FLIP ROBO

Customer Retention Project

Submitted by:

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ACKNOWLEDGMENT

I would like to thank FlipRobo 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. Sajid Choudhary for his constant guidance. Some of the reference sources are as follows:

➢ Stack Overflow
➢ Medium.com
➢ scikit-learn.org
➢ Python official documentation

INTRODUCTION

- ## Business Problem Framing

  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.
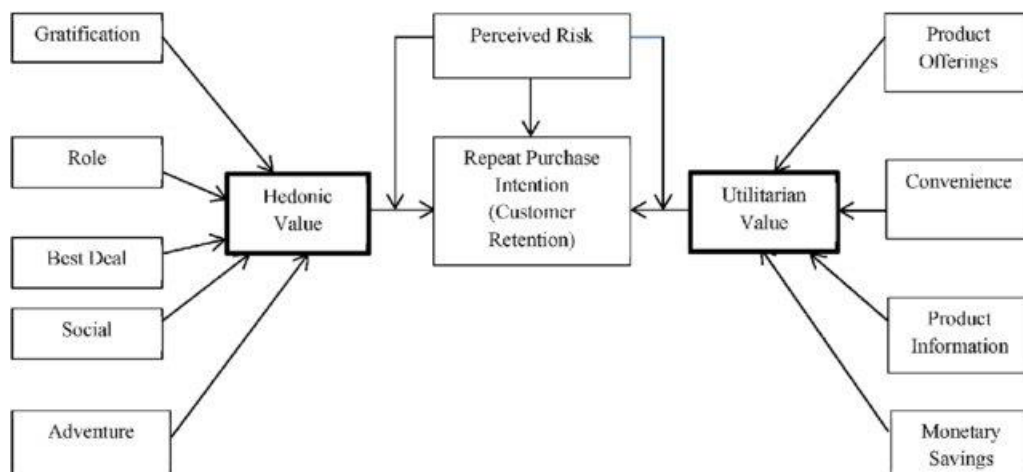
- # Conceptual Background of the Domain Problem

In today's challenging economy and competitive business world, retaining their customer base is critical to organization success.

If the company doesn't give their customer some good reason to stay, organization's competitors will give the customer a reason to leave. Customer retention and customer satisfaction drive profits. It's far less expensive to cultivate organization existing customer base and sell more service to the customer than it to seek new, single-transaction customers.

A customer-focused approach among its employees is still not present. In this era of intense competition. It is especially important for any service company to understand that merely acquiring customer is not sufficient because there is a direct link between customer retention over time and profitability & growth. Customer retention to a great extent depends on service quality and customer satisfaction. Complaints are natural part of any service activity as mistakes are an unavoidable feature of all human endeavoured thus also of service recovery.

Service recovery is the process of putting things right after something goes wrong in the service delivery. Customer retention is the maintenance of continuous trading relationships with customers over the long term. Customer retention is the mirror image of customer defection. High retention is equivalent to low defection. In an industry where there are multiple purchases over the years, organization's entire team should be very focused on retaining those customers.

- # Review of Literature

  - A comprehensive review of the literature, theories and models have been carried out to propose the models for customer activation and customer retention.

  - 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.

  - Retention rate is normally calculated as the number of customers who have been lost over a period, usually calculated over a quarterly or annual period. The key is to calculate the percentage versus existing customers, and not underestimate the loss rate by tallying new customer acquisitions into the mix. The customer retention rate refers to the number of customers lost over a period of time. It is normally calculated by the percentage of lost customer versus existing customers over a quarterly or annual period, without tallying new customer acquisitions. While there are obvious benefits to keeping customers loyal and maintaining retention rates, it can be extremely challenging for management to keep retention rates up. Some companies can measure retention rate using their CRM system, since any of the vendor with solid sales modules should offer this capability.

- # Motivation for the Problem Undertaken

To acquire a customer a company incurs promotional costs like advertising, sales promotion etc. It is said that it costs five times more to attract a new customer than retaining one. The operating cost decrease when a customer stay. Service being rich in experience and credence qualities, it takes some time for customers to get accustomed to it and once they are used to the service and are satisfied with the service provider, they tend to purchase more over a period.

Considering the importance of retaining customers in service business, Reichheld & Sasser coined a term 'Zero Defection'. They highlighted that companies can boost profits by almost 100% by retaining just 5% more of their customers.

- # Hardware and Software Requirements and Tools Used

  - 1. Python – Jupyter Notebook for notebook environment to view better results
  - 2. Pandas – Manipulating the dataset by using info, crosstab, head
  - 3. Numpy – Numerical operations on the provided dataset
  - 4. Scipy.stats module - Chi2 test to test the relation between the variable
  - 5. Seaborn – Histograms (histplot), count plot to understand the data distribution visually.

Model/s Development and Evaluation

The Survey and Population

The Analysis is for the Indian e-commerce websites and the survey was randomly made from the buyers of different states of India. The population data consists of surveys from both male and female buyers with all age ranges, which is used to determine the factors that influence the customer retention rate.
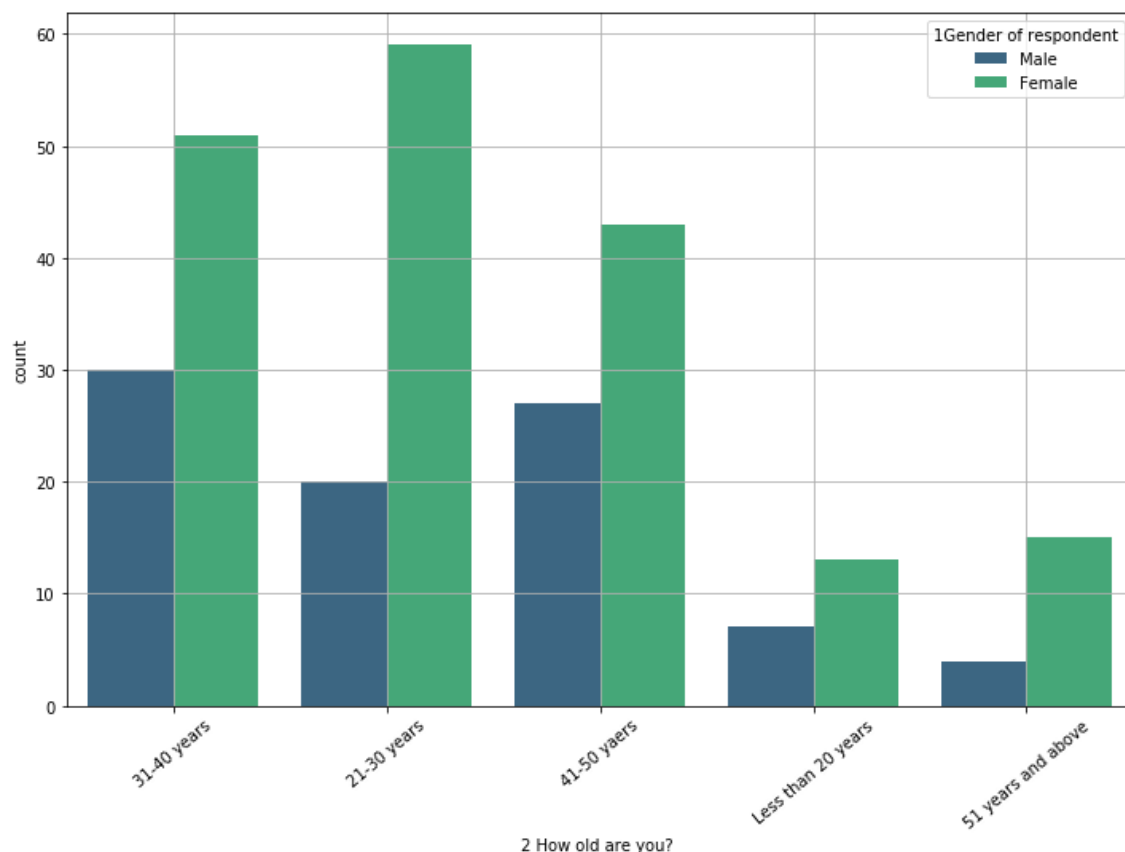
From the previous figure, we can clearly see that the majority of the population is from the age range of 21-50 years and Female are highest in numbers.

Below are the cities the data is collected from.

3 Which city do you shop online from?
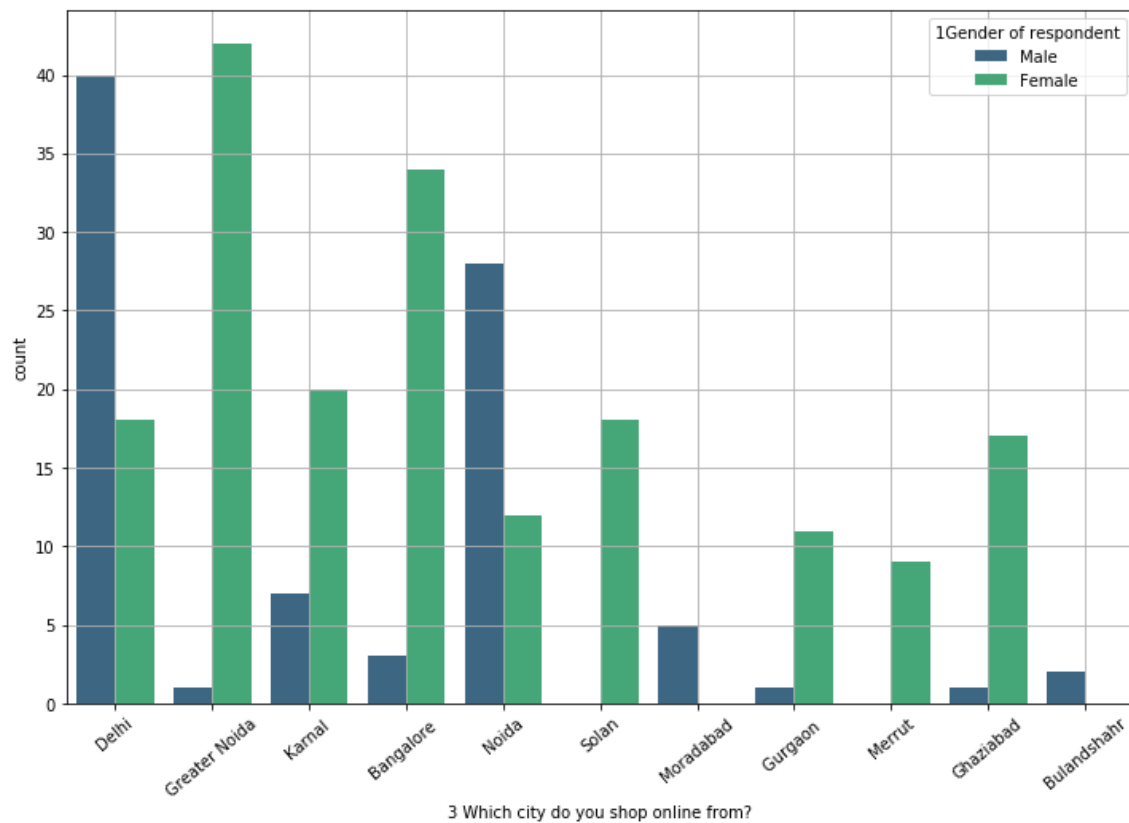
Upon reviewing, the data, we can see that most of the data is collected from Delhi (58), Greater Noida (43) and Noida (40).

Customer expectations to confidently shop online

a. The Content on the website must be easy to read and understand

```
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
```
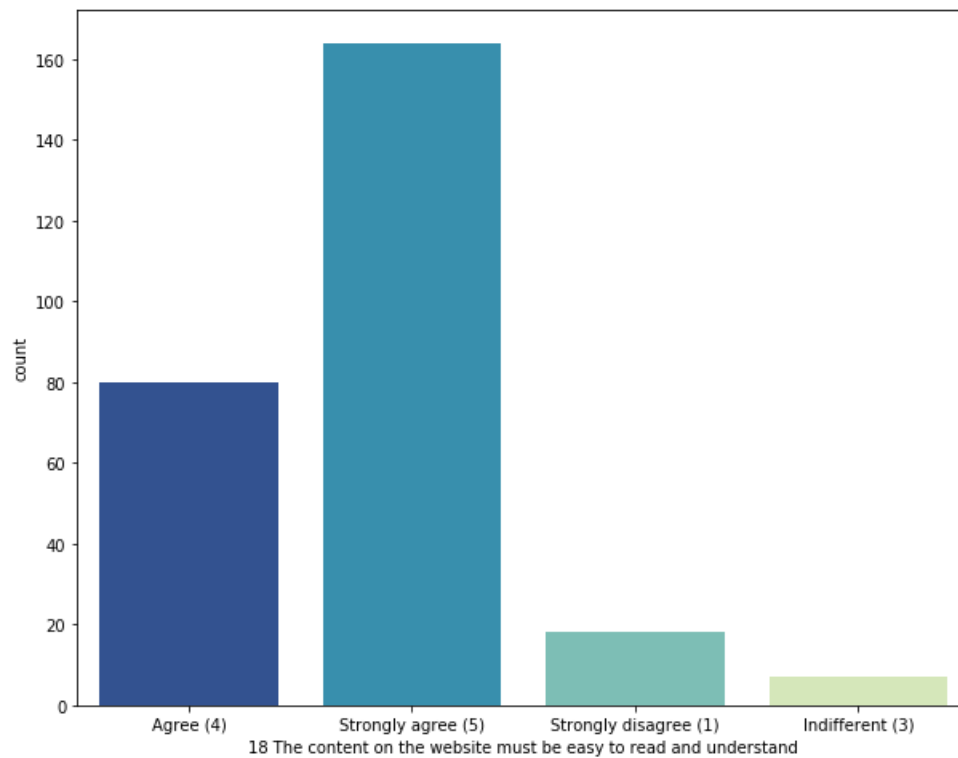

Out of the survey population more than 50% of the buyers agree to the point that website must be easy to read and understand and all information on listed products must be stated clearly.

b. Ease of navigation in website along with loading and processing speed

```
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
```
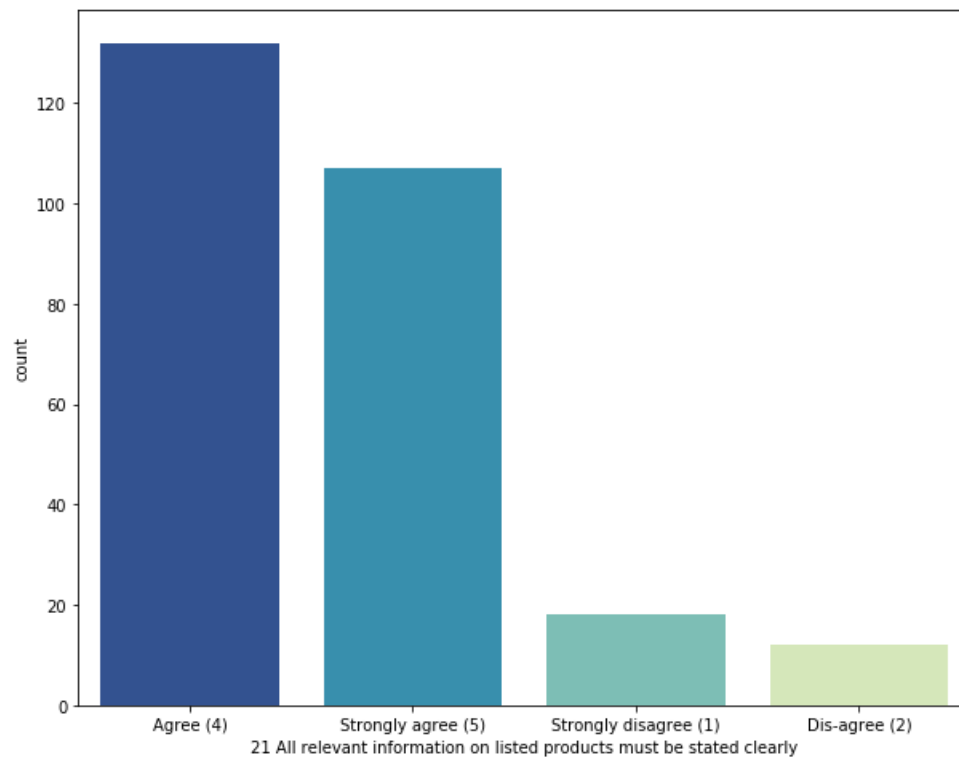

c. User friendly interface and convenient payment methods
   Majority

```
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
```
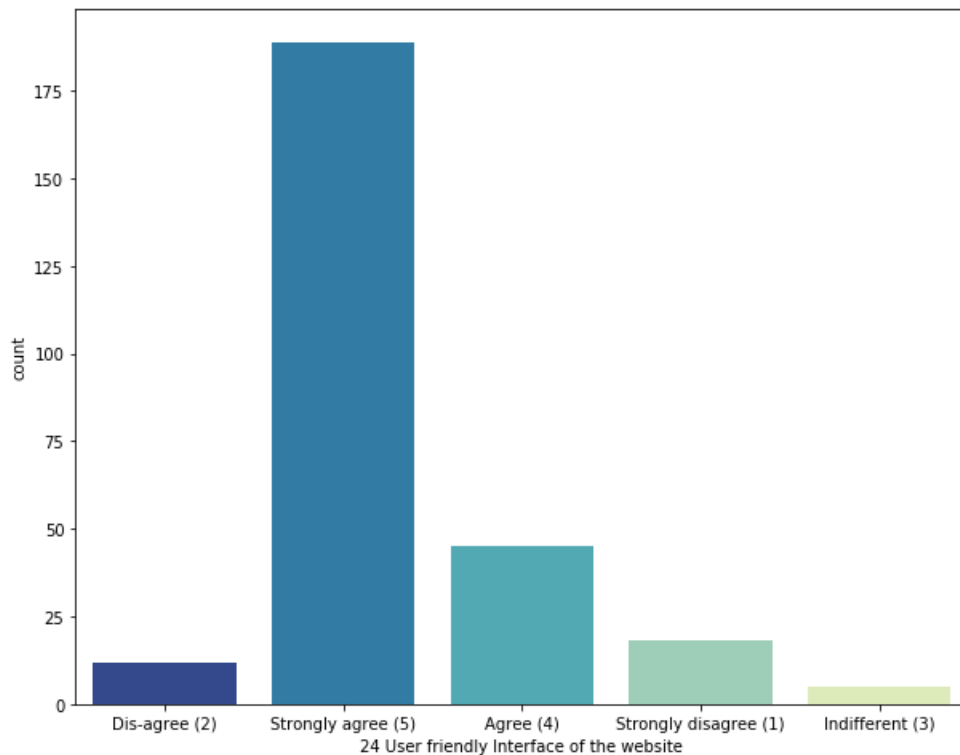

Majority of the customers agree that user friendly interface is necessary to shop online and almost every one strongly agree to the fact that convenient payment methods should be available.

d. Trust that the online retail store will fulfil its part of the transaction at the stipulated time and readiness to assist with queries (customer service)

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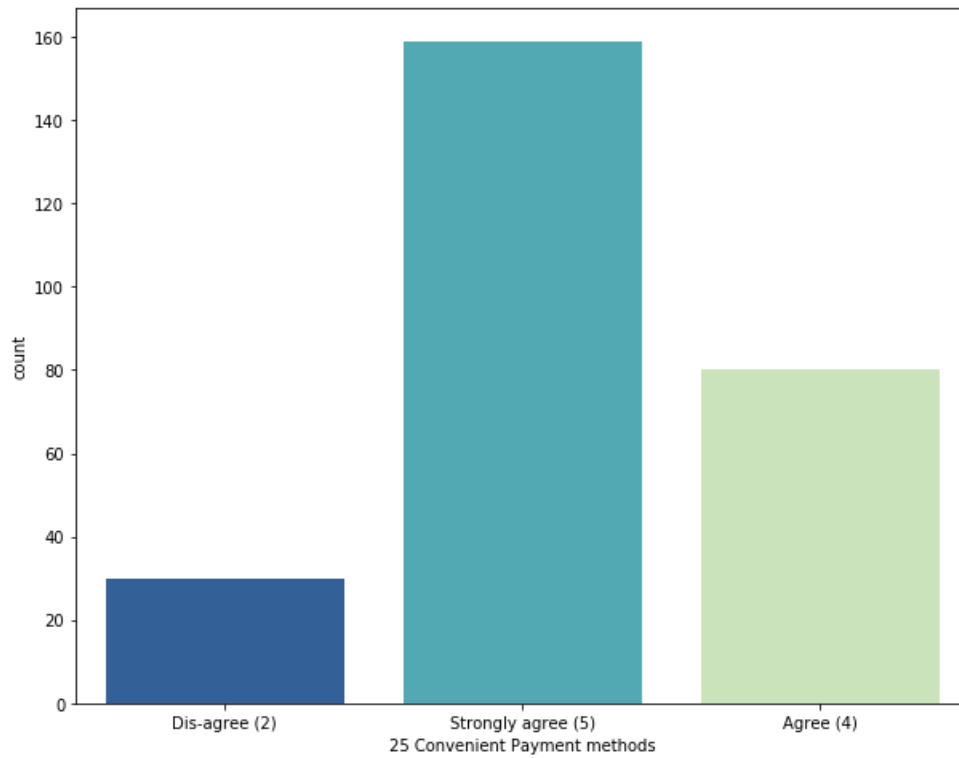

d. Trust that the online retail store will fulfil its part of the transaction at the stipulated time and readiness to assist with queries (customer service)

```
Strongly agree (5)      141
Agree (4)                86
Disagree (2)             30
indifferent  (3)         12
Name: 26 Trust that the online retail store will fulfill its part of the transaction a
```


26 Trust that the online retail store will fulfill its part of the transaction at the stipulated time
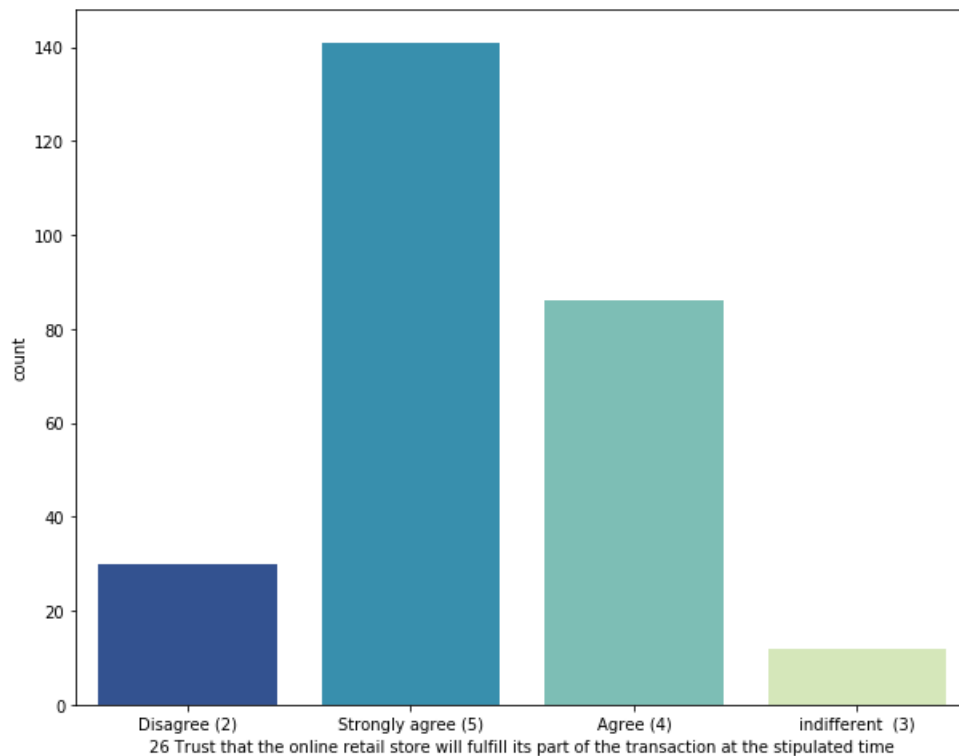
Here trust plays a major role, once the order is placed the e-commerce store will have to fulfil its part of the transaction. I.e., timely updates and delivery of the products on time and more than 60% of the buyers strongly agree.

There cannot be zero margin of error in any business. However once there is some concern with the buyer, the online store should be able to troubleshoot the same with a good customer service team (with empathy).

More than 70% of the buyers agree to the same.

```
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: int6
```
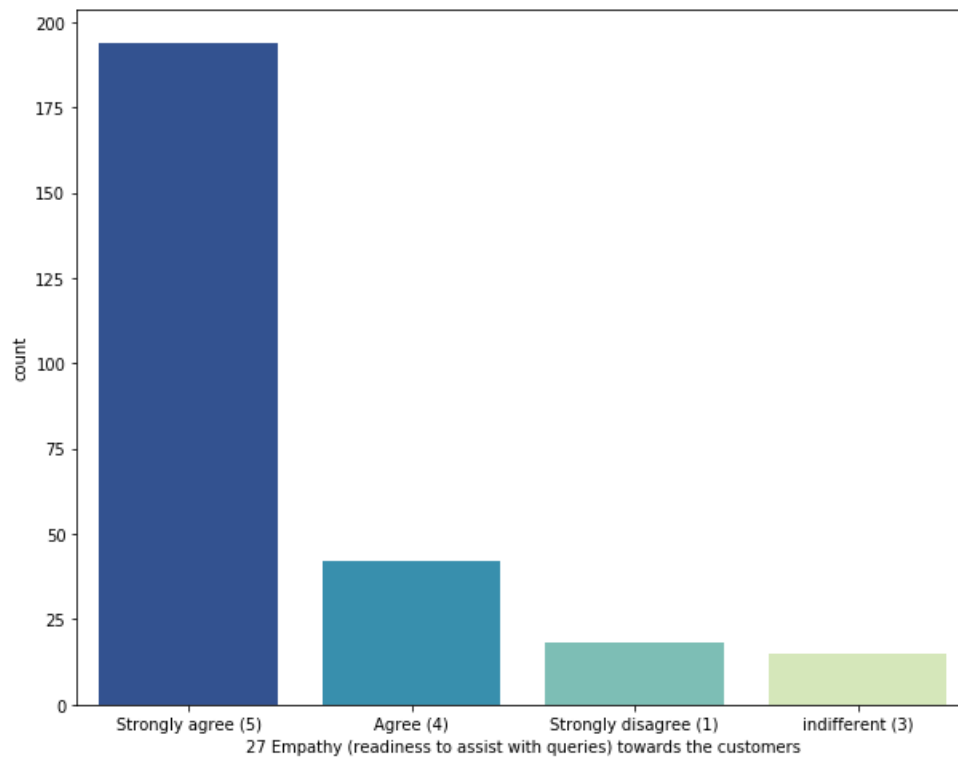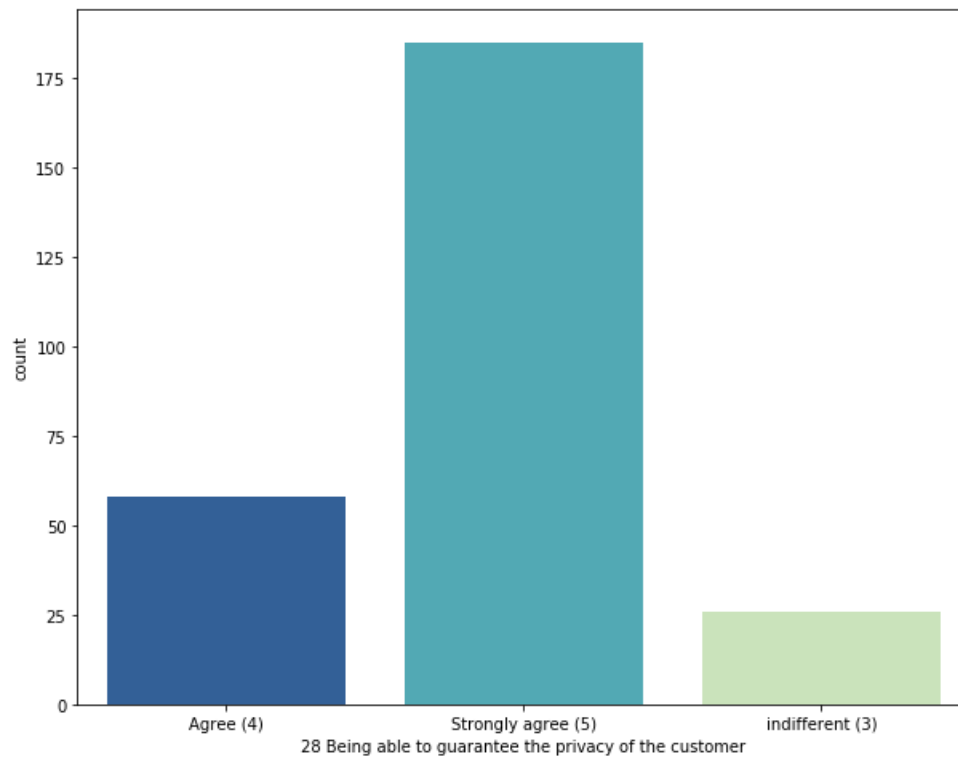

e. Online retail shops should be able to provide complete privacy to its customers.

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


Privacy is the major factor that an online retail store should guarantee its buyers and no one disagrees to the same.

f. Responsiveness, is another major factor that buyer agrees that an e-commerce website should provide to its buyers

```
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
```
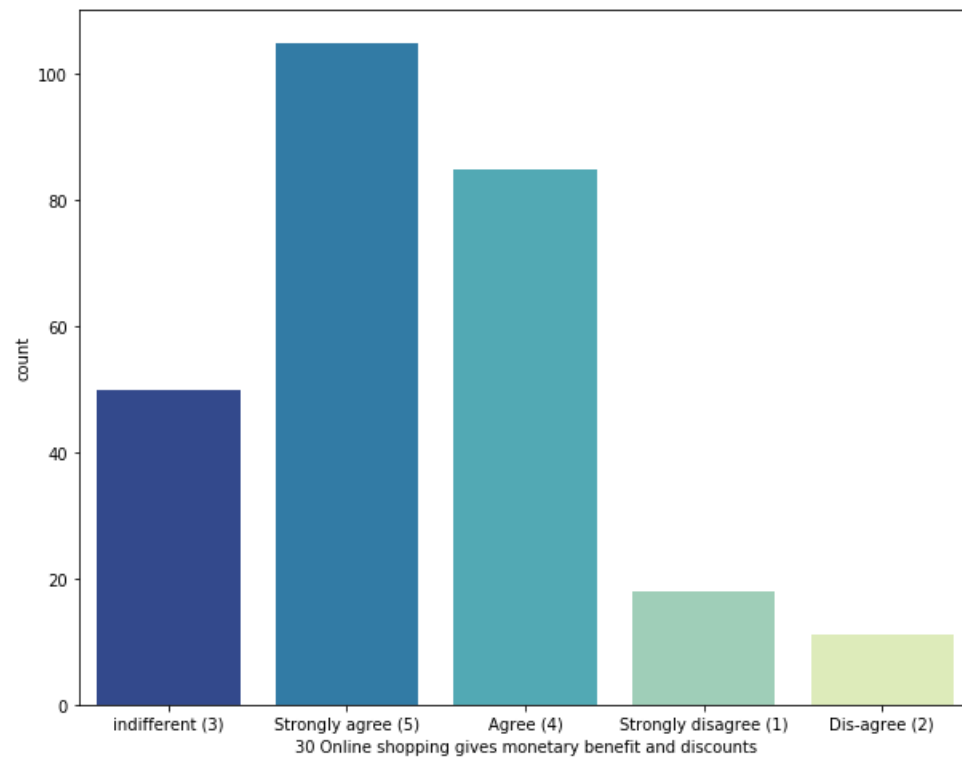

g. Online shopping provides monetary benefits

```
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
```
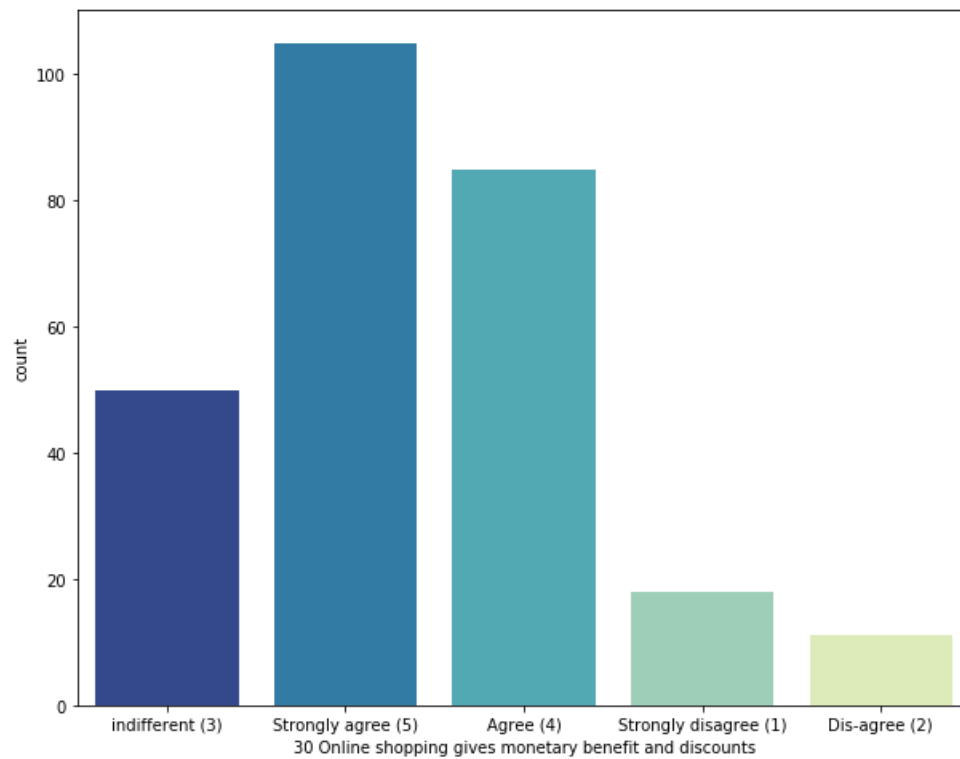

Most of the people agree to the fact that online shopping provides monetary benefits

h. People shop online because it's convenient and flexible and more than 60% buyers agree to it.

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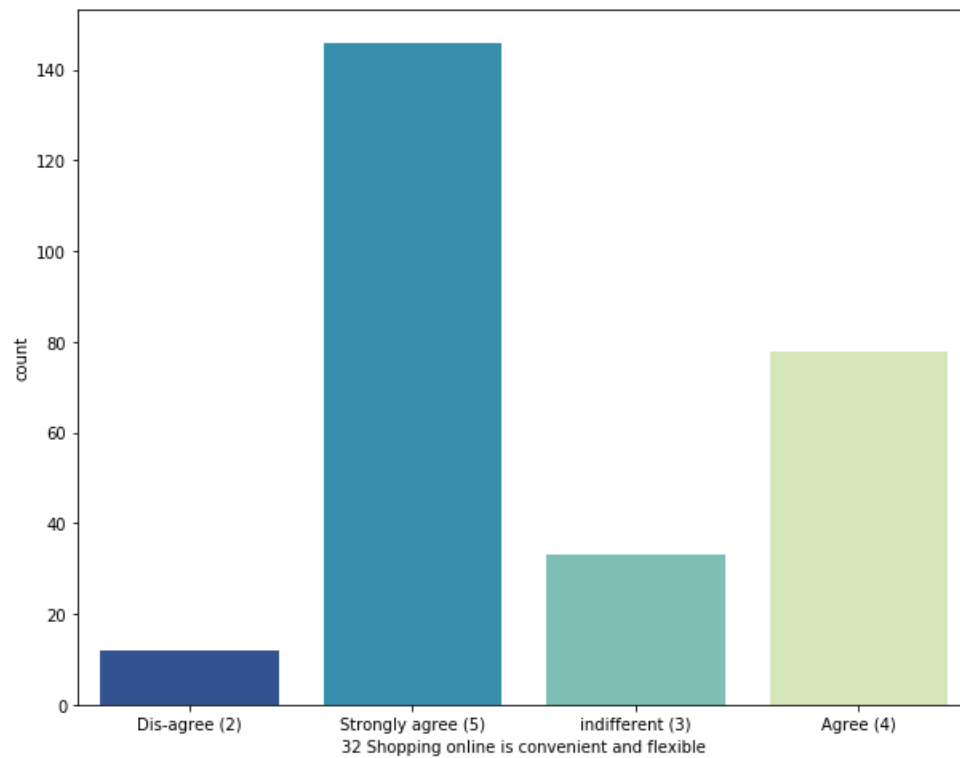

i. Return and replacement policy of the e-tailer is important for purchase decision and no one from the survey dis-agrees to the same.

```
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,
```


33 Return and replacement policy of the e-tailer is important for purchase decision
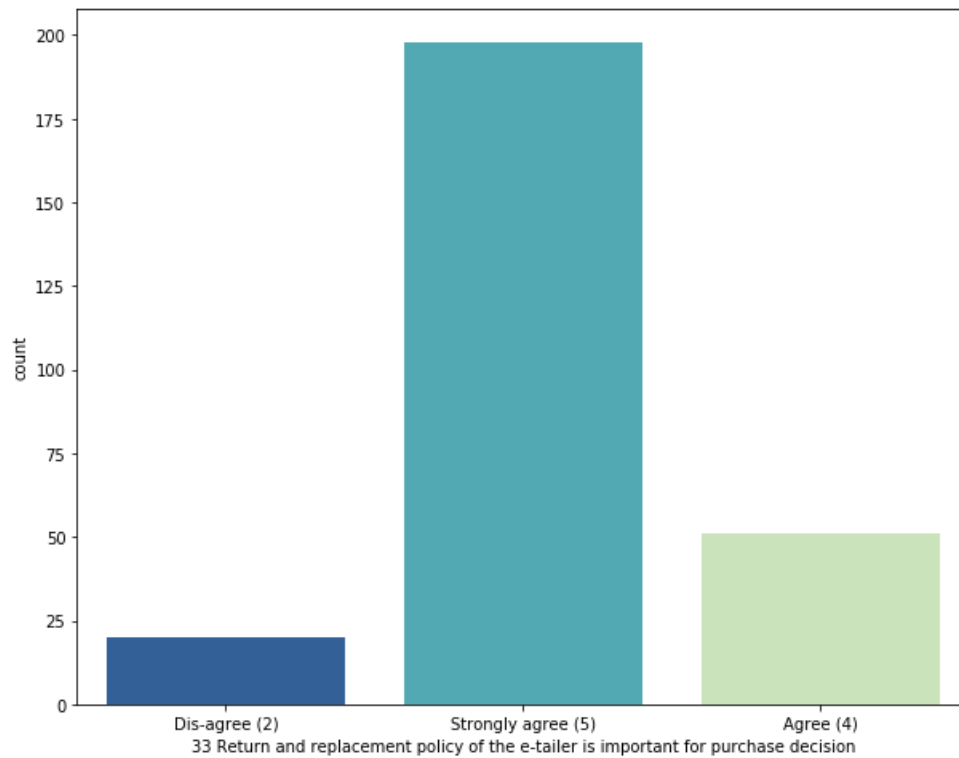
j. Displaying quality Information on the website improves satisfaction of customers and derive satisfaction while shopping on a good quality website or application None of the buyers dis-agree to this.

```
Strongly agree (5)      133
Agree (4)                80
indifferent (3)          56
Name: 35 Displaying quality Information on the website improves satisfaction of cust
```


35 Displaying quality Information on the website improves satisfaction of customers
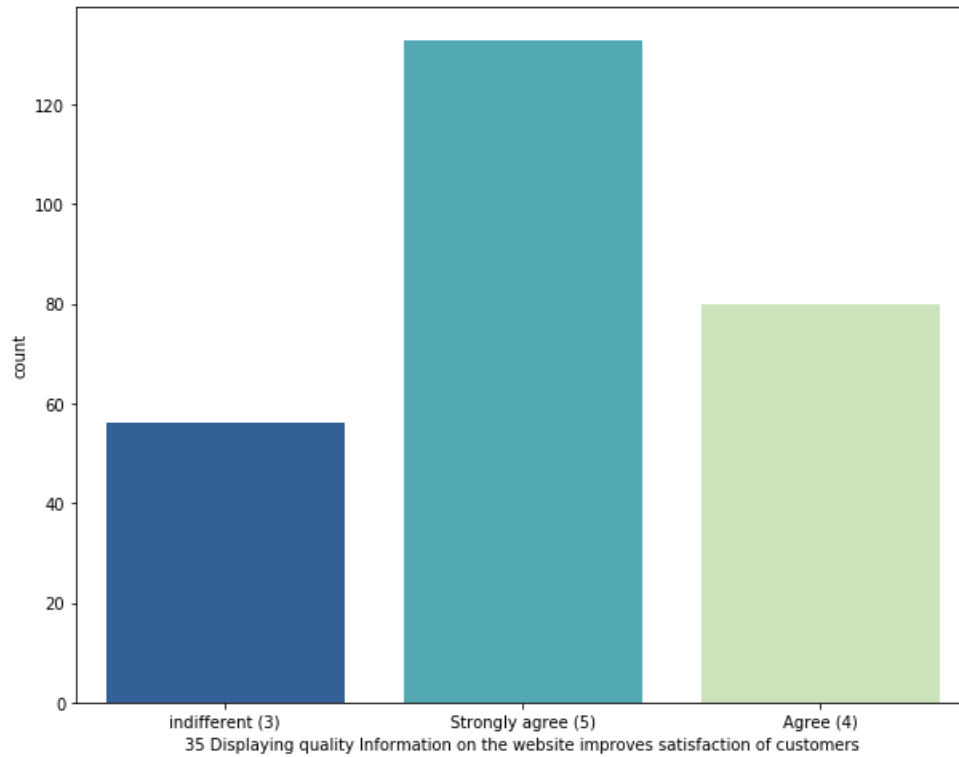
```
Strongly agree (5)      175
Agree (4)                86
Dis-agree (2)             8
Name: 36 User derive satisfaction while shopping on a good quality website or appl
```


36 User derive satisfaction while shopping on a good quality website or application
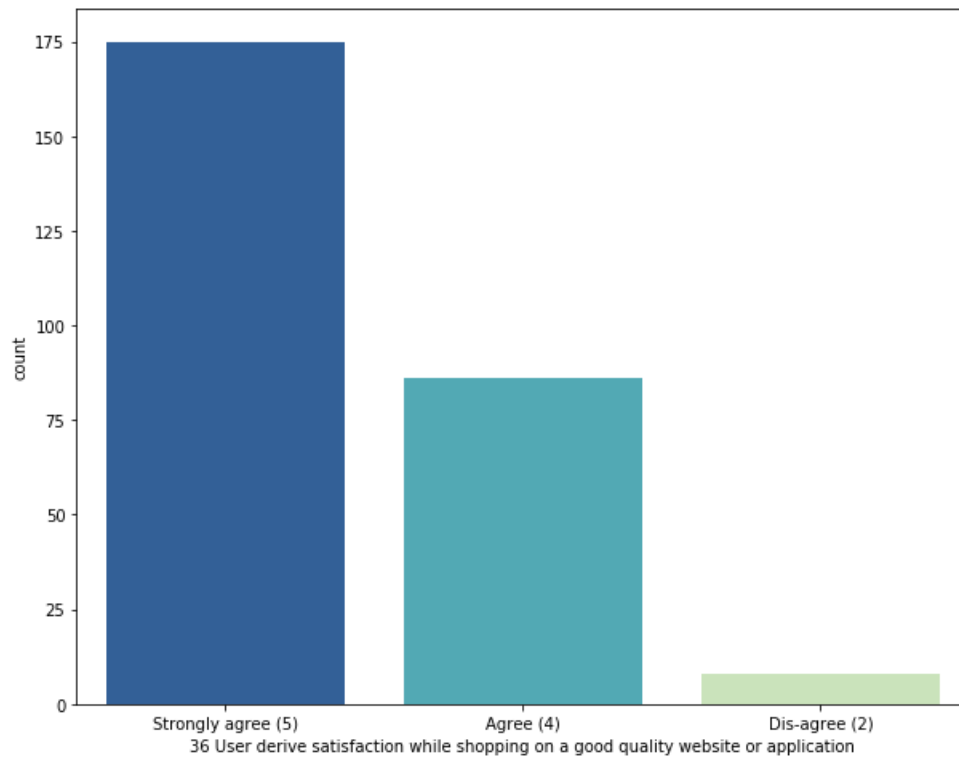
k. Customers voted that buying online should provide monetary savings and getting value for the money spent.

```
Strongly agree (5)     148
Agree (4)               75
Disagree (2)            31
indifferent (3)         15
Name: 41 Monetary savings, dtype: int64
```
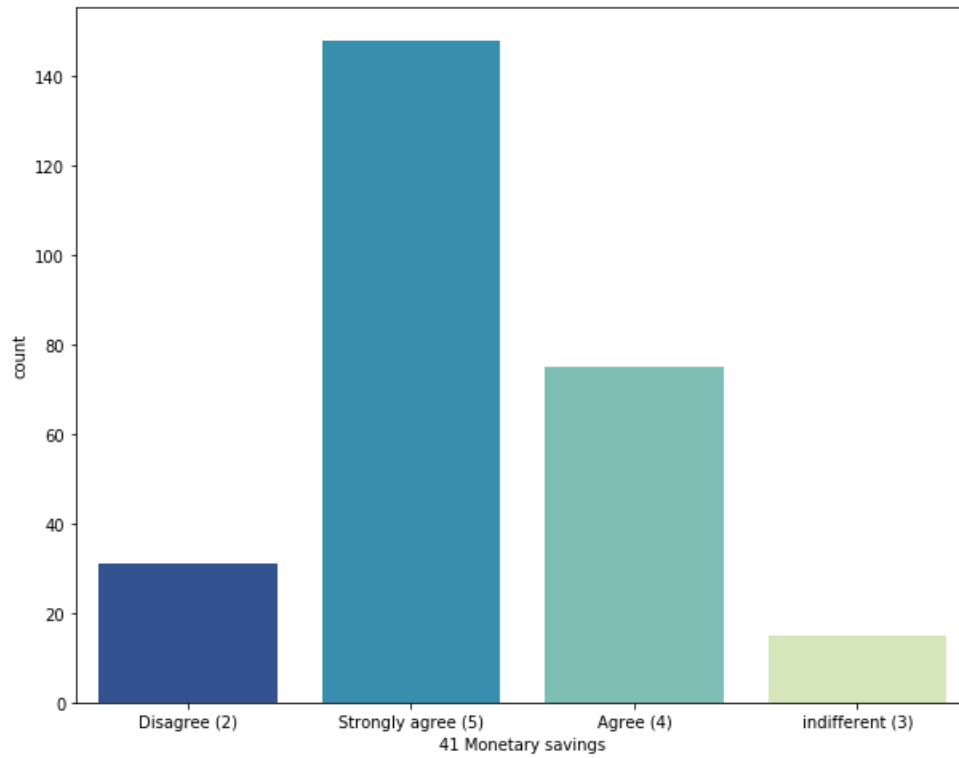
```
Agree (4)              149
Strongly agree (5)      82
indifferent (3)         38
Name: 47 Getting value for money spent, dtype: int64
```
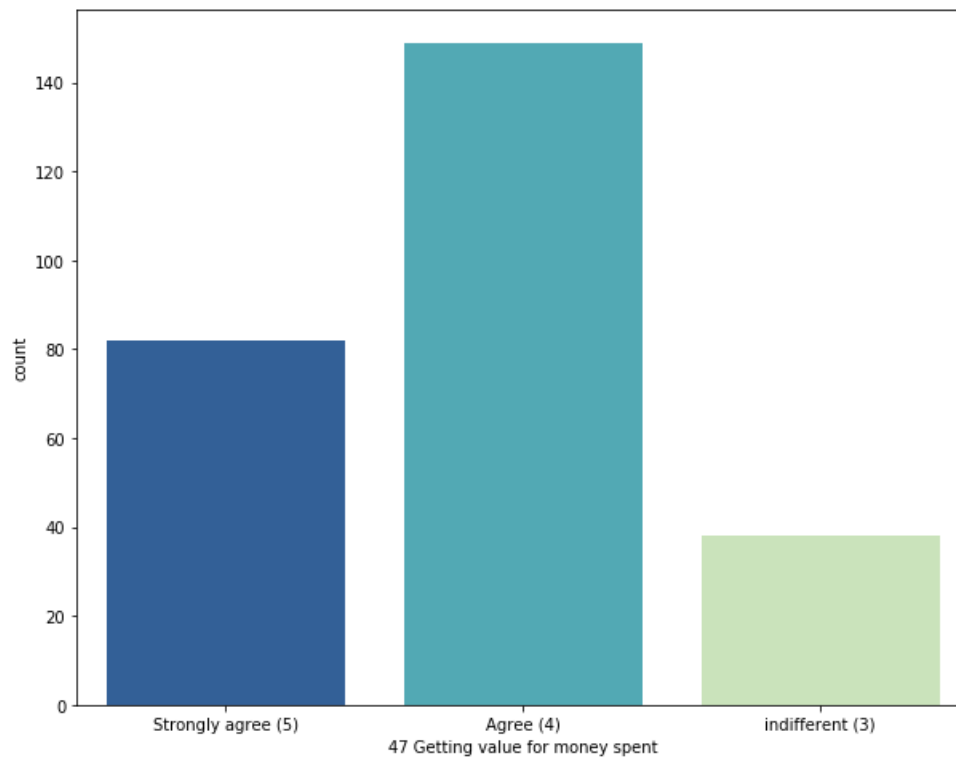

Less than 1% buyers disagree that the buying online should bring monetary benefit and none of the surveyors disagree that buying online should get value for the money spent.

Now that, we have analysed what factors that a buyer considers in an e-commerce website before making a purchase decision. We can see the answers from the buyers towards the popular e-commerce websites to see the retention rate based on the answers they have provided.

Most of the buyers have purchased from Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com and everyone has shopped from Amazon.in. The next majority with the categories would be flipkart.

```
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
, dtype: int64
```
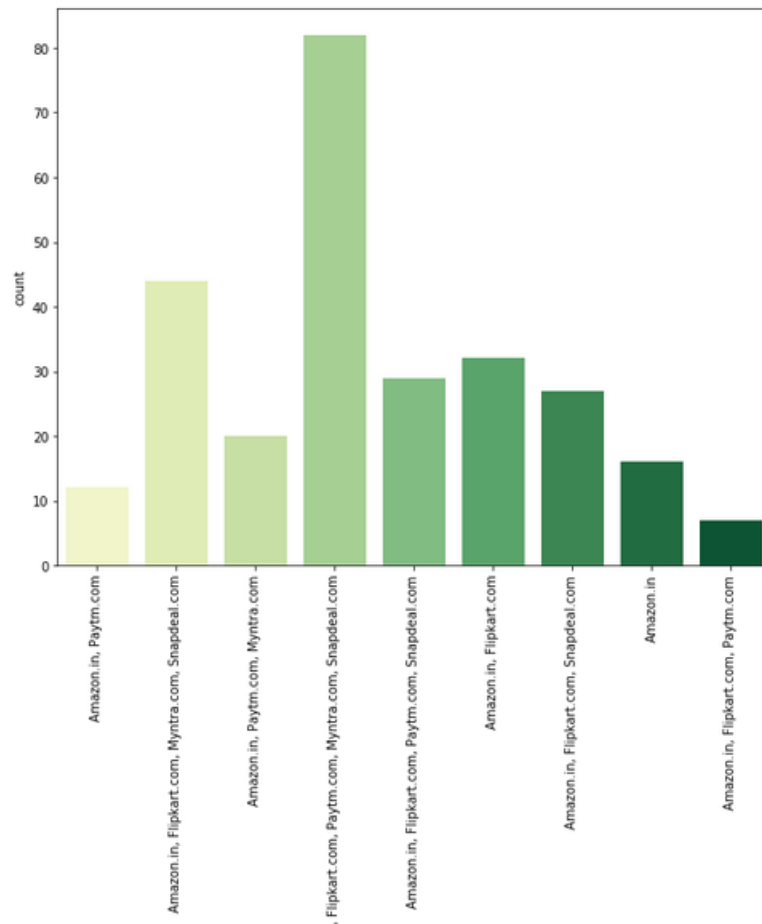

Again, almost every website is easy to use according to buyers, when it comes to visually most appealing websites Amazon.in and Flipkart.com tops the list.

```
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
Myntra.com                                                          15
Flipkart.com, 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
```


Visual appealing web-page layout
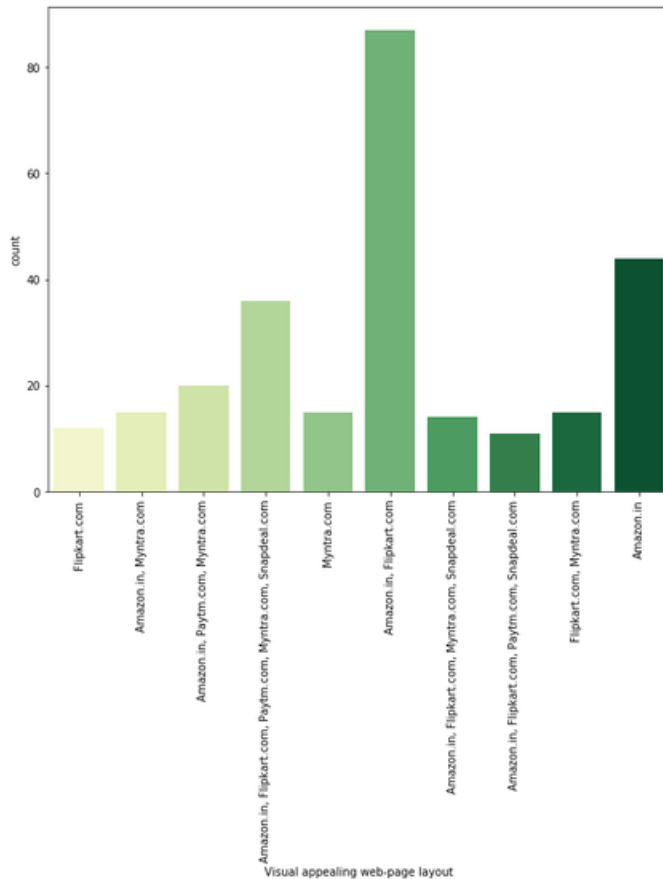
When it comes to wild variety of products on offer, Complete relevant description information, Fast loading website/application, Reliability, Interface, Availability of payment options, faster delivery, customer privacy, security, Trustworthiness, Customer support through multiple channels, time spent on a website, Website and application design updates and websites recommended to a friend most people voted for Amazon.in and Flipkart.com

```
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: int64
```
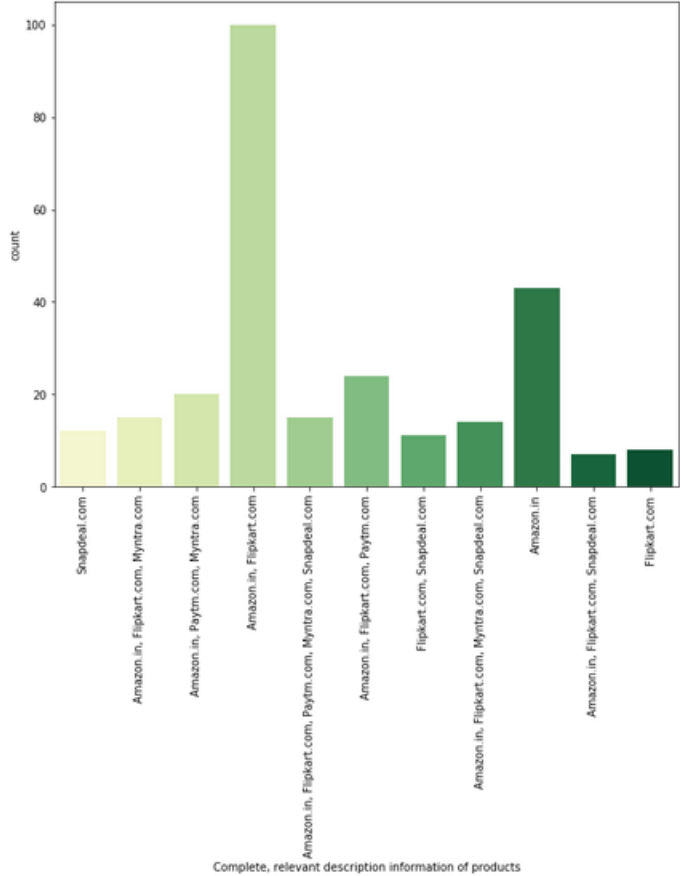

Complete, relevant description information of products

```
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
Myntra.com                                              15
Flipkart.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
```
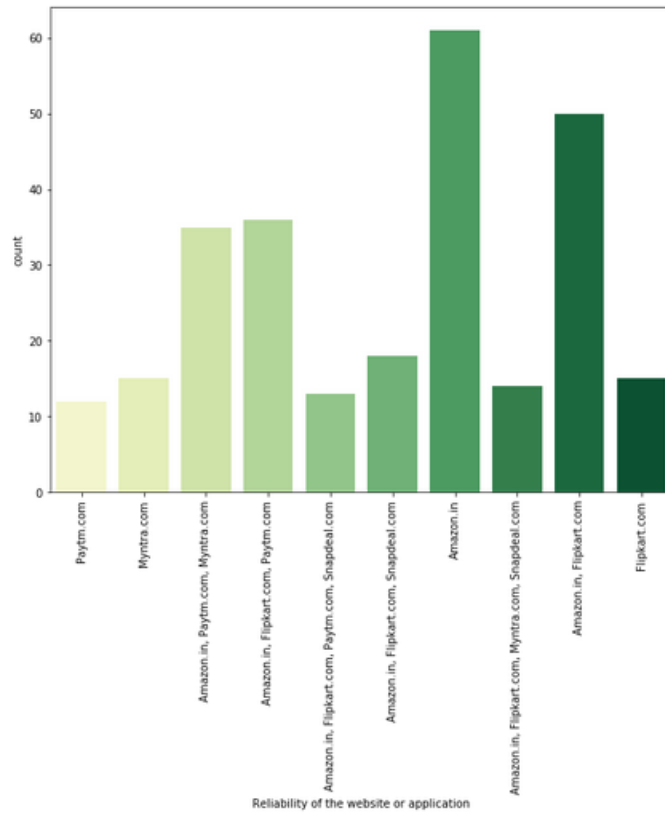

Reliability of the website or application

```
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
```
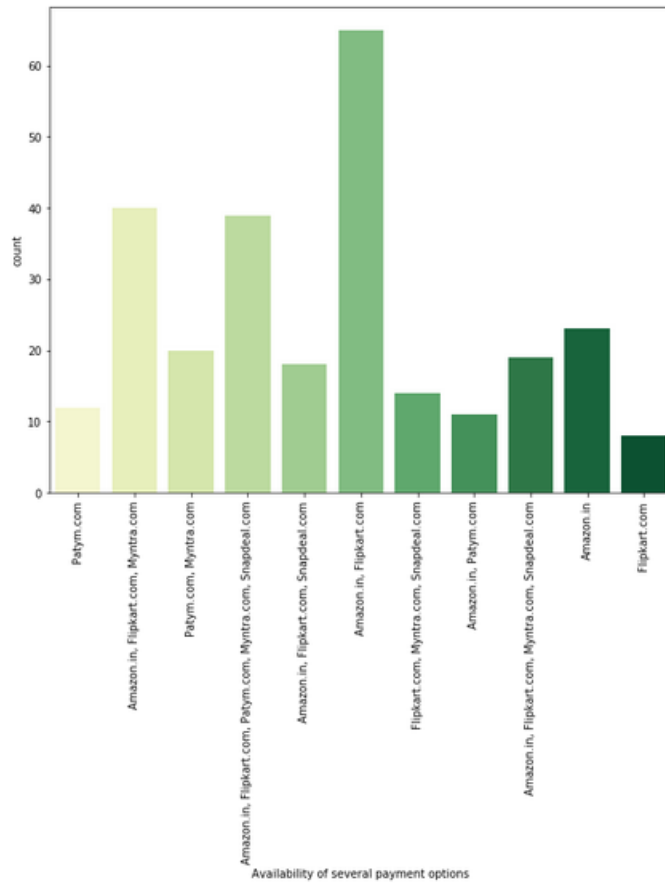
```
Amazon.in                                      107
Amazon.in, Flipkart.com                         82
Amazon.in, Flipkart.com, Snapdeal.com           36
Amazon.in, Flipkart.com, Myntra.com             15
Flipkart.com                                    15
Flipkart.com, Myntra.com, Snapdeal.com          14
Name: Speedy order delivery , 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                                                          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
Myntra.com                                                        15
Amazon.in, Paytm.com                                              15
Flipkart.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
```
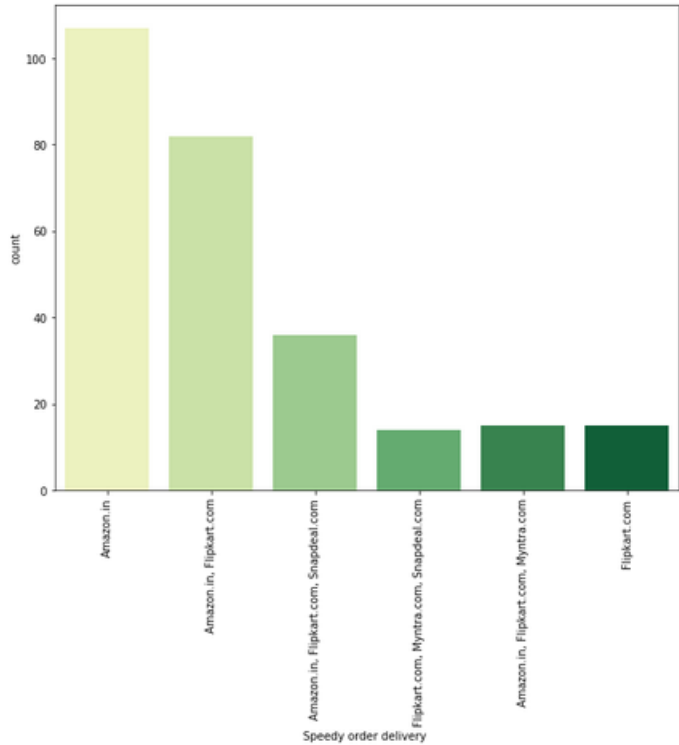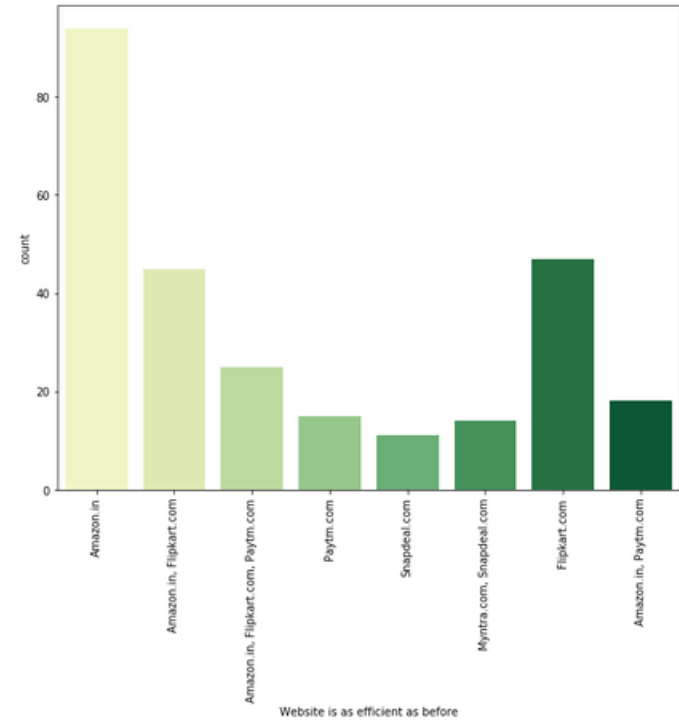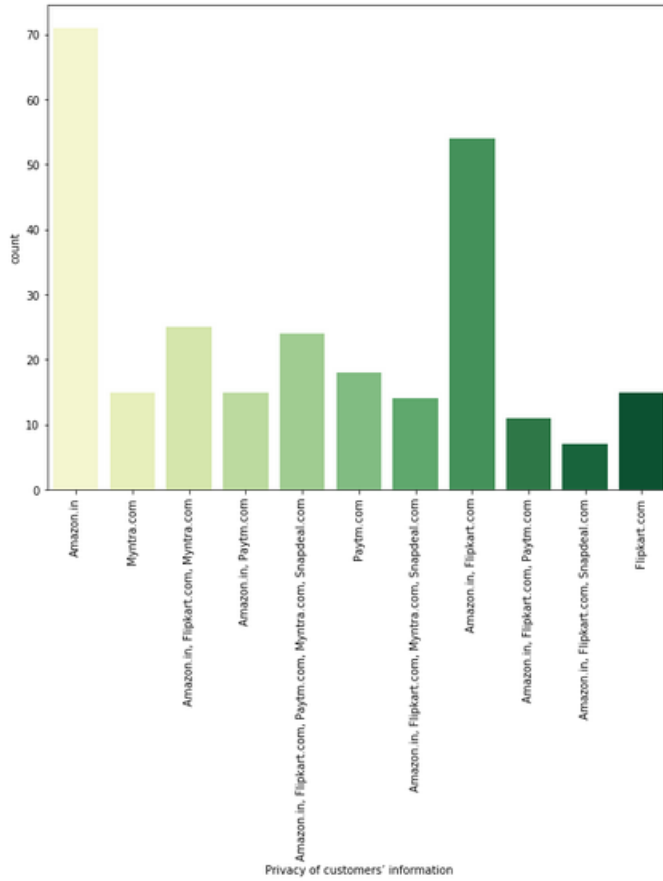
```
Amazon.in                                                              51
Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com           42
Flipkart.com                                                           33
Amazon.in, Flipkart.com, Snapdeal.com                                  25
Amazon.in, Flipkart.com                                                24
Amazon.in, Paytm.com, Myntra.com                                       20
Amazon.in, Snapdeal.com                                                19
Myntra.com                                                             15
Paytm.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
```
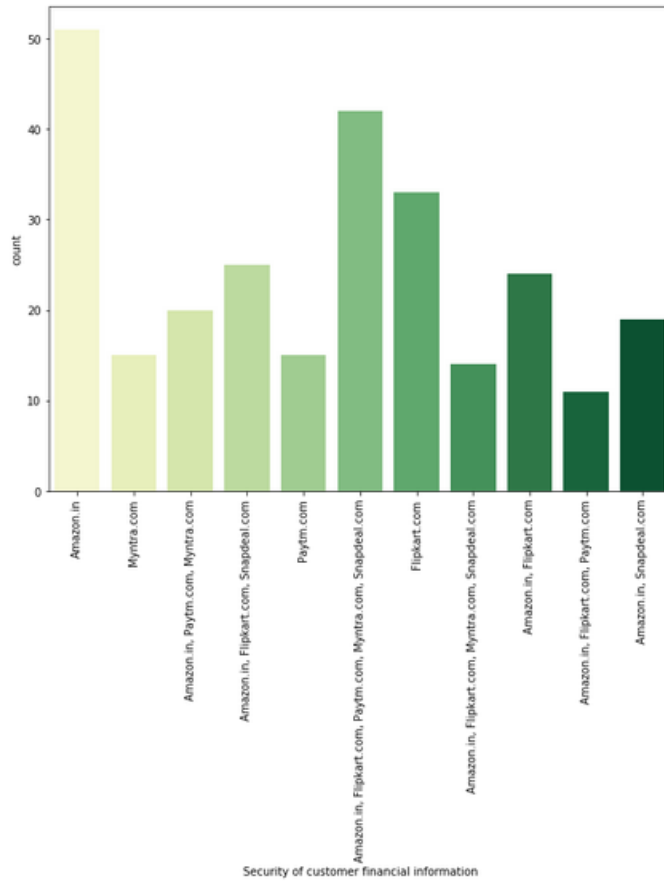

Security of customer financial information

```
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
```
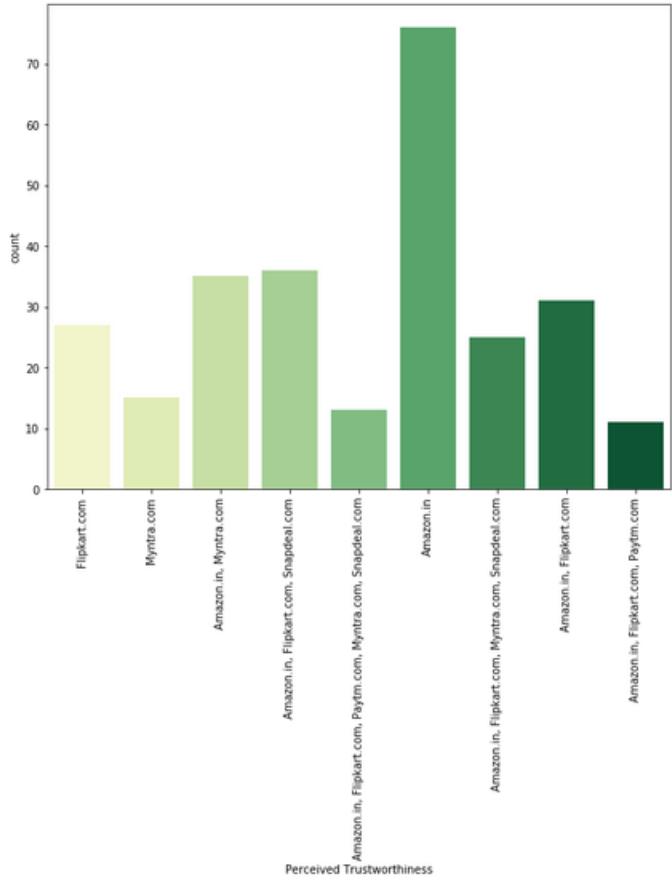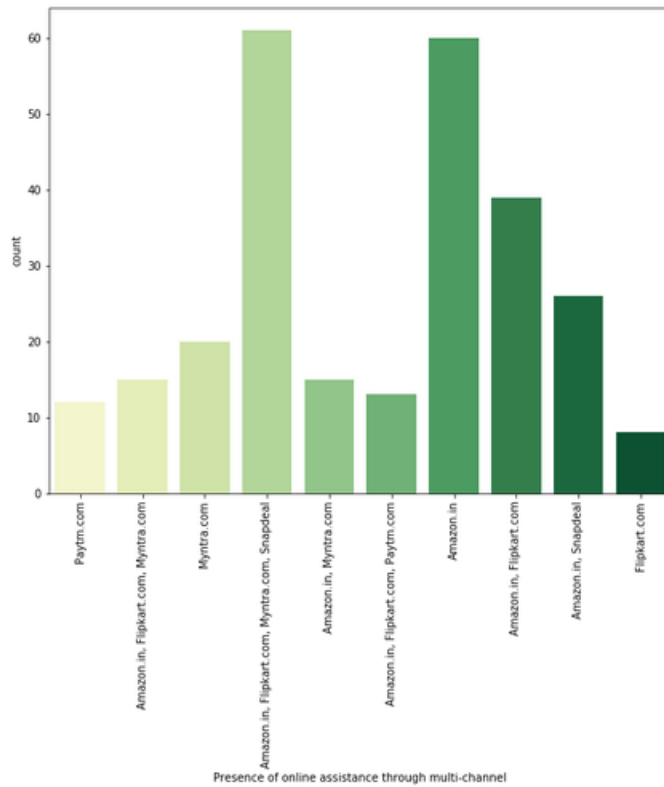
```
Amazon.in, Flipkart.com, Myntra.com, Snapdeal        61
Amazon.in                                            60
Amazon.in, Flipkart.com                              39
Amazon.in, Snapdeal                                  26
Myntra.com                                           20
Amazon.in, Flipkart.com, Myntra.com                  15
Amazon.in, Myntra.com                                15
Amazon.in, Flipkart.com, Paytm.com                   13
Paytm.com                                            12
Flipkart.com                                          8
Name: Presence of online assistance through multi-channel, dtype: int64
```


Presence of online assistance through multi-channel
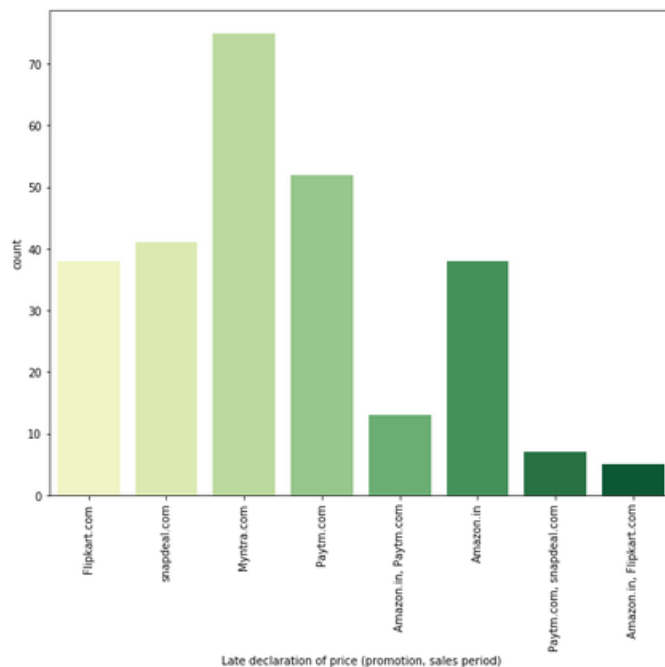
```
Myntra.com               75
Paytm.com                52
snapdeal.com             41
Flipkart.com             38
Amazon.in                38
Amazon.in, Paytm.com     13
Paytm.com, snapdeal.com   7
Amazon.in, Flipkart.com   5
Name: Late declaration of price (promotion, sales period), dtype: int64
```


However, when we see analyse factors such as Late declaration of price and Longer page loading time Myntra and paytm tops the list and this promoting a bad buyer experience.

```
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), dtype
```
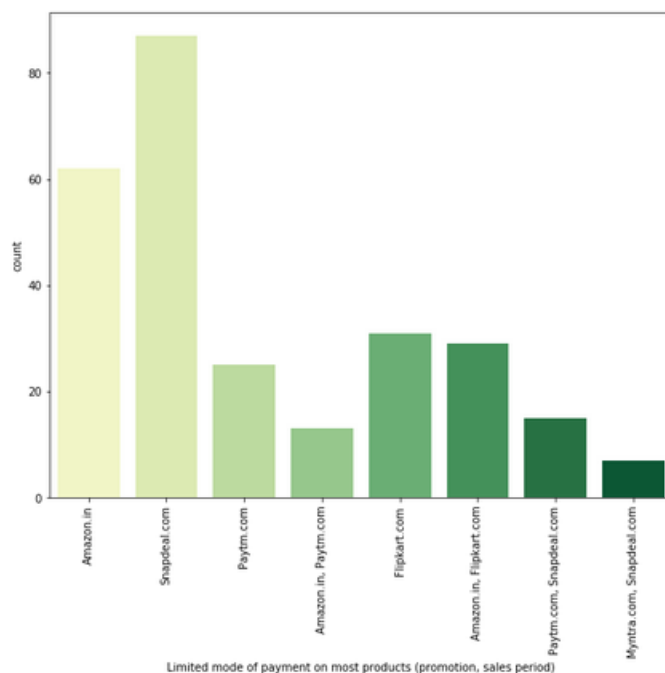
Further, when it comes to Limited mode of payment on most products Snapdeal tops the list followed by Amazon. Here is the only place Amazon needs to improve as we can see from the customer preferences, more options on payment mode is required.

```
Paytm.com                    72
Snapdeal.com                 64
Flipkart.com                 44
Amazon.in                    37
Paytm.com, Snapdeal.com      26
Myntra.com                   26
Name: Longer delivery period, dtype: int64
```
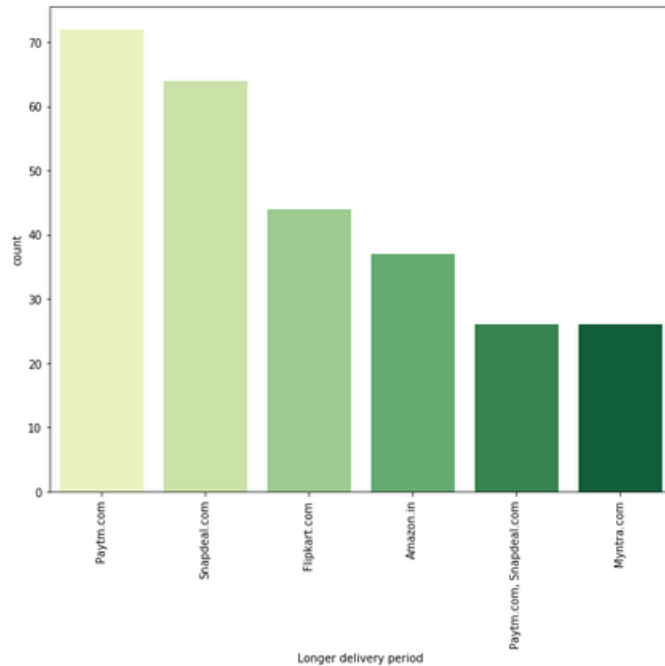

When it comes to longer delivery period, Paytm and Snapdeal tops the list which is not in line with the customer expectations.

When it comes to frequent disruptions, Amazon, Myntra and Snapdeal tops the list.

Statistics used to validate the above correlation statements:

I used chi2 test on most important variables that contributed for website recommendation to a friend, which we initially considered that is the major factor that determines whether the buyer is retained with the experience provided.

In this chi-squared test, the alpha value considered was 0.05 (5%).

For every 2 categorical variable test the Null Hypothesis assumption was the variables were independent of the variable "Website recommended to a friend".

And the Alternate hypothesis was the variables tested were actually dependent on the "Website recommended to a friend".

The results of the chi2 test clearly pointed that the p value for all the variables were less than the alpha value (0.05) Confirming the dependency of the variables over the "Website recommended to a friend".

CONCLUSION

- ## Key Findings and Conclusions of the Study

  - Easier website design and navigation
  - User friendly Interface
  - Convenience in payment methods
  - Trust and On-Time Delivery.
  - Better Customer Service
  - Secure and offers complete privacy to their customers
  - Discounts and Monetary Benefits
  - Wide range of options and product selections
  - Flexibility in their offers and services
  - Return and Replacement policies
  - Quality information on websites
  - Website Quality
  - Value for the money spent

- ## Learning Outcomes of the Study in respect of Data Science

  a. From the above analysis, I can say that the companies with highest retention and customer satisfaction rates are Amazon.in and Flipkart.com because their positives are in

line with the buyer preferences and they are most likely to use this websites for purchases in future.

b. The company with moderate retention rate is Myntra.com

c. Further, the company with very low retention rate and customer satisfaction is with Paytm and Snapdeal because most of the factors are not in line with the customer preferences and they are less likely to use this website again for online purchase.

d. Customer satisfaction plays a major role in retention, A company should first understand what customers expects while purchasing online (e-commerce) and build a better buying experience which will in turn retain the customer. An unforgettable experience is what drives customers to buy again and again.

• Limitations of this work and Scope for Future Work

- There is one major limitation to the analysis, due to the minimum data there are 50% more female surveyors when compared to male and this margin is huge.

- Further the data is very less to come to a sure conclusion on the retention rate. And if we are analysing the retention, it would be fair to ask the surveyors the direct question on which websites are they are likely to buy from the websites in future.