

E-retail factors for customer activation and retention: A case study from Indian e-commerce customers

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Acknowledgment

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I also want to thank my SME Ms.Khushboo garg and Ms.Deep chokshi for their instant response in solving the problems and providing the valuable information by addressing out our query in right time

Case Study Introduction:

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

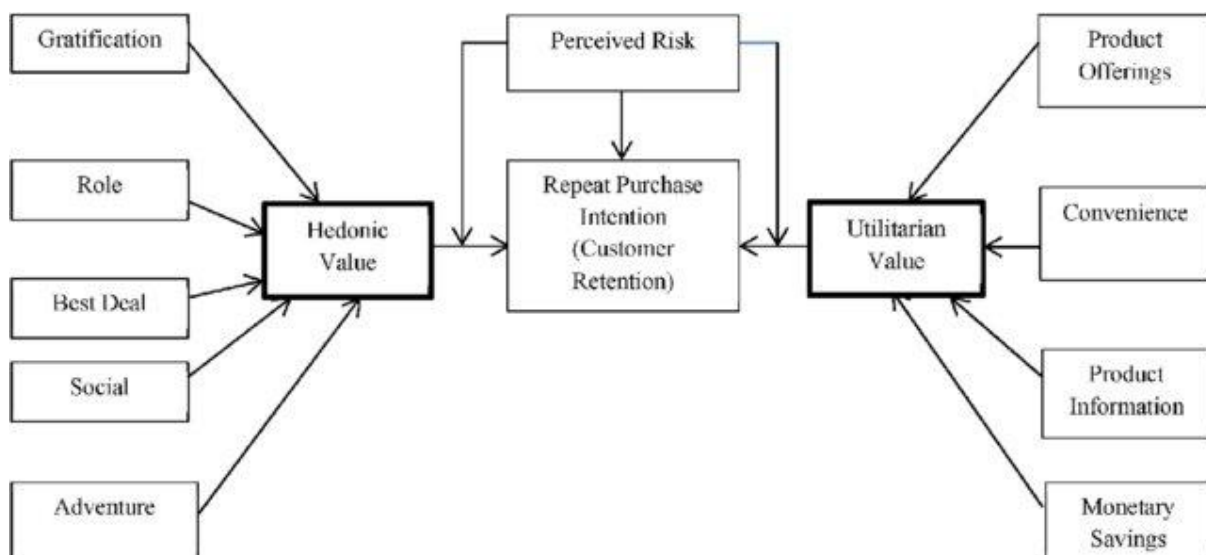
- Service
- Quality,
- System quality,
- Information quality,
- Trust and

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- 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.

Diagrammatic Representation of Customer Retention Dataset



Diag 1.1

As we can see in the diagrammatic representation of the Dataset there are 3 factors which are making the customer to get the intention of repeating the purchase with the online retailers

- Hedonic Value
- Utilitarian Value
- Perceived Risk

The Hedonic value consists of factors like

- Gratification
- Role
- Best Deal
- Social
- Adventure

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The utilitarian value consists of factors like

- Product Offerings
- Convenience
- product Information
- Monetary Savings

Executive Summary

In this project, a data-set was provided containing the details of the participants of a survey, along with their online shopping experiences, preferences, and opinions regarding various E commerce websites.

Firstly the data has been loaded from the excel sheet and was observed, it was first checked with null values and then the various feature columns were Analyzed. Exploratory Data analysis was conducted to investigate the relationships that existed between the columns, using various visualization techniques.

The dataset was worked with to study and understand how various Hedonic values, Utilitarian values in combination with several perceived risks helped to understand Customer retention and loyalty to various e commerce websites.

About the Dataset

Imported Required Libraries

```
[1]: #importing required libraries
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
```

Imported the required libraries

Numpy: Used for 1-d and 2-d arrays

Pandas: used to Read the data which are in different formats, visualize, analyze the data

Matplotlib: Matplotlib is a comprehensive library for creating static, animated, and interactive visualizations in Python.

Seaborn: Seaborn is a Python data visualization library based on matplotlib. It provides a high-level interface for drawing attractive and informative statistical graphics.

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Loaded the Dataset:

Loading the Data

```
: #reading the excel file and converting it to DataFrame
df = pd.read_excel('customer_retention_dataset.xlsx')
df.head()
```

	1 Gender 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?	...	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)
0	Male	31-40 years	Delhi	110009	Above 4 years	31-40 times	Dial-up	Desktop	Others	Window/windows Mobile	...	Amazon.in	Amazon.in	Flipkart.com
1	Female	21-30 years	Delhi	110030	Above 4 years	41 times and above	Wi-Fi	Smartphone	4.7 inches	IOS/Mac	...	Amazon.in, Flipkart.com	Myntra.com	snapdeal.com
2	Female	21-30 years	Greater Noida	201308	3-4 years	41 times and above	Mobile Internet	Smartphone	5.5 inches	Android	...	Myntra.com	Myntra.com	Myntra.com
3	Male	21-30 years	Karnal	132001	3-4 years	Less than 10 times	Mobile Internet	Smartphone	5.5 inches	IOS/Mac	...	Snapdeal.com	Myntra.com, Snapdeal.com	Myntra.com
4	Female	21-30 years	Bangalore	530068	2-3 years	11-20 times	Wi-Fi	Smartphone	4.7 inches	IOS/Mac	...	Flipkart.com, Paytm.com	Paytm.com	Paytm.com

5 rows x 71 columns

Shape of the data:

EDA

```
] : #Finding the shape of the DataFrame
df.shape
```

```
] : (269, 71)
```

- We can see the total dataset is comprised of 269 rows and 71 columns

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After removing spaces from the column names

```
j: df.columns = df.columns.str.rstrip()
```

```
j: #finding the data types of the each column
df.dtypes
```

```
j: 1Gender of respondent          object
    2 How old are you?           object
    3 Which city do you shop online from?  object
    4 What is the Pin Code of where you shop online from?  int64
    5 Since How Long You are Shopping Online ?  object
    ...
    Longer delivery period        object
    Change in website/Application design  object
    Frequent disruption when moving from one page to another  object
    Website is as efficient as before  object
    Which of the Indian online retailer would you recommend to a friend?  object
    Length: 71, dtype: object
```

```
l: #getting the concise summary of the dataframe using df.info
```

Getting the summary of the data

```
[8]: #getting the concise summary of the dataframe using df.info
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 269 entries, 0 to 268
Data columns (total 71 columns):
#   Column
n-Null Count  Dtype
---  -
0   1Gender of respondent          object
9 non-null
1   2 How old are you?           object
9 non-null
2   3 Which city do you shop online from?  object
9 non-null
3   4 What is the Pin Code of where you shop online from?  int64
9 non-null
4   5 Since How Long You are Shopping Online ?  object
9 non-null
5   6 How many times you have made an online purchase in the past 1 year?  object
9 non-null
```

- Except the pincode all others are of object type(categorical variables)
- with No Null values

Columns present in the dataset

```
'1Gender of respondent',
'2 How old are you?',
'3 Which city do 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?'
```

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- '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 What is your preferred payment Option?'
- '16 How frequently do you abandon (selecting an items 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'
- '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'
- '41 Monetary savings'
- '42 The Convenience of patronizing the online retailer'
- '43 Shopping on the website gives you the sense of adventure'
- '44 Shopping on your preferred e-tailer enhances your social status'
- '45 You feel gratification shopping on your favorite e-tailer'
- '46 Shopping on the website helps you fulfill certain roles'
- '47 Getting value for money spent'
- 'From the following, tick any (or all) of the online retailers you have shopped from;'
- 'Easy to use website or application'
- 'Visual appealing web-page layout'
- 'Wild variety of product on offer'
- 'Complete, relevant description information of products'
- 'Fast loading website speed of website and application'
- 'Reliability of the website or application'
- 'Quickness ato complete purchase'
- 'Availability of several payment options'

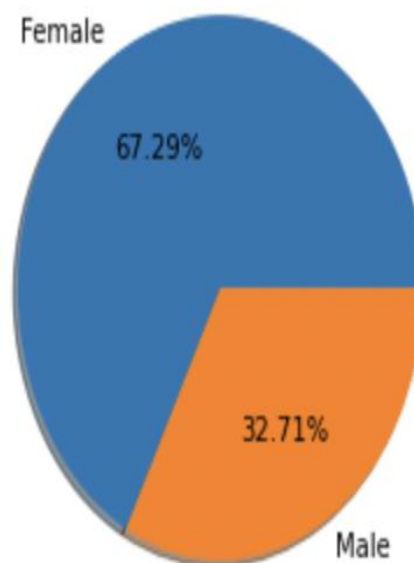
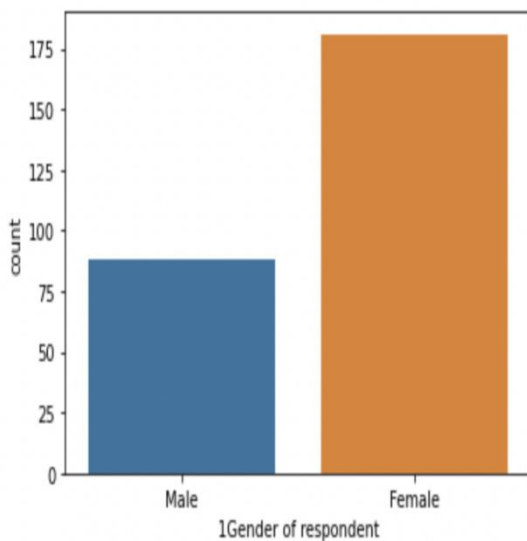
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'Speedy order delivery',
'Privacy of customers' information',
'Security of customer financial information',
'Perceived Trustworthiness',
'Presence of online assistance through multi-channel',
'Longer time to get logged in (promotion, sales period)',
'Longer time in displaying graphics and photos (promotion, sales period)',
'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?'

Visualisation:

```
sns.countplot(df['Gender of respondent'])
```

```
<AxesSubplot:xlabel='Gender of respondent', ylabel='count'
```



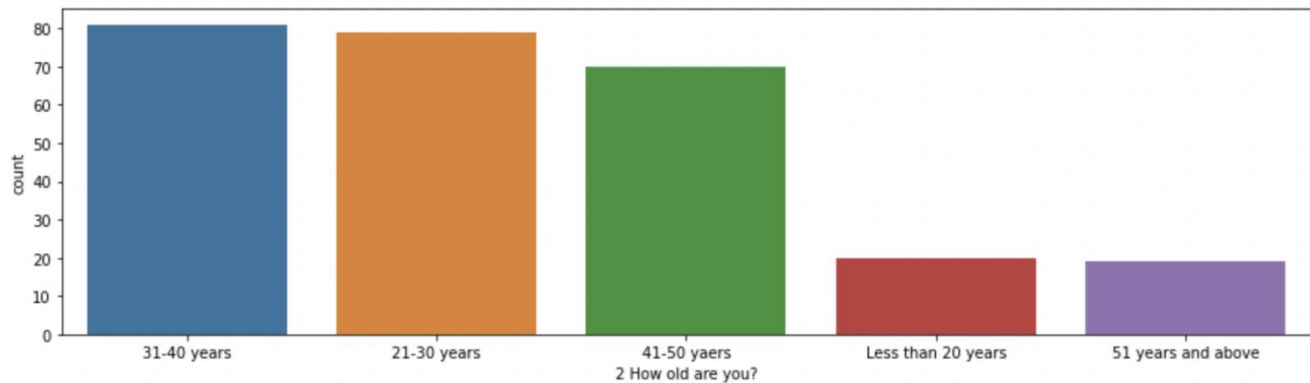
- As we can see there are more numbers of female customers in the dataset

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Age of the Customers:

```
plt.figure(figsize=(15,4),facecolor='white')
sns.countplot(df['2 How old are you?'])
```

<AxesSubplot:xlabel='2 How old are you?', ylabel='count'>

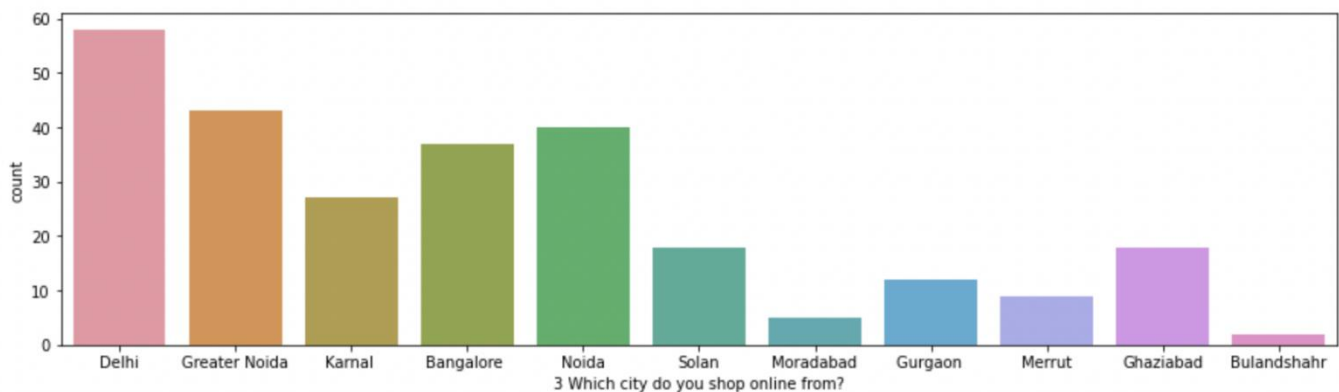


- 31-40 and 21-30 years people are more active in online shopping
- 51 years+ and below 20 years aged people are not active in online shopping
- 41-50 years people are moderately active

Shopping based on city

```
plt.figure(figsize=(15,4),facecolor='white')
sns.countplot(df['3 Which city do you shop online from?'])
```

<AxesSubplot:xlabel='3 Which city do you shop online from?', ylabel='count'>



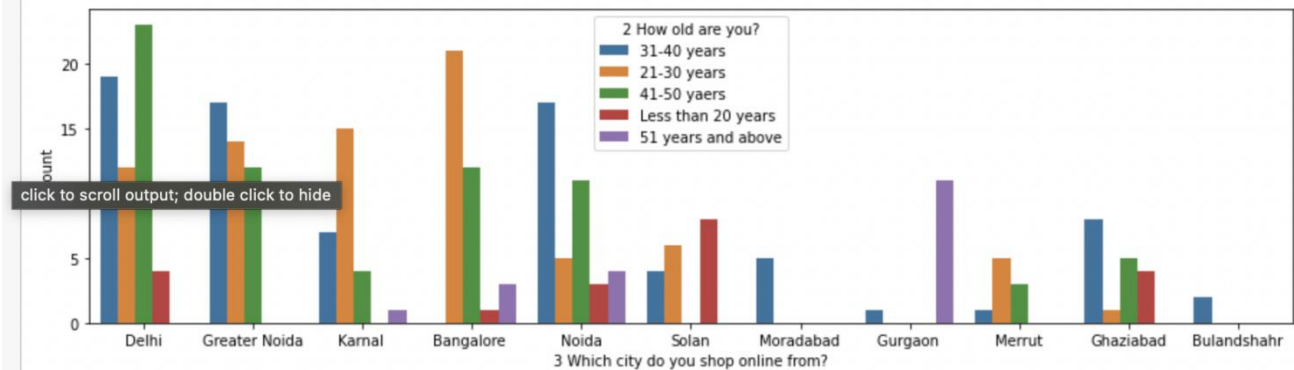
- Delhi based location are highly active in online shopping
- Bulandshahr location people are not active
- Priority based on location who are active in online shopping is like:
 - Delhi 58
 - Greater Noida 43
 - Noida 40
 - Bangalore 37
 - Karnal 27
 - Solan 18
 - Ghaziabad 18
 - Gurgaon 12
 - Merrut 9
 - Moradabad 5
 - Bulandshahr 2

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Comparison of shopping based on City and age:

```
: plt.figure(figsize=(15,4),facecolor='white')
sns.countplot(df['3 Which city do you shop online from?'], hue=df['2 How old are you?'])

<AxesSubplot:xlabel='3 Which city do you shop online from?', ylabel='count'>
```

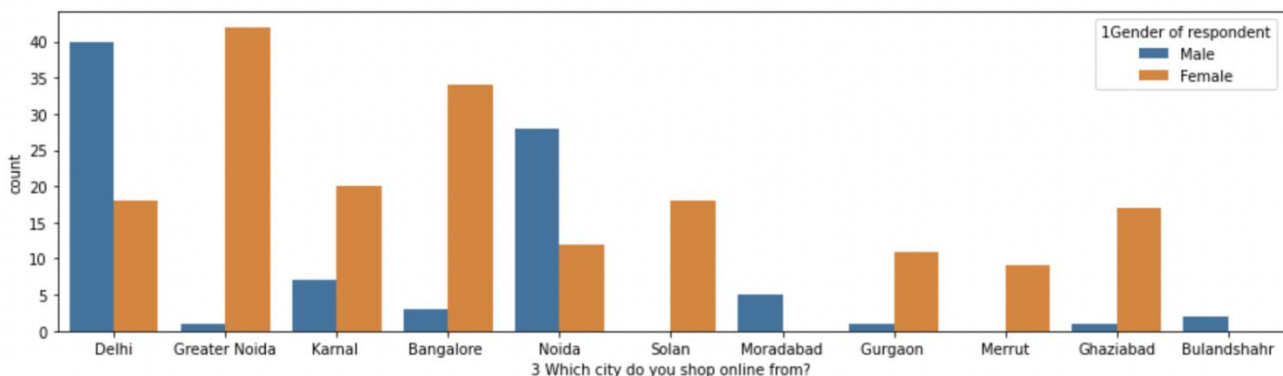


Comparison of shopping based on city and gender

Comparison of shopping based on city,gender

```
plt.figure(figsize=(15,4),facecolor='white')
sns.countplot(df['3 Which city do you shop online from?'], hue=df['1Gender of respondent'])

<AxesSubplot:xlabel='3 Which city do you shop online from?', ylabel='count'>
```



- Lets go through the comparison. of location and aged people who are involved in shopping
- Delhi:
 - mostly 41-50 years aged people shop online
 - less than 20 aged are not much active in shopping
 - 31-40 and 21-30 are moderately active
- Greater Noida:
 - There is no 'less than 20 years' and '51 years and above' aged people involved in online shopping.
 - 31-40 years aged are more active
 - 41-50 years aged are less active
 - 21-30 years aged are moderately involved in online shopping
- Kamal:

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- There is no 'less than 20 years' aged people involved in online shopping.
- 21-30 years aged people are more active
- 31-40 and 41-50 are moderately involved in shopping.
- 51 years above are less involved here

•Bangalore:

- 21-30 aged are highly active.
- less than 20 years are least active.
- 41-50 are moderately active.
- 51 years and above are slightly active in online shopping.

•Noida:

- 31-40 years are highly active.
- 'less than 20 years' and '21-30' are least active.
- 41-50 are moderately active.

•Solan:

- less than 20 years are highly active.
- 31-40 years are least active in online shopping.
- 21-30 are moderately active

•Moradabad:

- Only 31-40 years people are active in online shopping

•Gurgaon:

- 51 years and above are highly active
- 31-40 are least active

•Merut:

- Compared to other states here 31-50 years in-between aged people are moderately active

•Ghaziabad:

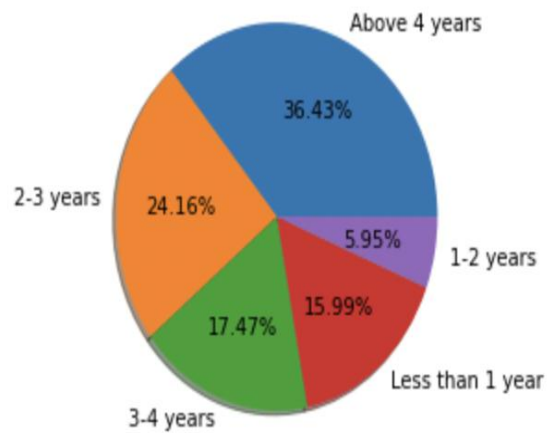
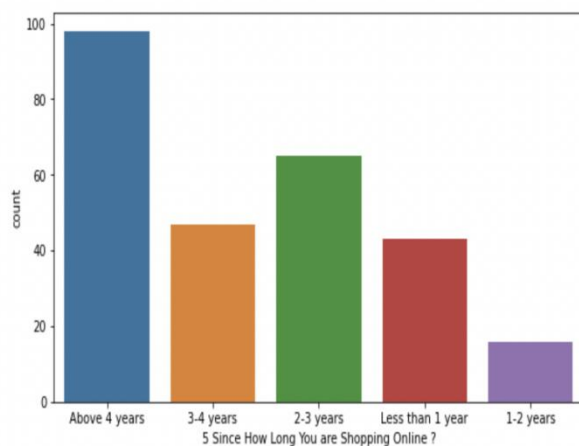
- Compared to other states here except 50 years and above aged all the other aged people are moderately active

•Bulandshahr:

- only some amount of people of aged 31-40 are active here.

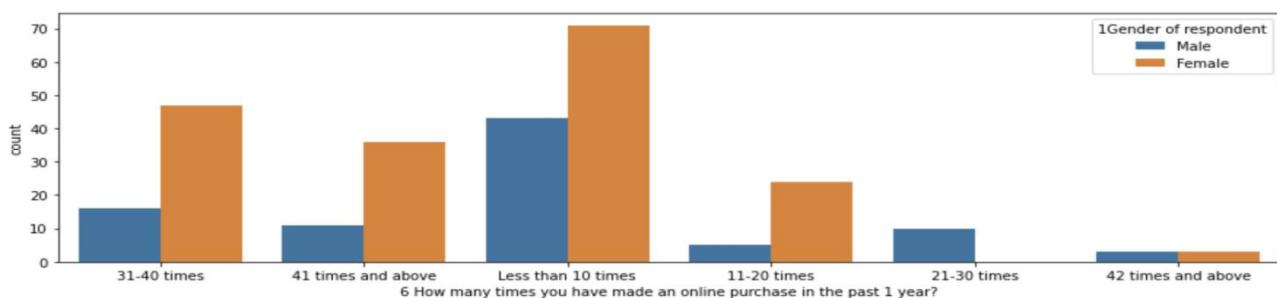
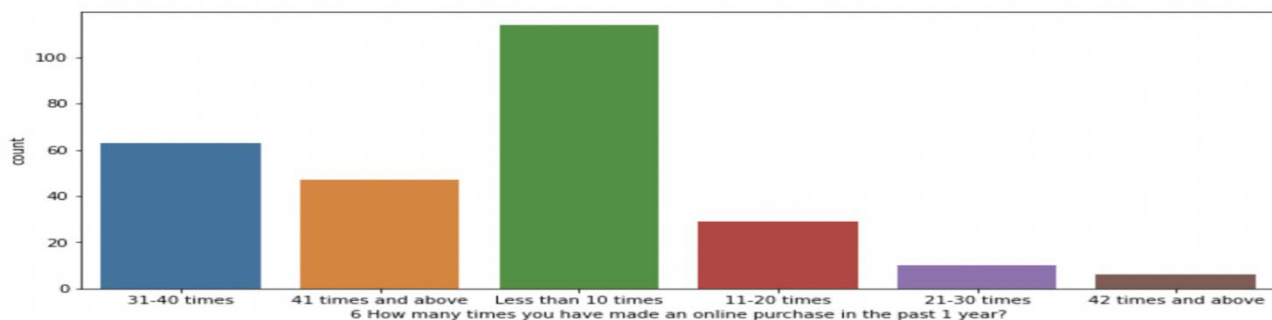
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Since how long the people are shopping online



- From the data there are many Customers whose are shopping from more than 4 years
- There are very less customers who are shopping from 1-2 years

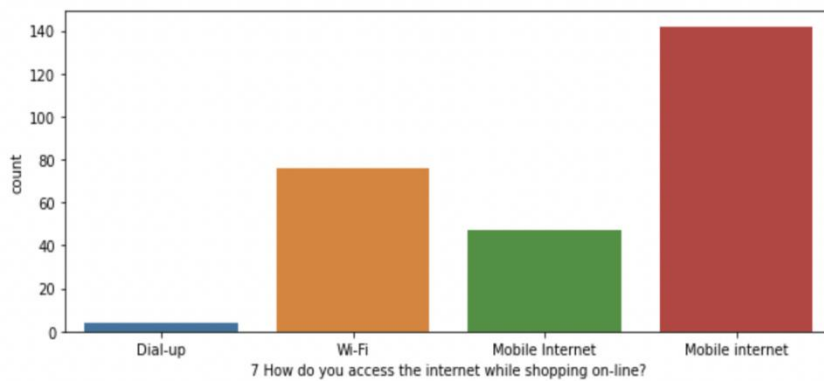
Online Purchases made in past 1 year



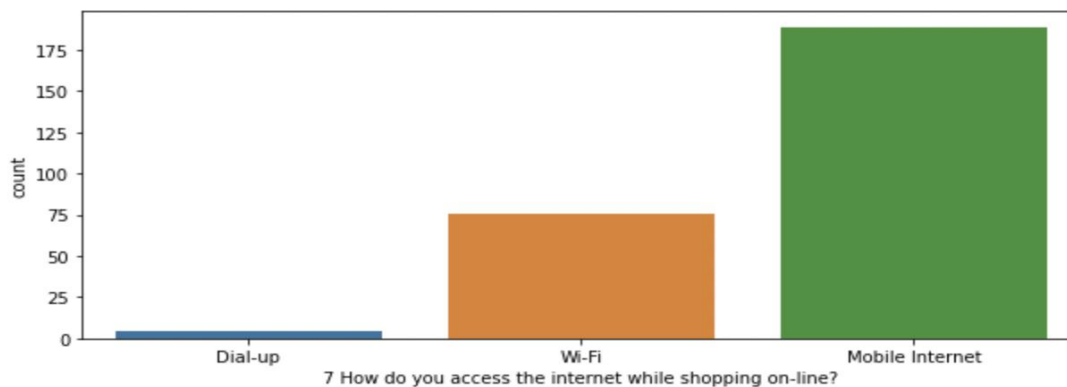
- In the past 1 year most of the customers has shopped less than 10 times
- 42 times and above shopped customers are very less in count
- Female customers are more involved in shoppings as per graph

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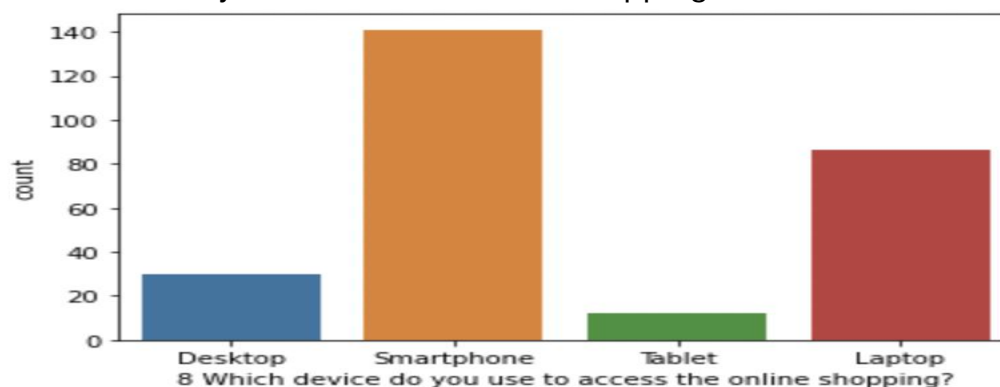
Customers mode of accessing online sites



- Most of the customers are using Mobile internet to access the online sites
- Based on above statement we can also assume most of the customers are using mobiles to access the online sites
- very Less customers are using Dial-up facility
- In the data as we have 2 categories stating same mobile internet with some different names combined together and here is the graph below for the same



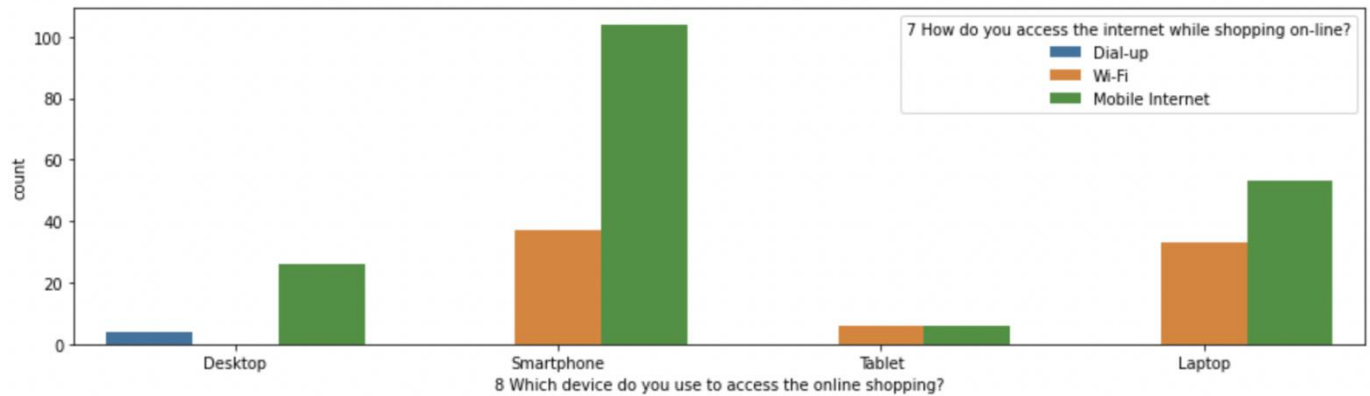
Devices used by customers for online shopping



- As discussed above most of the customers are using mobile devices for online shopping

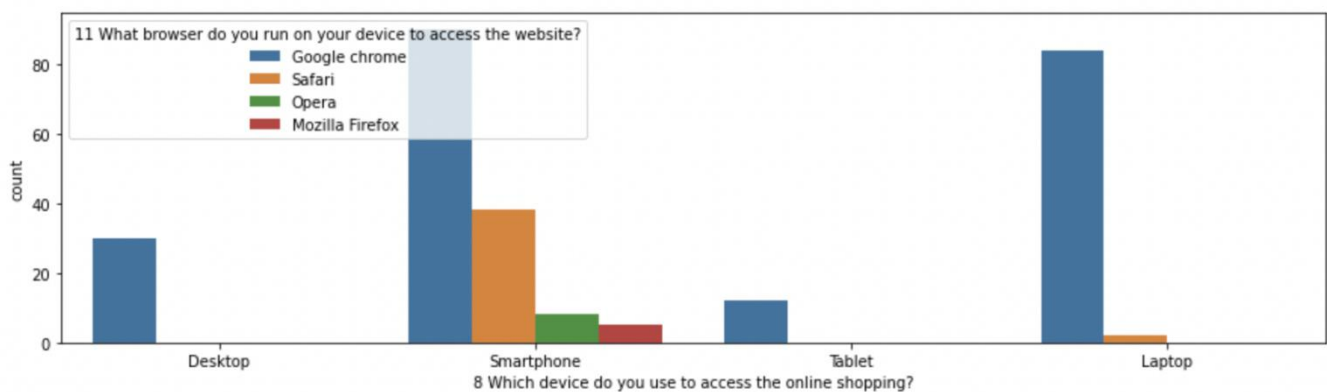
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Comparison of access of online shopping with help of mode of accessing the internet



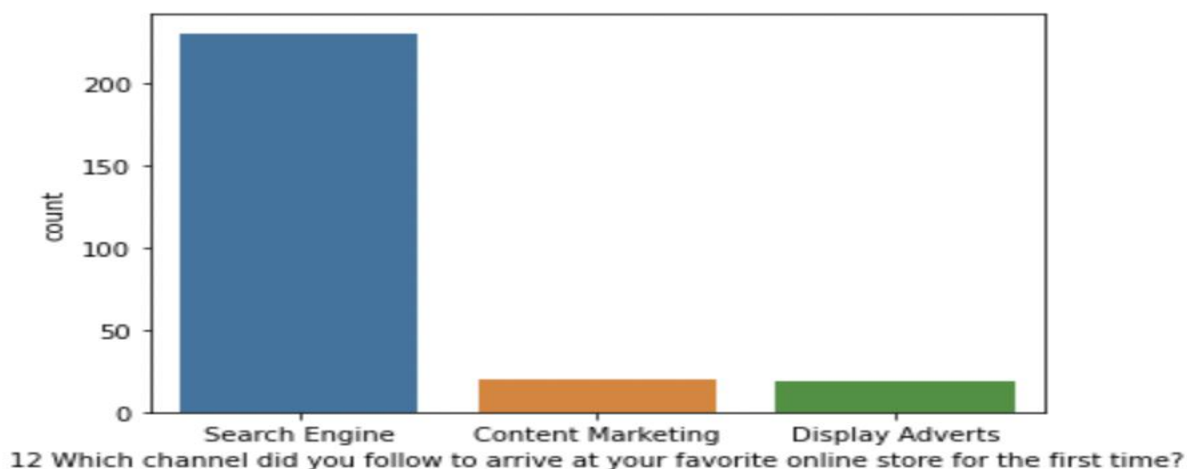
- Smartphones and Laptops are mostly using Mobile internet and wifi
- Only some customers who are using Desktop as making use of Dial-up

Browsers used by customers in different devices



- Most of the customers are using smartphone, Laptop with browser Google Chrome
- The desktop users are using only chrome

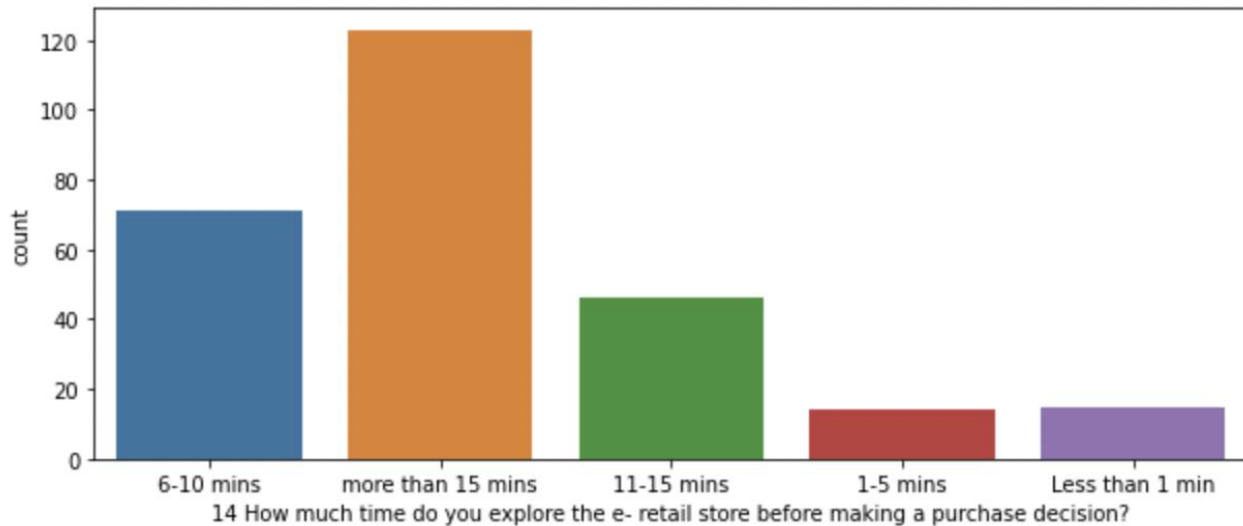
arrive at your favorite online store for the first time



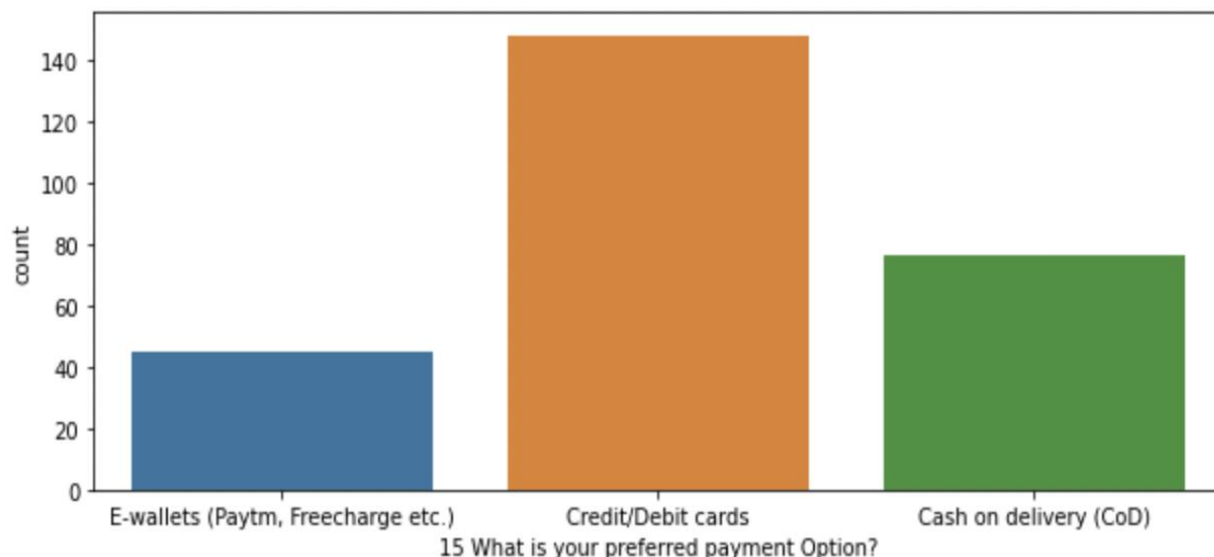
- Most of the Customers used search engine at the initial stage to arrive at their favorite online store

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How Much time customer spent on e-retail store



Preferred payment option

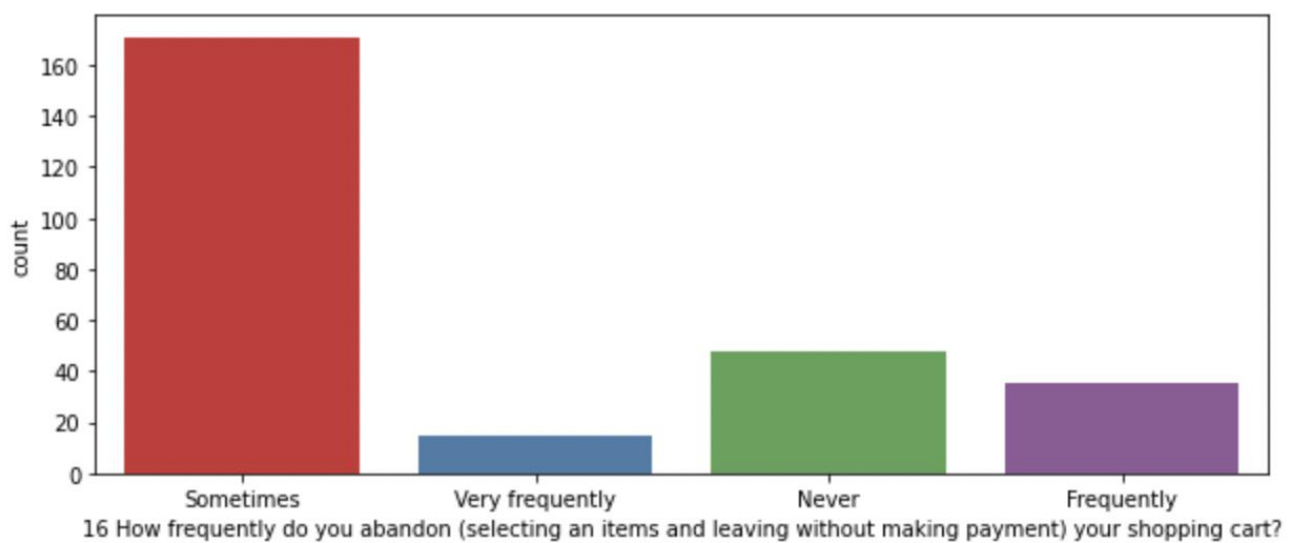


Based on the above graphs it is observed that:

- Majority of the consumers have been shopping for over 4 years and have made less than 10 purchases in the last 1 year.
- Smart phone and mobile internet are the most popular means of accessing e commerce websites, with most common screen size being 5.5 inches or greater.
- Windows operating system is the most popular on Laptop/Desktop devices while android is the most popular OS on smart phone devices followed by IOS.
- Google Chrome is the most popular web Browser, especially on portable devices, followed by Safari.
- Search Engine is the most common means of arriving at the E commerce websites, followed by Application and Direct URL.
- Most consumers spend over 15 minutes browsing an e-commerce website before making a purchase decision.
- Customers most preferred payment option is via credit/debit cards

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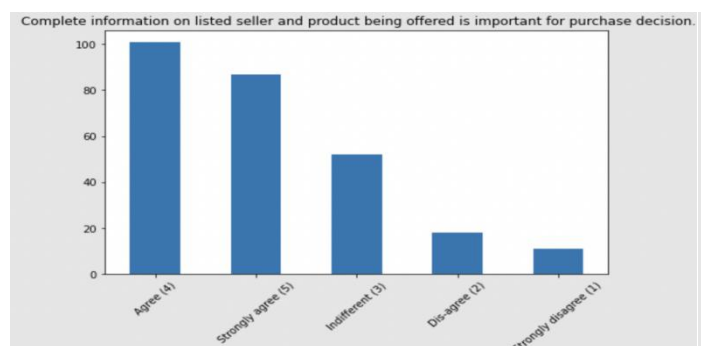
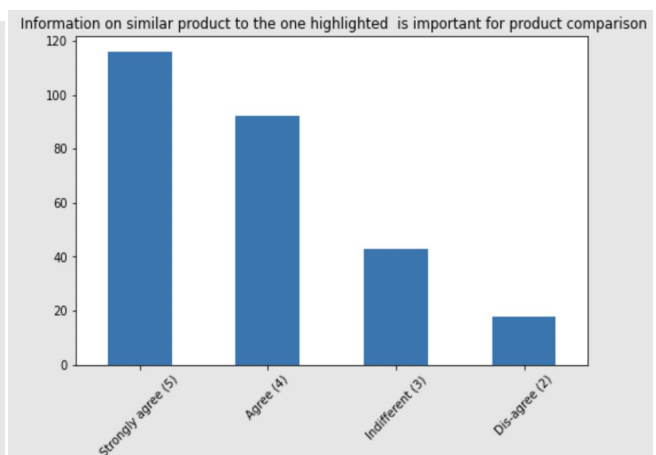
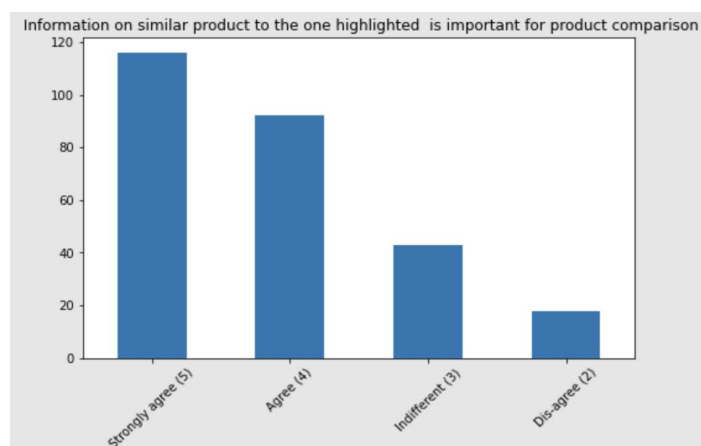
How frequently does customer abandon the website



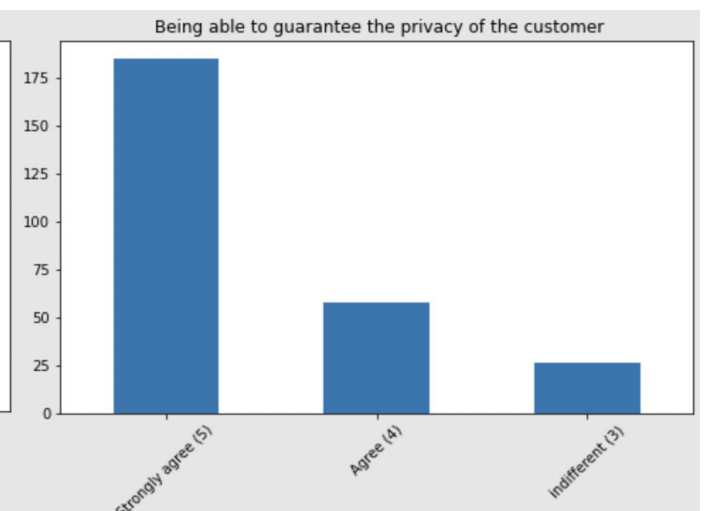
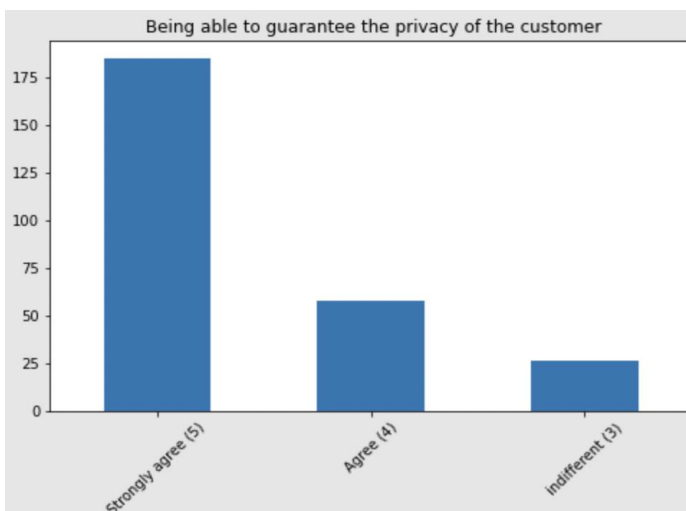
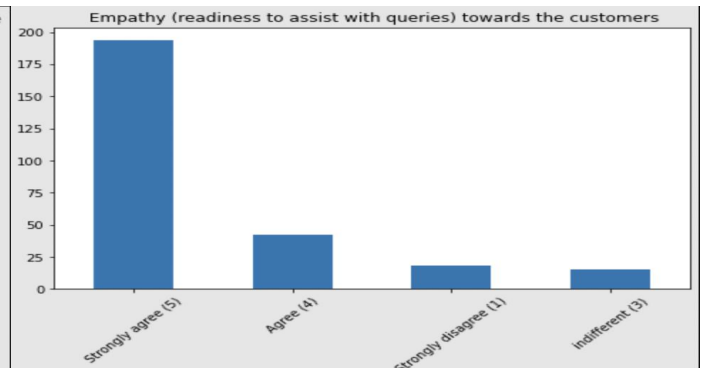
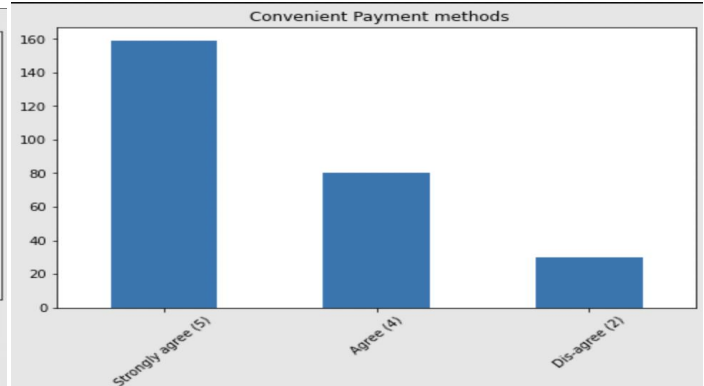
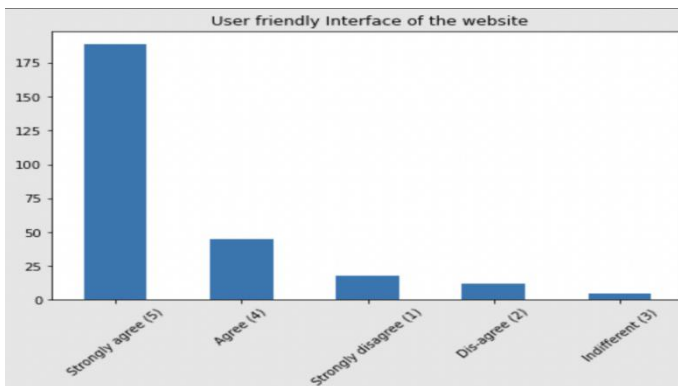
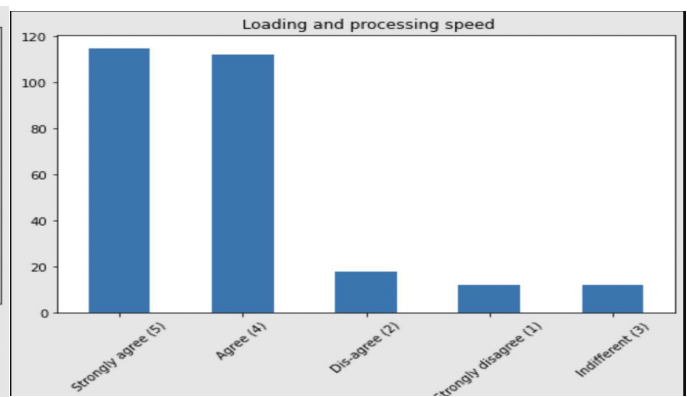
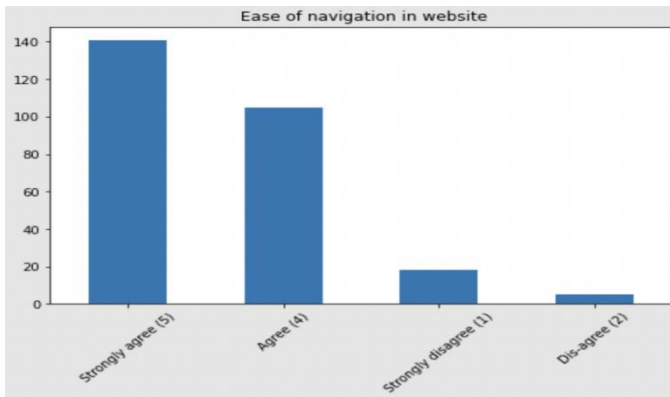
Based on the above graphs it is observed that:

- Consumers sometimes abandon items in shopping cart.
- Finding a better alternative offer is the most common reason behind why consumers abandon items on a particular e commerce website.

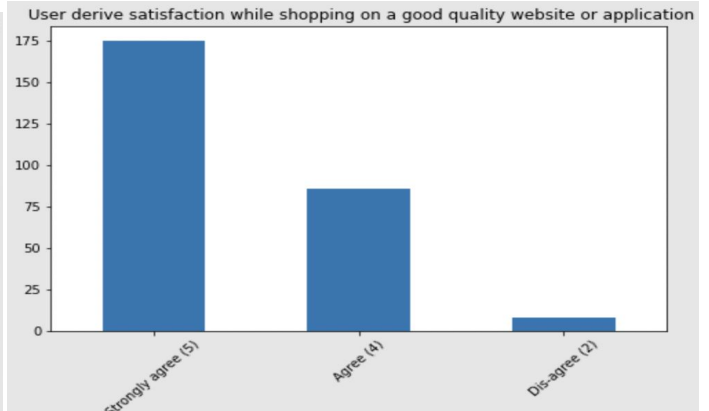
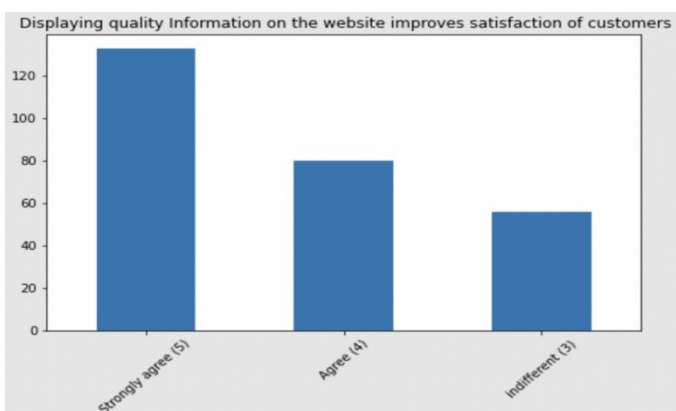
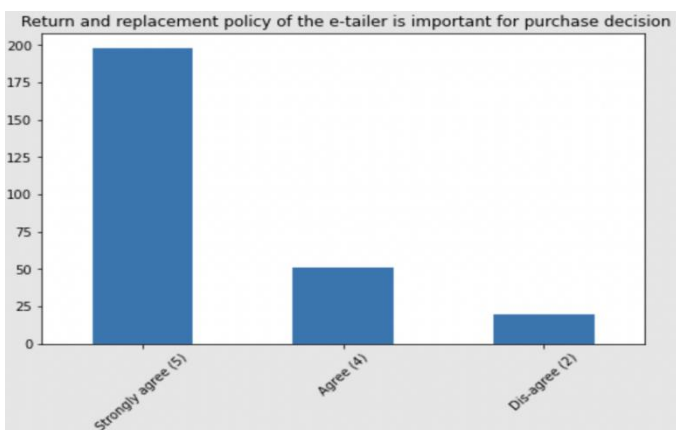
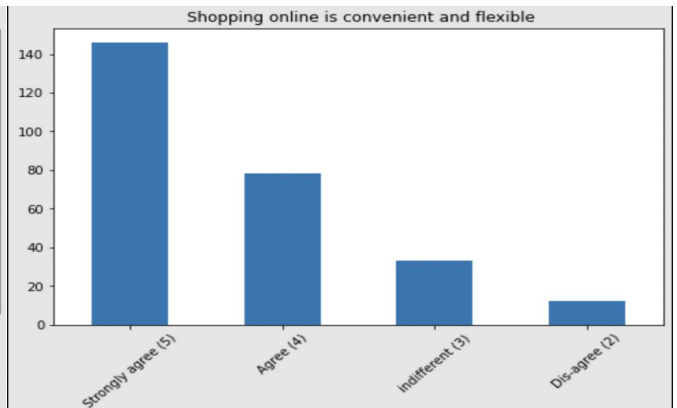
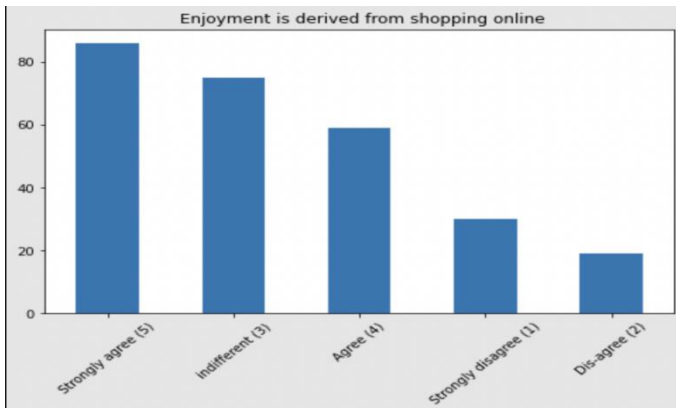
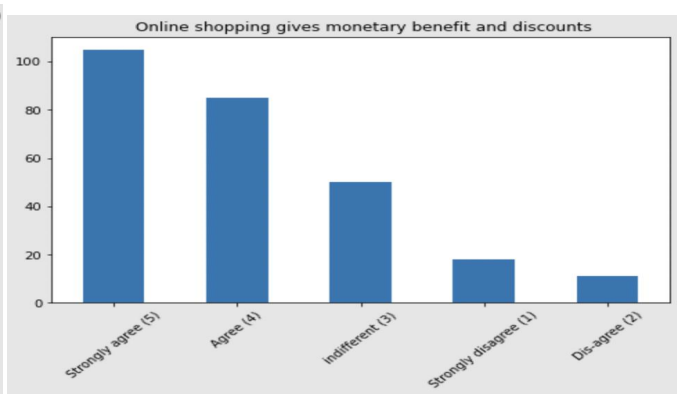
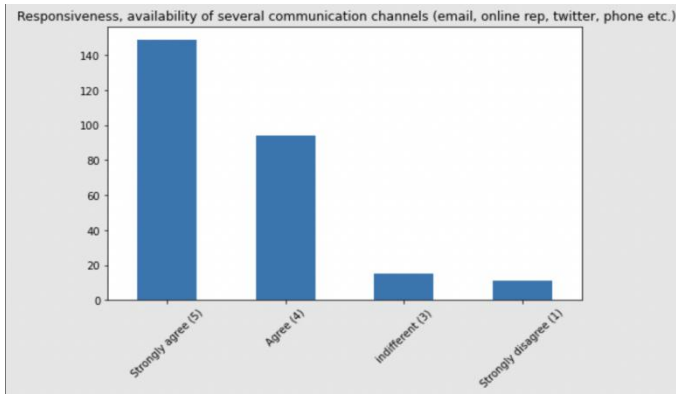
Consumer opinions on Website Features and consumer opinions



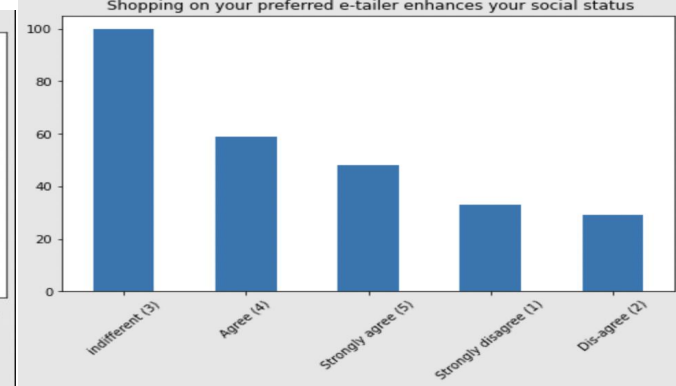
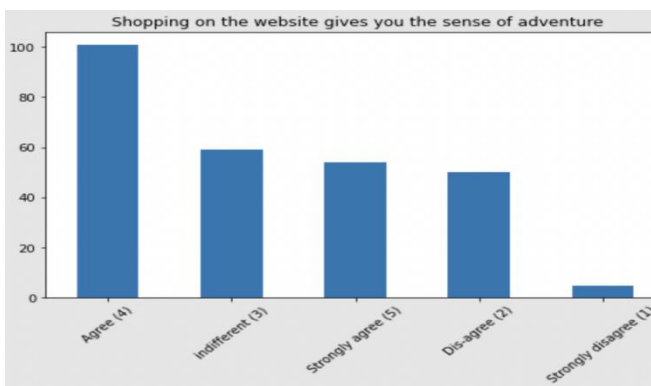
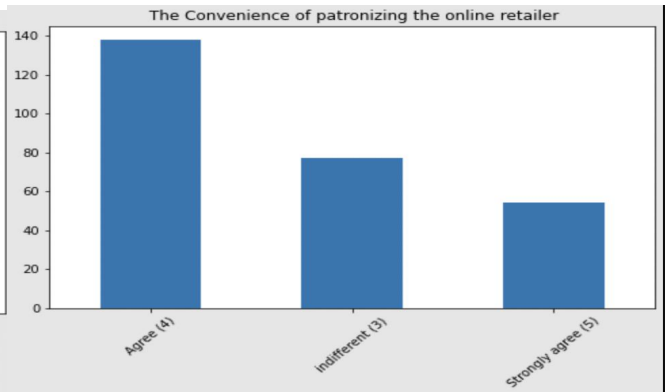
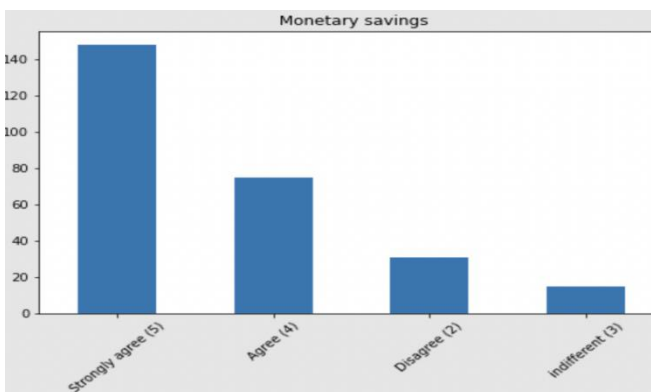
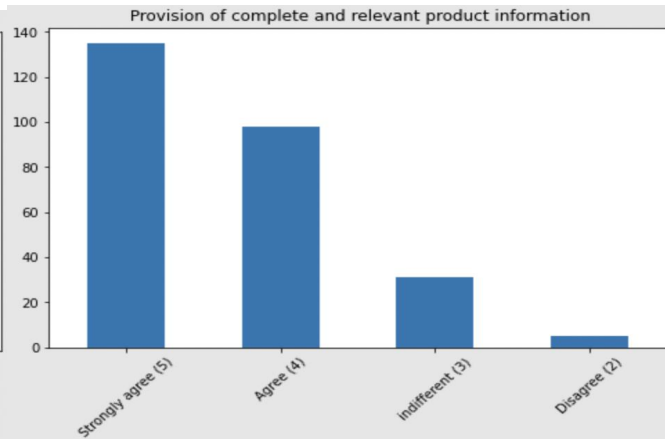
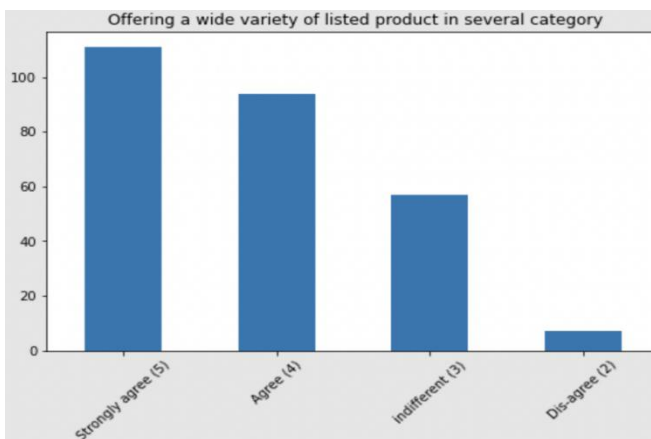
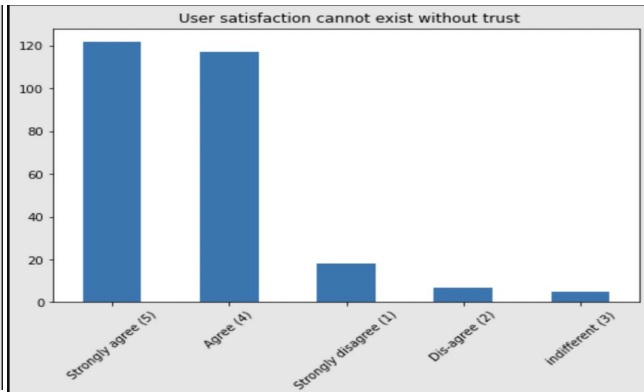
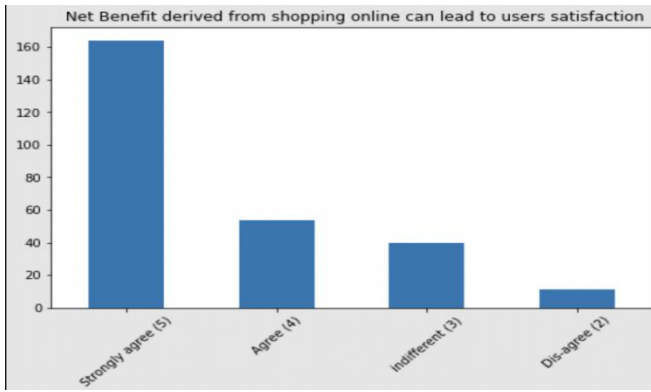
Customer Retention Case-study



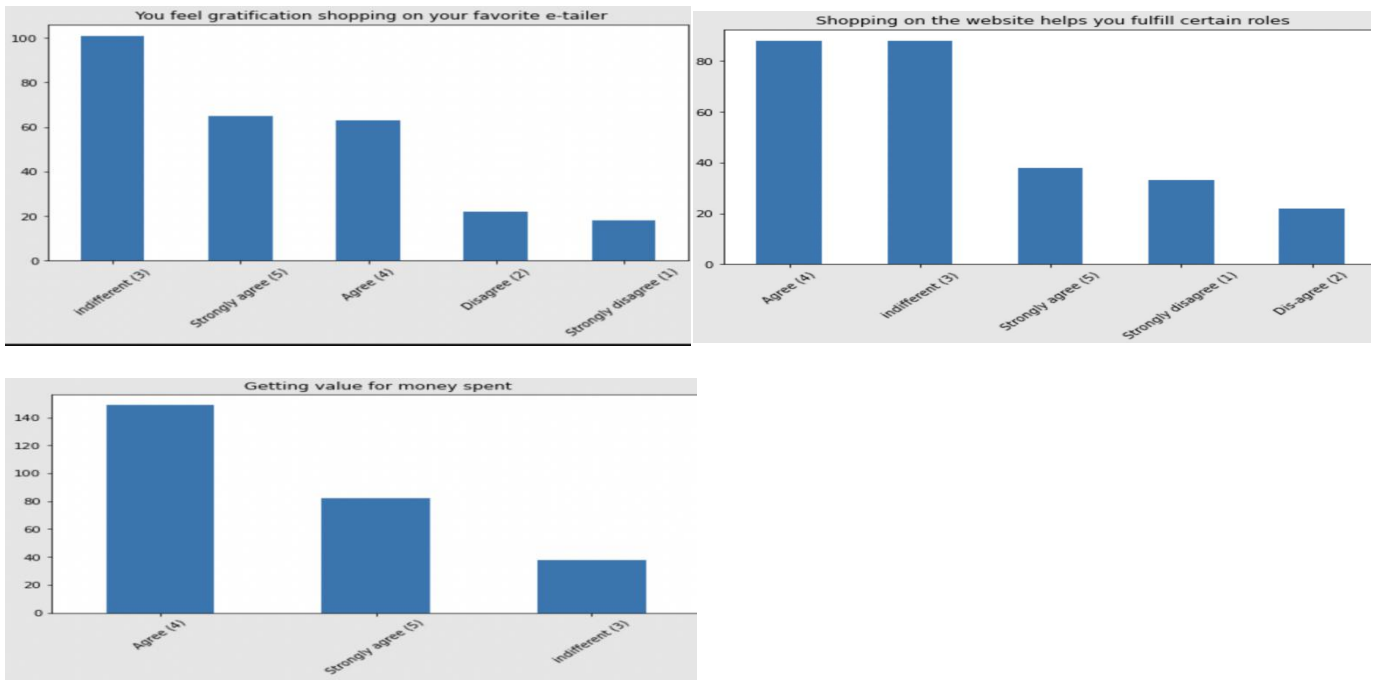
Customer Retention Case-study



Customer Retention Case-study



Customer Retention Case-study



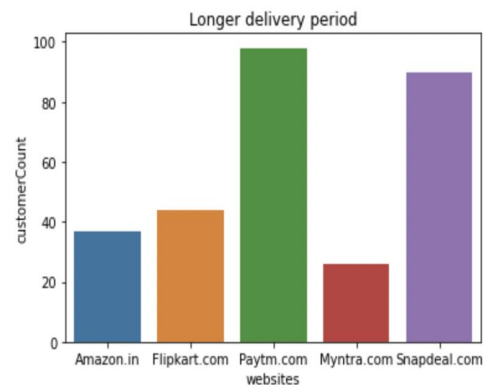
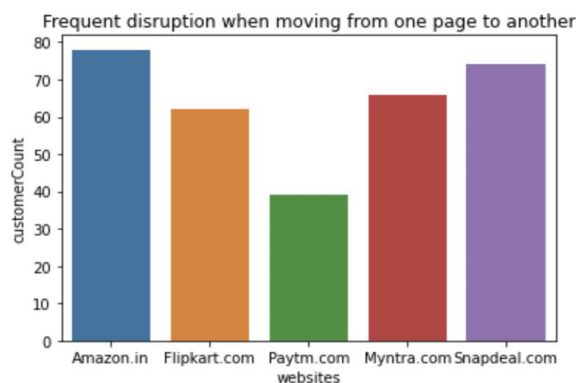
The above all graphs shows us about the opinions on the website

- The content in the website must be easy to understand is what most of the users are strongly agreeing with you
- Mostly customer are satisfied with information on similar product to the one highlighted is important for product comparison. No matter what are their ages.
- Customers are satisfied with relevant information on listed seller and product being offered is important for purchase decision
- Customer are satisfied with the relevant information of products must be stated clearly.
- Customers satisfied with the navigation feature produced by website.
- Customers are mostly satisfied with the performance of the website.
- most of the customers are very much satisfied with the website's user-friendliness.
- Mostly users are satisfied with the payments Services.
- Customer has the good trust built between the customers and the onlineRetailers stores that they fulfill its part of transaction at the stipulated time.
- Mostly customers are satisfied with the Empathy (The way service executives respond for queries).
- Most of the customers are highly satisfied with the oath that company is able to guarantee the privacy of the customer
- Most of Customer are satisfied with responsiveness, availability of of several communication channels.
- Customers are strongly agreeing with the monetary benefits and discounts in online.
- Mostly half of the customers are not satisfied with enjoyment service from online shopping
- Most of the customers opinion is like they are convenient and flexible with online shopping mode.
- Most of the customers opinion is like Return & replacement policy services.
- Users are strongly agreeing with gaining the access to loyalty program is benefit.

Customer Retention Case-study

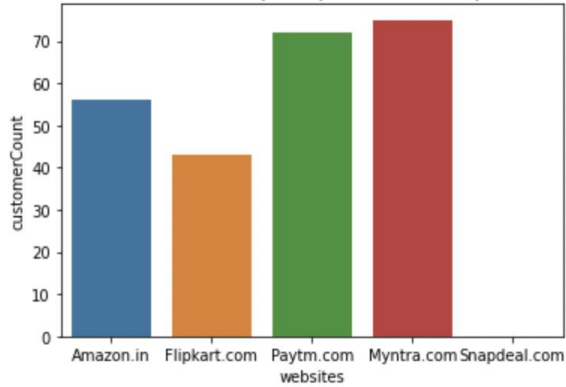
- Customers are highly satisfied with quality information on websites.
- Customer are highly satisfied with the good quality of websites or application.
- Mostly customers getting Net Benefit derived from shopping online.
- Most of users are agreeing with the word user satisfaction cannot exist with out trust.
- Mostly customer are satisfied with the service offering wide variety to customers.
- Users are satisfied with the provision of complete and relevant product information.
- Customers are highly satisfied with monetary savings
- Mostly customer are not satisfied with the convinience of patronizing the online reatiler.
- Mostly customer doesn't feels adventure while using websites.
- Most Users feels indiiferent while shopping online there is not such enhancement on their social status.
- Users opinion is indifferent in gratification shopping on your favourite e-trailer.
- Mostly customer doesn't feels helpful that shopping fulfil their certain roles.
- Customers are getting highly satisfied for the money spent in online shopping

Costumer Negative feedback opinions

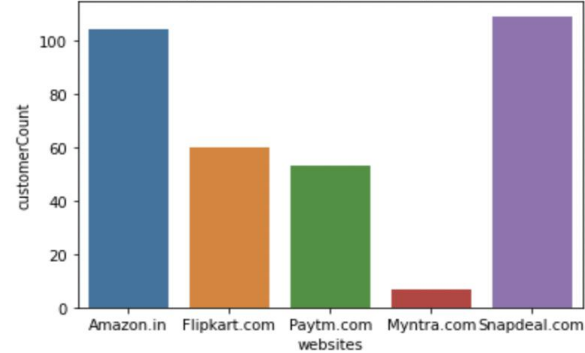


Customer Retention Case-study

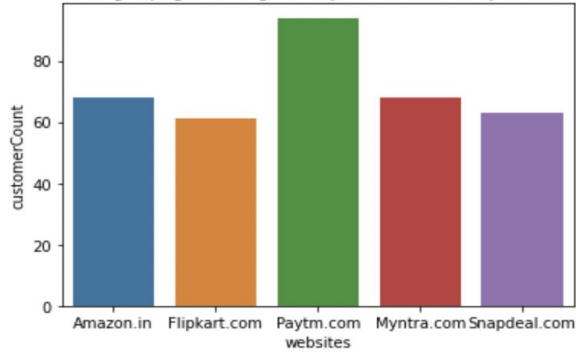
Late declaration of price (promotion, sales period)



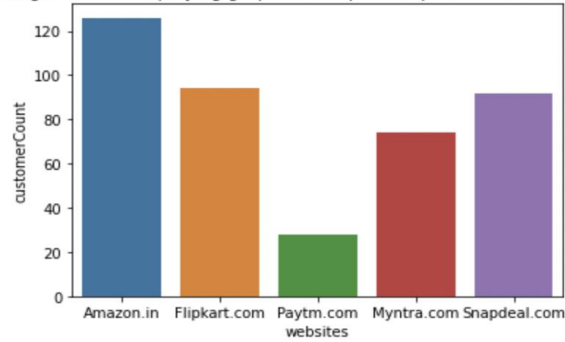
Limited mode of payment on most products (promotion, sales period)



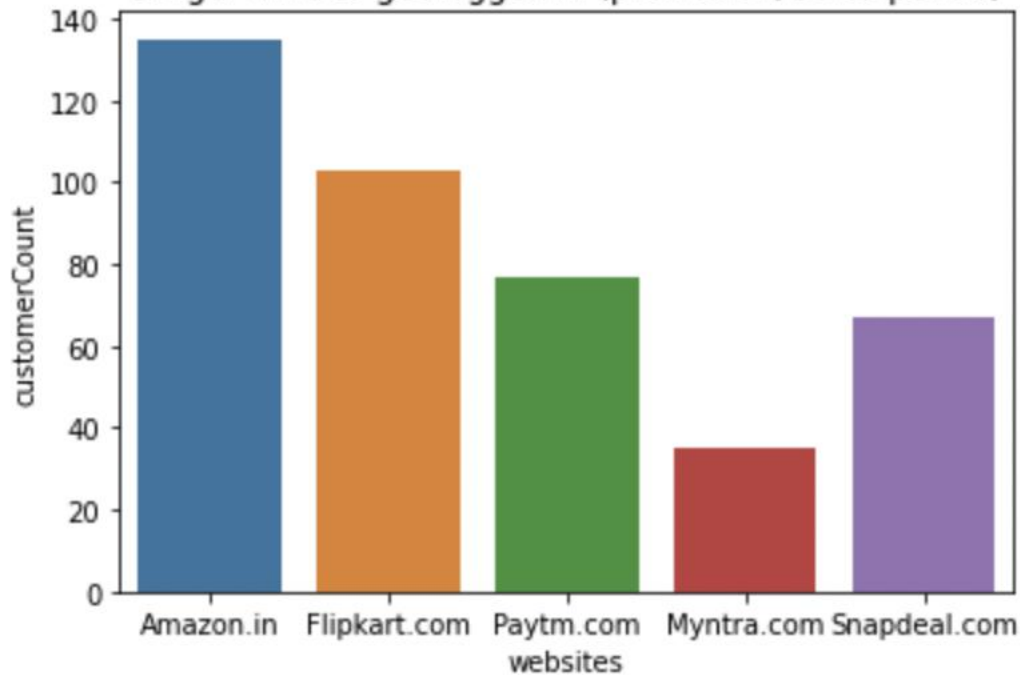
Longer page loading time (promotion, sales period)



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



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



Customer Retention Case-study

- Longer time to get logged in (promotion, sales period)
 - Customers are Not satisfied with Amazon on the time taken for customer log in followed by Flipkart, paytm, snapdeal
 - Myntra Takes very long time for customer account login
- Longer time in displaying graphics and photos (promotion, sales period)
 - As per customer Amazon is taking longer time to load
 - Paytm takes very less time in loading the graphics
- Late declaration of price (promotion, sales period)
 - Paytm, Myntra is making the late declaration of price
 - Compared to Flipkart amazon is making the Late declaration of price
- Longer page loading time (promotion, sales period)
 - Paytm is taking long time to page loading
 - Amazon and Flipkart has good page loading
- Limited mode of payment on most products (promotion, sales period)
 - snapdeal has the limited mode payment on most products
 - Although Amazon has many payments methods for some of the products it has limited payment methods
 - Myntra has good amount of payment modes
- Longer delivery period
 - Customer says paytm is taking the longer delivery period to deliver products
 - Amazon has good delivery speed
 - Some of the customers are saying Myntra has good delivery speed and some are saying it takes long to deliver
- Frequent disruption when moving from one page to another
 - Amazon, Snapdeal and Myntra have frequent discrepancies, when moving from one page to another

Conclusion

•Amazon:

- Needs to be improved in customers login.
- Need to give a disturbance free shopping experience to customers.
- Amazon should provide some more payment options
- Good Presence of online assistance through multi-channels
- Good Reliable website
- ease of its website
- Excellent Visual appealing web-page layout
- Good Wide variety of product on offer
- provides Complete, relevant description information of products
- Delivers Order Quickly
- Provides Privacy of customers' information

•FlipKart:

- Mostly Amazon and Flipkart has same feedback info for the websites
- try to give a disturbance free shopping experience to customers
- Reduce the delivery time of the products
- Give more payment options to customers
- Try to give the price early during promotion
- Wide variety of product on offer
- Convenient to use and also a good website for shopping
- Fast delivery of products
- Excellent Availability of complete information of the products
- Presence of online assistance through multi-channels
- Good Reliable website
- perceived trustworthiness

•Myntra:

- Try to give the price early
- Reduce the delivery time of the products during promotions
- provides Availability of several payment options
- Provides faster delivery of products
- Provides complete information of products
- Wide variety of product to offer

•Paytm.com

Customer Retention Case-study

- Try to give the price early during promotion
 - Need to provide disturbance free shopping experience to customers
 - Reduce the delivery time of the products during promotions
 - Late declaration of price and discounts
 - Frequent disturbance is occurring while moving from one page to another
 - Quickness to complete a purchase
 - some customers feel web is reliable and some feel app is reliable
 - wild variety of products on offer
- Snapdeal:
- Need to avoid Late declaration of price and discounts
 - Most of the customers has expressed to not to recommend snapdeal to a contact as it has the most negative feedbacks among all other websites
 - Reduce the delivery time of the products during promotion
 - Need to give the price early
 - Need to provide disturbance free shopping experience to customers