



Project Name:
CUSTOMER RETENTION ANALYSIS

Submitted By :
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ACKNOWLEDGEMENT

This includes mentioning of all the references, research papers, data sources, professionals and other resources that helped you and guided you in completion of the project.

The project would not have been built without the constant support from DataTrained and Fliprobo teams.

References:

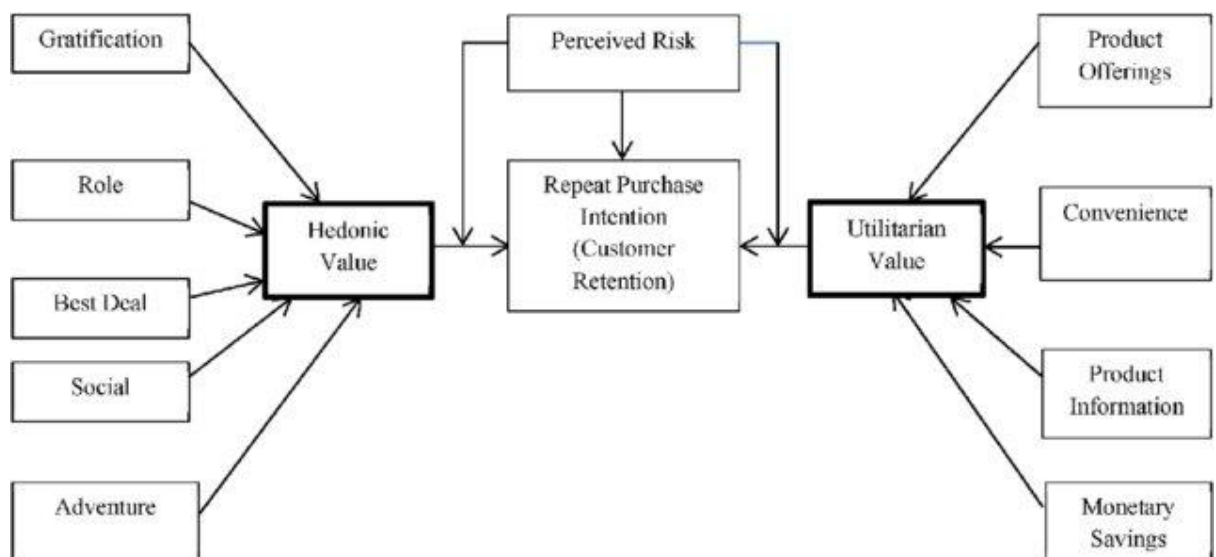
1. Notes and classes by Datatrained Academy.

Objective of the study

The objective of the project is to apply analytical skills to give findings and conclusions in detailed data analysis of E-retail factors for customer activation and retention.

Business Model

Customer satisfaction has emerged as one of the most important factors that guarantee the success of online store; it has been posited as a key stimulant of purchase, repurchase intentions and customer loyalty. A comprehensive review of the literature, theories and models have been carried out to propose the models for customer activation and customer retention. Five major factors that contributed to the success of an e-commerce store have been identified as: service quality, system quality, information quality, trust and net benefit. The research furthermore investigated the factors that influence the online customers repeat purchase intention. The combination of both utilitarian value and hedonistic values are needed to affect the repeat purchase intention (loyalty) positively. The data is collected from the Indian online shoppers. Results indicate the e-retail success factors, which are very much critical for customer satisfaction.



Analytical Problem Framing

Methodology represents a description about the framework that is undertaken. It consists of various milestones that need to be achieved in order to fulfil the objective. We have various attributes that contribute retaining customers that aids the growth of business.

The following steps represents stepwise tasks that need to be completed:

- Data Collection
- Data Visualization
- Data Analysis

Data Collection:

- The dataset contains 71 features and 269 rows.
- The dataset contains no NULL values.
- All the attributes are of 'object' type except the PIN code.

```
1 df = pd.read_excel('customer_retention_dataset.xlsx')
2 pd.set_option('display.max_columns',None)
3 df
```

	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? \t\t\t\t\t\t\t\t	10 What is the operating system (OS) of your device? \t\t\t\t\t\t\t\t	11 What browser do you run on your device to access the website? \t\t\t\t\t\t\t\t	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? \t\t\t\t\t\t\t\t	14 How much time do you explore the e-retail store before making a purchase decision?	
0	Male	31-40 years	Delhi	110009	Above 4 years	31-40 times	Dial-up	Desktop	Others	Window/windows Mobile	Google chrome	Search Engine	Search Engine	6-10 mins	F
1	Female	21-30 years	Delhi	110030	Above 4 years	41 times and above	Wi-Fi	Smartphone	4.7 inches	IOS/Mac	Google chrome	Search Engine	Via application	more than 15 mins	C
2	Female	21-30 years	Greater Noida	201308	3-4 years	41 times and above	Mobile Internet	Smartphone	5.5 inches	Android	Google chrome	Search Engine	Via application	11-15 mins	F
3	Male	21-30 years	Karnal	132001	3-4 years	Less than 10 times	Mobile Internet	Smartphone	5.5 inches	IOS/Mac	Safari	Search Engine	Search Engine	6-10 mins	C
4	Female	21-30 years	Bangalore	530068	2-3 years	11-20 times	Wi-Fi	Smartphone	4.7 inches	IOS/Mac	Safari	Content Marketing	Via application	more than 15 mins	C

```
1 #checking the shape
2 df.shape
```

(269, 71)

```

1 df.isnull().sum()

1Gender of respondent                                0
2 How old are you?                                    0
3 Which city do you shop online from?                 0
4 What is the Pin Code of where you shop online from?  0
5 Since How Long You are Shopping Online ?            0
..
Longer delivery period                                0
Change in website/Application design                  0
Frequent disruption when moving from one page to another  0
Website is as efficient as before                     0
Which of the Indian online retailer would you recommend to a friend? 0
Length: 71, dtype: int64

```

Exploratory Data Analysis:

We then create two lists to split the data according numerical and categorical features and further check the length of each of the list. The data is then deeply analyzed by finding a relationship between each attribute and the Customer according to given details.

```

1 #splitting the data into two lists according to numerical and categorical features
2 Numerical_df = []
3 Categorical_df = []
4
5 for i in df:
6     if ((df[i].dtypes=='int64')|(df[i].dtypes=='float')):
7         Numerical_df.append(i)
8     else:
9         Categorical_df.append(i)

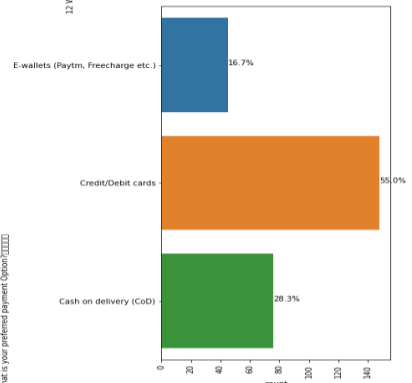
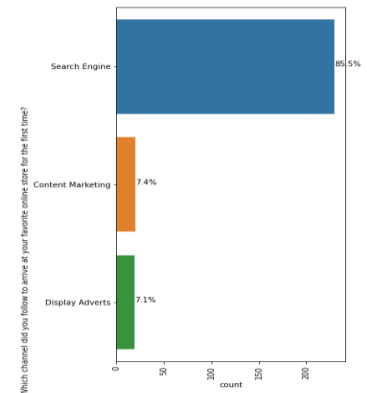
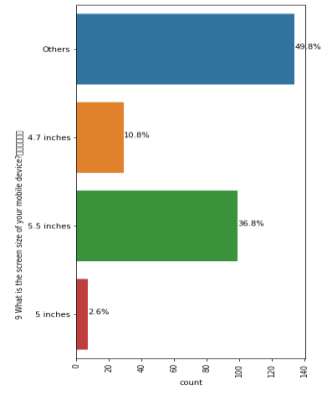
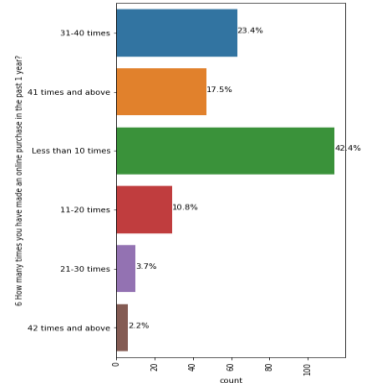
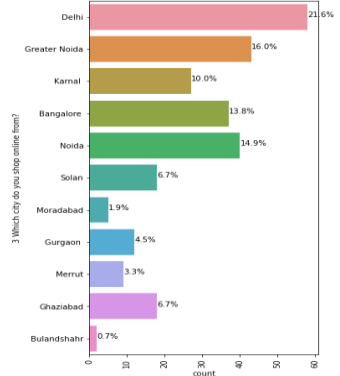
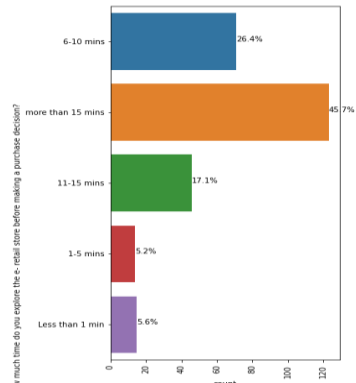
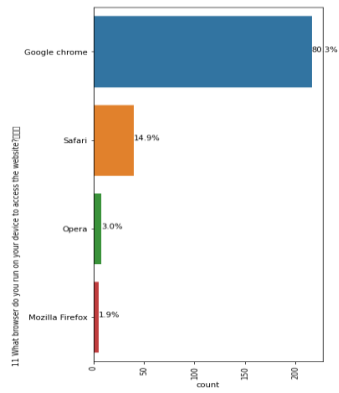
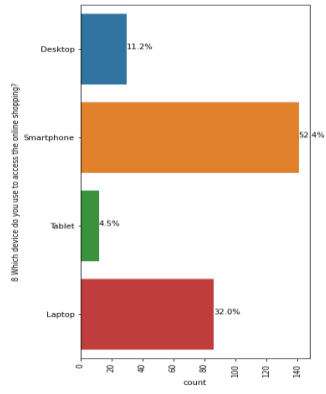
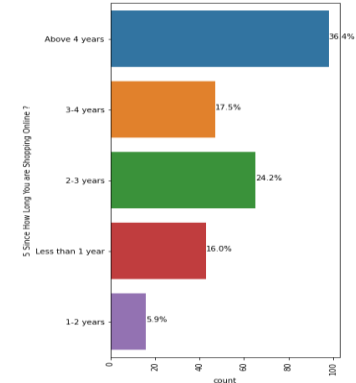
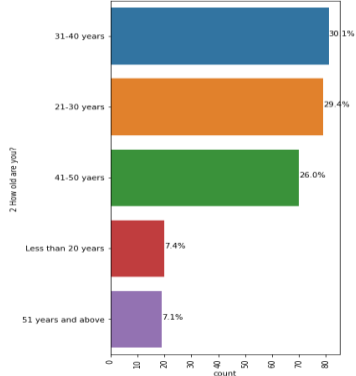
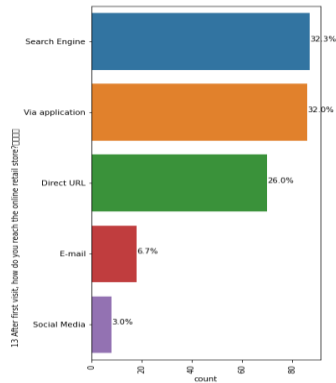
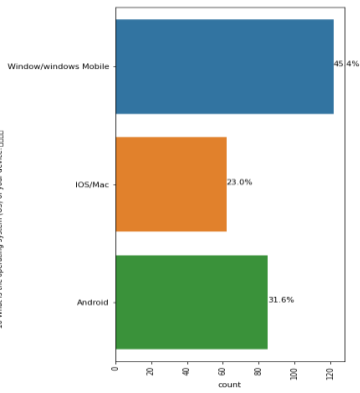
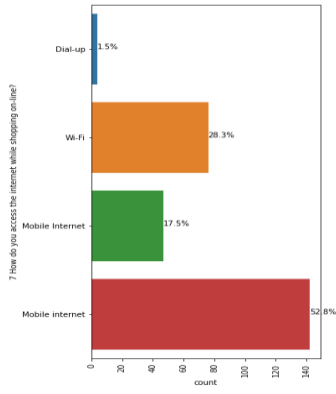
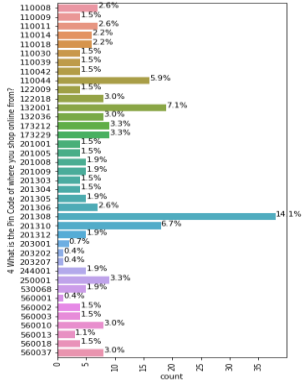
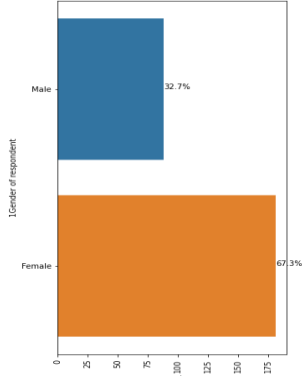
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Data Visualization & Analysis:

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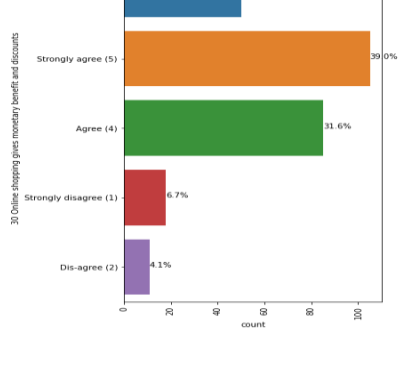
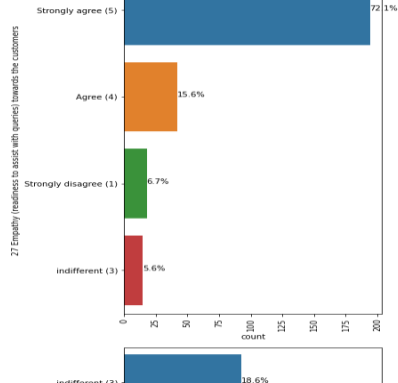
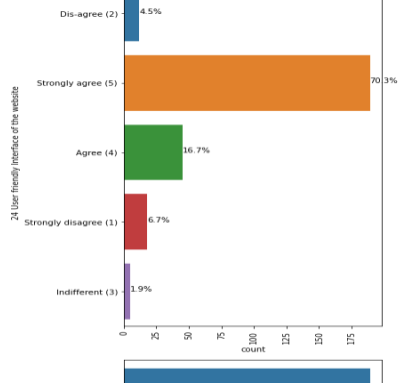
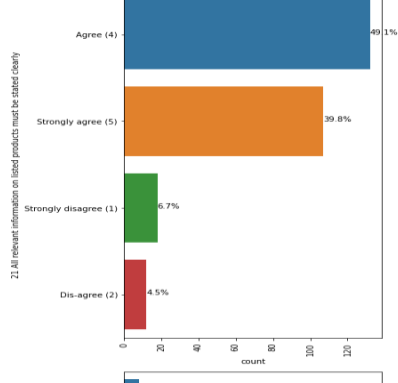
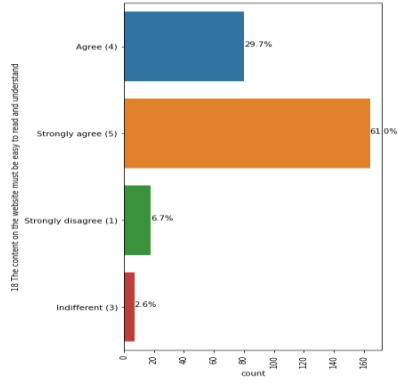
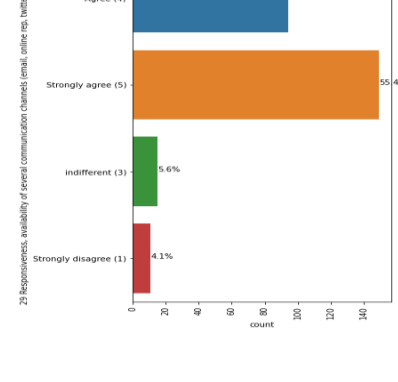
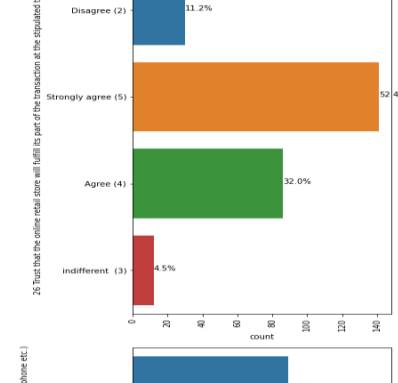
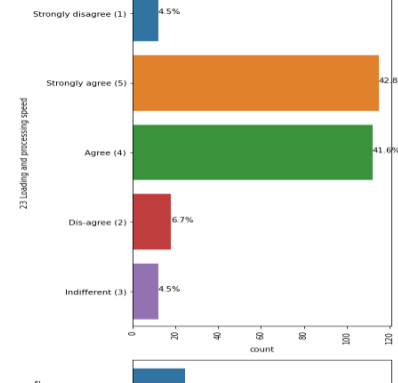
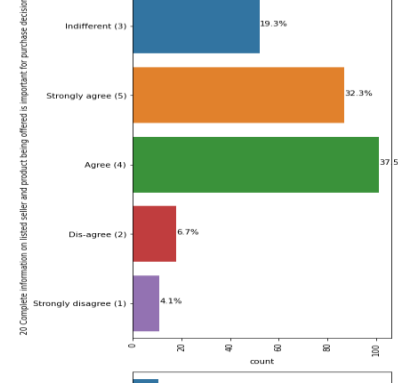
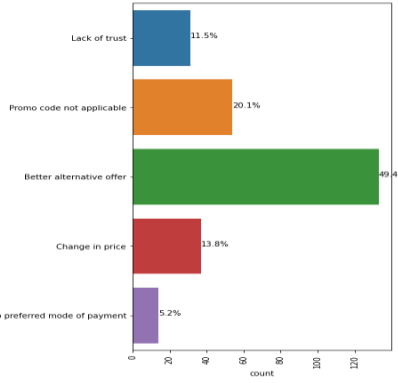
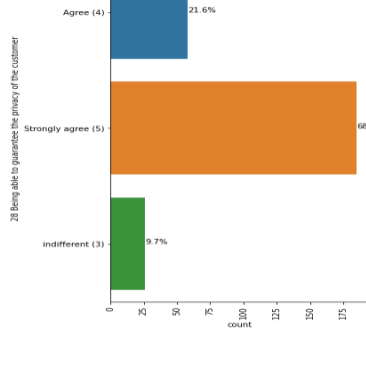
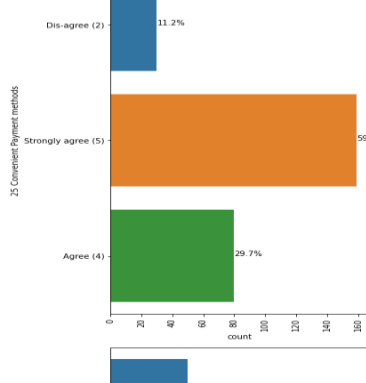
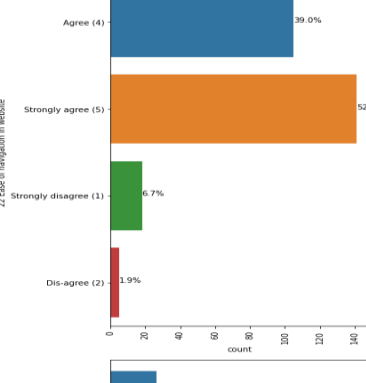
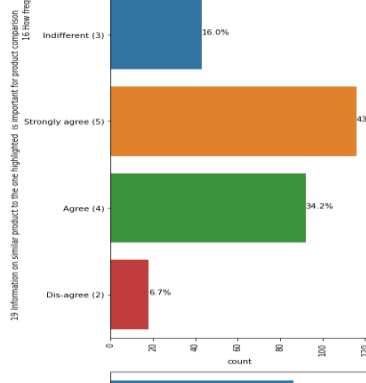
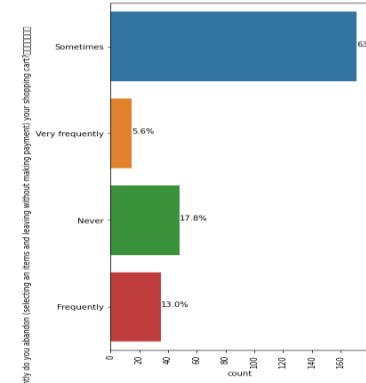
1 plt.figure(figsize=(20,40))
2 c=1
3 for i in df.columns[:15]:
4     plt.subplot(5,3,c)
5     c=c+1
6     ax = sns.countplot(y = df[i])
7     plt.xticks(rotation=90)
8
9
10    total = len(df[i])
11    for p in ax.patches:
12        percentage = '{:.1f}%'.format(100 * p.get_width()/total)
13        x = p.get_x() + p.get_width() + 0.02
14        y = p.get_y() + p.get_height()/2
15        ax.annotate(percentage, (x, y))
16
17 plt.tight_layout()

```



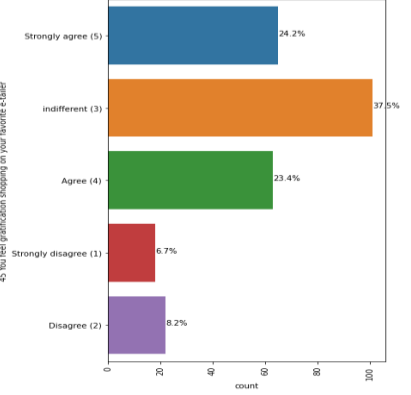
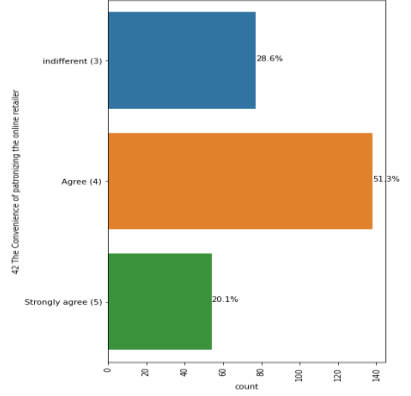
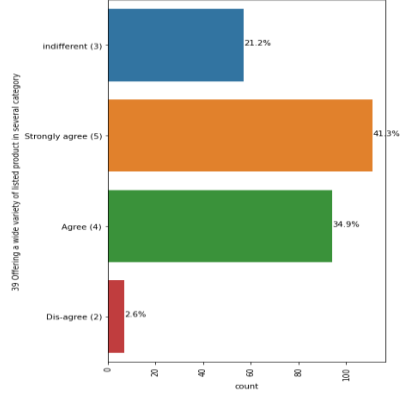
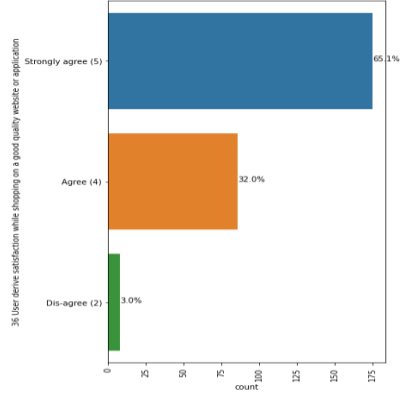
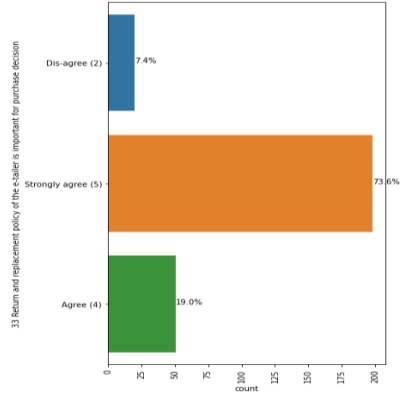
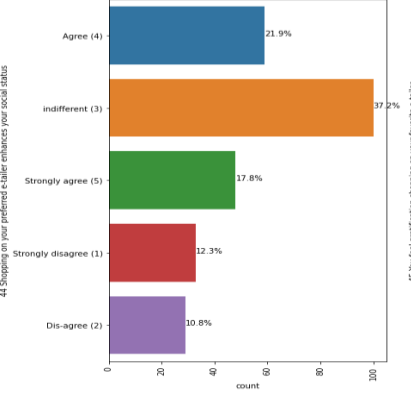
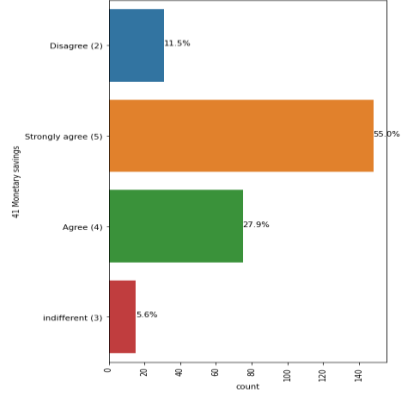
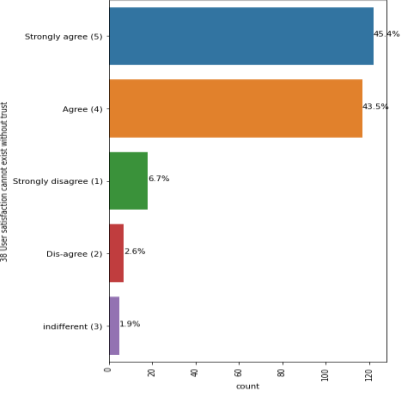
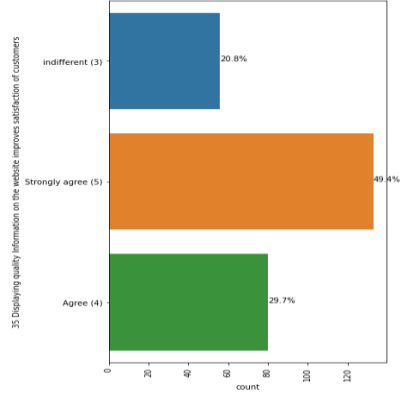
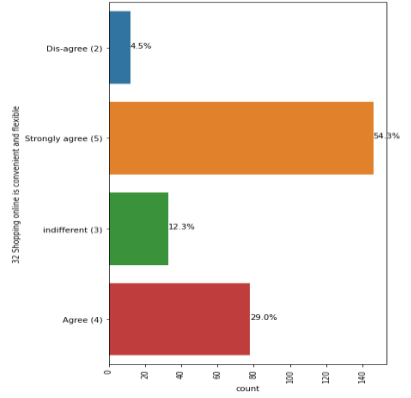
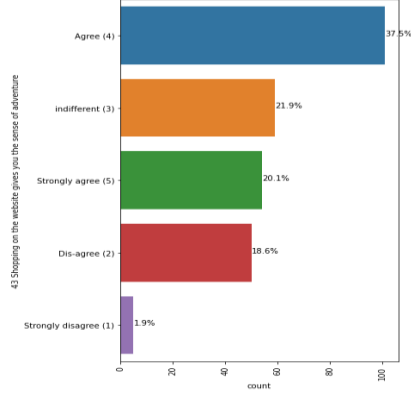
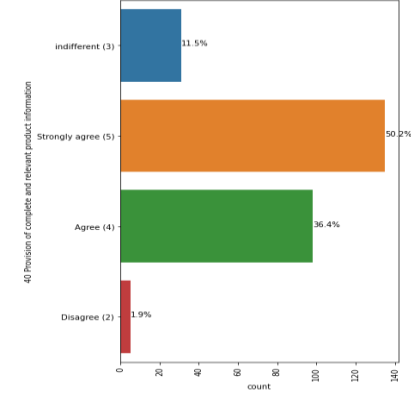
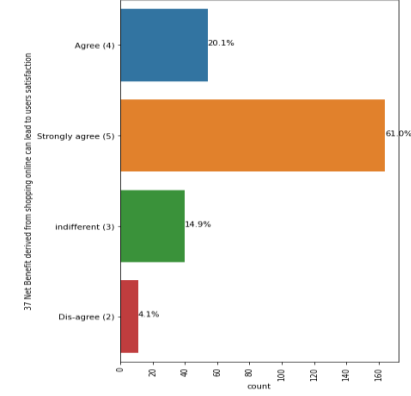
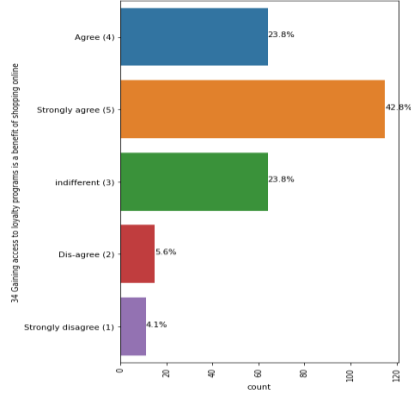
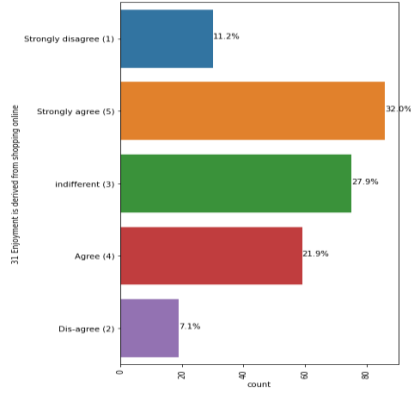
Observations:

- Most of the customer are Female Category i.e 67% of the customers.
- For the Age Group 31-40 has the highest count of customers with 30%, After than 21-30 Group has highest count of customers with 29%, Then 41-50 group with 26% of the customers.
- Highest count of the customers are from pin code 201308 comprising of 14% of the total customers, Next Highest count of customers are from pin codes 201310, 132001, 110044 with 6.7%, 7.1% and 5.9% respectively, other than all pin codes have between 1-4% of the count of customers.
- Most of the Customers belong to the >4 in q4 how long have you been shopping online.
- How many times purchases have been made in last year, 42% of the customers have made purchases < 10 times in last year. 23% of the customers have made 31-40 times purchases made in last year.
- 21% shop from Delhi, then Greater Noida with 16% and Noida with 14%. Least percent of customers purchases from Bulandsher 0.7% and muradabad 1.7%.
- 70% of Customers accessing the internet while shopping online with Mobile Internet, 28% of the Customers access internet through Wi-Fi, with 1.5% of customers with dial-up.
- 52% of the customers uses Mobile device to shop, then 32% of the customers use Laptops, 11% of customers use desktops and 4.5% of customers uses Tablets with least Count.
- Screen Size of the Customers using mobile device, 36% of the mobile users have 5.5Inch screen size, 49% of the customers are others least count of 5 inch mobile screens with 2.6% of the customers.
- OS Of the device used for shopping by customers is 45% Windows Os, then 31% with android and 23% with MAC IOS.
- Web browser used to access the website by customers is 80% Chrome, then 15% Safari, then Opera 3.9% and Least used Browser is Mozilla with 1.9%.
- Which Channel do you follow to arrive to the website for the first time, 85.5% of the customers came to the website through search engine, and others are through advisement displays and content marketing which comprises of around 7% of the customers each.
- After the First Visit how to reach the online retail store, 32% of the customers reach the retail store via search engine and via application each, then 26% of the Customers reach the store via direct URL, and at the least 3% of the Customers reach via Social Media, and other 7% of the Customer reach through email.
- How Much time spend in the e-retail store before making a purchase, 45% of the Customers take more than 15 mins before making a purchase, then 26% of the customers take 6-10 mins and 17% of the customers take 11-15mins before making a purchase. and least percent of customers take less than a min, 1-5 mins before making a purchase are 5-6% in percent of customers.
- Payment Option: 55% of the customers prefer credit/Debit card AS Payment Option, then 28% of the customer prefer COD and other 16% of the customers prefer e-wallets payment option.



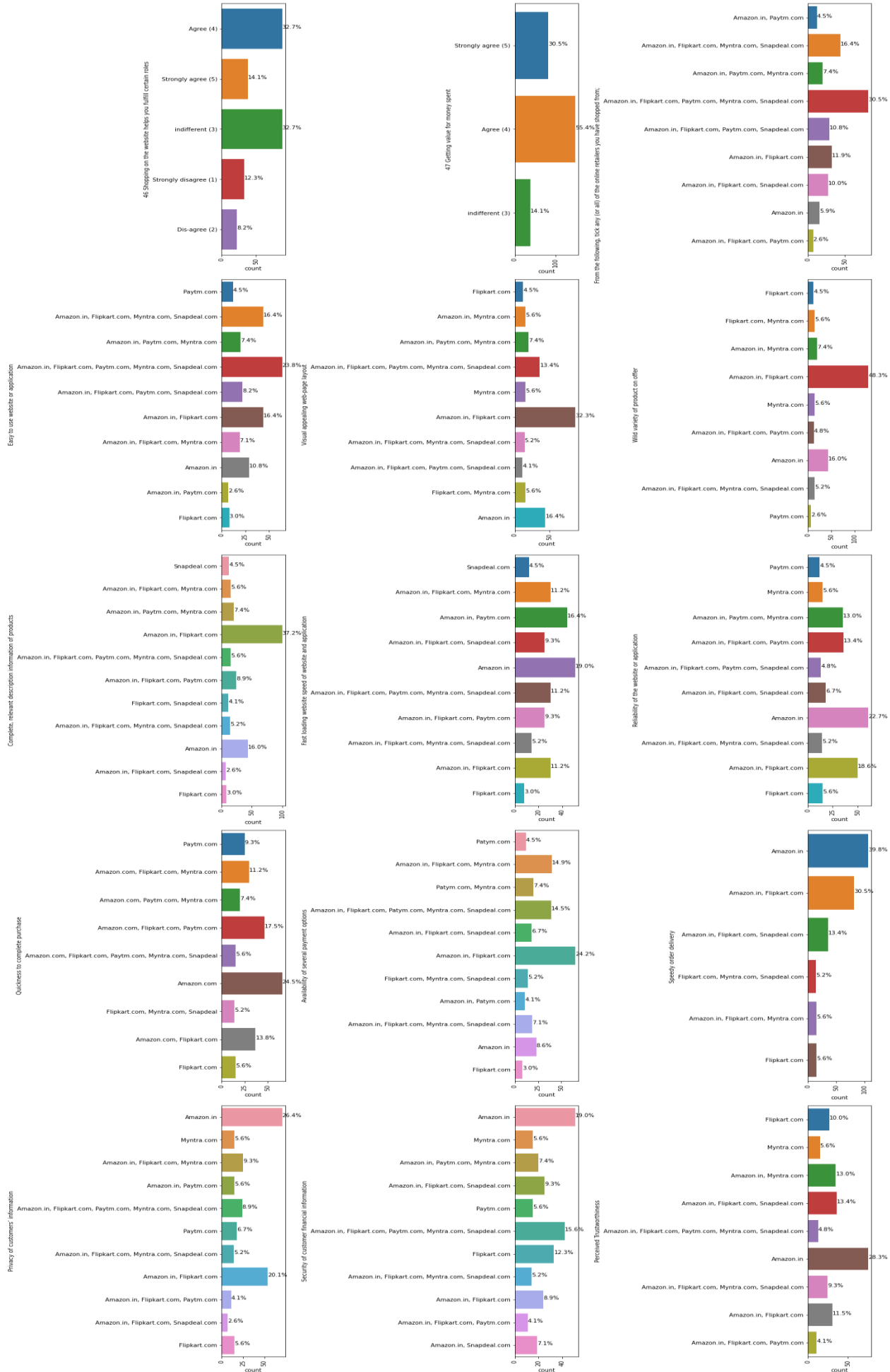
Observations:

- How frequently do you abandon your shopping cart: 63% of the Customers abandon their Carts Sometimes. Least Percent of the Customer with 5% of the customers very frequently abandon their carts
- Reason of abandoning the Cart: 50% of the customers found better alternative offer, 20% of the customers couldn't apply the promo code, 13% of the customer abandoned thier cart due to change in price
- 61% of the customers Strong Agree the content of the website easy to understand and read, 30% of the Customers Agree that the content, 6.7% of the Customers disagree that the content of the website is easy to read and understand.
- Information on a similar product to the one highlighted is important, 43% of the customer strongly agree and 34% of the customers agree to it, least % of customers i.e 6.7% of them disagree to the question above, 16% of the customers think the question is indifferent.
- Complete information on listed seller and product being offered is important for purchase decision, 37% of the customers strongly agree to the question, 6.7% of the customers strongly disagree, 4% of the customers disagree to the question.
- All relevant information on listed products must be stated clearly, 49% of the customers Agree to the question, where 40% of the customers Strongly agree to the question, 6.6% of the customers strongly disagree to the question, and 4.4% of the customers dis-agree to the question.
- Ease of navigation in website, the question is strongly agreed by 52.4% of the customers, 39% of the customers agree to it, 6% of the customers strongly disagree to it and at the least 1.8% of the customers disagree to the question.
- Loading and processing speed, 42%, 41% of the customers strongly agree and agree to the fact respectively, and 6.6% of the customers disagree to the question, where as 4.4 % of the customers strongly disagree respectively.
- User friendly Interface of the website, 70% of the customers strongly agree to it, 16% of the customers Agree to it
- Convenient Payment methods, 59% of the customers strongly agree, 29.7% of the customers Agree to it and at least 11% of the customers disagree to it.
- Trust that the online retail store will fulfill its part of the transaction at the stipulated time, 52% of the customers agree to the fact, 32% of the customers Agree to the Fact, 11% of the customers Disagree to the Fact, 4.4% of the customers find it indifferent.
- Empathy (readiness to assist with queries) towards the customers, 72% Of the customers strongly agree, 15.6% of the customers agree to it, 6.6% of the customers strongly disagree to it, 5.5% of the customers find it indifferent fact.
- Being able to guarantee the privacy of the customer, 68% of the customers strongly with the question, 21.5% of the customers agree to it, 9.6% of the customers find the question indifferent.
- Responsiveness, availability of several communication channels (email, online rep, twitter, phone etc.), 55% of the customers strongly agree to it, 34% of the Customers agree to the question
- Online shopping gives monetary benefit and discounts, 39% of the customers strongly agree to the fact, 31.5% of the customers Agree to the Fact, 18% of the customers find the fact indifferent, 6.6% of the customers strongly disagree to the fact, 4% of the customers disagree to the fact.



Observations:

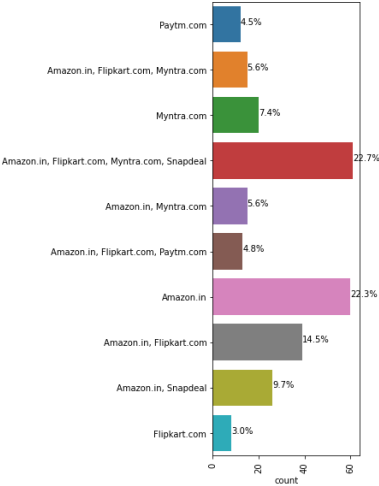
- Enjoyment is derived from shopping online, all customers have biased options as 30% of the customers strongly agree, 28% of the customers find the fact indifferent, 21% of the customers agree to the fact and other customers disagree.
- Shopping online is convenient and flexible, majority of the customers (54%) strongly agree and 29% of the customers Agree to it.
- Return and replacement policy of the e-tailer is important for purchase decision, majority of the customers (73%) strongly agree and 18% of the customers Agree to it and other remaining (7.5%) disagree.
- Gaining access to loyalty programs is a benefit of shopping online, majority of the customers (42%) strongly agree and 23% of the customers Agree to it, 23% of the customers find the fact indifferent, and other remaining are in disagree and strongly disagree category.
- Displaying quality Information on the website improves satisfaction of customers, majority of the customers(50%) strongly agree and 29% of the customers Agree to it and other remaining(21%) find it indifferent.
- User derive satisfaction while shopping on a good quality website or application, majority of the customers(65%) strongly agree and 31% of the customers Agree to it and other remaining(2%) disagree.
- Net Benefit derived from shopping online can lead to users satisfaction, majority of the customers(60%) strongly agree and 20% of the customers Agree to it and other remaining(15%) feel the fact is indifferent and other 4% disagree.
- User satisfaction cannot exist without trust, majority of the customers (45%) strongly agree and 43% of the customers Agree to it and other remaining(1.8%) feel the fact is indifferent and other 2.6% and 6.7% of the customers disagree and strongly disagree.
- Offering a wide variety of listed product in several category, majority of the customers (41.2%) strongly agree and 34% of the customers Agree to it and other (21%) feel the fact is indifferent and other 2.6% disagree.
- Provision of complete and relevant product information, majority of the customers (50.2%) strongly agree and 36% of the customers Agree to it and other (11%) feel the fact is indifferent and other 1.8% disagree.
- Monetary savings, majority of the customers (55%) strongly agree and 27% of the customers Agree to it and other (5.5%) feel the fact is indifferent and other 11% disagree.
- The Convenience of patronizing the online retailer, majority of the customers(51.3%) agree and 20% of the customers strongly Agree to it and other remaining(28.6%) feel the fact is indifferent.
- Shopping on the website gives you the sense of adventure, majority of the customers (38%) agree to it, 20% of customers strongly agree, 22% of the customers find the fact indifferent, 18.5% of the customers disagree, 1.8% of the customers strongly disagree.
- Shopping on your preferred e-tailer enhances your social status, majority of the customers (37%) find it Indifferent, 17.8% of customers strongly agree, 21% of the customers agree to it, 12% of the customers strongly disagree, and remaining 10% of the customers disagree to it.
- You feel gratification shopping on your favorite e-tailer, 37% of the customers find it indifferent, 24% of the customers strongly agree to it, 23% of the customers agree to it, and other 8% and 6% of the customers disagree and strongly disagree to it respectively.



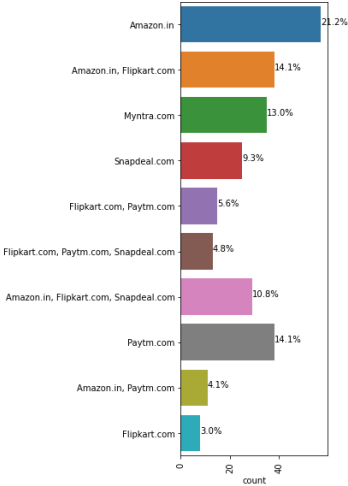
Observations:

- Shopping on the website helps you fulfill certain roles, 32% of the customers find the fact indifferent and agree to it Each, 14% of the customers strongly agree to it, 12% of the customers strongly disagree and the remaining 8% of the customers disagree to it.
- Getting value for money spent, majority of the customers (55%) Agree to it, other 30% of the customers strongly agree it it and other remaining 14% of the customers find it indifferent.
- From the following, tick any (or all) of the online retailers you have shopped from, we observe majority of the customers (30%) of the customers shop from all the online retailers i.e. (Amazon. in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com
- Majority of the customers find all the retailer online store (Amazon. in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com) easy to use.
- Majority of the Customers (32%) find Amazon and flipkart layout of website appealing, 16% of the customers find only Amazon website appealing, 14% of the customers find all the websites appealing.
- Wide variety of products on offer, majority of the customers 49% find amazon and flipkart website products on offer.
- Complete relevant description of the product, 38% of the customers find it in Amazon/flipkart. other 16% customers only find relevant product description in amazon, and for other combination of website all in range of 5-10%.
- Majority of the customers (19%) find only Amazon fast loading website /speed of website. 16% of the customers find amazon/ paytm , 11% of the customers find all the websites fast .
- 22% of the customers find amazon very reliable website,18% of the customers find amazon/flipkart reliable, other combinations of the online retailers lie between 5-14%.
- Quickness to complete purchase, 24% of the customers find amazon to be quickest for purchase, next majority is for amazon, paytm, flipakrt with 17% of the customers.
- Availability of payment options, Majority of the customers 24% find all the payment option in amazon, flipkart.
- Speedy delivery, 40% in amazon, 30% in amazon/ flipkart, 13.5 % in amazon/flipkart/snapdeal.
- Privacy of customers info, 26.5% of customers find it in amazon, 16% in amazon/flipakrt.
- Security of customers with financial info , we see Most of the customers have Amazon. flipkart in thier option. With majority of the customers 20% with only amazon.
- Trustworthiness, majority more than 50% of te customers have amazon/ flipakrt in thier options on online retailers.

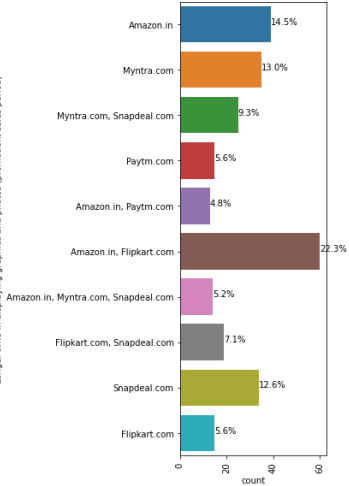
Presence of online assistance through multi-channel



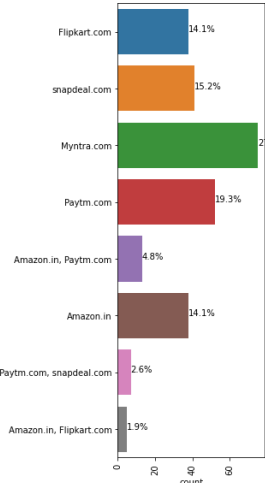
Longer time to get logged in (promotion, sales period)



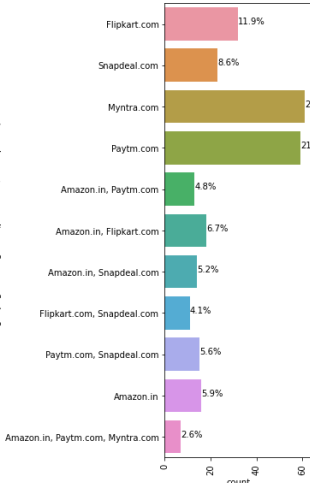
Longer time in displaying graphics and photos (promotion, sales period)



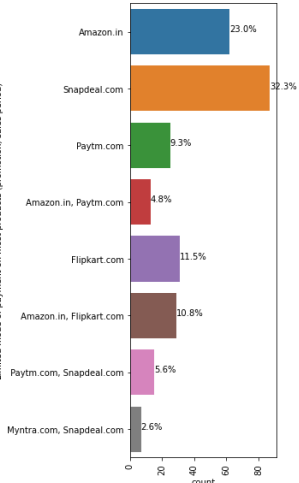
Late declaration of price (promotion, sales period)



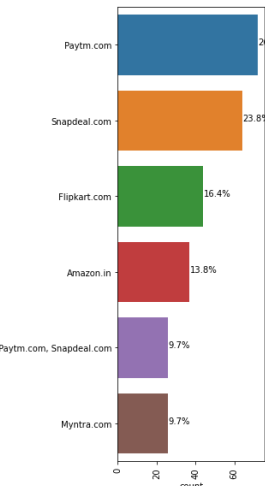
Longer page loading time (promotion, sales period)



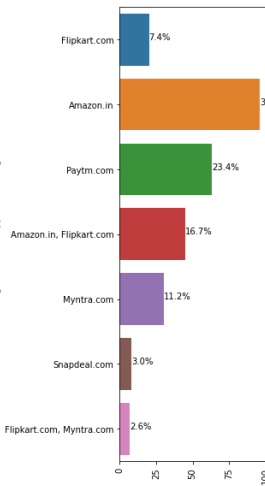
Limited mode of payment on most products (promotion, sales period)



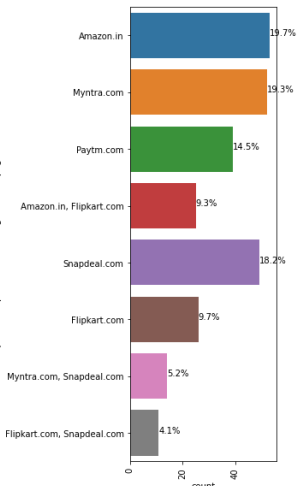
Longer delivery period



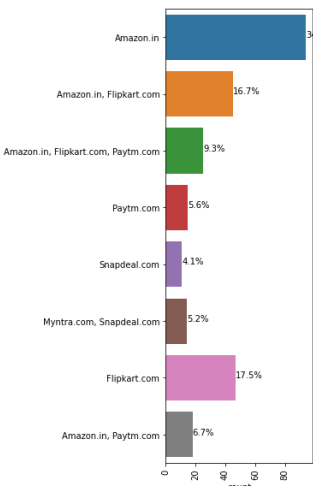
Change in website/Application design



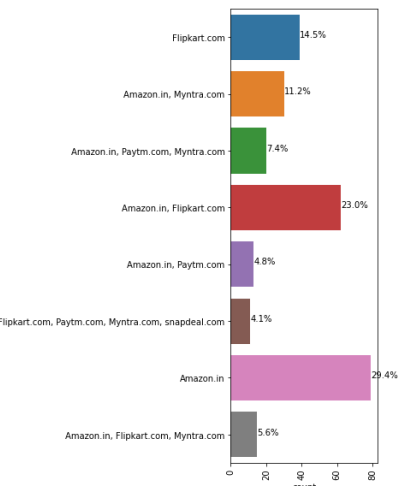
Frequent disruption when moving from one page to another



Website is as efficient as before



Which of the Indian online retailer would you recommend to a friend?



Observations:

- Presence of online assistance through multi channel, majority of the customers 22% find it in all the websites amazon.flipkart/snapdeal/myntra.
- Longer time to get logged in , 21% customer takes longer time to log in only Amazon.
- Longer time to display graphics and photos, 22.3% of the customers take longer time in amazon/flipkart.
- Late declaration of price, 28% of the customers go with myntra of late declaration price, 19.3% of the customers go with paytm, least time for price taken by amazon/flipkart only 1.8% of the customers.
- Myntra and paytm each take longer time to load by 22% of the customers each.
- Limited mode of payment for most products, 32% customers find limited payment method in snapdeal, only 9% find limited payments in paytm.
- Longer delivery period, 26% of the customers find PAYTM to take longer time to deliver, 23% of the customers find snapdeal to take longer time.
- Change in website/application design, 36.7% and 23.4% of the customers find amazon and paytm to change in website/application design resp.
- Website is as efficient as before, 36% of the customers find the amazon website still efficient as before, 16.7% of the customers go with flipkart and amazon both, least customers % for only snapdeal 7%.
- Recommend to friend, 29.4% of the customers recommend amazon to their friends followed by flipkart

Conclusion:

The study showed Amazon is a website where you can find wide variety of products in their website, and also majority of the products are on offer and contains all the payment methods, reliable, speed delivery and is the recommended, then Myntra, and then Paytm, Snapdeal is the Least recommended website.

- Highest number of shoppers have shopped from amazon, paytm and myntra
- Highest number of shoppers like amazon, paytm and myntra web page layout
- Highest number of shoppers like amazon and flipkart in terms of variety of product offered
- Highest number of shoppers like amazon and flipkart in terms of relevant and complete description of products
- High proportion of high purchase frequency customers like amazon and paytm in terms of website speed
- Highest reliability is obtained by amazon and flipkart
- Highest number of customers like Amazon in terms of quickness to complete purchase
- In terms of payment option Amazon, flipkart and myntra are liked most by the high purchase frequency customers
- Amazon stands apart in terms of speed of order delivery and privacy of customers information
- Highest number of customers like amazon, flipkart in terms of security of customer private information
- Amazon perceived highest trustworthiness of high purchase frequency customers
- Most of customers like amazon in terms of online assistance through multichannel
- Most user claims flipkart to take maximum login time during sales/promotion
- Highest customers claims myntra to take maximum time in displaying graphics and photos

From the visualization AMAZON is recommended 29% of the customers and snapdeal is the least recommended website.