FLIP ROBO

CUSTOMER RETENTION PROJECT

Submitted by:

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ACKNOWLEDGMENT

I would like to express my special thanks of gratitude to all the Mentors who have taught me Machine Learning because of the knowledge they had provided to me I am able to complete this project.

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INTRODUCTION

Customer Retention refers to the action and strategies a business uses to try and keep existing customers. To enable these actions, customer retention analytics provide predictive metrics of which customer might churn-which enable them to get ahead of it. 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.

1. **What is Customer Retention?**

   Customer Retention refers to a company's ability to turn customers into repeat buyers and prevent them from switching to a competitor. It indicates whether your product and the quality of the service please your existing customers.

Customer Retention strategies are the processes and initiatives businesses put in place to build customer loyalty and improve customer lifetime value.

2. **Why is customer retention important?**

Customer retention increases your customers' lifetime value and boosts your revenue. It also helps you build amazing relationship with your customers. You aren't just another website or store. They trust you with their money because you give them value in exchange. According to the Harvard Business Review, acquiring a new customer can be 5 to 25 times more expensive than holding on to an existing one. You don't need to spend big on marketing, advertising or sales outreach. It is easier to turn existing customers into repeating ones, since they already trust your brand from previous purchases. New customers, however, often require more convincing when it comes to the initial sale.

3. **Customer Retention benefits:**

- Retention is Cheaper than Acquisition
- Loyal Customers are more profitable.
- Your Brand will stand out from the crowd.
- Engage customers provide more feedback.
- Loyal customers are more forgiving.
- Customers will explore your brand

REVIEW OF LITERATURE

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.

➢ Purchase intention :

Purchase intention can be characterized as the probability that an online client will purchase an item and keep on buying items from a similar online retailer . This essential develop "customers purchase choice" is clarified in the model regard to its relationship with another key factors (user satisfaction, trust and net advantage).

➢ User satisfaction :

Satisfaction has been characterized as an individual sensation of happiness or delight, because of contrasting the genuine result of shopping on the web as against their assumption. Satisfaction of on the web customers will emphatically affect their future intention (repeat purchase) straightforwardly or by implication.

➢ Net advantages :

This is utilized to portray the absolute advantages of got when shopping online by customers, as against the expenses (for instance, exertion, cash and time). A portion of the net advantages got from web-based shopping include: money related increase, item search and purchasing adequacy, accommodation, ideal conveyance, happiness, wide item reach, and adaptability. Agreeing to an examination by Childers et al. (2001), net advantage of shopping online incorporates both utilitarian worth and gluttonous qualities.

➢ Data quality

This can be characterized as the customers' insights towards the show also, qualities of data introduced or showed in an online business site, web application or gateway. It takes the qualities of data into thought, for instance, practicality, pertinence reasonable, exactness, and fulfillment. One of the essential obligations of an e-posterior is to guarantee the accessibility of complete data on items being offered, the value-based cycle included, and administrations to be delivered. Showing excellent data on the site can invigorate a further developed change rate too as better customers' satisfaction.

➢ Framework quality

This can be portrayed as the users' impression of the online retail site's capacity to proficiently give mentioned data just as its conveyance strategy. Framework quality examinations the exhibition of the site; a portion of the measurement incorporates; page load speed, simplicity of route between pages, web architecture, appearance, site accessibility, and site format. Innovation acknowledgment model (TAM) states that, an e-retail site which is viewed as being not difficult to utilize is most liable to achieve a

sensation of energy among the shoppers. Szymanski furthermore, Hise (2000) likewise believed that the exhibition of a site plays out a critical job in choosing satisfaction of the customers while shopping on the site. At the point when customers purchase an item from a site or web application, usefulness obstacles (for instance, Site crash, interference) may bring about a helpless client user experience (Collier and Bienstock, 2006). Framework quality emphatically impacts online consumer loyalty (Bauer et al., 2006). 3.1.6. Administration quality Administration quality alludes to how well the administrations conveyed by an on the web retail location can coordinate with the assumptions for the client.

Objective
The objective behind to make this project is to work with dataset of this domain. Learn how to handle, clean, interpret and make sense of the given data. What should be done and what shouldn't. With wrong steps we can lose a lot of time and resources. Also, the problem while doing this research work will enhance my understand and concepts.

Analytical Problem Framing

Analytical problem framing involves translating the business problem into terms that can be addressed analytically via data and modeling. It's at this stage that you work backwards. From the results/outputs you want to the data /inputs you're going to need, where you identify potential drivers and hypotheses to test, where you nail down your assumption. Analytical problem framing is the antithesis of merely working with the ready-to-hand data and seeing what comes of it, hoping for something insightful. In the whole research process various mathematical, statistical and analytics work has been done. There were several unwanted characters and spaces in the columns. We used many different techniques during data cleaning for the rectification of the problem. Various maps, analytical technique have been used during EDA. The EDA is divided into three section Univariate, Bivariate, Multivariate analysis. As there is a lot of variables in the dataset, heat map wasn't efficient so we used different technique.

Data:

In this project we are given excel file containing dataset of customer retention.
There are 71 columns by which we can analyse how e-commerce sector can look after its customers to improve their service.

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\t\t\t\t	10 What is the operating system (OS) of your device? \t\t\t\t	11 What browser do you run on your device to access the online store for website? \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	14 How much time do you explore the e-retail store before making a purchase decision?	1
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
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
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
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
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

15 What is your preferred payment Option? \t\t\t\t\t	16 How frequently do you abandon (selecting an items and leaving without making payment) your shopping cart? \t\t\t\t\t\t	17 Why did you abandon the "Bag", "Shopping Cart"? \t\t\t\t\t	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 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
E-wallets (Paytm, Freecharge etc.)	Sometimes	Lack of trust	Agree (4)	Indifferent (3)	Indifferent (3)	Agree (4)	Agree (4)	Strongly disagree (1)	Dis-agree (2)	Dis-agree (2)	Disagree (2)	Strongly agree (5)
Credit/Debit cards	Very frequently	Promo code not applicable	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)
E-wallets (Paytm, Freecharge etc.)	Sometimes	Promo code not applicable	Strongly agree (5)	Agree (4)	Agree (4)	Agree (4)	Agree (4)	Agree (4)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)
Credit/Debit cards	Never	Better alternative offer	Agree (4)	Agree (4)	Indifferent (3)	Agree (4)	Strongly agree (5)	Agree (4)	Strongly agree (5)	Strongly agree (5)	Agree (4)	Strongly agree (5)
Credit/Debit cards	Frequently	Better alternative offer	Strongly agree (5)	Indifferent (3)	Indifferent (3)	Agree (4)	Agree (4)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Agree (4)	Strongly agree (5)

:

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
Agree (4)	Agree (4)	indifferent (3)	Strongly disagree (1)	Dis-agree (2)	Dis-agree (2)	Agree (4)	indifferent (3)	Strongly agree (5)	Agree (4)	Strongly agree (5)	indifferent (3)	indifferent (3)
Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)
Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Agree (4)	Strongly agree (5)	Strongly agree (5)
Strongly agree (5)	Agree (4)	Agree (4)	indifferent (3)	indifferent (3)	Agree (4)	indifferent (3)	indifferent (3)	Agree (4)	indifferent (3)	Agree (4)	Agree (4)	Agree (4)
Agree (4)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Dis-agree (2)	Agree (4)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Agree (4)	Agree (4)

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
Disagree (2)	indifferent (3)	Agree (4)	Agree (4)	Strongly agree (5)	Agree (4)	Strongly agree (5)	Amazon.in, Paytm.com	Paytm.com	Flipkart.com	Flipkart.com	Snapdeal.com S
Strongly agree (5)	indifferent (3)	indifferent (3)	indifferent (3)	Strongly agree (5)	Strongly agree (5)	Strongly agree (5)	Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com	Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com	Amazon.in, Myntra.com	Flipkart.com, Myntra.com	Amazon.in, Flipkart.com, Myntra.com
Strongly agree (5)	Agree (4)	Agree (4)	Agree (4)	indifferent (3)	indifferent (3)	Agree (4)	Amazon.in, Paytm.com, Myntra.com	Amazon.in, Paytm.com, Myntra.com	Amazon.in, Paytm.com, Myntra.com	Amazon.in, Myntra.com	Amazon.in, Paytm.com, Myntra.com
Strongly agree (5)	Agree (4)	Agree (4)	Strongly agree (5)	Agree (4)	indifferent (3)	Agree (4)	Amazon.in, Flipkart.com, Paytm.com, Myntra.com...	Amazon.in, Flipkart.com, Paytm.com, Myntra.com...	Amazon.in, Flipkart.com, Paytm.com, Myntra.com...	Amazon.in, Flipkart.com	Amazon.in, Flipkart.com S
Strongly agree (5)	Agree (4)	indifferent (3)	Strongly disagree (1)	Strongly agree (5)	Strongly disagree (1)	Strongly agree (5)	Amazon.in, Flipkart.com, Paytm.com, Myntra.com...	Amazon.in, Flipkart.com, Paytm.com, Myntra.com...	Myntra.com	Myntra.com	Amazon.in, Flipkart.com, Paytm.com, Myntra.com...

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)
Snapdeal.com	Paytm.com	Paytm.com	Patym.com	Amazon.in	Amazon.in	Amazon.in	Flipkart.com	Paytm.com	Amazon.in	Amazon.in
Amazon.in, Flipkart.com, Myntra.com	Myntra.com	Amazon.com, Flipkart.com, Myntra.com	Amazon.in, Flipkart.com, Myntra.com	Amazon.in, Flipkart.com	Myntra.com	Myntra.com	Myntra.com	Amazon.in, Flipkart.com, Myntra.com	Amazon.in, Flipkart.com	Myntra.com s
Amazon.in, Paytm.com	Amazon.in, Paytm.com, Myntra.com	Amazon.com, Paytm.com, Myntra.com	Patym.com, Myntra.com	Amazon.in	Amazon.in	Amazon.in, Paytm.com, Myntra.com	Amazon.in, Myntra.com	Myntra.com	Myntra.com	Myntra.com
Amazon.in, Flipkart.com, Snapdeal.com	Amazon.in, Flipkart.com, Paytm.com	Amazon.com, Flipkart.com, Paytm.com	Amazon.in, Flipkart.com, Myntra.com	Amazon.in, Flipkart.com, Snapdeal.com	Amazon.in, Flipkart.com, Myntra.com	Amazon.in, Flipkart.com, Snapdeal.com	Amazon.in, Flipkart.com, Snapdeal.com	Amazon.in, Flipkart.com, Myntra.com, Snapdeal	Snapdeal.com	Myntra.com, Snapdeal.com
Amazon.in	Amazon.in, Paytm.com, Myntra.com	Amazon.com, Flipkart.com, Paytm.com, Myntra.co...	Amazon.in, Flipkart.com, Patym.com, Myntra.com...	Amazon.in	Amazon.in, Paytm.com	Paytm.com	Amazon.in, Myntra.com	Amazon.in, Myntra.com	Flipkart.com, Paytm.com	Paytm.com

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?
Amazon.in	Flipkart.com	Flipkart.com	Amazon.in	Paytm.com	Flipkart.com	Amazon.in	Amazon.in	Flipkart.com
Myntra.com	snapdeal.com	Snapdeal.com	Snapdeal.com	Snapdeal.com	Amazon.in	Myntra.com	Amazon.in, Flipkart.com	Amazon.in, Myntra.com
Myntra.com	Myntra.com	Myntra.com	Amazon.in	Paytm.com	Paytm.com	Paytm.com	Amazon.in	Amazon.in, Paytm.com, Myntra.com
Myntra.com, Snapdeal.com	Myntra.com	Paytm.com	Paytm.com	Paytm.com	Amazon.in, Flipkart.com	Amazon.in, Flipkart.com	Amazon.in, Flipkart.com, Paytm.com	Amazon.in, Flipkart.com
Paytm.com	Paytm.com	Paytm.com	Snapdeal.com	Paytm.com	Amazon.in	Snapdeal.com	Paytm.com	Amazon.in, Myntra.com

All the variables in the dataset are of object type except Pincode, however it is categorical in nature. The dataset contains 269 rows and 71 columns. The data contains no null value however there is a lot of unwanted characters in the columns.

DATA PREPROCESSING:
- The dataset contains 269 rows and 71 columns.
- There is no null value in the dataset.
- To fix the column problem following command has been used.

```
1  # There are alot of special characters and space in the column name
2  # There are numeric bullets in some of the colums we will remove it
3  df.columns=df.columns.str.replace('[#,@,&,\t,]','')
4  df.columns= df.columns.str.replace('\d+', '')
5  df.columns = df.columns.str.strip()
6  df.head(5)
```

- To encode Label encoder has been used.

```
1  #Encoding data
2  from sklearn.preprocessing import LabelEncoder
3  encoder=LabelEncoder()
4  for i in df:
5      df[i]=encoder.fit_transform(df[i])
```

Hardware and Software Requirements and Tools Used

- A mid level computer that runs on Intel i3- i5 8th generation, 4gb ram or A10/A11or any other equivalent chipset and a suitable processor.

- Juypter Notebook/Google chrome

- Libraries and packeges used:
  ```
  import pandas as pd
  import numpy as np
  import matplotlib.pyplot as plt
  import seaborn as sn
  import warnings
  warnings.filterwarnings("ignore")
  ```

We will use Python through Jupyter notebook for data processing. Also we will use liabraries here is numpy, matplotlib, pandas and seaborn. The matpotplotlib and seaborn library has been used to make charts to visualize and understand the problem, correlation, outliers and many other things, the pandas and numpy library issued to handel dataset and perform various tasks.

Exploratory Data Analysis:

Univariate Analysis:

```
#1.'Genderof respondent'
sn.catplot(data=df,kind="count",x="Genderofrespondent")
```
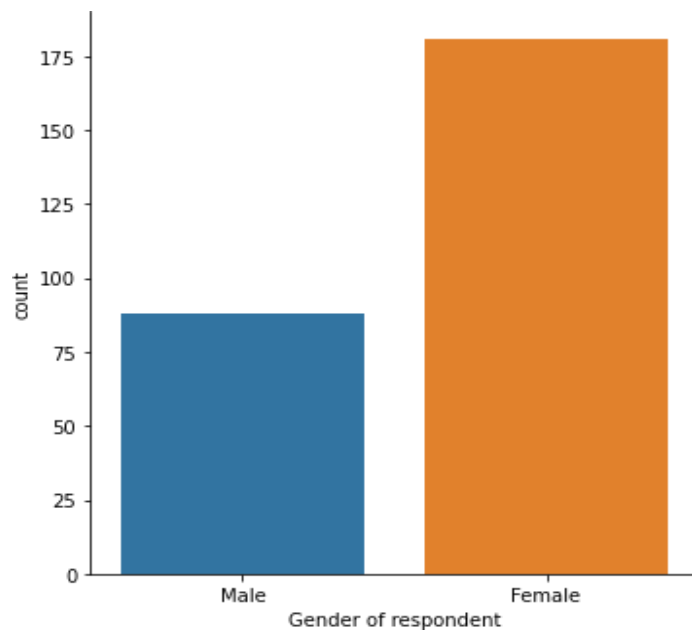

➢ The female responders are double in number in comparison of Male.

```
#2.Howold are you?
sn.catplot(data=df,kind="count",x="Howoldareyou?")plt.xticks(rotatio
n=90)
plt.show()
```
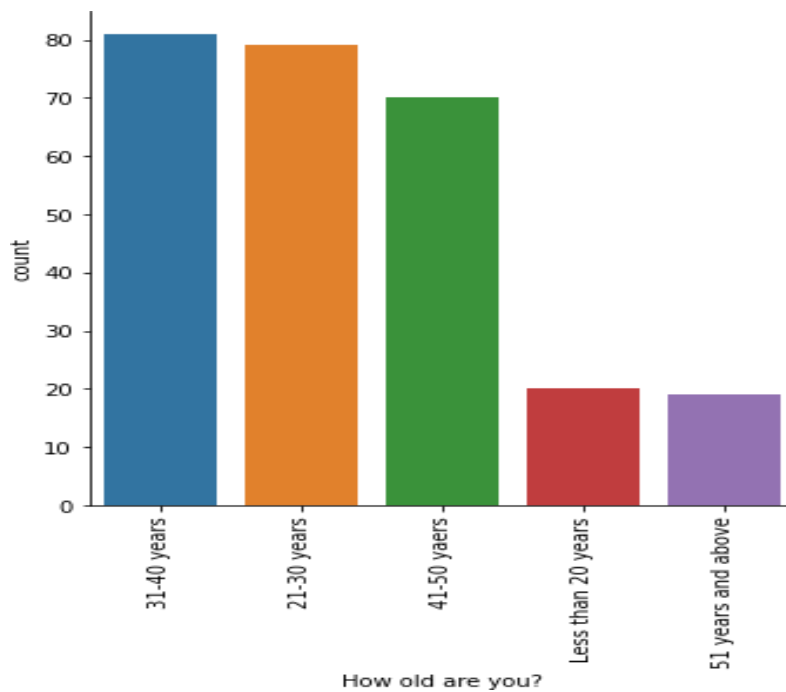
- ➢ Majority of respondents are in age group of 20–50
- ➢ There are very few respondents above 51 and below 20 years old.

```
#3.'Which city do you shop online from?'
sn.catplot(data=df,kind="count",x="Whichcitydoyoushoponlinefrom?")plt.xticks(rotation=90)
plt.show()
```

Which city do you shop online from?
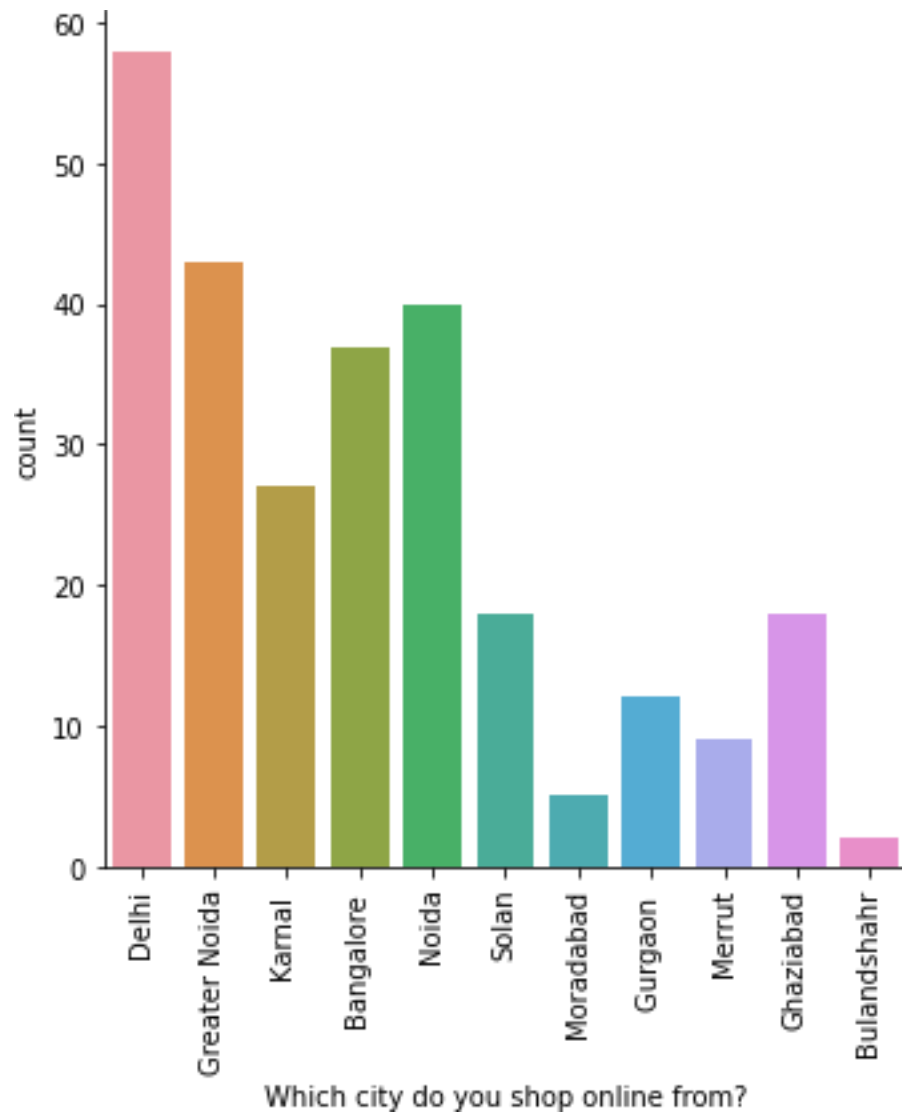
➢ Delhi is the most prone for online shopping followed by Greater Noida and Noida.
➢ Moradabad and Bulandshahr has least number of shopers.

```
#4.'SinceHowLongYouareShoppingOnline?'
sn.catplot(data=df,kind="count",x="SinceHowLongYouareShoppingOnline?")plt.xticks(
rotation=90)
plt.show()
```
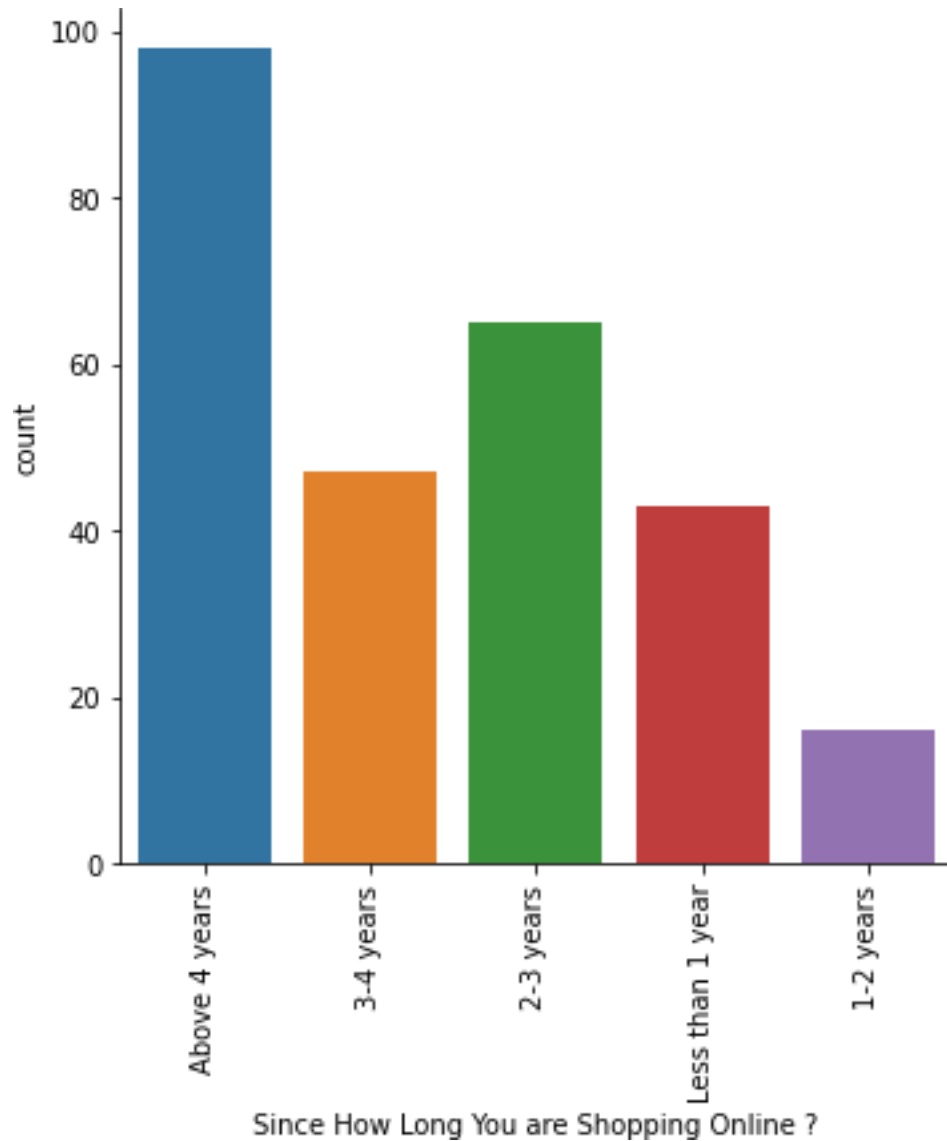
➤ Majority of people are shopping from more than 4 years.

How many times you have made an online purchase in the past year?
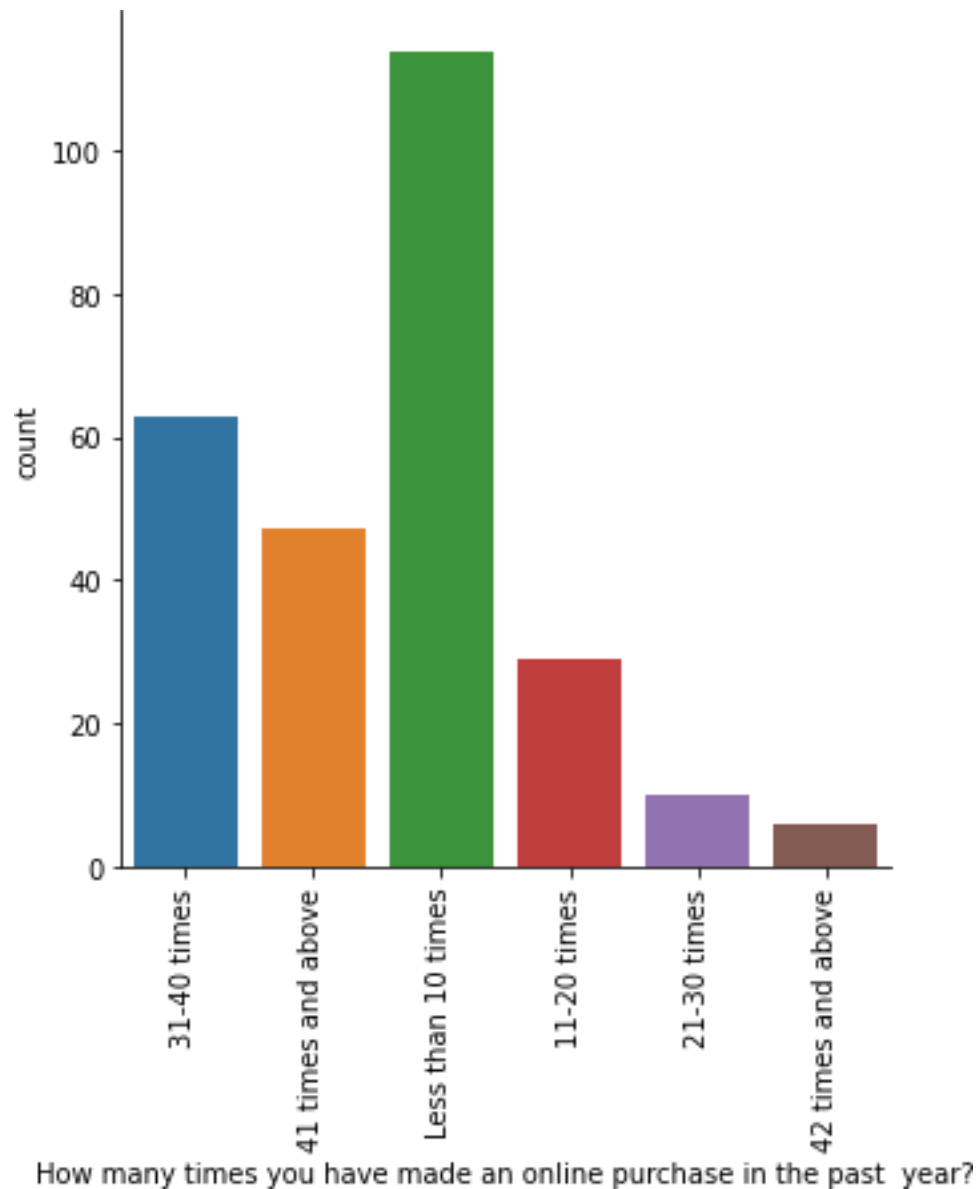
➢ Majority of the respondents has shopped less than 10 times.
➢ Very few are frequent buyers.

```
#6 How do you access the internet whiles shopping on-line?
sn.catplot(data=df,kind="count",x="How do you access the internet while ␣
 ↪shopping on-line?")
plt.xticks(rotation=90)
plt.show()
```
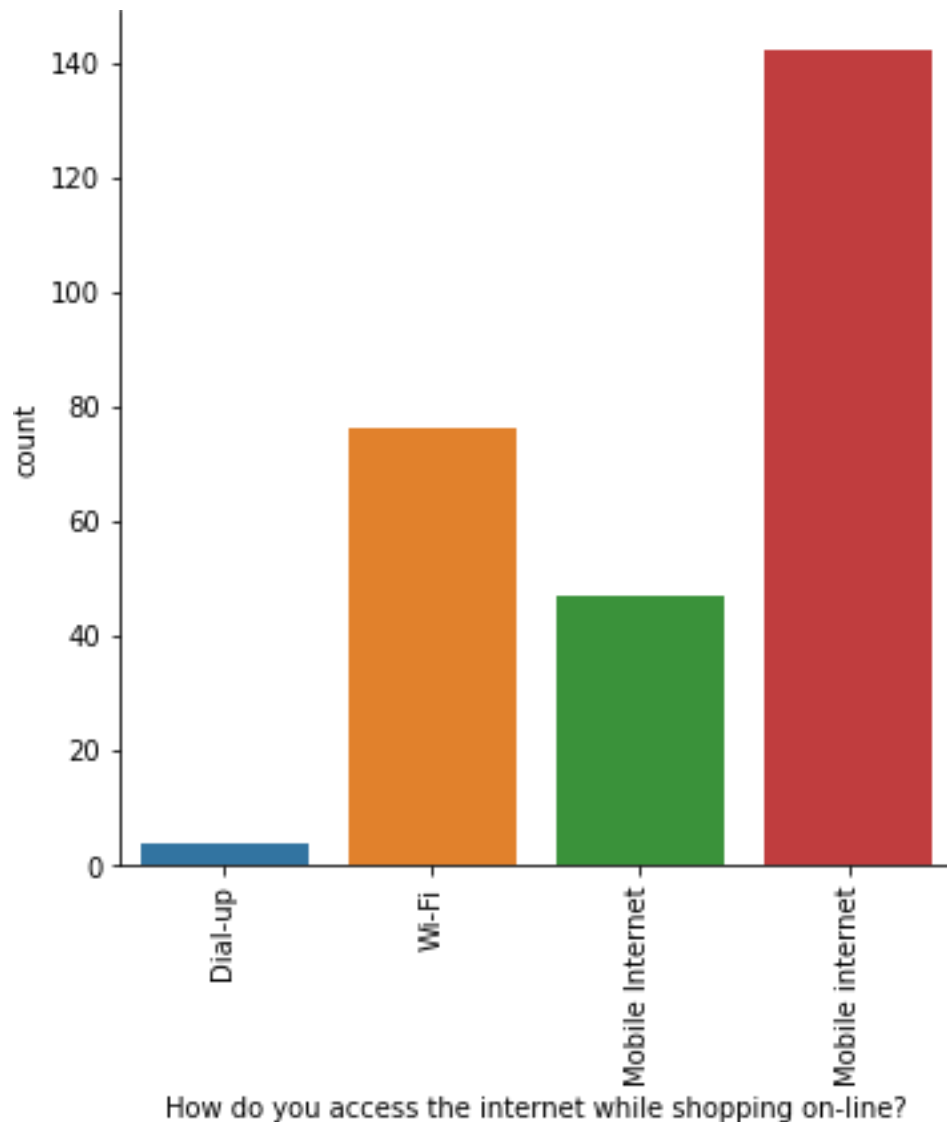
```python
#As we can see there are two mobile internet column. We will merge them into one
df.replace(to_replace="Mobileinternet",
           value="MobileInternet",inplace=True)
```

```python
#7.Howdoyouaccesstheinternetwhileshoppingon-line?
sn.catplot(data=df,kind="count",x="Howdoyouaccessthe internetwhile␣
 ↪shoppingon-line?")
plt.xticks(rotation=90)
plt.show()
```

How do you access the internet while shopping on-line?
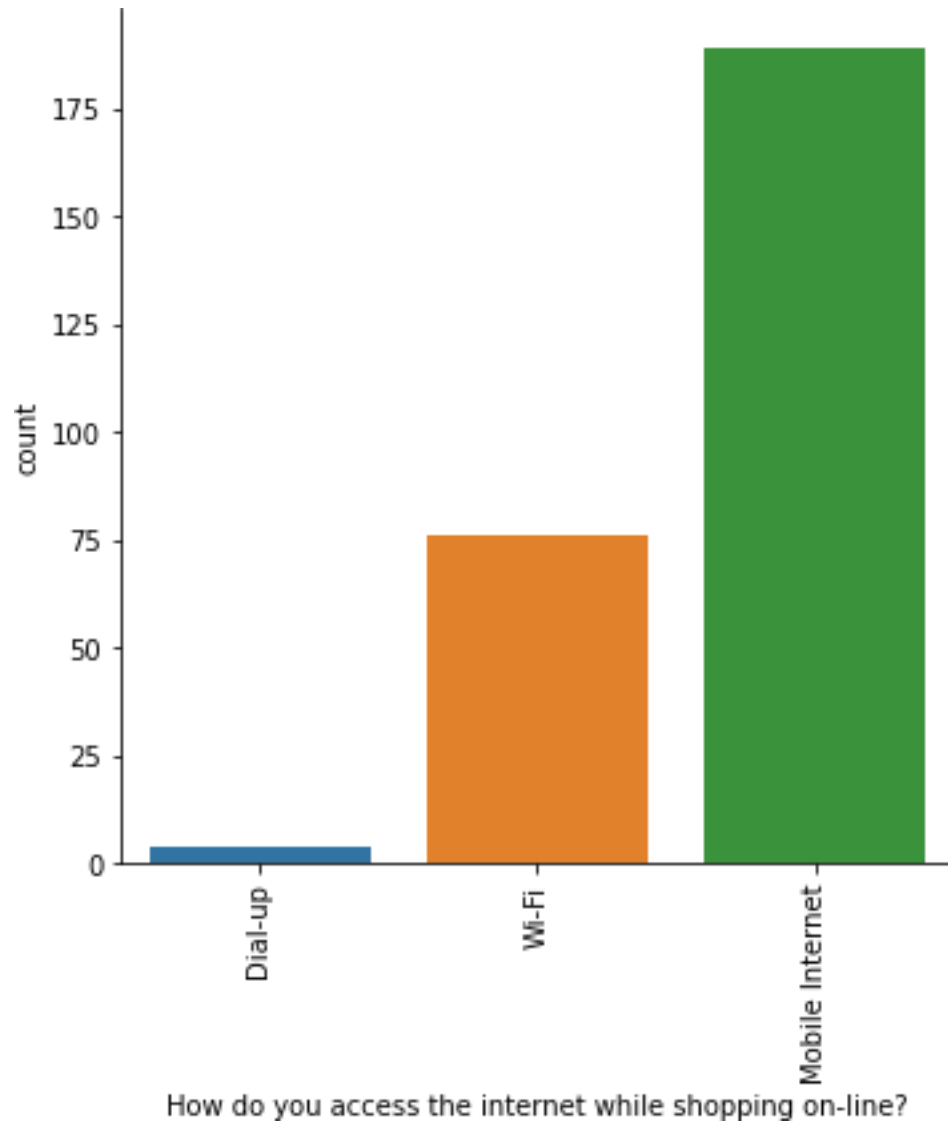
➢ Approx all the respondents prefer Mobile internet followed by Wifi.
➢ Dial up net is least preferable.

```
#8.Whichdevice do you use to access the online shopping?
sn.catplot(data=df,kind="count",x="Whichdevicedoyouusetoaccesstheonlineshopping?')
plt.xticks(rotation=90)
plt.show()
```

Which device do you use to access the online shopping?
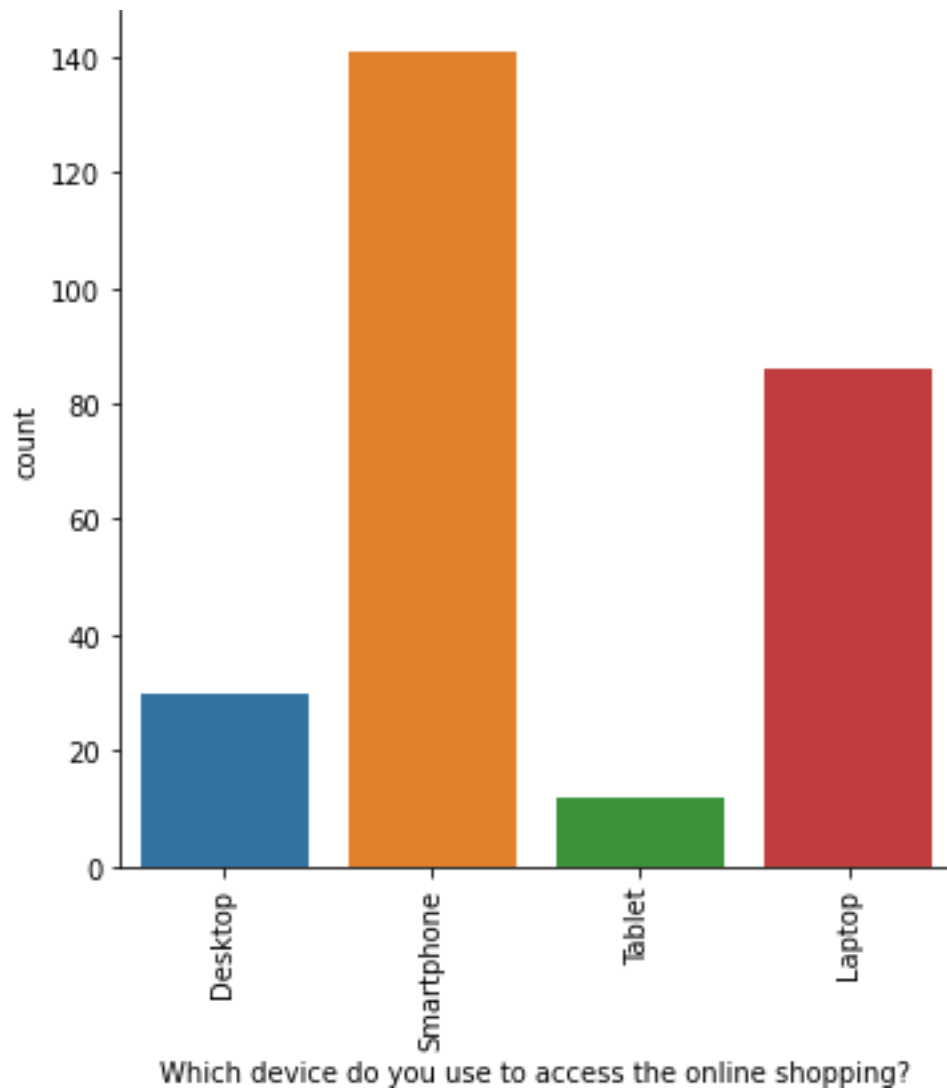
➢ As we observed earlier that majority of population use Mobile internet so here we can see smartphone is the mostly used.

```
#8.What isthe screen size of your mobile device?
sn.catplot(data=df,kind="count",x="Whatisthescreensizeofyourmobile␣
  ↪device?")
plt.xticks(rotation=90)
plt.show()
```

What is the screen size of your mobile device?
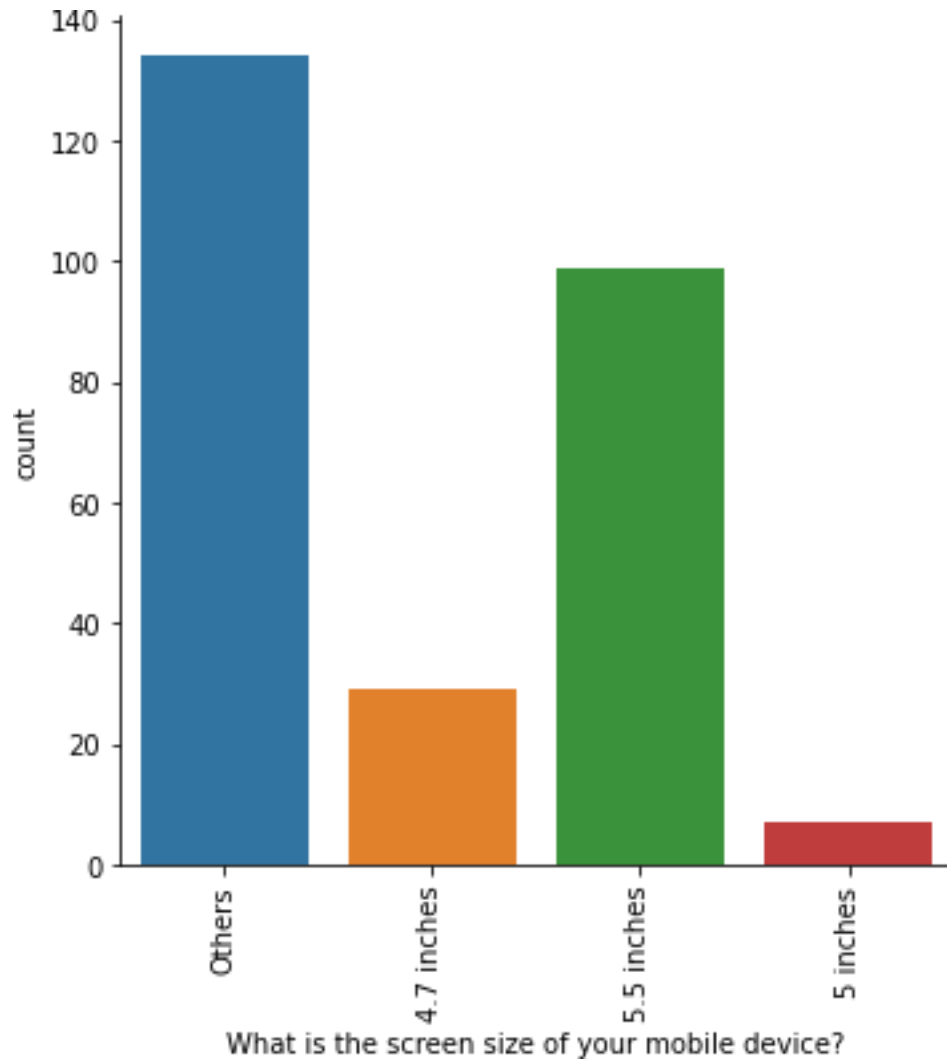
➢ Majority of the respondents has answered others so in the option the smallest size 4.7 inches.

➢ We can assume that the others smartphone screensize is more than 5.5inches.

```
#9.What is the operating system (OS) of your device?
sns.catplot(data=df,kind="count",x="Whatisthe operating system(OS)ofyour ␣
 ↪device?")
plt.xticks(rotation=90)
plt.show()
```

What is the operating system (OS) of your device?
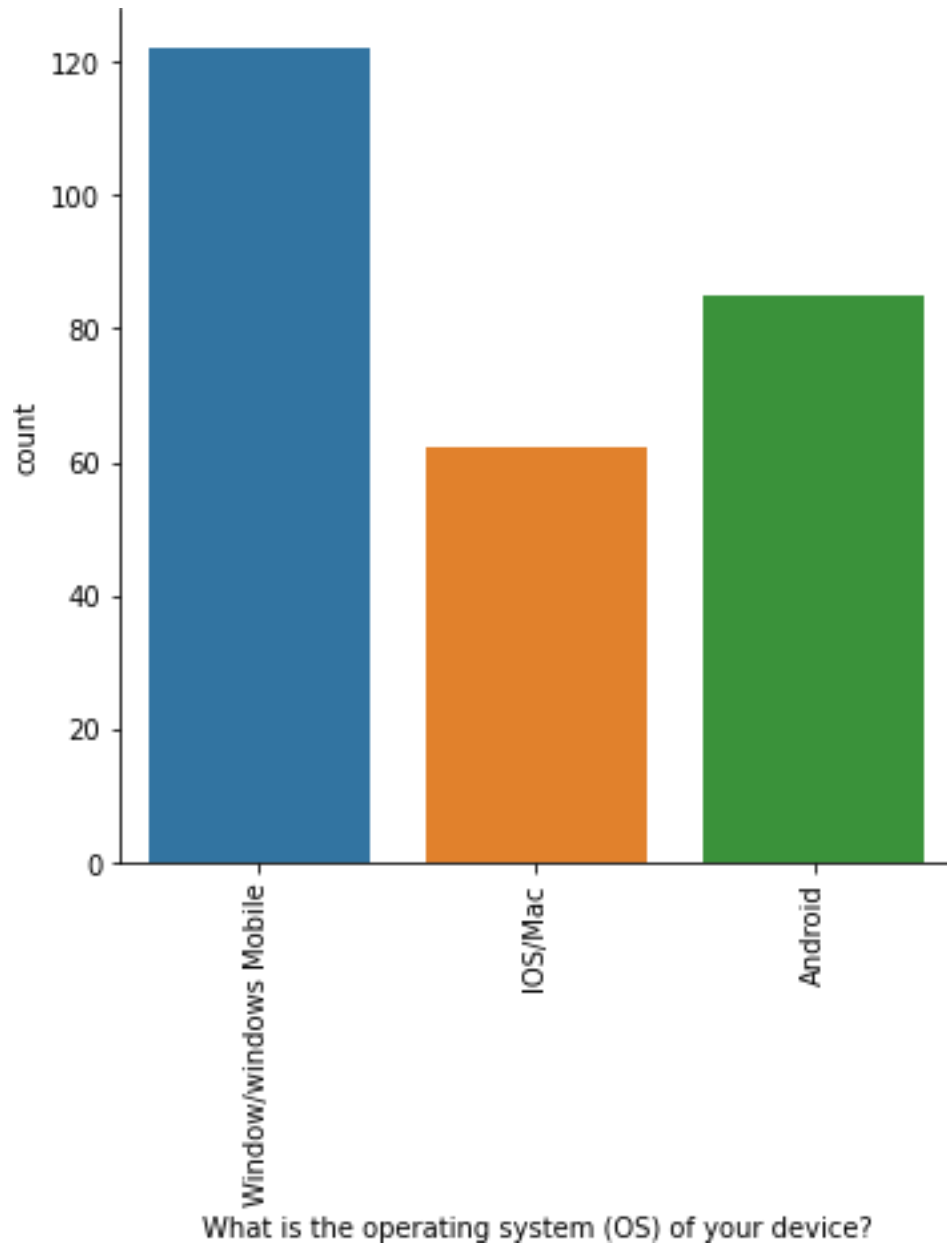
➢ Windows is the most popular os while IOS/mac is least used.

What browser do you run on your device to access the website?
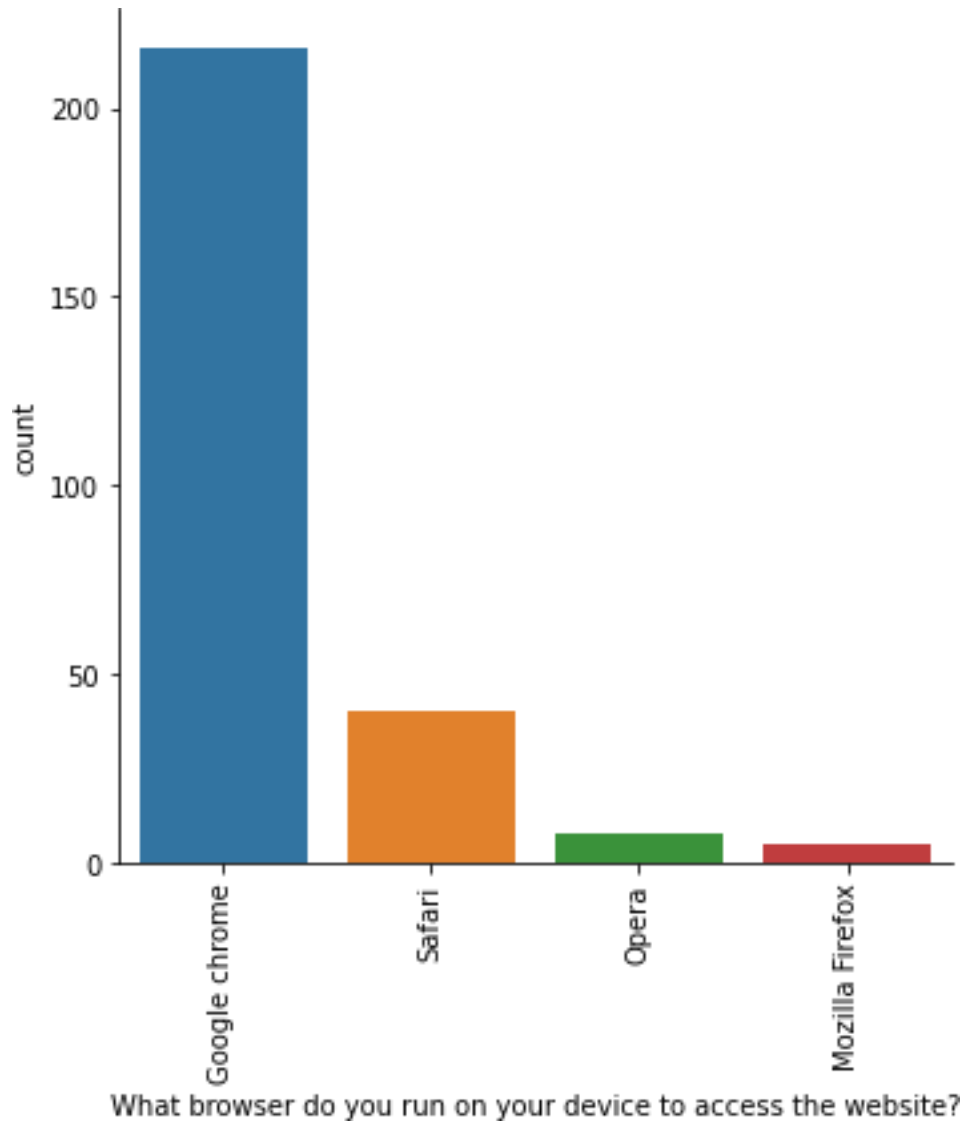
➢ Approx all respondents uses google chrome for accesing the website.
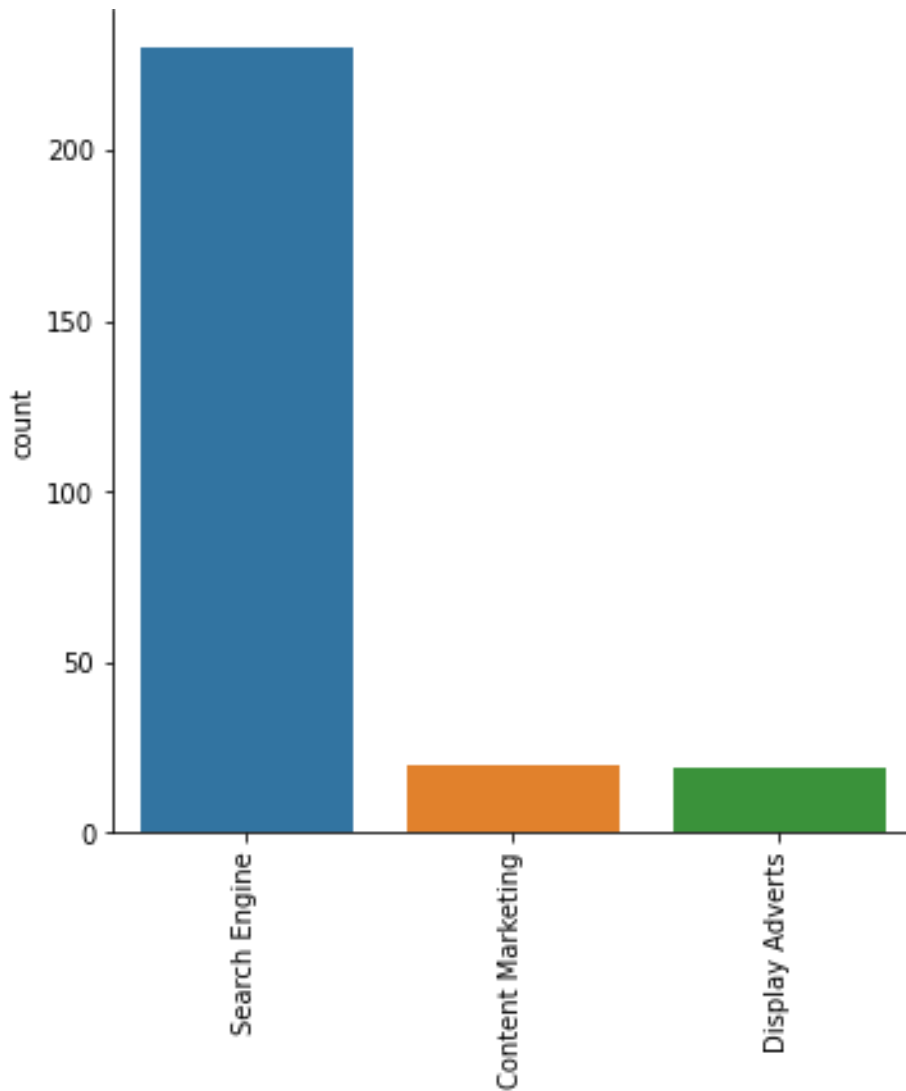
Which channel did you follow to arrive at your favorite online store for the first time?

```
#12.Afterfirstvisit,howdoyoureachtheonlineretailstore?
sn.catplot(data=df,kind="count",x="Afterfirstvisithowdoyoureachtheonlineretailsto
re?")
plt.xticks(rotation=90) plt.show()
```

After first visit how do you reach the online retail store?
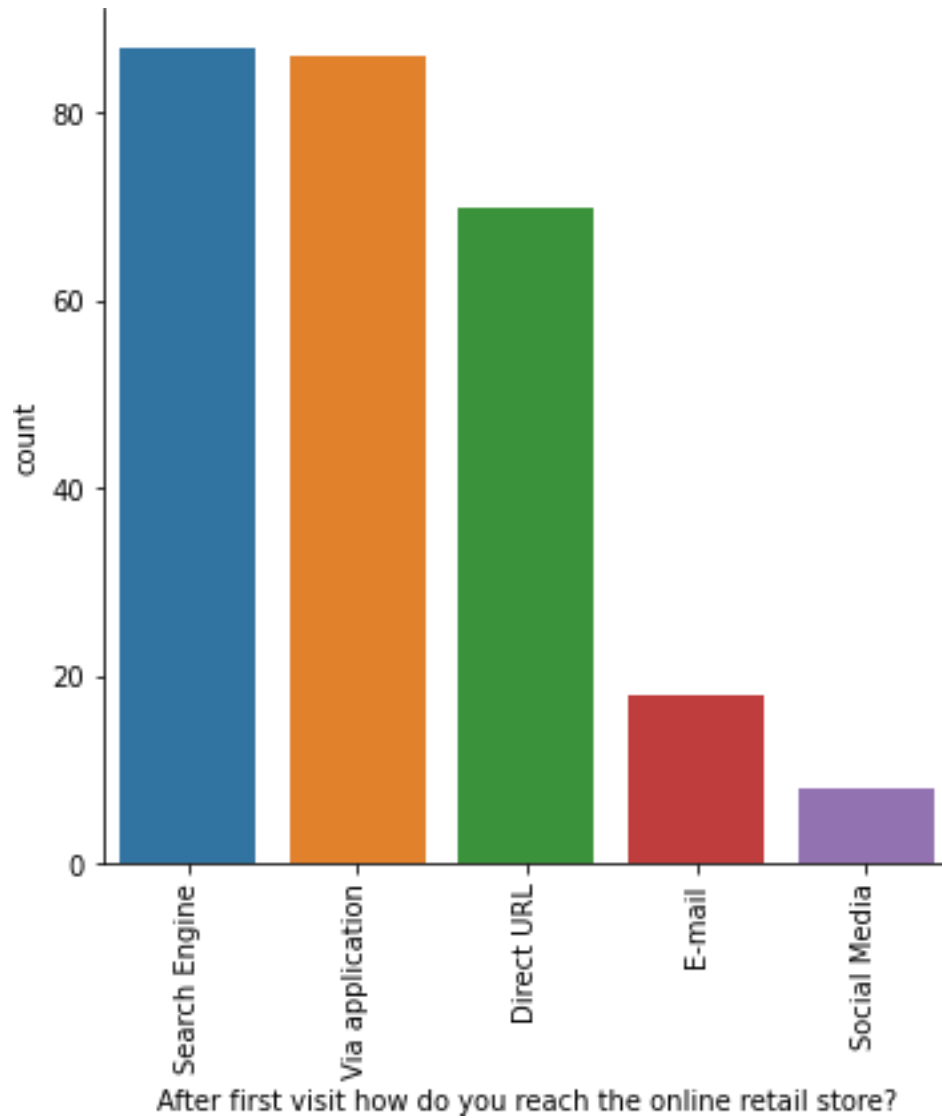
➢ Most respondents visit the sites by choice as they use search engine to navigate to website instead of clicking on advertisement.

```
#13.Howmuchtimedoyouexplorethee-retailstorebeforemakingapurchasedecision
sn.catplot(data=df,kind="count",x="Howmuchtimedoyouexploretheretailstorebeforema
kingapurchasedecision?") plt.xticks(rotation=90)
plt.show()
```
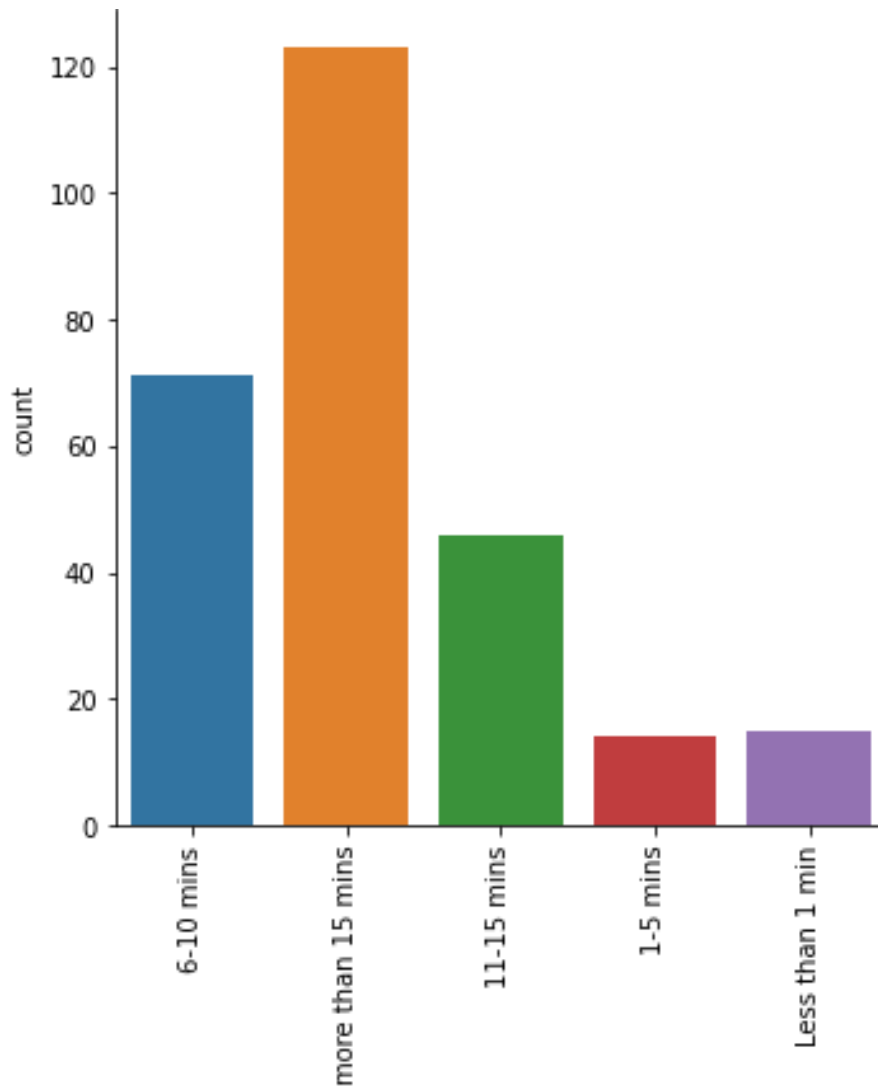
How much time do you explore the e- retail store before making a purchase decision?

➢ Majority of the respondents take more than 15 minute to make a purchase decision.
➢ There are respondents who take less than a minute to arrive on any conclusion.

```
#13.WhatisyourpreferredpaymentOption?
sn.catplot(data=df,kind="count",x="WhatisyourpreferredpaymentOption?")plt.xticks(
rotation=90)
plt.show()
```

What is your preferred payment Option?
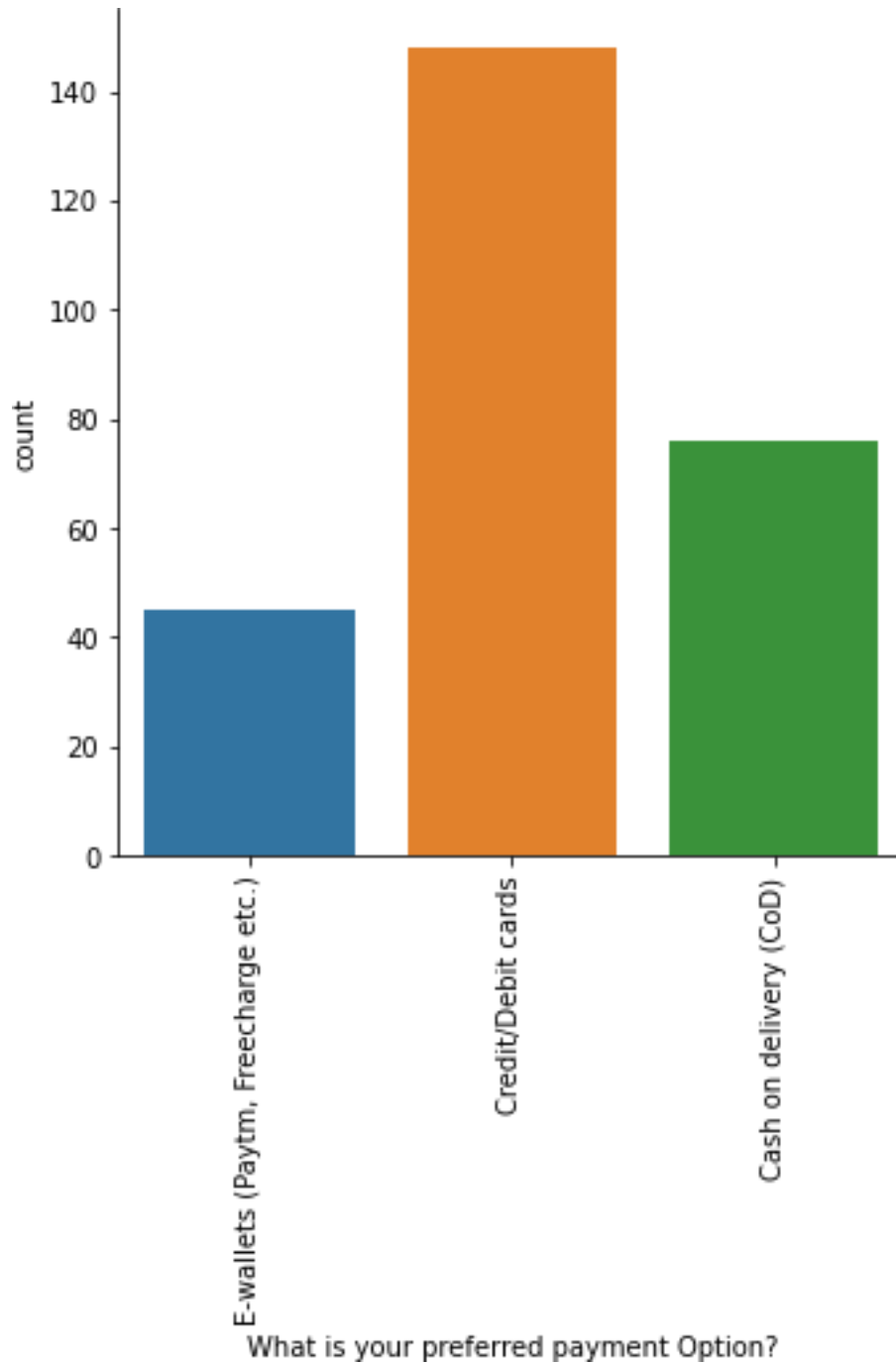
➤ Credit/debit card is the most used payment method followed by COD

#14.How frequently do you abandon (selecting an items and leaving without making␣
↪payment) your shopping cart?

```
sn.catplot(data=df,kind="count",x="Howfrequentlydoyouabandon(selecting␣
   ↪anitemsandleavingwithoutmakingpayment)yourshoppingcart?')plt.xti
cks(rotation=90)
plt.show()
```
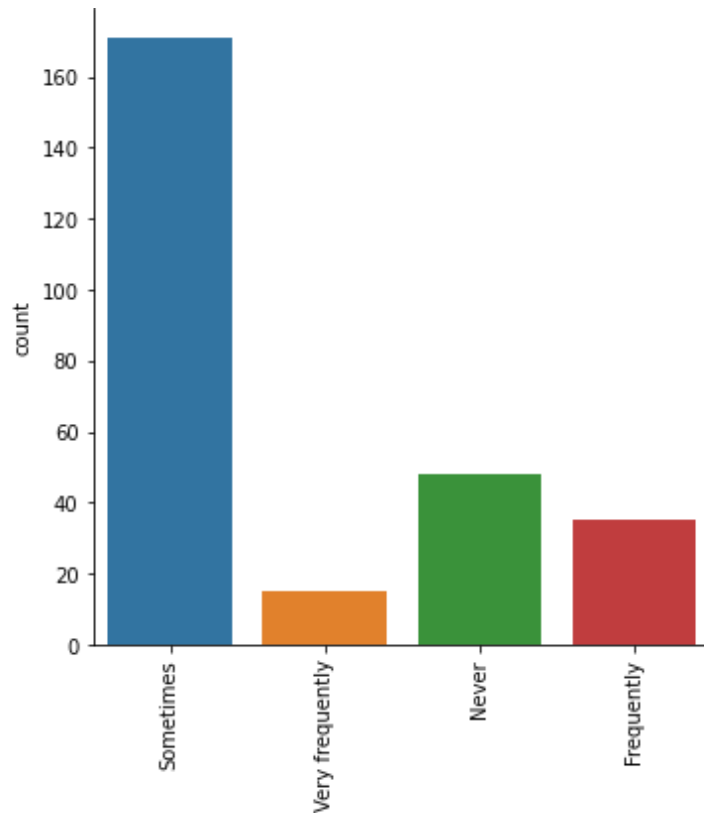

How frequently do you abandon (selecting an items and leaving without making payment) your shopping cart?

➢ There are very few respondents who leave after selecting an item.

```
#15.Whydid you abandon the "Bag", "Shopping Cart"?
sn.catplot(data=df,kind="count",x="Whydidyouabandonthe"Bag""Shopping␣
   ↪Cart"?")
plt.xticks(rotation=90)
plt.show()
```

Why did you abandon the "Bag" "Shopping Cart"?
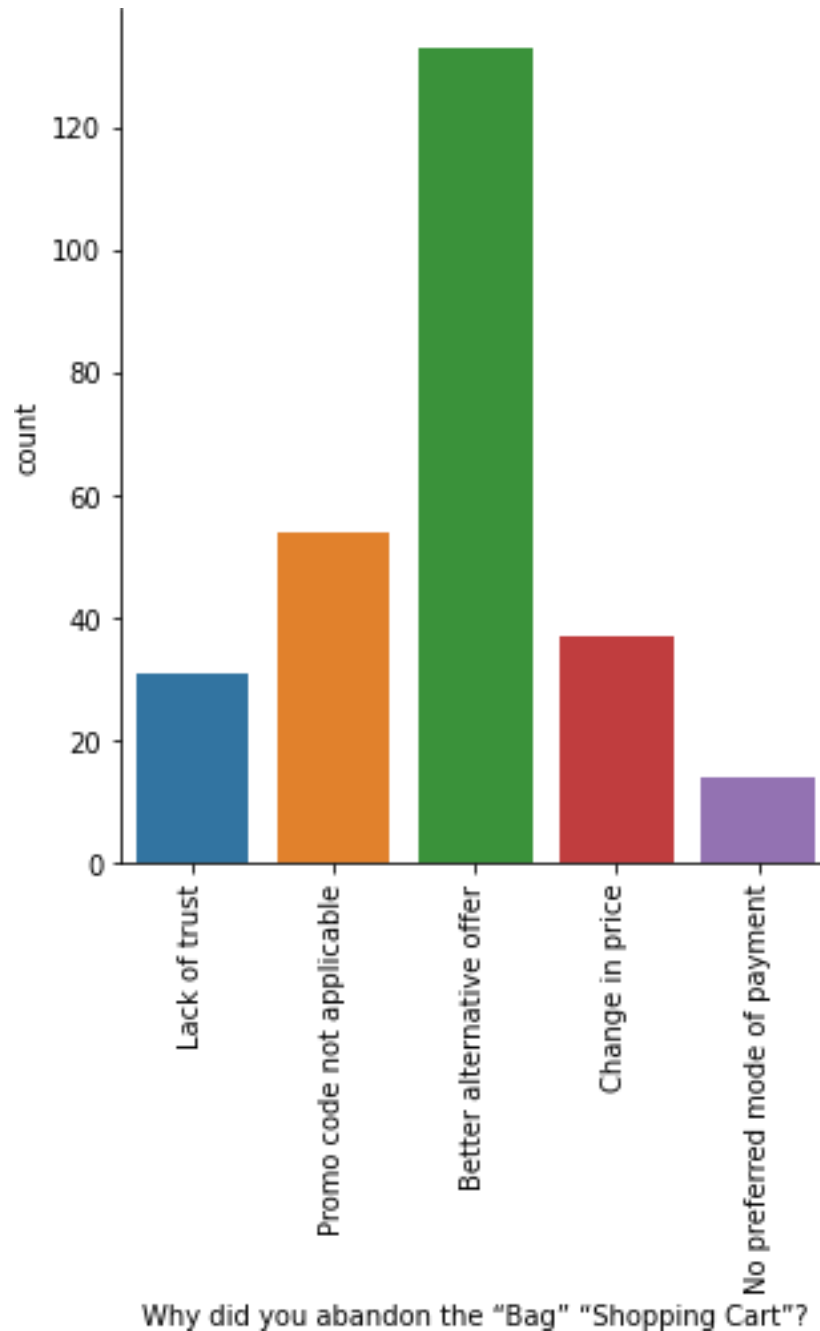
- ➢ Most sited reason for leaving added item is that the respondents gets better Alternative offer.
- ➢ So we can assume that they check or compare the product with other site also

```
sn.catplot(data=df,kind="count",x="Thecontentonthewebsitemustbeeasy
 toreadandunderstand")plt.xtick
s(rotation=90) plt.show()
```


The content on the website must be easy to read and understand
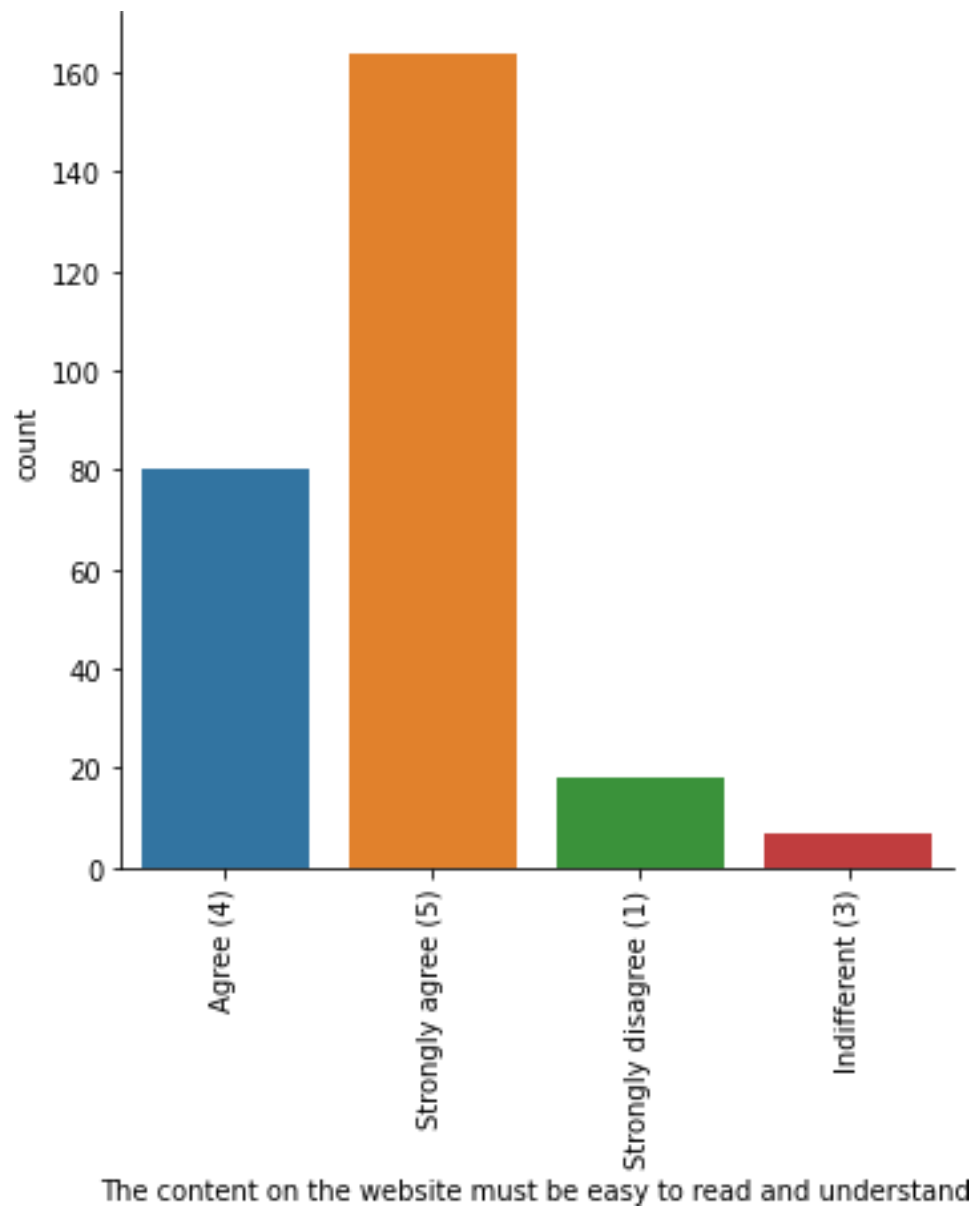
➢ Respondents like easy to read and understand content.

Information on similar product to the one highlighted is important for product comparison
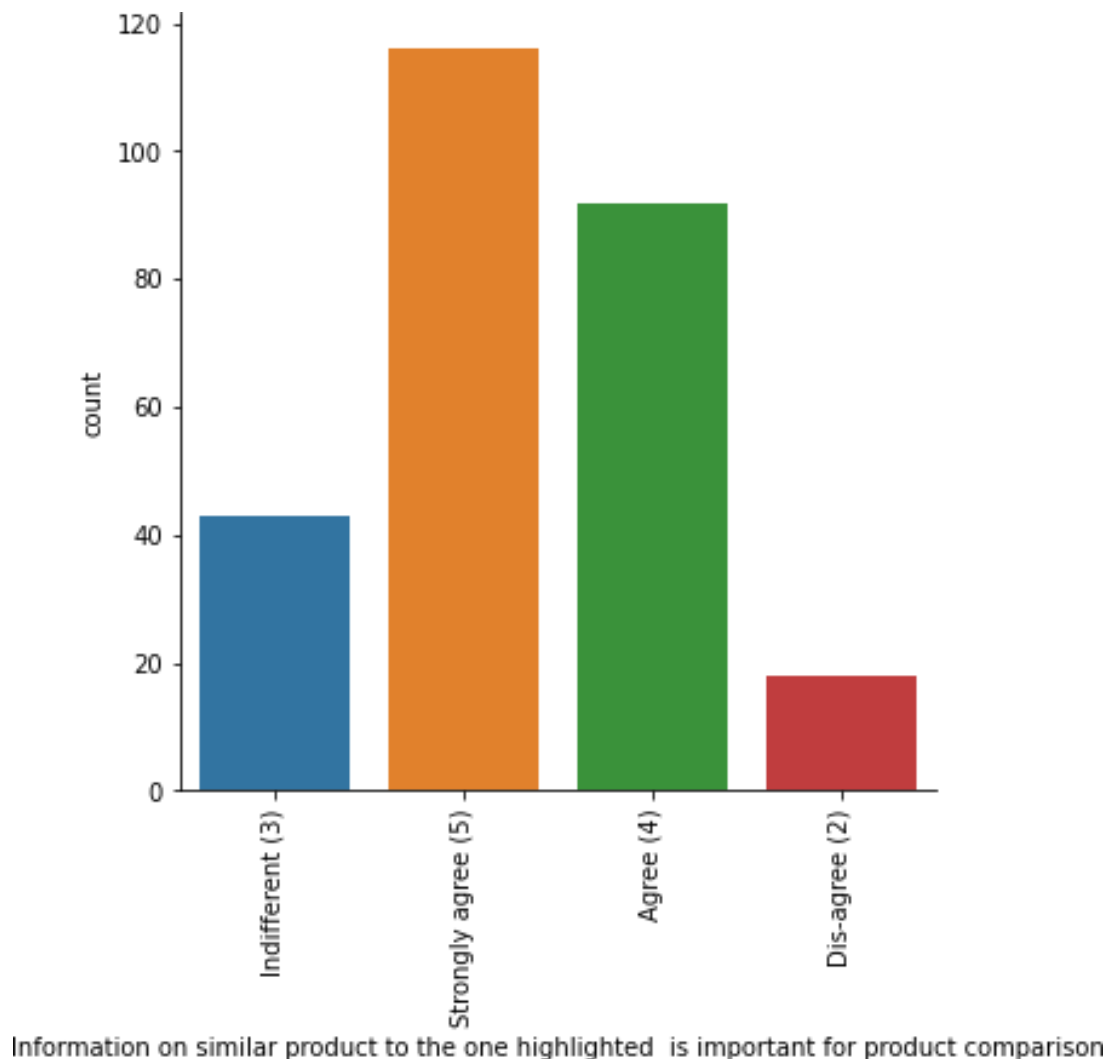
➢ Side comparison of similar product is more welcoming.

```
plt.show()
```
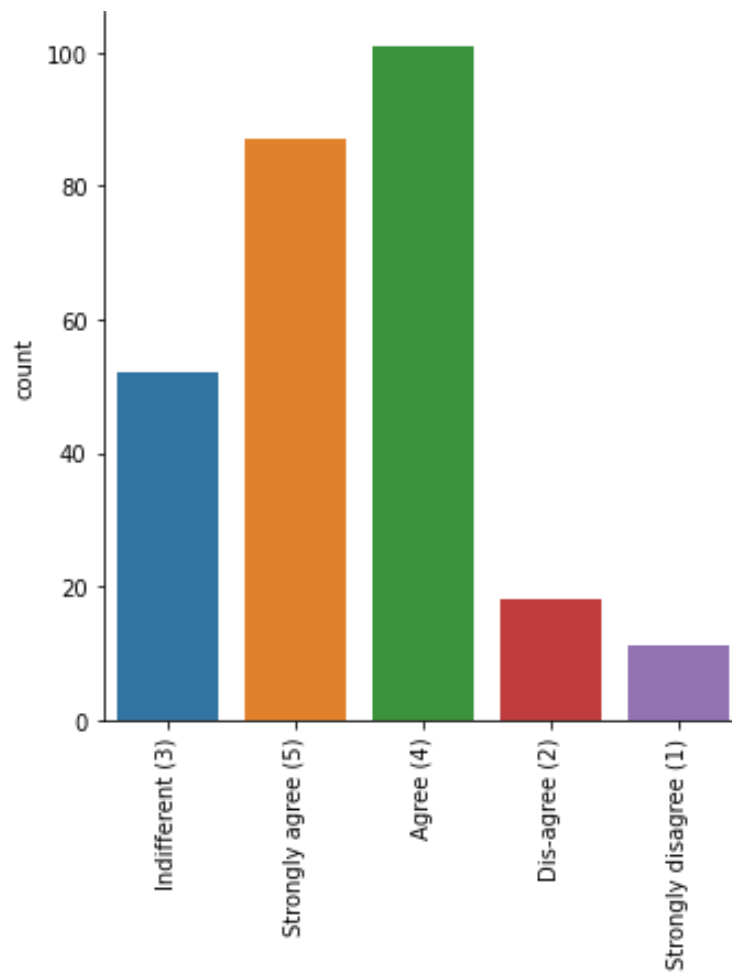

Complete information on listed seller and product being offered is important for purchase decision.

➢ Complete information about seller and product is necessary.

```
#19.Allrelevantinformationonlistedproductsmustbestatedclearly
sn.catplot(data=df,kind="count",x="Allrelevantinformationonlistedproductsmustbe
statedclearly')plt.xticks(rotation=90)
plt.show()
```
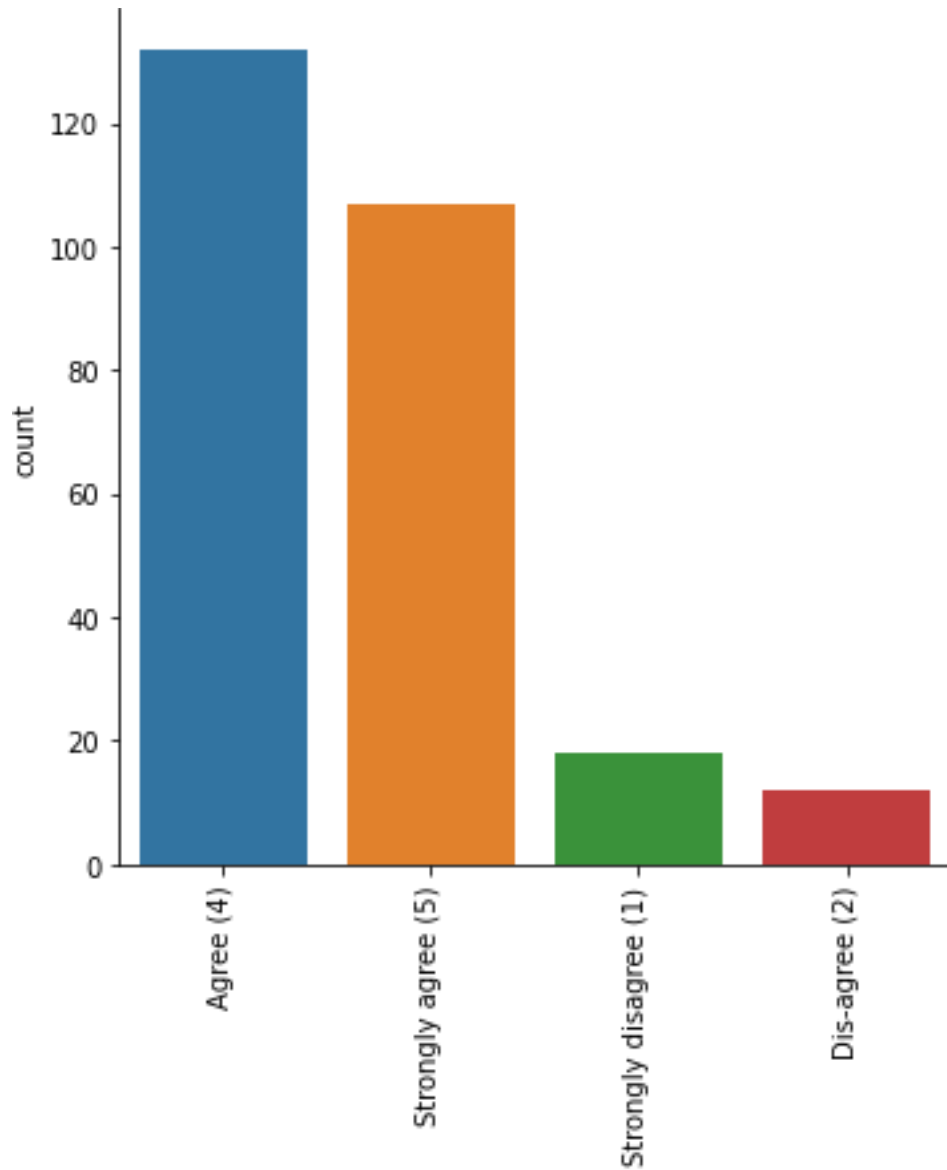
All relevant information on listed products must be stated clearly

➢ Respondents expect full transparency on the detail provided about the product on the
website.

```
#20.Easeofnavigationinwebsite
sn.catplot(data=df,kind="count",x="Easeofnavigationinwebsite")plt.xticks(rotation
=90)
plt.show()
```

Ease of navigation in website
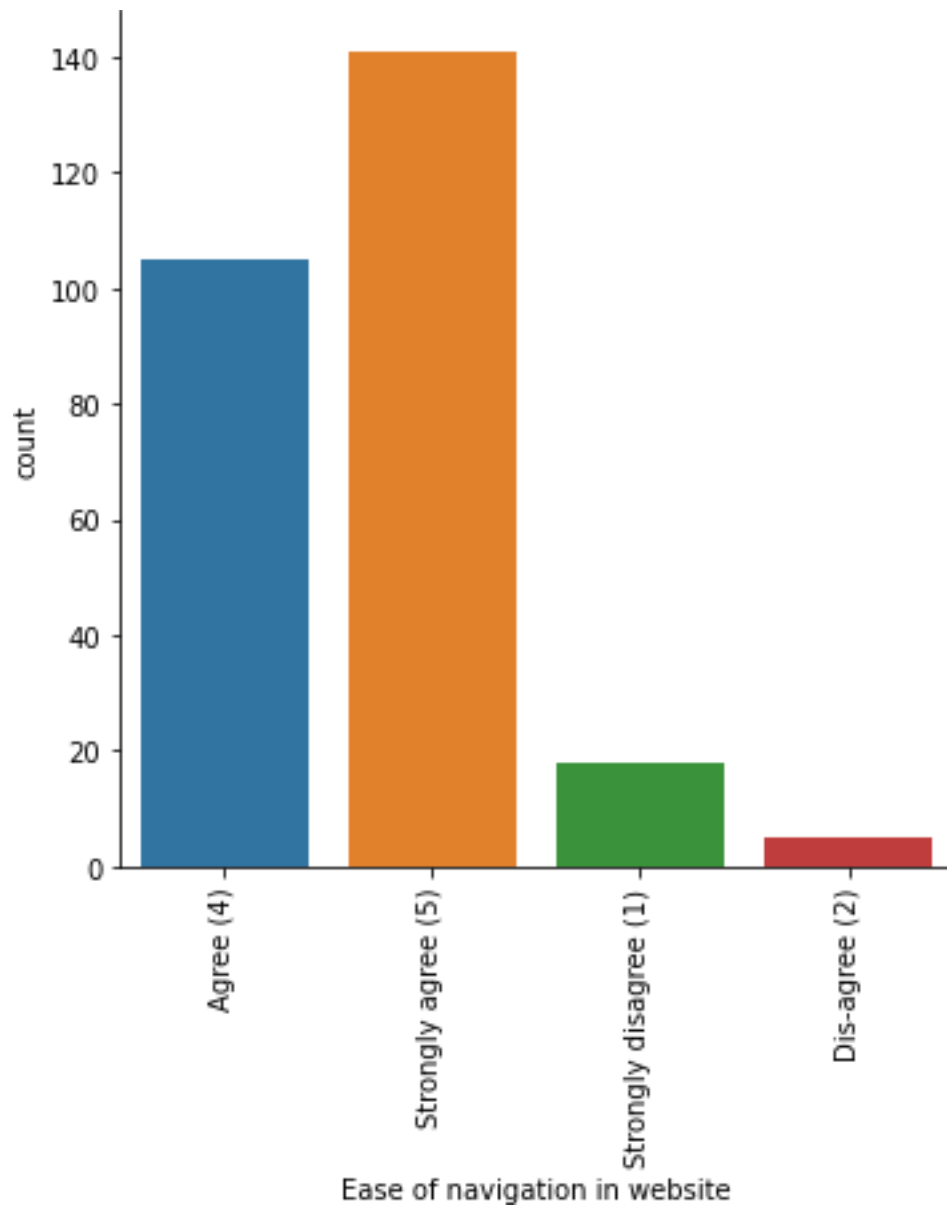
➢ Website User Interface should be used friendly.
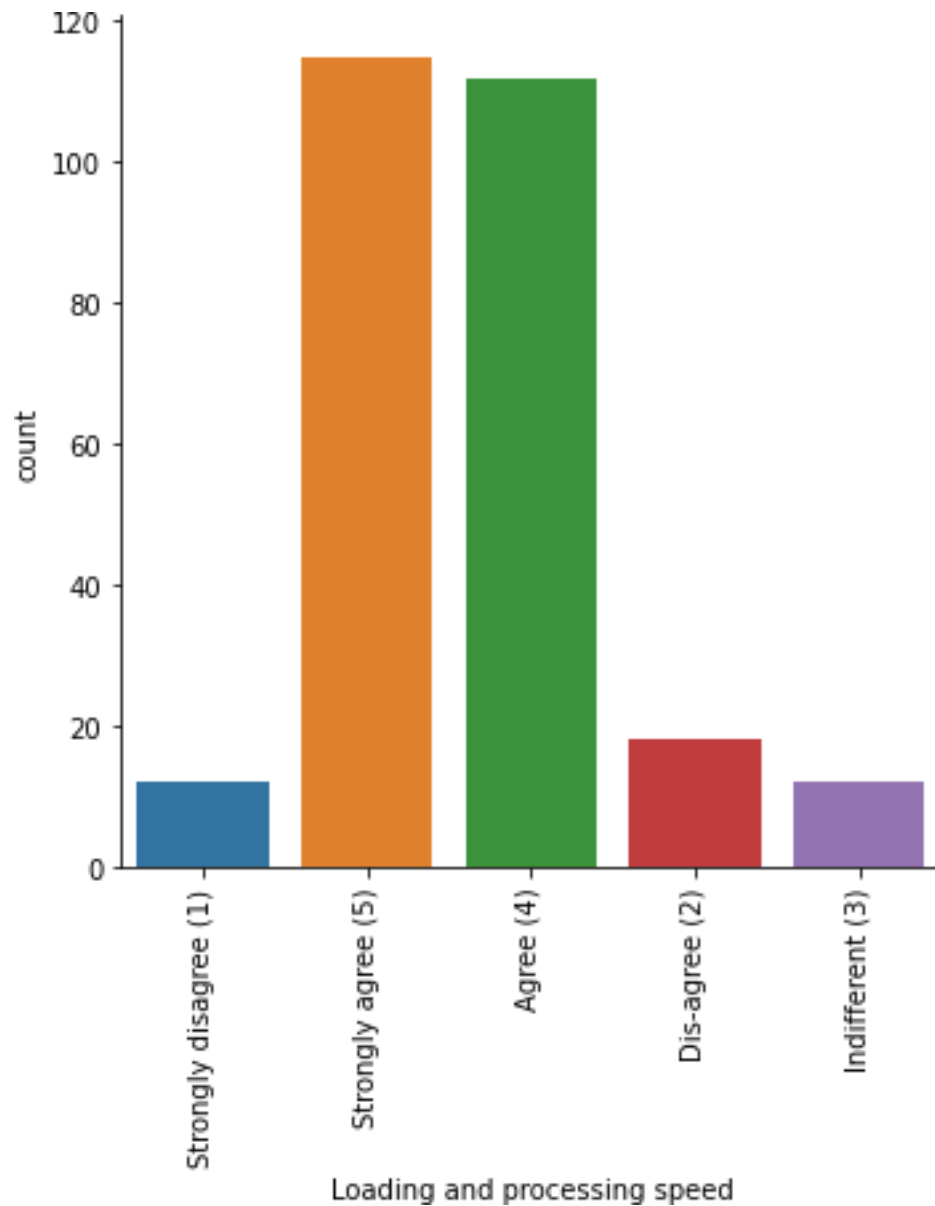
> The loading and processing speed plays a very important role.

```
#22.UserfriendlyInterfaceofthewebsite
sn.catplot(data=df,kind="count",x="UserfriendlyInterfaceofthewebsite")
plt.xticks(rotation=90)
plt.show()
```

User friendly Interface of the website
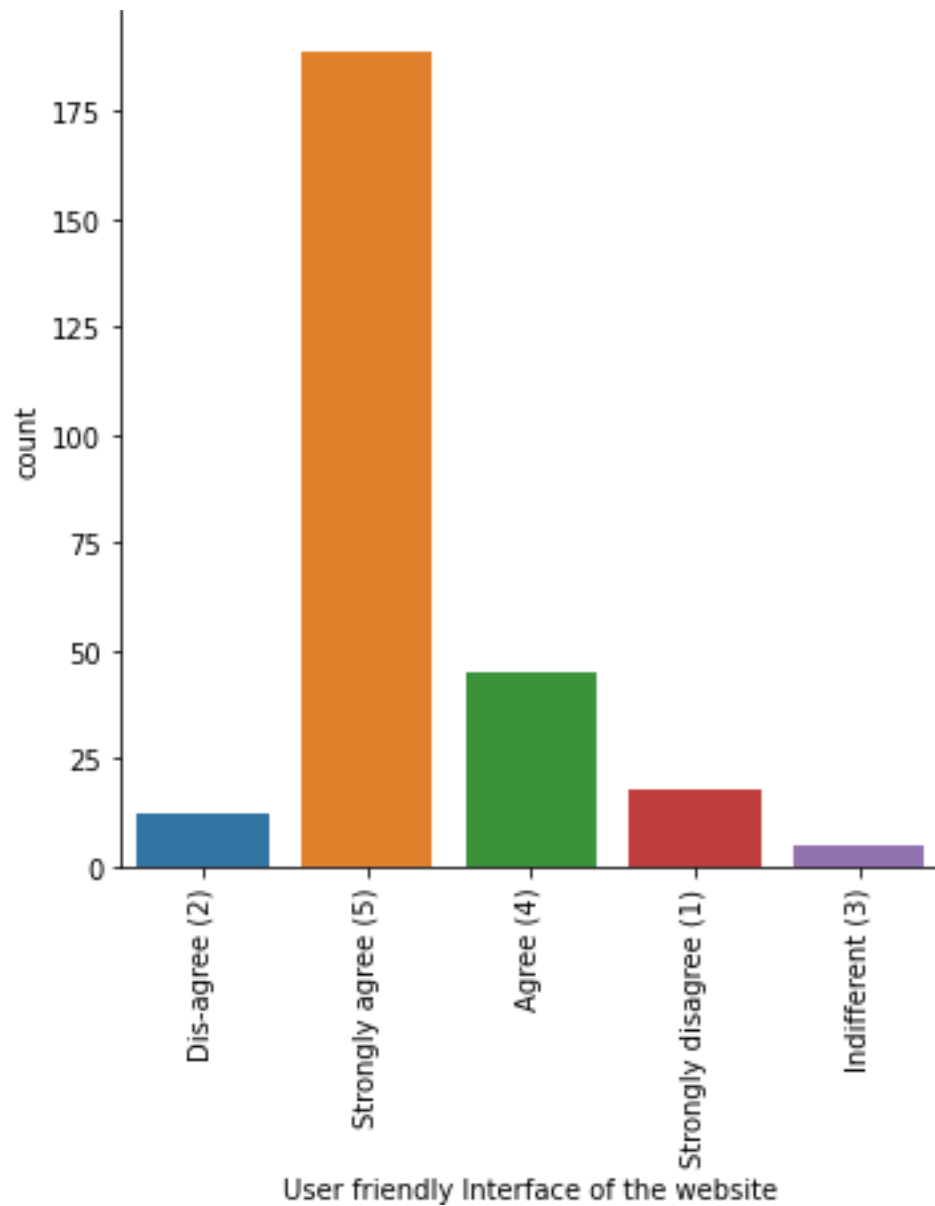
```
#23.ConvenientPayment methods
sn.catplot(data=df,kind="count",x="ConvenientPaymentmethods")plt.xticks(r
otation=90)
plt.show()
```

Convenient Payment methods
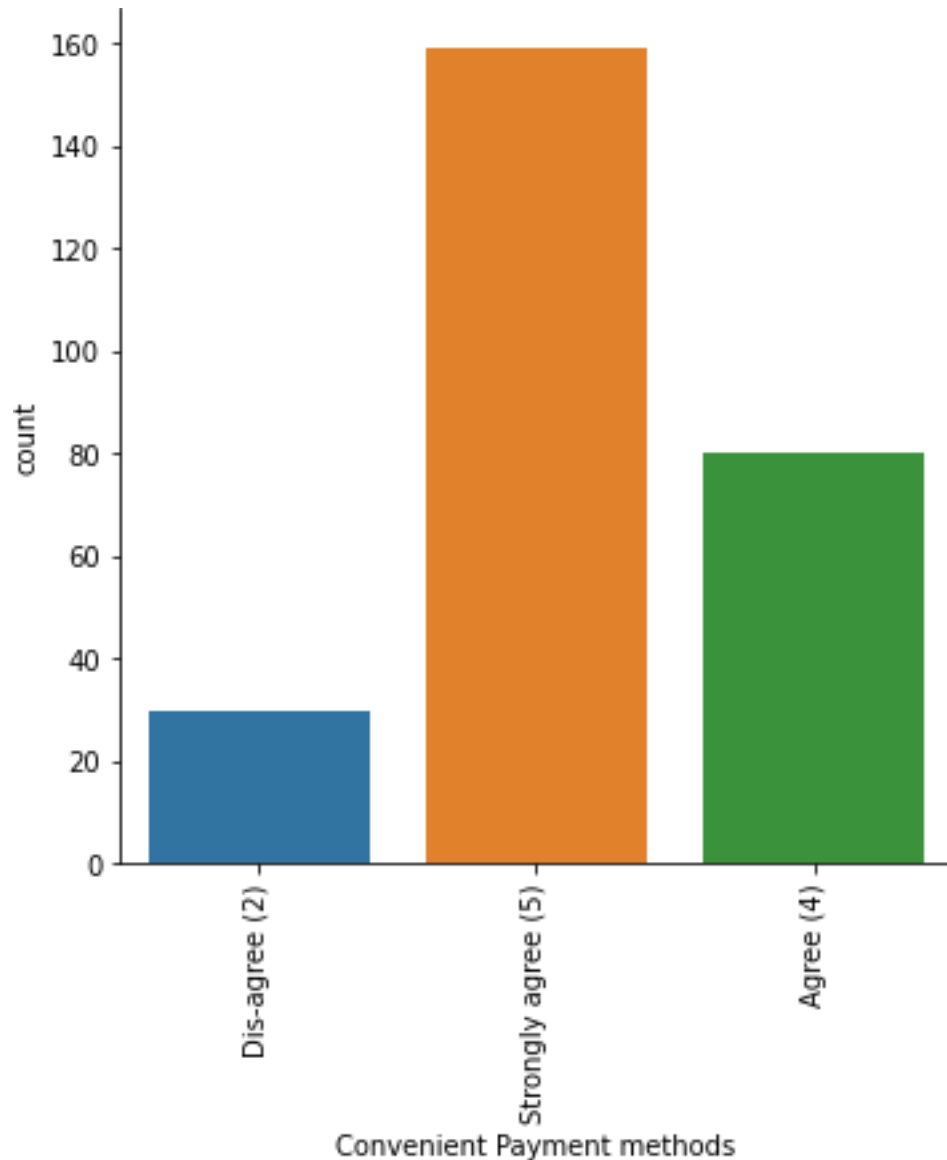
➢ Respondents prefer convenient methods.

```
#23.Trustthattheonlineretailstorewillfulfillitspartofthetransactionatthestipul
atedtime
sn.catplot(data=df,kind="count",x="Trustthattheonlineretailstorewillfulfillitspa
rtofthetransactionatthestipulatedtime")plt.xticks(rotation=90)
plt.show()
```
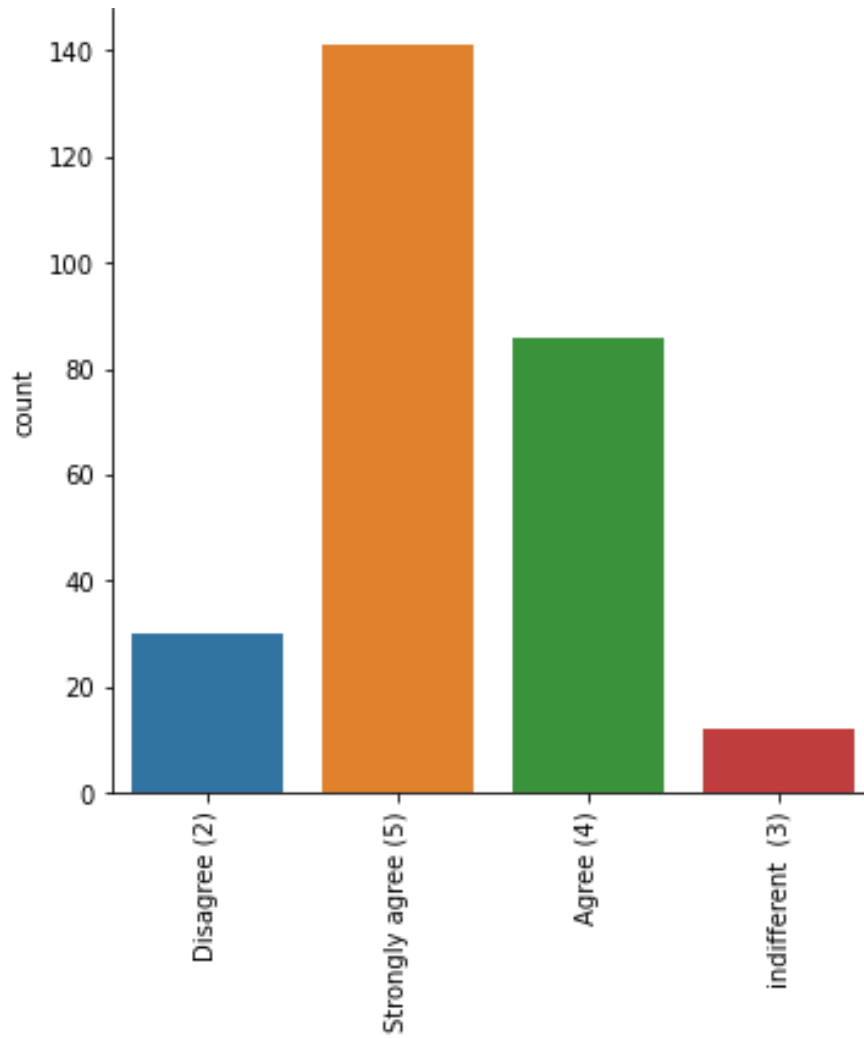
Trust that the online retail store will fulfill its part of the transaction at the stipulated time

➢ Respondents trust online sites with transaction.

```
#24.Empathy(readinesstoassistwithqueries)towardsthecustomers
sn.catplot(data=df,kind="count",x="Empathy(readinesstoassistwithqueries)towardsth
e customers")plt.xticks(rotation=90)
plt.show()
```

Empathy (readiness to assist with queries) towards the customers
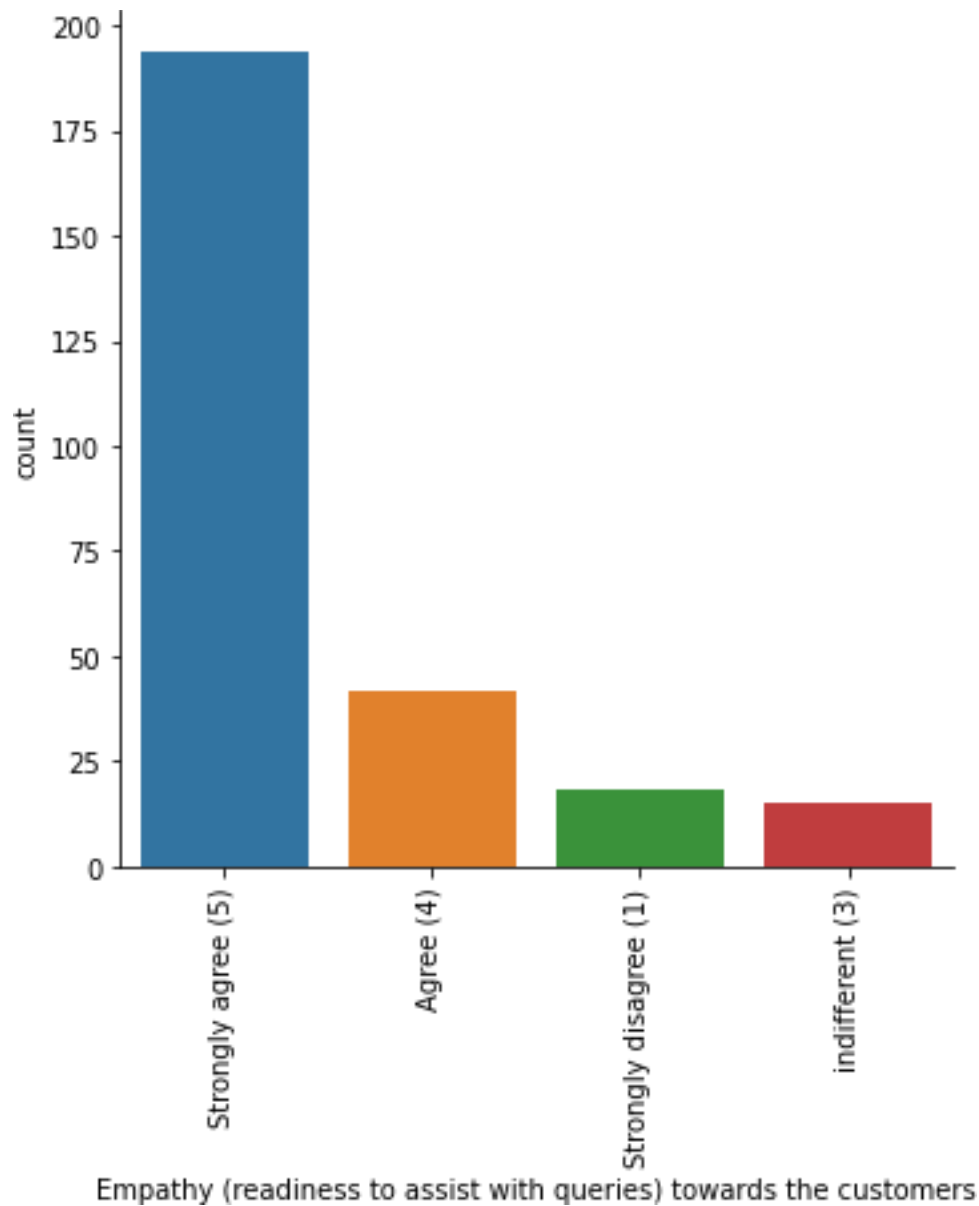
➢ Customer support plays a very important role according to respondents.

```
#25.Beingabletoguaranteetheprivacyofthecustomer
sn.catplot(data=df,kind="count",x="Beingabletoguaranteetheprivacyofthecustomer")
plt.xticks(rotation=90) plt.show()
```

Being able to guarantee the privacy of the customer
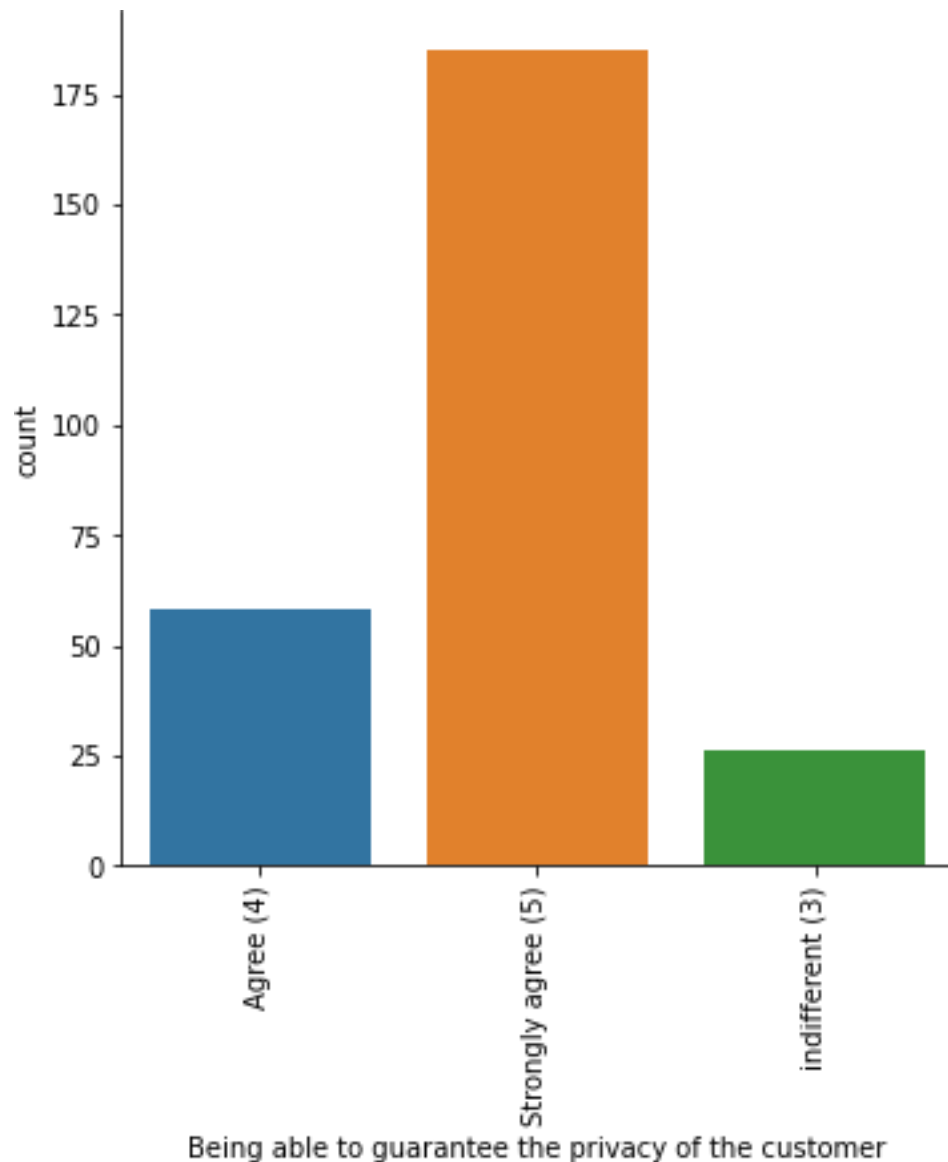
➢ Privacy is very big concern.

```
# 26.Responsiveness, availability of several communication channels (email,
online_rep,twitter,phoneetc.)
sn.catplot(data=df,kind="count",x="Responsivenessavailabilityofseveralcommunic
ationchannels(emailonlinereptwitterphoneetc.)')plt.xticks(rotation=90)
plt.show()
```
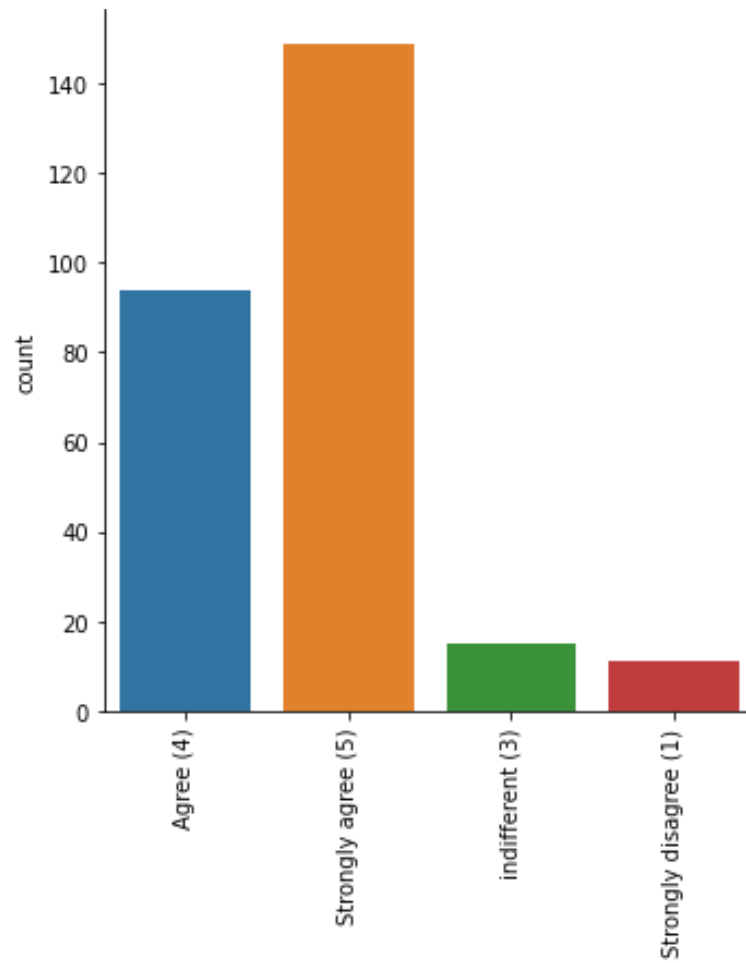
Responsiveness availability of several communication channels (email online rep twitter phone etc.)

➤ The more communication channels for the shopper to connect with customer service is a good sign.

```
#27.Onlineshoppinggivesmonetarybenefitanddiscounts
sn.catplot(data=df,kind="count",x="Onlineshoppinggivesmonetarybenefitanddiscounts
") plt.xticks(rotation=90) plt.show()
```
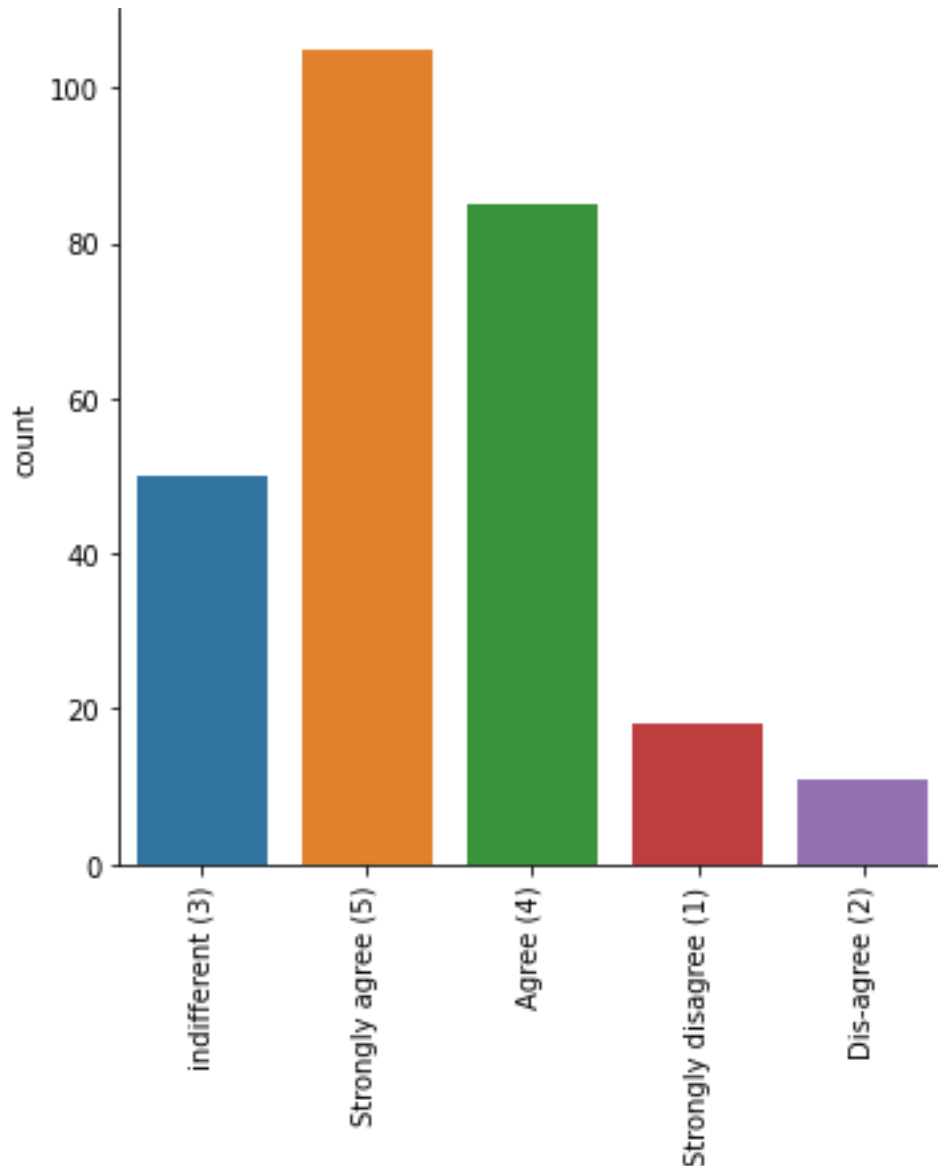
Online shopping gives monetary benefit and discounts

➢ Respondents belive online shopping gives monetary benefit and discounts.

```
#28.Enjoymentisderivedfromshoppingonline
sn.catplot(data=df,kind="count",x="Enjoymentisderivedfromshoppingonline")
plt.xticks(rotation=90)
plt.show()
```

Enjoyment is derived from shopping online
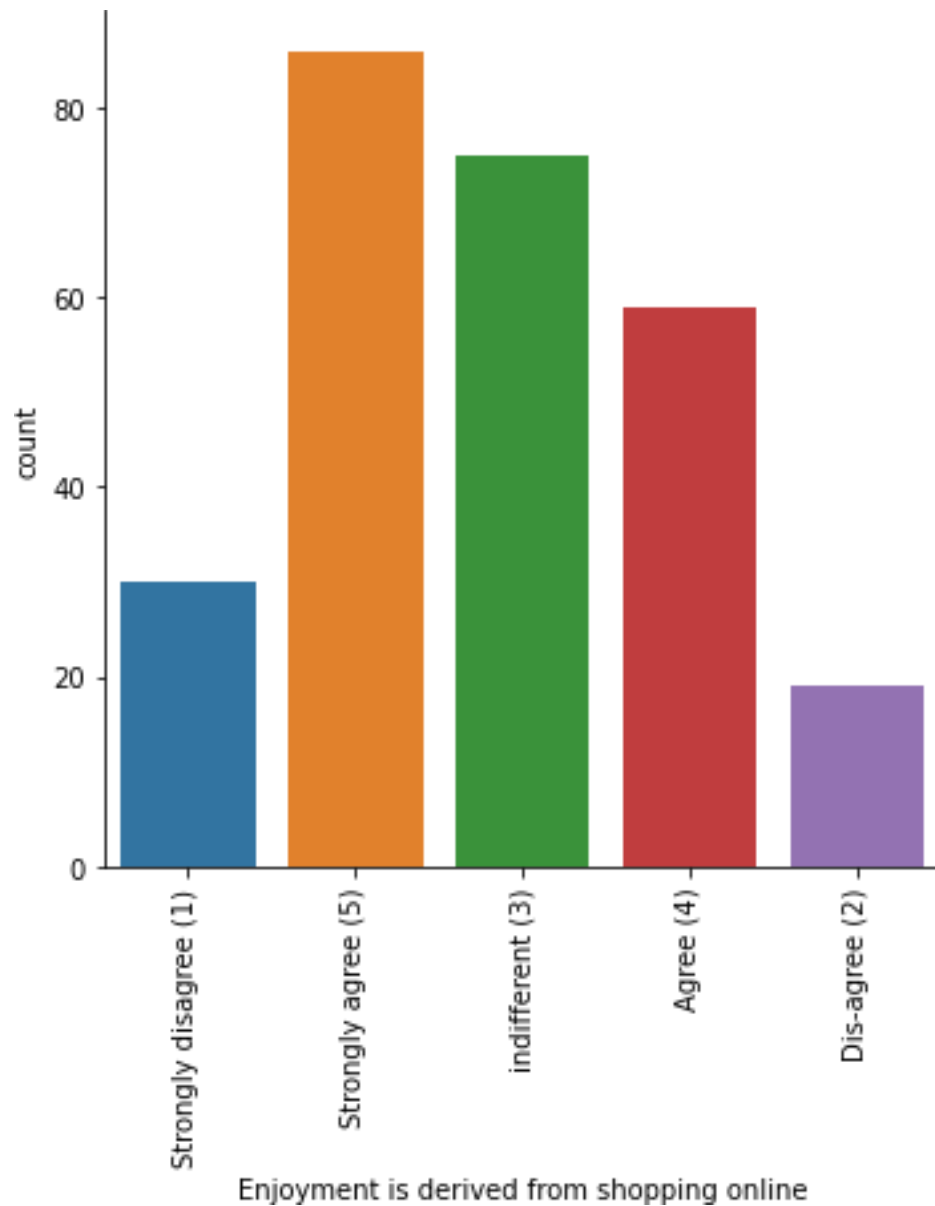
➢ Online shopping can also be seen as fun activity.

```
#29.Shoppingonlineisconvenientandflexible
sn.catplot(data=df,kind="count",x="Shoppingonlineisconvenientandflexible")
plt.xticks(rotation=90)
plt.show()
```

Shopping online is convenient and flexible
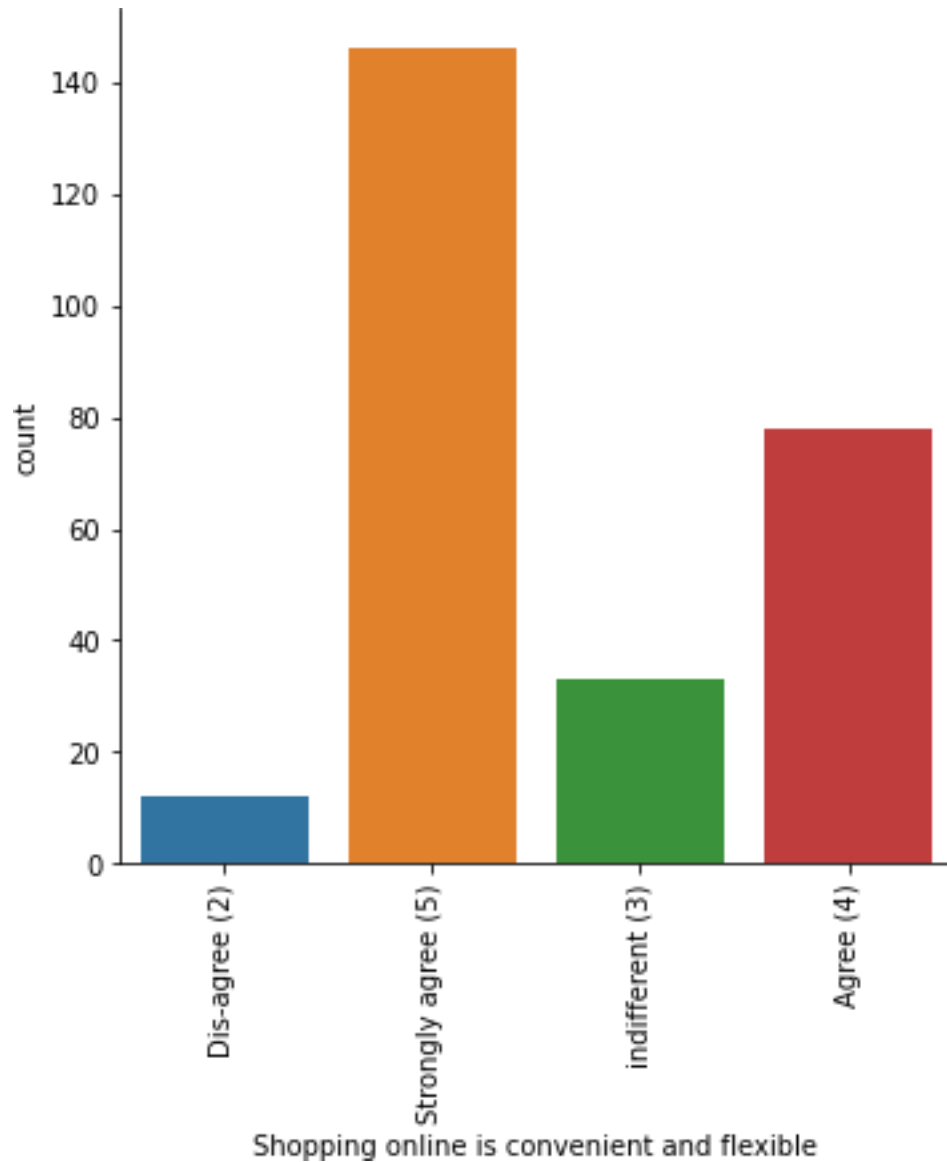
➢ According to respondents online shopping is very flexible and convenient.

```
#30.Returnandreplacementpolicyofthee-tailerisimportantforpurchasedecision
sn.catplot(data=df,kind="count",x="Returnandreplacementpolicyofthetailerisimporta
ntforpurchasedecision")plt.xticks(rotation=90)
plt.show()
```

Return and replacement policy of the e-tailer is important for purchase decision
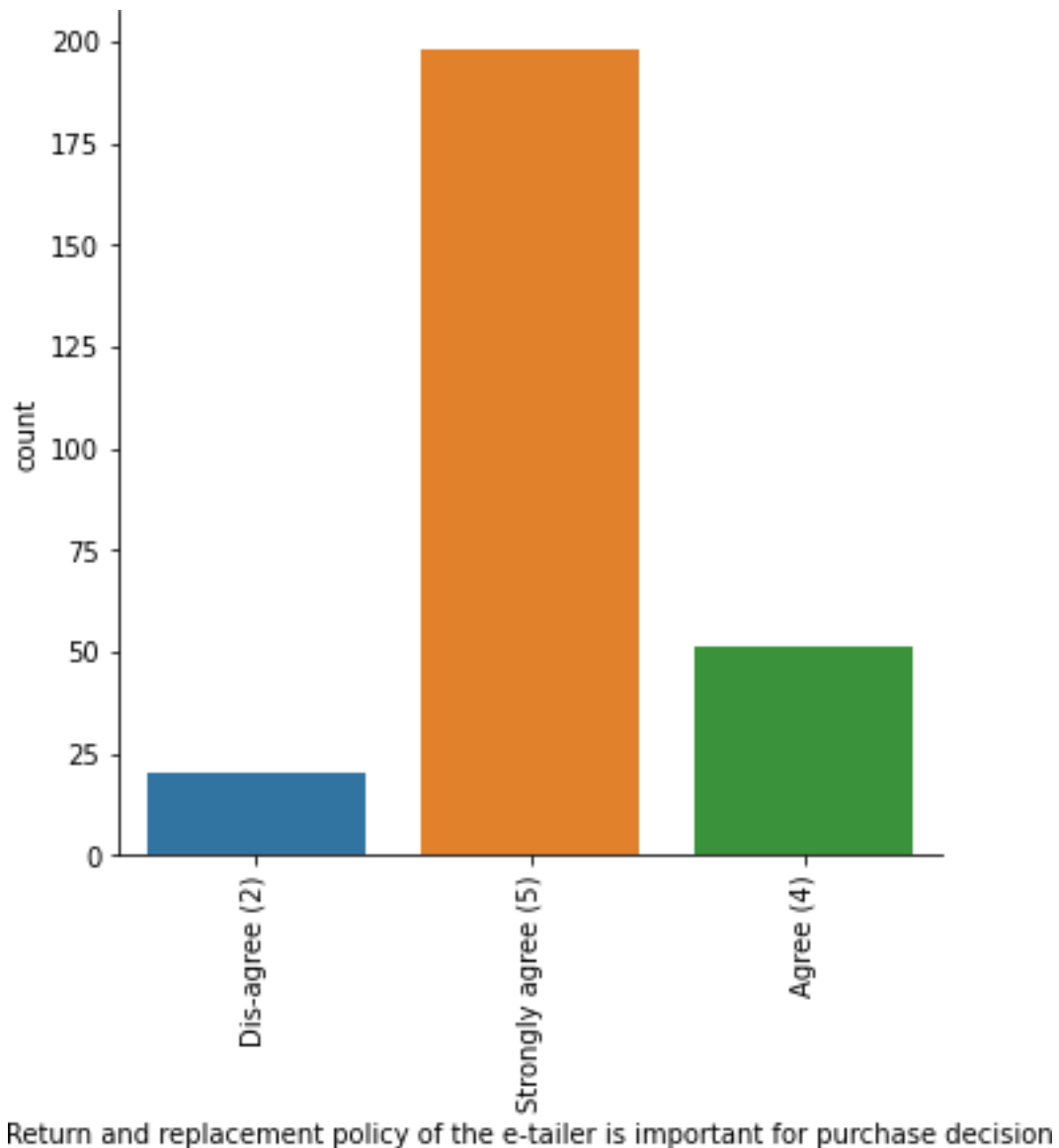
➢ Return and replacement policy of the e-tailer is important for purchase decision according to the respondents.
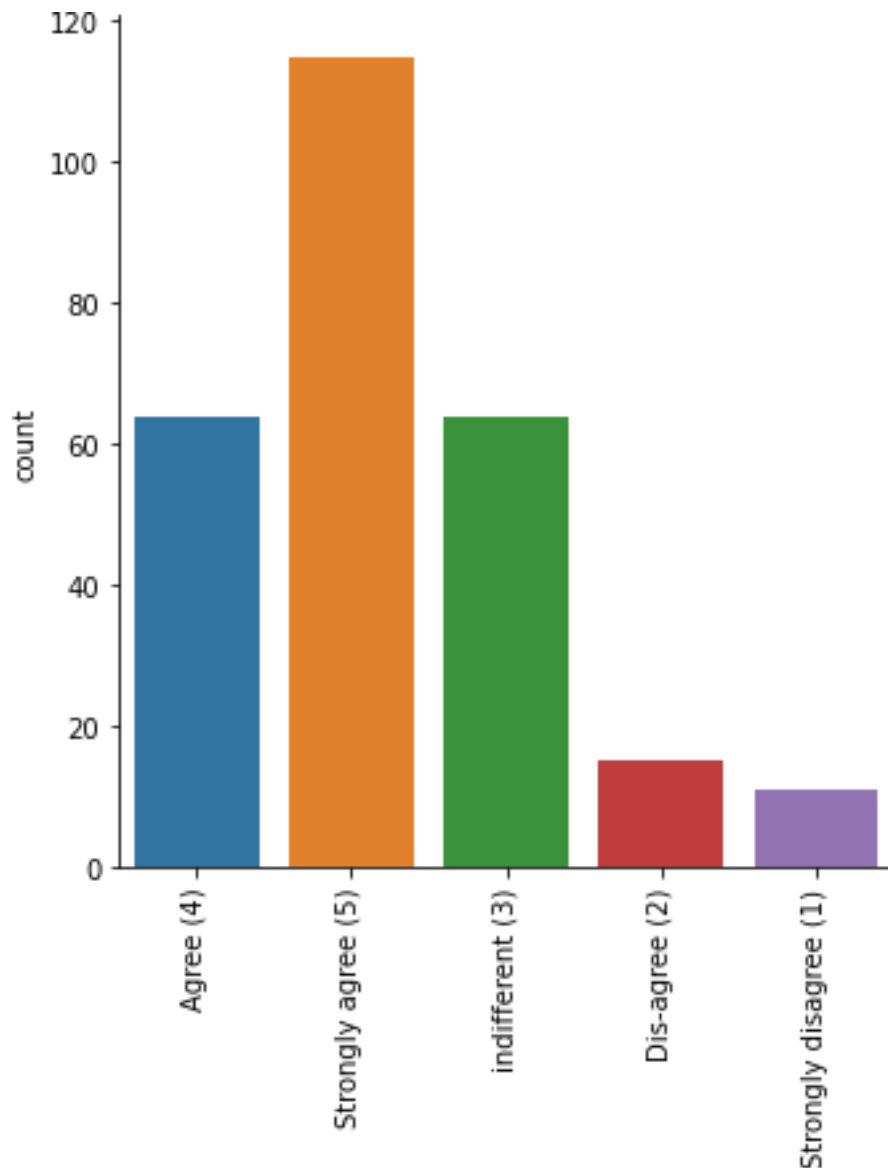
Gaining access to loyalty programs is a benefit of shopping online

➢ Loyality program attracts shopper.

```
#32.DisplayingqualityInformationonthewebsiteimprovessatisfactionofcustomers
sn.catplot(data=df,kind="count",x="DisplayingqualityInformationonthewebsiteimprov
essatisfactionofcustomers")plt.xticks(rotation=90)
plt.show()
```
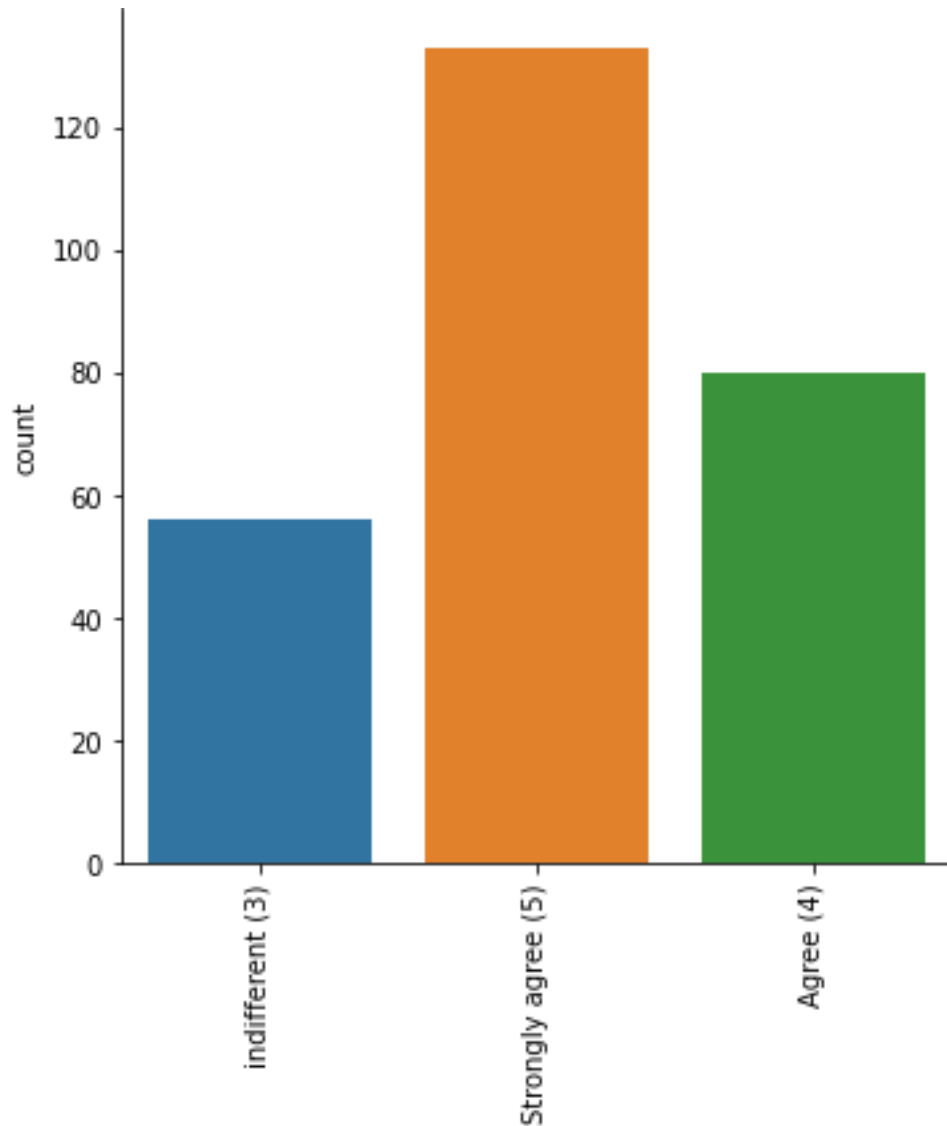
Displaying quality Information on the website improves satisfaction of customers

➢ Detail are important for customer satisfaction.

User derive satisfaction while shopping on a good quality website or application
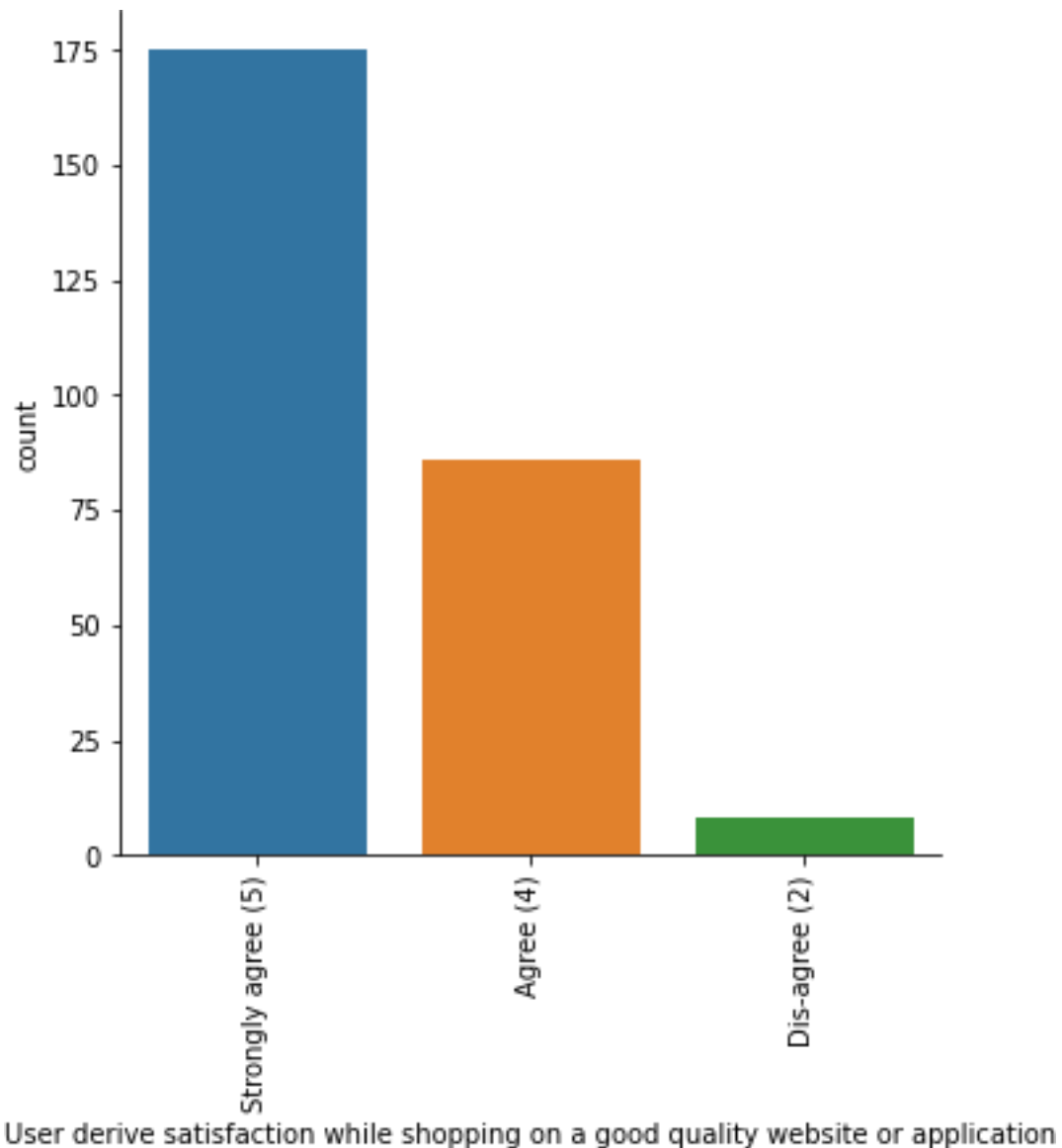
➤ Quality of website or web application very much affect shoppers.

```
#33.Usersatisfactioncannotexistwithouttrust
sn.catplot(data=df,kind="count",x="Usersatisfactioncannotexistwithouttrust")
plt.xticks(rotation=90)
plt.show()
```

User satisfaction cannot exist without trust
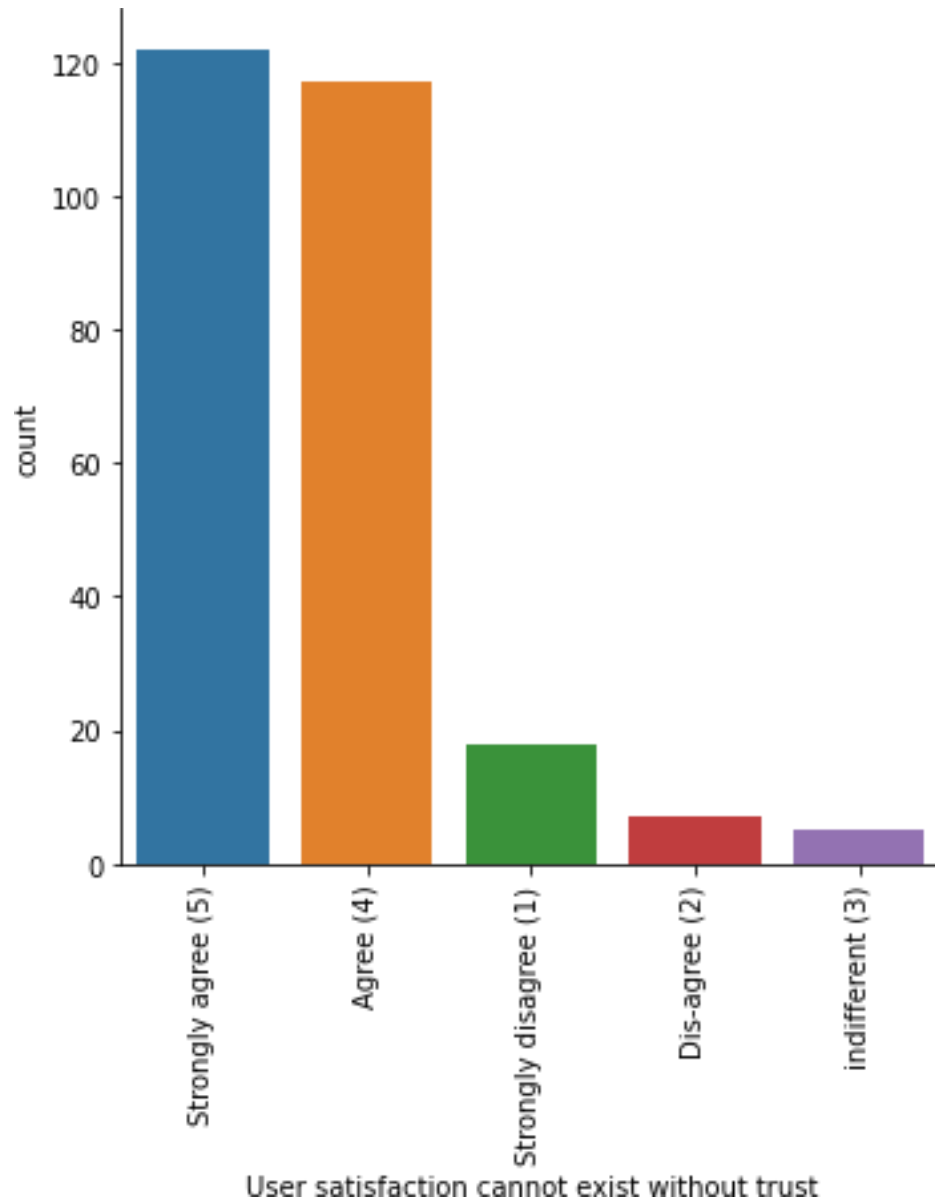
➤ Trust building is very essential to make shoppers shop online.

```
#34.Offeringawidevarietyoflistedproductinseveralcategory
sn.catplot(data=df,kind="count",x="Offeringawidevarietyoflistedproductinseveralca
tegory")plt.xticks(rotation=90)
plt.show()
```

Offering a wide variety of listed product in several category
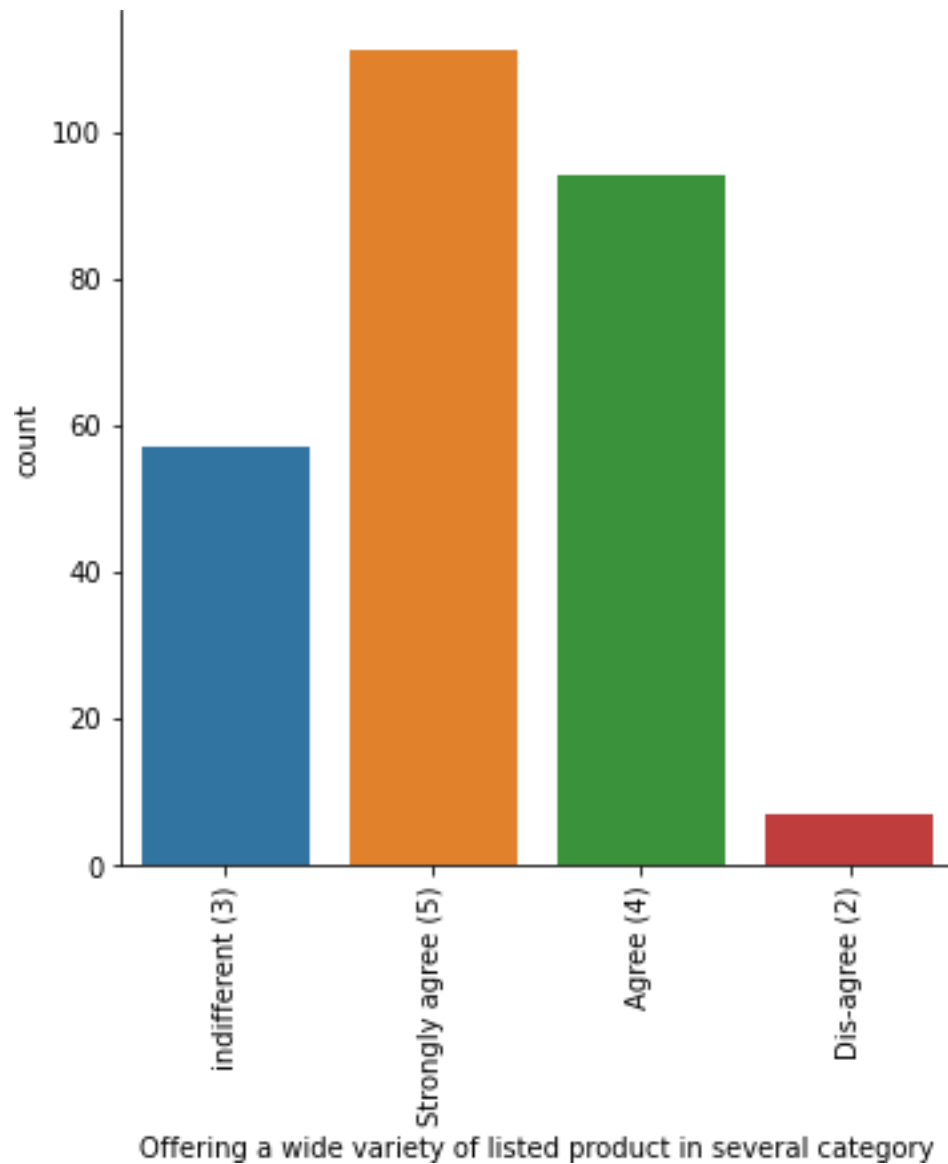
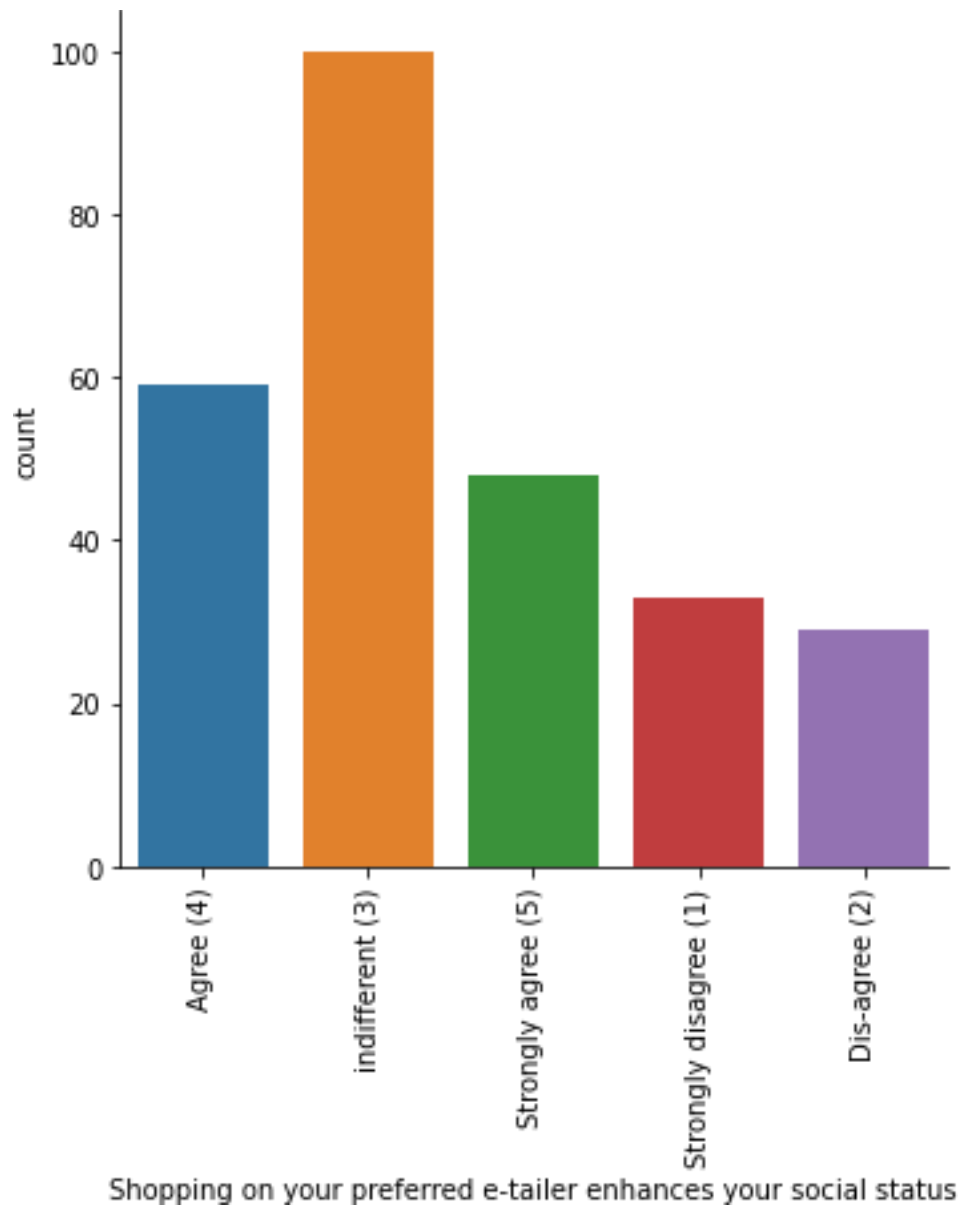➢ Shoppers prefer a wide range of products in same category.

```
#36.Monetarysavings
sn.catplot(data=df,kind="count",x="Monetarysavings")plt.xticks(rotation=9
0)
plt.show()
```
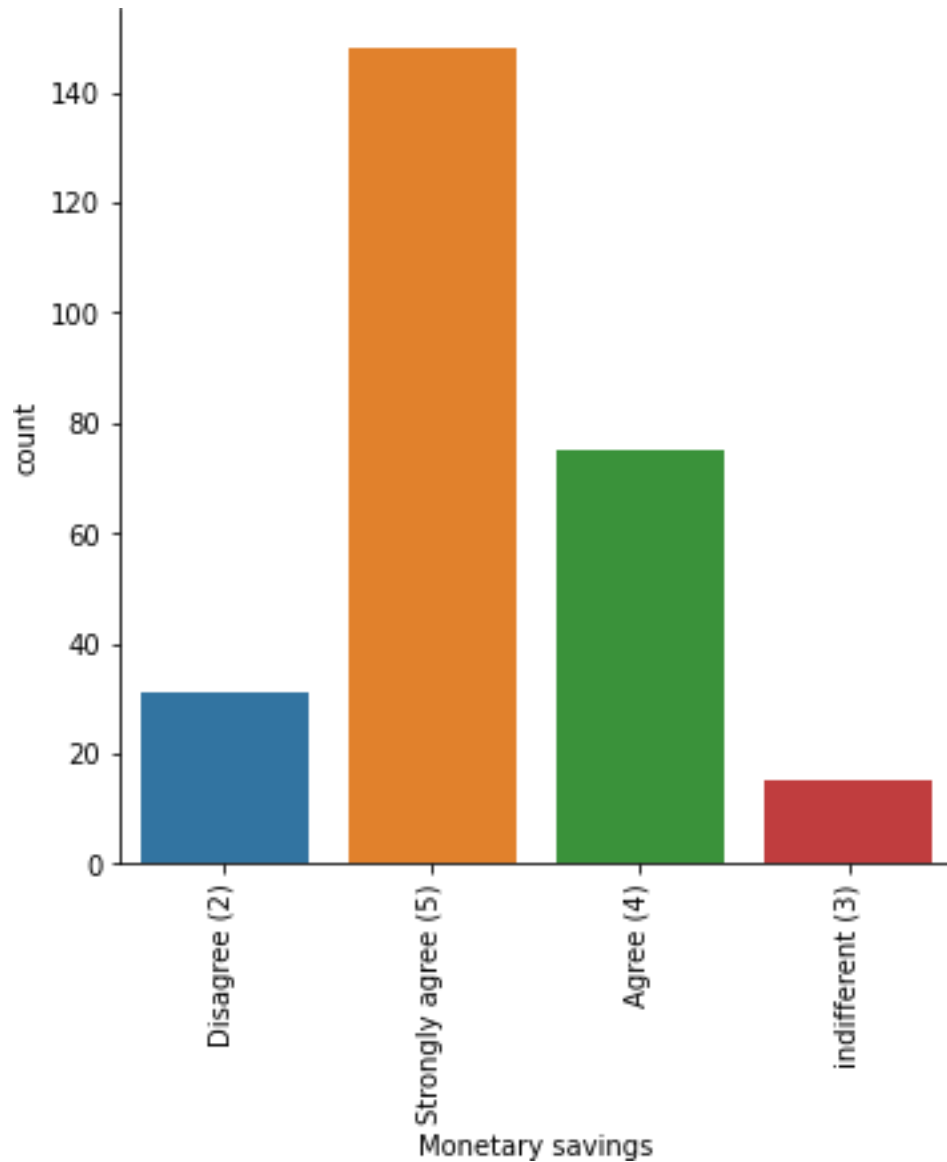
➤ Respondents agreed that online shopping saves money.

Shopping on your preferred e-tailer enhances your social status

➤ Respondents belives that shopping on particular websites lead to status symbol.

```
#38.Youfeel gratification shopping on your favorite e-tailer
sn.catplot(data=df,kind="count",x="Youfeelgratificationshoppingonyourfavoriteeta
iler')plt.xticks(rotation=90) plt.show()
```

You feel gratification shopping on your favorite e-tailer
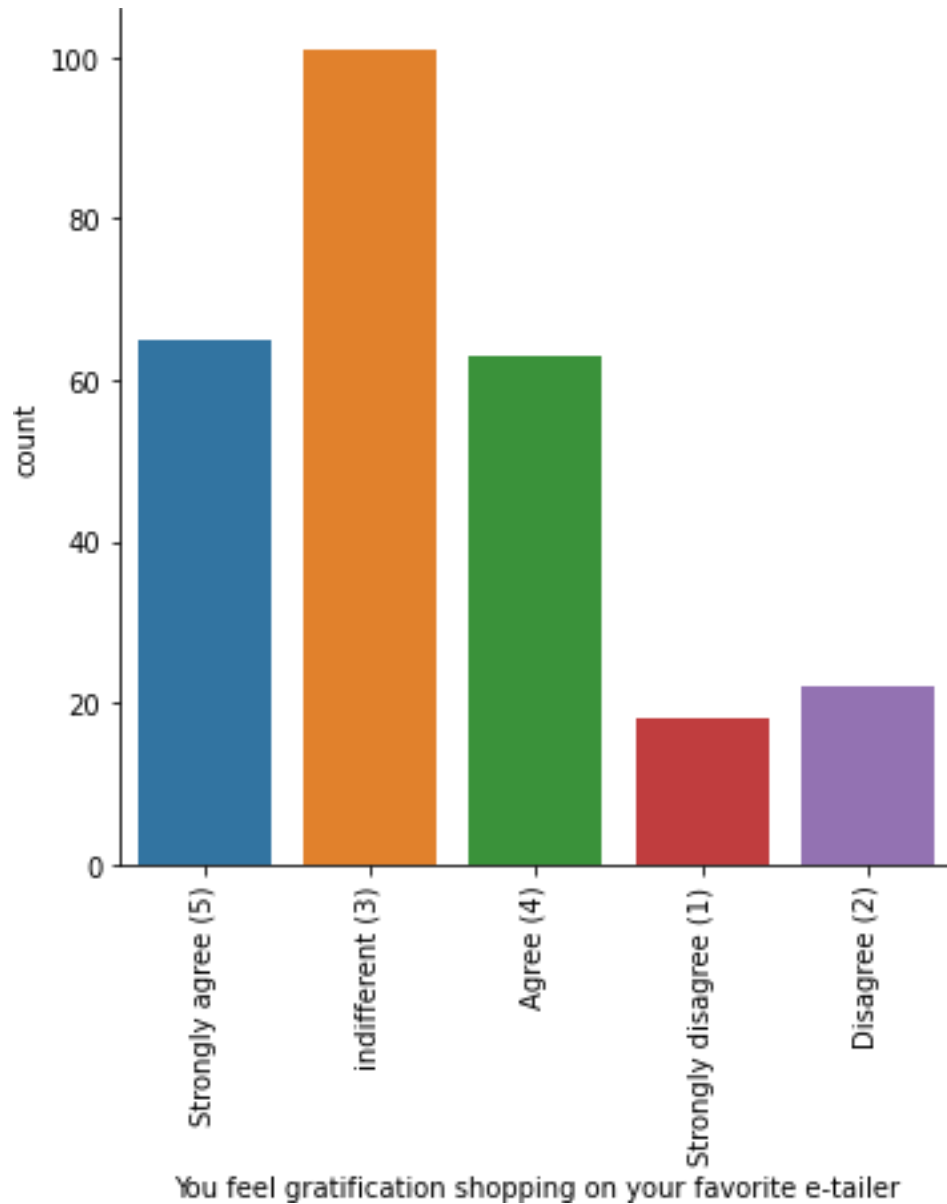
➢ Shoppers feel satisfied and gratified shopping on their preferred website.

```
#39.Gettingvalueformoneyspent
sn.catplot(data=df,kind="count",x="Gettingvalueformoneyspent")plt.xticks(rotation
=90)
plt.show()
```
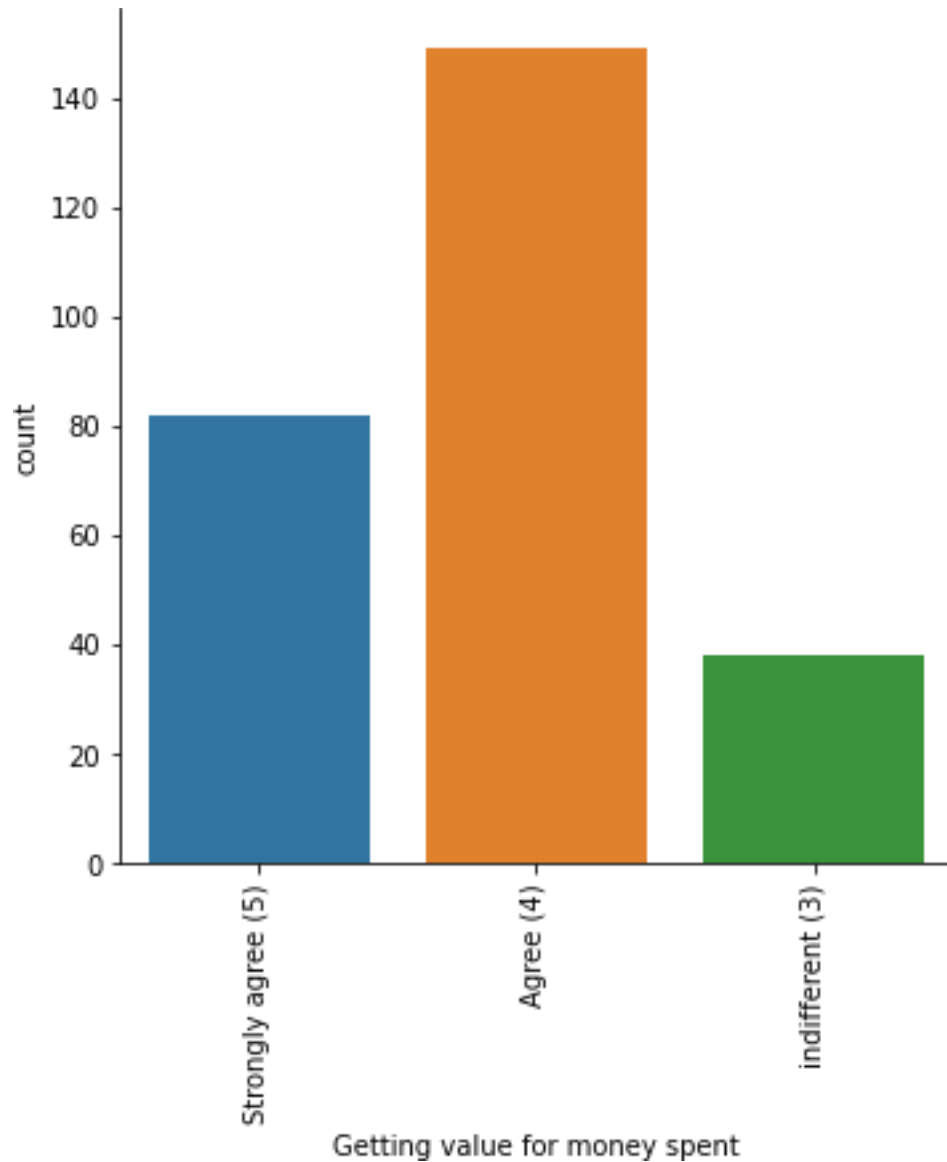
➢ Respondents agree that they get value for money product.

```
#40.Fromthefollowing,tickany(orall)oftheonlineretailersyouhaveshoppedfrom
plt.figure(figsize=(15,10))
sn.countplot(data=df,x="Fromthefollowingtickany(orall)oftheonlineretailersyouhave
shoppedfrom;")plt.xticks(rotation=90)
plt.show()
```

From the following tick any (or all) of the online retailers you have shopped from;
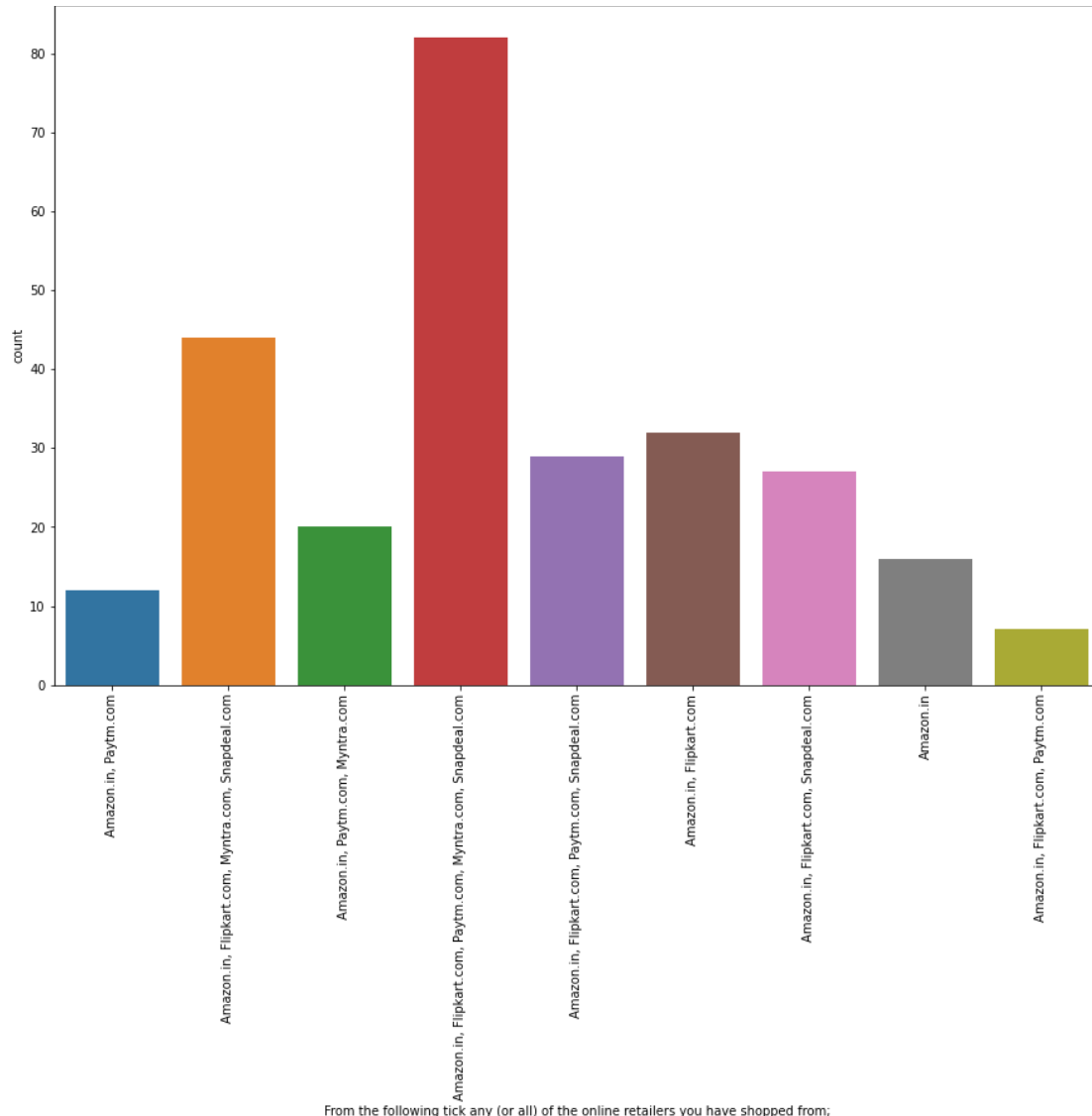
➢ Most of the respondents used Amazon, Flipkart, Paytm, Myntra , Snapdeal for shopping.

```
#41.Easyto use website or application
sn.catplot(data=df,kind="count",x="Easytousewebsiteorapplication")plt.xticks(rota
tion=90)
plt.show()
```
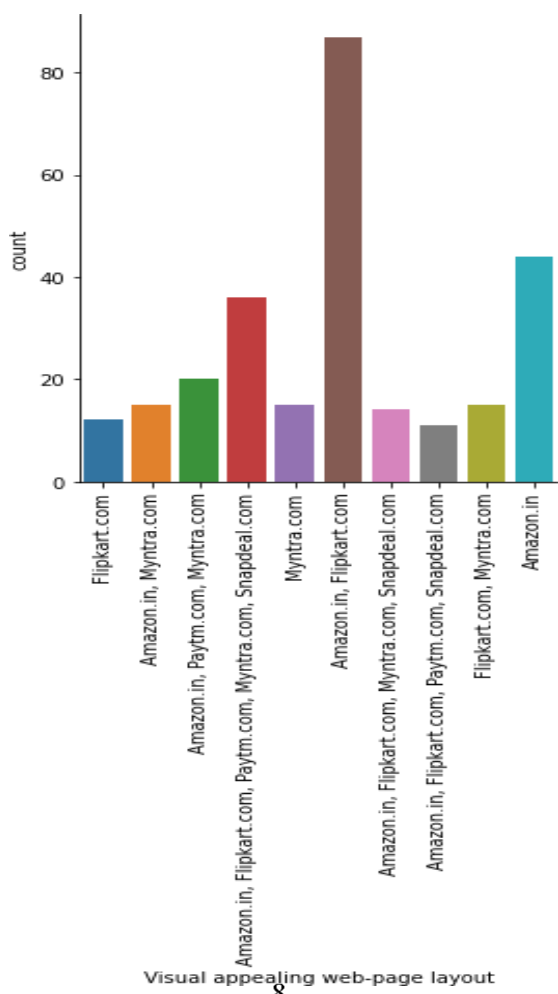
Easy to use website or application
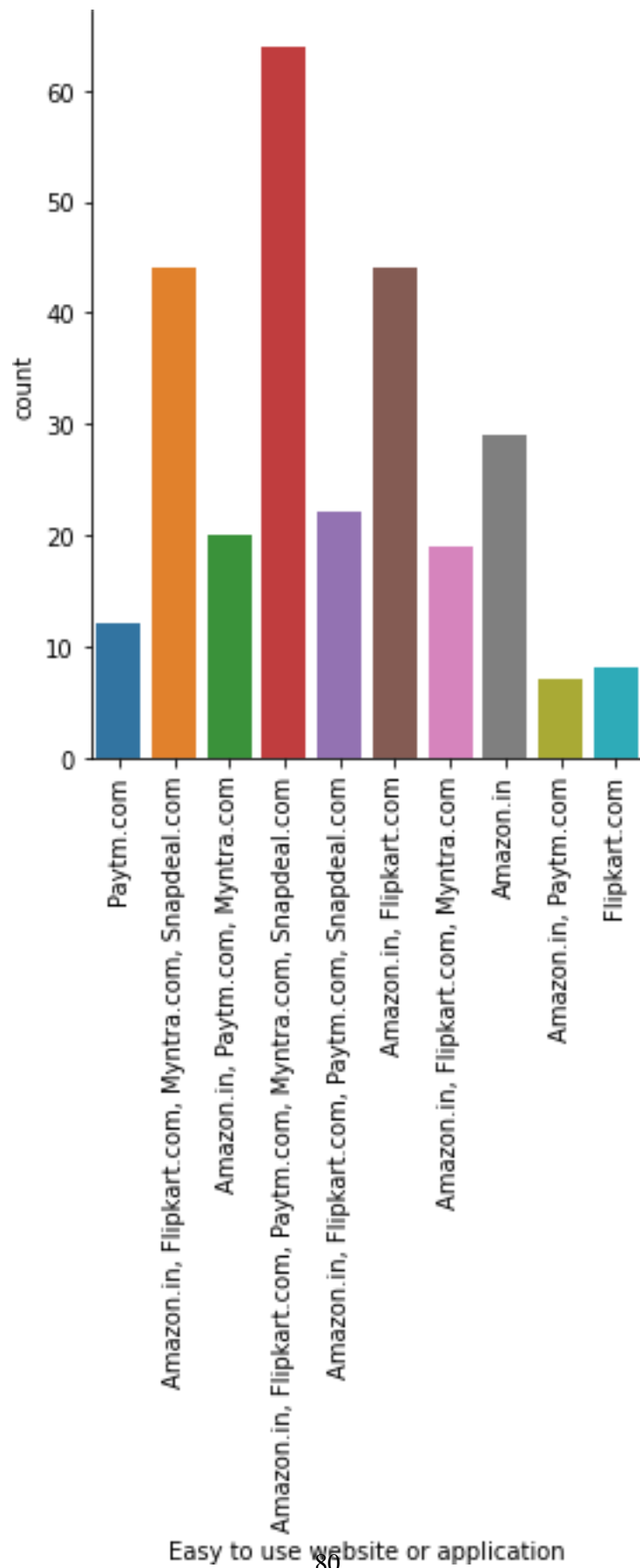
➢ Most of the respondents agree that Amazon, Flpkart, Paytm, myntra, Snapdeal
  has easy to use application

```
#42Visualappealingweb-pagelayout
sn.catplot(data=df,kind="count",x="Visualappealingweb-
pagelayout")plt.xticks(rotation=90)
plt.show()
```
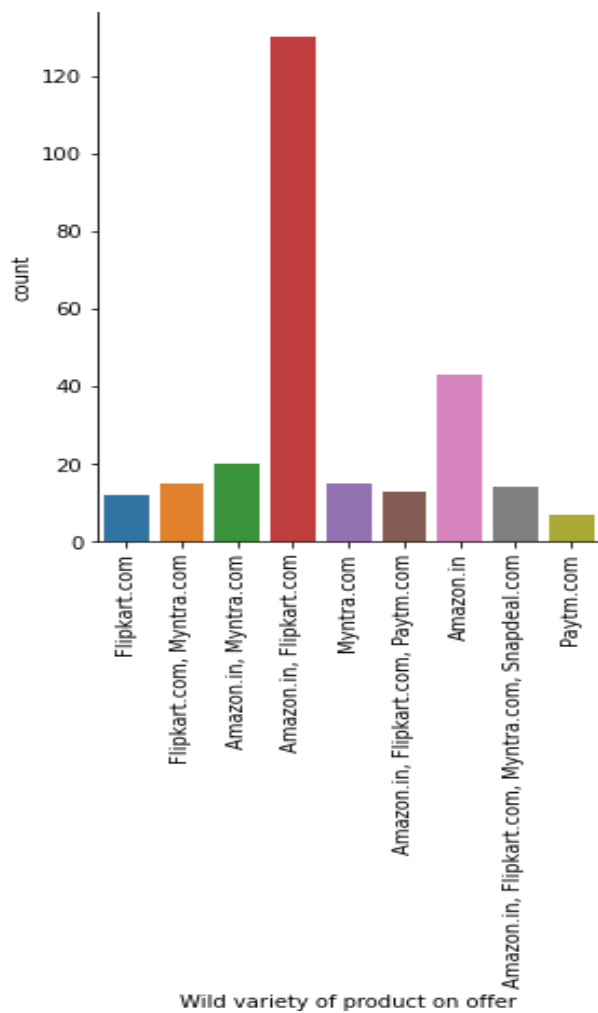

Visual appealing web-page layout

➢ Amazon and flipkart has most appealing web layout
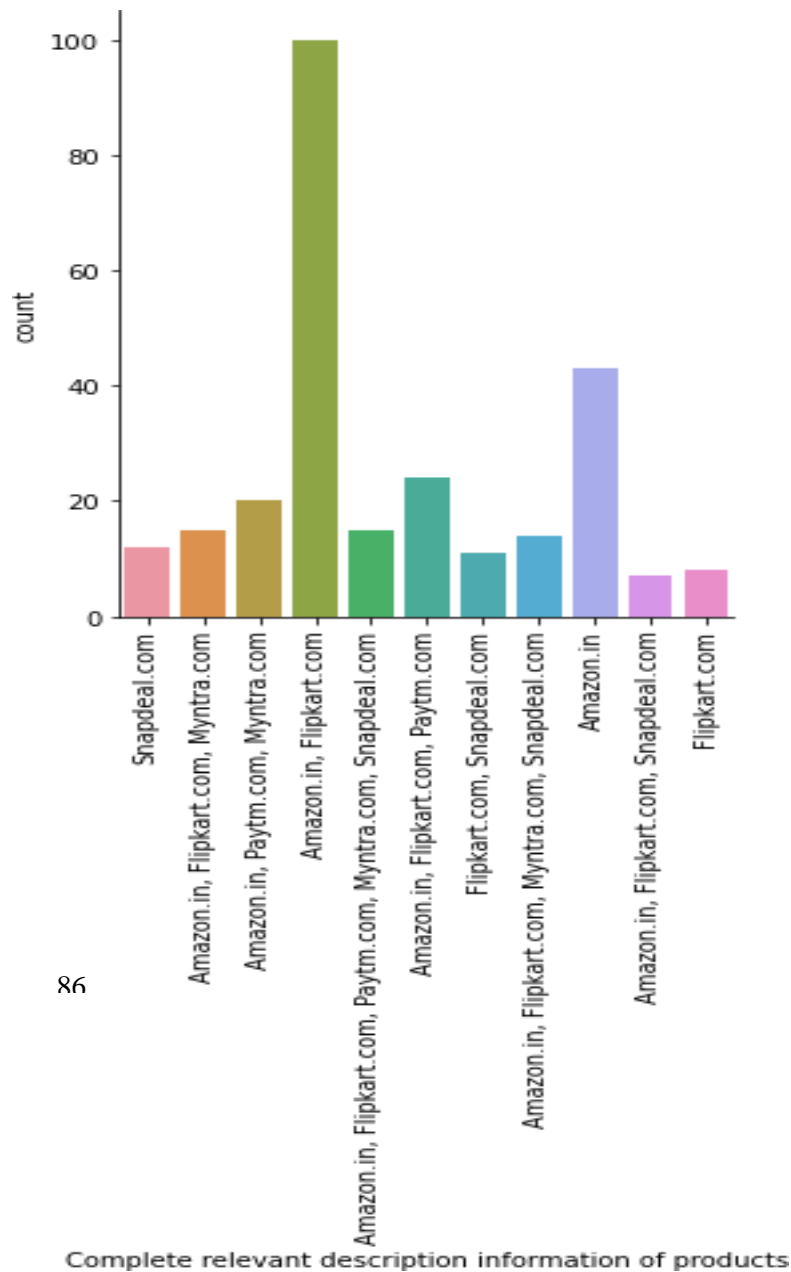
```
sn.catplot(data=df,kind="count",x="Wild
varietyofproductonoffer")plt.xticks(rotation=90)
plt.show()
```

➢ Amazon and flipkart provides a wide variety of products in comparison of others.

```
#42.Complete,relevantdescriptioninformationofproducts
sn.catplot(data=df,kind="count",x="Completerelevantdescriptioninformationofprodu
cts") plt.xticks(rotation=90) plt.show()
```


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➢ Amazon and flipkart provides complete and relevant information.
➢ Individually Amazon has more complete and relevant description
information of products

```
#42.Fastloading  website speed  of website  and application
sn.catplot(data=df,kind="count",x="Fastloadingwebsitespeedofwebsiteandapplication")
plt.xticks(rotation=90)
plt.show()
```


Fast loading website speed of website and application
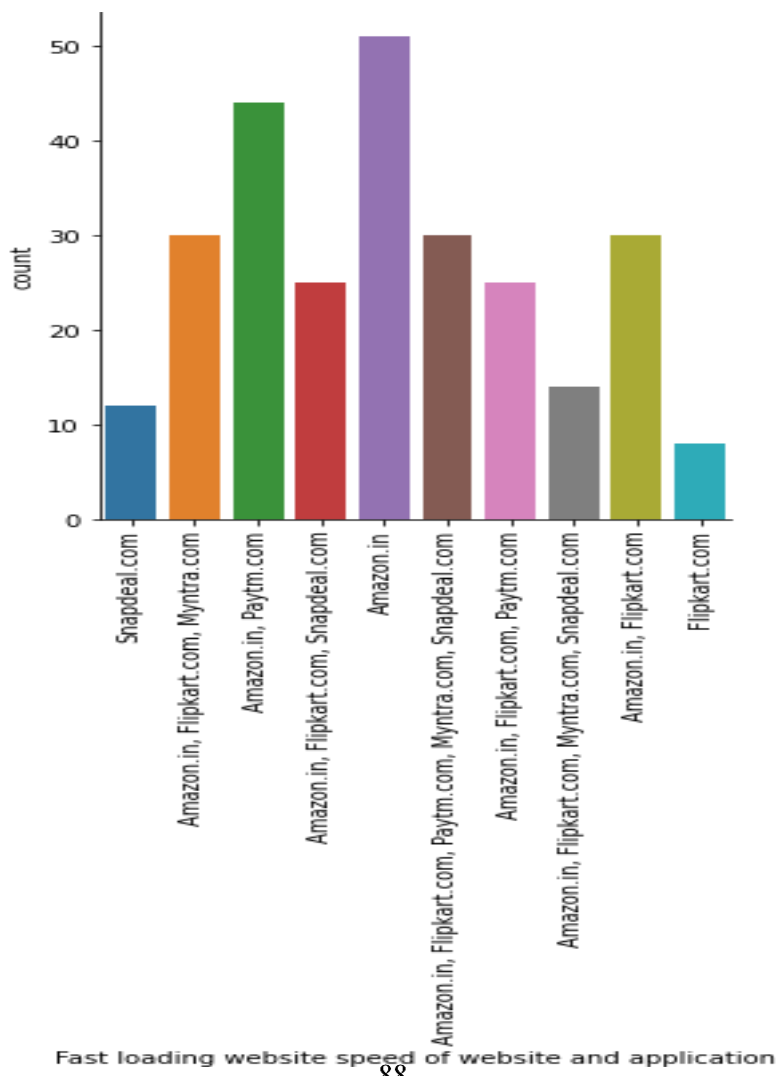
➢ Amazon is the best website in term of fast loading.

```
#43.Reliabilityof the website or application
sn.catplot(data=df,kind="count",x="Reliabilityofthewebsiteor
application")
plt.xticks(rotation=90)
plt.show()
```


Reliability of the website or application
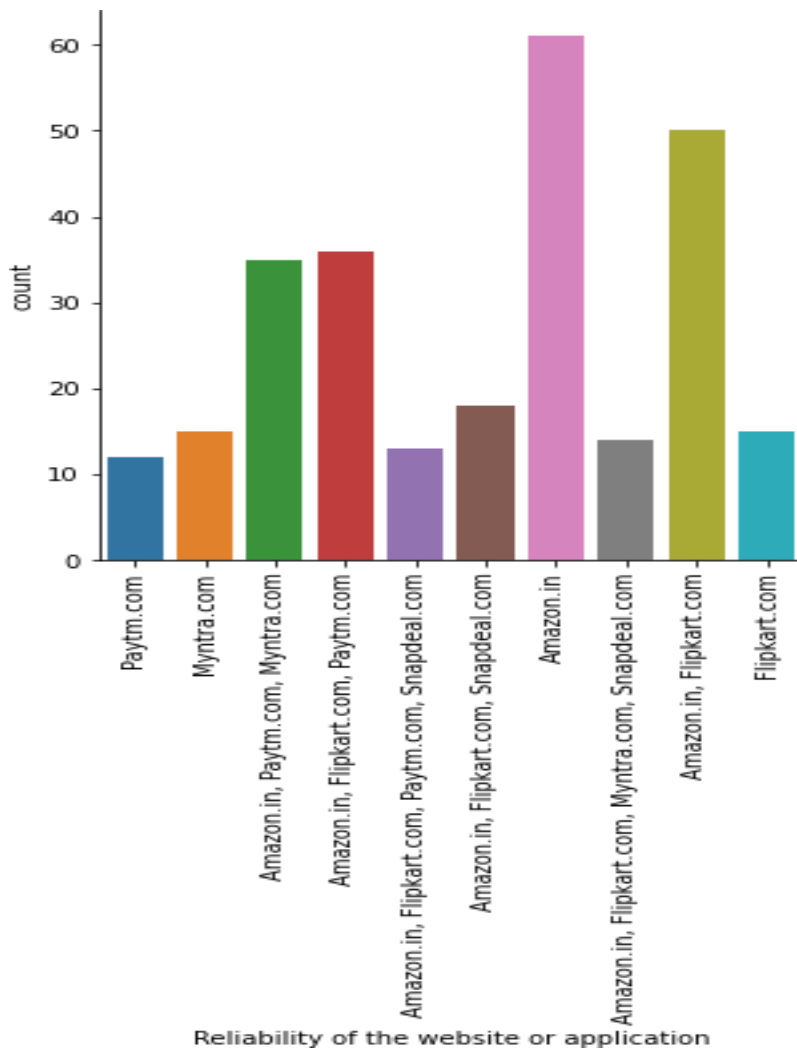
➢ According to respondents amazon is most trustworthy website.
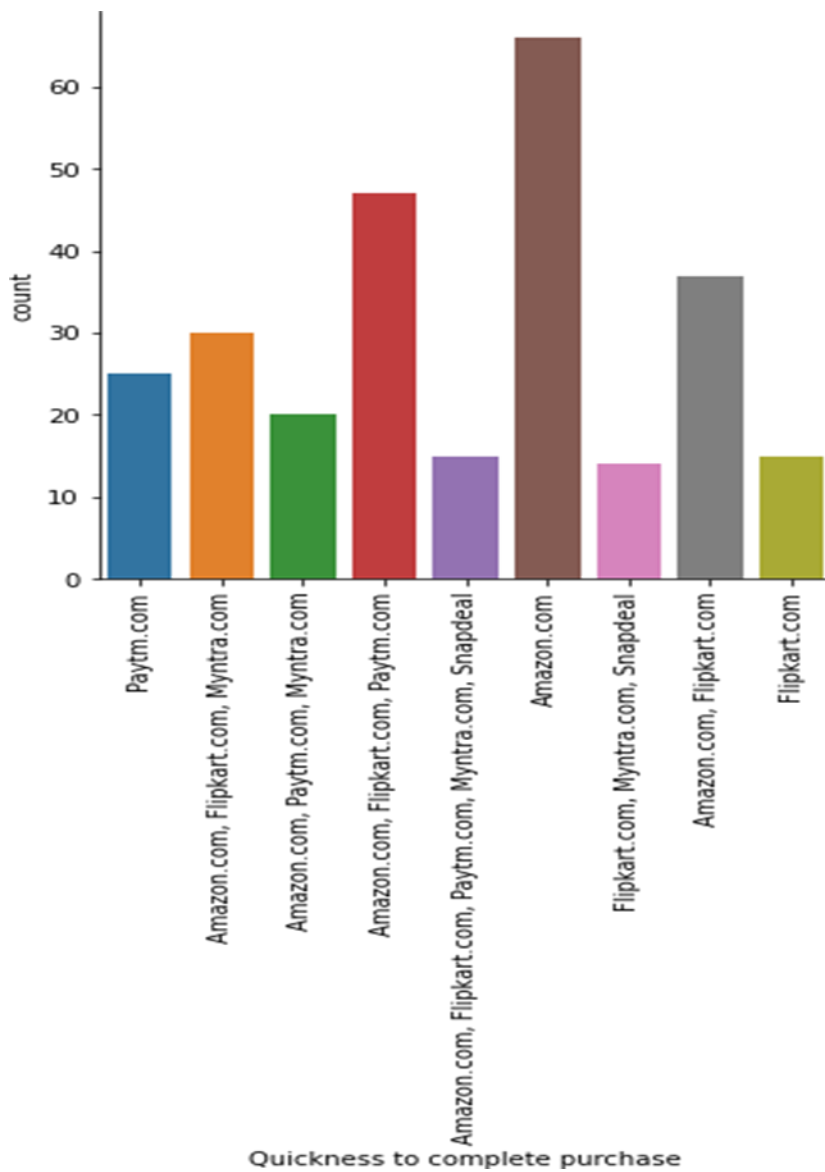
➢ AMAZON provide faster checkout performance in comparison of others.

```
#45.Availabilityofseveralpaymentoptions
sn.catplot(data=df,kind="count",x="Availabilityofseveralpaymentoptions")plt.xtick
s(rotation=90)
plt.show()
```


Availability of several payment options

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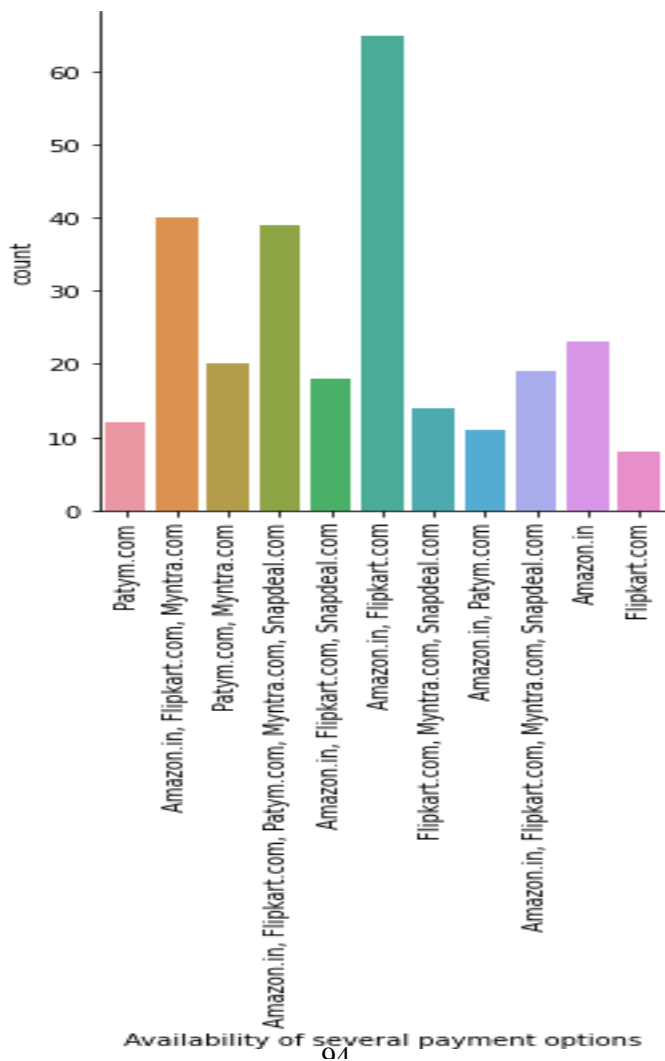
➢ According to customer Amazon and Flipkart provides a wide variety of payment methods.

```
#46.Speedyorderdelivery
sn.catplot(data=df,kind="count",x="Speedyorderdelivery")plt.xticks(rotation=90)
plt.show()
```
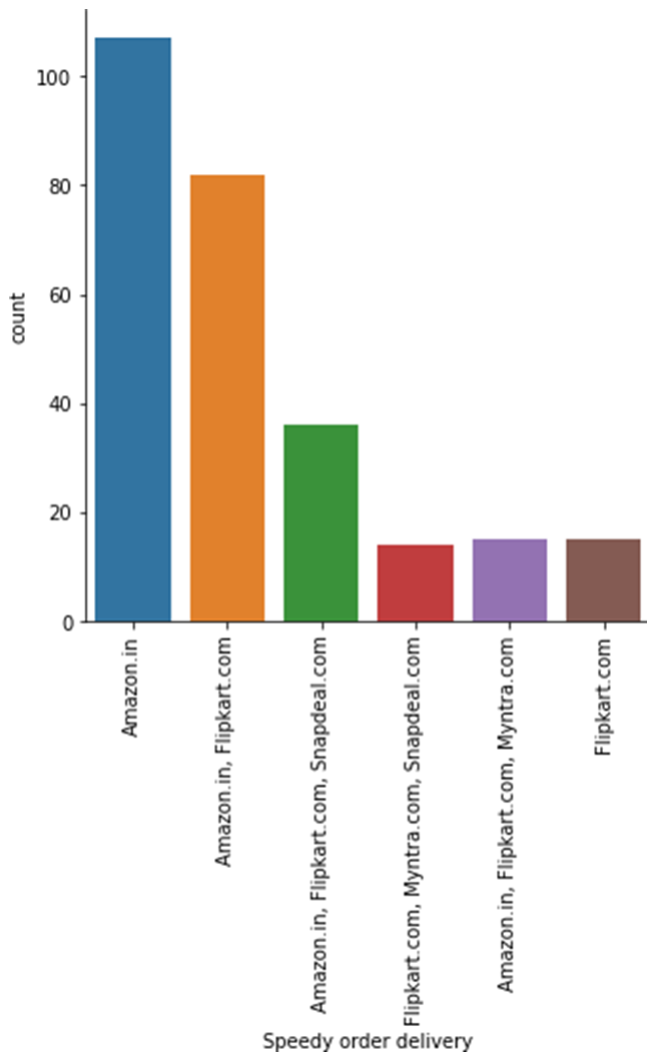
➤ Amazon provide most speedy experience in comparison of others platforms.

```
#47.Privacyofcustomers'information
sn.catplot(data=df,kind="count",x="Privacyofcustomers'information")plt.xticks(rotation=90)
plt.show()
```
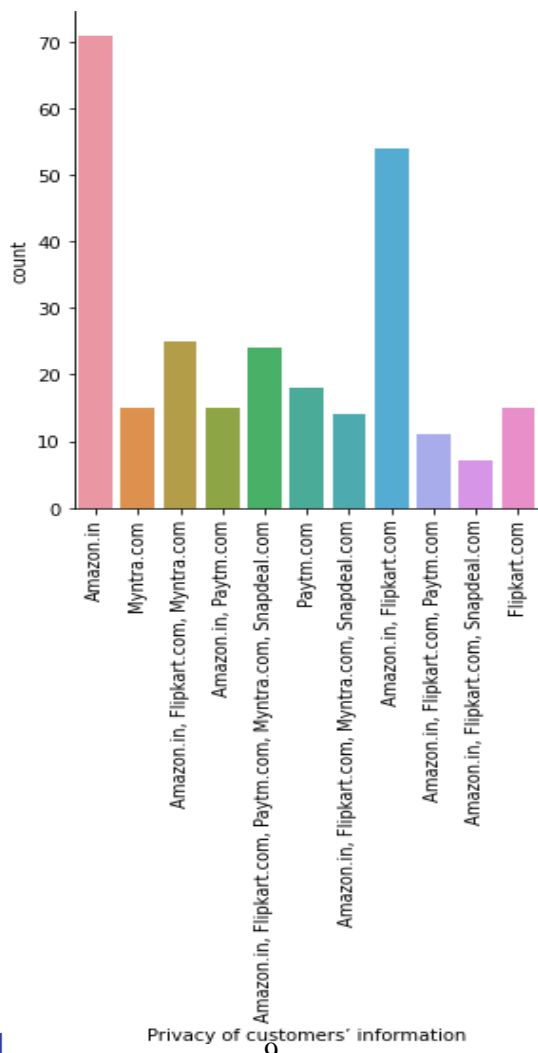
➤ According to respondents Amazon is trusted with privacy in comparison with other platforms.

```
#48.Securityofcustomerfinancialinformation
sn.catplot(data=df,kind="count",x="Securityofcustomerfinancialinformation")
plt.xticks(rotation=90)
plt.show()
```
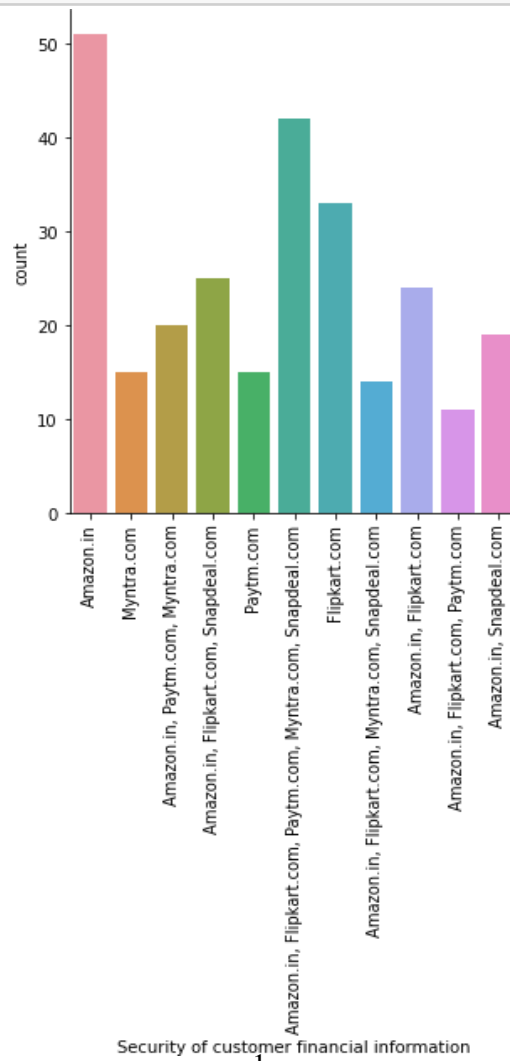
➢ Amazon is trusted by respondents followed by flipkart with security of customers financial information.
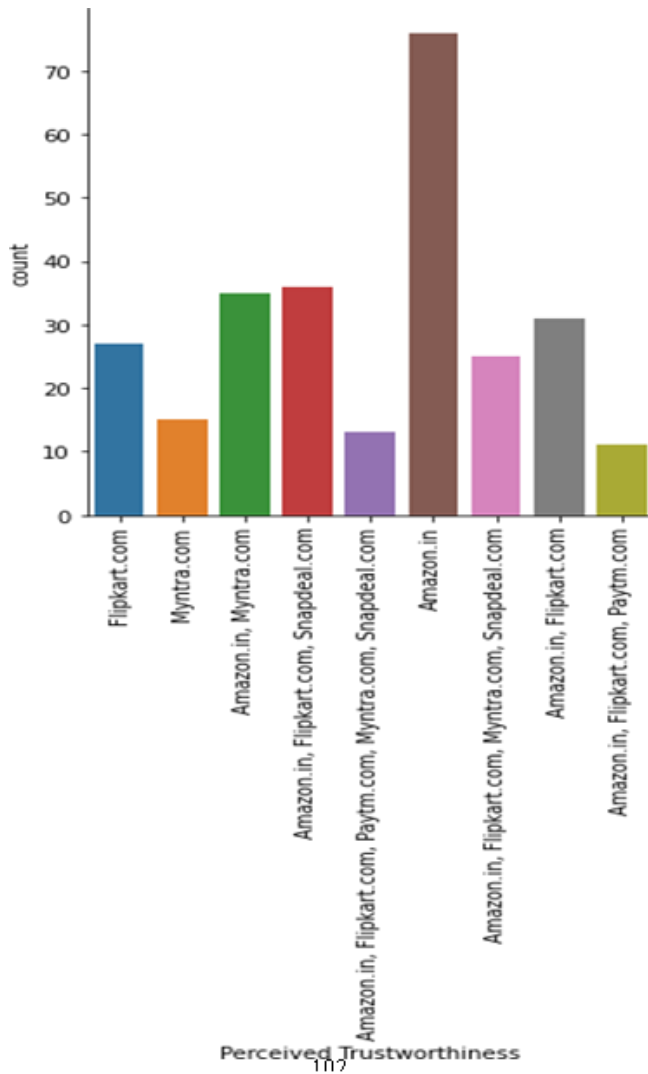
➢ Amazon is most trustworthy website according to customer.

```
#49.Presenceofonlineassistancethroughmulti-channel
sn.catplot(data=df,kind="count",x="Presenceofonlineassistancethroughmulti-
channel")
plt.xticks(rotation=90)
plt.show()
```
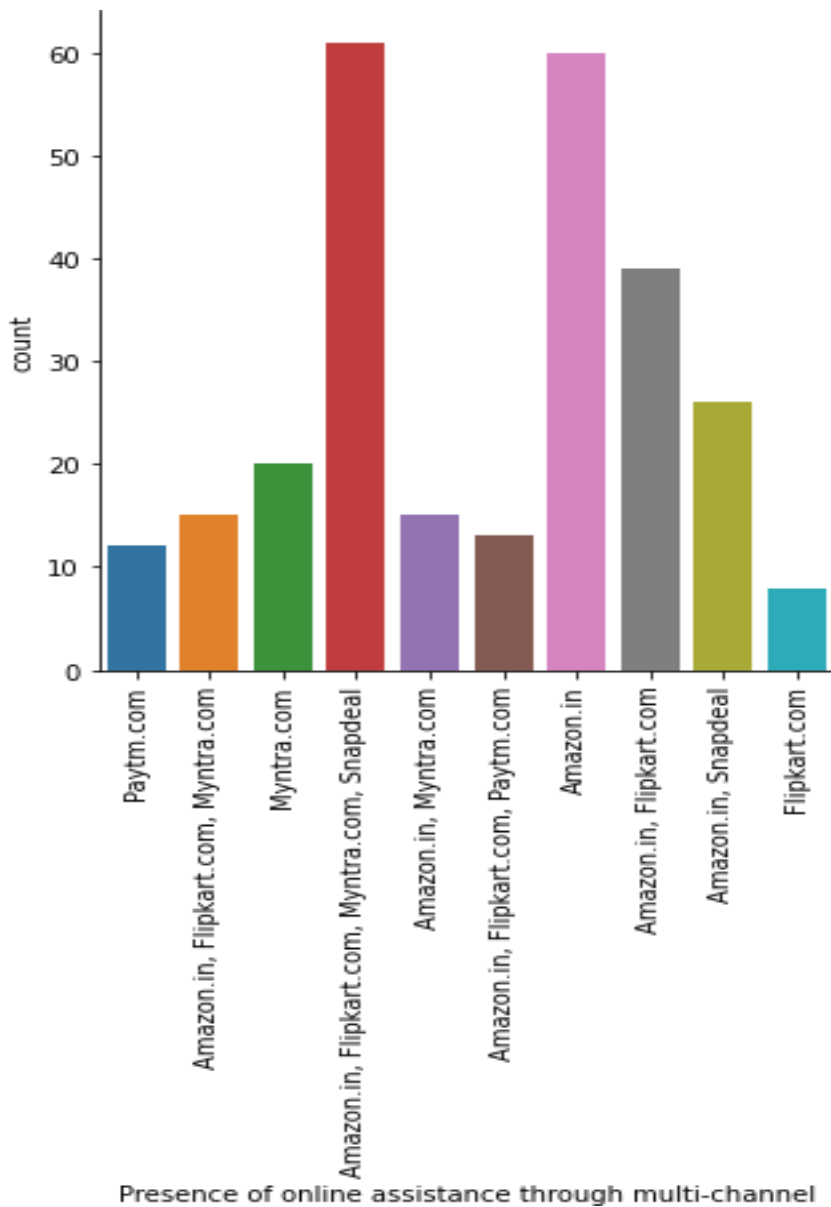
➤ Amazon provide customer care through multi channel.

#50.Latedeclarationofprice(promotion,salesperiod)
sn.catplot(data=df,kind="count",x="Latedeclarationofprice(promotionsalesperiod)")
plt.xticks(rotation=90) plt.show()

Late declaration of price (promotion sales period)
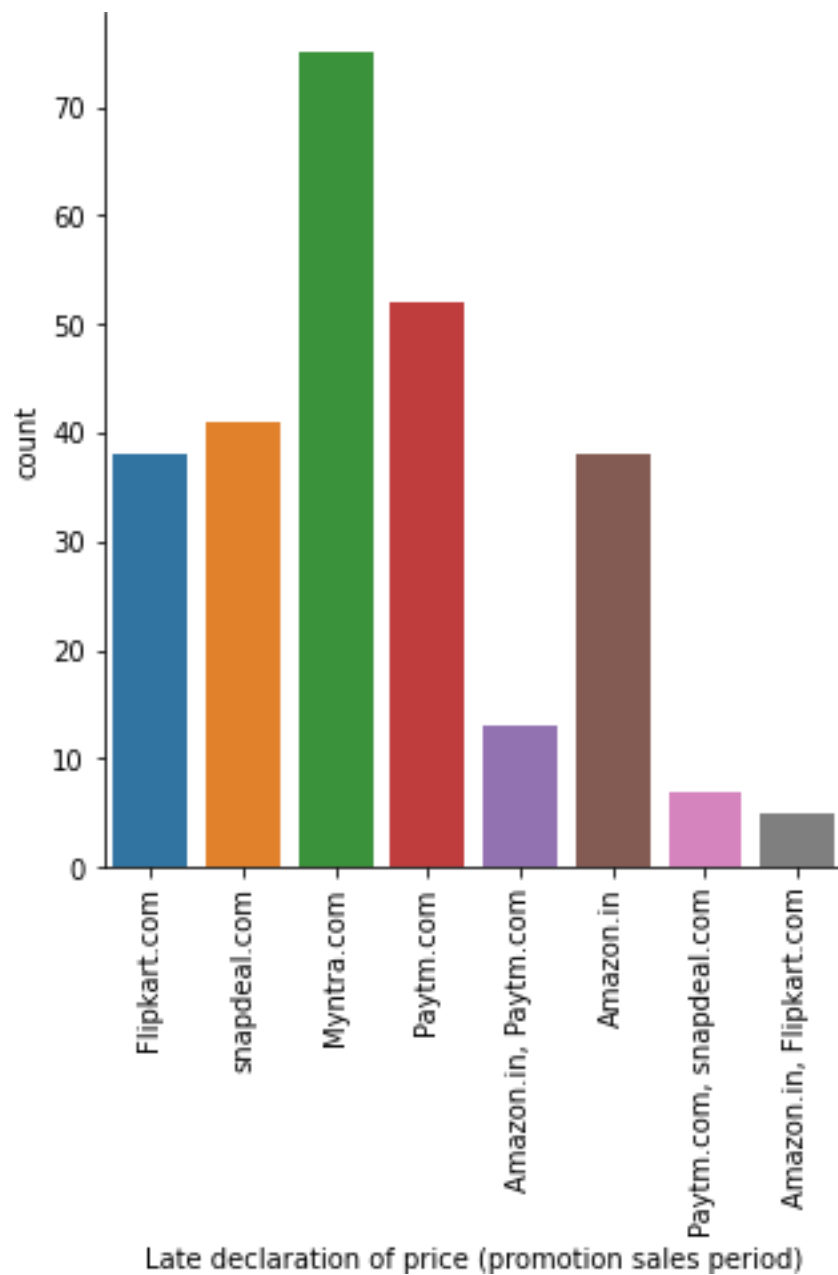
➢ Myntra takes longest time to disclose the price or promotion period.

```
#51.Longerpageloadingtime(promotion,salesperiod)
sn.catplot(data=df,kind="count",x="Longerpageloading time(promotionsalesperiod)")
plt.xticks(rotation=90)
plt.show()
```


Longer page loading time (promotion sales period)
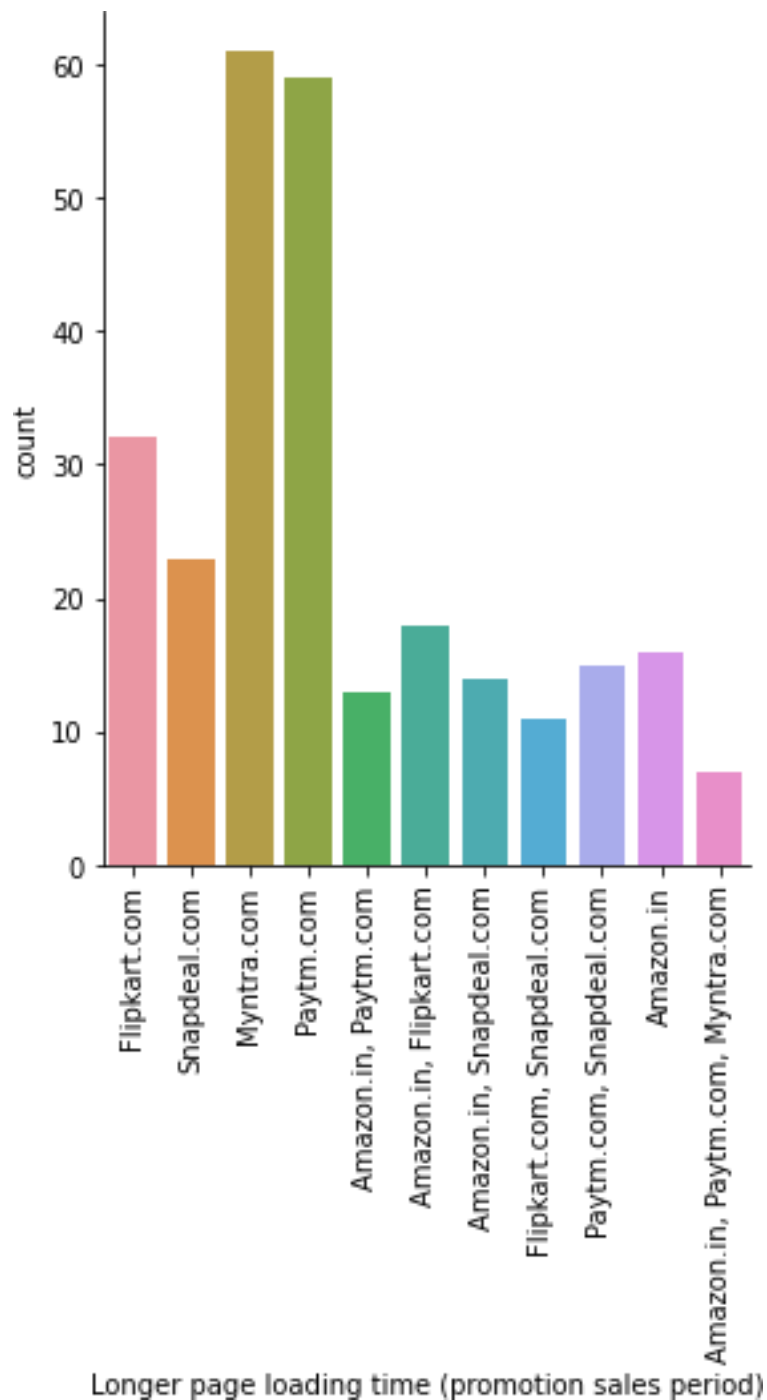
➢ Myntra takes a lot of time to load its pages followed by Paytm,

➢ Amazon loads pages fast.

#52.Limitedmode of payment on most products (promotion, sales period)
```
sn.catplot(data=df,kind="count",x="Limitedmodeofpaymentonmostproducts(promotionsa
lesperiod)")plt.xticks(rotation=90) plt.show()
```

Limited mode of payment on most products (promotion sales period)
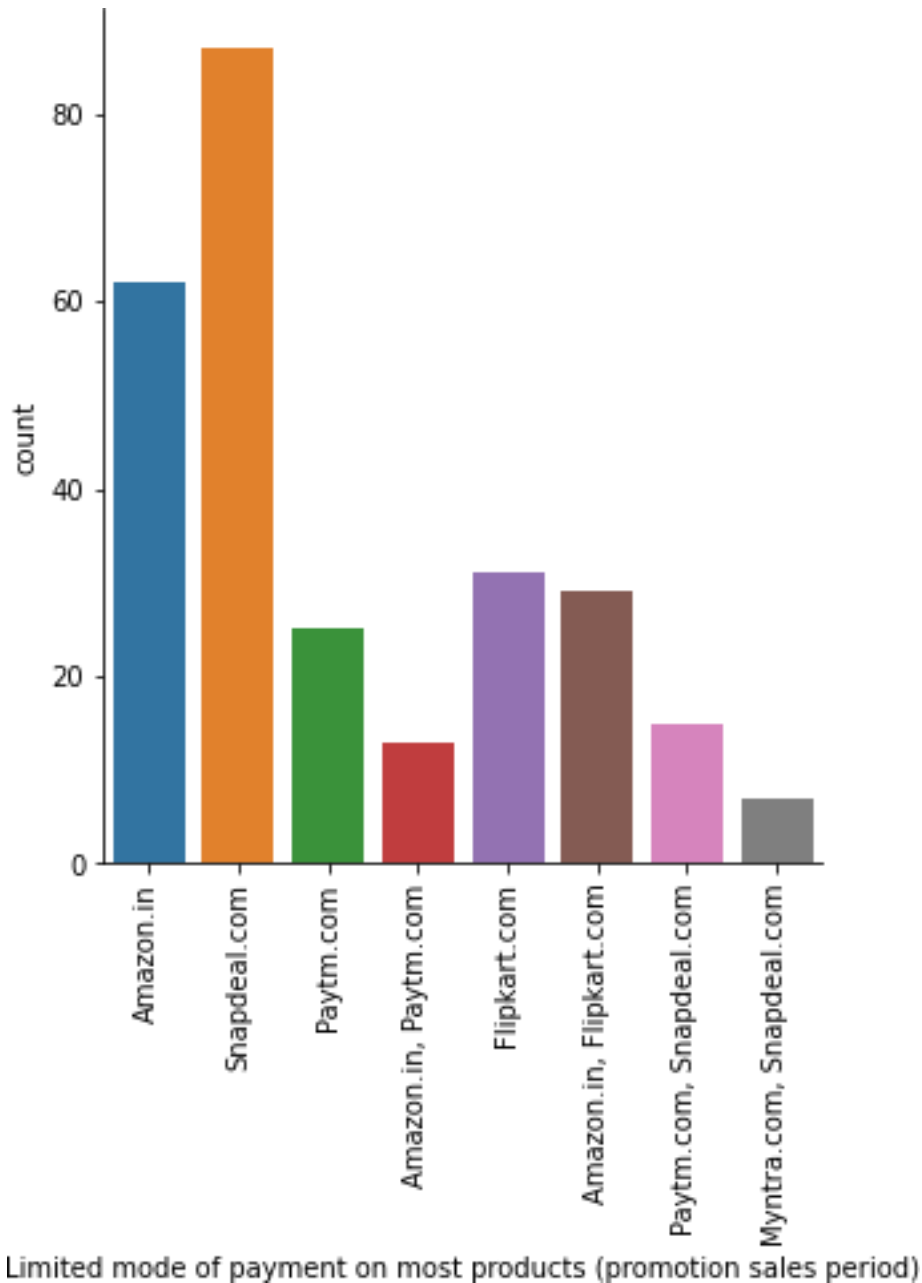
➢ Snapdeal has very limited payment method in promotion and sales period.

```
#53Changeinwebsite/Applicationdesign
sn.catplot(data=df,kind="count",x="Changeinwebsite/Applicationdesign")plt.xticks(
rotation=90)
plt.show()
```

Change in website/Application design
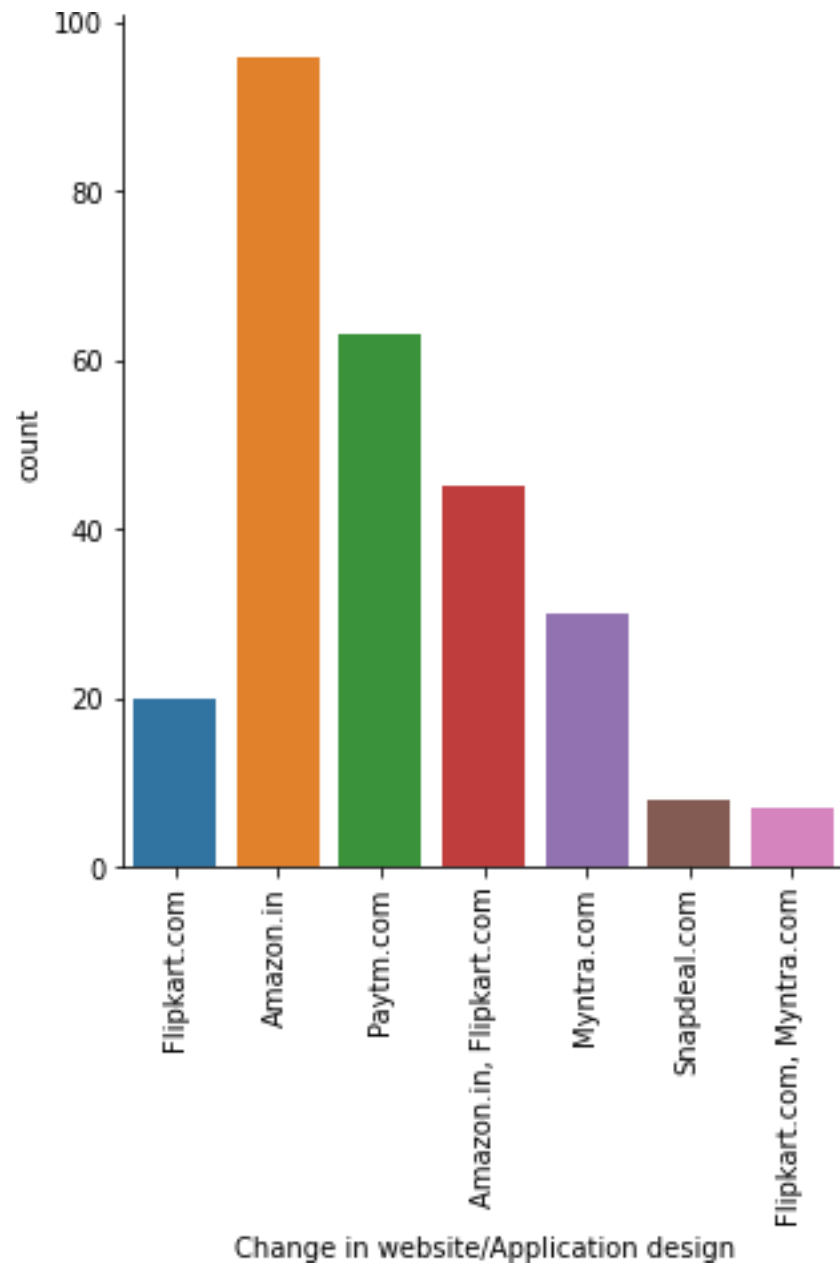
- ➢ Amazon changes its website and application design more frequently followed by Paytm.
- ➢ Snapdeal changes its design very less

```
#54.Websiteisasefficientasbefore
sn.catplot(data=df,kind="count",x="Websiteisasefficientasbefore")plt.xticks(rotat
ion=90)
plt.show()
```

Website is as efficient as before
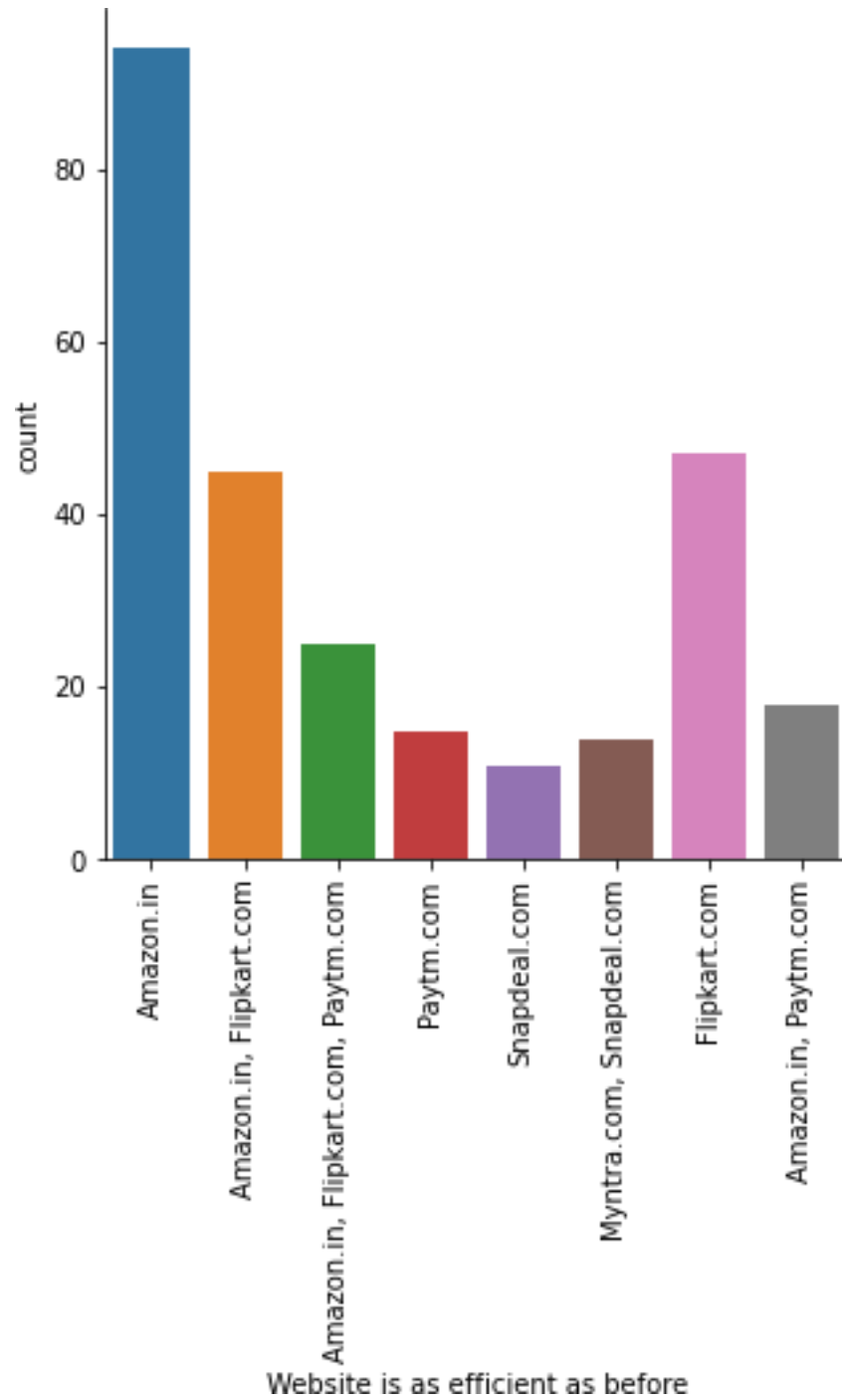
➢ According to respondents Amazon website is most efficient followed by flipkart

➢ Snapdeal has least efficient website.

#54.Whichof the Indian online retailer would you recommend to a friend?
```
sn.catplot(data=df,kind="count",x="WhichoftheIndianonlineretailerwouldyourecommen
dtoafriend?")plt.xticks(rotation=90) plt.show()
```
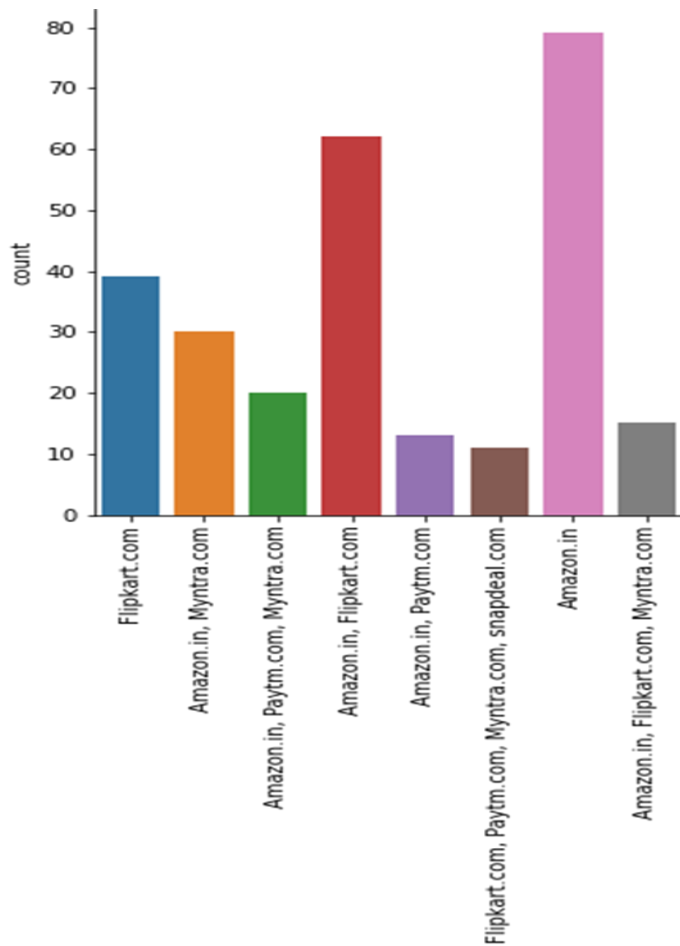
Which of the Indian online retailer would you recommend to a friend?

➢ Amazon is the most recommended website by there respondents followed by flipkart.

Bivariate Analysis

```
#Gender of respondent
plt.figure(figsize=(10,10))
sn.countplot(x="Genderofrespondent",hue="Whichofthe Indianonline
 ↪retailerwouldyourecommendtoafriend?",data=df)plt.xticks(r
otation=90)
plt.show()
```
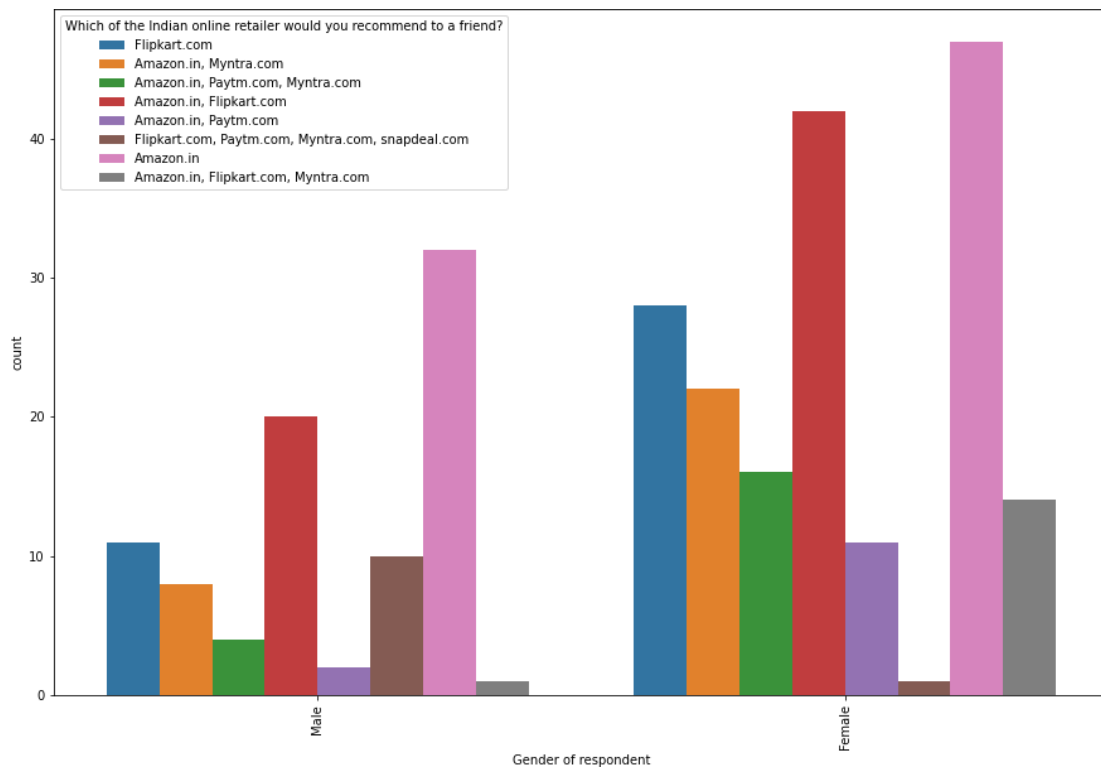

- ➢ Flipkart is more popular among female users.
- ➢ Female use more multi platforms for shopping than male.

```
#Howold are you?
plt.figure(figsize=(10,10))
sn.countplot(x="Howoldareyou?",hue="Whichofthe Indianonlineretailer↵
 ↪wouldyourecommendtoafriend?",data=df)
```

Which of the Indian online retailer would you recommend to a friend?
- Flipkart.com
- Amazon.in, Myntra.com
- Amazon.in, Paytm.com, Myntra.com
- Amazon.in, Flipkart.com
- Amazon.in, Paytm.com
- Flipkart.com, Paytm.com, Myntra.com, snapdeal.com
- Amazon.in
- Amazon.in, Flipkart.com, Myntra.com

➢ Flipkart is more popular among age group of 31-40 years people

➢ Amazon is recommended by all age group people.

```
#Whichcitydoyoushoponlinefrom?
plt.figure(figsize=(10,15))
sn.countplot(x="Whichcitydoyoushoponlinefrom?",hue="WhichoftheIndianonlineretaile
rwouldyourecommendtoafriend?",data=df)plt.xticks(rotation=90)
plt.show()
```
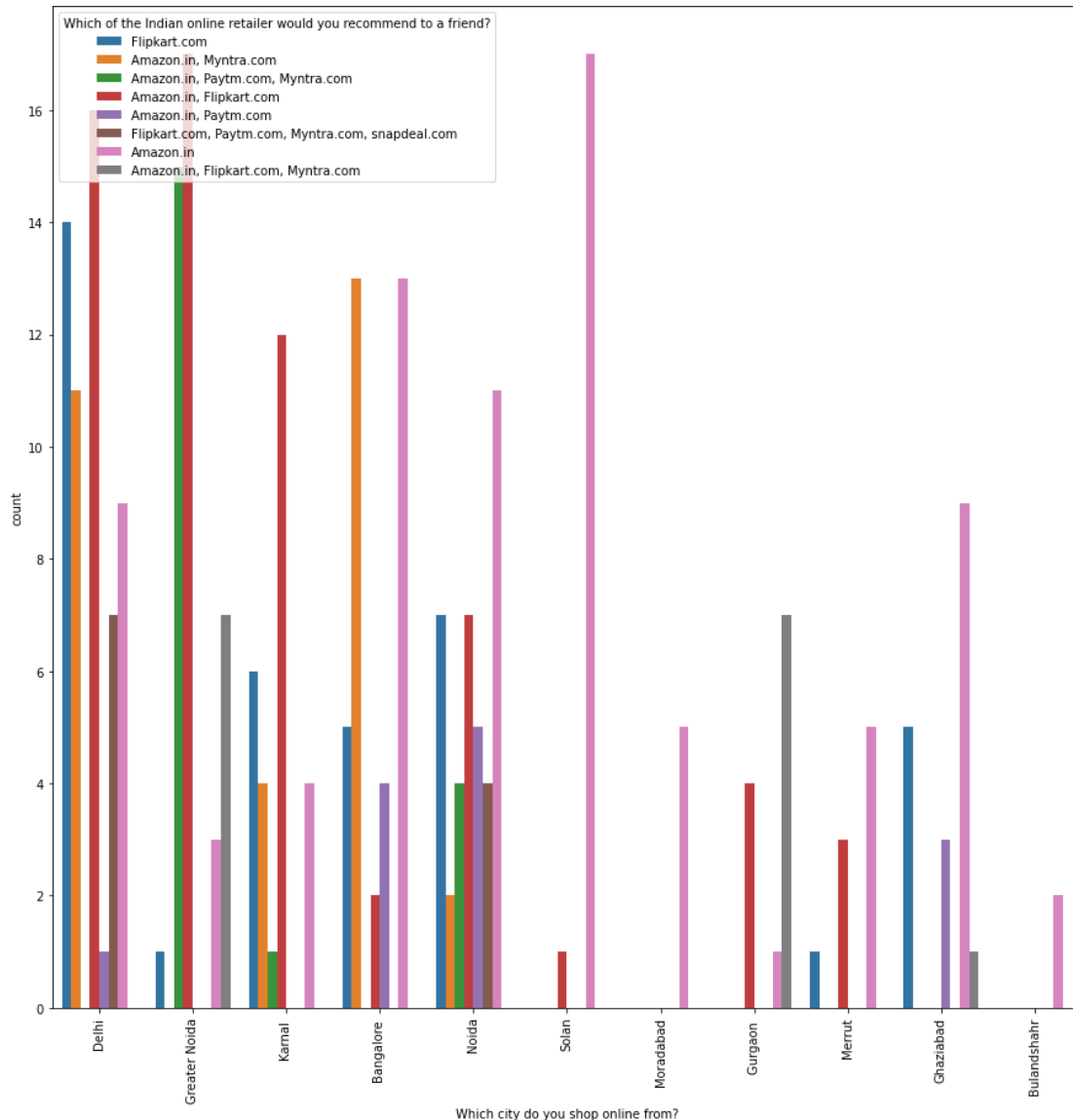
- ➢ Amazon is preferred from users of all mentioned city
- ➢ Flipkart is mostly use in metropolitan city .
- ➢ Banglore and Delhi uses of Myntra.

```
#Pincode/city
df_plot=df.groupby(["Whichcitydoyoushoponlinefrom?","Whatisthe Pin
↪Codeofwhereyoushoponlinefrom?"]).size().reset_index().
↪pivot(columns="Whatisthe PinCodeofwhereyoushoponlinefrom?",
↪index="Whichcitydoyoushoponlinefrom?",values=0)
df_plot.plot(kind="barh",stacked=True,figsize=(10,10),colormap="Set3",)plt.legen
d(loc="lowerright",bbox_to_anchor=(2.3,.15),ncol=2)
```

```
plt.show()
```

```
#Since How Long You are Shopping Online ?
plt.figure(figsize=(10,10))
sn.countplot(x="SinceHowLongYouareShoppingOnline?",hue="WhichoftheIndianonlineret
ailerwouldyourecommendtoafriend?",data=df)plt.xticks(rotation=90)
plt.show()
```
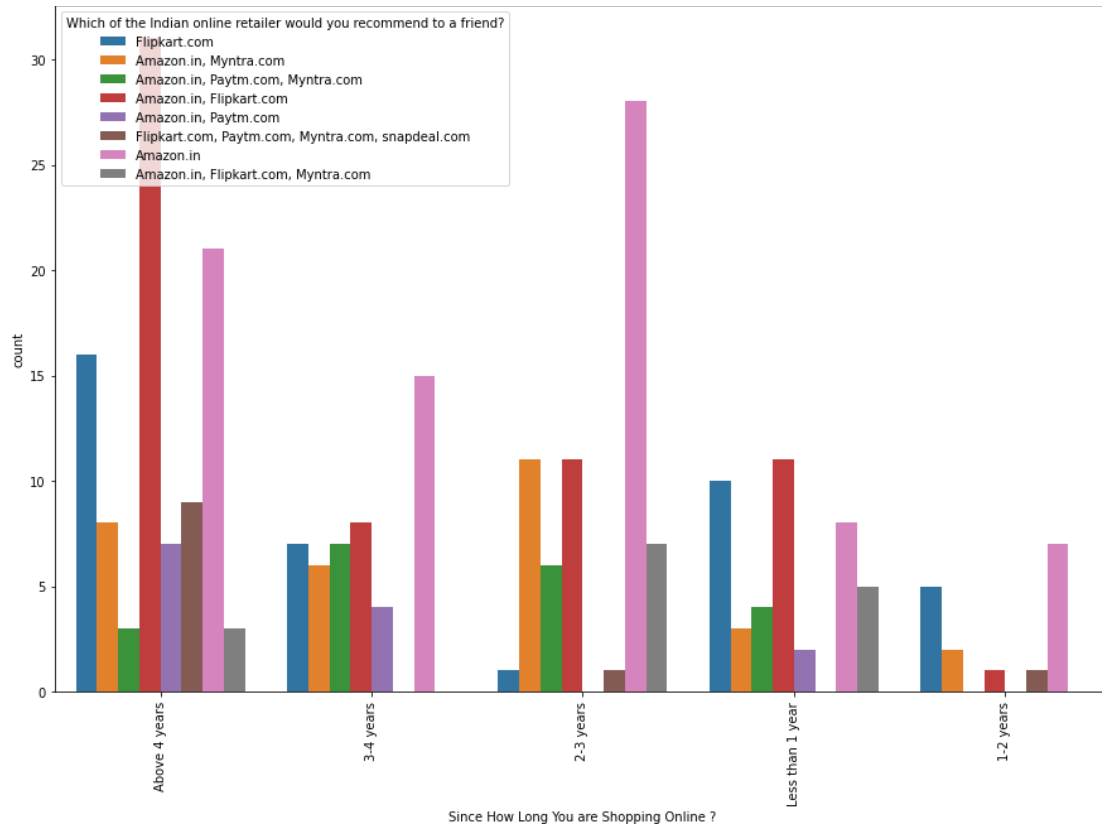
➢ People who is shopping for more than 4 years is recommending many platforms whole new users mostly recommend amazon or flipkart.

```
#How many times you have made an online purchase in the past 1 year?
plt.figure(figsize=(10,10))
sn.countplot(x="Howmanytimesyouhavemadeanonlinepurchaseinthepastyear?",hue="Which
ofthe Indianonlineretailerwouldyourecommendtoafriend?",data=df)
plt.xticks(rotation=90)
plt.show()
```
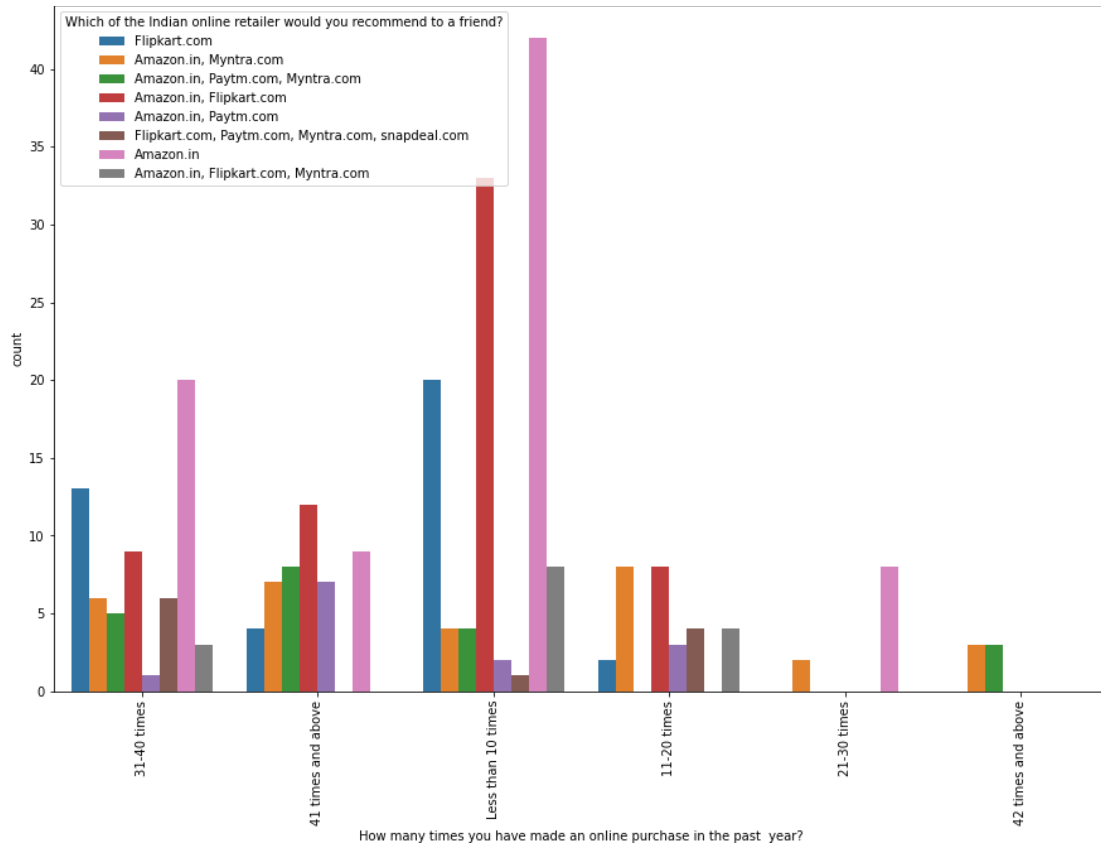
- ➢ The most frequent shoppers uses(Amazon/Myntra/Paytm)for shopping.
- ➢ Amazon is mostly used for frequents shopping.

```
#How doyouaccesstheinternetwhileshoppingon-line?
plt.figure(figsize=(15,10))
sn.countplot(x="Howdoyouaccesstheinternetwhileshoppingon-line?",␣
hue="WhichoftheIndianonlineretailerwouldyourecommendtoafriend?",data=df)
plt.xticks(rotation=90)
plt.show()
```
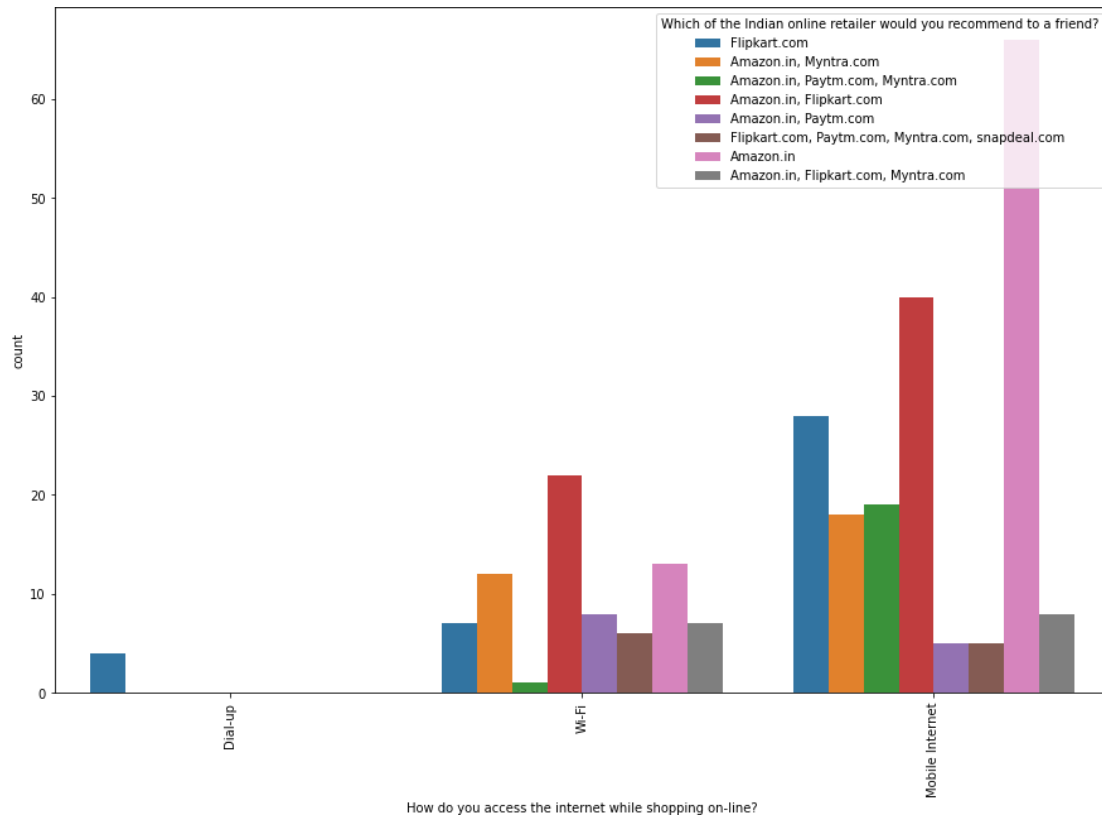
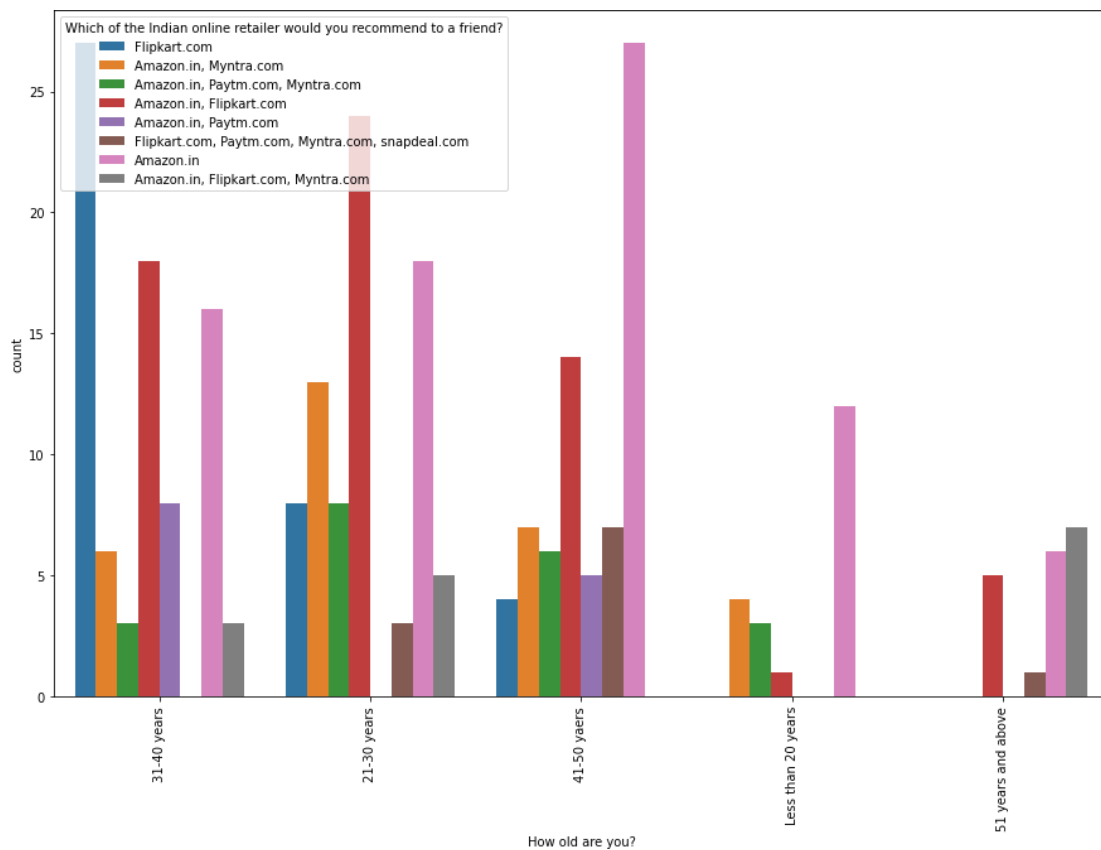- ➢ People with Dial up connection only suggest flipkart for the shopping.
- ➢ Shoppers with mobile internet is very fond of Amazon followed by flipkart.

```
#Whichdevice do you use to access the online shopping?
plt.figure(figsize=(10,10))
sn.countplot(x="Whichdevicedoyouusetoaccessthe onlineshopping?",
hue="Whichofthe Indianonlineretailerwouldyourecommendtoafriend?",data=df)
plt.xticks(rotation=90)
plt.show()
```

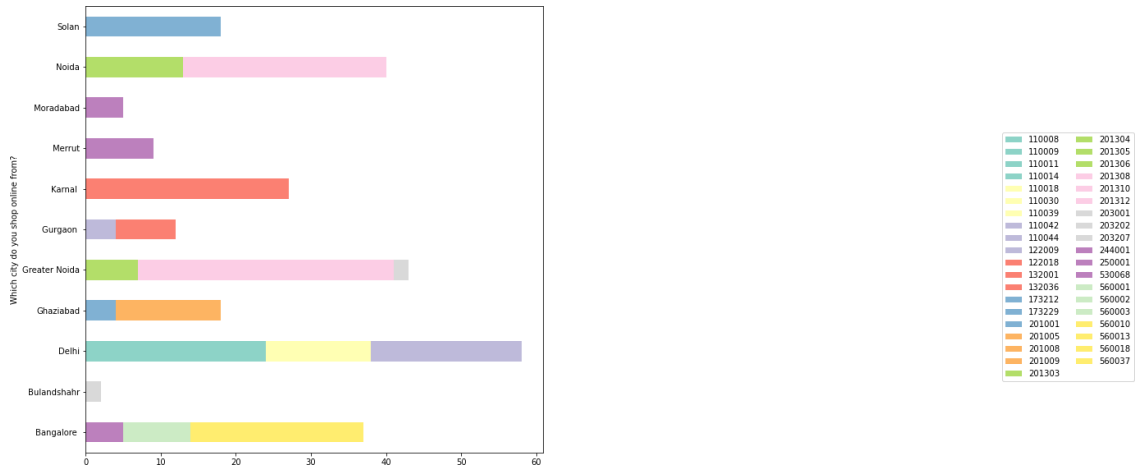Which of the Indian online retailer would you recommend to a friend?
- Flipkart.com
- Amazon.in, Myntra.com
- Amazon.in, Paytm.com, Myntra.com
- Amazon.in, Flipkart.com
- Amazon.in, Paytm.com
- Flipkart.com, Paytm.com, Myntra.com, snapdeal.com
- Amazon.in
- Amazon.in, Flipkart.com, Myntra.com
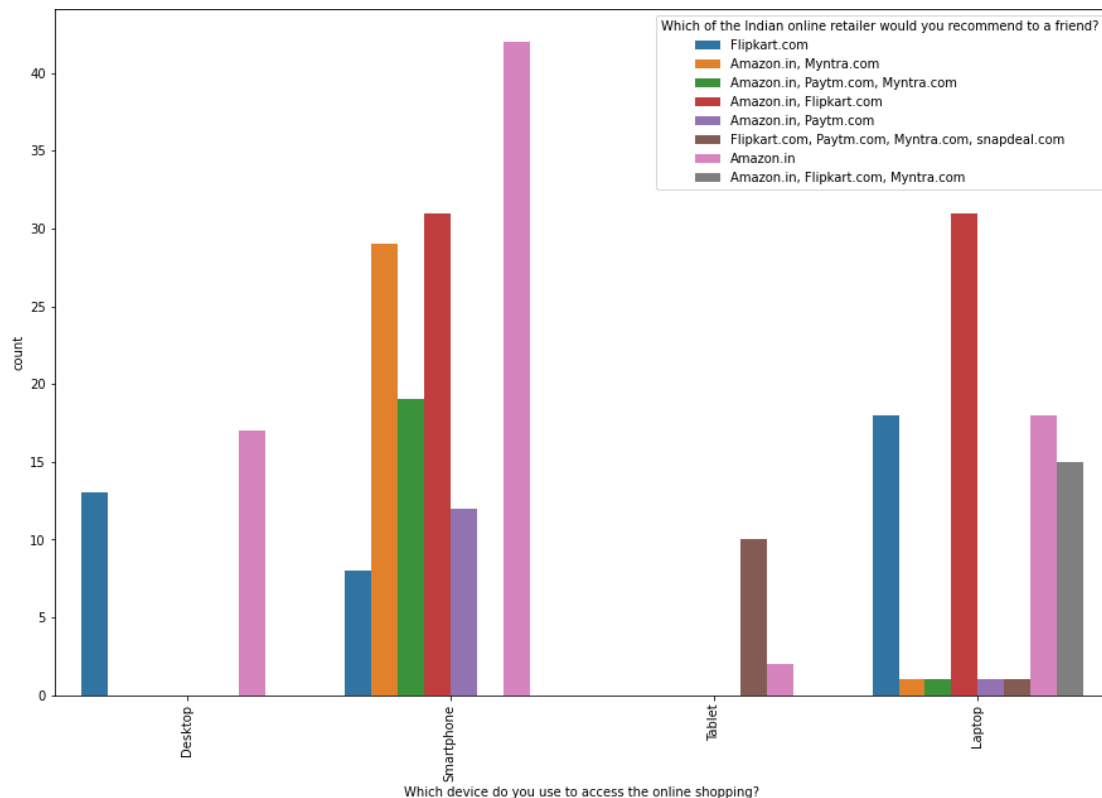
➢ Desktop users only recommends Flipkart and Amazon .

➢ Smartphones recommends multiple platforms.

```
#What isthe operating system (OS) of your device?
plt.figure(figsize=(10,10))
sn.countplot(x="What is the operating system(OS)of your device?",hue="Which of the
Indian online retailer would you recommend to a friend?",data=df)plt.xticks(rotation=90)
plt.show()
```

Which of the Indian online retailer would you recommend to a friend?
- Flipkart.com
- Amazon.in, Myntra.com
- Amazon.in, Paytm.com, Myntra.com
- Amazon.in, Flipkart.com
- Amazon.in, Paytm.com
- Flipkart.com, Paytm.com, Myntra.com, snapdeal.com
- Amazon.in
- Amazon.in, Flipkart.com, Myntra.com
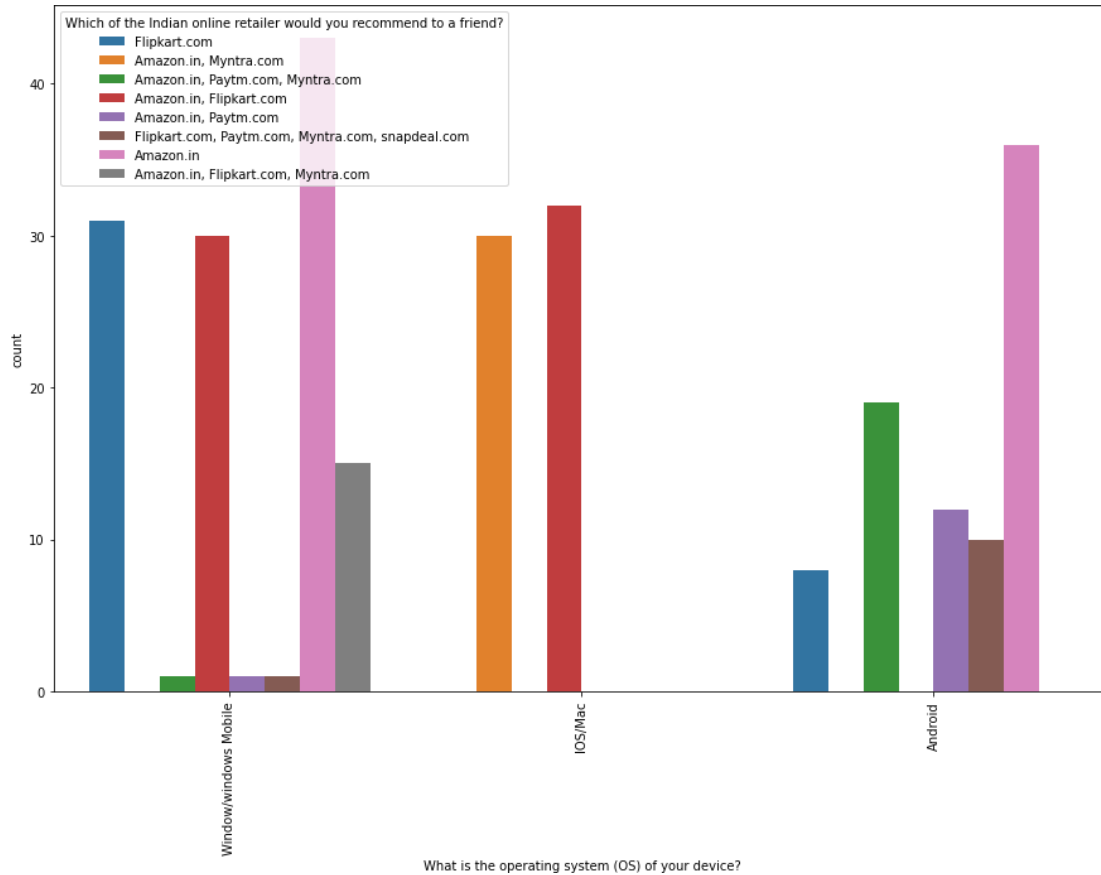
➢ IOS/Mac users recommends limited platforms(Amazon/Flipkart/Myntra)

```
#Whatbrowser do you run on your device to access the website?
plt.figure(figsize=(10,10))
sn.countplot(x="Whatbrowserdoyourunonyourdevicetoaccessthewebsite?",hue="Whichofthe Indianonlineretailerwouldyourecommendtoafriend?",data=df)
plt.xticks(rotation=90)
plt.show()
```

Which of the Indian online retailer would you recommend to a friend?
- Flipkart.com
- Amazon.in, Myntra.com
- Amazon.in, Paytm.com, Myntra.com
- Amazon.in, Flipkart.com
- Amazon.in, Paytm.com
- Flipkart.com, Paytm.com, Myntra.com, snapdeal.com
- Amazon.in
- Amazon.in, Flipkart.com, Myntra.com
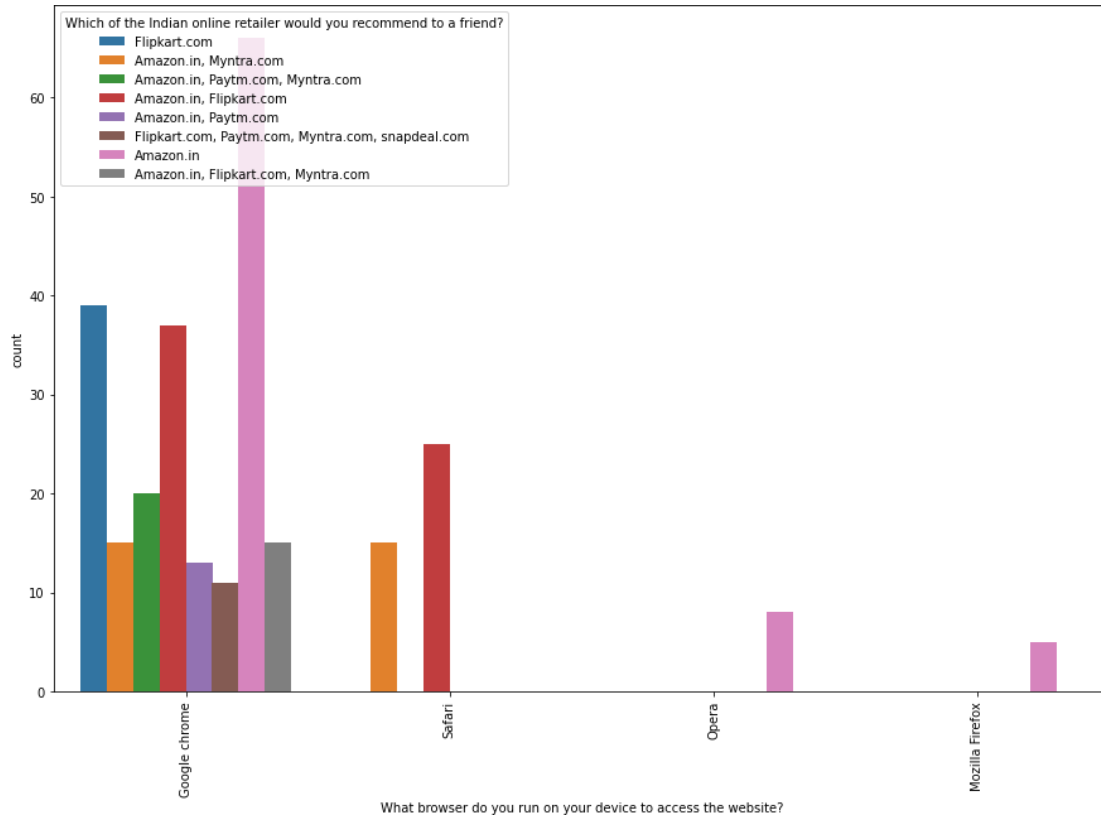
➢ Chrome is open to many shopping platforms.

```
#How much time do you explore the e- retail store before making a purchasedecision?
plt.figure(figsize=(10,10))
sn.countplot(x="Howmuchtimedoyouexploretheeretailstorebeforemakingapurchasedecisi
on?",hue="WhichoftheIndianonlineretailerwouldyourecommendtoafriend?",data=df)plt.
xticks(rotation=90)
plt.show()
```

Which of the Indian online retailer would you recommend to a friend?
- Flipkart.com
- Amazon.in, Myntra.com
- Amazon.in, Paytm.com, Myntra.com
- Amazon.in, Flipkart.com
- Amazon.in, Paytm.com
- Flipkart.com, Paytm.com, Myntra.com, snapdeal.com
- Amazon.in
- Amazon.in, Flipkart.com, Myntra.com

How much time do you explore the e- retail store before making a purchase decision?
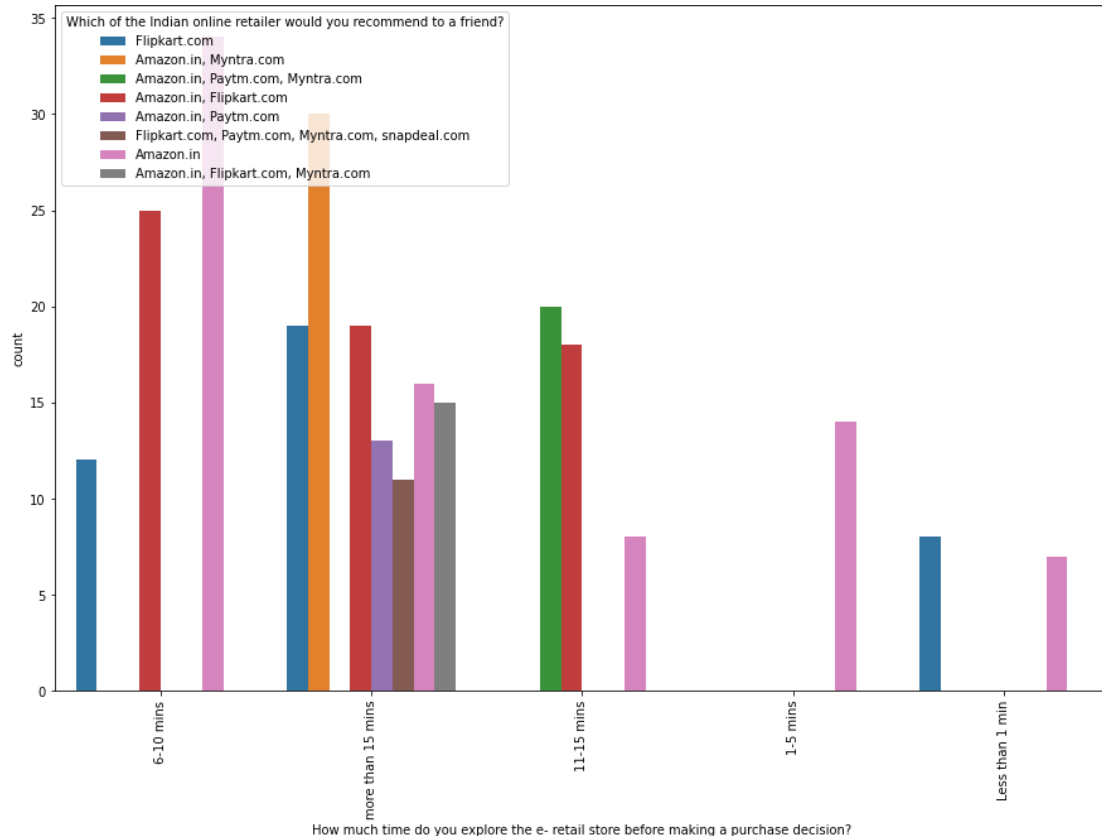
- ➢ Amazon/flipkart is the website where users take very less to make a Purchase decision.
- ➢ Respondents who takes more time is pron eto explore multiple platforms

```
#WhatisyourpreferredpaymentOption?
plt.figure(figsize=(10,10))
sn.countplot(x="WhatisyourpreferredpaymentOption?",hue="WhichoftheIndianonlineret
ailerwouldyourecommendtoafriend?",data=df)plt.xticks(rotation=90)
plt.show()
```

Which of the Indian online retailer would you recommend to a friend?
- Flipkart.com
- Amazon.in, Myntra.com
- Amazon.in, Paytm.com, Myntra.com
- Amazon.in, Flipkart.com
- Amazon.in, Paytm.com
- Flipkart.com, Paytm.com, Myntra.com, snapdeal.com
- Amazon.in
- Amazon.in, Flipkart.com, Myntra.com

➢ Amazon and Flipkart is only preferred COD option.

```
#The content on the website must be easy to read and understand
plt.figure(figsize=(10,10))
sn.countplot(x="The content on the website must be easy to read and understand",hue="Which of
the Indian online retailer would you recommend to a friend?",data=df)
plt.xticks(rotation=90)
plt.show()
```

The content on the website must be easy to read and understand
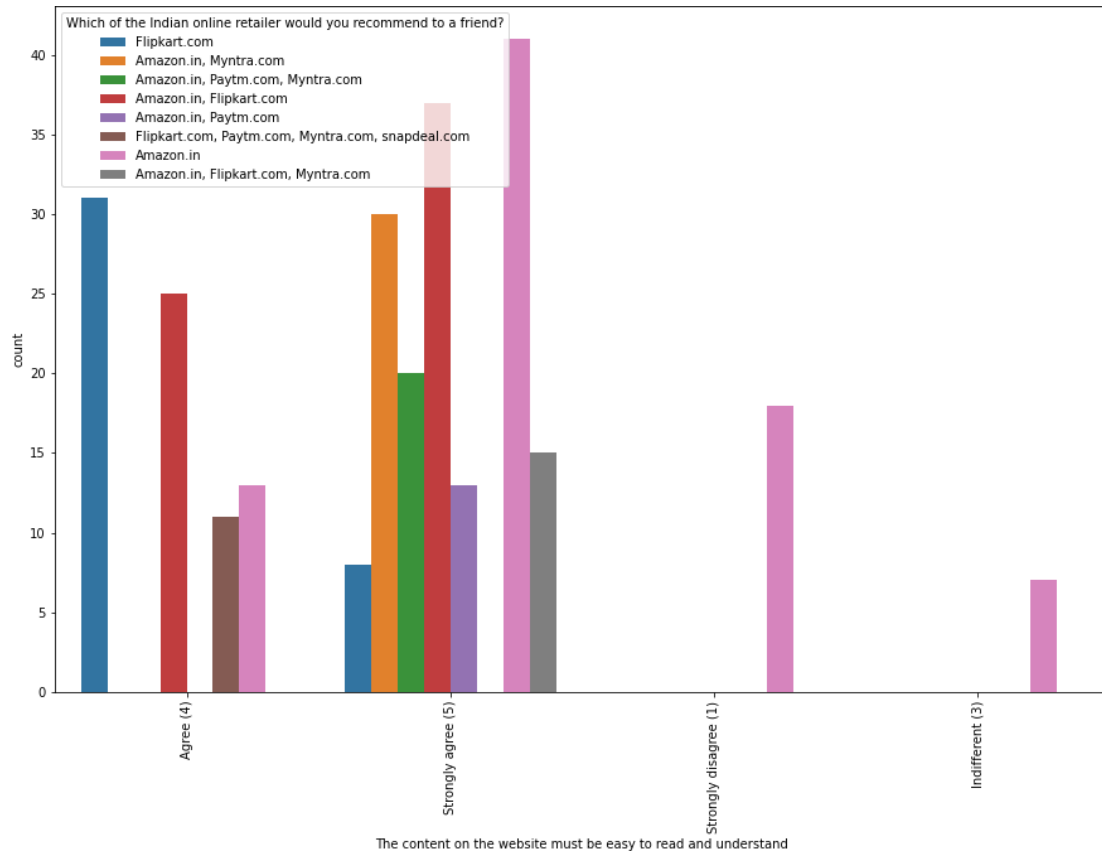
> Respondents suggest flipkart content is very easy to read and understand.

```
#Informationonsimilarproducttotheonehighlighteisimportantforproductcomparison
plt.figure(figsize=(10,10))
sn.countplot(x="Informationonsimilarproducttothonehighlightedisimportantforproductcomparison",hue="WhichoftheIndianonlineretailerwouldyourecommendtoafriend?",data=df)plt.xticks(rotation=90)
plt.show()
```
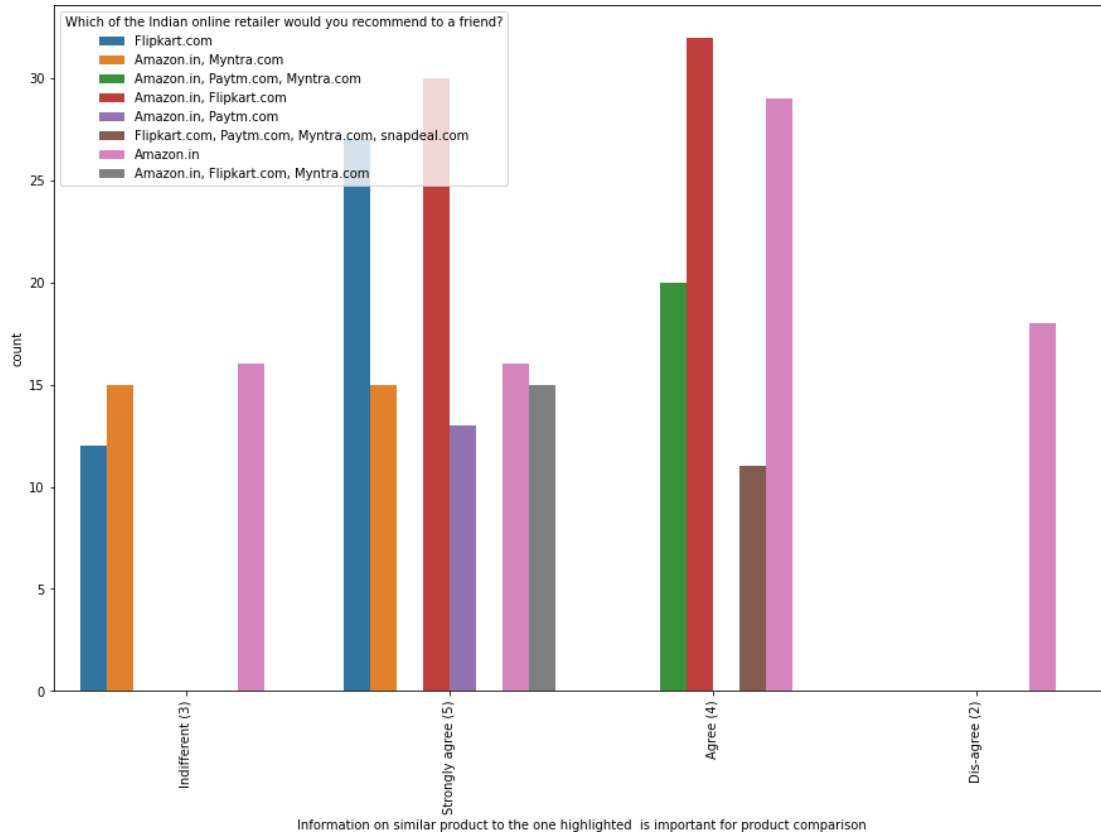
> flipkart and amazon has option for information on similar product to the one highlighted is important for product comparison

```
#Completeinformationonlistedsellerandproductbeingofferedisimportantforpurchas
edecision.
plt.figure(figsize=(10,10))
sn.countplot(x="Completeinformationonlistedsellerandproductbeingofferedisimporta
ntforpurchasedecision.",hue="WhichoftheIndianonlineretailerwouldyourecommendtoafri
end?",data=df)plt.xticks(rotation=90)
plt.show()
```

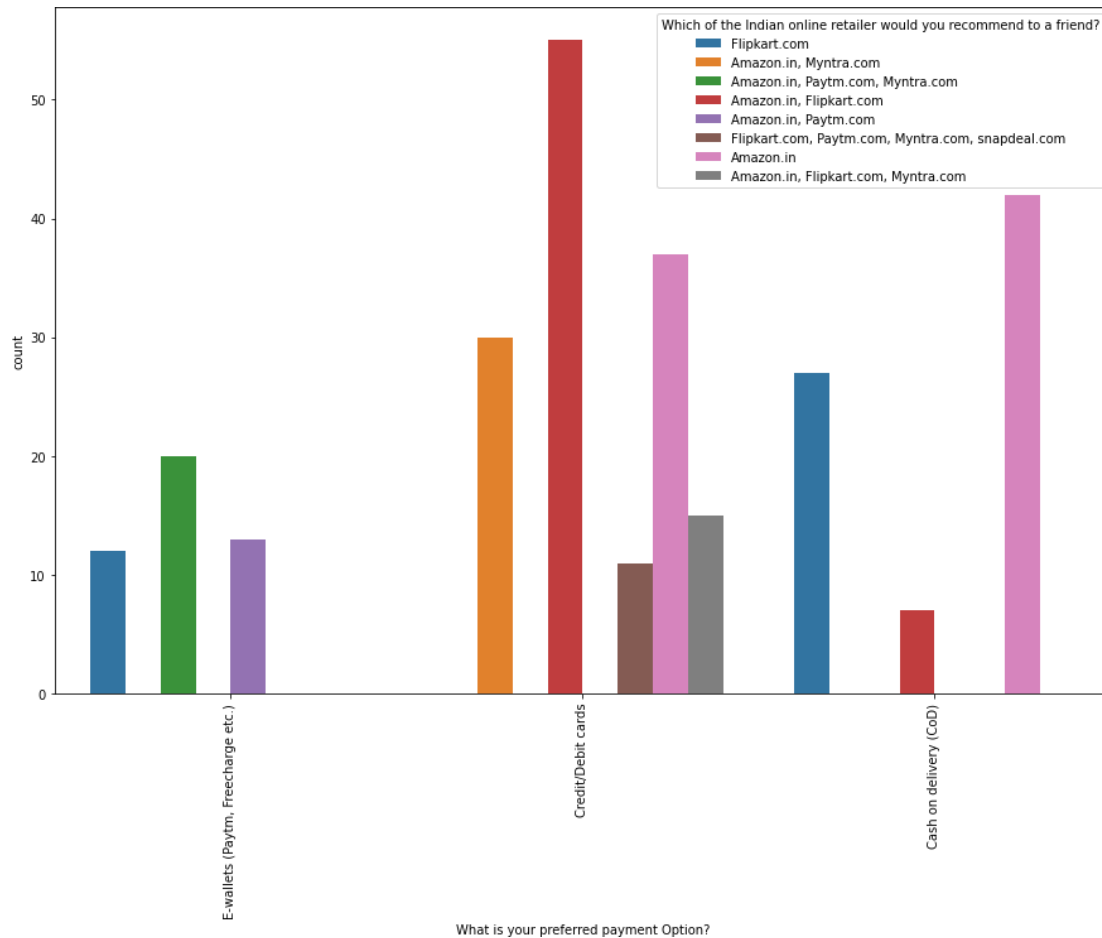Which of the Indian online retailer would you recommend to a friend?
- Flipkart.com
- Amazon.in, Myntra.com
- Amazon.in, Paytm.com, Myntra.com
- Amazon.in, Flipkart.com
- Amazon.in, Paytm.com
- Flipkart.com, Paytm.com, Myntra.com, snapdeal.com
- Amazon.in
- Amazon.in, Flipkart.com, Myntra.com

Complete information on listed seller and product being offered is important for purchase decision.
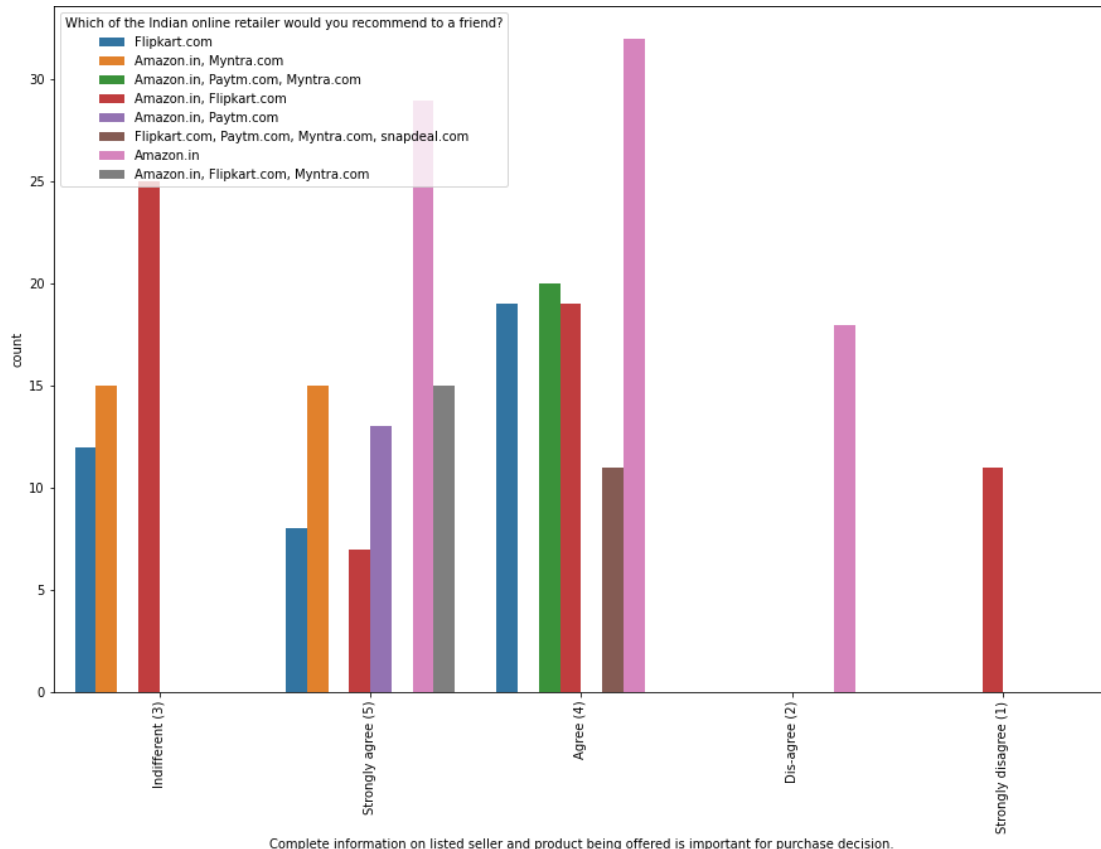
➤ Amazon is suggest as complete information on listed sellerand product being offered is important for purchase decision.

```
#Allrelevantinformationonlistedproductsmustbestatedclearly
plt.figure(figsize=(10,10))
sn.countplot(x="Allrelevantinformationonlistedproductsmustbestatedclearly",hue="
Whichofthe Indianonlineretailerwouldyourecommendtoafriend?",data=df)
plt.xticks(rotation=90)
plt.show()
```

All relevant information on listed products must be stated clearly
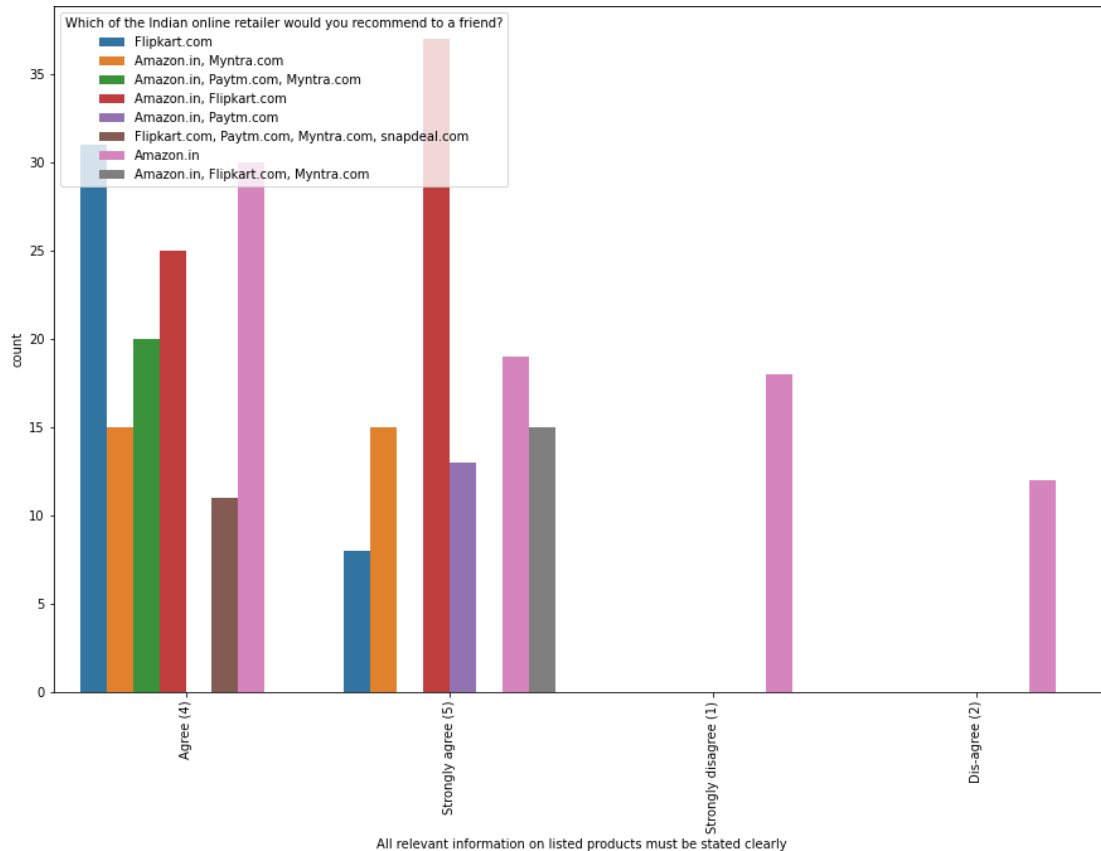
➢ Respondents suggest amazon and flipkart has all the relevant information on listed products must be stated clearly.

```
#Loading and processing speed
plt.figure(figsize=(10,10))
sn.countplot(x="Loadingandprocessingspeed",hue="WhichoftheIndianonlineretailerwo
uldyourecommendtoafriend?",data=df)plt.xticks(rotation=90)
plt.show()
```
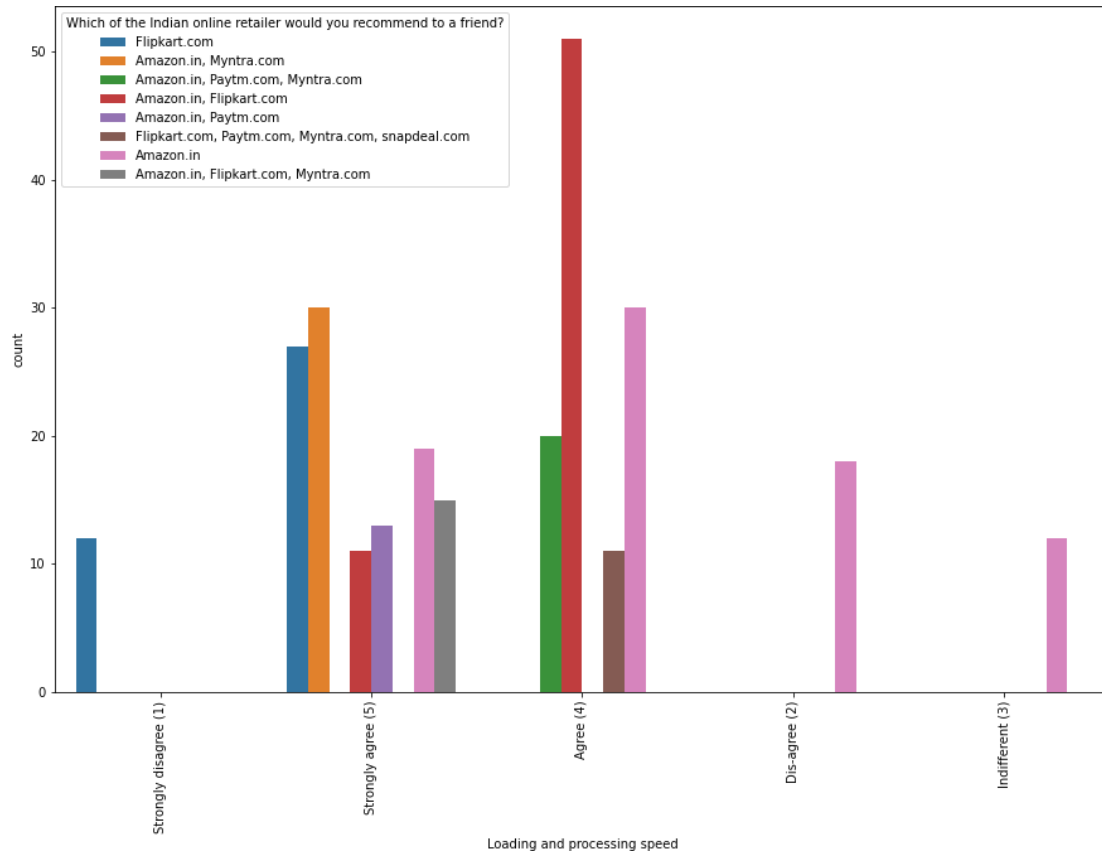
> Respondents who agree with loading speed matters mostly recommends Flipkart/Amazon/Myntra

```
#User friendly Interface of the website
plt.figure(figsize=(10,10))
sn.countplot(x="UserfriendlyInterfaceofthewebsite",hue="WhichoftheIndianonlineret
ailerwouldyourecommendtoafriend?",data=df)plt.xticks(rotation=90)
plt.show()
```

Which of the Indian online retailer would you recommend to a friend?
- Flipkart.com
- Amazon.in, Myntra.com
- Amazon.in, Paytm.com, Myntra.com
- Amazon.in, Flipkart.com
- Amazon.in, Paytm.com
- Flipkart.com, Paytm.com, Myntra.com, snapdeal.com
- Amazon.in
- Amazon.in, Flipkart.com, Myntra.com
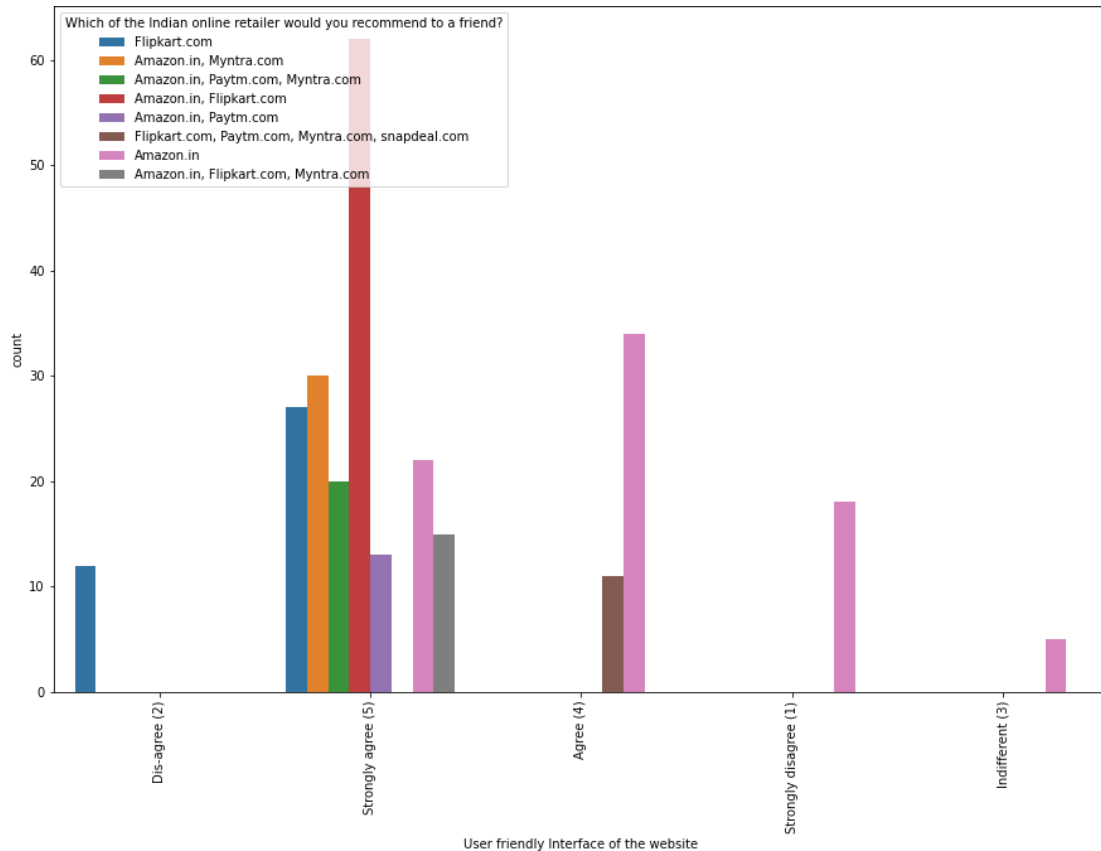
➢ According to the suggestion Amazon/Flipkart has some more user friendly interface of the website.

```
#Convenient Payment methods
plt.figure(figsize=(10,10))
sn.countplot(x="ConvenientPaymentmethods",hue="WhichoftheIndianonlineretailerwoul
dyourecommendtoafriend?",data=df)plt.xticks(rotation=90)
plt.show()
```
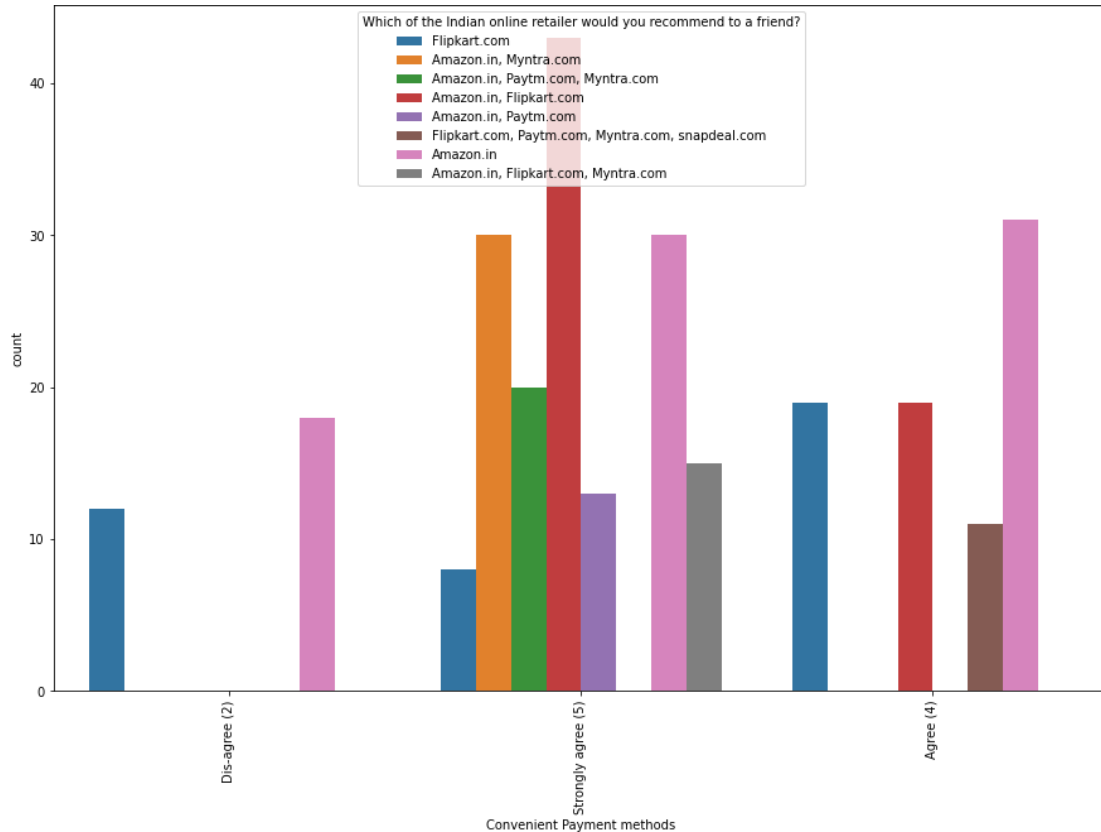
➢ Amazon/Flipkart/Myntra has recommended on the ases of ease of payment.

```
#Trustthattheonlineretailstorewillfulfillitspartofthetransactionatthestipulate
dtime
plt.figure(figsize=(10,10))
sn.countplot(x="Trustthattheonlineretailstorewillfulfillitspartofthetransactionat
thestipulatedtime",hue="WhichoftheIndianonlineretailerwouldyourecommendtoafriend?
",data=df)plt.xticks(rotation=90)
plt.show()
```

Which of the Indian online retailer would you recommend to a friend?
- Flipkart.com
- Amazon.in, Myntra.com
- Amazon.in, Paytm.com, Myntra.com
- Amazon.in, Flipkart.com
- Amazon.in, Paytm.com
- Flipkart.com, Paytm.com, Myntra.com, snapdeal.com
- Amazon.in
- Amazon.in, Flipkart.com, Myntra.com

Trust that the online retail store will fulfill its part of the transaction at the stipulated time
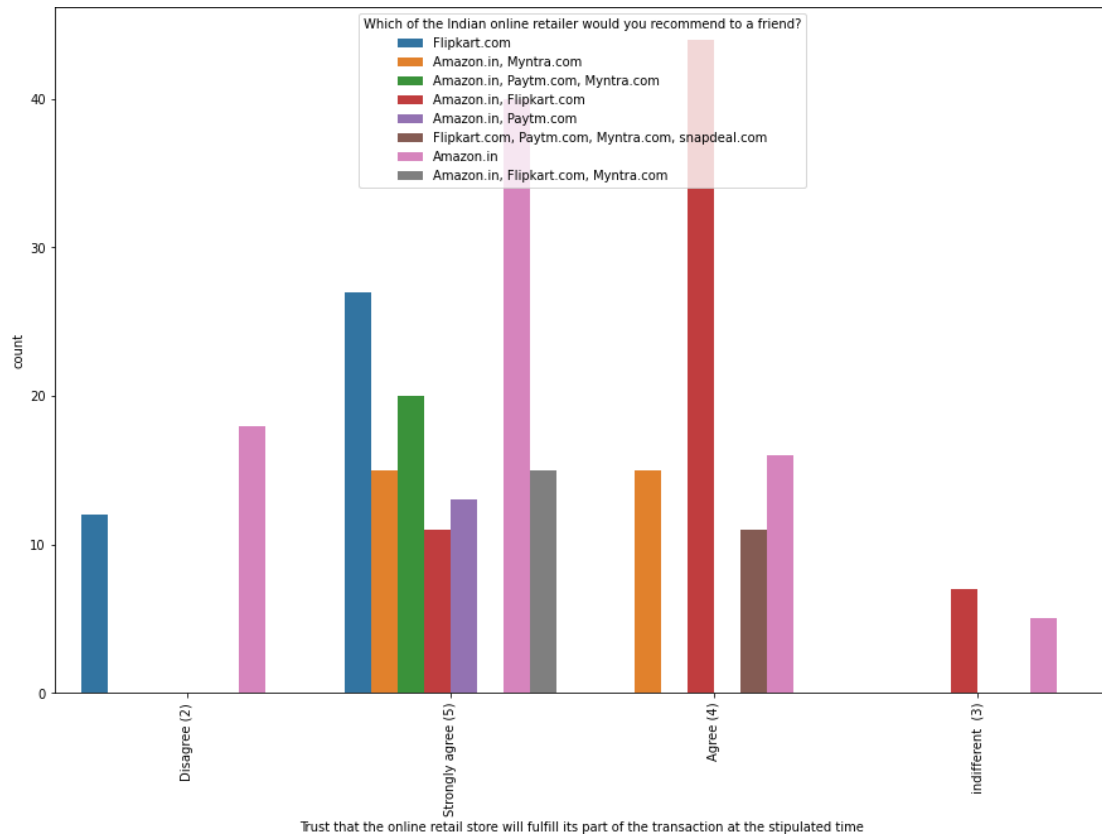
➢ Amazon is recommended as most trustworthy site followed by flipkart.

```
#Empathy(readinesstoassistwithqueries)towardsthecustomers
plt.figure(figsize=(10,10))
sn.countplot(x="Empathy(readinesstoassistwithqueries)towardsthecustomers",hue="Which of the Indianonlineretailer wouldyourecommendtoafriend?",data=df)
plt.xticks(rotation=90) plt.show()
```

Which of the Indian online retailer would you recommend to a friend?
- Flipkart.com
- Amazon.in, Myntra.com
- Amazon.in, Paytm.com, Myntra.com
- Amazon.in, Flipkart.com
- Amazon.in, Paytm.com
- Flipkart.com, Paytm.com, Myntra.com, snapdeal.com
- Amazon.in
- Amazon.in, Flipkart.com, Myntra.com

➢ Amazon and Flipkart recommended on the parameter of customer assistance.

```
#Responsiveness,availabilityofseveralcommunicationchannels(email,onlinerep,twitter,phoneetc.)
plt.figure(figsize=(10,10))
sn.countplot(x="Responsivenessavailabilityofseveralcommunicationchannels(emailonlinereptwitterphoneetc.)",hue="WhichoftheIndianonlineretailerwouldyourecommendtoafriend?",data=df)plt.xticks(rotation=90)
plt.show()
```

Which of the Indian online retailer would you recommend to a friend?
- Flipkart.com
- Amazon.in, Myntra.com
- Amazon.in, Paytm.com, Myntra.com
- Amazon.in, Flipkart.com
- Amazon.in, Paytm.com
- Flipkart.com, Paytm.com, Myntra.com, snapdeal.com
- Amazon.in
- Amazon.in, Flipkart.com, Myntra.com

Responsiveness availability of several communication channels (email online rep twitter phone etc.)
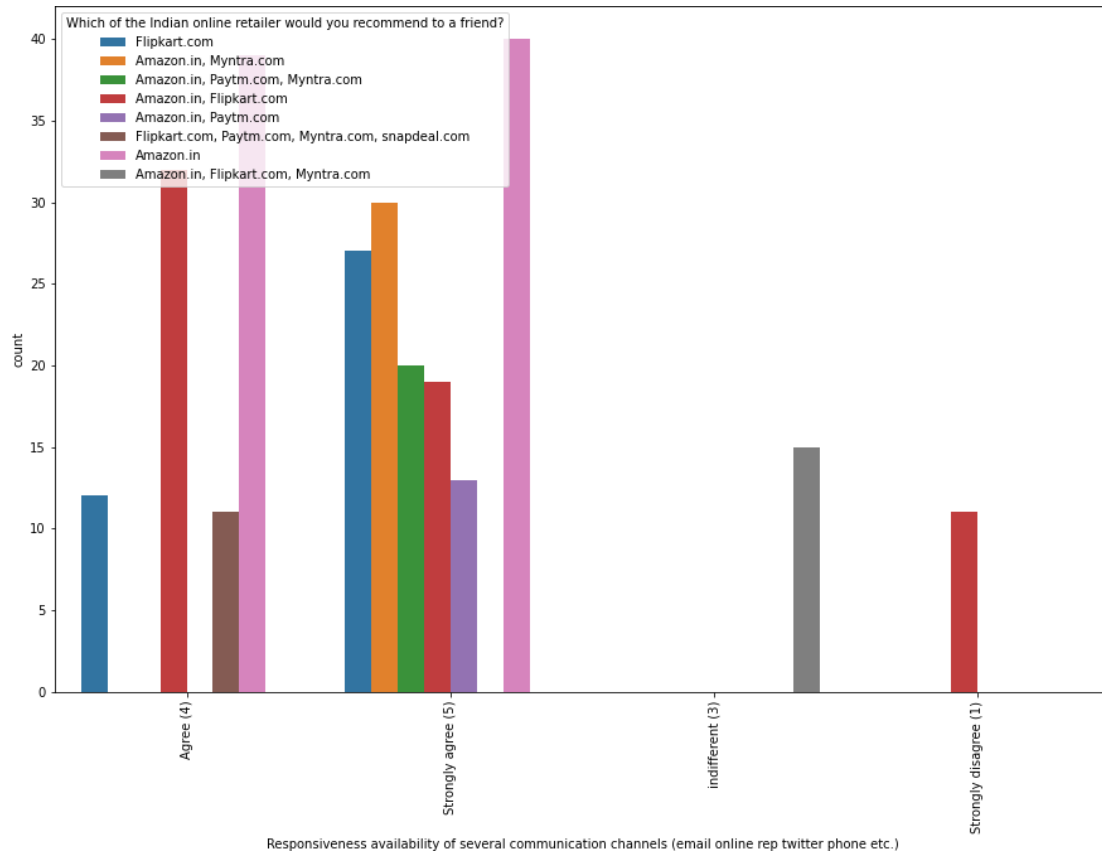
➢ Amazon and flipkart has been recommended on responsiveness, availability of several communication channel(email,onlinerp,twitter,phone etc.)

```
#Onlineshoppinggivesmonetarybenefitanddiscounts
plt.figure(figsize=(10,10))
sn.countplot(x="Onlineshoppinggivesmonetarybenefitanddiscounts",hue="Whichofthe
Indianonlineretailerwouldyourecommendtoafriend?",data=df)
plt.xticks(rotation=90)
plt.show()
```
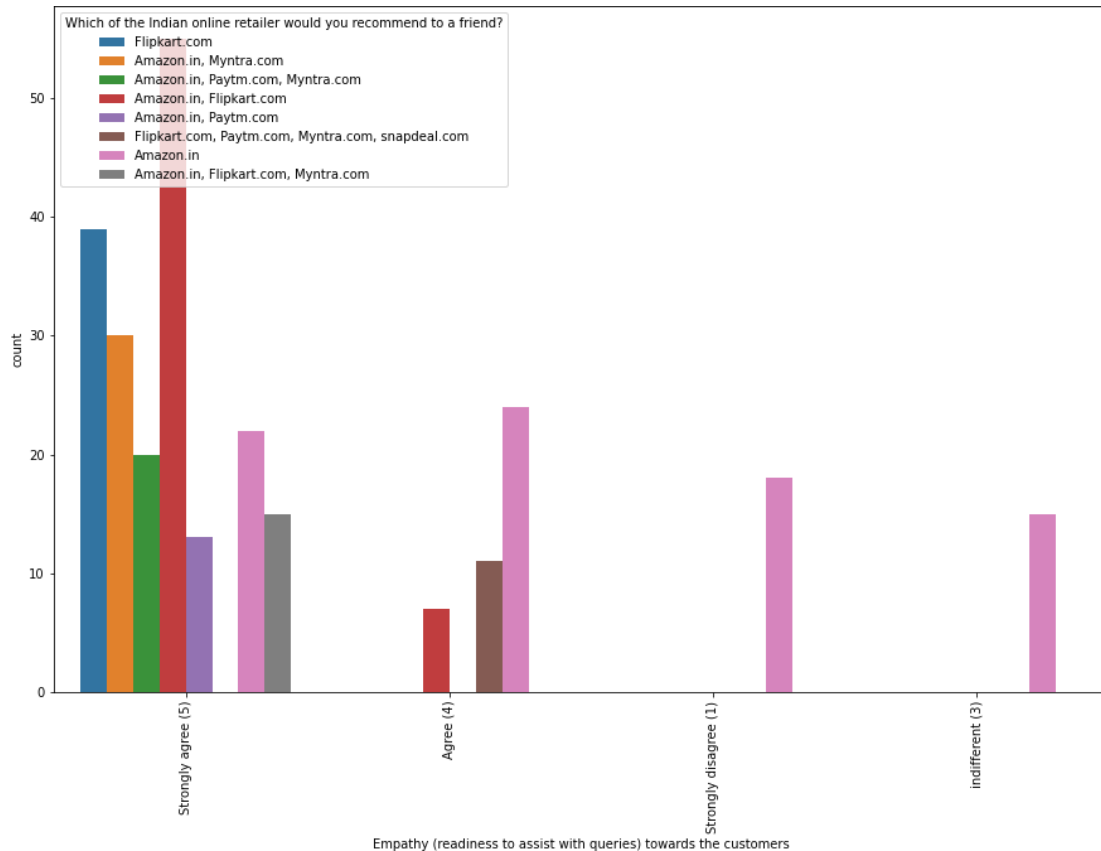
136
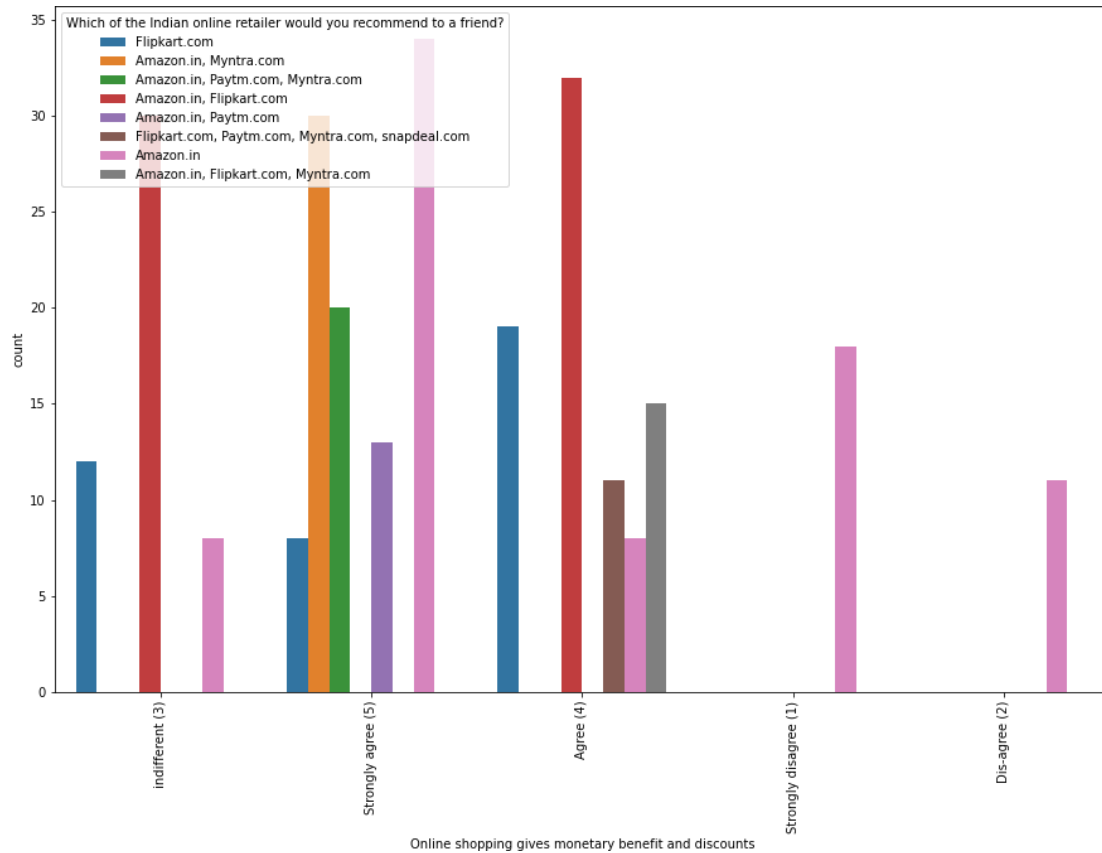
➢ Respondents suggest Amazon and Myntra provides most monetary benefit and discounts.

```
#Enjoymentisderivedfromshoppingonline
plt.figure(figsize=(10,10))
sn.countplot(x="Enjoymentisderivedfromshoppingonline",hue="WhichoftheIndianonline
retailerwouldyourecommendtoafriend?",data=df)plt.xticks(rotation=90)
plt.show()
```

Which of the Indian online retailer would you recommend to a friend?
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- Amazon.in, Myntra.com
- Amazon.in, Paytm.com, Myntra.com
- Amazon.in, Flipkart.com
- Amazon.in, Paytm.com
- Flipkart.com, Paytm.com, Myntra.com, snapdeal.com
- Amazon.in
- Amazon.in, Flipkart.com, Myntra.com

➢ People who agree with the statement enjoyment is derived from shopping online.

```
#Shoppingonlineisconvenientandflexible
plt.figure(figsize=(10,10))
sn.countplot(x="Shoppingonlineisconvenientandflexible",hue="WhichoftheIndianonlin
eretailerwouldyourecommendtoafriend?",data=df)plt.xticks(rotation=90)
plt.show()
```

Legend — Which of the Indian online retailer would you recommend to a friend?:
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- Amazon.in, Myntra.com
- Amazon.in, Paytm.com, Myntra.com
- Amazon.in, Flipkart.com
- Amazon.in, Paytm.com
- Flipkart.com, Paytm.com, Myntra.com, snapdeal.com
- Amazon.in
- Amazon.in, Flipkart.com, Myntra.com

x-axis: Shopping online is convenient and flexible (Dis-agree (2), Strongly agree (5), indifferent (3), Agree (4))

➢ respondents disaggreing with the stament Shopping online is convenient and flexible only recommend flipkart while people who strongly agree with this statment recommend multiple platforms

```
#Returnandreplacementpolicyofthee-tailerisimportantforpurchase_decision
plt.figure(figsize=(10,10))
sn.countplot(x="Returnandreplacementpolicyofthetailerisimportantforpurchasedecisio
n",hue="WhichoftheIndianonlineretailerwouldyourecommendtoafriend?",data=df)plt.xt
icks(rotation=90)
plt.show()
```

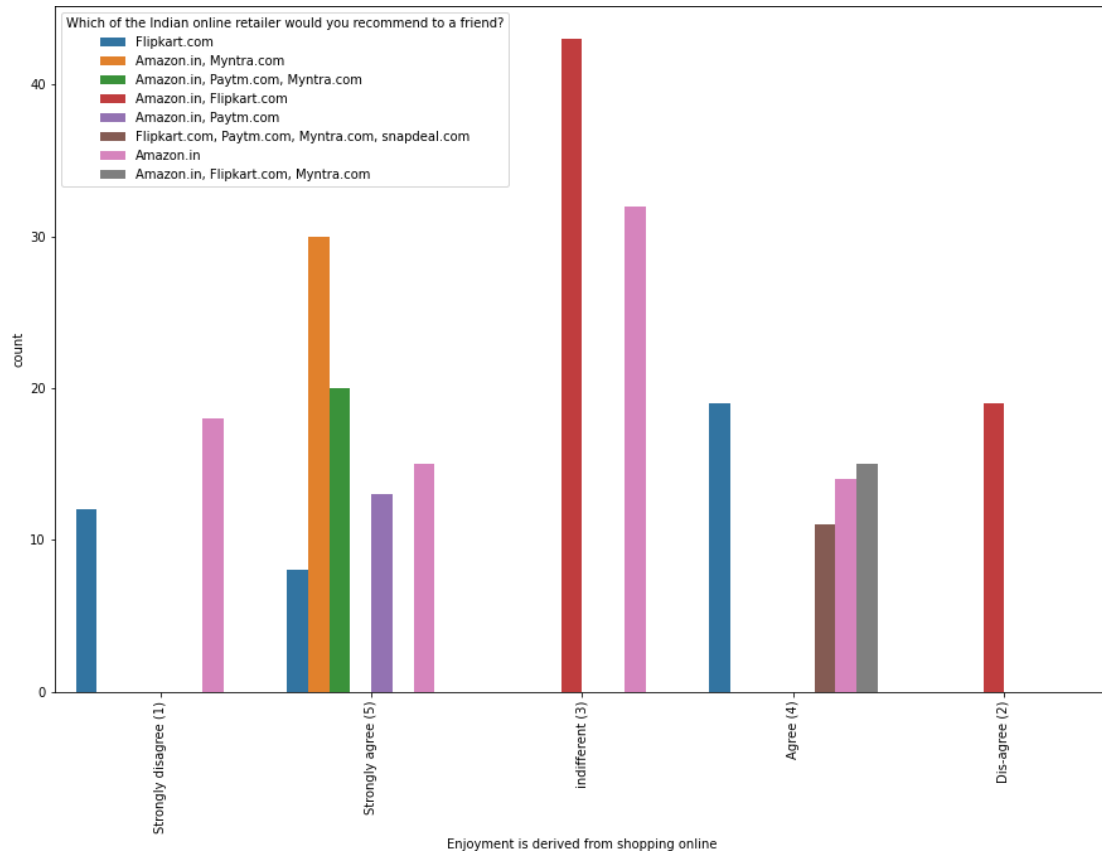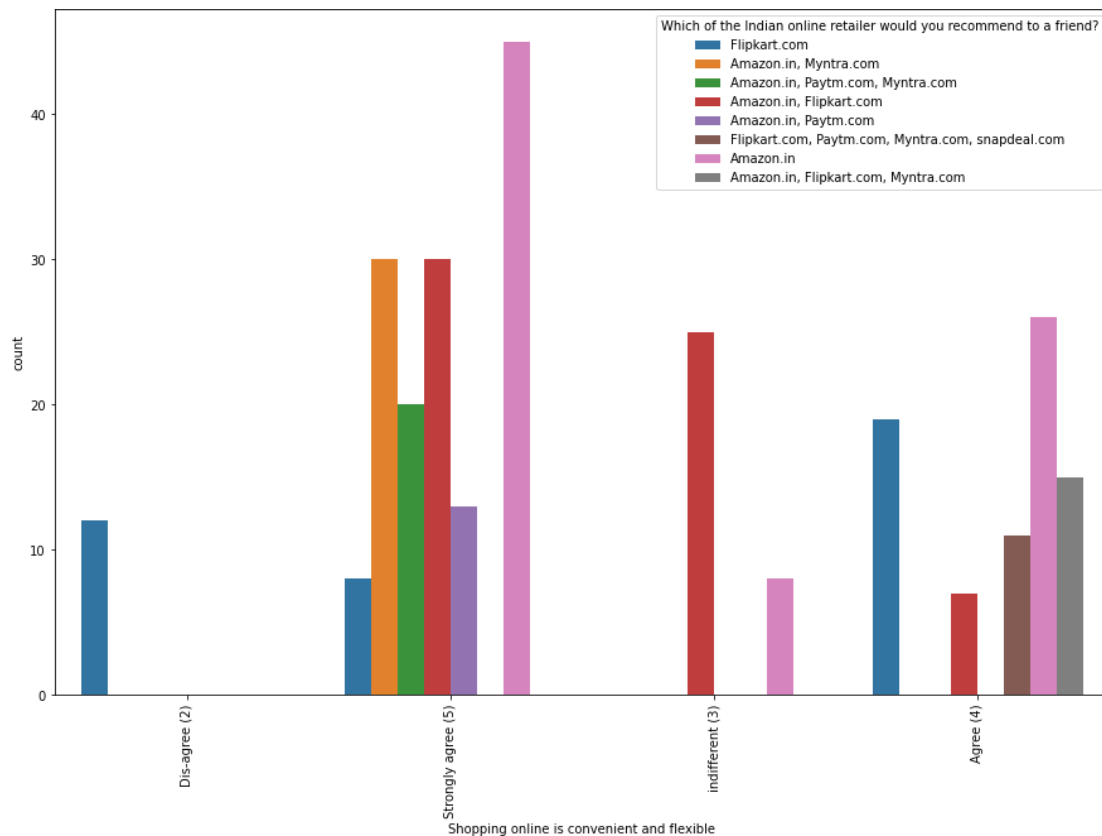Which of the Indian online retailer would you recommend to a friend?
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- Amazon.in, Myntra.com
- Amazon.in, Paytm.com, Myntra.com
- Amazon.in, Flipkart.com
- Amazon.in, Paytm.com
- Flipkart.com, Paytm.com, Myntra.com, snapdeal.com
- Amazon.in
- Amazon.in, Flipkart.com, Myntra.com

Return and replacement policy of the e-tailer is important for purchase decision
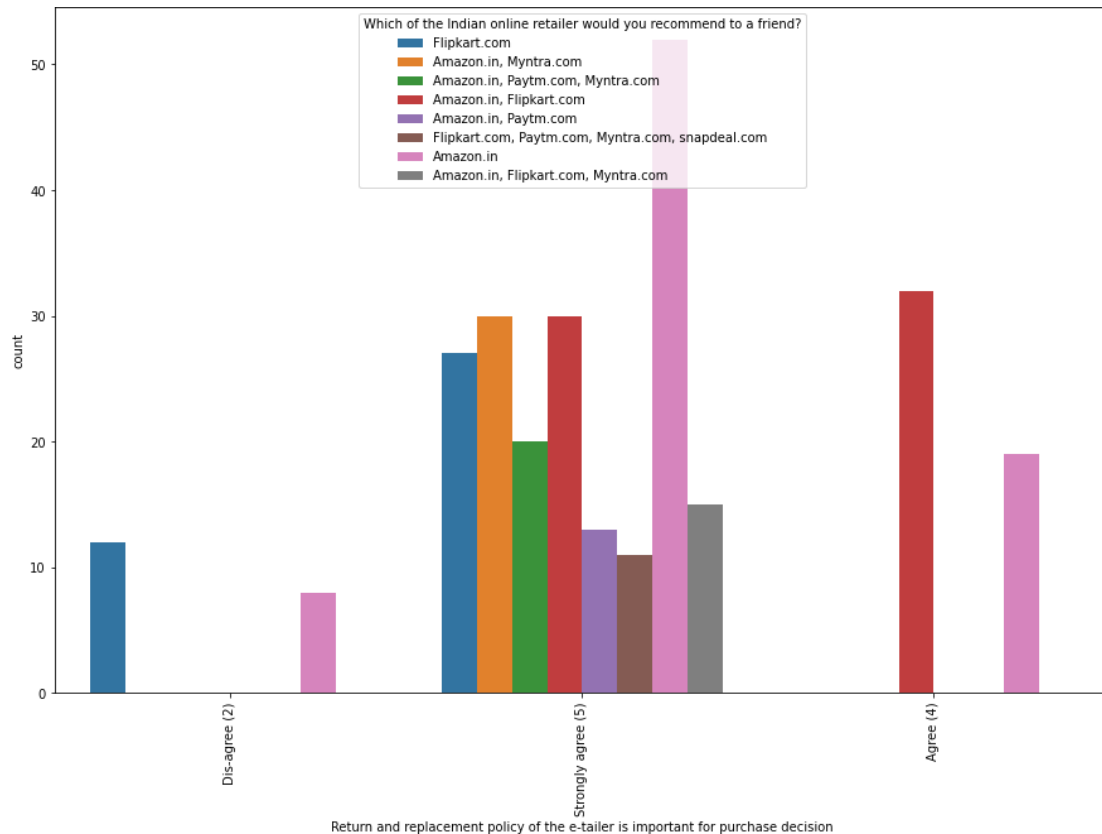
➢ Amazon is recommend it has best return and replacement policy of the e-tailer is important for purchase decision.

```
#DisplayingqualityInformationonthewebsiteimprovessatisfactionofcustomers
plt.figure(figsize=(10,10))
sn.countplot(x="DisplayingqualityInformationonthe websiteimproves␣
↪satisfactionofcustomers",hue="Whichofthe Indianonlineretailerwould␣
↪yourecommendtoafriend?",data=df)plt.xticks(rotation=90)
plt.show()
```

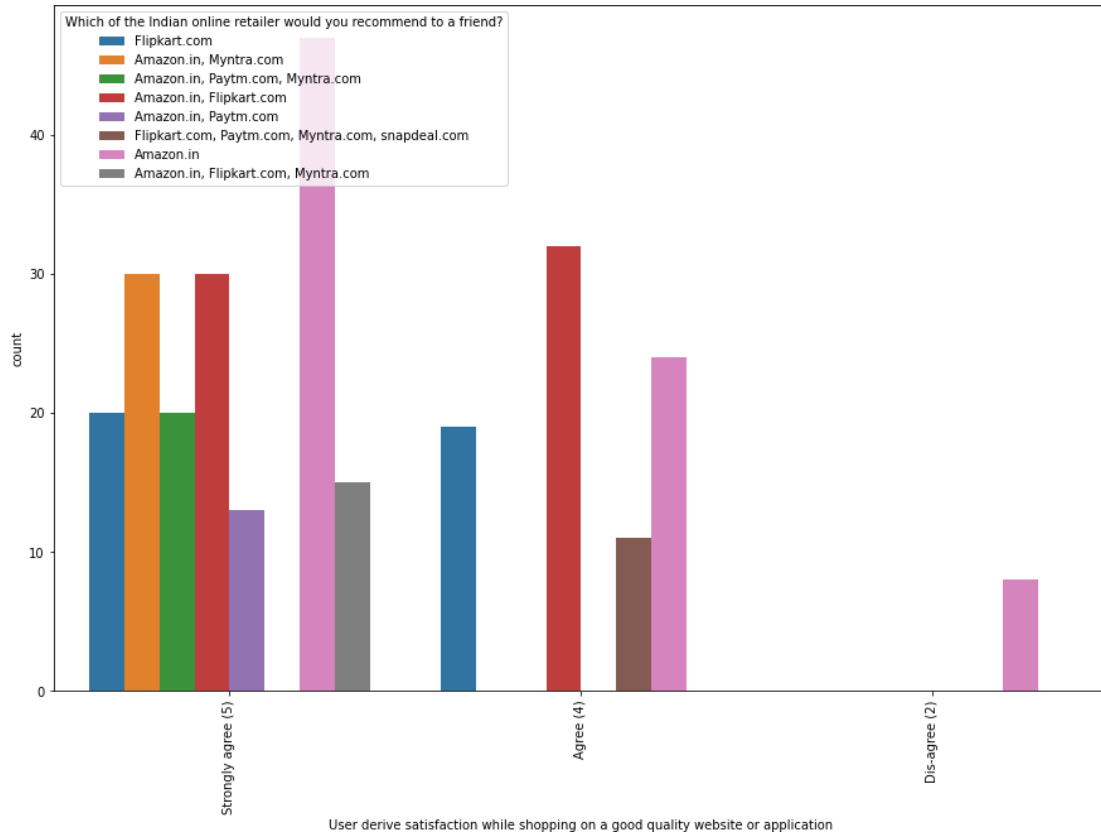Displaying quality Information on the website improves satisfaction of customers
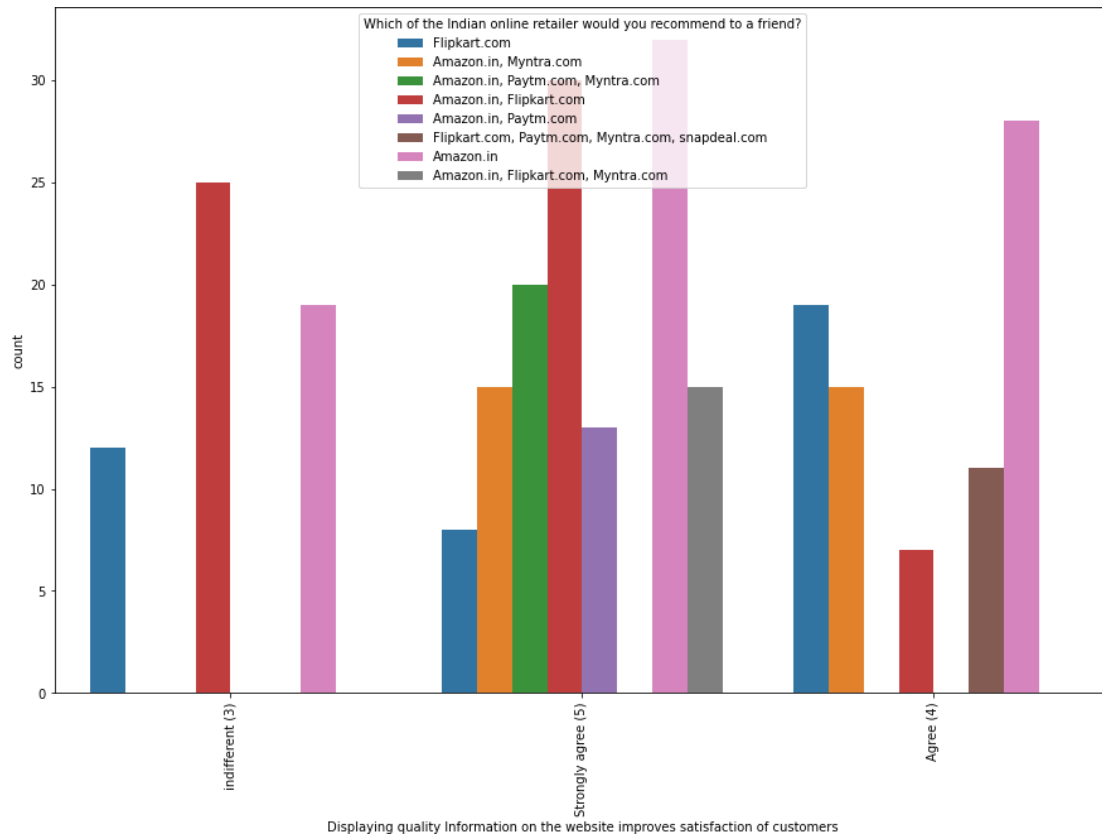
➢ On the basis of Displaying quality Information on the website improves satisfaction of customers respondents recommends Amazon and Flipkart mostly

```
#Userderive satisfaction while shopping on a good quality website orapplication
plt.figure(figsize=(10,10))
sn.countplot(x="Userderivesatisfactionwhileshoppingonagoodqualitywebsiteorapplica
tion",hue="WhichoftheIndianonlineretailerwouldyourecommendtoafriend?",data=df)plt
.xticks(rotation=90)
plt.show()
```

Which of the Indian online retailer would you recommend to a friend?
- Flipkart.com
- Amazon.in, Myntra.com
- Amazon.in, Paytm.com, Myntra.com
- Amazon.in, Flipkart.com
- Amazon.in, Paytm.com
- Flipkart.com, Paytm.com, Myntra.com, snapdeal.com
- Amazon.in
- Amazon.in, Flipkart.com, Myntra.com

➢ According to respondents suggestion amazon provide most satisfaction while shopping on good quality website or application.

```
#Usersatisfactioncannotexistwithouttrust
plt.figure(figsize=(10,10))
sn.countplot(x="Usersatisfactioncannotexistwithouttrust",hue="Whichofthe
Indianonlineretailerwouldyourecommendtoafriend?",data=df)plt.xticks(rotation=90)
plt.show()
```
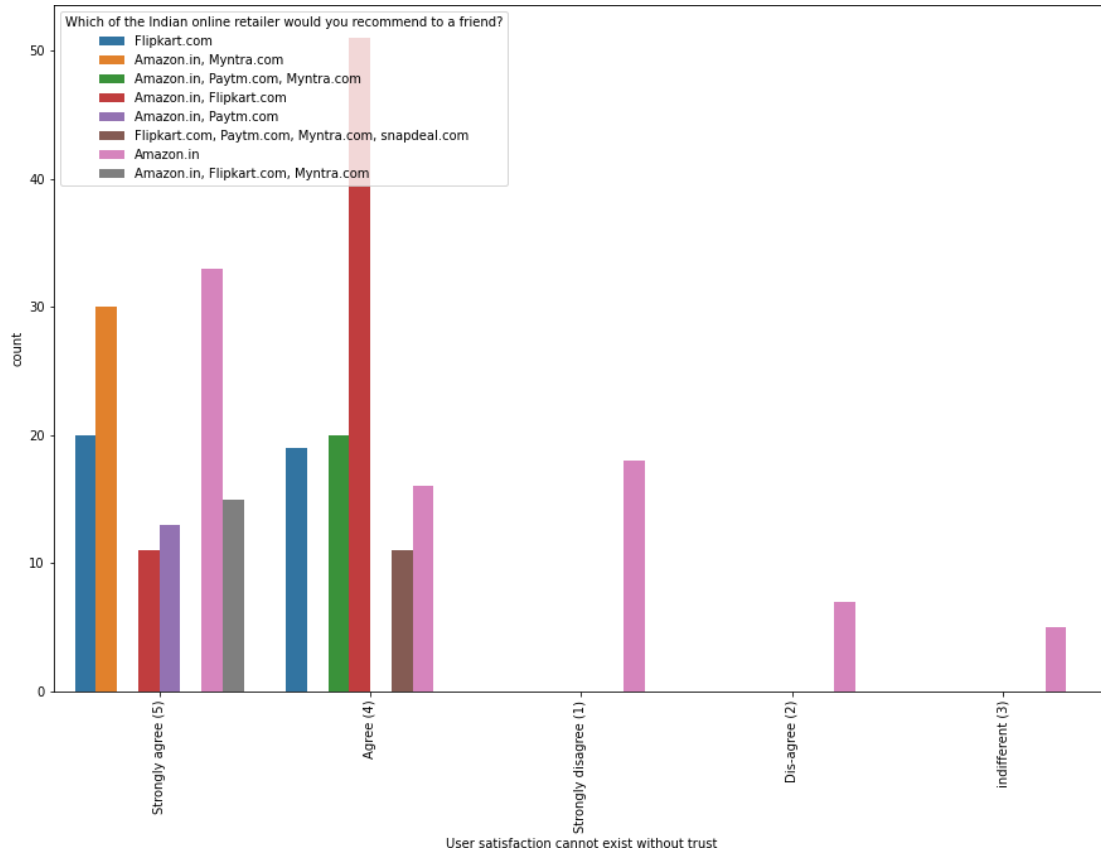
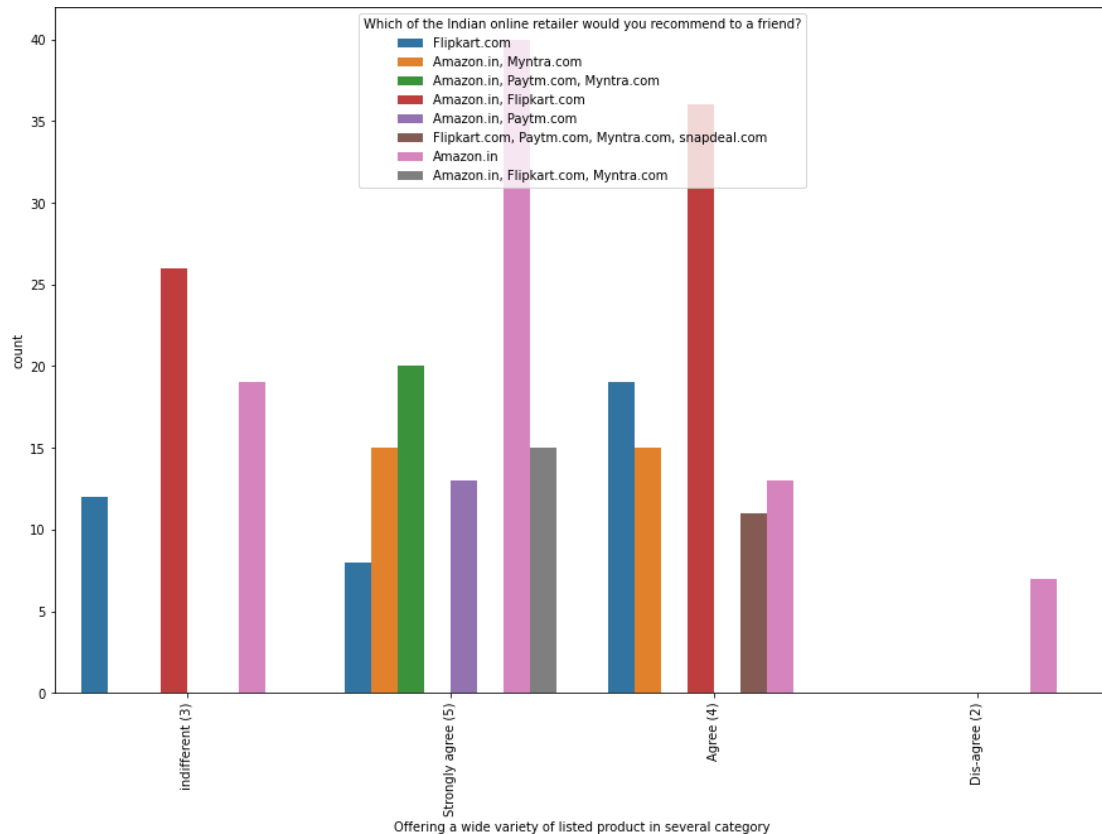➤ Respondents who believe user satisfaction cannot exist without trust suggests Amazon and Flipkart.

```
#Offeringawidevarietyoflistedproductinseveralcategory
plt.figure(figsize=(10,10))
sn.countplot(x="Offeringawidevarietyoflistedproductinseveralcategory",hue="Which
oftheIndianonlineretailerwouldyourecommendtoafriend?",data=df)
plt.xticks(rotation=90)
plt.show()
```

Which of the Indian online retailer would you recommend to a friend?
- Flipkart.com
- Amazon.in, Myntra.com
- Amazon.in, Paytm.com, Myntra.com
- Amazon.in, Flipkart.com
- Amazon.in, Paytm.com
- Flipkart.com, Paytm.com, Myntra.com, snapdeal.com
- Amazon.in
- Amazon.in, Flipkart.com, Myntra.com

Offering a wide variety of listed product in several category

➢ On the basis of offering a wide variety of listed product in several category amazon is mostly recommended.

```
#Shoppingonthewebsitegivesyouthesenseofadventure
plt.figure(figsize=(10,10))
sn.countplot(x="Shoppingonthe websitegivesyouthesenseofadventure",hue="Whichofthe
Indianonlineretailerwouldyourecommendtoafriend?",data=df)
plt.xticks(rotation=90)
plt.show()
```

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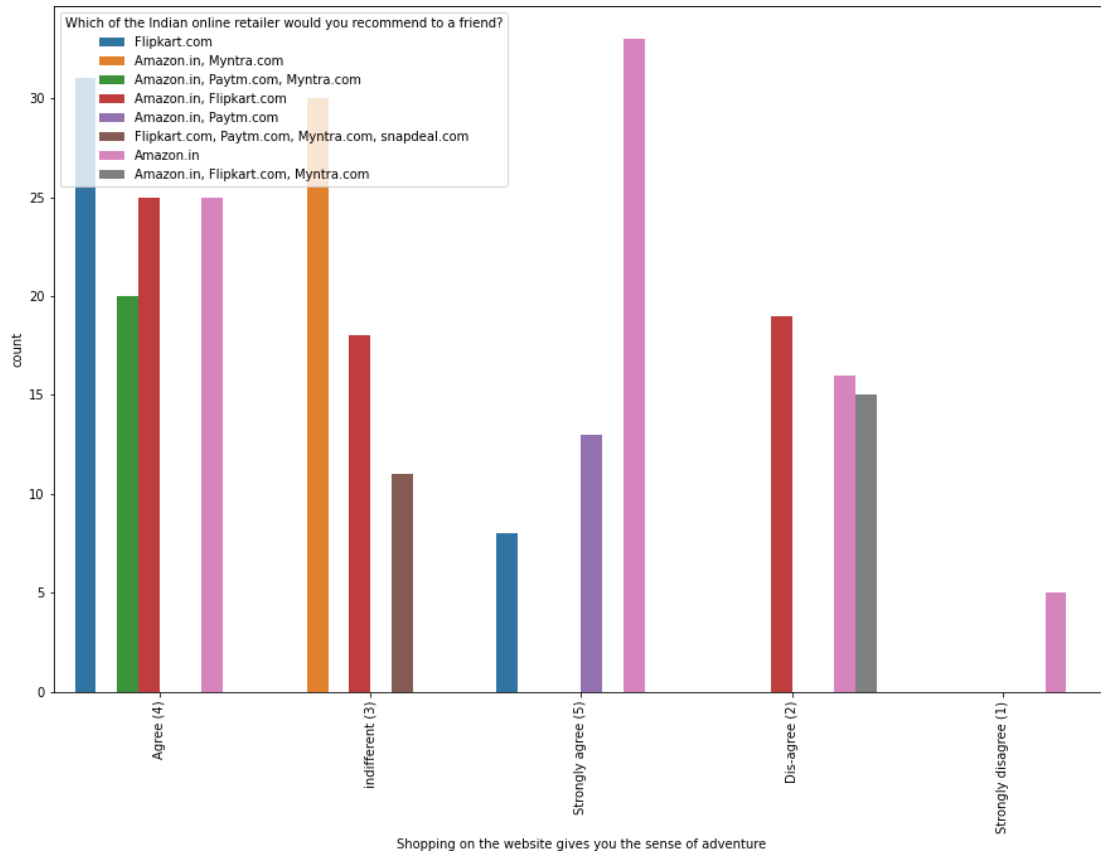
➢ According to respondents amazon suggesteded as shopping on the website gives you the sense of adventure.

```
#Youfeel gratification shopping on your favorite e-tailer
plt.figure(figsize=(10,10))
sn.countplot(x="Youfeelgratificationshoppingonyourfavoritetailer",hue="Whichofthe
Indianonlineretailerwouldyourecommendtoafriend?",data=df)
plt.xticks(rotation=90)
plt.show()
```
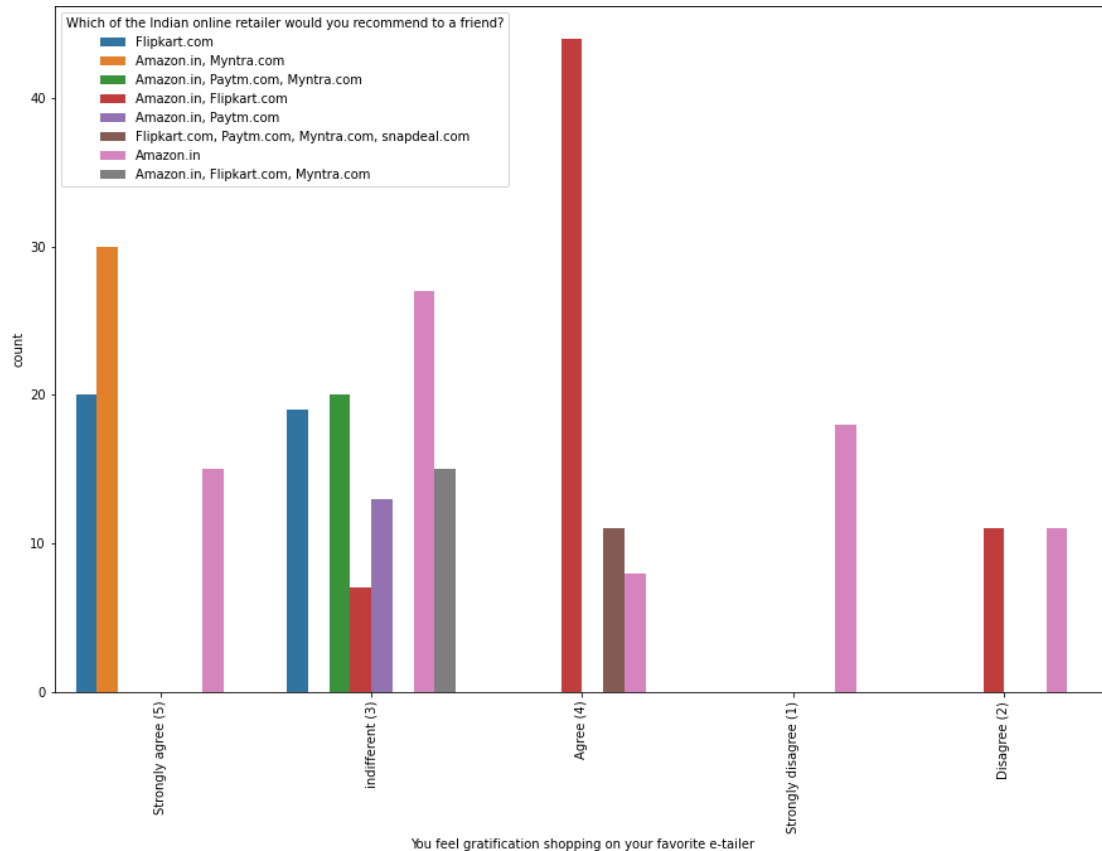
➢ Respondents who feels gratifaction shopping on your favorite e-tailer mostly suggest Myntra/Amazon/Flipkart.

```
#Getting value for money spent
plt.figure(figsize=(10,10))
sn.countplot(x="Gettingvalueformoneyspent",hue="WhichoftheIndianonlineretailerwo
uldyourecommendtoafriend?",data=df)plt.xticks(rotation=90)
plt.show()
```
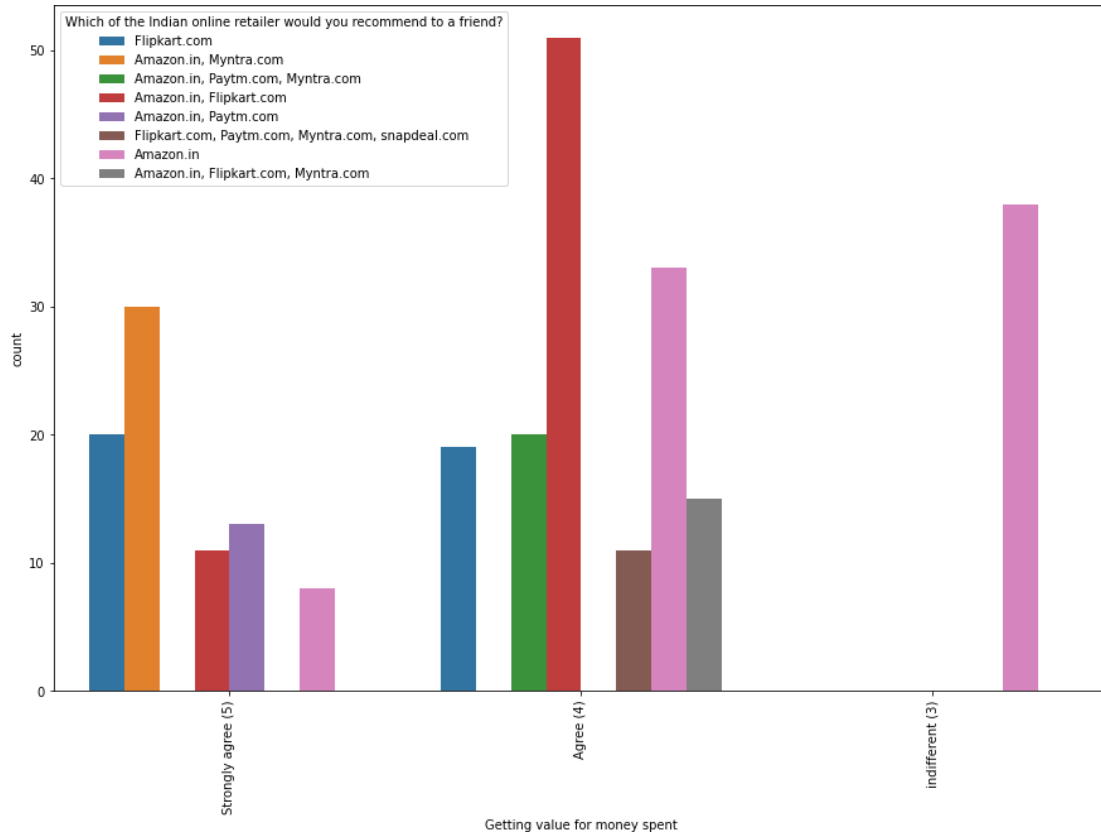
- ➢ Respondents suggest flipkart/myntra /amazon provides best value for money spent.

```
#What is the operating system (OS) of your device?/'Which of the Indian online␣
 ↪retailer would you recommend to a friend?
df_plot=df.groupby(["What is the operating system(OS)of your device?",␣
 ↪"Which of the Indian online retailer would you recommend to a friend?"]).
 ↪size().reset_index().pivot(columns="What is the operating system(OS)of␣
 ↪your device?",index="Which of the Indian online retailer would you␣
 ↪recommend to a friend?",values=0)
df_plot.plot(kind="barh",stacked=True,figsize=(10,10),colormap="Set1",)plt.show(
)
```
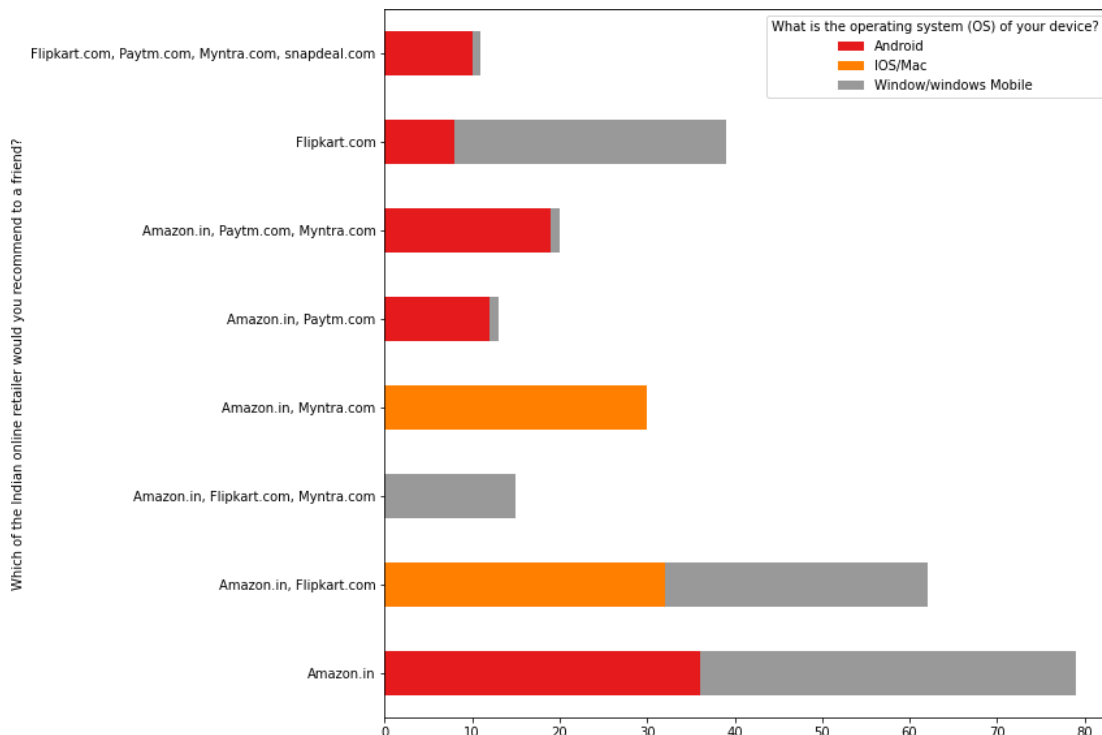
- ➢ Respondents who use window mobile are less likely to use myntra.com
- ➢ Respondents who uses IOS/Mac more likely to use Myntra.com

```
#Whichcitydoyoushoponlinefrom?/WhichoftheIndianonlineretailerwould
↪yourecommendtoafriend?
df_plot=df.groupby(["Whichcitydoyoushoponlinefrom?","Whichofthe
↪Indianonlineretailerwouldyourecommendtoafriend?"]).size().
↪reset_index().pivot(columns="Whichofthe Indianonlineretailerwouldyou
↪recommendtoafriend?",index="Whichcitydoyoushoponlinefrom?",
↪values=0)
df_plot.plot(kind="barh",stacked=True,figsize=(10,10),colormap="Set1",)plt
.legend(loc="lowerright",bbox_to_anchor=(1.6,.75),ncol=1) plt.show()
```
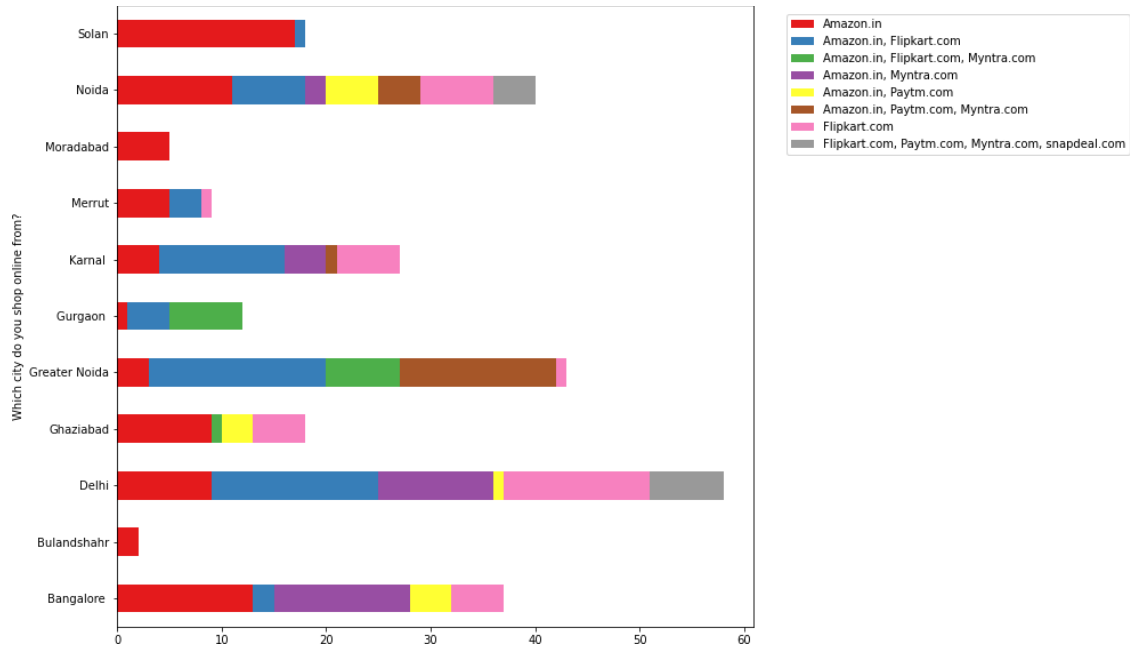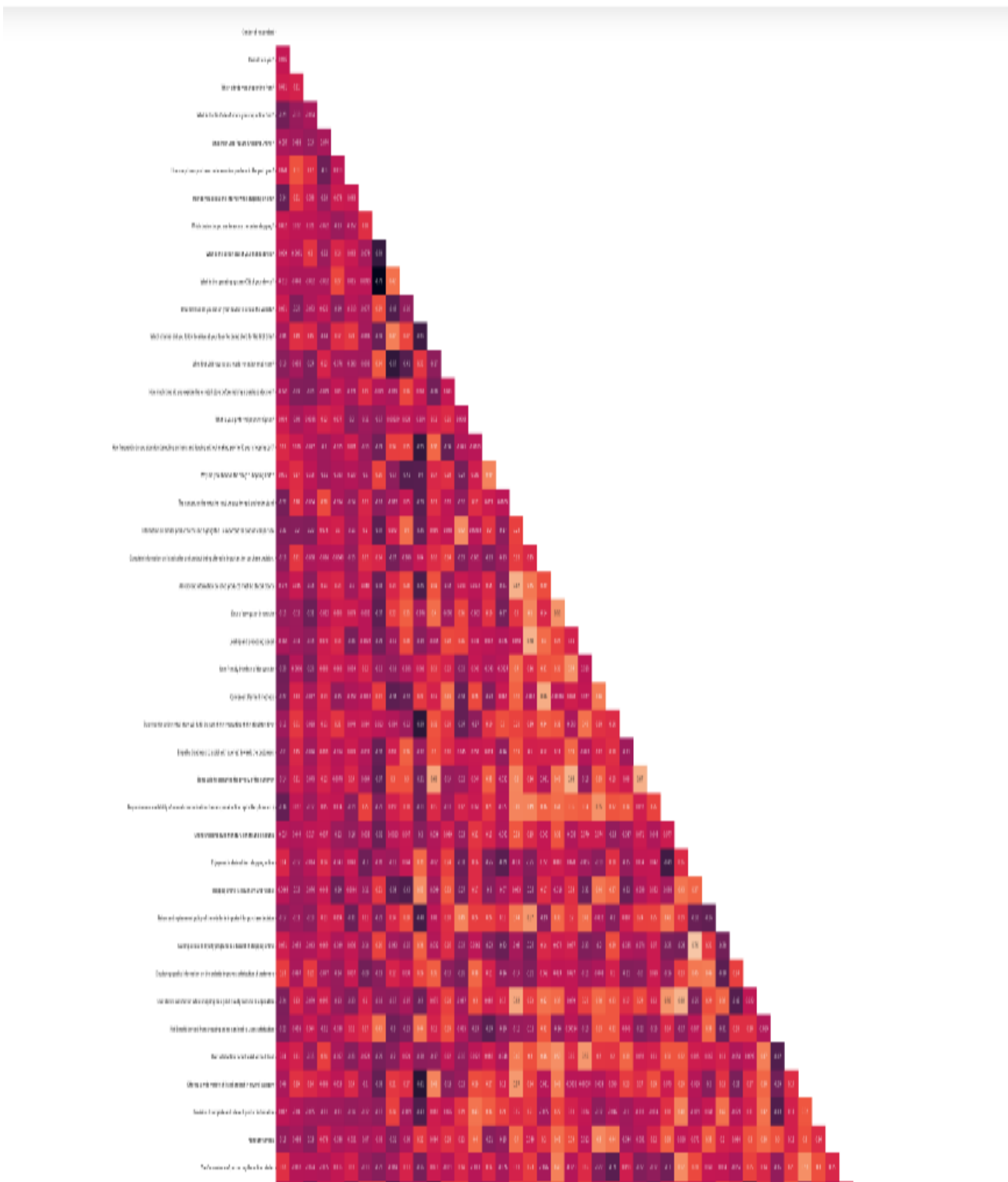
- ➢ Cities with less shoppers prefer Amazon most for example Solan, Noida, Moradabad, Bulandshahr, Merrut
- ➢ Cities with more number of shoppers recommends several platforms

Multivariate Analysis

```
#checckingcorrelation
cor=df.corr()
matrix=np.triu(df.corr())plt
.figure(figsize=(60,60))
sn.heatmap(cor,annot=True,mask=matrix,cbar=False)plt.show()
```

➢ As there is so much variable so with heat map we can't determine the coorelation easily.

➢ However the one thing we can say .There may be cases of multicolinearity.

```
#sincetherearetomanycolumns,sortingcorrelationwithattritionin␣
↪desendingorder
df.corr()["WhichoftheIndianonlineretailerwouldyourecommendtoafriend?
↪"].sort_values(ascending=False)
```

- WhichoftheIndianonlineretailerwouldyourecommendtoafriend?
  1.000000
- Completerelevantdescriptioninformationofproducts
  0.680926
- Reliabilityofthewebsiteorapplication
  0.542711
- Easytousewebsiteorapplication
  0.541713
- Presenceofonlineassistancethroughmulti-channel
  0.503836
- PerceivedTrustworthiness
  0.483457
- Whydidyouabandonthe"Bag""ShoppingCart"?
  0.448997
- Longerdeliveryperiod
  0.428419
- Changeinwebsite/Applicationdesign
  0.423877
- Availabilityofseveralpaymentoptions
  0.416729
- Quicknesstocompletepurchase
  0.398754
- Fastloadingwebsitespeedofwebsiteandapplication
  0.335192
- Visualappealingwebpagelayout
  0.316054
- Returnandreplacementpolicyofthee-tailerisimportantforpurchasedecision
  0.311562
- WhatisyourpreferredpaymentOption?
  0.308523
- Loadingandprocessingspeed
  0.298070
- Howmuchtimedoyouexplorethee-retailstorebeforemakingapurchasedecision?
  0.290108
- Afterfirstvisithowdoyoureachtheonlineretailstore?

0.279474
- Longerpageloadingtime(promotionsalesperiod)
0.278281
- Longertimetogetloggedin(promotionsalesperiod)
0.261774
- Websiteisasefficientasbefore
0.252154
- Provisionofcompleteandrelevantproductinformation
0.252121
- Latedeclarationofprice(promotionsalesperiod
0.231029
- Wildvarietyofproductonoffer
0.208213
- Youfeelgratificationshoppingonyourfavoritee-tailer
0.179228
- Fromthefollowingtickany(orall)oftheonlineretailersyouhaveshoppedfrom;
0.170697
- SinceHowLongYouareShoppingOnline?
0.136106
- Informationonsimilarproducttotheonehighlightedisimportantforproductcomparison
0.127227
- Frequentdisruptionwhenmovingfromonepagetoanother
0.122953
- Howfrequentlydoyouabandon(selectinganitemsandleavingwithoutmakingpayment)yourshoppingcart?
0.119196
- Whichdevicedoyouusetoaccesstheonlineshopping?
0.099425
- Trustthattheonlineretailstorewillfulfillitspartofthetransactionatthestipulatedtie
0.095426
- Shoppingonyourpreferrede-tailerenhancesyoursocialstatus
0.074666
- Whatisthescreensizeofyourmobiledevice?
0.074453
- Shoppingonthewebsitehelpsyoufulfillcertainroles
0.069104
- Responsivenessavailabilityofseveralcommunicationchannels(emailonlinereptwiphoneetc.)
0.035519
- Limitedmodeofpaymentonmostproducts(promotionsalesperiod)
0.028901
- Shoppingonthewebsitegivesyouthesenseofadventure
0.008540
- Genderofrespondent
−0.003372
- Howdoyouaccesstheinternetwhileshoppingon-line?
−0.012073
- Securityofcustomerfinancialinformation−0.01485

- Userderivesatisfactionwhileshoppingonagoodqualitywebsiteorapplication
  -0.024465
- UserfriendlyInterfaceofthewebsite
  -0.032348
- ConvenientPaymentmethods
  -0.064096
- Whichchanneldidyoufollowtoarriveatyourfavoriteonlinestoreforthefirst time?   -0.071146
- Privacyofcustomers'information
  -0.071876
- Monetarysavings
  -0.079458
- Speedyorderdelivery
  -0.089890
- WhatisthePinCodeofwhereyoushoponlinefrom?
  -0.097320
- NetBenefitderivedfromshoppingonlinecanleadtouserssatisfaction
  -0.126779
- Howoldareyou?
  -0.135263
- Longertimeindisplayinggraphicsandphotos(promotionsalesperiod)
  -0.140519
- Whichcitydoyoushoponlinefrom?
  -0.142123
- Howmanytimesyouhavemadeanonlinepurchaseinthepast year?
  -0.152028
- Offeringawidevarietyoflistedproductinseveralcategory
  -0.154861
- Whatistheoperatingsystem(OS)ofyourdevice?
  -0.159579
- Onlineshoppinggivesmonetarybenefitanddiscounts
  -0.165739
- Completeinformationonlistedsellerandproductbeingofferedisimportantforpurchasedecision.
  -0.172001
- Whatbrowserdoyourunonyourdevicetoaccessthewebsite?
  -0.184207
- Easeofnavigationinwebsite
  -0.193896
- DisplayingqualityInformationonthewebsiteimprovessatisfactionofcustomers
  -0.197634
- TheConvenienceofpatronizingtheonlineretailer
  -0.205473
- Gettingvalueformoneyspent
  -0.230271
- Empathy(readinesstoassistwithqueries)towardsthecustomers
  -0.232305
- Usersatisfactioncannotexistwithouttrust

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−0.241386
- Shoppingonlineisconvenientandflexible
  −0.272532
- Thecontentonthewebsitemustbeeasytoreadandunderstand
  −0.349016
- Beingabletoguaranteetheprivacyofthecustomer
  −0.358734
- Allrelevantinformationonlistedproductsmustbestatedclearly
  −0.362879
- Gainingaccesstoloyaltyprogramsisabenefitofshoppingonline
  −0.400583
- Enjoymentisderivedfromshoppingonline
  −0.436613

Name:WhichoftheIndianonlineretailerwouldyourecommendtoafriend?,dtype:float
64

1 Thetoppositivelycorrelatedvariablewith"WhichoftheIndianonlineretailerwouldyourecommendtoafriend?"are:-

[211]: *#Complete relevant description information of products*
↪ 0.680926
#Reliability of the website or application
↪ 0.542711
#Easy to use website or application
↪ 0.541713
#Presenceofonlineassistancethroughmulti-channel
↪ 0.503836
#PerceivedTrustworthiness
↪ 0.483457

2 Thetopnegativelycorrelatedvariablewith"WhichoftheIndianonlineretailerwouldyourecommendtoafriend?"are:-

[212]: *#The content on the website must be easy to read and understand*
↪ -0.349016
#Beingabletoguaranteetheprivacyofthecustomer
↪ -0.358734
#Allrelevantinformationonlistedproductsmustbestatedclearly
↪ -0.362879
#Gaining access to loyalty programs isa benefit of shopping online
↪ -0.400583
#Enjoymentisderivedfromshoppingonline
↪ -0.436613

CONCLUSION

As in the final conclusion in which user were asked which online retailer they would recommend to a friend. Most of the respondents says Amazon. in because it is providing all the features that users want. Website is efficient and it is fast loading , It give complete , relevant description and information of products . It is reliable and quick to complete the purchase. Amazon give speedy delivery to its customers and there is several payment option avaliable on the website. It provide online assistance through multi channels.Providing good deals on products. Amazon have a user friendly interface and has visual appealing webpage layout. Amazon also offers wide variety of products and its application is easy to use . lastly the main thing why user recommend it is because of its Trustworthiness and also its robust Security in protecting customer financial information and their Privacy information .

They are some cons like the amazon website topping the list In Frequent disruption when moving from one page to another this con company should see and improve it to give overall best experience to the users.

This paper investigated the factors that influence the online customers repeat purchase intention. During the process various data processing methods has been used to clean the data. The project contains extensive EDA considering every aspect. The major finding is Complete relevant description of products and reliability of the website increases chances of customer retention. However, if the content on the website in not easy to read and understand or can't guarantee the privacy of the customer will lead to chances of customer retention. This project has increased my understanding of the concept. During the research I came across various challenges and while solving them I learned a lot of new things. How to plot different charts. For example, I learned how to plot subplot. How to handle legends manually. How to group data and visualize that. The limitation of the solution provided is that the data carried a lot of unrealistic values. Apart from that my laptop took to much time while running certain command where I lost a lot of precious time

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