## Customer Retention

*Customer retention refers to the activities and actions companies and organizations take to reduce the number of customer defections. The goal of customer retention programs is to help companies retain as many customers as possible, often through customer loyalty and brand loyalty initiatives. It is important to remember that customer retention begins with the first contact a customer has with a company and continues throughout the entire lifetime of the relationship.*

*The next few slides contain observations from collected from the Indian online shoppers. Results indicate the e-retail success factors, which are very much critical for customer satisfaction.*

*Let us go through few factors which help in determining the success behind an Online Platform*

***Required Libraries:***

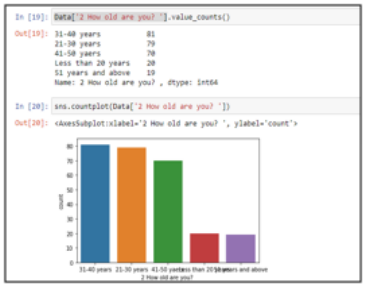
```
In [1]: import pandas as pd
        import seaborn as sns
        import matplotlib.pyplot as plt
        import warnings
        warnings.filterwarnings('ignore') #Importing the necessary libraries
```

***Loading the dataset:***

```
In [3]: Data=pd.read_excel("Customer Retention.xlsx") # Loading the dataset
```

***1st Observation:***

Majority of the online shopping is done by females and the age group is between 21 to 40 from Delhi, Noida and Greater Noida region. This is the range of the target audience who mainly involve in Online Shopping.



## *Target Variable*

The main target variable which helped us to understand whether a particular customer has been retained or churned. The below data shows us how long a customer has been retained and in the later part of the dataset all comparisons have been done keeping this in mind. For the betterment, I have transformed the below years into numbers.

The main target variable which helped us to understand whether a particular customer has been retained or churned. The below data shows us how long a customer has been retained and in the later part of the dataset all comparisons have been done keeping this in mind. For the betterment, I have transformed the below years into numbers.

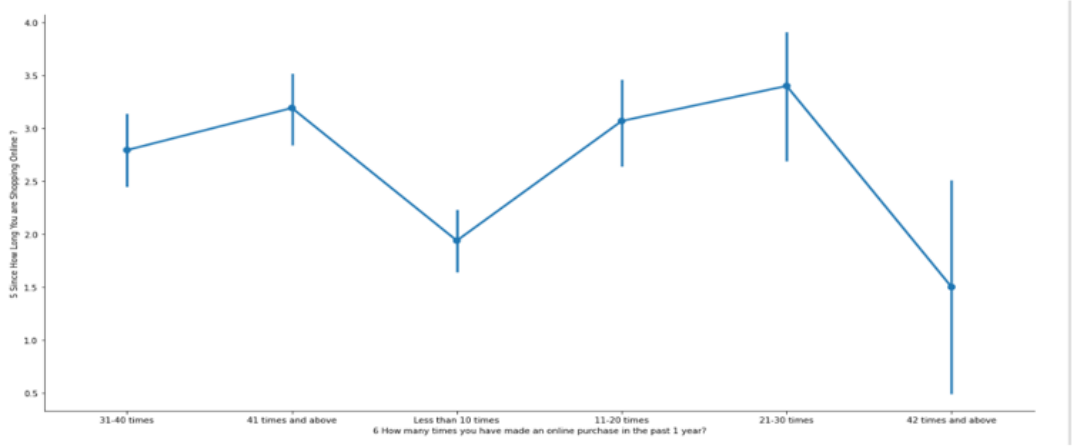
```
Less than 1 year':0,'1-2 years':1,'2-3 years':2,'3-4 years':3,'Above 4 years':4})
```

```
In [30]: Data['5 Since How Long You are Shopping Online ?'].value_counts()

Out[30]: 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
```

**This column directly gives us an idea on customer behaviour. We need to observe the answers of customers who are using online shopping platform over 4 years to get an idea as to what are the factors that worked favourable for them as well as the customers who are using the platform for 4 years or less to understand what are the scenarios which did not work for them**

## ***Number of times a customer made online purchase last year***

```
sns.catplot(x='6 How many times you have made an online purchase in the past 1 year?',y='5 Since How Long You are Shopping Online
```

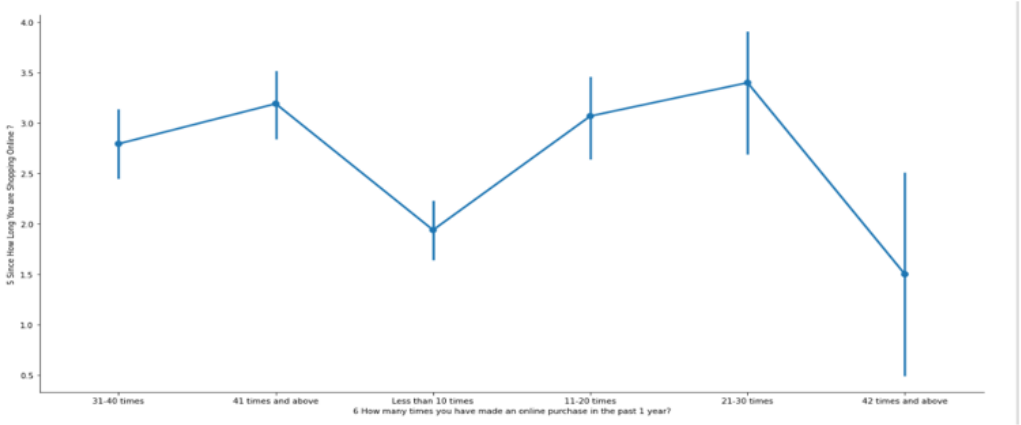



## ***Observation***

***From the data in the previous page it is observed that customers who have been retained visited the platform maximum around 31 times however maximum visits of 42 times and above have been given by those who are maximum 2-2.5 years old. Therefore, visiting a page numerous time will not give an idea whether the customer can be retained.***

## ***Number of times a customer made online purchase last year***

```
sns.catplot(x='6 How many times you have made an online purchase in the past 1 year?',y='5 Since How Long You are Shopping Online
```




## ***Observation***

***From the data in the previous page it is observed that customers who have been retained visited the platform maximum around 31 times however maximum visits of 42 times and above have been given by those who are maximum 2-2.5 years old. Therefore visiting a page numerous time will not give an idea whether the customer can be retained.***

## ***Internet Connection,Device Used and Operating System***

```
In [40]: Data['7 How do you access the internet while shopping on-line?'].value_counts()
Out[40]: 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

In [46]: Data['8 Which device do you use to access the online shopping?'].value_counts()
Out[46]: Smartphone    141
         Laptop         86
         Desktop        30
         Tablet         12
         Name: 8 Which device do you use to access the online shopping?, dtype: int64

In [50]: Data['9 What is the screen size of your mobile device?\t\t\t\t\t\t\t'].value_counts()
Out[50]: 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\t\t, dtype: int64

In [52]: Data['10 What is the operating system (OS) of your device?\t\t\t\t\t'].value_counts()
Out[52]: 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
```

## ***Observation***

- ***Majority of the customers use Wifi and mobile internet on their smart phone and laptop with a normal screen size from their windows/android device. Therefore all the sites***

***should be made in such a way which is compatible with the user's device by not slowing it down or by using huge internet.***

## ***Online Sites***

```
In [55]: Data['11 What browser do you run on your device to access the website?\t\t\t
```

```
Out[55]: 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
```

```
In [57]: Data['12 Which channel did you follow to arrive at your favorite online store for the first time?
```

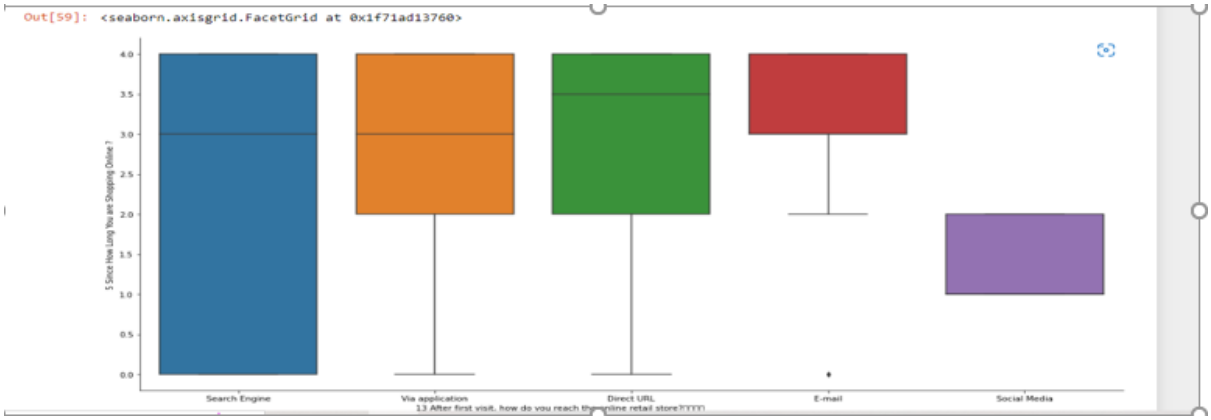
```
Out[57]: Search Engine        230
         Content Marketing     20
         Display Adverts       19
         Name: 12 Which channel did you follow to arrive at your favorite online store for the first time?
         , dtype: int64
```

```
In [58]: irst visit, how do you reach the online retail store?\t\t\t\t                    '].value_counts()
```

```
Out[58]: 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
```

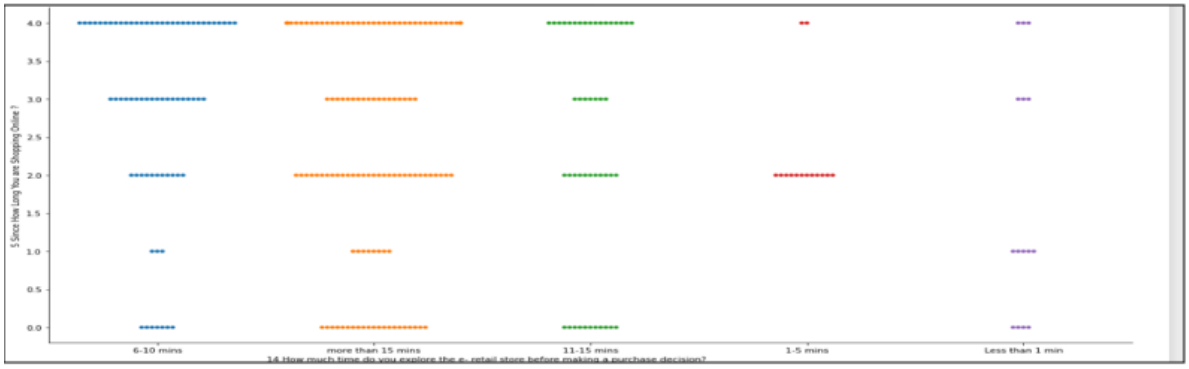
***Observation***

- ***Majority of the customers are able to know about an online platform from their search engines ( mainly Chrome) and interestingly social media platform have taken a backseat here when it comes to retaining a customer for a long time.***



***<u>Time Taken: Majority of the customers spend minimum 15 mins behind every choice</u>***

```
In [61]: Data['14 How much time do you explore the e- retail store before making a purchase decision?

Out[61]: 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
```




***<u>Mode of Payment:</u> Customers who are retained usually go for Debit/Card transaction whereas majority of the customers between the period of 1-2 years go for Cash on Delivery (COD).***

```
In [69]: Data['15 What is your preferred payment Option?\t\t\t\t\t

Out[69]: 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
```


***<u>Frequency of Abandoning the cart</u>***

- *Data has been replaced in the following mode: 'Sometimes':0,'Never':1,'Frequently':2,'Very frequently':3*

***Reasons for abandoning:***

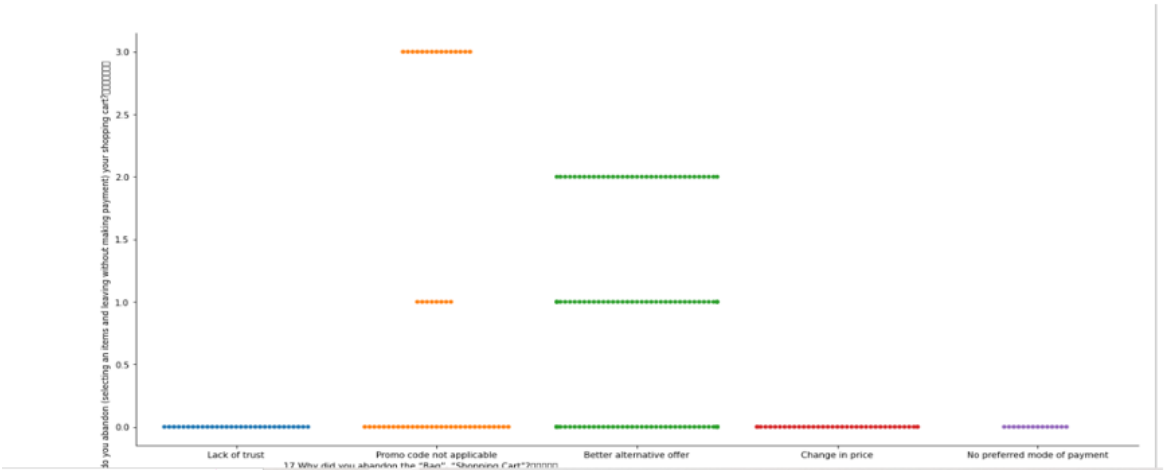
```
Data[`17 Why did you abandon the “Bag”, “Shopping Cart”?\t\t\t\t\t\t
```

```
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
```

*The common reason for customer abandoning the cart is they have received better alternate offer. In the next slide we will see what made the customer abandon the cart frequently/sometimes/never/very frequently*

## ***Reasons for abandoning: Best Alternate Offer and Promo Code Not Applicable***

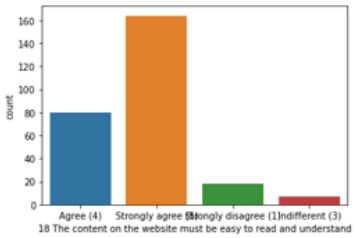
```
Data[`16 How frequently do you abandon (selecting an items and leaving without making payment) your shopping cart?\t\t\t\t\t\t\t\t.replace({'Sometimes':0,'Never':1,'Frequently':2,'Very frequently':3})
```



**Customer Remarks and Opinions**

***Content must be easy to write and understand***

```
In [82]: Data['18 The content on the website must be easy to read and understand'].value_counts()
Out[82]: 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

In [83]: sns.countplot(Data['18 The content on the website must be easy to read and understand'])
Out[83]: <AxesSubplot:xlabel='18 The content on the website must be easy to read and understand', ylabel='count'>
```




```
In [85]: Data['19 Information on similar product to the one highlighted  is important for product comparison'].value_counts()
Out[85]: 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

In [86]: Data['21 All relevant information on listed products must be stated clearly'].value_counts()
Out[86]: 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

In [88]: Data['22 Ease of navigation in website'].value_counts()
Out[88]: Strongly agree (5)       141
         Agree (4)                105
         Strongly disagree (1)     18
         Dis-agree (2)              5
         Name: 22 Ease of navigation in website, dtype: int64
```

1. ***Similar Product Information for comparison is important***
2. ***All relevant information should be listed.***
3. ***Ease of navigation in Website***

```
In [89]: Data['23 Loading and processing speed'].value_counts()

Out[89]: 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

In [91]: Data['24 User friendly Interface of the website'].value_counts()

Out[91]: 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

In [92]: Data['25 Convenient Payment methods'].value_counts()

Out[92]: Strongly agree (5)    159
         Agree (4)              80
         Dis-agree (2)          30
         Name: 25 Convenient Payment methods, dtype: int64
```

1. ***Speed in Loading and Processing.***
2. ***User Friendly Interface.***
3. ***Convinient Payment methods***

```
In [93]: Data['26 Trust that the online retail store will fulfill its part of the transaction at the stipulated time'].value_counts()

Out[93]: 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 at the stipulated time, dtype: int64

In [94]: Data['27 Empathy (readiness to assist with queries) towards the customers'].value_counts()

Out[94]: 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

In [95]: Data['28 Being able to guarantee the privacy of the customer'].value_counts()

Out[95]: Strongly agree (5)    185
         Agree (4)              58
         indifferent (3)        26
         Name: 28 Being able to guarantee the privacy of the customer, dtype: int64
```

***Trust, Empathy and Customer Privacy***

```
In [96]: Data['29 Responsiveness, availability of several communication channels (email, online rep, twitter, phone etc.)'].value_counts()

Out[96]: 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

In [98]: Data[ '30 Online shopping gives monetary benefit and discounts'].value_counts()

Out[98]: 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

In [99]: Data['31 Enjoyment is derived from shopping online'].value_counts()

Out[99]: 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
```

***Responsiveness, Monetary Benefits and Enjoyment***

```
In [100]: Data['32 Shopping online is convenient and flexible'].value_counts()

Out[100]: Strongly agree (5)    146
          Agree (4)              78
          indifferent (3)        33
          Dis-agree (2)          12
          Name: 32 Shopping online is convenient and flexible, dtype: int64

In [101]: Data['33 Return and replacement policy of the e-tailer is important for purchase decision'].value_counts()

Out[101]: 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

In [102]: Data['34 Gaining access to loyalty programs is a benefit of shopping online'].value_counts()

Out[102]: Strongly agree (5)      115
          Agree (4)                64
          indifferent (3)          64
          Dis-agree (2)            15
          Strongly disagree (1)    11
          Name: 34 Gaining access to loyalty programs is a benefit of shopping online, dtype: int64
```

***Convinient and  Flexible/Return and Replacement Policy/Access to Loyalty Programs***

```
In [105]: Data['36 User derive satisfaction while shopping on a good quality website or application'].value_counts()

Out[105]: 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

In [106]: Data['37 Net Benefit derived from shopping online can lead to users satisfaction'].value_counts()

Out[106]: Strongly agree (5)    164
          Agree (4)              54
          indifferent (3)        40
          Dis-agree (2)          11
          Name: 37 Net Benefit derived from shopping online can lead to users satisfaction, dtype: int64

In [107]: Data['38 User satisfaction cannot exist without trust'].value_counts()

Out[107]: 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
```

***Deriving Satisfaction***

```
In [108]: Data['39 Offering a wide variety of listed product in several category'].value_counts()

Out[108]: 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

In [109]: Data['40 Provision of complete and relevant product information'].value_counts()

Out[109]: Strongly agree (5)    135
          Agree (4)              98
          indifferent (3)        31
          Disagree (2)            5
          Name: 40 Provision of complete and relevant product information, dtype: int64

In [110]: Data['41 Monetary savings'].value_counts()

Out[110]: Strongly agree (5)    148
          Agree (4)              75
          Disagree (2)           31
          indifferent (3)        15
          Name: 41 Monetary savings, dtype: int64
```

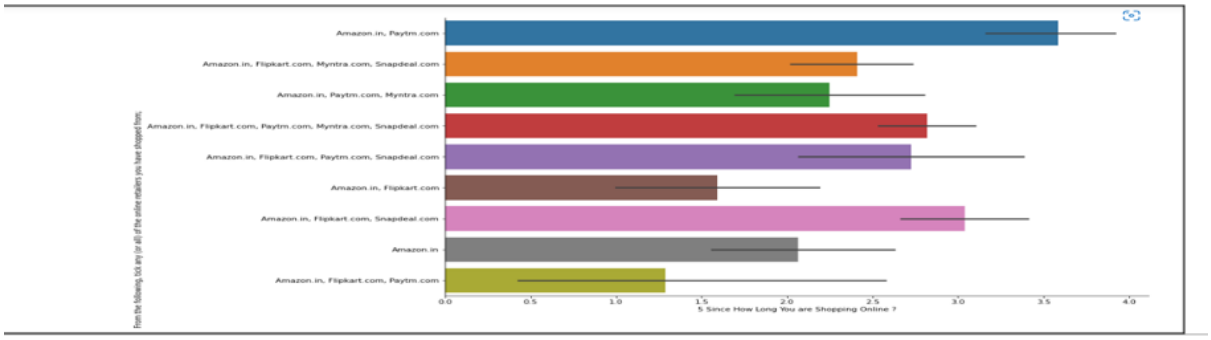
***Wide Product Variety/Complete product Information/Monetory Savings***

**Opinions on Few Online Retailers**

**( Comparison has been made taking public's opinion as well customers who have been retained by the online platforms)**

*Commonly Used Online Platform*

```
In [143]: Data['From the following, tick any (or all) of the online retailers you have shopped from;

Out[143]: 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
```

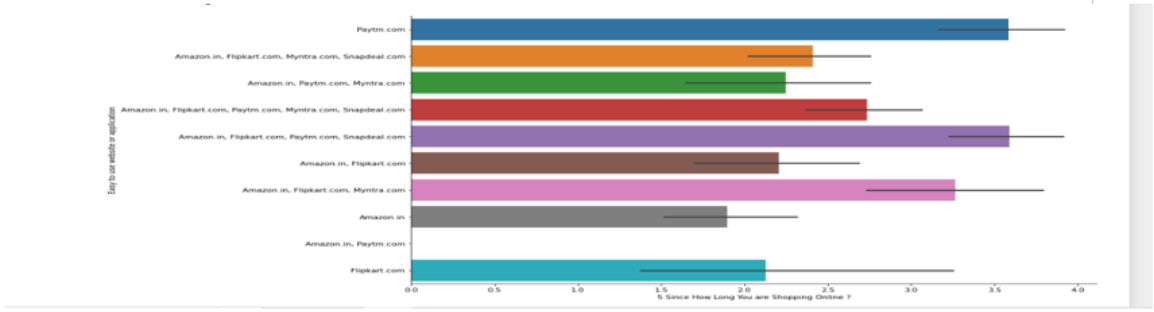



Observation:

- Amazon, Myntra, Paytm, Flipkart Snapdeal are mostly used
- In the above list however Amazon in and Paytm has retained more customers

Easy to use website or application

```
In [147]: Data['Easy to use website or application'].value_counts()

Out[147]: 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
```

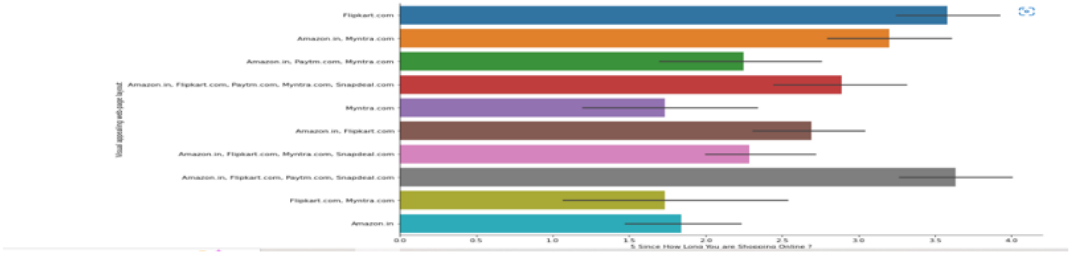


Observation:

- Amazon, Myntra, Paytm, Flipkart Snapdeal are easiest to use and has also helped in retaining customers

Appealing Web Layout:

```
In [150]: Data['Visual appealing web-page layout'].value_counts()

Out[150]: 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

Out[151]: <seaborn.axisgrid.FacetGrid at 0x1f722ecb6a0>
```

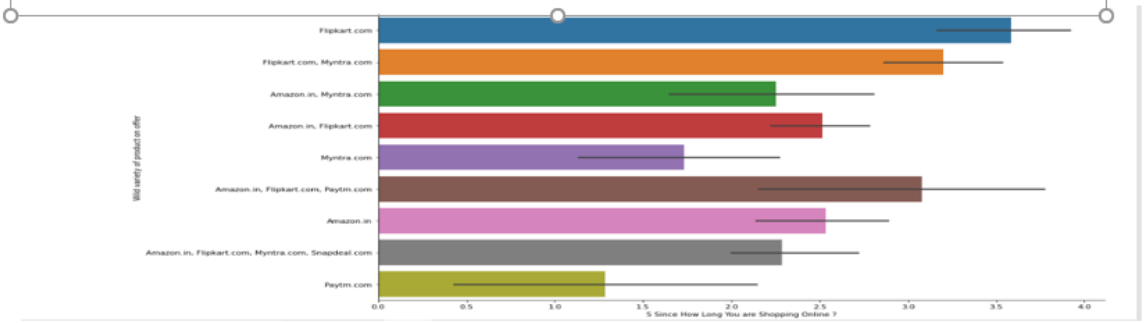


Observation:

- In terms of numbers Amazon and Paytm has the most appealing web layout
- However customers who have been retained has also favoured Snapdeal and Paytm

Product Variety:

```
In [152]: Data['Wild variety of product on offer'].value_counts()

Out[152]: 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
```

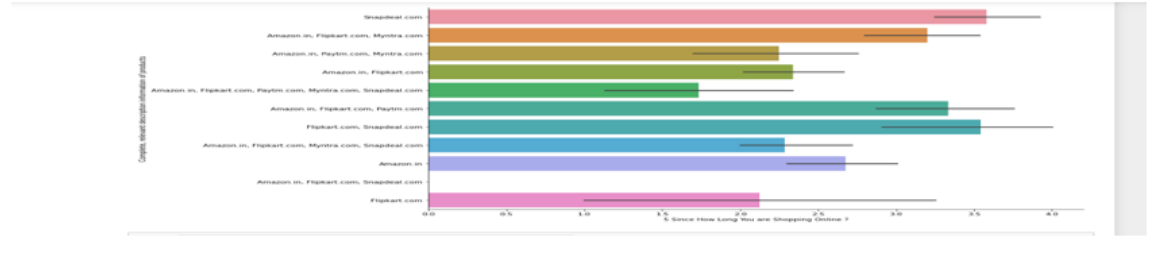


Observation:

- Amazon and Flipkart has more product variety
- However Flipkart has retained more customers than Amazon

Product Description and Information

```
In [154]: Data['Complete, relevant description information of products'].value_counts()

Out[154]: 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
```

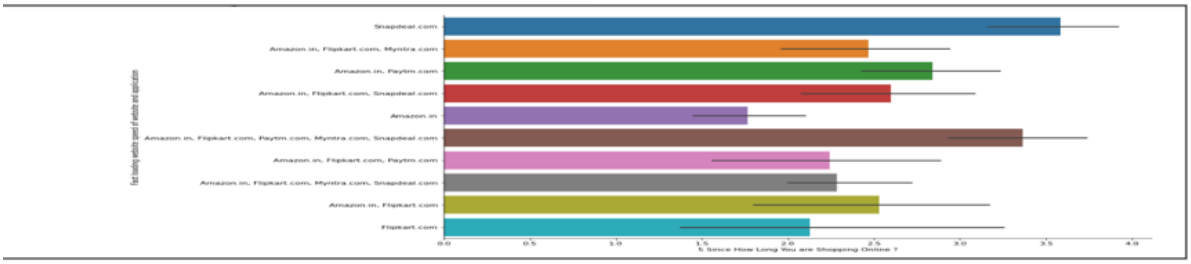


Observation:

- Amazon and Flipkart has been more reliable in product description
- However customers who have been retained for a longer time also agrees with Snapdeal

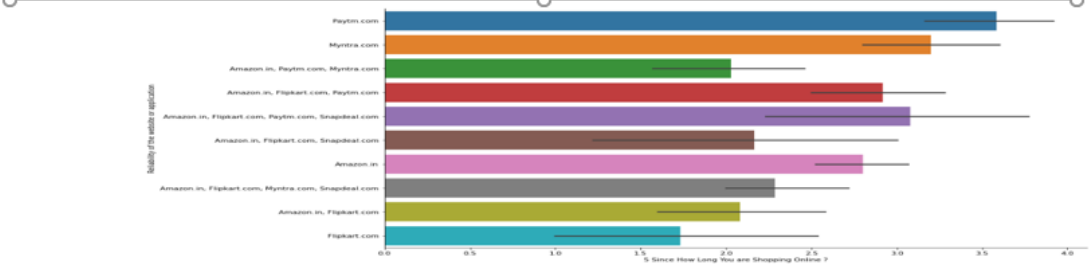
Fast Loading ( Amazon In and Snap Deal):

```
In [156]: Data['Fast loading website speed of website and application'].value_counts()

Out[156]: 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
```



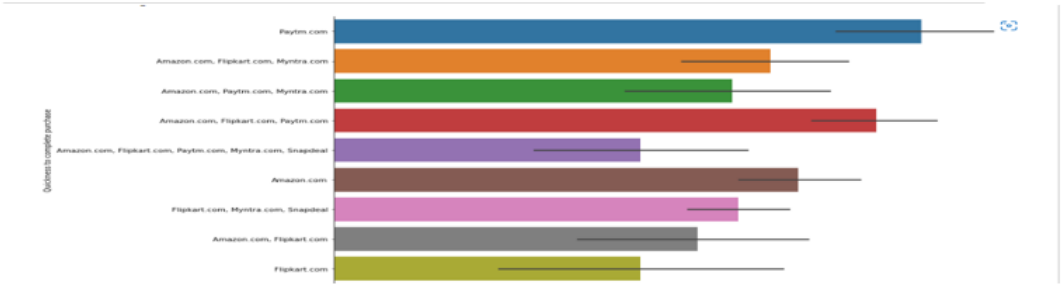
## Reliability- Amazon and PayTm ( Longer Customer Retention):

```
In [158]: Data['Reliability of the website or application'].value_counts()

Out[158]: 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
```



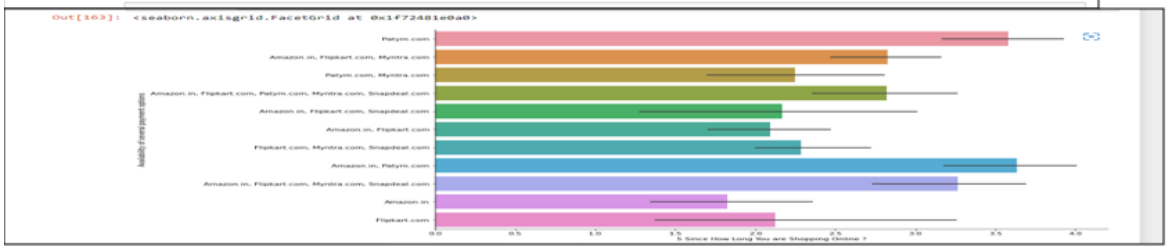

## Quick Purchase- Amazon and Paytm ( Longer Customer Retention)

```
In [160]: Data['Quickness to complete purchase'].value_counts()

Out[160]: 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
          Amazon.com, Flipkart.com, Paytm.com, Myntra.com, Snapdeal  15
          Flipkart.com                                        15
          Flipkart.com, Myntra.com, Snapdeal                  14
          Name: Quickness to complete purchase, dtype: int64
```



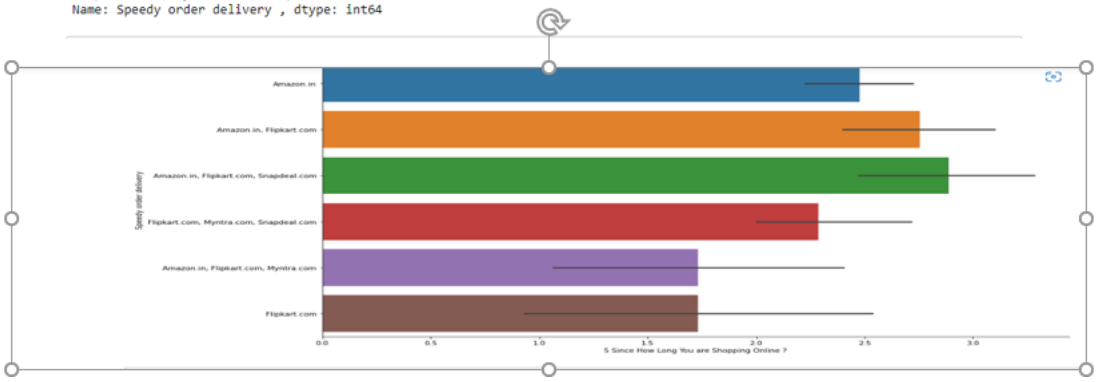
## Several Product Availability- Amazon, FlipKart and PayTm ( Longer Customer Retention)

```
In [162]: Data['Availability of several payment options'].value_counts()

Out[162]: 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

Out[163]: <seaborn.axisgrid.FacetGrid at 0x1f72481e0a0>
```



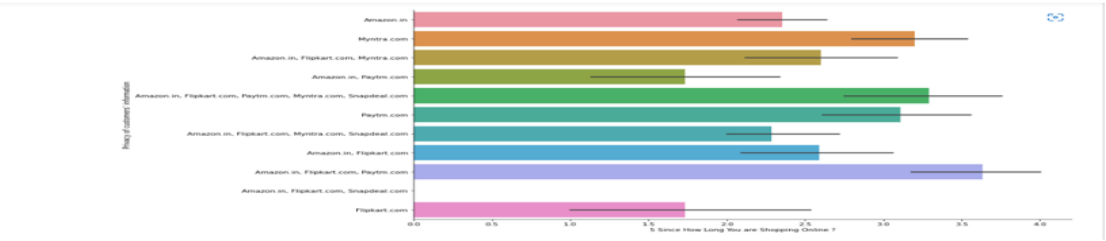
## Speedy Delivery- Amazon, FlipKart and Snapdeal ( Customer Retention)

```
In [165]: Data['Speedy order delivery '].value_counts()

Out[165]: 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
```



## Customer Privacy- Amazon, FlipKart and PayTm ( Customer Retention)

```
In [166]: Data['Privacy of customers' information'].value_counts()

Out[166]: 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
```



## Longer Time to Log, Limited Payment:

```
In [175]: Data['Longer time to get logged in (promotion, sales period)'].value_counts()

Out[175]: Amazon.in                                57
          Amazon.in, Flipkart.com                  38
          Paytm.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), dtype: int64
```

```
In [184]: Data['Limited mode of payment on most products (promotion, sales period)'].value_counts()

Out[184]: 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: int64
```

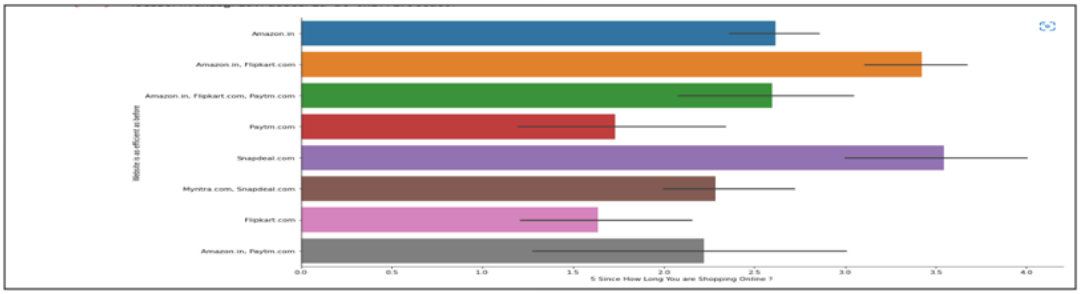
**Longer Delivery, Change in website, Frequent Disruption**

```
In [186]: Data["Longer delivery period"].value_counts()

Out[186]: 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
```

```
In [188]: Data['Change in website/Application design'].value_counts()

Out[188]: Amazon.in                  96
          Paytm.com                  63
          Amazon.in, Flipkart.com    45
          Myntra.com                 30
          Flipkart.com               20
          Snapdeal.com                8
          Flipkart.com, Myntra.com    7
          Name: Change in website/Application design, dtype: int64

In [189]: Data['Frequent disruption when moving from one page to another'].value_counts()

Out[189]: 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, dtype: int64
```

**Efficient Website:**

```
In [191]: Data['Website is as efficient as before'].value_counts()

Out[191]: 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
```




## Conclusion

**In terms of various online platforms there is a slight difference in common public opinion and sites which have retained customers over 4 years. Therefore the conclusion can be divided into two parts *1. Customer Popularity 2. Customer Retention***

**This has been explained in next.**

**Customer Popularity:**

***Amazon has the most popularity in terms of common usage, wide variety products, reliability, fastest speed, efficiency , customer privacy, product availability and quick purchase. However it also has disadvantage in Longer time to log, payment mode issue, frequent page disruption and change in website. Due to which there is also a lot of churning.***

**Customer Retention:**

***Customer Retention over 4 years has been mainly maintained by Flipkart, Paytm and Snapdeal with fastest speed, efficiency , customer privacy, product availability and quick purchase. It also has a recommendation from customers using Online Platform for a long time and has less payment issue, logging time and a low frequent page disruption and website change.***

**Recommendation:**

```
In [193]: Data['Which of the Indian online retailer would you recommend to a friend?'].value_counts()

Out[193]: 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
```