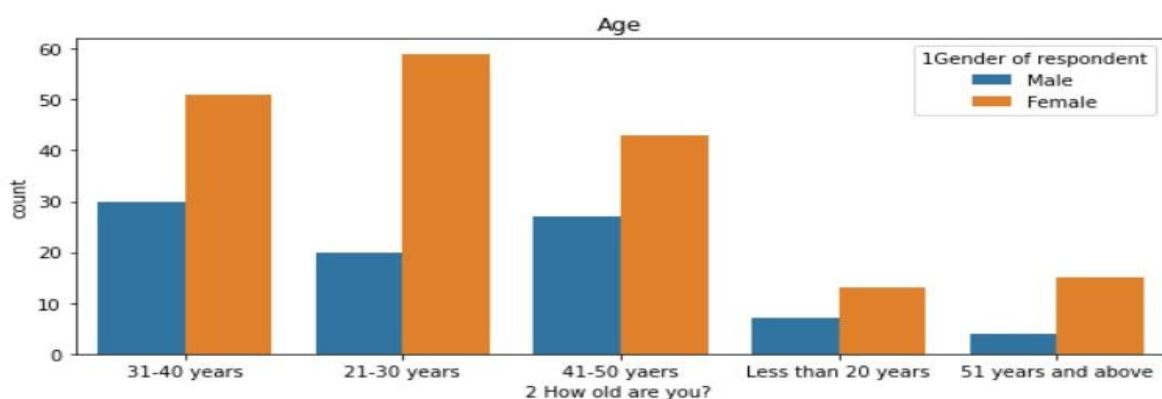
```
Female    181
Male      88
Name: 1Gender of respondent, dtype: int64
Text(0.5, 1.0, 'Gender')
```



From the plot we can say that gender column has more Female(181) as compared to Male(88).

Now, we are plotting the age group of the customers

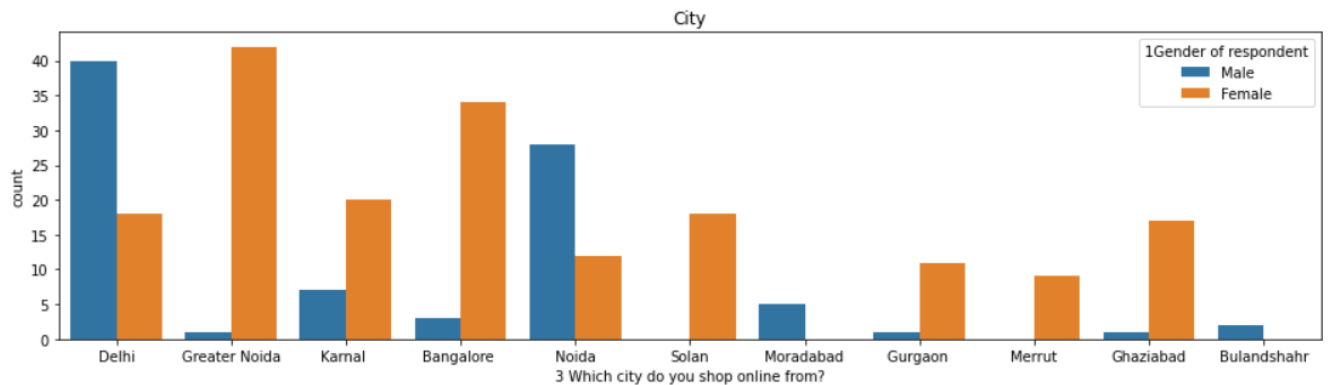
```
31-40 years    81
21-30 years    79
41-50 yaers    70
Less than 20 years  20
51 years and above  19
Name: 2 How old are you? , dtype: int64
Text(0.5, 1.0, 'Age')
```



From the plot we can see that females are more compared to male in every age group.

Next we are plotting to see which city has more online shopping customers.

```
Text(0.5, 1.0, 'City')
```

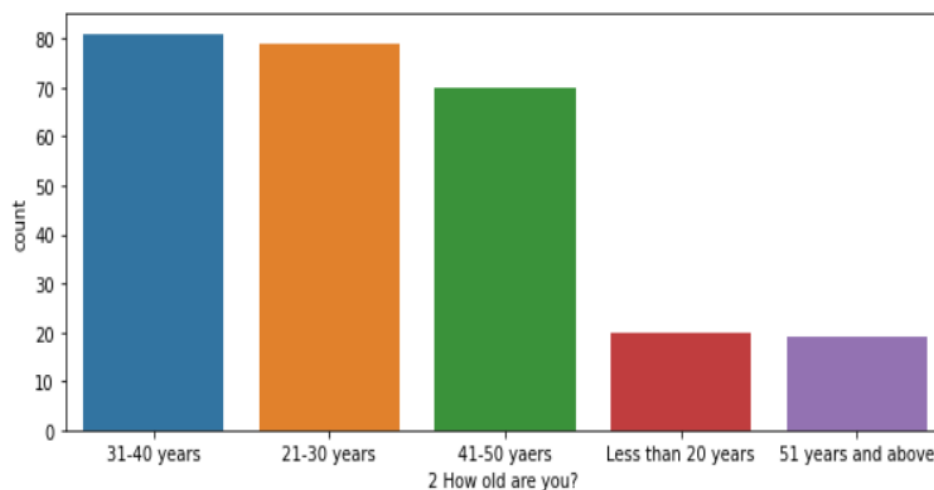


Cities like Delhi, Noida, Moradabad and Bulandshahr has more male shoppers. where as cities like GreaterNoida, karnal, Bangalore,solan,gurgaon,meerut, ghaziabad has more female shoppers.

Next, we do univariate analysis:

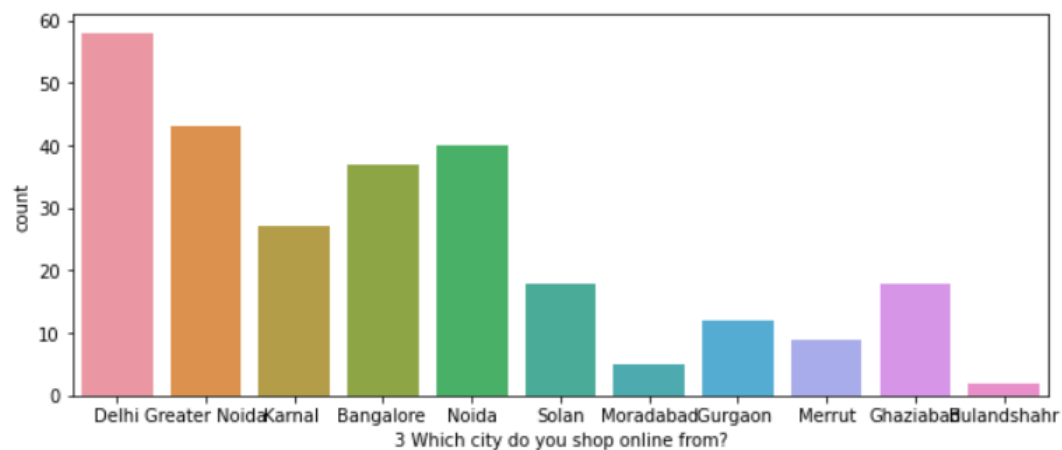
First, we plot age group, we can see that there more customers in the age group 31-40,21-30 years.

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



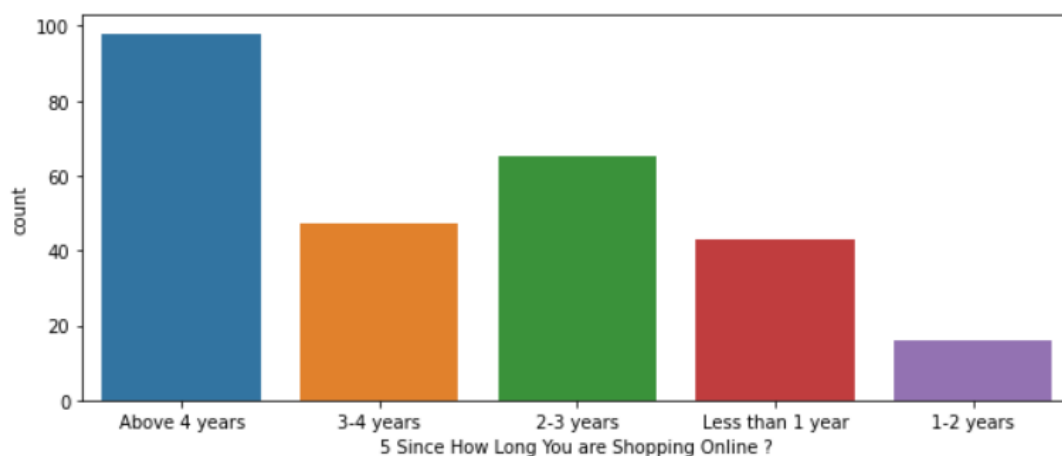
Delhi	58
Greater Noida	43
Noida	40
Bangalore	37
Karnal	27
Ghaziabad	18
Solan	18
Gurgaon	12
Merrut	9
Moradabad	5
Bulandshahr	2

Name: 3 Which city do you shop online from?, dtype: int64



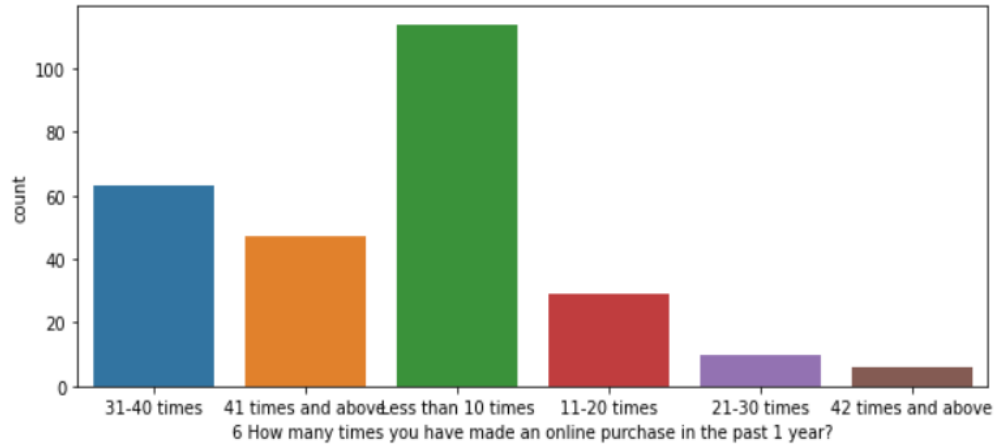
Above 4 years	98
2-3 years	65
3-4 years	47
Less than 1 year	43
1-2 years	16

Name: 5 Since How Long You are Shopping Online ?, dtype: int64



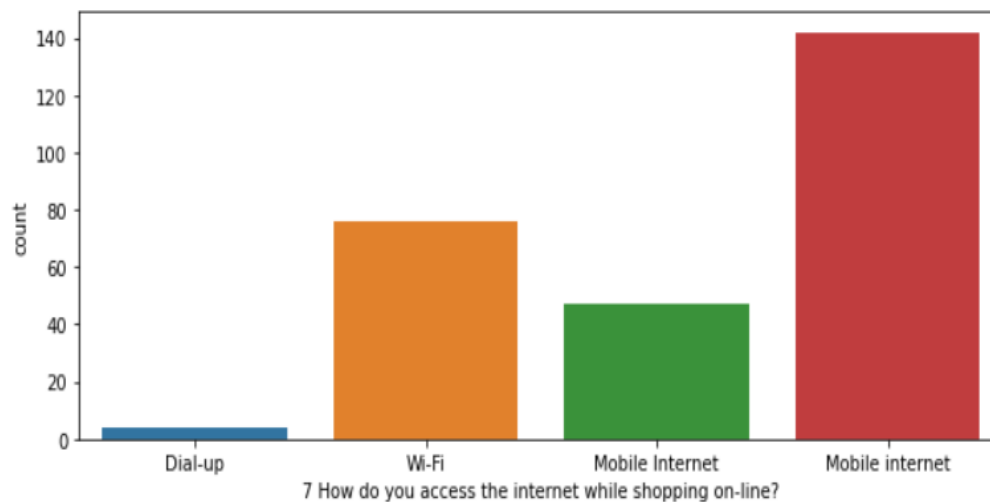
Less than 10 times	114
31-40 times	63
41 times and above	47
11-20 times	29
21-30 times	10
42 times and above	6

Name: 6 How many times you have made an online purchase in the past 1 year?, dtype: int64



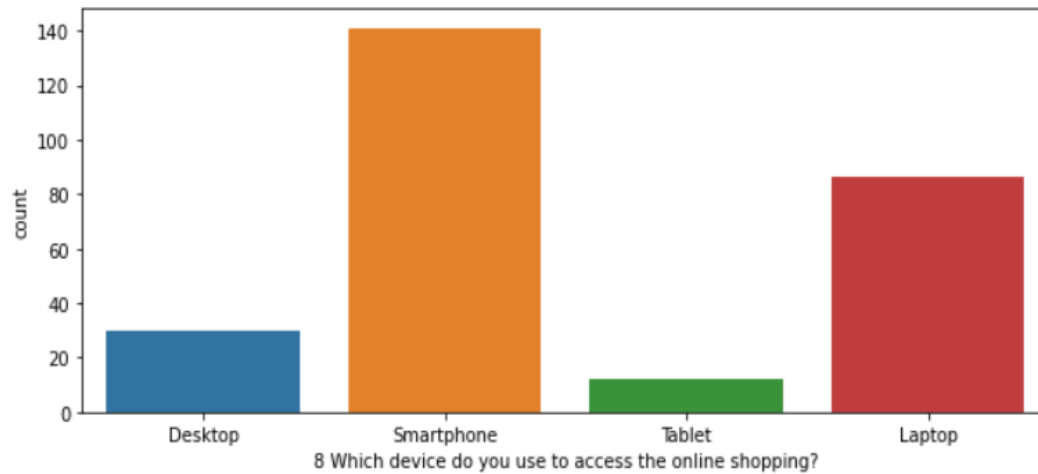
Mobile internet	142
Wi-Fi	76
Mobile Internet	47
Dial-up	4

Name: 7 How do you access the internet while shopping on-line?, dtype: int64



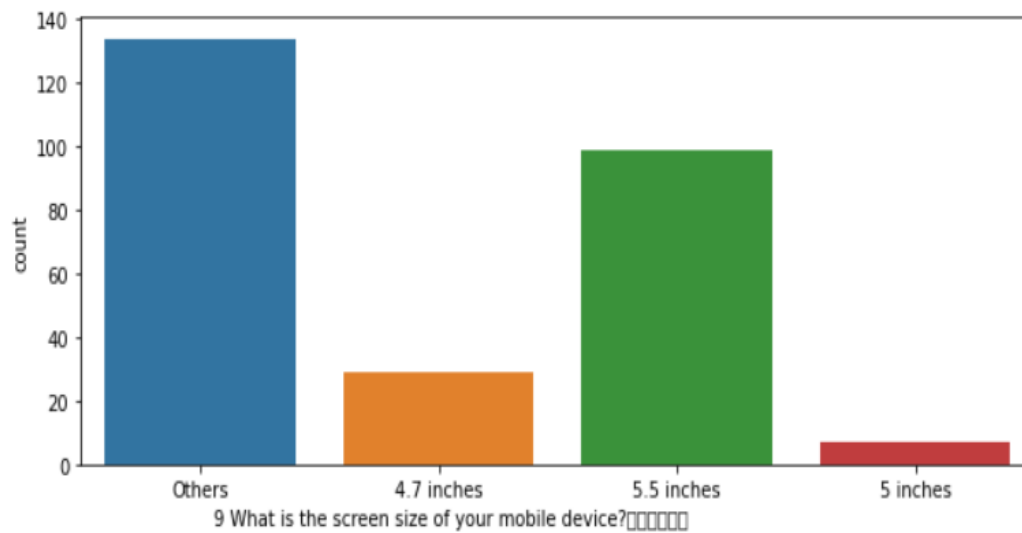
Smartphone	141
Laptop	86
Desktop	30
Tablet	12

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?\t\t\t\t\t

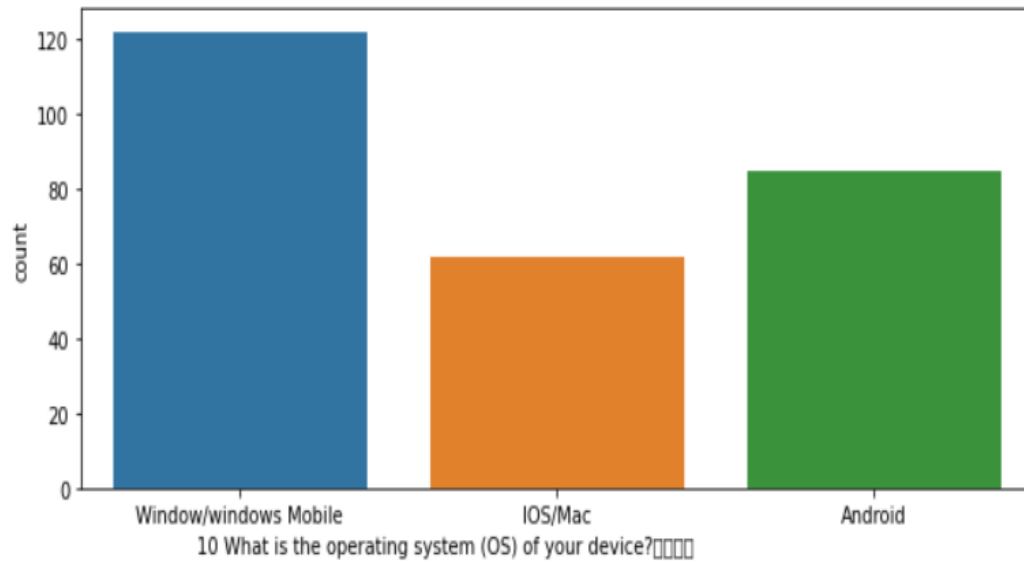


Window/windows Mobile 122

Android 85

IOS/Mac 62

Name: 10 What is the operating system (OS) of your device?\t\t\t\t



Google chrome 216

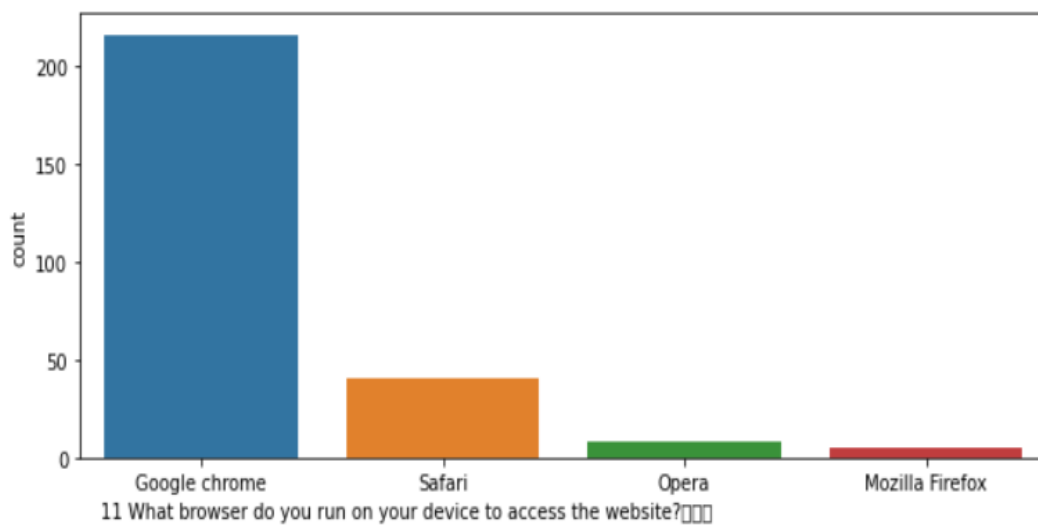
Safari 40

Opera 8

Mozilla Firefox 5

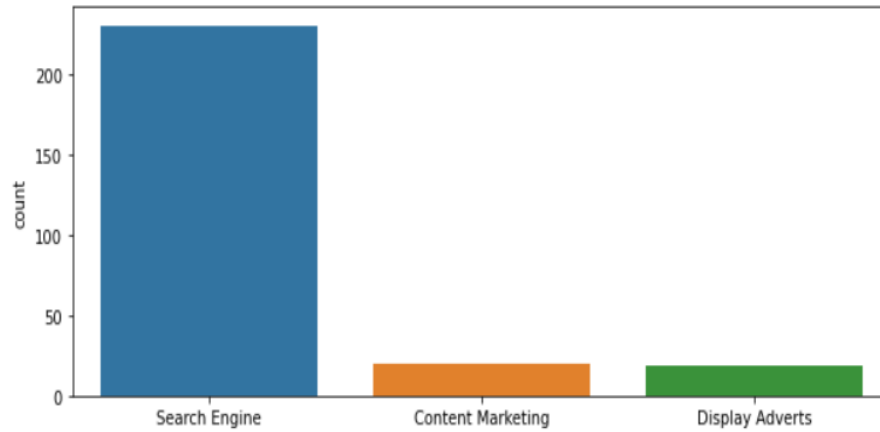
Name: 11 What browser do you run on your device to access the website?\t\t\t\t

, dtype: int64



```
Search Engine      230
Content Marketing   20
Display Adverts    19
```

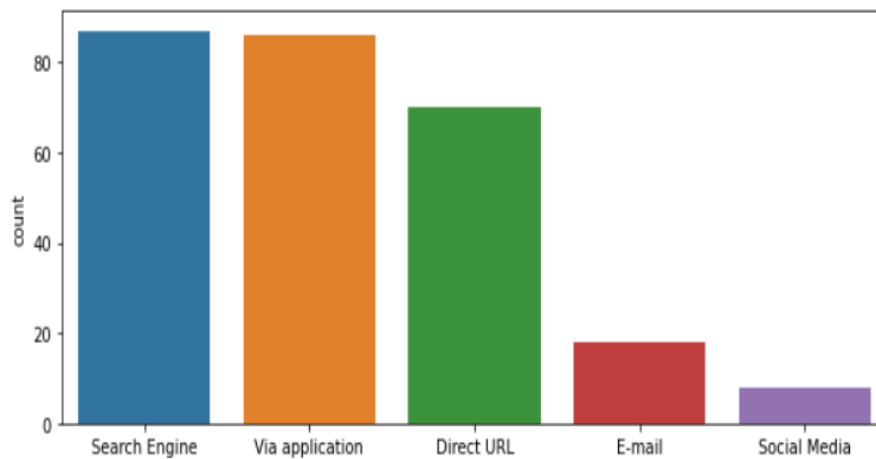
Name: 12 Which channel did you follow to arrive at your favorite online store for the first time?
, dtype: int64



12 Which channel did you follow to arrive at your favorite online store for the first time?

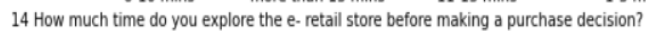
```
Search Engine      87
Via application     86
Direct URL          70
E-mail             18
Social Media        8
```

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

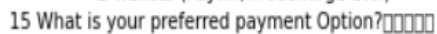


13 After first visit, how do you reach the online retail store?[]


```
Name: 14 How much time do you explore the e- retail store before making a purchase decision?
, dtype: int64
```

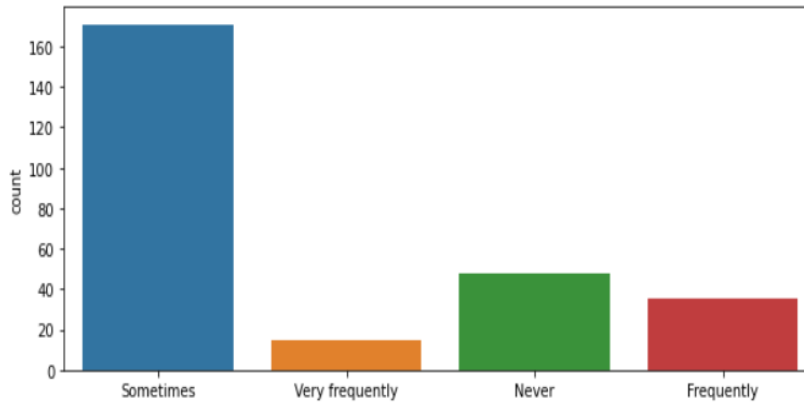


```
Name: 15 What is your preferred payment Option?\t\t\t\t\t
, dtype: int64
```



Sometimes	171
Never	48
Frequently	35
Very frequently	15

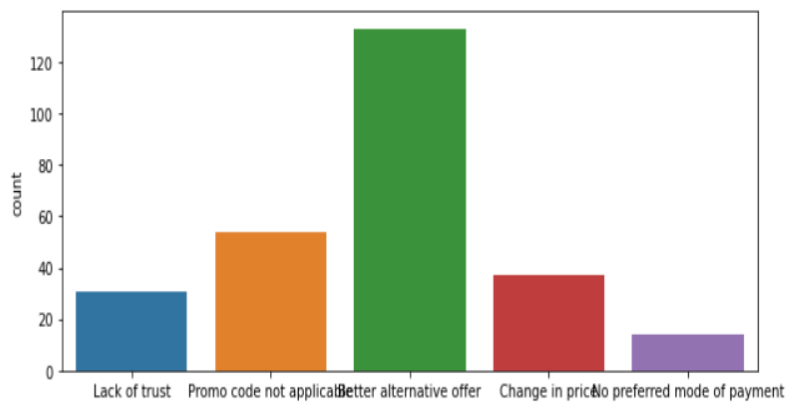
Name: 16 How frequently do you abandon (selecting an items and leaving without making payment) your shopping cart?
 \t , dtype: int64



16 How frequently do you abandon (selecting an items and leaving without making payment) your shopping cart?□□□□□□

Better alternative offer	133
Promo code not applicable	54
Change in price	37
Lack of trust	31
No preferred mode of payment	14

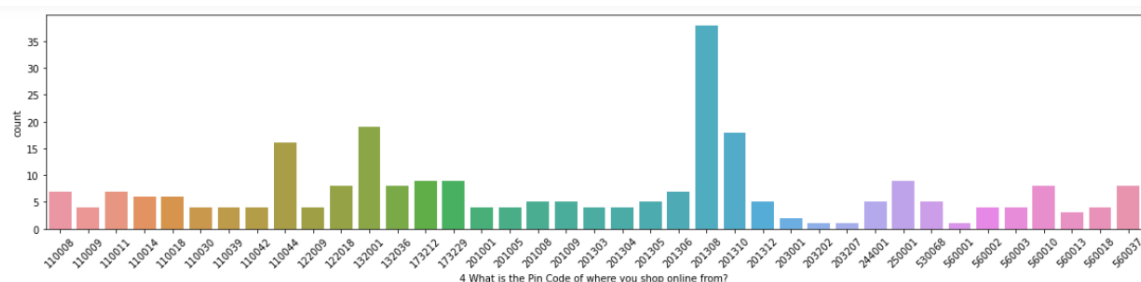
Name: 17 Why did you abandon the "Bag", "Shopping Cart"?
 \t\t\t\t\t , dtype: int64



17 Why did you abandon the "Bag", "Shopping Cart"?□□□□□

Conclusions:

1. 80% of the people are within age group 31-40 years, 80% (approx.) of the people are within age group 21-30 years and 72% (approx.) of people are within age group 41-50 years. so we can say that 70-80% (approx.) people lie within age group of 21-50 years. 20% (approx.) of people lie within range of less than 20 years or more than 50 years old.
2. Cities like Delhi, Greater Noida, Noida and Bangalore have the maximum number of online shoppers.
3. Maximum number of customers have been using Online Shopping platforms for more than 4 years.
4. The maximum purchases made in past 1 year by the customers are less than 10 times as compared to 31-40 times and 41 times and above.
5. The maximum customers (142) use Mobile internet for online shopping.
6. Maximum customers are using Smartphones and then some are using laptops but very few people are using tablets for shopping.
7. Most of customer screen size of mobile lies in others range and then customers use 5.5 screen size mobile for shopping.
8. The maximum number of customers are using Window/mobile as operating system for online shopping.
9. Maximum customers use Google Chrome as the browser for online shopping.
10. Search Engines are the most used channel which they follow to arrive at their favourite online store for first time.
11. After the first visit, most of customer reach the online store through search engine.
12. Most people take purchase decision after spending more than 15 minutes.
13. Credit/Debit cards are the most used mode of payment option.
14. Maximum people abandon the items in cart 'sometimes' as opposed to never or frequently.
15. The biggest reason to abandon the "bag", "Shopping Cart" is that they get a 'Better alternative offer'.



```
] : df['4 What is the Pin Code of where you shop online from?'].value_counts().head()
```

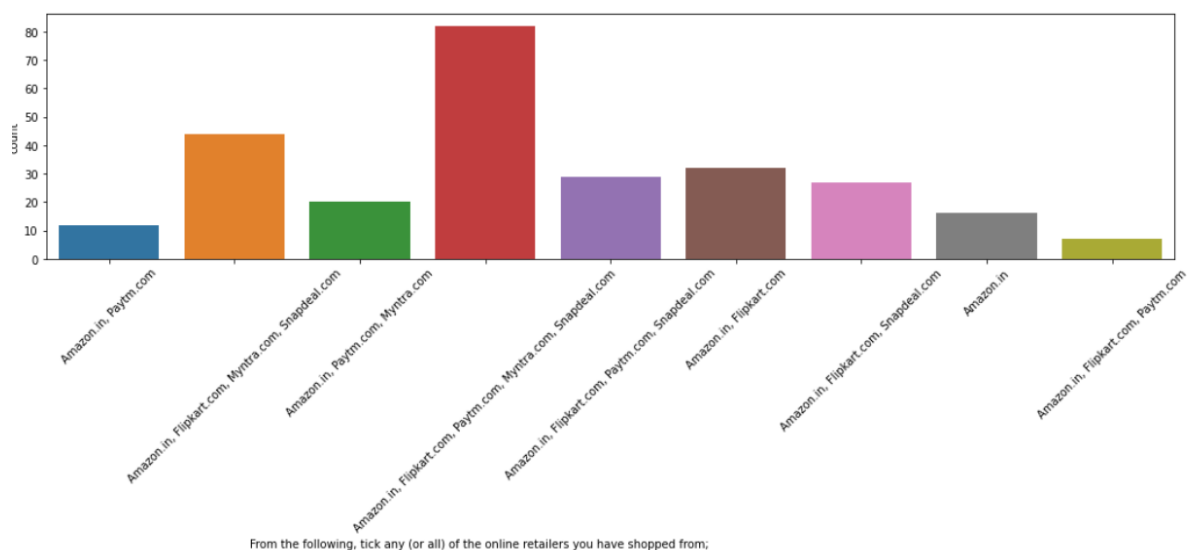
```
] : 201308    38
    132001    19
    201310    18
    110044    16
    173212     9
    Name: 4 What is the Pin Code of where you shop online from?, dtype: int64
```

from the plot we can see that "Pin Code: 201308" has the Most Number of buyers followed by 132001, 201310 and 110044.

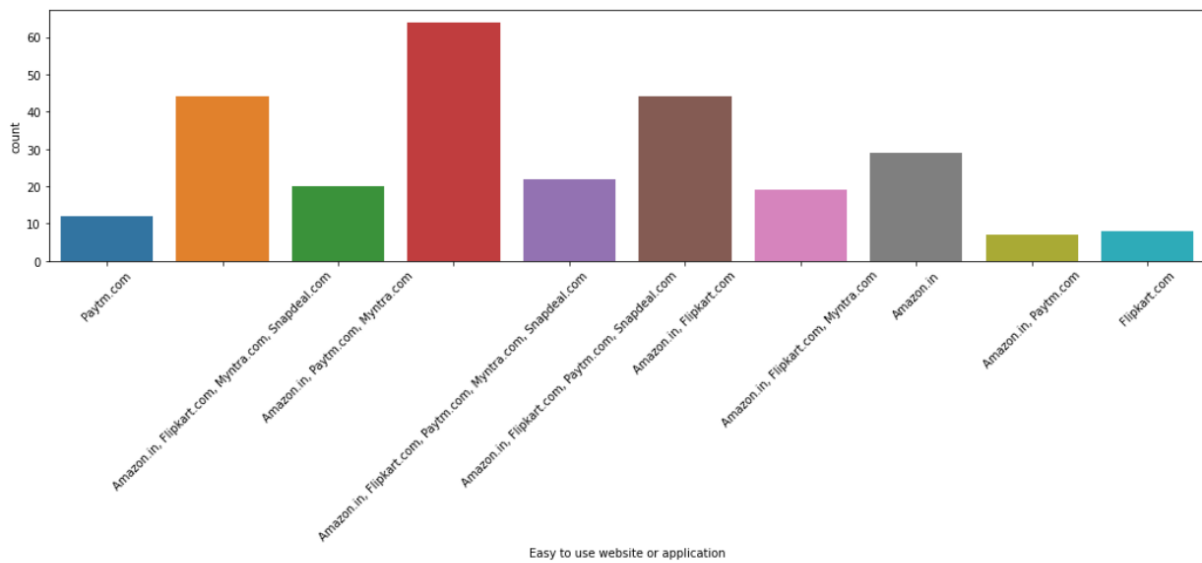
Now, we'll see the company name specific parameters

Questions and their responses in frequencies.

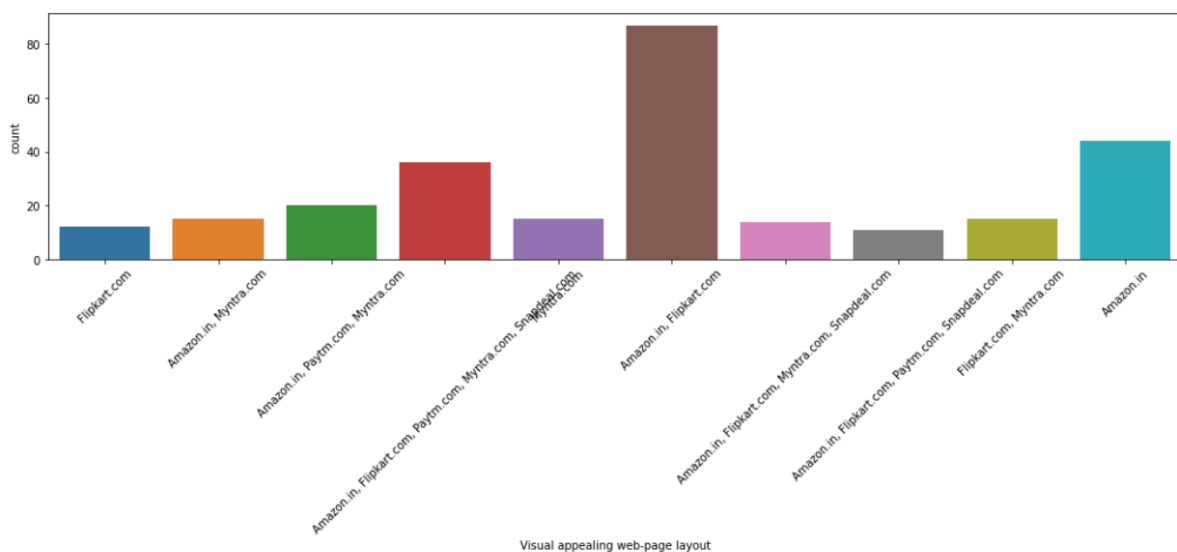
Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com	82
Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com	44
Amazon.in, Flipkart.com	32
Amazon.in, Flipkart.com, Paytm.com, Snapdeal.com	29
Amazon.in, Flipkart.com, Snapdeal.com	27
Amazon.in, Paytm.com, Myntra.com	20
Amazon.in	16
Amazon.in, Paytm.com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



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	

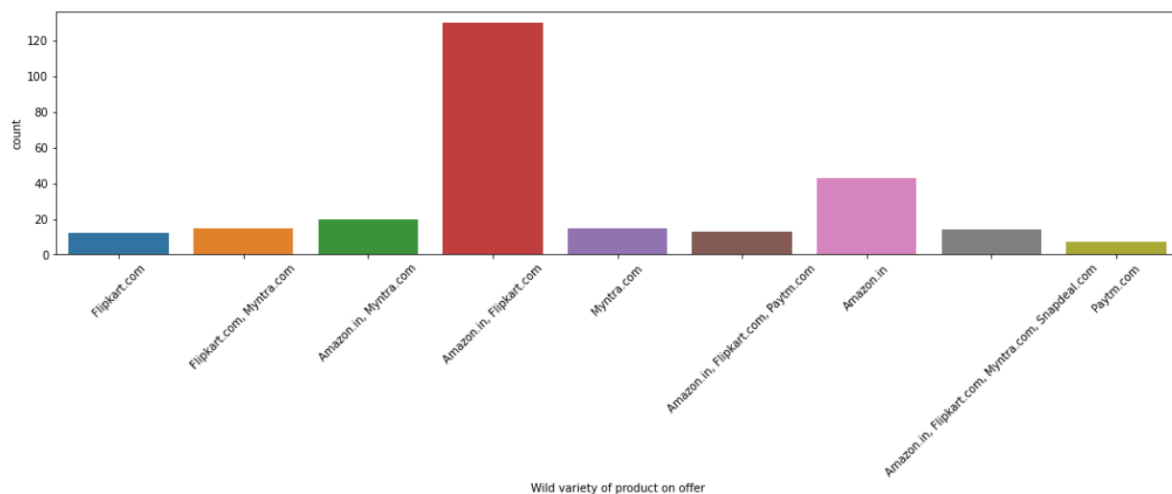


Amazon.in, Flipkart.com 87
 Amazon.in 44
 Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com 36
 Amazon.in, Paytm.com, Myntra.com 20
 Amazon.in, Myntra.com 15
 Flipkart.com, Myntra.com 15
 Myntra.com 15
 Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com 14
 Flipkart.com 12
 Amazon.in, Flipkart.com,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



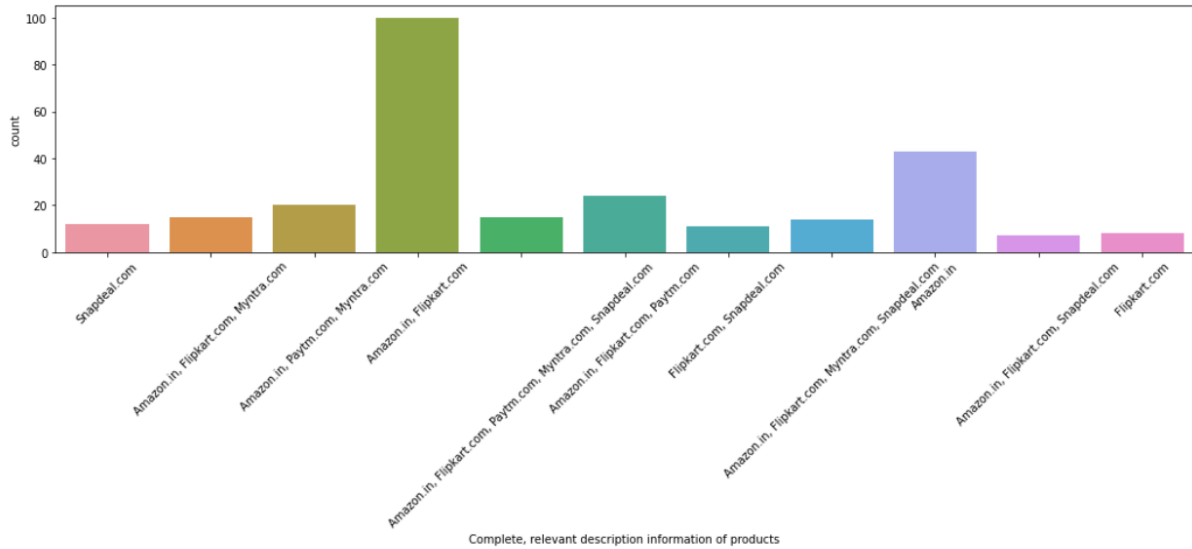
Amazon.in, Flipkart.com	130
Amazon.in	43
Amazon.in, Myntra.com	20
Flipkart.com, Myntra.com	15
Myntra.com	15
Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com	14
Amazon.in, Flipkart.com, Paytm.com	13
Flipkart.com	12
Paytm.com	7

Name: Wild variety of product on offer, dtype: int64



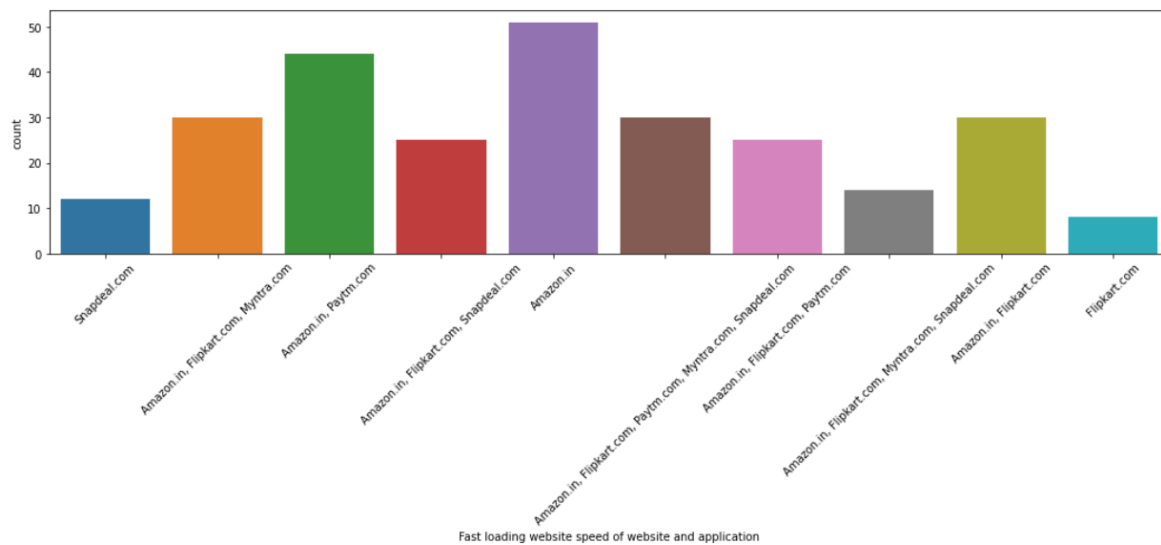
Amazon.in, Flipkart.com	100
Amazon.in	43
Amazon.in, Flipkart.com, Paytm.com	24
Amazon.in, Paytm.com, Myntra.com	20
Amazon.in, Flipkart.com, Myntra.com	15
Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com	15
Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com	14
Snapdeal.com	12
Flipkart.com, Snapdeal.com	11
Flipkart.com	8
Amazon.in, Flipkart.com, Snapdeal.com	7

Name: Complete, relevant description information of products, dtype



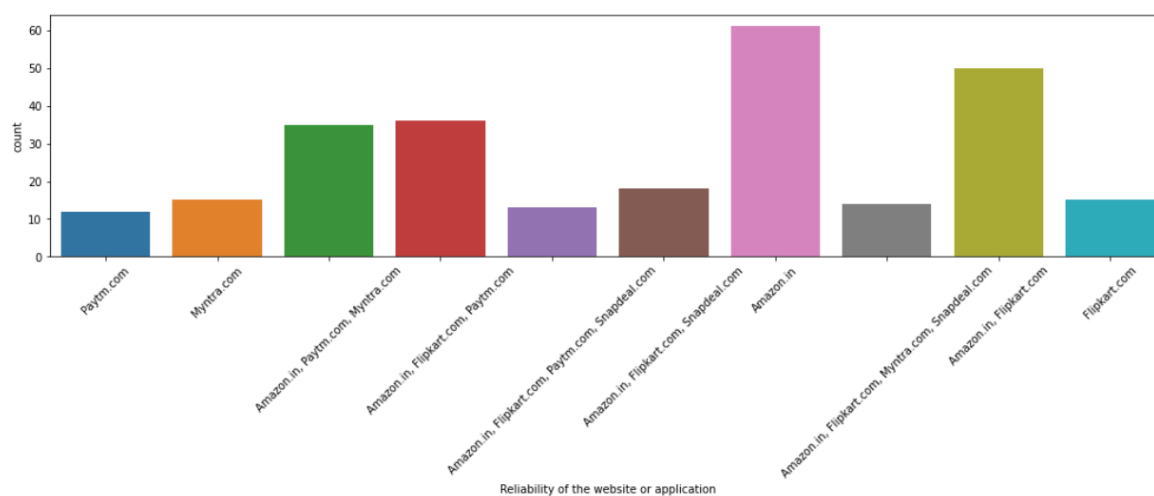
Amazon.in	51
Amazon.in, Paytm.com	44
Amazon.in, Flipkart.com, Myntra.com	30
Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com	30
Amazon.in, Flipkart.com	30
Amazon.in, Flipkart.com, Snapdeal.com	25
Amazon.in, Flipkart.com, Paytm.com	25
Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com	14
Snapdeal.com	12
Flipkart.com	8

Name: Fast loading website speed of website and application, dtype:



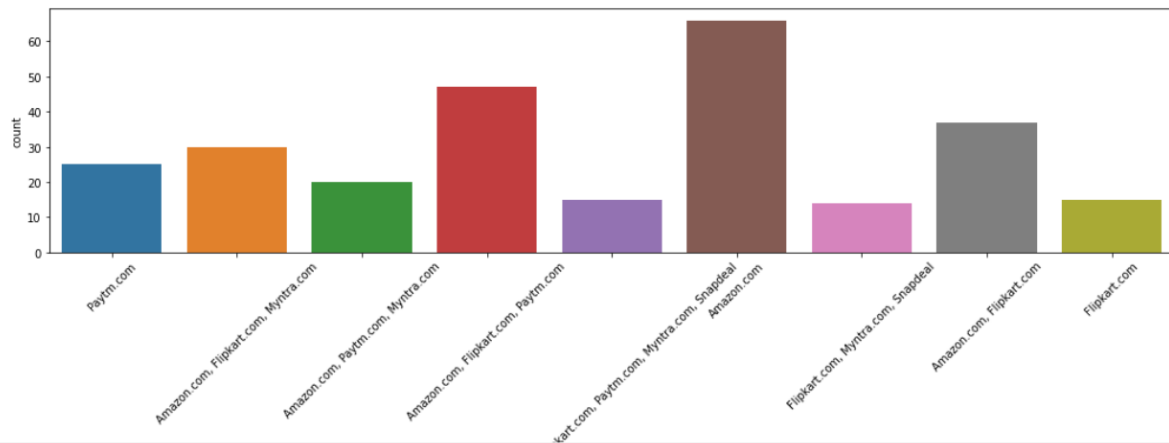
Amazon.in	61
Amazon.in, Flipkart.com	50
Amazon.in, Flipkart.com, Paytm.com	36
Amazon.in, Paytm.com, Myntra.com	35
Amazon.in, Flipkart.com, Snapdeal.com	18
Flipkart.com	15
Myntra.com	15
Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com	14
Amazon.in, Flipkart.com, Paytm.com, Snapdeal.com	13
Paytm.com	12

Name: Reliability of the website or application, dtype:



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

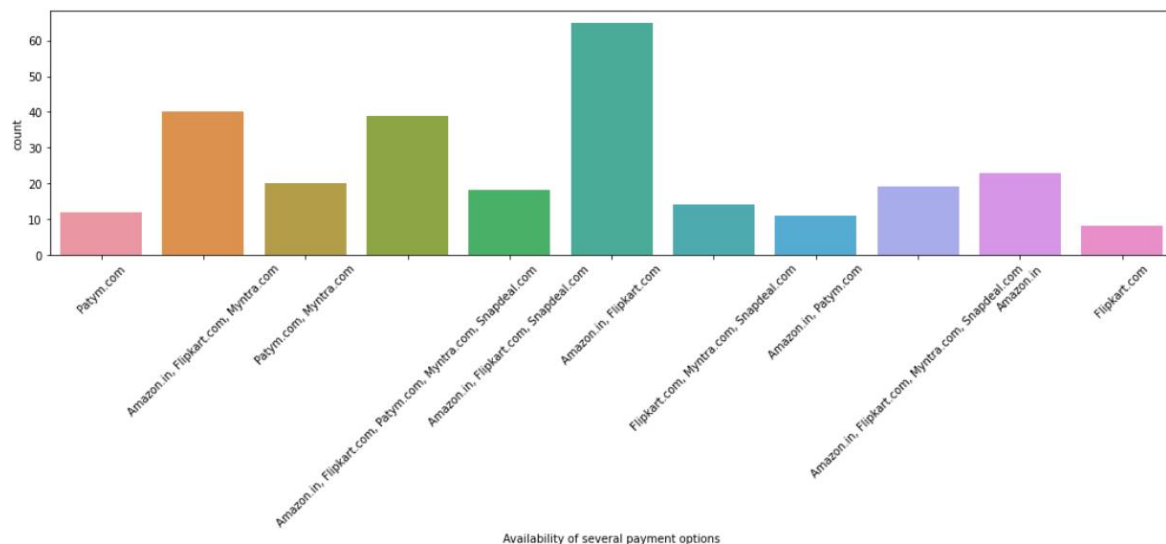
Name: Quickness to complete purchase, dtype: int64



```

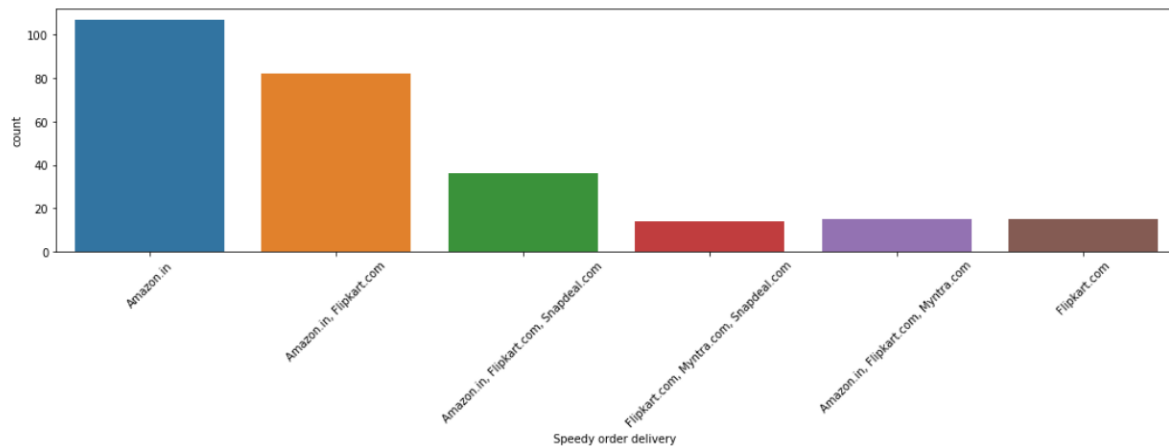
Amazon.in, Flipkart.com 65
Amazon.in, Flipkart.com, Myntra.com 40
Amazon.in, Flipkart.com, Patym.com, Myntra.com, Snapdeal.com 39
Amazon.in 23
Patym.com, Myntra.com 20
Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com 19
Amazon.in, Flipkart.com, Snapdeal.com 18
Flipkart.com, Myntra.com, Snapdeal.com 14
Patym.com 12
Amazon.in, Patym.com 11
Flipkart.com 8
Name: Availability of several payment options, dtype: int64

```



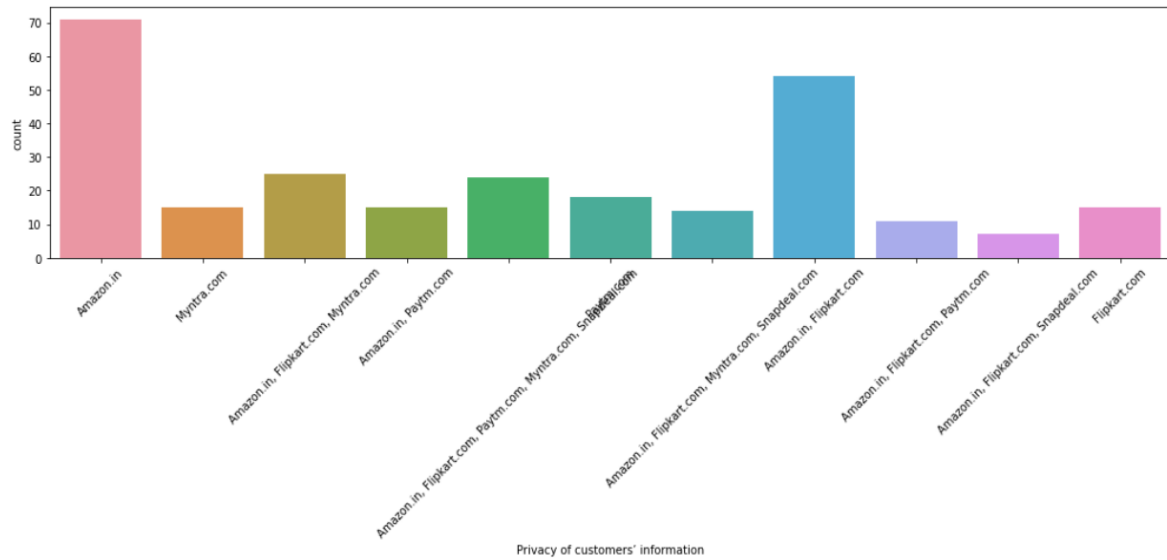
Amazon.in	107
Amazon.in, Flipkart.com	82
Amazon.in, Flipkart.com, Snapdeal.com	36
Flipkart.com	15
Amazon.in, Flipkart.com, Myntra.com	15
Flipkart.com, Myntra.com, Snapdeal.com	14

Name: Speedy order delivery , 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
Amazon.in, Paytm.com	15
Myntra.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

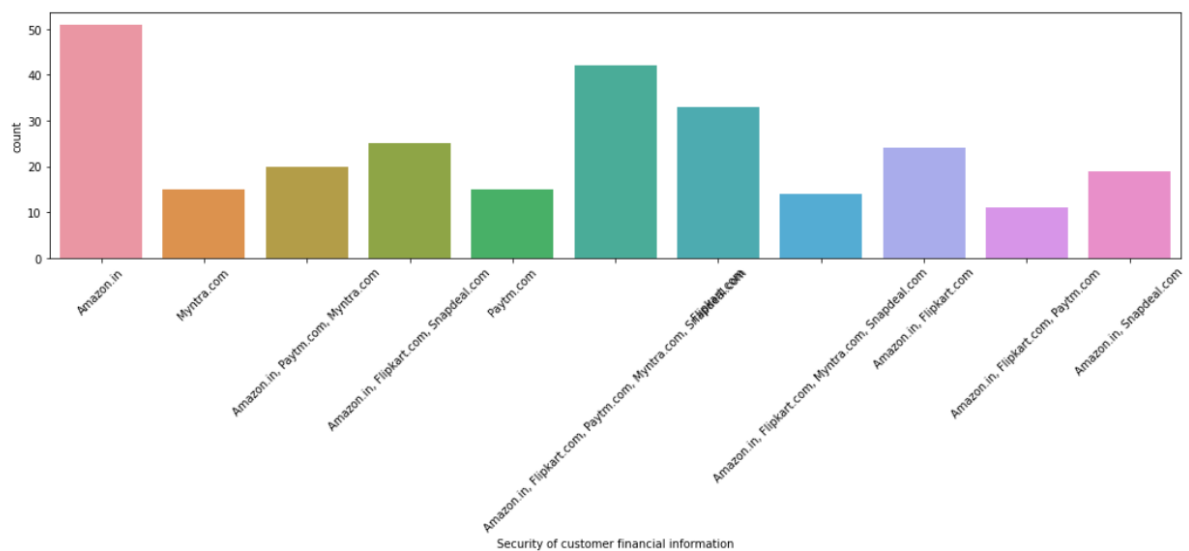
Name: Privacy of customers' information, dtype: int64



```

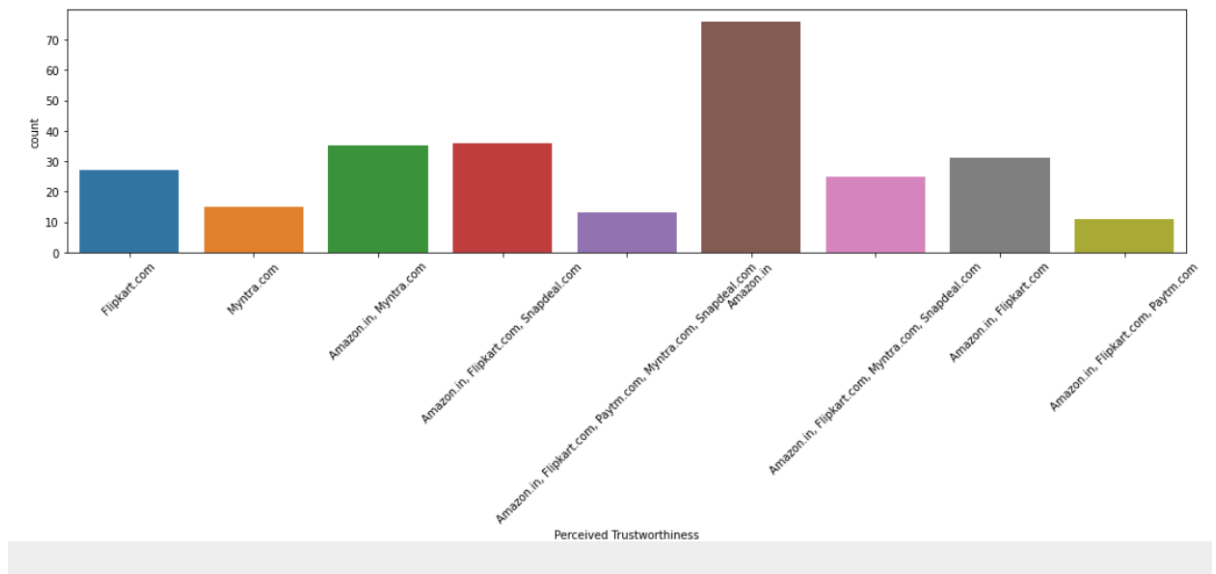
Amazon.in 51
Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com 42
Flipkart.com 33
Amazon.in, Flipkart.com, Snapdeal.com 25
Amazon.in, Flipkart.com 24
Amazon.in, Paytm.com, Myntra.com 20
Amazon.in, Snapdeal.com 19
Paytm.com 15
Myntra.com 15
Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com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

```



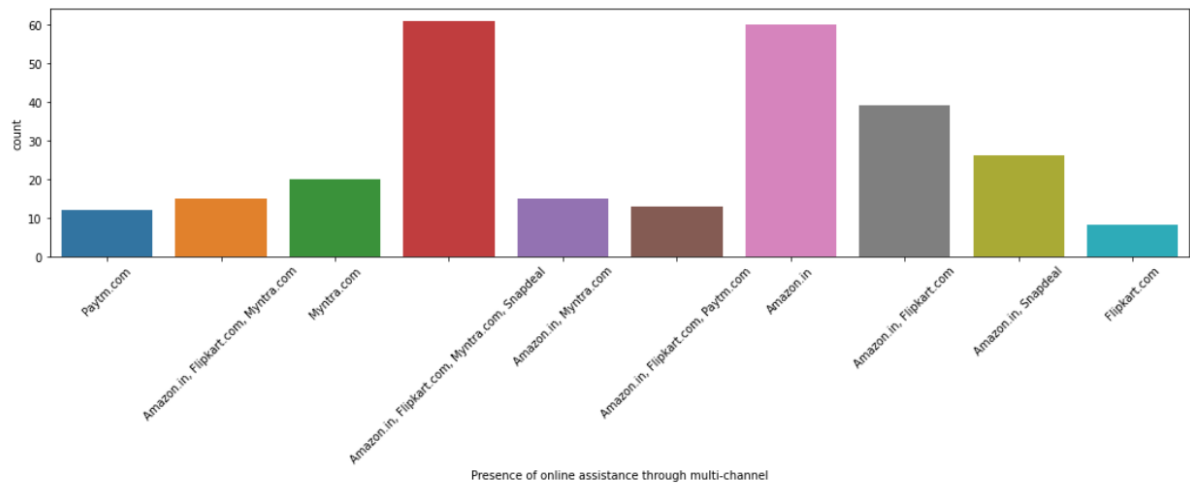
Amazon.in	76
Amazon.in, Flipkart.com, Snapdeal.com	36
Amazon.in, Myntra.com	35
Amazon.in, Flipkart.com	31
Flipkart.com	27
Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com	25
Myntra.com	15
Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com	13
Amazon.in, Flipkart.com, Paytm.com	11

Name: Perceived Trustworthiness, dtype: int64



Amazon.in, Flipkart.com, Myntra.com, Snapdeal	61
Amazon.in	60
Amazon.in, Flipkart.com	39
Amazon.in, Snapdeal	26
Myntra.com	20
Amazon.in, Myntra.com	15
Amazon.in, Flipkart.com, Myntra.com	15
Amazon.in, Flipkart.com, Paytm.com	13
Paytm.com	12
Flipkart.com	8

Name: Presence of online assistance through multi-channel



Amazon.in	57
Paytm.com	38
Amazon.in, Flipkart.com	38
Myntra.com	35
Amazon.in, Flipkart.com, Snapdeal.com	29
Snapdeal.com	25
Flipkart.com, Paytm.com	15
Flipkart.com, Paytm.com, Snapdeal.com	13
Amazon.in, Paytm.com	11
Flipkart.com	8

Name: Longer time to get logged in (promotion, sales period)

Amazon.in, Flipkart.com	60
Amazon.in	39
Myntra.com	35
Snapdeal.com	34
Myntra.com, Snapdeal.com	25
Flipkart.com, Snapdeal.com	19
Flipkart.com	15
Paytm.com	15
Amazon.in, Myntra.com, Snapdeal.com	14
Amazon.in, Paytm.com	13

Name: Longer time in displaying graphics and photos (promotion, sales period)

Myntra.com	75
Paytm.com	52
snapdeal.com	41
Flipkart.com	38
Amazon.in	38
Amazon.in, Paytm.com	13
Paytm.com, snapdeal.com	7
Amazon.in, Flipkart.com	5

Name: Late declaration of price (promotion, sales period)

Myntra.com	61
Paytm.com	59
Flipkart.com	59
Snapdeal.com	87
Amazon.in	62
Flipkart.com	31
Amazon.in, Flipkart.com	29
Paytm.com	25
Paytm.com, Snapdeal.com	15
Amazon.in, Paytm.com	13
Myntra.com, Snapdeal.com	7

Name: Limited mode of payment on most products (promotion, sales period)

Paytm.com	72
Snapdeal.com	64
Flipkart.com	44
Amazon.in	37
Paytm.com, Snapdeal.com	26
Myntra.com	26

Name: Longer delivery period,

Amazon.in	53
Myntra.com	52
Snapdeal.com	49
Paytm.com	39
Flipkart.com	26
Amazon.in, Flipkart.com	25
Myntra.com, Snapdeal.com	14
Flipkart.com, Snapdeal.com	11

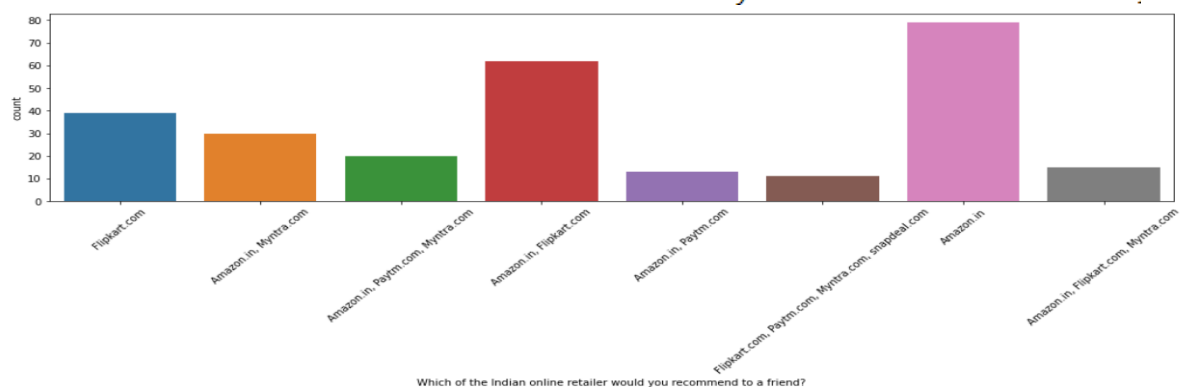
Name: Frequent disruption when moving from one page to another.

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,

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?



CONCLUSIONS:

1. Maximum people have shopped from the following 5 companies - Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com.
2. Most people find Easy to use website or application are - Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com
Also, Amazon.com and Flipkart.com are the best choices.
3. In terms of Visual appealing web-page layout also, Amazon.com and Flipkart.com are the best choices.
4. Talking about Wide variety of product on offer: Amazon.com and Flipkart.com are the major choices.
5. Complete, relevant description information of products: Once again, maximum people have chosen to go with mazon.com and Flipkart.com
6. Fast loading website speed of website and application: Amazon seems to take the lead in this category, although paytm and Flipkart are not far behind.
7. Reliability of the website or application: Amazon seems to take the lead in this category too, although Flipkart and paytm are not far behind.
8. Quickness to complete purchase: Amazon seems to take the lead in this category too, although Flipkart and paytm are not far behind.
9. Availability of several payment options: Here, Amazon and Flipkart, both are the favourites. Although a lot of people also tend to go towards Myntra
10. Speedy order delivery: Amazon seems to take the lead in this category too, followed by Flipkart.
11. Privacy of customers' information: Amazon has a good reputation for maintaining privacy, followed by Flipkart
12. Security of customer financial information: Here other than Amazon and Flipkart, Paytm.com, Myntra.com, Snapdeal.com are also trusted by a lot of people. This shows that all compamnies pay special attention to security.
13. Perceived Trustworthiness: Amazon and Flipkart are winners here as well. Although Myntra.com and Snapdeal.com are also not far behind.
14. Presence of online assistance through multi-channel: Amazon.in, Flipkart.com, Myntra.com, Snapdeal
15. Longer time to get logged in (promotion, sales period): Amazon, paytm
16. Longer time in displaying graphics and photos (promotion, sales period): Amazon.in, Flipkart.com
17. Late declaration of price: Myntra, Paytm, Snapdeal. These companies should work on this area to improve.
18. Longer page loading time (promotion, sales period): Myntra and Paytm have bad feedback in this. Flipkart should also have a look into it, as it is at the 3rd place.
19. Limited mode of payment on most products (promotion, sales period): Snapdeal is the most voted answer for this.
20. Longer delivery period: Paytm and Snapdeal need to shorten their delivery time.
21. Change in website/Application design: Amazon.in
22. Frequent disruption when moving from one page to another: Amazon.in
23. Website is as efficient as before: Amazon.in
24. Which of the Indian online retailer would you recommend to a friend?: Amazon/Flipkart

Conclusion:

--> High Customer Satisfaction and Retention:

1. Amazon.com
2. Flipkart.com

--> High Risk of Customer Churn:

1. Myntra.com
2. Snapdeal.com