

NAME OF THE PROJECT:**A Project Report on Data Analysis of Customer Retention in the
Ecommerce Sector.**

Submitted by

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Finally, A huge thanks to “Data trained” who gave me the opportunity to get the Internship at Flip-Robo.

ABSTRACT

E-commerce is growing fast with the fast development of internet and communication technology. Now E-commerce brings the businesses a world-wide market and a huge population of potential customer. For customers the price information is more transparent and there are much more buying choices than before. Online businesses are competing for customers on a word wide market like never before. The customer retention gained increased value among the E-commerce businesses. But the research of customer retention in E-commerce context remains limited. After reviewing the dataset and analysing it, a Machine Learning Model can be developed keeping in view of the factors affecting the customer retention in E-commerce context to find out the real customer attitude with respect to individual factors. This Project is aimed to investigate the concrete influence factors of customer retention in an E-commerce context.

This Project is based on the E-commerce business and analysing the E-commerce site to improve the customer retention rate of their business. This Project also aimed to investigate the concrete influential factors of customer retention in an E-commerce market context.

Keywords: Customer retention, E-commerce, E-satisfaction, E-loyalty, E-service quality, E-business.

CHAPTER 1

INTRODUCTION

E-commerce is a term for any type of business that involves the exchange of information across electronic networks. It involves all aspects of an organization's interaction or commercial transaction with suppliers, clients, stakeholders, and customers, etc. The greatest advantage is its huge reach across the global market and being able to conduct business 24x7x365 days by selling various kinds of goods and service. Presently, the number of people having access to the internet platform has been increased to a greater extent and this has led e-commerce business to grow rapidly.

Since the e-commerce platform has enabled the customers to directly interact with sellers, it has led to a reduction in the supply chain process and accordingly customers also get to buy at a lower rate. It provides various choices for customers to choose among different sellers according to their preference for a product and budget ascertained. Since the users of e-commerce platform are increasing rapidly it urges every seller to pull new customers and also to retain loyal customers. Retaining on loyal customers creates a regular income, the ultimate goal of every seller is to transform occasional customers into loyal a one. Thus, it has urged sellers to create various retention strategies to increase profitability and gain market share by retaining customers.

Customer retention rate is the percentage of people who make repeat purchases from your ecommerce store. 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.

Retention Strategies of E-Commerce Business:

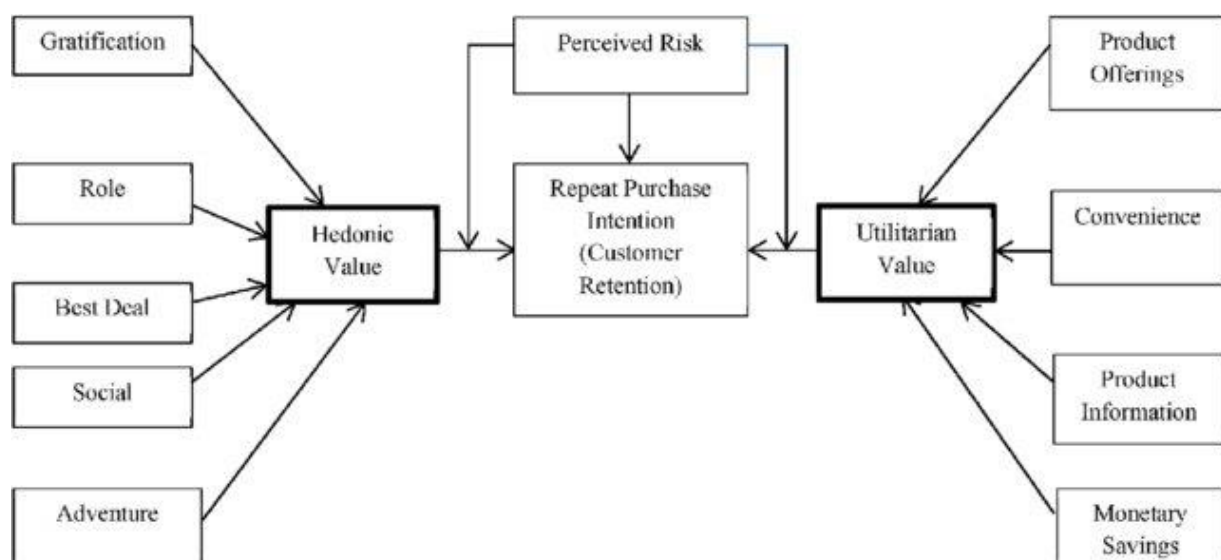
The factors that are considered to be influential towards the purchase decision of e-commerce consumers are responsiveness, contact point, convenience, merchandising, site design, security, serviceability, contact interactivity customization and care.

- **Responsiveness:** Influencing factor that comes under this context are clear state of return policy, quality guarantee and refund policy.
- **Contact Point:** Influencing factor that comes under this context are Support system available such as online chatting, email and phone.
- **Convenience:** Influencing factor that comes under this context are Easy to find what you want.

- **Merchandising:** Influencing factor that comes under this context are one stop purchase, variety of offerings and numbers of offerings.
- **Site Design:** Influencing factor that comes under this context are good website designs, easy navigation, updated information and easy to recall.
- **Security:** Influencing factor that comes under this context are personal Information security and financial security such as transaction and personal details.
- **Serviceability:** Influencing factor that comes under this context are Prompt delivery, complaint handling and good packaging.
- **Customization:** Influencing factor that comes under this context are recommendations according to the preferences of customers.
- **Cultivation:** Influencing factor that comes under this context are offers and discounts provide to customers in order retain them.
- **Care:** Influencing factor that comes under this context are pre and post sales services.
- **Contact Interactivity:** Influencing factor that comes under this context are wide information coverage.

A comprehensive review of the literature, theories and models have been carried out to propose the models for customer activation and customer retention. Five major factors that contributed to the success of an e-commerce store have been identified as: service quality, system quality, information quality, trust and net benefit.

The research furthermore investigated the factors that influence the online customers repeat purchase intention. The combination of both utilitarian value and hedonistic values are needed to affect the repeat purchase intention (loyalty) positively. The data is collected from the Indian online shoppers. Results indicate the e-retail success factors, which are very much critical for customer satisfaction.



Problem discussion

The business of E-commerce is a new growing area with a huge market in the internet community. But great benefit comes with great challenges. The better information transparency of online business improves the possibility that the customer could find the right product with good price. But the information transparency also gives the customer more power to select their vendors. Now the competitor is just a click away, the competition has now become more lethal and direct. In the modern time the difference of products is less and less. When the products provide almost the same value for customer, you need to add some extra value to customer to stand out from the crowd. Then new trends of E-commerce industry are to import the customer relationship management concept to understand better of their customers. By understand the customer the businesses could provide more tailored products or service for customer and also the businesses get to know who is their customer and what kind of the customer is the most valuable customer. According to many researches, businesses found that the most valuable customer is the repeat customers. The high cost is to be invested to acquire new customers rather than retaining the old customers. Also, many customers relationship goes unprofitable because the new customer only stay in the initial stage of the transactions. Only in the later transaction the cost of service starts to fall and the customer tends to buy more and not so price sensitive.

So, for the E-commerce business customer retention is one of the key paths to profit. The businesses should have a clear strategy of customer retention.

Motivation Behind the Project on Customer Retention:

This project was first provided to me by Flip Robo Technologies as a part of the internship programme. The exposure to real world data and the opportunity to deploy my skillset in solving a real time problem has been the primary motivation.

There is a great amount of literature about customer loyalty, customer satisfaction etc. But not many of researches were focused on the specific topic of customer retention. Customer retention should be a bigger topic. And also, there are quite many different characters in the context of E-commerce compare to the regular businesses. So, the motivation and purpose of this project is to gain better understanding of how E-commerce business should retain their customers.

The research question will be:

To Analyse the feedbacks or data provided by the customers to these e-commerce websites on the basis of several positive and negative factors related to their shopping experience and also the on basis of other factors such as age, gender, city etc.

CHAPTER 2

Data Analysis on Customer Retention

1. Hardware & Software Used:

- **Hardware Used -**

1. Processor: AMD Ryzen 5.
2. RAM: 8 GB.
3. GPU: AMD Radeon(TM) Vega 8.

- **Software Used -**

1. Anaconda: Jupyter Notebook
2. Libraries Used: Pandas, Numpy, Seaborn, Matplotlib
3. Different libraries are used while building ML model and Visualisation of data.

```
import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
%matplotlib inline

import warnings
warnings.filterwarnings('ignore')
```

2. Data Sources and their size:

The data is collected from the online customers of various e-commerce websites and provided only for academic purpose by Flip-Robo Technologies. Results indicate the e-retail success factors, which are very much critical for customer satisfaction. There are two sheets one is detailed and second is encoded in the excel file.

```
df = pd.read_excel('C:/Users/Lenovo/INTERNSHIP_FLIP_ROBO/Assignments/Assignment-03/Customer_retention_data/customer_retention_data.xlsx')
df.head()
```

1Gender of respondent	2 How old are you?	3 Which city do you shop online from?	4 What is the Pin Code of where you shop online from?	5 Since How Long You are Shopping Online ?	6 How many times you have made an online purchase in the past 1 year?	7 How do you access the internet while shopping on-line?	8 Which device do you use to access the online shopping?	9 What is the screen size of your mobile device? \t
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5 rows × 71 columns

```
print('No. of Rows :',df.shape[0])
print('No. of Columns :',df.shape[1])
```

No. of Rows : 269
No. of Columns : 71

The Dataset contain 71 columns with 269 rows. Out of which 1 feature with int datatypes and rest are with object datatypes.

3. Data Integrity Check

- Before pre-processing data, integrity of data is to be checked.
- Dataset may contain whitespaces, missing value etc. let's investigate the integrity of data before proceeding for further analysis.

```
# Checking for the presense of whitespaces, '-', 'null', 'NA':
```

```
df.isin([' ', '?', '-', ' ?', 'null', 'NA', 'N/A']).sum().any()
```

False

```
df.isnull().sum().any()
```

False

➤ **Observation:** Dataset do not contain any integrity issue.

4. Statistical Analysis of Dataset:

- Statistical analysis is a data analysis tool that helps draw meaningful conclusions from raw and unstructured data.
- Conducting descriptive statistics (i.e., mean, standard deviation, frequency and percent, as appropriate)

```
df.describe(include=object)
```

	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?	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)
count	269	269	269	269	269	269	269	269	269	269	269	269	269
unique	2	5	11	5	6	4	4	4	3	4	10	10	8
top	Female	31-40 years	Delhi	Above 4 years	Less than 10 times	Mobile internet	Smartphone	Others	Window/windows Mobile	Google chrome	Amazon.in	Amazon.in, Flipkart.com	Myntra.com
freq	181	81	58	98	114	142	141	134	122	216	57	60	75

4 rows × 14 columns

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 269 entries, 0 to 268
Data columns (total 14 columns):
 #   Column
Non-Null Count  Dtype
---  -
0    1Gender of respondent
269 non-null    object
1    2 How old are you?
269 non-null    object
2    3 Which city do you shop online from?
269 non-null    object
3    4 What is the Pin Code of where you shop online from?
269 non-null    int64
4    5 Since How Long You are Shopping Online ?
269 non-null    object
5    6 How many times you have made an online purchase in the past 1 year?
269 non-null    object
```

➤ Observations:

- Got unique values of each column.
- Most frequently repeated item along with its frequency of occurrence in each column is obtained.
- The dataset does not contain null values or whitespaces in it.

5. Exploratory Data Analysis (E.D.A):

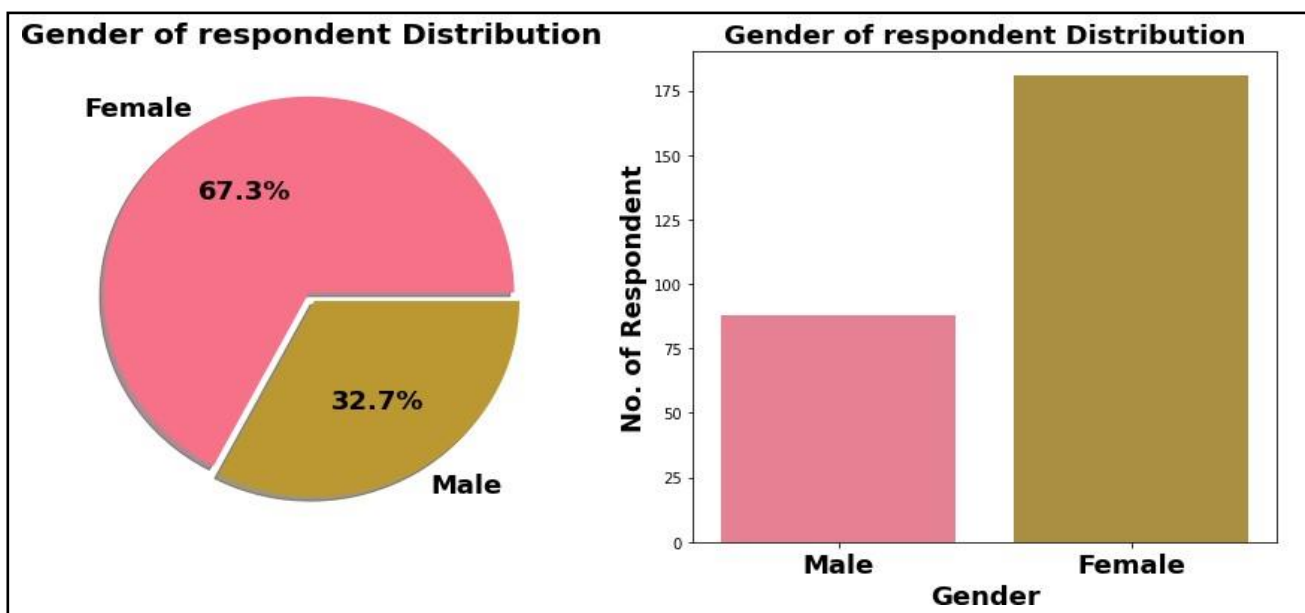
❖ IDENTIFICATION OF POSSIBLE PROBLEM- SOLVING APPROACHES (METHODS)

There are lot of features in dataset. Our objective is to find key conclusions & finding related to data using analysis. The features are categorised into few sections so we can perform analysis data section wise focus on particular area. They are enlisted as below:

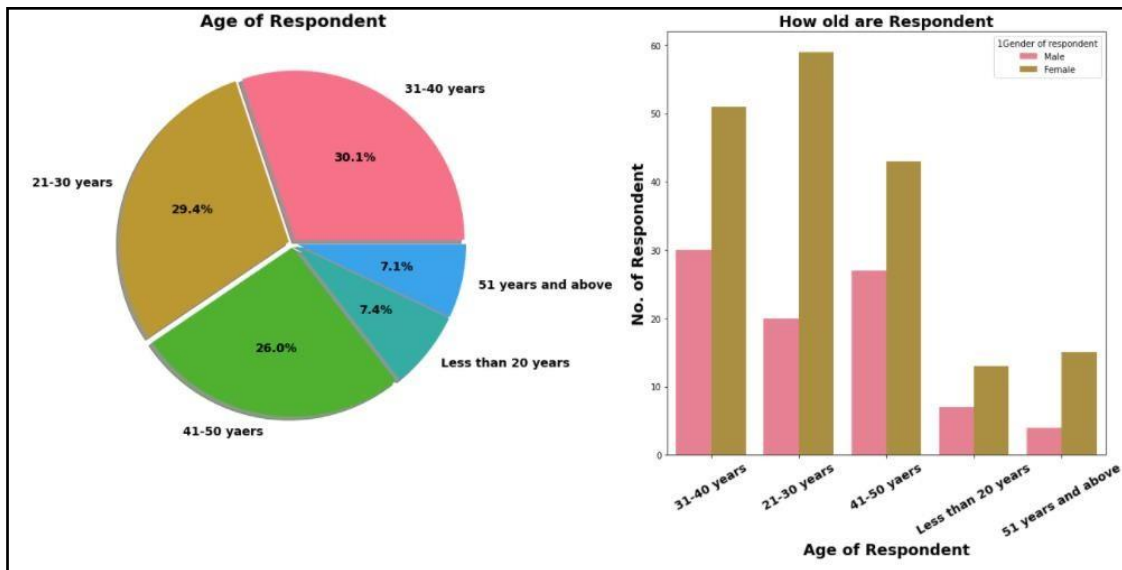
- General feature describing Population and online shopping feature
- Feature describing technological aspects related to internet services & device
- Purchase Decision & Payment related features
- Website Usability & performance related feature
- Online shopping store customer service requirement related features
- Feature related to Customer online shopping experiences
- Online Shopping Platform related question response by Customer

I. General feature describing Population and online shopping

Let's start EDA with Gender distribution of respondent.

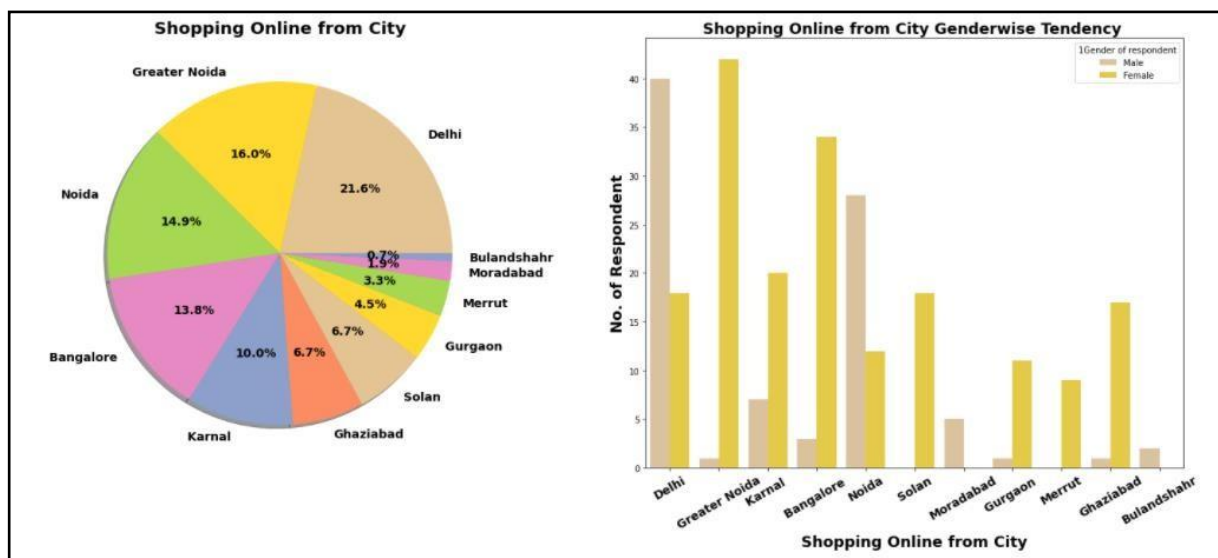


The Majority of Respondent are Female (67.3%) & rest are Male respondent. This also shows that women are more shopping oriented than men.



Observation:

- Majority of female customers are between age group of 21-40 years.
- Within Male Customers Tendency of online shopping seen among age group of 31-50 years.
- For both gender tendency of shopping is less for age greater than 51 years old. This may be due to decrease in materialistic tendency with age or possible Less TECH-SAVY Generation.



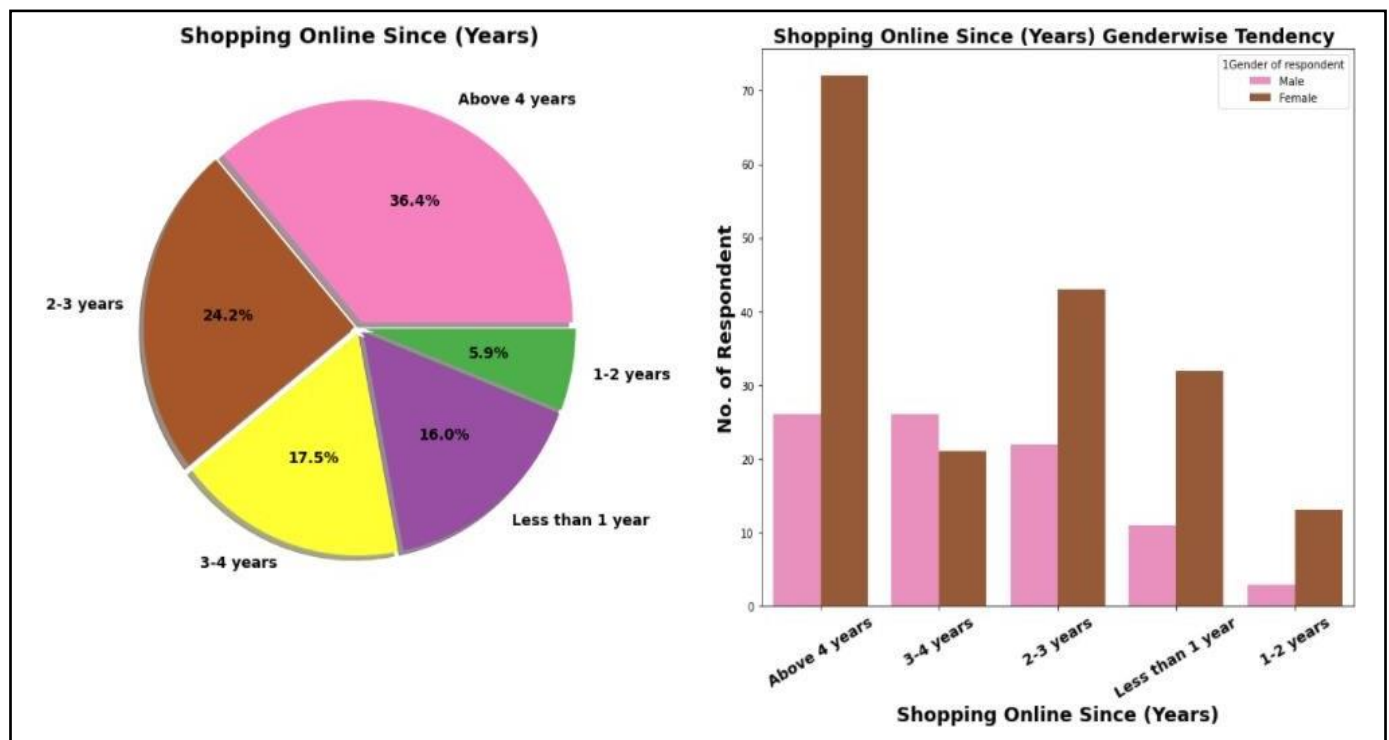
Observation:

- Most Online Shopping Customer belong to Metro Cities. and most of them are Male customer. We can conclude that in Metro city like Delhi, Male have more tendency of online shopping. shopping platform can target this population in marketing.
- In Tier 2 & 3 Cities Majority of online shopping customers are Females. We can run female product related campaign for this target customer population in these cities.

		3 Which city do you shop online from?	Bangalore	Bulandshahr	Delhi	Ghaziabad	Greater Noida	Gurgaon	Karnal	Merrut	Moradabad	Noida	Solan	All
2 How old are you?	1 Gender of respondent													
21-30 years	Female		18	0	7	0	14	0	8	5	0	1	6	59
	Male		3	0	5	1	0	0	7	0	0	4	0	20
31-40 years	Female		0	0	10	8	17	0	7	1	0	4	4	51
	Male		0	2	9	0	0	1	0	0	5	13	0	30
41-50 yaers	Female		12	0	1	5	11	0	4	3	0	7	0	43
	Male		0	0	22	0	1	0	0	0	0	4	0	27
51 years and above	Female		3	0	0	0	0	11	1	0	0	0	0	15
	Male		0	0	0	0	0	0	0	0	0	4	0	4
Less than 20 years	Female		1	0	0	4	0	0	0	0	0	0	8	13
	Male		0	0	4	0	0	0	0	0	0	3	0	7
All			37	2	58	18	43	12	27	9	5	40	18	269

Observation:

- We get interesting observation here in crosstab, as customer get older, they have less tendency for shopping in turn they have less tendency to spend money.



Observation:

- 36.4% Respondent shopping online since 4 Yrs.
- Most of female shopping since 4 Yrs.

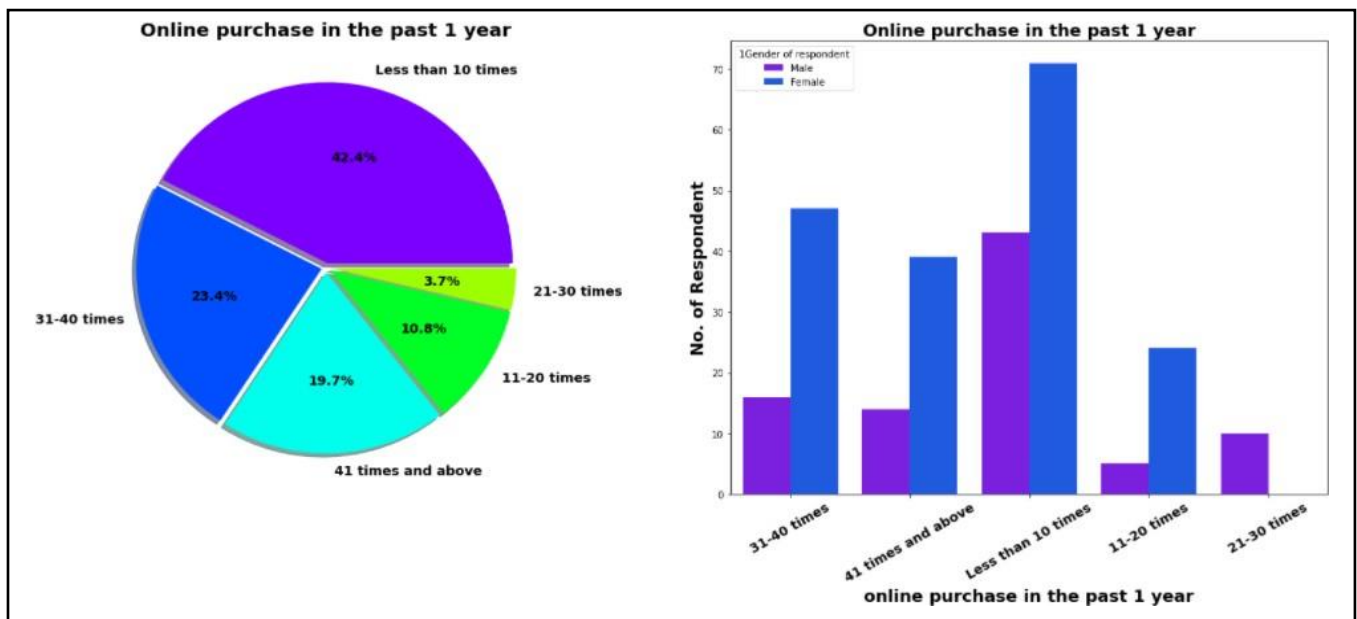
3 Which city do you shop online from? Bangalore Bulandshahr Delhi Ghaziabad Greater Noida Gurgaon Karnal Merrut Moradabad Noida Solan All

5 Since How Long You are Shopping Online ?

1-2 years	0	2	1	5	0	0	0	0	0	2	6	16
2-3 years	14	0	13	5	4	7	2	3	0	9	8	65
3-4 years	8	0	8	0	7	1	8	1	0	10	4	47
Above 4 years	12	0	20	3	22	0	13	5	5	18	0	98
Less than 1 year	3	0	16	5	10	4	4	0	0	1	0	43
All	37	2	58	18	43	12	27	9	5	40	18	269

Observation:

- Online shopping is less popular in tier 3 cities like Bulandshahr, Moradabad, Meerut.



Observation:

- 42.4% Customers in last 1 year made online purchase less than 10 times.
- Around 19.7% customers have made online shopping for 41 times & more in last 1 year. Out which Majority are females.
- Another interesting observation no female had made shopping in range of 21-30 times.

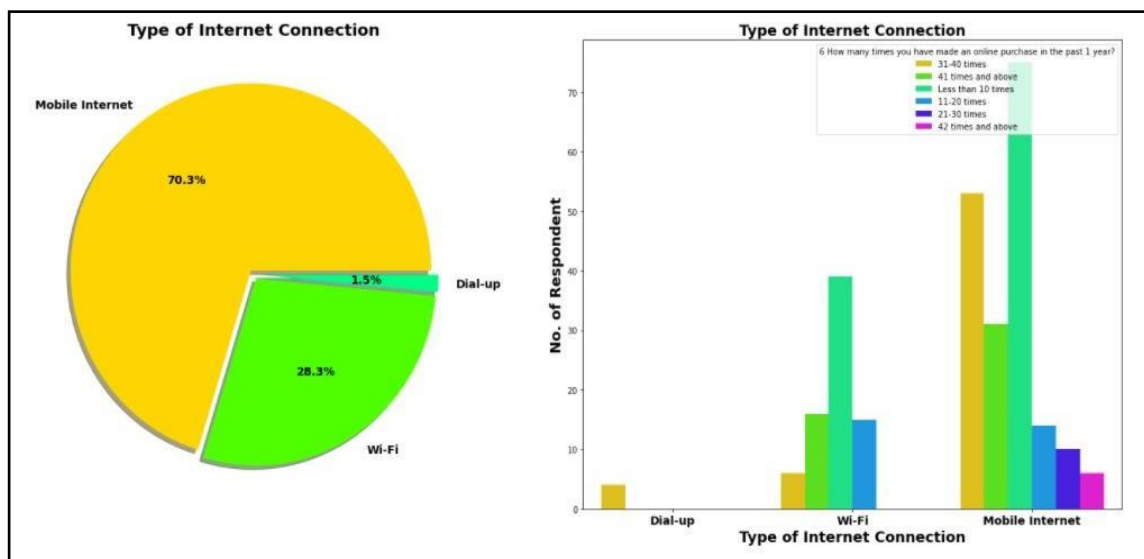
3 Which city do you shop online from? Bangalore Bulandshahr Delhi Ghaziabad Greater Noida Gurgaon Karnal Merrut Moradabad Noida Solan All

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

11-20 times	12	0	1	1	10	0	0	1	0	3	1	29
21-30 times	0	0	1	0	0	0	0	0	5	4	0	10
31-40 times	11	0	12	10	11	1	10	6	0	2	0	63
41 times and above	2	0	16	3	16	0	5	1	0	10	0	53
Less than 10 times	12	2	28	4	6	11	12	1	0	21	17	114
All	37	2	58	18	43	12	27	9	5	40	18	269

Observation:

- We can see that most of customer making purchase for 41 times & more comes from city Delhi, Greater Noida, Noida.



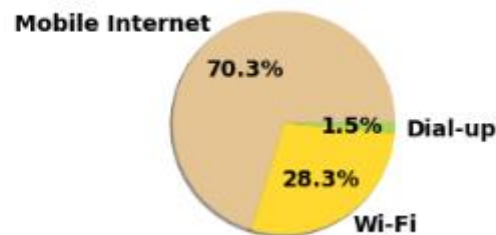
Observation:

- 70.3% Customers are mobile internet user followed by Wi-Fi User.
- We can see that all customers who made online shopping for 41 times & more are using Mobile internet.
- Only 4 users are using Dial up Connection and all of them made online shopping for less than 10 times.

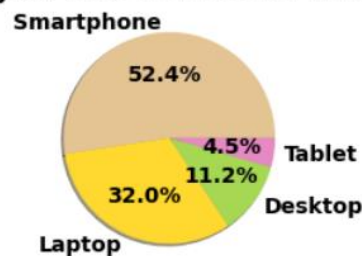
II. Exploring feature describing technological aspects related to internet services & device

```
Feature_1 = ['7 How do you access the internet while shopping on-line?', '8 Which device do you use to access the online shopping?', '9 What is the screen size of your mobile device?', '10 What is the operating system (OS) of your device?', '11 What browser do you run on your device to access the website?', '12 Which channel did you follow to arrive at your favorite online store for the first time?', '13 After first visit, how do you reach the online retail store?']
```

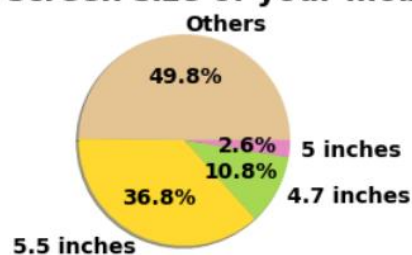
7 How do you access the internet while shopping on-line?



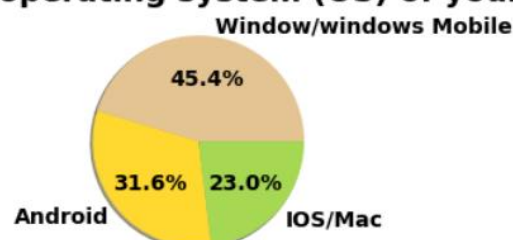
8 Which device do you use to access the online shopping?



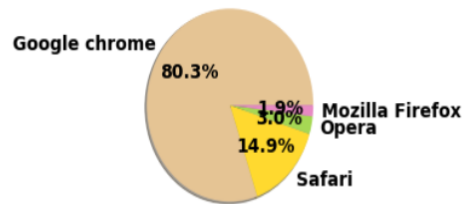
9 What is the screen size of your mobile device?



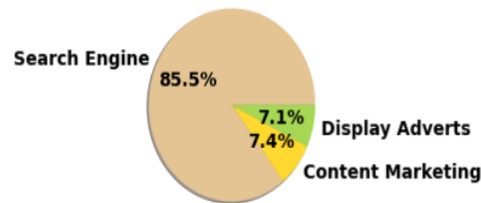
10 What is the operating system (OS) of your device?



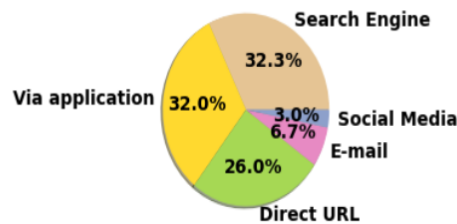
11 What browser do you run on your device to access the website?



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



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



Observation:

- 70.3% Customer uses mobile internet for shopping.
- 52.4% Uses Smartphone followed by Laptop for online shopping. Company can make device-oriented marketing strategy for different customers as per use of device.
- Not all user uses smartphone for so we do not have screen size details of other user. Out of 52.4% Mobile users' majority have 5.5- inch mobile display screen.
- 45.4% customer have Windows operating system on their smartphone & laptop. Followed by it around 31.6% customer uses Android as OS which can come from both smartphone & Tablet.
- We can say that in terms of browser google chrome dominate market.
- We can see 85.5 % of Customer arrived on shopping platform through search engine. Ads & Marketing campaign are not bringing much lead. Most of customer who made online purchase because they want to buy product or due to discount on online shopping.
- After 1st Purchase 32% customer visit online store through mobile application and 32.3% by search engine.

10 What is the operating system (OS) of your device? Android IOS/Mac Window/windows Mobile All

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

Desktop	0	0	30	30
Laptop	0	2	84	86
Smartphone	73	60	8	141
Tablet	12	0	0	12
All	85	62	122	269

Observation:

- No Tablet with IOS operating system.
- We already know 45.4% Customer uses Windows OS and here we can see that almost all them come from desktop & laptop user.
- Surprising only 2 Customer with Apple laptop and no customer with Apple desktop.
- 73 customers using android and 60 customers using Apple iPhone.

8 Which device do you use to access the online shopping? Desktop Laptop Smartphone Tablet All

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

Dial-up	4	0	0	0	4
Mobile Internet	26	53	104	6	189
Wi-Fi	0	33	37	6	76
All	30	86	141	12	269

Observation:

- No desktop with Wi-Fi Connectivity. All 30 desktop users are using mobile internet or dialup connection.
- Out of 141 Smartphone users 104 using mobile internet while rest using Wi-Fi.

- ❖ We know that in first visit 85% Customer (230 Customer out of 269) came through search engine, here we are trying to figure after 1st visit how many of them reach by others channels like apps or email marketing.

13 After first visit, how do you reach the online retail store? Direct URL E-mail Search Engine Social Media Via application All

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

Content Marketing	0	0	5	0	15	20
Display Adverts	11	0	0	8	0	19
Search Engine	59	18	82	0	71	230
All	70	18	87	8	86	269

Observation:

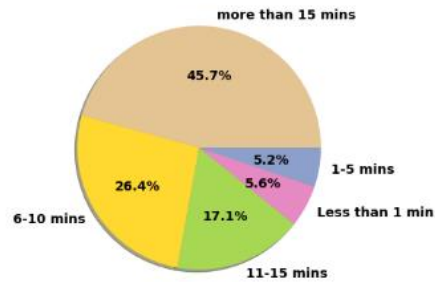
- For 2ed & afterward visit 71 customer arrived online store via application, followed by 59 via Direct URL & 18 Customer Via Promotional Email Marketing.
 - Display adverts have very poor performance in landing customer on online store. Similar with Social Media marketing. For 2ed Purchase no one landed through display adverts on search engine.
- ❖ It is strong recommendation to companies that Do not spend more money over social media marketing & Display Adverts in their Digital Marketing campaign instead of that focus on Search engine Optimization & Email Marketing which will likely to be more effective to earlier.

III. Exploring Purchase Decision & Payment related features

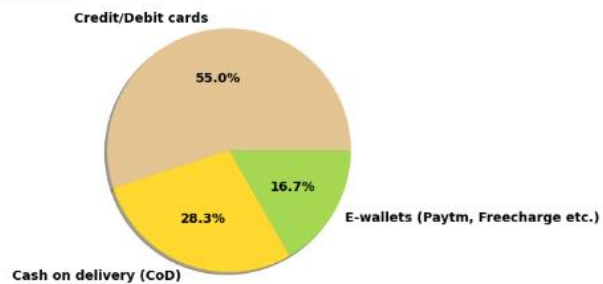
In this section we have categories feature related to purchase decision and payment method.

```
Feature_2 = ['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"?']
```

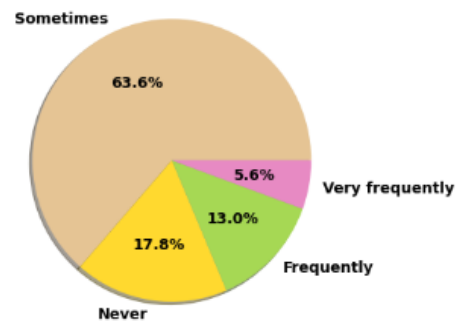
14 How much time do you explore the e- retail store before making a purchase decision?



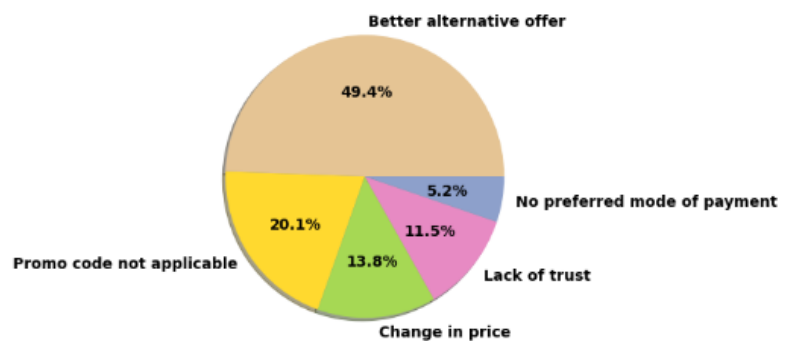
15 What is your preferred payment Option?□□□□□



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”?□□□□□



Observation:

- 45.7% of Customer spend more than 15 mins before making Purchase decision. Followed by the 17.1% customers with 11-15 mins before making purchase decision.
- We can see that 5.6% of customers purchase product less than 1 min. It will be interesting to find how many these customers made purchase in past 1 year.
- 55% of customer paid using credit/debit cards while 28.3% customers still prefer cash on delivery.
- We can see that 63.6% of customer add product in cart but later leave without making payment. Surprising there is category of 17.8% customer who never abandon product without making payment.
- In next pie chart depict reason why customer change buying decision. Around 50% customers abandon cart due to better alternative offer which is obvious reason. Another most common reason to abandon purchase decision is promo code not applicable on particular product. Followed by next most common reason is change in price.
- If we add reason mention in previous point, we can conclude that 84% customer abandon cart due to cost & discount trade-off.

6 How many times you have made an online purchase in the past 1 year?	11-20 times	21-30 times	31-40 times	41 times and above	Less than 10 times	All
14 How much time do you explore the e- retail store before making a purchase decision?						
1-5 mins	0	0	2	3	9	14
11-15 mins	7	0	13	12	14	46
6-10 mins	2	5	17	13	34	71
Less than 1 min	0	3	5	0	7	15
more than 15 mins	20	2	26	25	50	123
All	29	10	63	53	114	269

Observation:

- Here comes interesting observation about Customer who are spending more than 15 mins before making any purchase decision, out 45.7% these customers around 25 customer done online shopping more than 41 times in past year.
- 15 Customer purchase shopping within less than 1 min, Majority of them ,7 customer made shopping less than 10 times in past year.

16 How frequently do you abandon (selecting an items and leaving without making payment) your shopping cart?	Frequently	Never	Sometimes	Very frequently	All
14 How much time do you explore the e- retail store before making a purchase decision?					
1-5 mins	0	0	14	0	14
11-15 mins	7	8	31	0	46
6-10 mins	0	25	46	0	71
Less than 1 min	0	7	8	0	15
more than 15 mins	28	8	72	15	123
All	35	48	171	15	269

Observation:

- 171 Customer out of total 269 customer Sometimes abandon shopping cart.
- Customer spend more than 15 mins (Count=123 Customer) on online shopping store before making purchase decision have More Tendency to Abandon.
- Customer who spends less than 5 mins before making purchase decision have seen with very less tendency to abandon cart, more specifically they never leave cart or rare abandon cart.

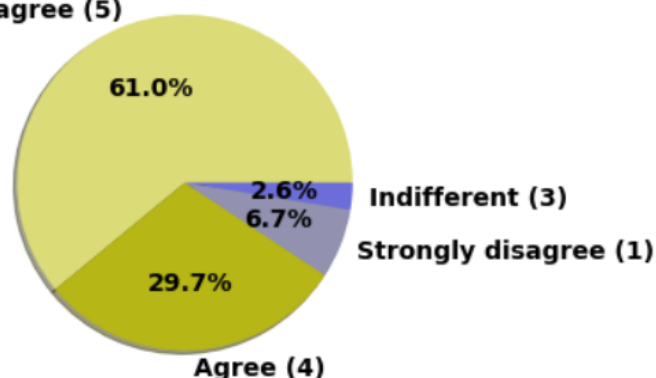
IV. Exploration Of Website Usability & Performance Related Feature

In this section we are going to analyse feature describing website usability & performance. Following features, we have analysed in this section:

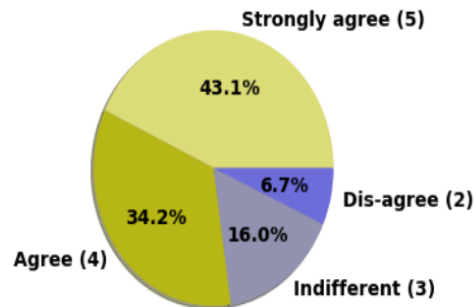
- 18 The content on the website must be easy to read and understand
- 19 Information on similar product to the one highlighted is important for product comparison
- 20 Complete information on listed seller and product being offered is important for purchase decision.
- 21 All relevant information on 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 fulfil its part of the transaction at the stipulated time

18 The content on the website must be easy to read and understand

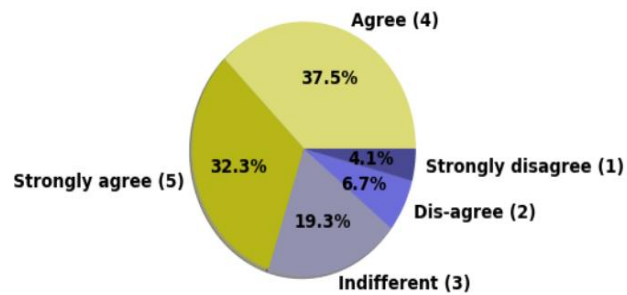
Strongly agree (5)



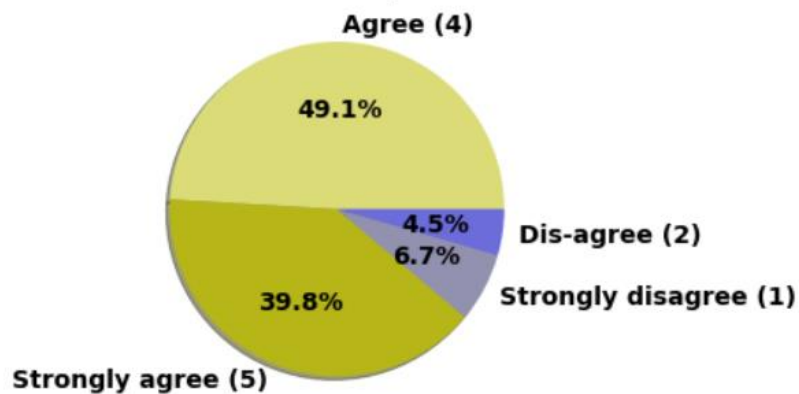
19 Information on similar product to the one highlighted is important for product comparison

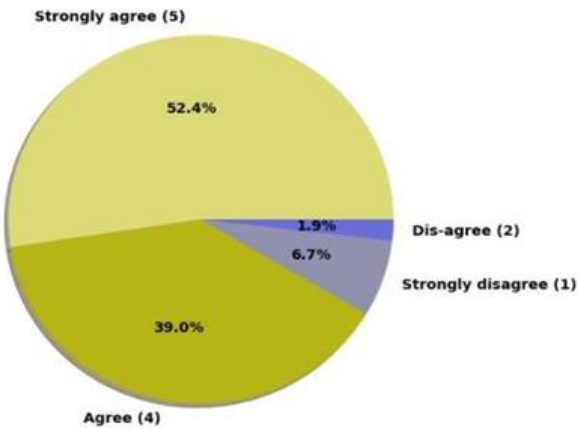
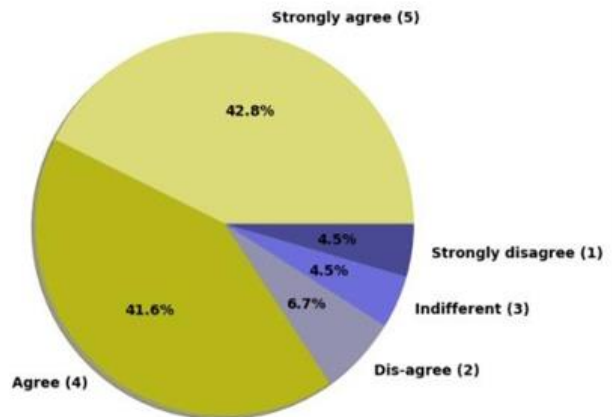
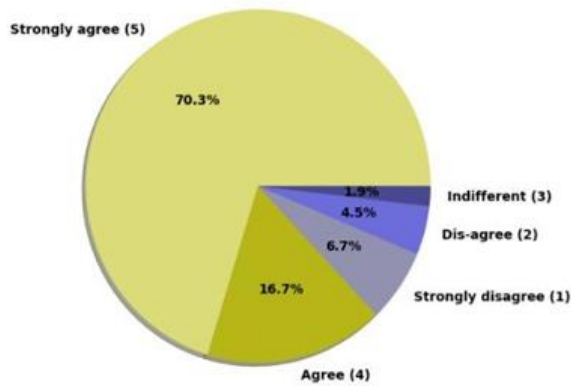
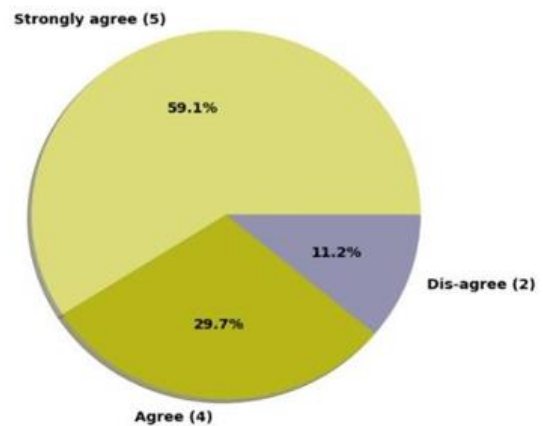


20 Complete information on listed seller and product being offered is important for purchase decision.



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


Observation:

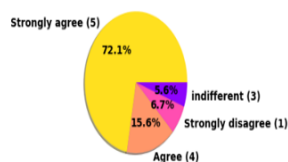
- 61 % customer strongly agree and 29.7% customer agree that content on website must be easy to read and understand.
- 43.1% customer strongly agree and 34.2% customer agree that information on similar product to highlighted on website for product comparison.
- More than 60% of customer agree or strongly agree that complete information on listed seller and product being offered is important for purchase decision.
- More than 90% of customer agree or strongly agree that all relevant information on listed products must be stated clearly.
- Around 93% of customer agree or strongly agree that website should be easy for navigation.
- 42.8 % customer strongly agree and 41.6 % customer agree over high loading & processing speed.
- 70.3 % customer strongly agree and 16.7 % customer agree that website should be user friendly.

V. Exploration Of Online Shopping Store Customer Service Requirement Related Features

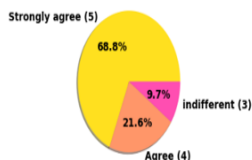
In this section we will analyse features related to customer service & add on by ecommerce company like communication channel, readiness to resolve customer query. Following features, we have analysed in this section:

- 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

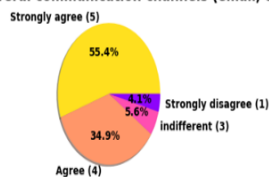
27 Empathy (readiness to assist with queries) towards the customers



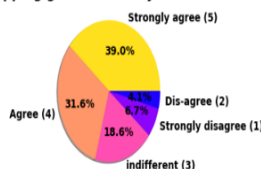
28 Being able to guarantee the privacy of the customer



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

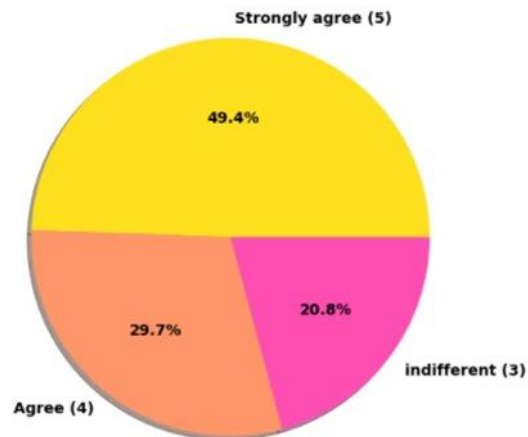
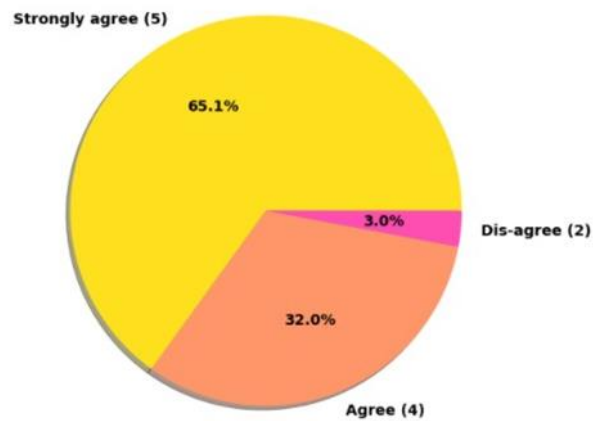
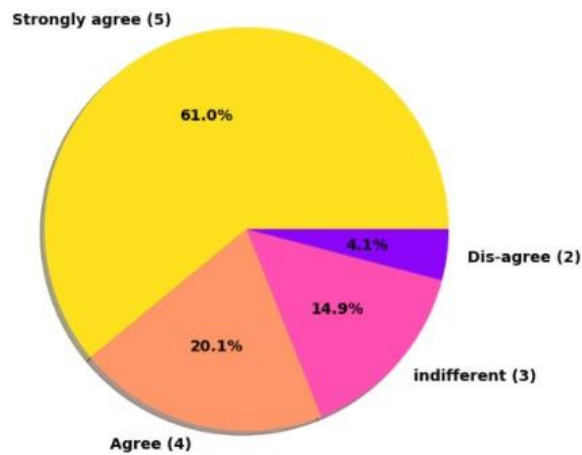


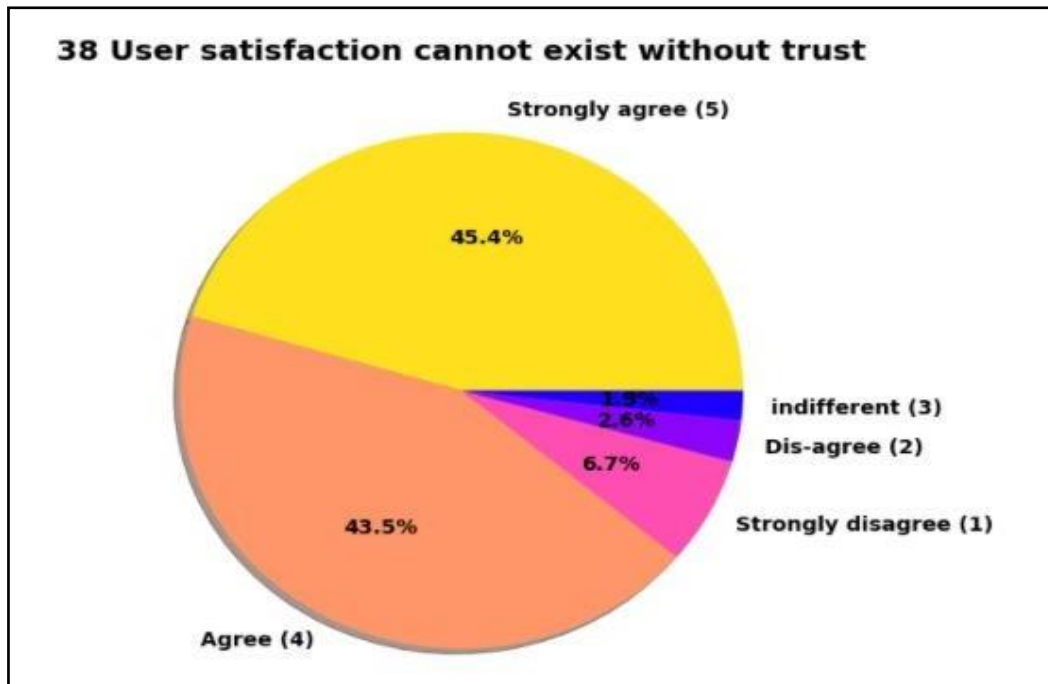
33 Return and replacement policy of the e-tailer is important for purchase decision



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




Observation:

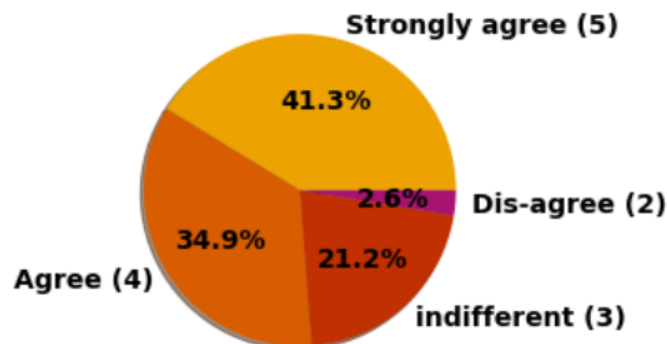
- 72.1% Customer strongly agree thinks that company's readiness to assist customer queries related to product is important factor in purchase decision.
- Pie plot also show that being able to guarantee the privacy of the customer is important silent feature for product selection.
- Another most important for product companies is availability of communication channels.
- Most of people enjoy physical shopping, we can see that for 32% customer enjoyment from online shopping strongly matter and for around 46% customer this online shopping enjoyment do not matter.
- Online shopping is 24/7 available with lot of varieties of product and with product return facility. This led to thinking among almost 85 % of customer thinks, online shopping is convenient & flexible than physical shopping.
- 73.6% customer thinks that return & replacement policy of e-seller is important factor for making purchase decision.
- 49.4% customer strongly agree and 29.7% customer agree that displaying quality information on website helps in decision making in turn improves customer satisfaction.
- 45.4% of customer strongly agree over fact that user satisfaction cannot exist without trust.

VI. Exploring Feature Related to Customer Online Shopping Experiences

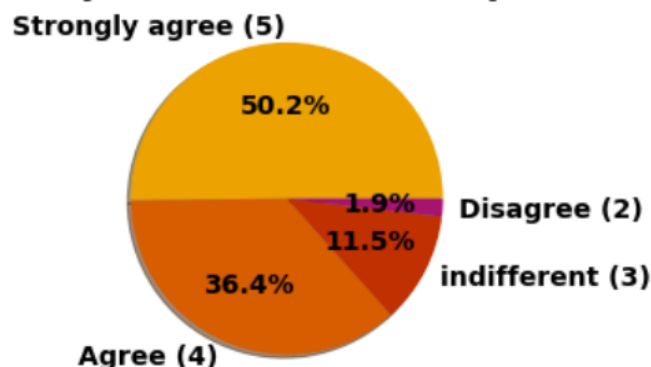
In this section we will analyse features related to Customer online shopping experiences like sense of adventure, monetary savings. Following features, we have analysed in this section:

- 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 favourite e-tailer
- 46 Shopping on the website helps you fulfill certain roles
- 47 Getting value for money spent

39 Offering a wide variety of listed product in several category

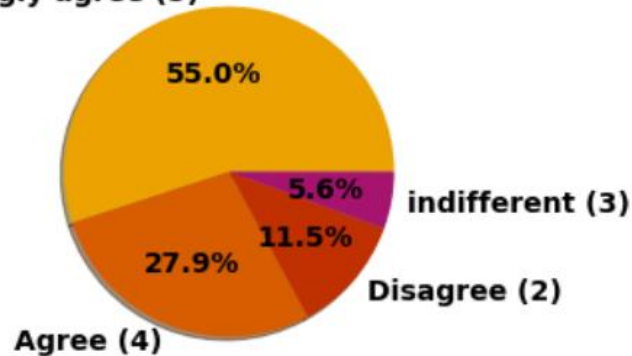


40 Provision of complete and relevant product information



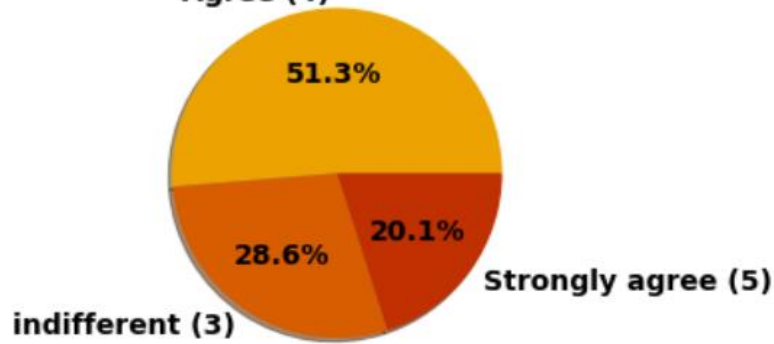
41 Monetary savings

Strongly agree (5)



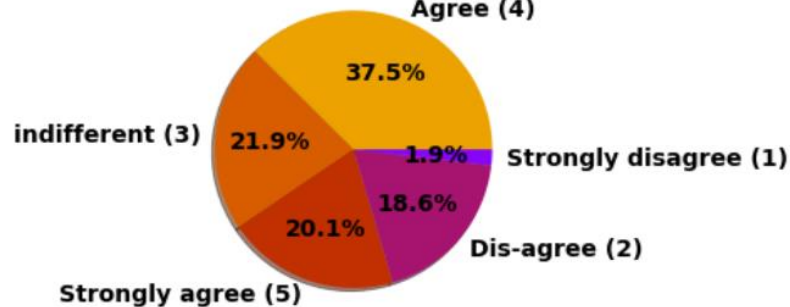
42 The Convenience of patronizing the online retailer

Agree (4)



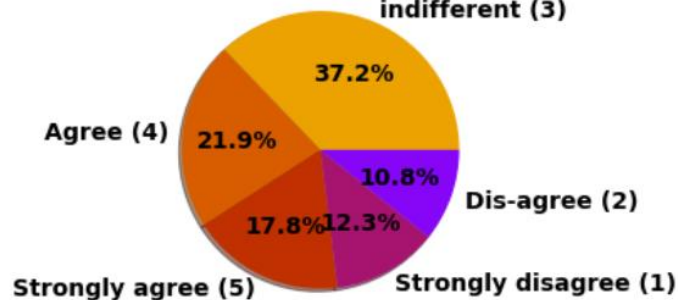
43 Shopping on the website gives you the sense of adventure

Agree (4)

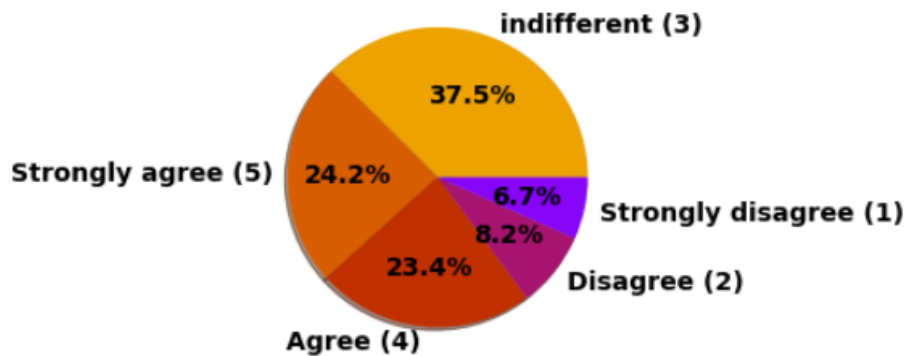


44 Shopping on your preferred e-tailer enhances your social status

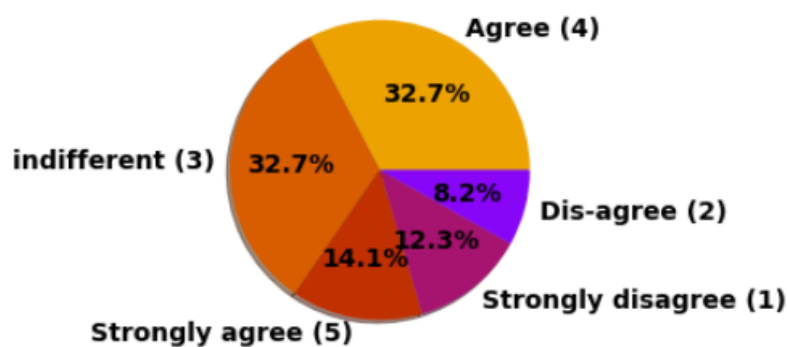
Indifferent (3)



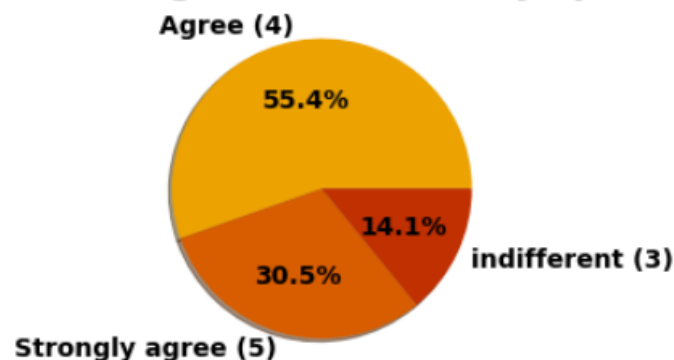
45 You feel gratification shopping on your favorite e-tailer



46 Shopping on the website helps you fulfill certain roles



47 Getting value for money spent



Observation :

- 50.2% Customer strongly agree & 36.4% customer agree that for good online shopping complete and relevant product information.
- Around 83% customer pursue online shopping for Monetary Savings.
- For 37.5 % customers Online shopping on website strongly gives the sense of adventure.
- We can see different peoples have different opinions about connection between e-tailer & social status. Same with gratification on favourite e-tailer.
- 55.4% people strongly agree and 30.5% people agree that they prefer online shopping because they get value of money spent.

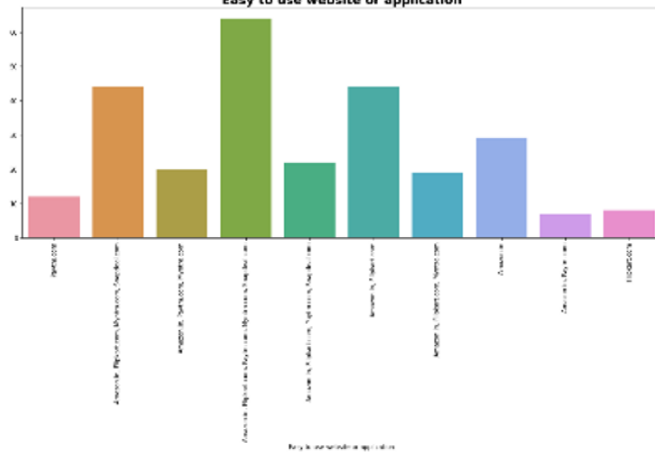
VII. Exploring Opinion on Online Shopping Platform Websites by Customer

In this section we will analyse features related to website or application like performance, web layout. Following features, we have analysed in this section:

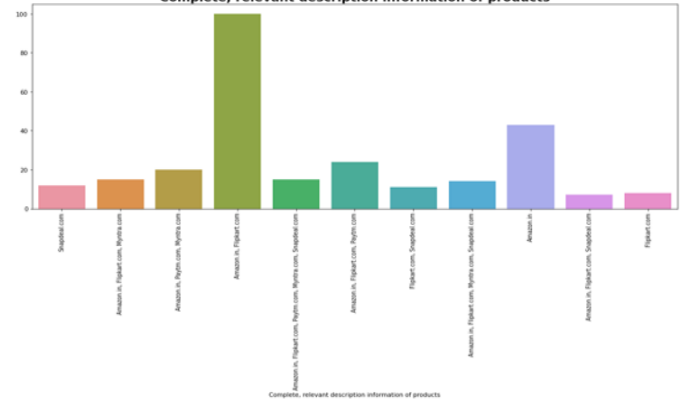
- Easy to use website or application
- Visual appealing web-page layout
- Wild variety of product on offer
- Complete, relevant description information of products
- Fast loading website speed of website and application
- Reliability of the website or application
- Quickness to complete purchase
- Availability of several payment options
- Speedy order delivery
- Privacy of customers' information
- Security of customer financial information
- Perceived Trustworthiness
- Presence of online assistance through multi-channel
- Longer time to get logged in (promotion, sales period)
- Longer time in displaying graphics and photos (promotion, sales period)
- 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?



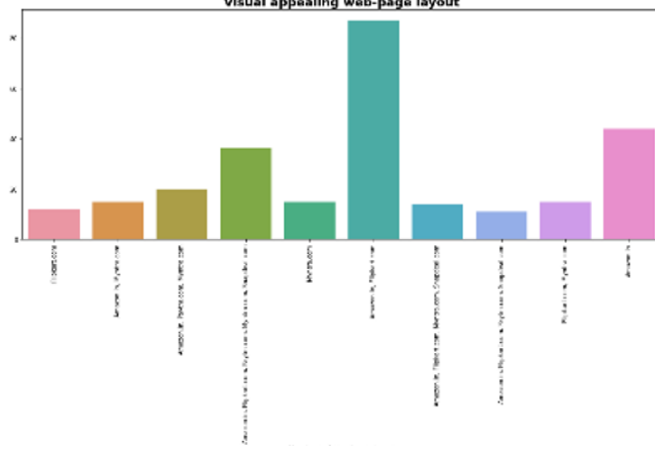
Easy to use website or application



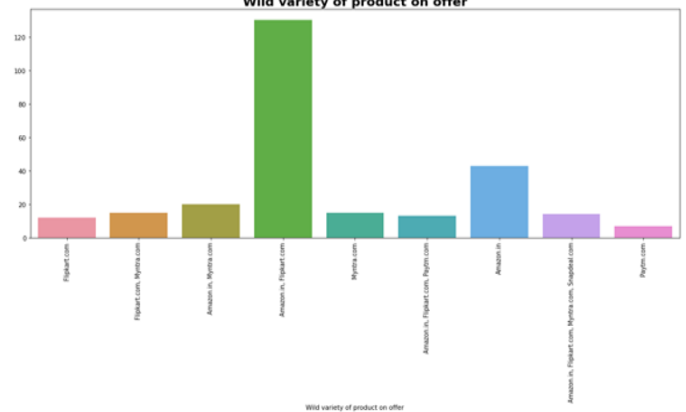
Complete, relevant description information of products



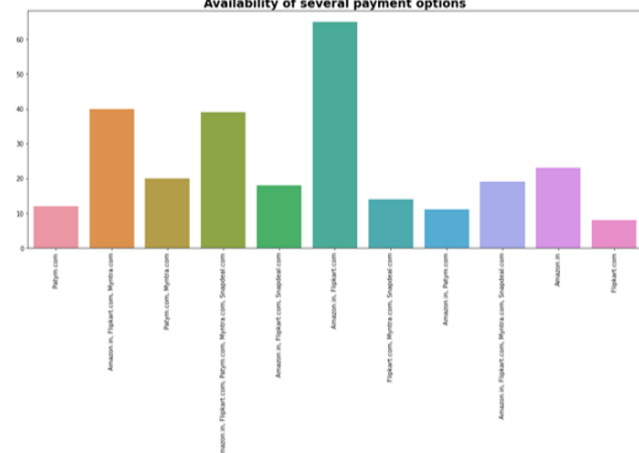
Visual appealing web-page layout



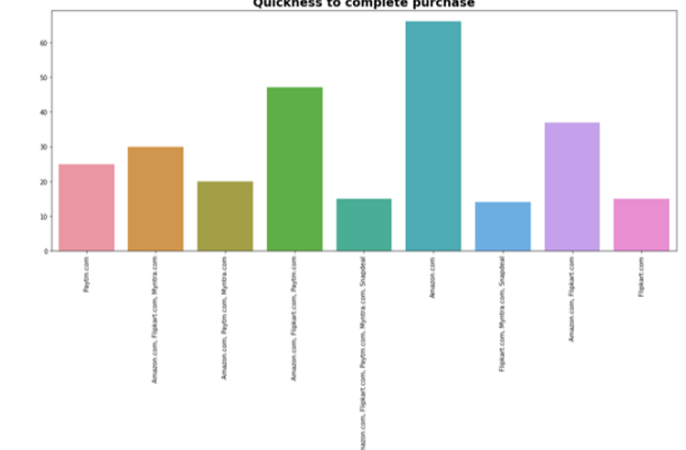
Wild variety of product on offer



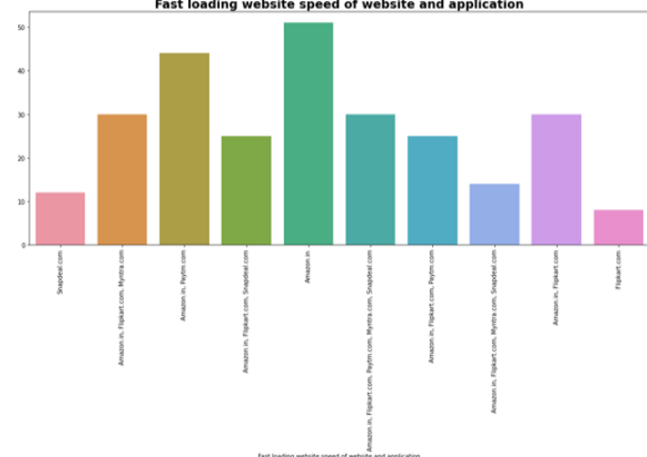
Availability of several payment options



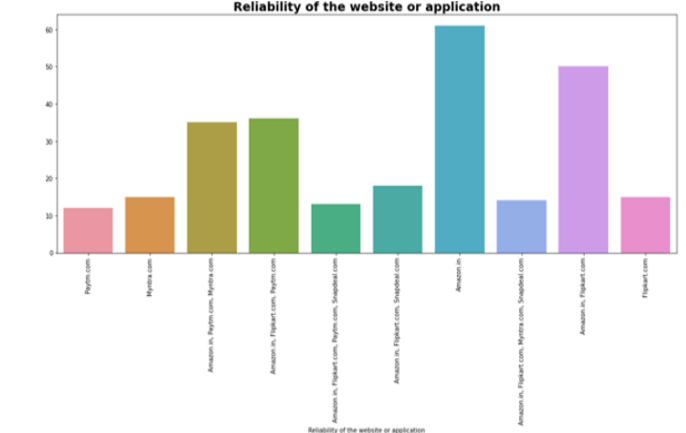
Quickness to complete purchase



Fast loading website speed of website and application



Reliability of the website or application



❖ **On analysing above features following key finding:**

Observation:

- Majority, 64 customers agree that Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com are Easy to use website or application. But overall if we look at count plot of easy-to-use application & website Amazon.in got individually 1st Rank.
- 87 customers agree that Amazon.in, Flipkart.com have Visual appealing web-page layout than most of other market players.
- Around according to 125 people Amazon.in, Flipkart.com provides wide variety of offer on product.
- We already know 50.2% Strongly agree over providing complete relevant product information, and here we can see that 100 customer think that Amazon.in, Flipkart.com provides complete information compare to others.
- Previously we know that 42.8 % customer strongly agree and 41.6
- % Customer agree over high loading & processing speed of website. Here we can see Majority of people think that loading speed of Amazon.in is fastest while Flipkart.com slowest website to load.
- In terms of Reliability of website or application again Amazon top list.
- Majority of people also think that Amazon.in tops the chart in terms of quickness purchase process compare to others.
- Majority of customers think that Amazon.in, Flipkart.com provides several payment options compare to others.
- Safe & Speed delivery very much deciding factor in terms of purchase. In terms of speed of delivery Amazon.in is much better than other online shopping platform and Flipkart.com worst among all in terms of speed delivery of product.
- We already Know more than 90% Customer thinks that guarantee on privacy of their information is important for them. Majority of customers trust Amazon.in more than other shopping platform for Privacy of customers' information
- Majority of customer trust Amazon.in followed by Flipkart.in over Security of their financial information. We also see very few peoples trust payment platform Paytm.
- Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com provide assistance through different multi-channel.
- Longer time to get logged in can annoyed customer. Amazon.in take longer time to logged in while Flipkart.com take least time among all.
- Majority of people agree that Amazon.in, Flipkart.com takes longer time in displaying and photos.
- Myntra.com followed by Paytm.com take longer page loading time.

- Most of people want shorter delivery time frame, majority customer agree that Paytm.com takes longest time for delivery compare to others.
- Amazon.in website is as efficient as earlier after upgradation.
- Majority 80 peoples recommended Amazon.in to their friends.

❖ **Based on analyse we have following recommendation for E-commerce companies**

1. Amazon.com

Areas for further improvement:

- During promotions, try to give a disturbance free shopping experience to customers.
- Give more payment options to customers.
- Try to give price early during promotion.
- Reduce the delivery time of the products.

Strong Area according to feedback by customer:

- Convenient to use and also a good website for shopping.
- Fast delivery of products.
- Availability of complete information of the products.
- Presence of online assistance through multi-channels.
- Reliable website or app, perceived trustworthiness.

2. Flipkart.com

Areas for further improvement:

- During promotions, try to give a disturbance free shopping experience to customers.
- Give more payment options to customers.
- Try to give the price early during promotion.
- Reduce the delivery time of the products.
- Flipkart and Amazon almost share the same feedbacks with varying percentages as the only difference.

Strong Area according to feedback by customer:

- Convenient to use and also a good website for shopping.
- Fast delivery of products.
- Availability of complete information of the products.

- Presence of online assistance through multi-channels.
- Reliable website or app, perceived trustworthiness.
- Wild variety of products to offer.

3. *Myntra.com*

Areas for further improvement:

- During promotions, try to give a disturbance free shopping experience to customers.
- Try to give the price early during promotions.
- Reduce the delivery time of the products during promotions.

Strong Area according to feedback by customer:

- Convenient to use and also a good website.
- Availability of several payment options.
- Faster products delivery.
- Complete information of products available.
- Reliable website or app, perceived trustworthiness.
- Wild variety of product to offer

4. *Paytm.com*

Areas for further improvement:

- Reduce the delivery time of the products during promotions.
- Try to give the price early during promotion.
- During promotions, try to give a disturbance free shopping experience to customers.
- Late declaration of price and discounts.
- Frequent disturbance is occurring while moving from one page to another.

Strong Area according to feedback by customer:

- Convenient to use and a good website.
- Quickness to complete a purchase.
- About 64% of the customers feel that either web or app is reliable.
- Around 20% of the customers believe that Paytm has a wild variety of products on offer.

5. *Snapdeal.com*

Areas for further improvement:

- Reduce the delivery time of the products during promotions.
- Try to give the price early during promotion.
- During promotions, try to give a disturbance free shopping experience to customers.
- Late declaration of price and discounts.
- No one has expressed to recommend Snapdeal to a contact as it has the most negative feedbacks among all other websites.

Strong Area according to feedback by customer:

- Convenient to use.
- 54% of the customers are happy about the availability of financial information security.

Chapter- 04

Conclusion

❖ **Key Findings and Conclusions of the Study**

- It is strong recommendation to companies that Do not spend more money over social media marketing & Display Adverts in their Digital Marketing campaign instead of that focus on Search engine Optimization & Email Marketing which will likely to be more effective to earlier.
- Complete description product on website or app is essential from making purchase decision.
- For both gender tendency of shopping is less for age greater than 51 years old.
- Most of them agrees that the functioning of app efficiently is also a major factor which helps in enhance user experience while doing online shopping.
- Around 50% customers abandon cart due to better alternative offer which is obvious reason. Another most common reason is promo code not applicable on particular product.
- Paytm and Snapdeal has poor customer services and there is lot of scope for further improvement.
- Amazon and Flipkart are standing best out in the market competent business strategies and lot advantages over there competitor.
- Mostly because, it is convenient and flexible, people prefer online shopping.
- people who have been shopping for more then 3-4 years are the ones who frequently shops.

- We can observe that most of the people, abandoned their cart as they were having better alternative offers
- To conclude, having the right customer retention strategy will keep seller's company growing if they know how to take advantage of it. Then customers will find their way back and continue buying stuff from the best company.

❖ **Limitations of this work and Scope for Future Work**

- This dataset has 269 rows which is small. We can have more correct insight if more data is available.
- Machine Learning model can be built to predict orientation of customer.
- Certain more features around purchase details, price can able to much clearer picture which eventually help in advising solid recommendation.

❖ **References used in this project:**

- SCIKIT Learn Library Documentation.
- Blogs from towards data science, Analytics Vidya, Medium.
- Andrew Ng Notes on Machine Learning (GitHub).
- Data Science Projects with Python Second Edition by Packt.
- Hands on Machine learning with scikit learn and tensor flow by Aurelien Geron.