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

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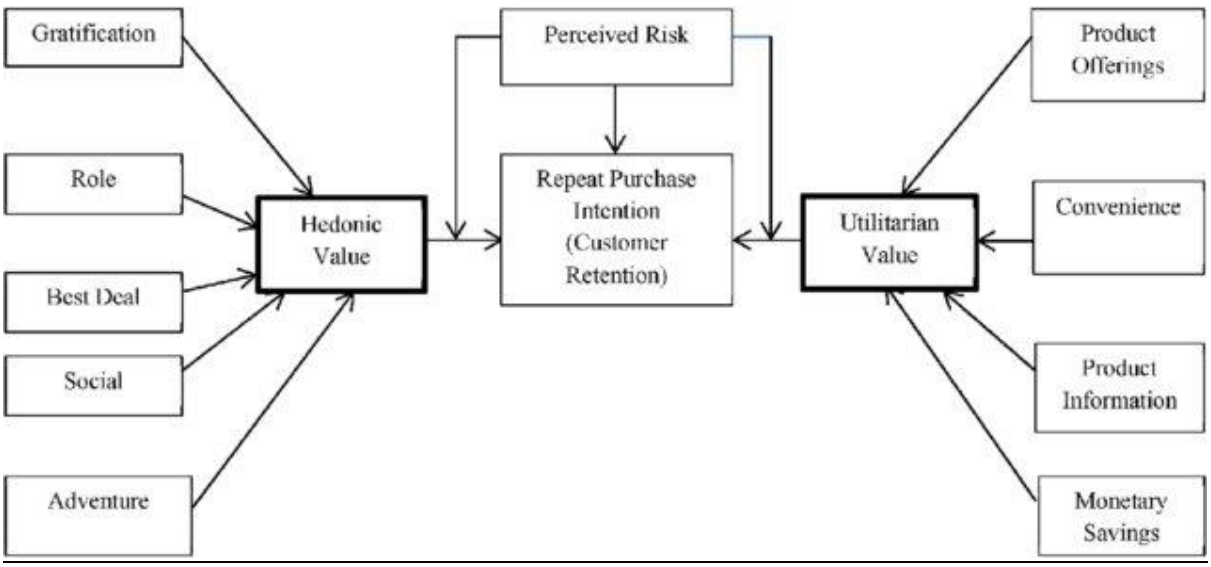
DEFINITION

Project Overview

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.



So, as it is obvious that the online shopping has got tremendous popularity in the last few years and it has spanned a big proportion of the market because of its large number of facilities like return and replacement facility, choice at your doorstep, getting very good discounts and offers, easy to compare the products without going into the markets based on some reviews and the features associated with them, easy home to delivery facility, savings of time and money and many more features.

This is very enjoying shopping on these online platforms but there are lot of factors which make this platform somewhat unhandy for some customers. Some of the factors are common to all the companies as some people don't enjoy this online shopping despite its benefits as they enjoy to shop in the markets because they enjoy wondering here and there in the market and enjoy gossips there which is not possible on online shopping. Some other factors are also there like trust issues, not availability cards, other online payment options, illiteracy etc. These issues are common to all the e-retail companies which they all suffer. But there are also some other issues which are associated with some particular companies. That's why some companies are growing at a faster rate while some other are still at the same position or growing a bit slower. There are many issues which affect these companies like if some company is providing better offers than others, it' very obvious that the customers will shift to that company or if some company has a vast range of products, then also that company gets the better response of the customers.

There are many other issues which affect the business of an e-retail company. This project and the dataset provided with it enlightens these issues in some brief. This is what this project is all about as discussed further.

Problem Statement

The goal is to analyse the dataset provided to us with the description of the problem. We are provided two excel file which are interpreting the things same but the only difference is that one file is in the form in which all the values of the columns are in string or object format whereas in the other file, these values are in the encoded format. The goal of this project is

1). To analyse the outcomings of this dataset and to interpret their effects on the concerned companies/authorities.

2). For this analysis, the EDA part needs to be done on this dataset and using visualization techniques, the inferences or conclusions need to be mentioned.

ANALYSIS AND VISUALIZATION

The dataset provided to us contains 269 rows and 71 columns. This dataset can be divided into three different parts for better understanding:

a). One: is the customers' basic information and their ways to approach to the online shopping sites and their usual behaviour on these sites. This information is available from column no 1 to column no. 17.
b). Second: is the basic survey report from the customers regarding their demands or choices from these companies. This information is available from column no.18 to column no.47.
c). Third: is their response to these companies based on the performances of these companies based on different parameters. This information is available from column no.48 to second last column and in the very last column of this dataset, their choice of best company based on the above all parameters and hence their reference to their friends based on their choices.

So, I downloaded this dataset and started working on this. I started working on the dataset which was having string values for all of the columns. Then later on, I also downloaded its encoded counterpart which I used to calculate the correlation between some columns to justify my findings as will be explained further.

Libraries Used:

- **Pandas as pd**
- **Numpy as np**
- **Matplotlib.pyplot as plt**
- **%matplotlib inline**
- **Seaborn as sns**
- **imported warnings**

Firstly, I lowered down the case of all the column values. Then I replaced all companies' names like Amazon.in by their first name only like Amazon as it was consuming more space and was started overlapping to each other in the graphs. I used the following code for this:

```
df=df.replace(regex=['Amazon.in','Flipkart.com','Snapdeal.com','Myntra.com','Paytm.com','Amazon.com','snapdeal.com'],value=['Amazon','Flipkart','Snapdeal','Myntra','Paytm','Amazon','Snapdeal'])
```

Then I checked the datatypes of all the columns and found that the datatypes of all the columns was object (or string) except one column pincode which was having int datatyoe.

Then I checked Null values for this dataset using the code

df.isna().sum()

and got in output

Output:

```
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
```

Again , I verified that if there is any null value present in the dataset by using:

df.isna().sum().sum()

Output:

0

And got the output 0 means there was no null vale present and hence, no imputation was required.

Then in order to visualize each column one by one, I decided to plot firstly countplots for each column. For this, I made one fuction countplot(i) for which there is only one input parameter i, which is the index of column in the dataframe. I printed

- **value_counts() for each column**
- **mode value for each column and its occurrence's percentage.**
- **Also plotted counplots of the count values for the first 17 columns which are showing only customers' identification and their behaviour on the particular company portal.**

- **Then for the next 18 to 47 number columns , which are depicting the suggestions to these companies in order to increase their customer's base, I also plotted countplots for their value_counts(). These columns have the options agree and strongly agree, so I clubbed them into one particular form agree and printed my results according to its ratio and then derived results based on this factor.**
- **In the last columns from column no 48 to the last column no. 71, I plotted the lineplots for the value_counts(). These columns have the options for the customers to choose any company and combination of these companies like Amazon independently and also, Amazon can be clicked with some other company like Myntra. So, firstly, I separated these companies from their combinations and then plotted countplots for these companies based on their selections/chosen for ticks by the customers. I also printed the occurrence of the company which has been chosen the most by the customers with their ratio of occurences and also for the company which has been chosen the least for that particular column.**
- **Here, I categorized these columns into two categories – one which is giving the positive likes and the other which is giving the negative likes.**
- **Positive votes : - these are the votes which every company got in the columns where a company is getting votes in the way if it's doing good things in the favour of customers like: as amazon is maintaining the privacy of the customers better, it's being selected by the customers the most and hence, got positive likes.**
- **second is Negative votes:- these are the votes which a company is getting in the columns where a company is getting votes in the way it's not doing good things in the favour of customers, like, if the webpage of the amazon is getting more time to download, then it's not in the favour of customers and hence, getting Negative likes.**
- **columns no. from 62 to 69 are producing negative likes for any company. i have mentioned this special thing in my function countplot().**
- **I also saved these positive likes and negative likes in respective variables for all the companies and in the last, I printed the values of these positive likes and negative likes for all the companies and plotted these values in the same graph.**

The code for this function is as follows:

```
def countplot (i):
    global pos_am
    global pos_fl
    global pos_sn
```

```
    global pos_pa
    global pos_my
    global neg_am
    global neg_fl
    global neg_sn
    global neg_pa
    global neg_my
    if i<=46:
        plt.figure(figsize=(5,5))
        cv=df[col[i]].value_counts()
        print(f"for column {col[i]},\ncount values are \n{cv}\n")
        sns.countplot(df[col[i]])
        plt.xticks(rotation=90)
        if i !=3:
            mod=df[col[i]].mode()[0]
            print(f"ratio of {mod} is : \t{round((cv[0]/269)*100,2)} %")
        else:
            mod=df[col[i]].unique()[2]
            print(f"ratio of {mod} is : \t{round((((df[col[3]]==201308).value_counts()[1])/269)*100,2)} %\n")
        if i >= 17 and i<=46:
            a=(df[col[i]]=='Strongly agree (5)').value_counts()[1]
            b=(df[col[i]]=='Agree (4)').value_counts()[1]
            print(f"ratio of Totally Agreed count is : \t{round(((a+b)/269)*100,2)} %")
    if i >46:
        plt.figure(figsize=(10,5))
        cv=df[col[i]].value_counts()
```

```
    print(f"for column {col[i]},\ncount values are \n{cv}\n")
    mod=df[col[i]].mode()[0]
    print(f"ratio of {mod} is : \t{round((cv[0]/269)*100,2)} %")
    l=[]
    for j in df[col[i]]:
        if 'Amazon' in j:
            l.append('Amazon')
        if 'Flipkart' in j:
            l.append('Flipkart')
        if 'Paytm' in j:
            l.append('Paytm')
        if 'Snapdeal' in j:
            l.append('Snapdeal')
        if 'Myntra' in j:
            l.append('Myntra')
    plotno=1
    plt.subplot(2,1,plotno)
    plt.xticks(rotation=90)
    plt.title('count plot for count values')
    df[col[i]].value_counts().plot.line()
    plt.show()
    plotno=2
    plt.title("Count Plot for individual companies")
    sns.countplot(l)
    plt.show()

k=[l.count('Amazon'),l.count('Flipkart'),l.count('Snapdeal'),l.count('Paytm'),l.count('Myntra')]
```

```
    ind=k.index(max(k))
    ind1=k.index(min(k))
    print('No. of times Amazon chosen: '+str(l.count('Amazon')))
    print('No. of times Flipkart chosen: '+str(l.count('Flipkart')))
    print('No. of times Snapdeal chosen: '+str(l.count('Snapdeal')))
    print('No. of times Paytm chosen: '+str(l.count('Paytm')))
    print('No. of times Myntra chosen: '+str(l.count('Myntra')))
    m=['Amazon','Flipkart','Snapdeal','Paytm','Myntra']
    print(f"maximum times {max(k)} the company {m[ind]} chosen, whose %age becomes {round((max(k)/269)*100,2)} %")
    print(f"minimum times {min(k)} the company {m[ind1]} chosen, whose %age becomes {round((min(k)/269)*100,2)} %")
    if (i>=47 and i<=60) or i==67 or i== 69 or i==70:
        pos_am+=l.count('Amazon')
        pos_fl+=l.count('Flipkart')
        pos_sn+=l.count('Snapdeal')
        pos_pa+=l.count('Paytm')
        pos_my+=l.count('Myntra')
    if i>=61 and i<=68:
        neg_am+=l.count('Amazon')
        neg_fl+=l.count('Flipkart')
        neg_sn+=l.count('Snapdeal')
        neg_pa+=l.count('Paytm')
        neg_my+=l.count('Myntra')
    if i == 70:
        print('overall positive likes for Amazon :'+str(pos_am))
        print('overall positive likes for Flipkart :'+str(pos_fl))
        print('overall positive likes for Snapdeal :'+str(pos_sn))
```

```
print('overall positive likes for Paytm :'+str(pos_pa))
print('overall positive likes for Myntra :'+str(pos_my))
print('\n\noverall negative likes for Amazon :'+str(neg_am))
print('overall negative likes for Flipkart :'+str(neg_fl))
print('overall negative likes for Snapdeal :'+str(neg_sn))
print('overall negative likes for Paytm :'+str(neg_pa))
print('overall negative likes for Myntra :'+str(neg_my))
```

I also assigned the above global values with 0 values and in the end, these global values contained the cumulative positive and negative likes for all the columns.

I also called this function by copy and paste only one code

```
countplot(c)
c+=1
```

I assigned c=0 in the very starting and then copy and paste the above code and hence, I got the outputs for each column one by one and in this way, I didn't need to remember the number of column which I was analysi ng at that time.

Now, let's visualize the outcomings I got from analysing this dataset.

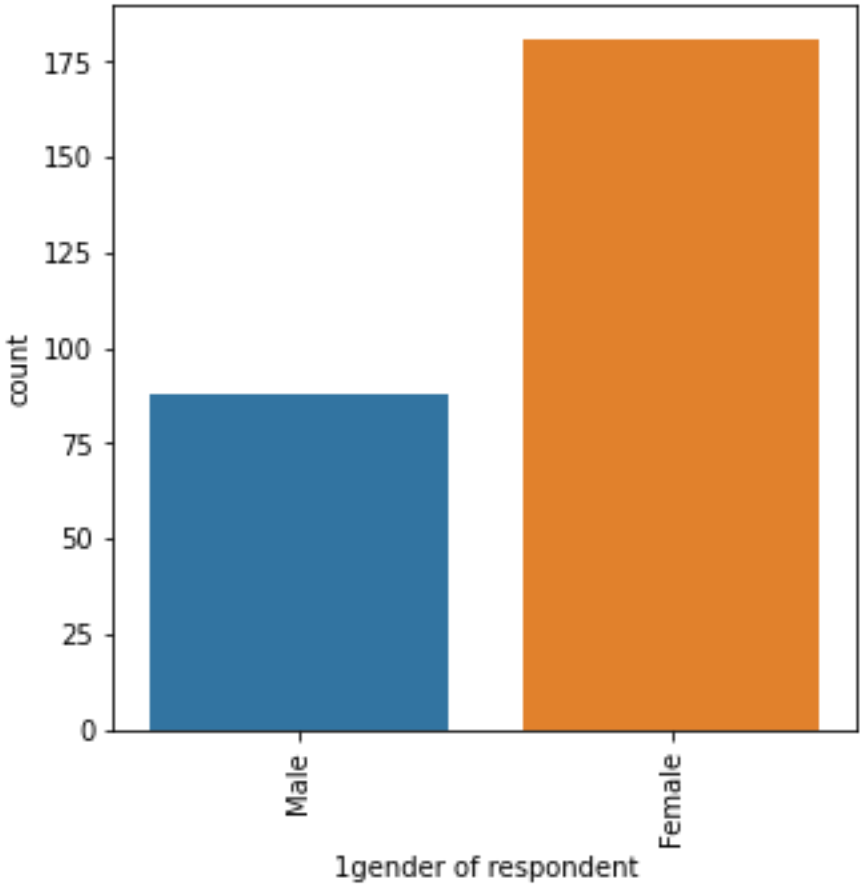
Visualizaion using graphs:

Column1

```
for column 1gender of respondent,
count values are
Female    181
```

```
Male        88
Name: 1gender of respondent, dtype: int64
```

```
ratio of Female is :   67.29 %
```



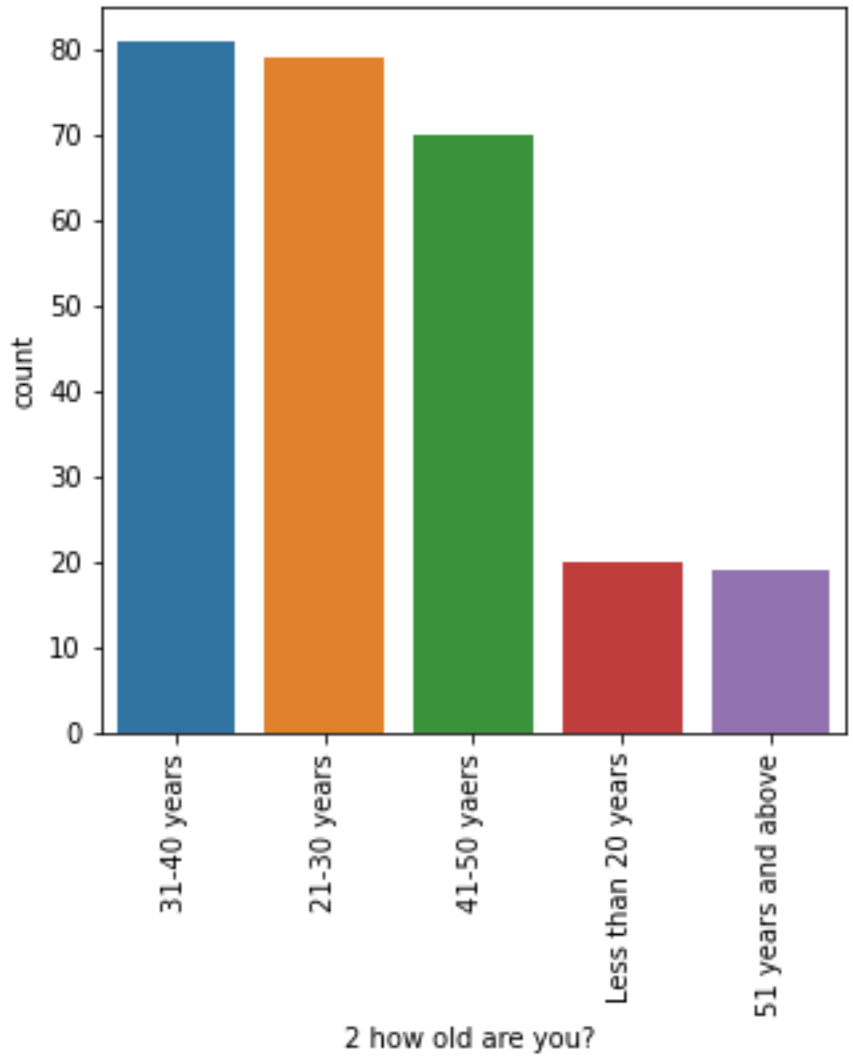
Analysis:

it's analyzed from above that 67% of customers are ladies. so, the companies should consider this thing in mind and make the offers accordingly.

Column2

```
for column 2 how old are you? ,
count values are
31-40 years            81
21-30 years            79
41-50 yaers            70
Less than 20 years     20
51 years and above     19
Name: 2 how old are you? , dtype: int64
```

ratio of 31-40 years is : 30.11 %



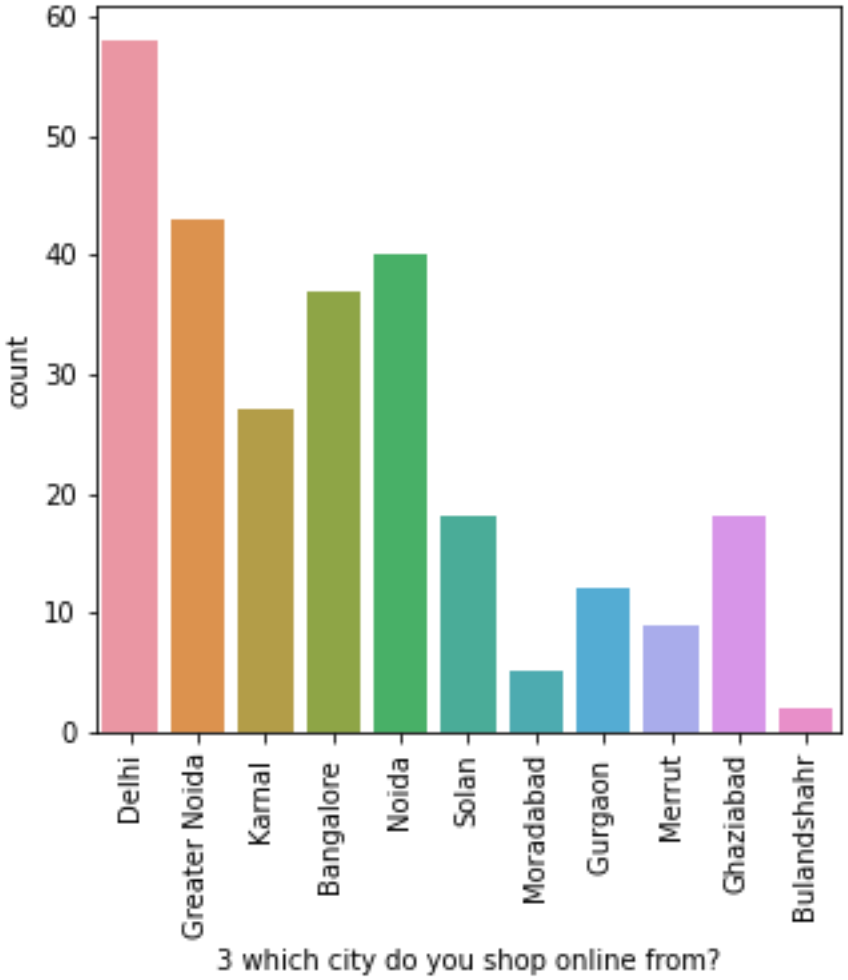
Analysis:

it means 85% of customers are aged between 21years to 50years. hence, the companies should make their policies taking this particular class into consideration.
among these, the maximum ratio is the customers aged between 31 to 40 years which span almost 30% of the entire customers.

Column3:

```
for column 3 which city do you shop online from?,
count values are
Delhi            58
Greater Noida    43
Noida            40
```

```
Bangalore         37
Karnal            27
Solan             18
Ghaziabad         18
Gurgaon           12
Merrut             9
Moradabad          5
Bulandshahr        2
Name: 3 which city do you shop online from?, dtype: int64

ratio of Delhi is :    21.56 %
```



Analysis:

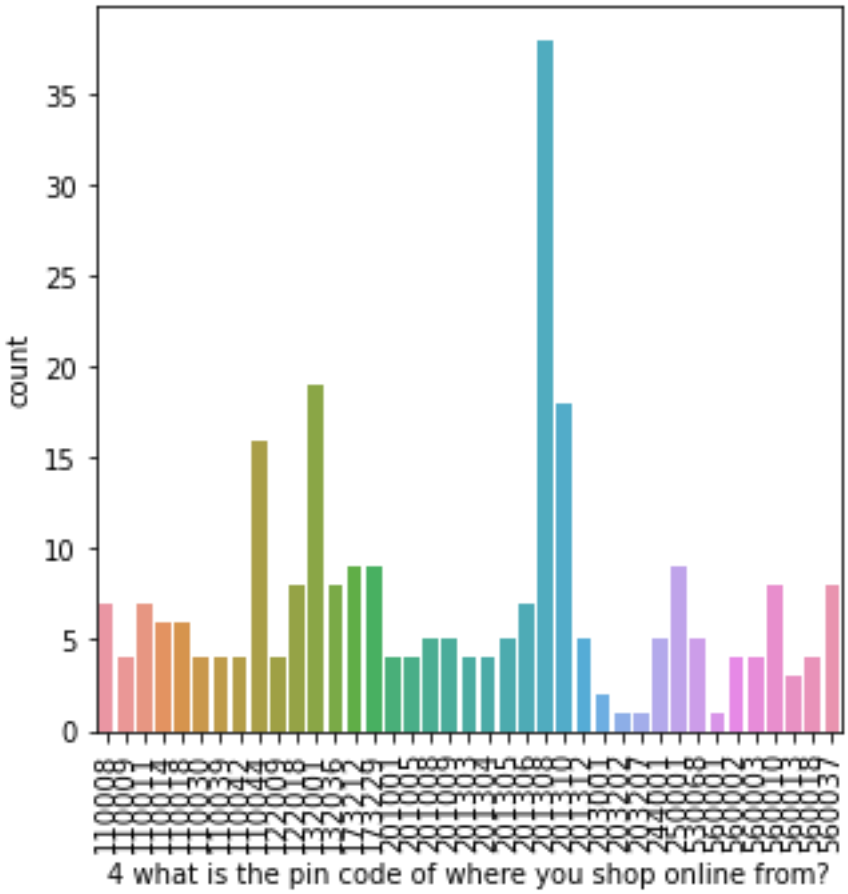
it's clear that almost 21% of whole customers come from delhi. more, precisely, if we talk about particular ncr, then almost 42% customers come from ncr regions. and if we talk about metro cities like delhi and bangalore, more than 35% (means one-third) customers come from metro cities

region. so, the companies should take this thing in mind while making some offers or strategies for these regions.

Column 4:

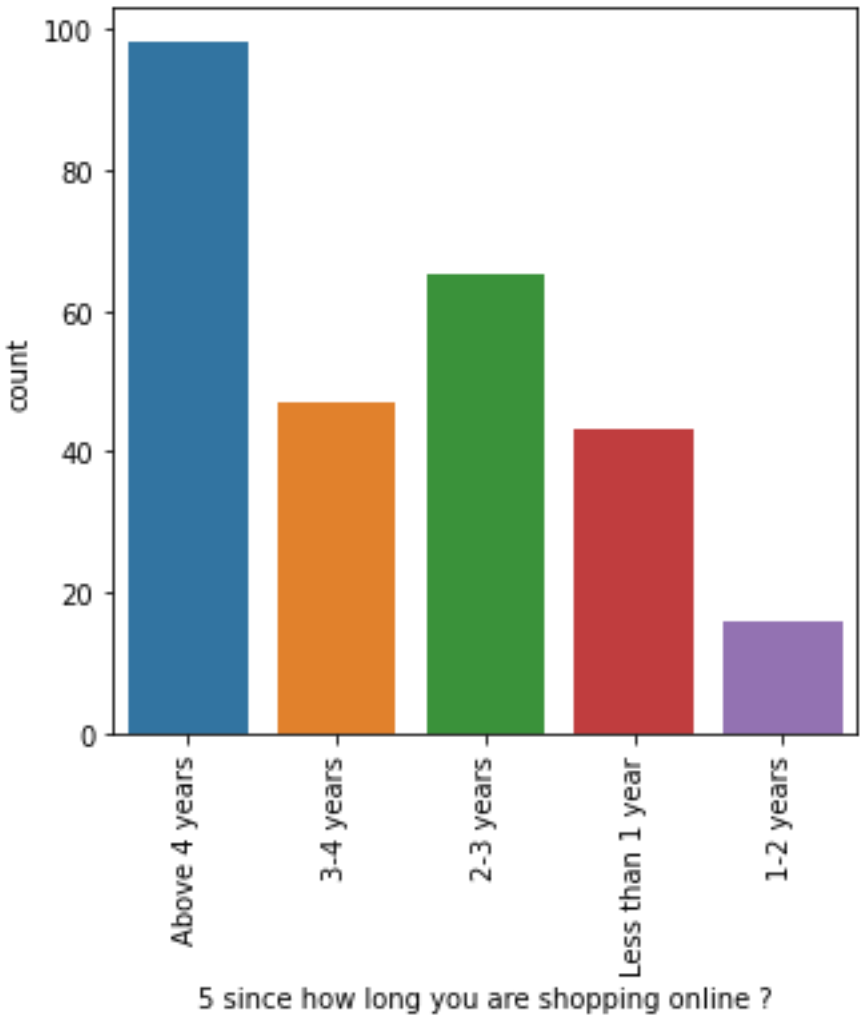
```
for column 4 what is the pin code of where you shop online from?,
count values are
201308    38
132001    19
201310    18
110044    16
250001     9
173229     9
173212     9
560010     8
132036     8
122018     8
560037     8
110008     7
110011     7
201306     7
110014     6
110018     6
201305     5
201008     5
201009     5
201312     5
244001     5
530068     5
122009     4
201001     4
560003     4
201304     4
110009     4
201303     4
560002     4
560018     4
110042     4
110030     4
201005     4
110039     4
560013     3
203001     2
203202     1
```

```
560001      1
203207      1
Name: 4 what is the pin code of where you shop online from?, dtype: int64

ratio of 201308 is :   14.13 %
```



Column 5:

```
for column 5 since how long you are shopping online ?,
count values are
Above 4 years       98
2-3 years           65
3-4 years           47
Less than 1 year    43
1-2 years           16
Name: 5 since how long you are shopping online ?, dtype: int64

ratio of Above 4 years is :    36.43 %
```



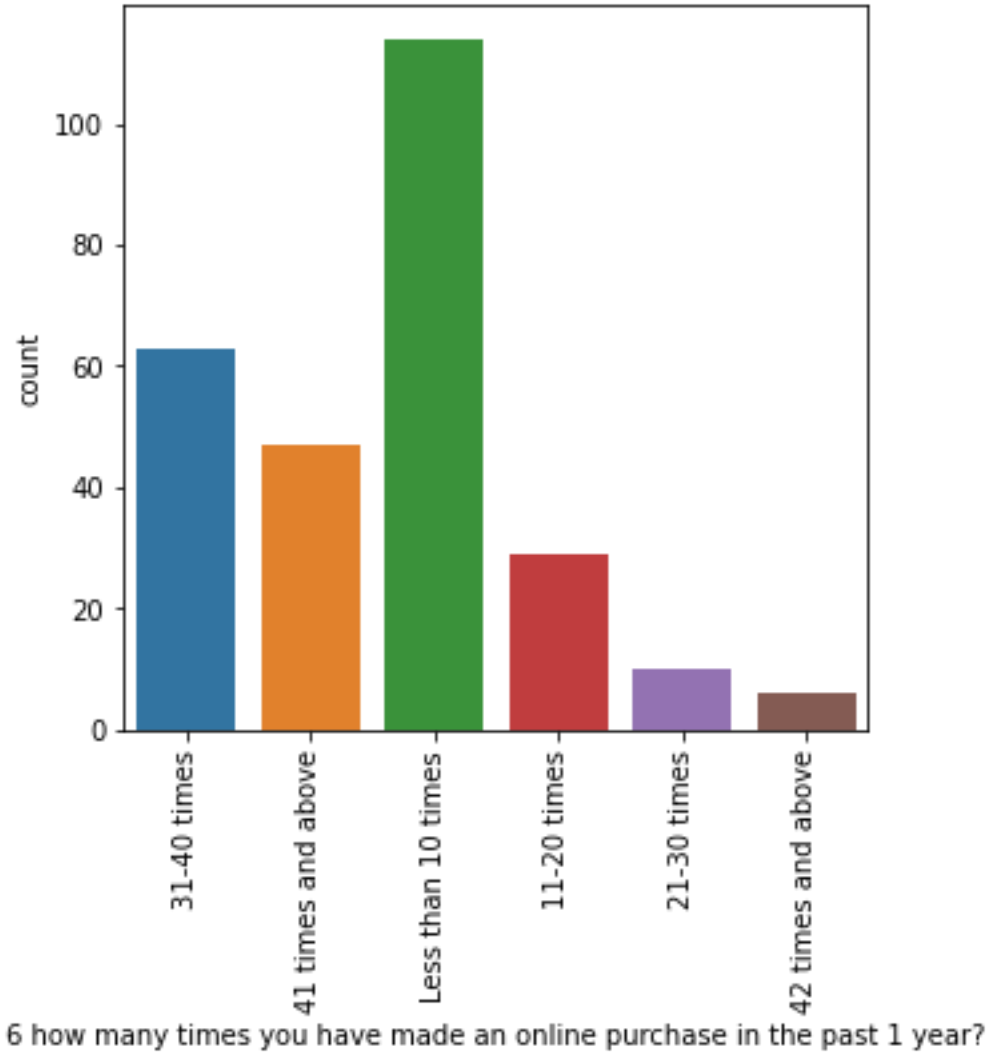
Analysis:

it means more than 36% customers are shopping online for more than 4 years.

Column 6:

```
for column 6 how many times you have made an online purchase in the past 1 ye
ar?,
count values are
Less than 10 times    114
31-40 times            63
41 times and above     47
11-20 times            29
21-30 times            10
42 times and above      6
```

```
Name: 6 how many times you have made an online purchase in the past 1 year?,
dtype: int64

ratio of Less than 10 times is :      42.38 %
```



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

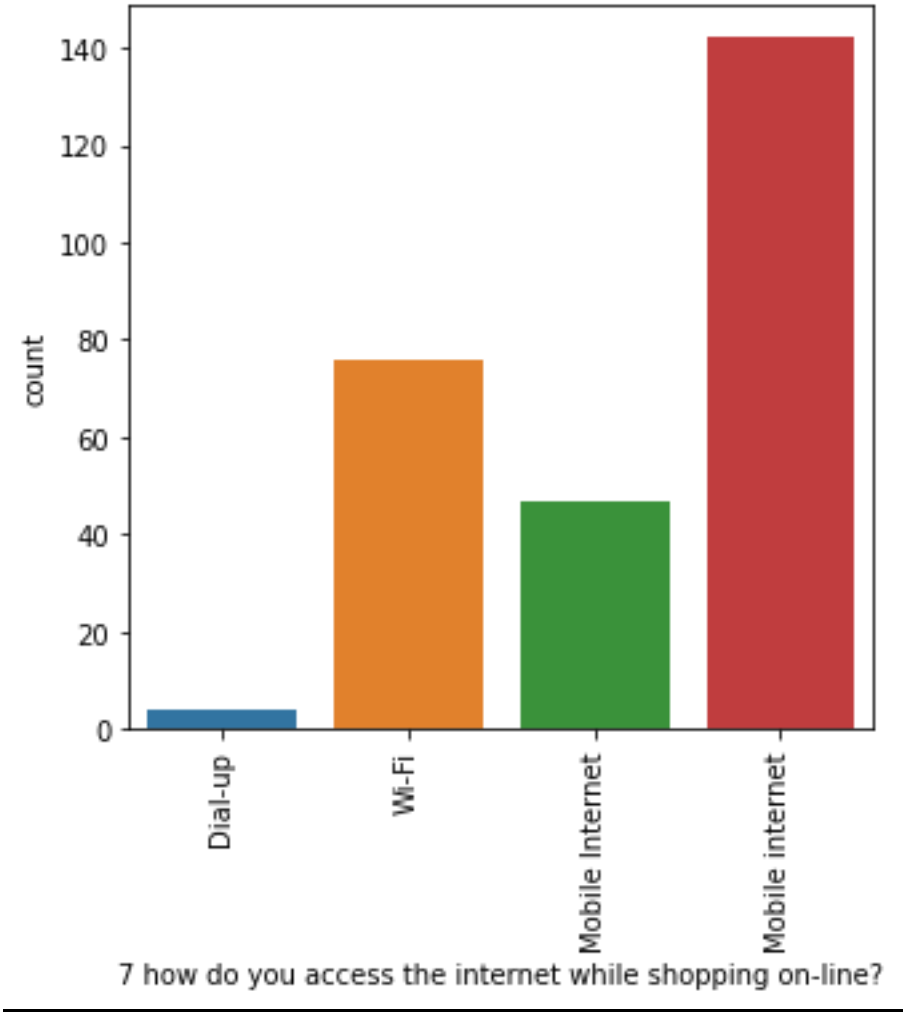
Analysis:

43% customers have shopped online less than 10 times in last year.

Column 7:

```
for column 7 how do you access the internet while shopping on-line?,
count values are
Mobile internet    142
Wi-Fi               76
Mobile Internet     47
Dial-up              4
Name: 7 how do you access the internet while shopping on-line?, dtype: int64
```

```
ratio of Mobile internet is :  52.79 %
```



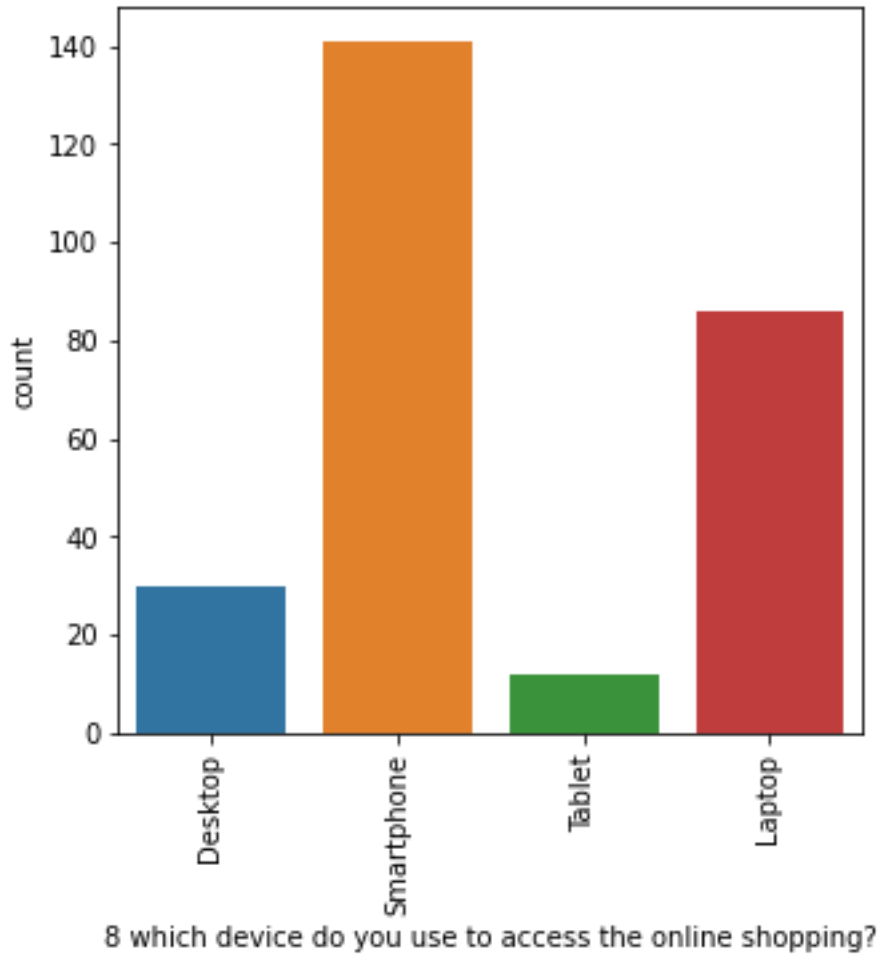
Analysis:

so, 52% customers use mobile phone to access the internet while shopping.. it's a very good ratio. so, it means the online platforms should work to make their websites/apps to work better on mobile phones as mostly customers rely on this medium to reach them.

Column 8:

```
for column 8 which device do you use to access the online shopping?,
count values are
Smartphone    141
Laptop         86
Desktop        30
Tablet         12
Name: 8 which device do you use to access the online shopping?, dtype: int64
```

```
ratio of Smartphone is :       52.42 %
```

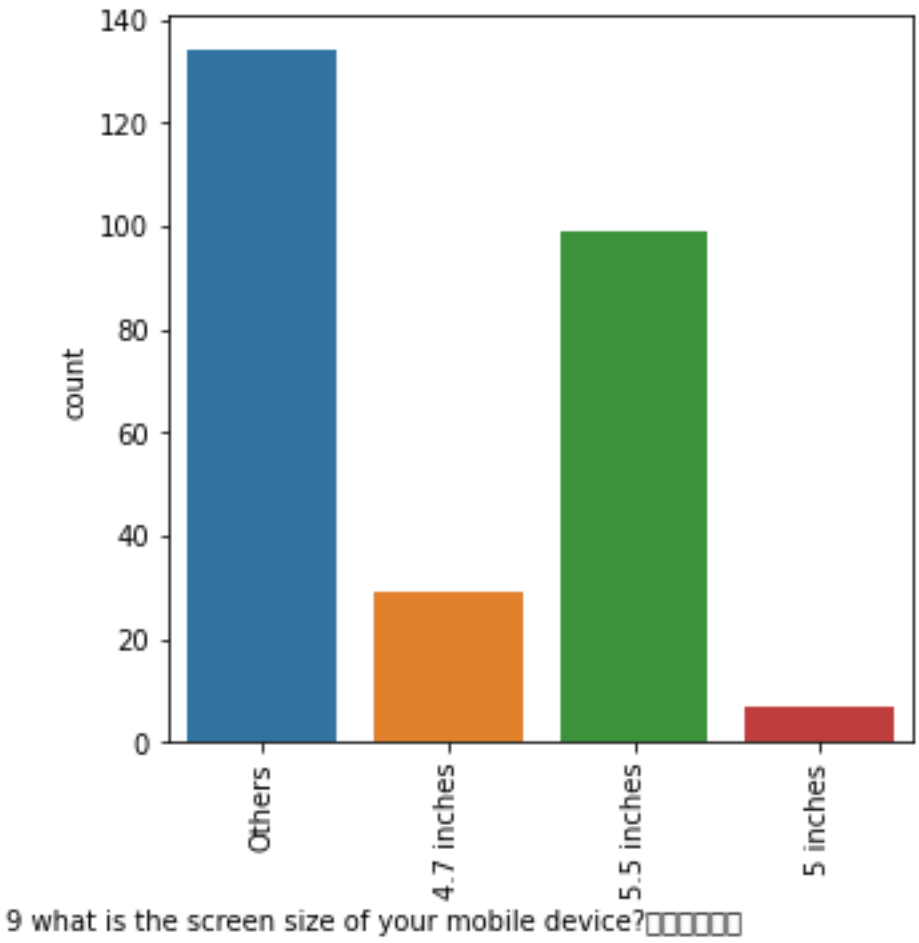


Analysis:

it's giving same interpretation as above column. again, 52% customers use smartphones to reach online platforms for shopping.

Column 9:

```
for column 9 what is the screen size of your mobile device?
                                                                                ,
count values are
Others        134
5.5 inches     99
4.7 inches     29
5 inches        7
Name: 9 what is the screen size of your mobile device?\t\t\t\t\t\t
, dtype: int64

ratio of Others is :   49.81 %
```



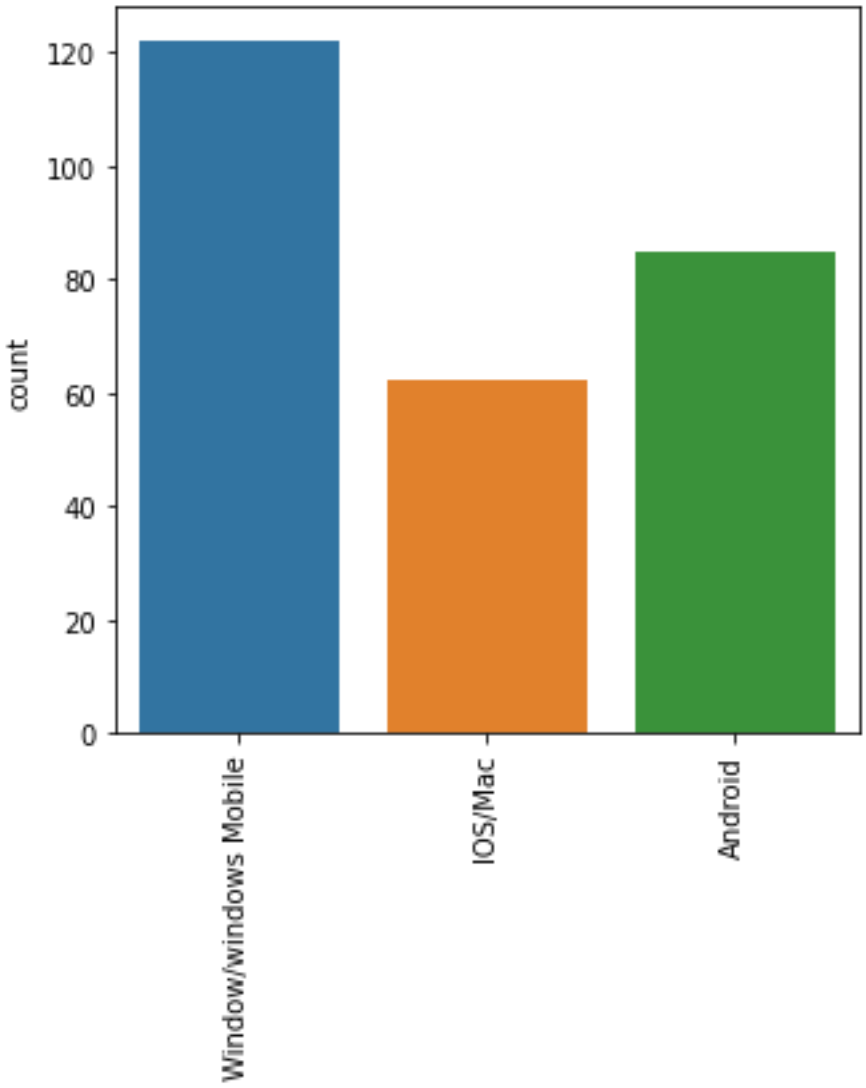
Analysis:

so, here, we can analyze that it's not certain that which screensize the customers use to acces the internet for online shopping. yet it can be said that 5.5 inches is the single option with high number of customers using them.

Column10:

```
for column 10 what is the operating system (os) of your device?
                                                                ,
count values are
Window/windows Mobile    122
Android                   85
IOS/Mac                   62
Name: 10 what is the operating system (os) of your device?\t\t\t\t
, dtype: int64
```

```
ratio of Window/windows Mobile is :    45.35 %
```



10 what is the operating system (os) of your device?□□□□

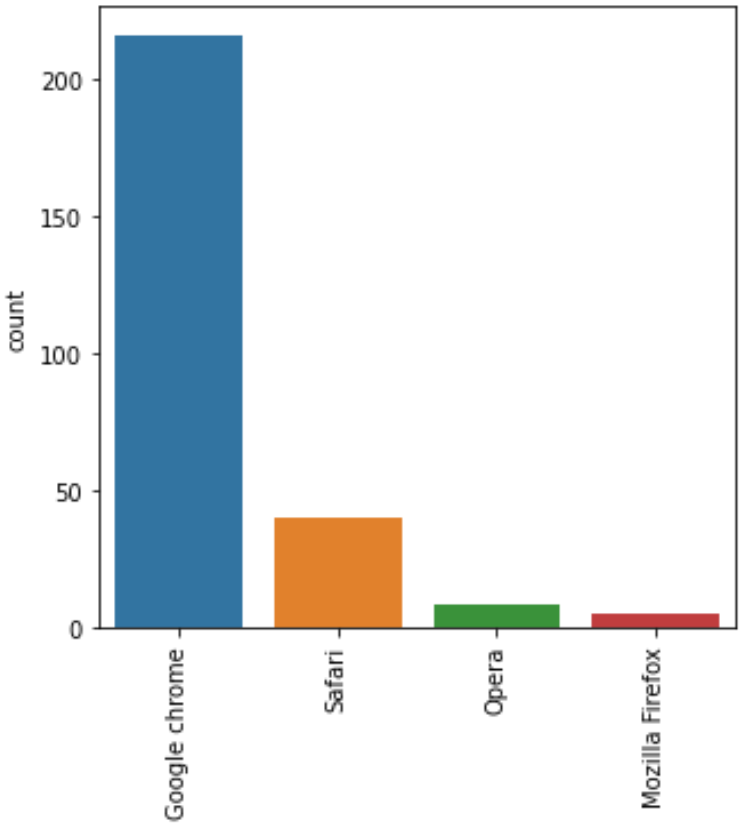
Analysis:

so, here, it's apparent that windows mobile is the first choice of the customers. yet android and ios are also having a good ratio of customers. so, from this, we can make sure that the websites/apps of online shooping companies should be user friendly with all of the operating systems.

Column11:

```
for column 11 what browser do you run on your device to access the website?
                                                                                ,
count values are
Google chrome      216
Safari              40
```

```
Opera                8
Mozilla Firefox      5
Name: 11 what browser do you run on your device to access the website?\t\t\t
, dtype: int64

ratio of Google chrome is :    80.3 %
```



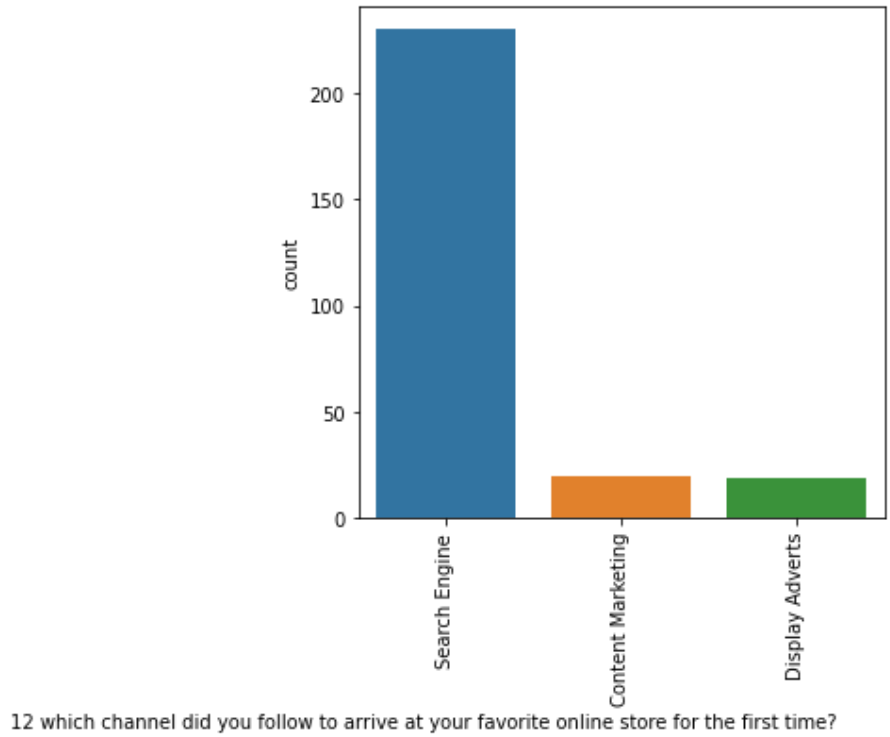
Analysis:

yes, this is the main benefit of analysis that we can make by analyzing this column. it's very clear here that almost 80% of the customers use google chrome browser to access the website. it's a good ratio which can't be ignored and hence, the companies should think giving maximum ads on this browser and also the best offers should be displayed here from time to time so that the maximum range of customers can be attracted.

Column12:

```
for column 12 which channel did you follow to arrive at your favorite online
store for the first time?
,
count values are
Search Engine        230
```

```
Content Marketing     20
Display Adverts       19
Name: 12 which channel did you follow to arrive at your favorite online store
for the first time?
, dtype: int64

ratio of Search Engine is :    85.5 %
```



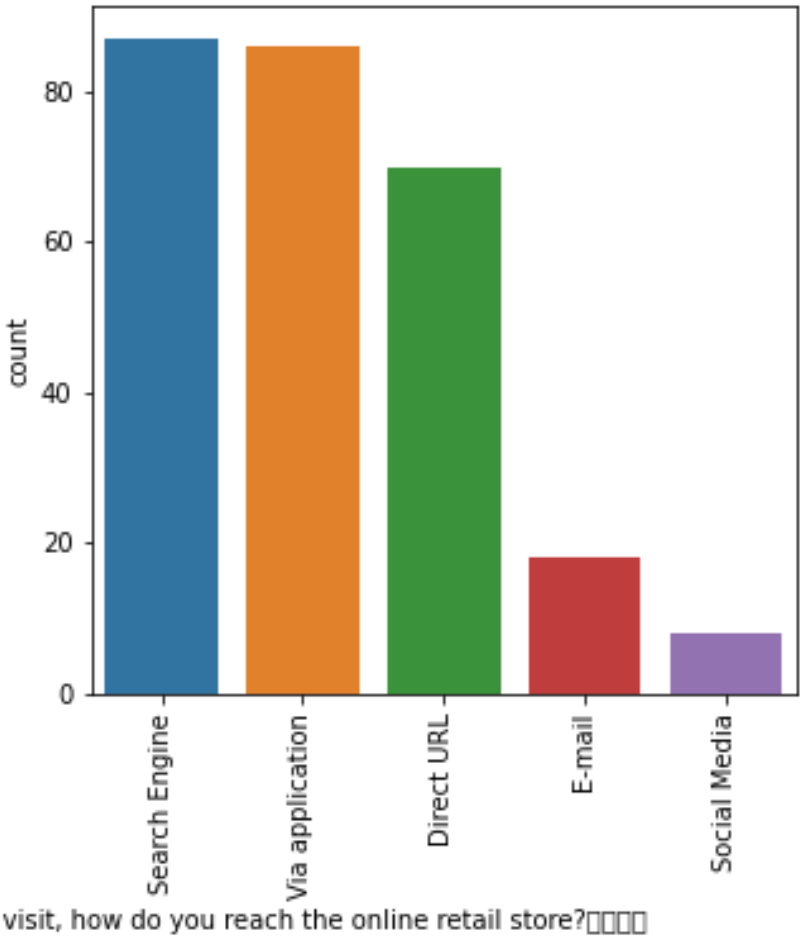
Analysis:

again, the same thing which we inferred from last column that as the search engine is being used the most by the customers to reach the website for the first time and as we depicted from last column, that google chrome search engine is the first choice of customers so the companies should pay more attention on this platform and start investing more here so as to attract the customers more and to retain them.

Column13:

```
for column 13 after first visit, how do you reach the online retail store?
                                                                          ,
count values are
Search Engine      87
Via application    86
Direct URL         70
E-mail             18
Social Media        8
```

```
Name: 13 after first visit, how do you reach the online retail store?\t\t\t\t
, dtype: int64

ratio of Search Engine is :    32.34 %
```



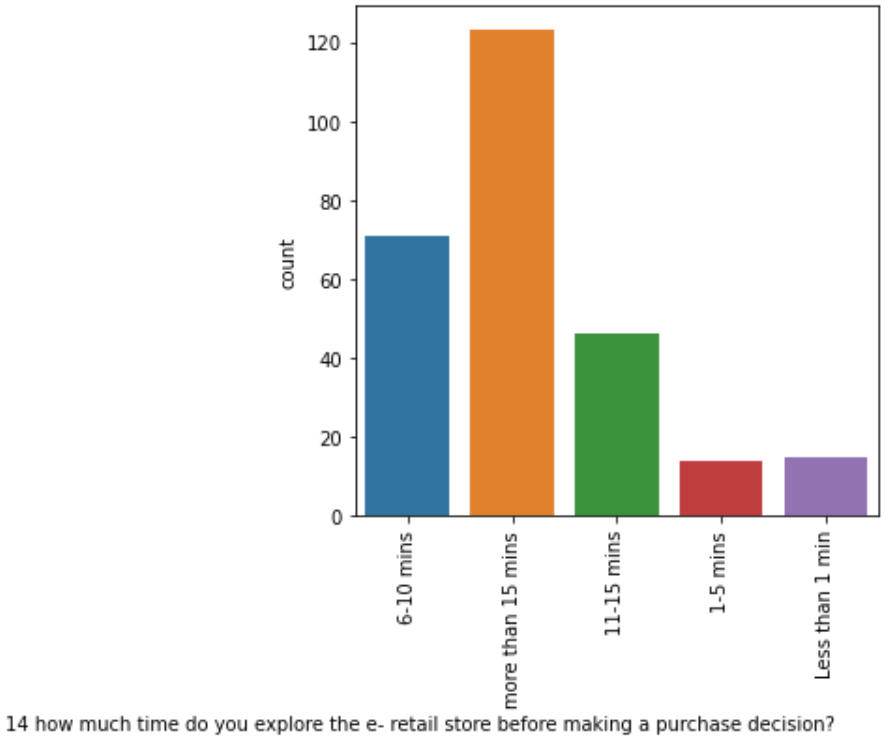
Analysis:

so, after visiting the website of company for the first time, the customers use different mediums to reach them. search engine and apps play vital role in this era. however, the role of direct url can't be ignored also. and as emails and social media play less role in attracting the customers so companies can lower down their budget in these two fields and the saved money can be invested in the first 3 options.

Column 14:

```
for column 14 how much time do you explore the e- retail store before making
a purchase decision?
,
count values are
more than 15 mins    123
6-10 mins             71
```

```
11-15 mins            46
Less than 1 min       15
1-5 mins              14
Name: 14 how much time do you explore the e- retail store before making a pur
chase decision?
, dtype: int64

ratio of more than 15 mins is :       45.72 %
```



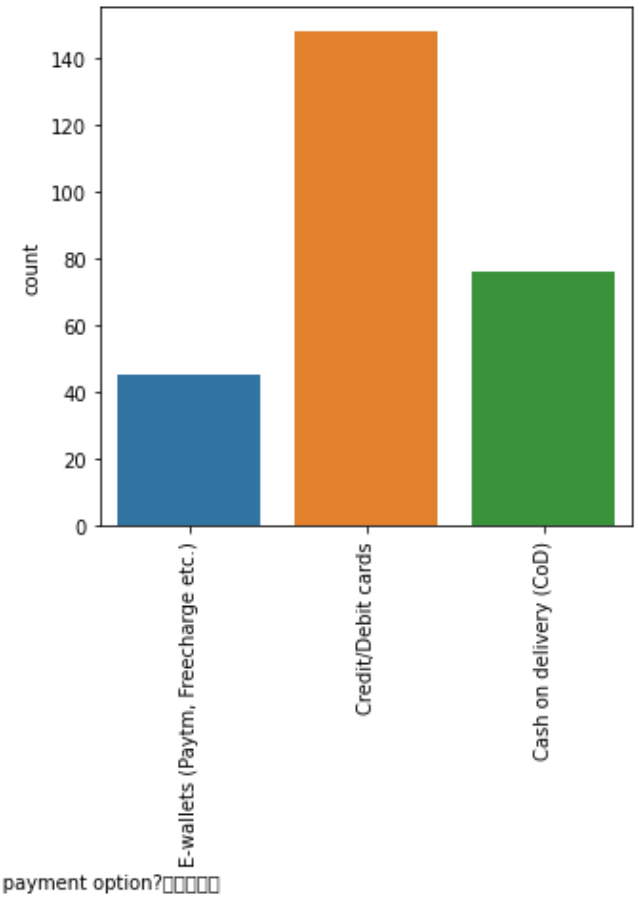
Analysis:

almost 45% of customers spend more than 15 minutes for making a purchase decision. so, it means the companies can send more alternatives options for comparisons, the related products options and the best offers in those 15 minutes so that if a person stays active on the portal for those 15 minutes, he/she can have idea of products listed on the portal and also of the best offers, so that if he/she doesn't make plan to purchase from that portal and moves to some other portal then the best offers / related products on the first portal might be attracting him/her and may be he/she makes plan to revisit the first portal again and makes the decision.

Column15:

```
for column 15 what is your preferred payment option?

,
count values are
```

```
Credit/Debit cards                    148
Cash on delivery (CoD)                 76
E-wallets (Paytm, Freecharge etc.)     45
Name: 15 what is your preferred payment option?\t\t\t\t\t
, dtype: int64

ratio of Credit/Debit cards is :      55.02 %
```



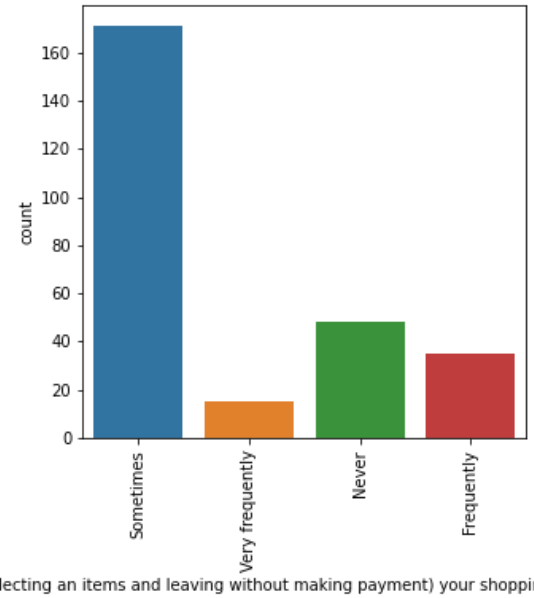
Analysis:

almost 55% customers use credit/debit cards for making the payments. so, they will always look for the best offers on these cards while purchasing any product through different online shopping platforms and wherever they get the best offers, they will move to that portal. so, acc. to my analysis, as 55% ratio of the customers is a very good one, so, companies should start giving more offers on this payment option in order to attract more customers and also to retain their old ones.

Column 16:

```
for column 16 how frequently do you abandon (selecting an items and leaving w
ithout making payment) your shopping cart?
                                                                          ,

count values are
```

```
Sometimes          171
Never               48
Frequently          35
Very frequently     15
Name: 16 how frequently do you abandon (selecting an items and leaving withou
t making payment) your shopping cart?\t\t\t\t\t\t\t
, dtype: int64

ratio of Sometimes is :        63.57 %
```



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

Analysis:

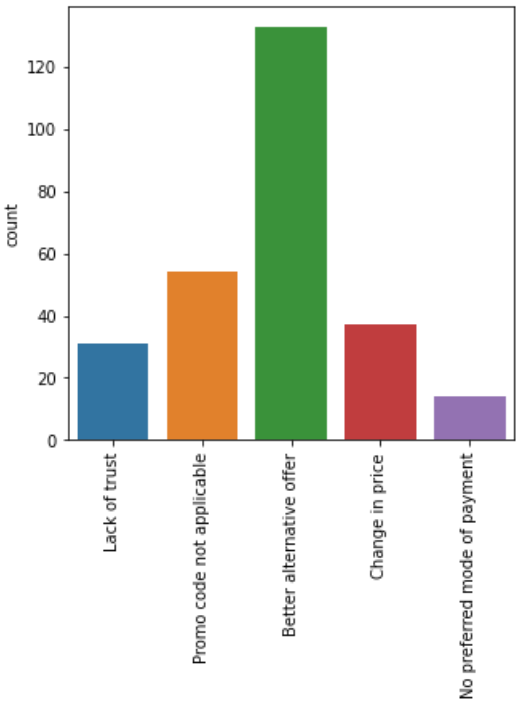
so, it's clear that whenever any cutomer explore any online portal for shopping and selects the products, it's very rare that he/she leaves that portal without finally paying for the product and booking his/her required products. so, it means if a company succeeds in attracting the customers towards their portal by developing trust and providing offers, convenience etc. and retain the customers on their portal for those 15 minutes, then it's very rare that the customer leaves the portal without buying anything. so, the prime importance of the companies to attract the customers through all the channels especially through search engine as the customers use that the most and that too by attracting through google chrome browser, and retains the customer busy or attracted for those crucial 15 minutes, then there are very less chances of the customers leaving that portal without purchasing anything.

Column16:

```
for column 17 why did you abandon the “bag”, “shopping cart”?


,
count values are
Better alternative offer        133
Promo code not applicable        54
```

```
Change in price                    37
Lack of trust                      31
No preferred mode of payment       14
Name: 17 why did you abandon the “bag”, “shopping cart”?\t\t\t\t\t
, dtype: int64
```

```
ratio of Better alternative offer is :        49.44 %
```



17 why did you abandon the “bag”, “shopping cart”?□□□□□

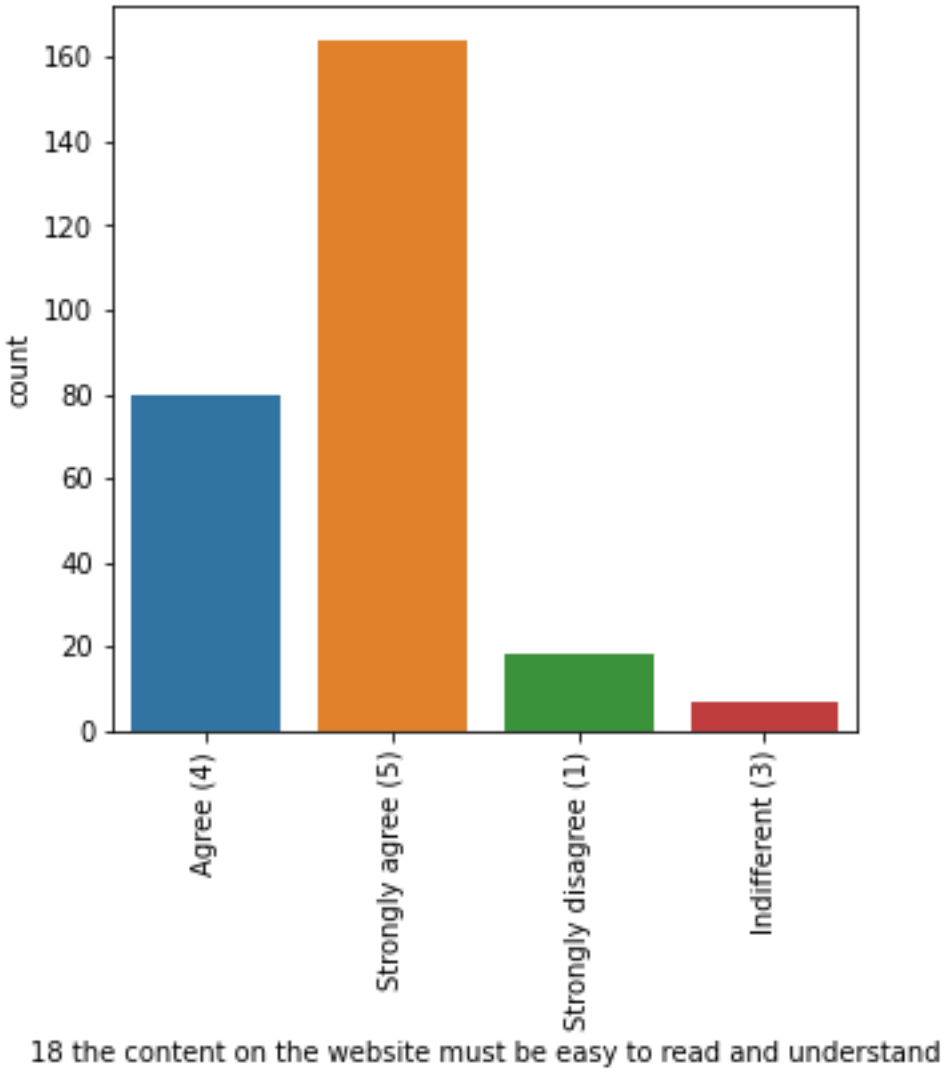
Analysis:

so, as stated above, better alternative offer is the main reason that the customers don't buy the products and leave it as it is without paying. now, this best alternative offer can be on the same portal or another portal and if, it's on another portal then they need to get those offers / alternatives on the same portal also so that the customers' trust on the portal be maintained. amost 50% of customers faced this situation. and also, if they get the better alternative offer on the same portal then it will be better for that company as its products will be sld and also, the customers will gain good trust in that comapny as he/she will think that there are a lot of alternatives/options available on this site and they will recommend this portal to other persons also.

POINT:
now, the above all 18 columns depicted the situations/possibilites gone through them while shopping.
now, tha next columns can be considered as suggestions from customers or the QUALITIES the customers require while shopping on a particular eshopping portal. so, this can be considered as SUGGESTIONS/QUALITIES part.
let's begin this.

Column 18:

```
for column 18 the content on the website must be easy to read and understand,
count values are
Strongly agree (5)       164
Agree (4)                 80
Strongly disagree (1)     18
Indifferent (3)            7
Name: 18 the content on the website must be easy to read and understand, dtyp
e: int64

ratio of Strongly agree (5) is :      60.97 %
ratio of Totally Agreed count is :    90.71 %
```

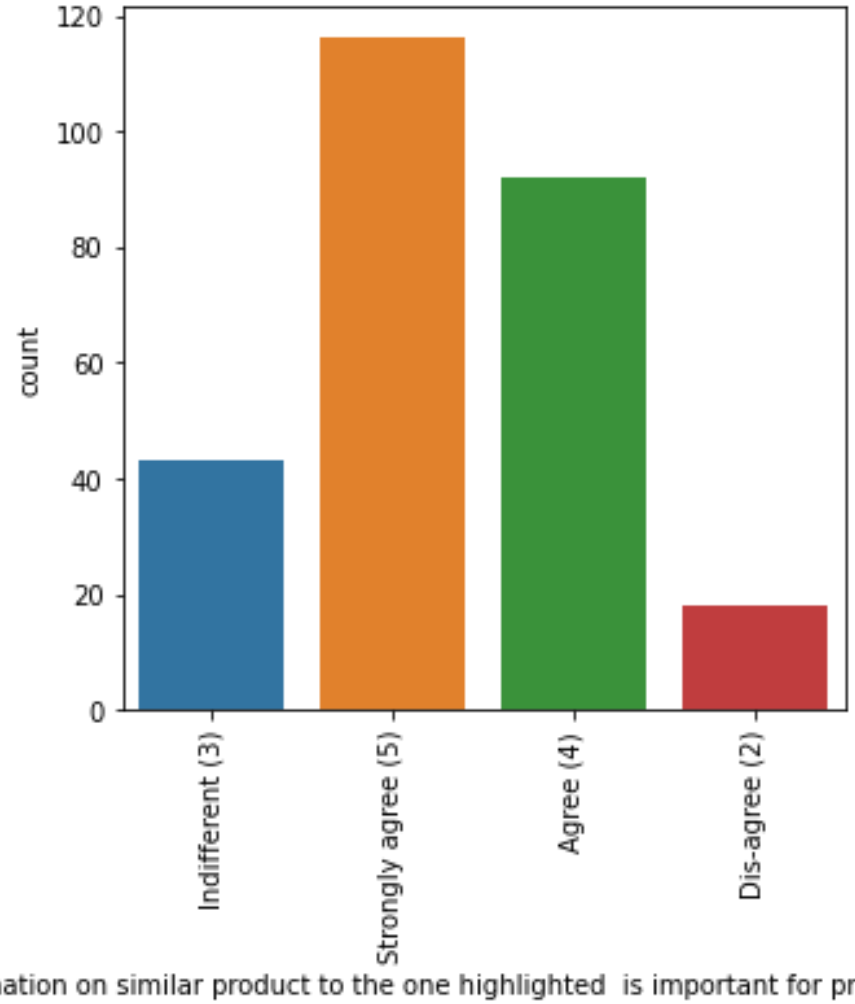


Analysis:

61% customers strongly agree and almost 90% customers agree on the point that the contents on the website must be easy to read and understand. this is the obvious thing as the customers who

shop on online portals are the simple persons, they need the online platforms to be in easy form as in their daily routine language so that they might get attached to it easily and can enjoy shopping there.
Column 19:

```
for column 19 information on similar product to the one highlighted  is impor
tant for product comparison,
count values are
Strongly agree (5)    116
Agree (4)              92
Indifferent (3)        43
Dis-agree (2)          18
Name: 19 information on similar product to the one highlighted  is important
for product comparison, dtype: int64

ratio of Strongly agree (5) is :      43.12 %
ratio of Totally Agreed count is :    77.32 %
```



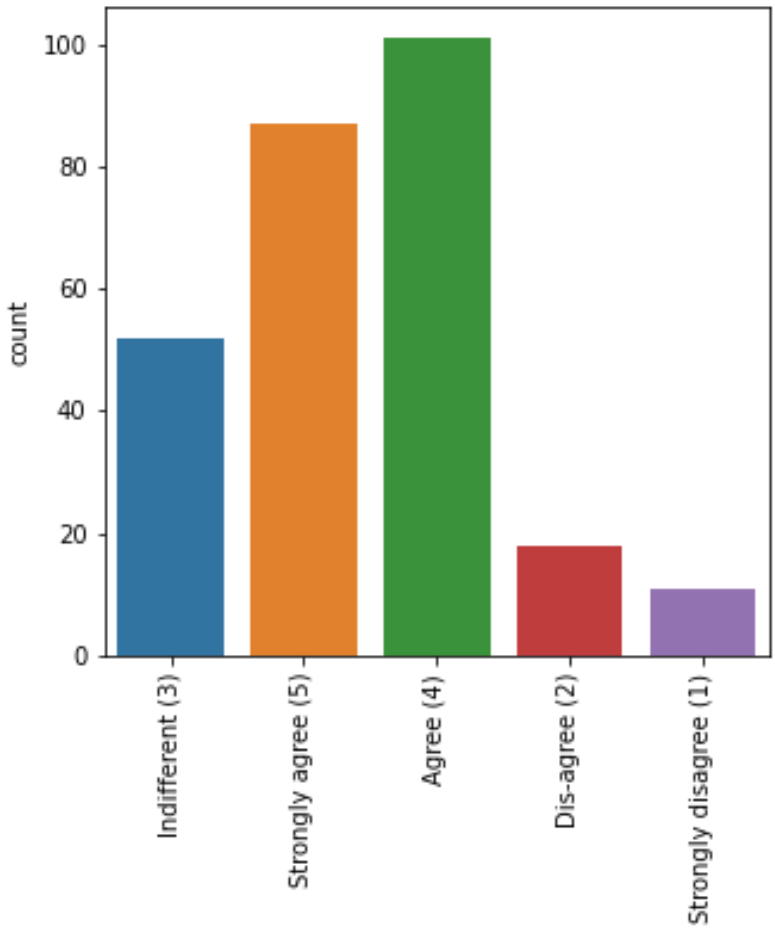
19 information on similar product to the one highlighted is important for product comparison

Analysis:

so, more than 77% customers agreed on the fact that the information on similar product to the one highlighted is very important for comparison and hence, on comparison, they can make any plan regarding this.

Column20:

```
for column 20 complete information on listed seller and product being offered
is important for purchase decision.,
count values are
Agree (4)                101
Strongly agree (5)        87
Indifferent (3)           52
Dis-agree (2)             18
Strongly disagree (1)     11
Name: 20 complete information on listed seller and product being offered is i
mportant for purchase decision., dtype: int64

ratio of Agree (4) is :        37.55 %
ratio of Totally Agreed count is :    69.89 %
```



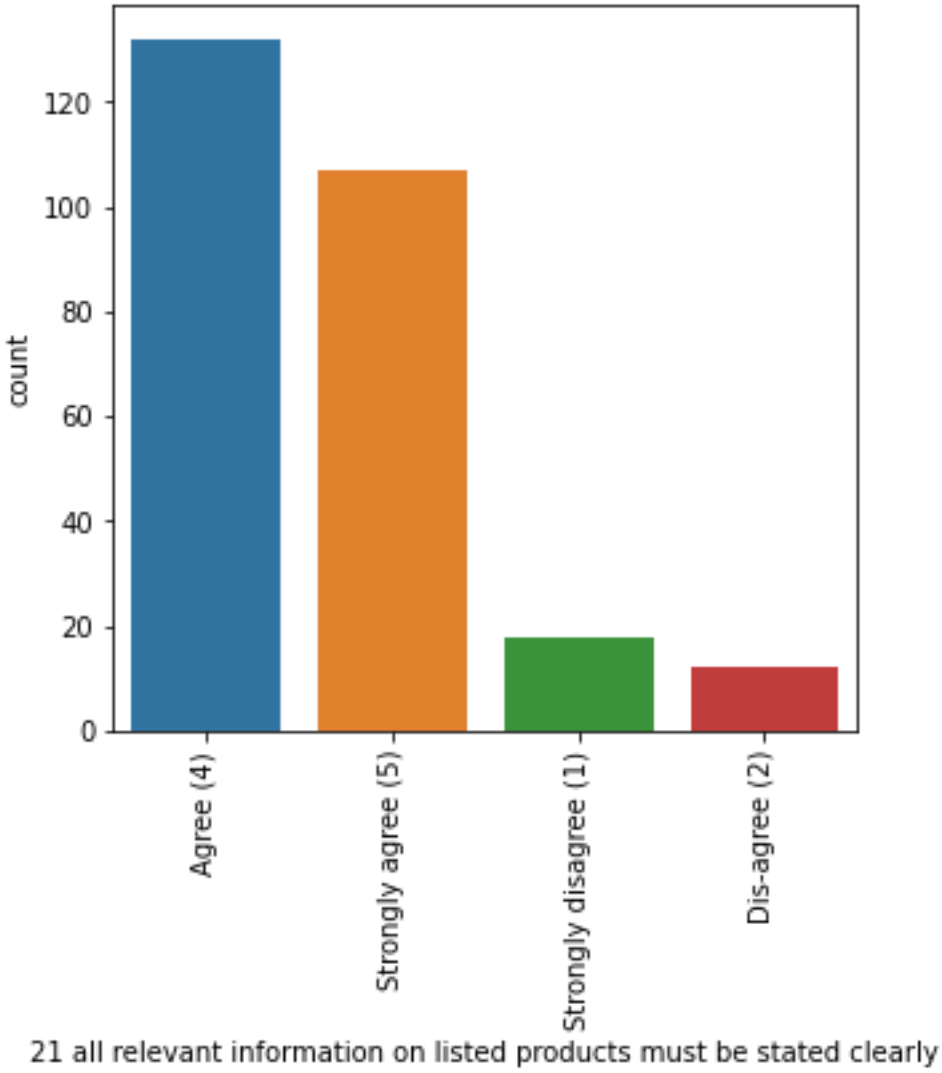
20 complete information on listed seller and product being offered is important for purchase decision.

Analysis:

so, the seller and product information holds very much importance for the buyer to make any decision. so, this should be properly listed on the product.

Column21:

```
for column 21 all relevant information on listed products must be stated clea
rly,
count values are
Agree (4)                132
Strongly agree (5)       107
Strongly disagree (1)     18
Dis-agree (2)             12
Name: 21 all relevant information on listed products must be stated clearly,
dtype: int64

ratio of Agree (4) is :        49.07 %
ratio of Totally Agreed count is :    88.85 %
```

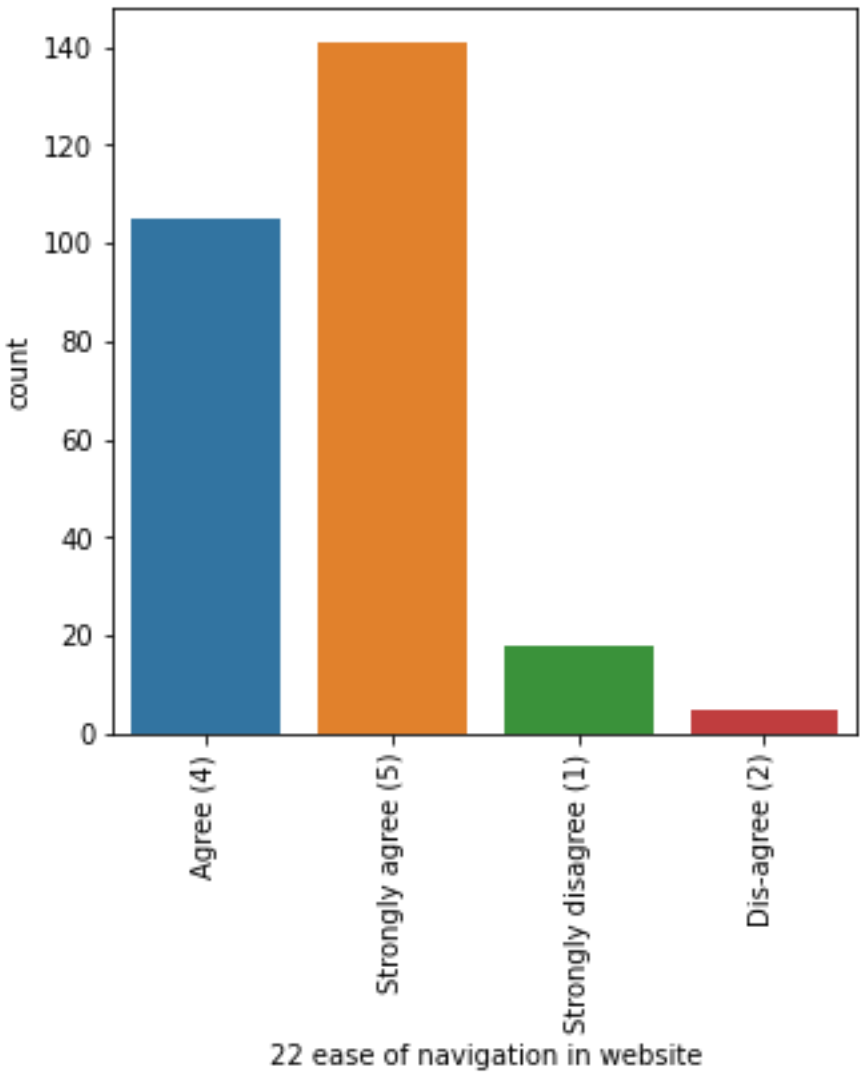


Analysis:

same things are revealed again as almost 90% customers want that all the relevant information regarding product should be listed clearly. these things sgould be followed by an online company in order to enhance its trust in the customers and hence, to increase it sales. this can be verified by checking the correlation between this column and column 18 the content on the website must be easy to read and understand, as done below. since, correlation between the two features is very high almost 0.89, hence, both of the features are depicting the same kind of interpretations.

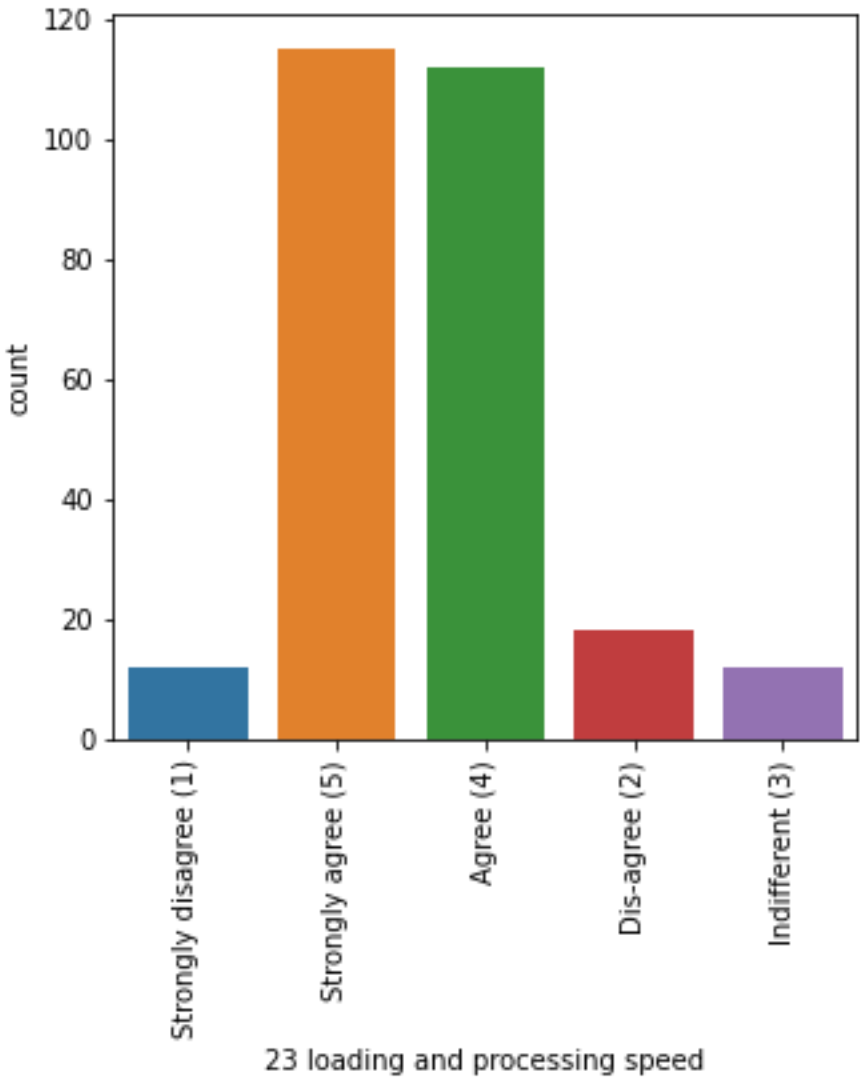
Column 22:

```
for column 22 ease of navigation in website,
count values are
Strongly agree (5)       141
Agree (4)                105
Strongly disagree (1)     18
Dis-agree (2)              5
Name: 22 ease of navigation in website, dtype: int64

ratio of Strongly agree (5) is :      52.42 %
ratio of Totally Agreed count is :    91.45 %
```



Column 23:

```
for column 23 loading and processing speed,
count values are
Strongly agree (5)       115
Agree (4)                112
Dis-agree (2)             18
Strongly disagree (1)     12
Indifferent (3)           12
Name: 23 loading and processing speed, dtype: int64

ratio of Strongly agree (5) is :      42.75 %
ratio of Totally Agreed count is :    84.39 %
```



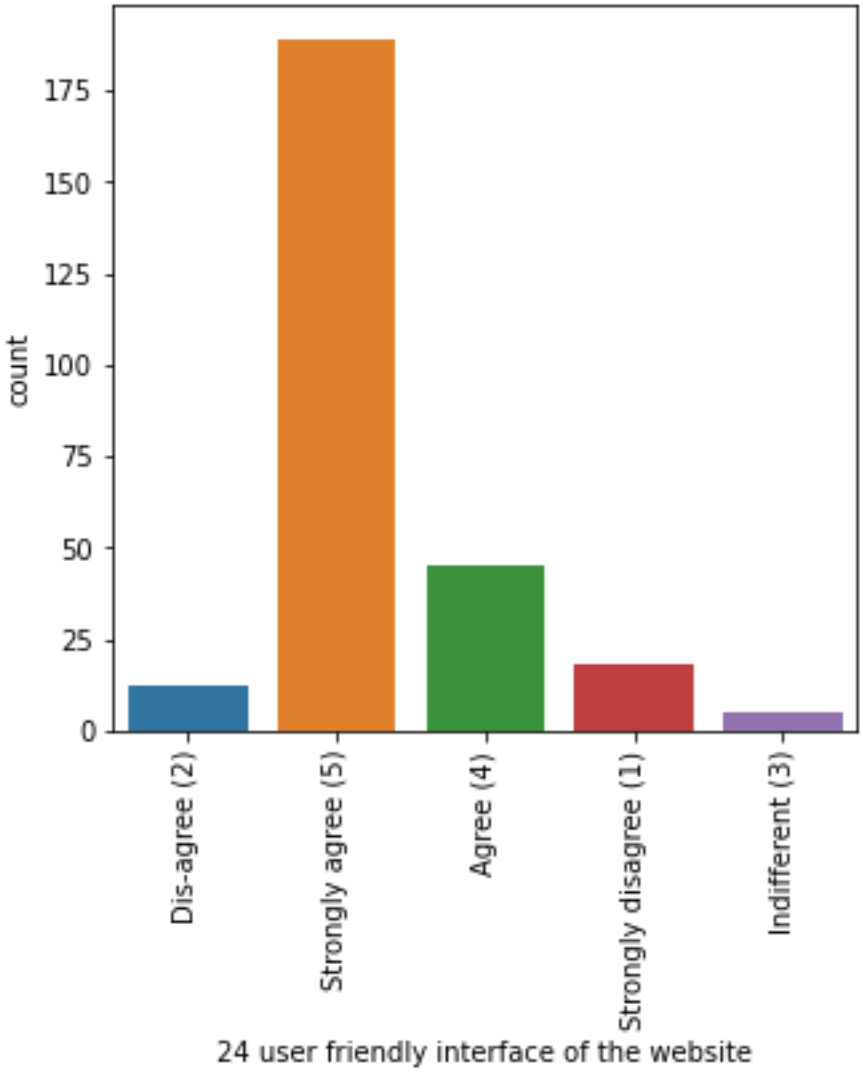
Analysis:

so, from the above two columns, it's interpreted that the websites/apps of the online portal should have loading and processing speed higher and also, the navigation speed from one page to another should also be very high. because a slow buffering websites always loose their clientage besides giving any benefits as the patience level in customers and time to do anything is very less now-a-days. each and every person needs to fulfill its requirement at the fingertips. so, this becomes a major suggestion/key role for the companies to increase the speed of their websites in order to enhace their business.

Column 24:

```
for column 24 user friendly interface of the website,
count values are
Strongly agree (5)       189
Agree (4)                 45
Strongly disagree (1)     18
Dis-agree (2)             12
```

```
Indifferent (3)            5
Name: 24 user friendly interface of the website, dtype: int64

ratio of Strongly agree (5) is :      70.26 %
ratio of Totally Agreed count is :    86.99 %
```



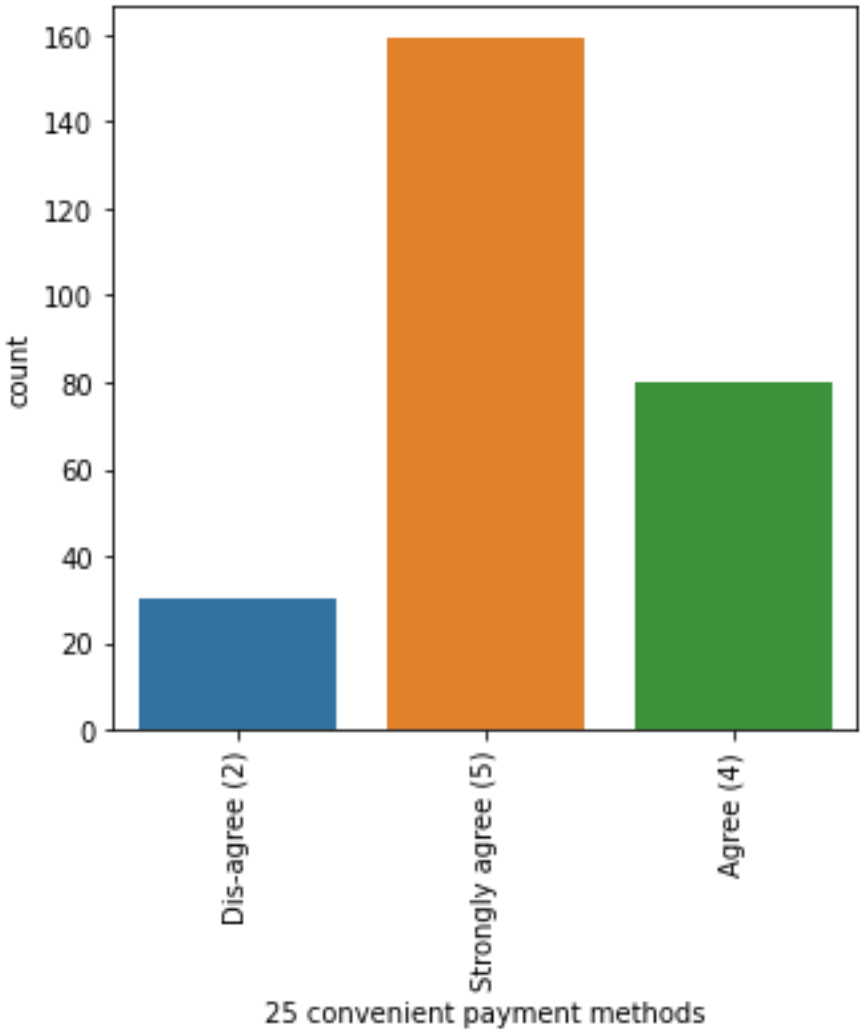
Analysis:

so, it's depicting the same thing as we learnt from column no.18 as it's also stated in column no. 18 that the contents on the website must be easy to read. so, if a website has the contents readable or understandable easily then it's user friendly or vice-versa. this also can be verifed by the correlation value of this feature with the column 18 the content on the website must be easy to read and understand, as done below. since, the correlation value is very much higher as 0.81 here, so , both of these columns are interpreting similar things.

Proof:
df1[col[17]].corr(df1[col[23]])
```
0.8169827712519402
```

Column 25:

```
for column 25 convenient payment methods,
count values are
Strongly agree (5)    159
Agree (4)              80
Dis-agree (2)          30
Name: 25 convenient payment methods, dtype: int64

ratio of Strongly agree (5) is :      59.11 %
ratio of Totally Agreed count is :    88.85 %
```

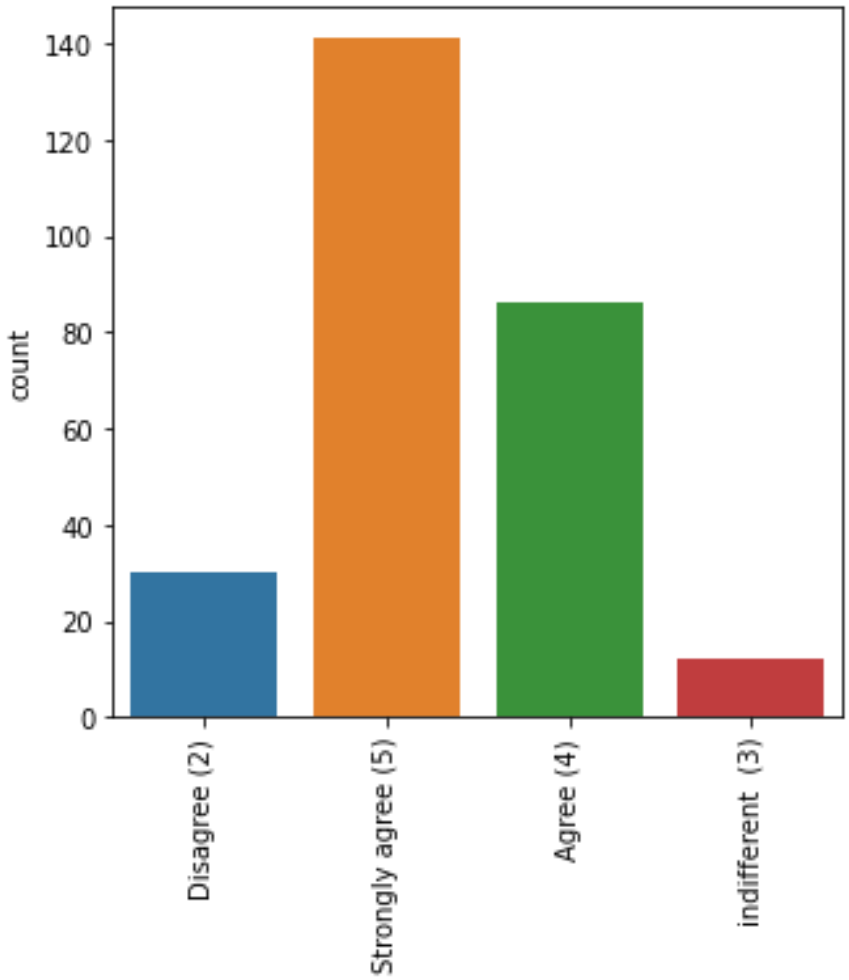


Anal;ysis:

almost 89% customers think that the payment methods should be convenient. it should be easy to pay on the portal.

Column 26:

```
for column 26 trust that the online retail store will fulfill its part of the
transaction at the stipulated time,
count values are
Strongly agree (5)    141
Agree (4)              86
Disagree (2)           30
indifferent  (3)       12
Name: 26 trust that the online retail store will fulfill its part of the tran
saction at the stipulated time, dtype: int64

ratio of Strongly agree (5) is :      52.42 %
ratio of Totally Agreed count is :    84.39 %
```



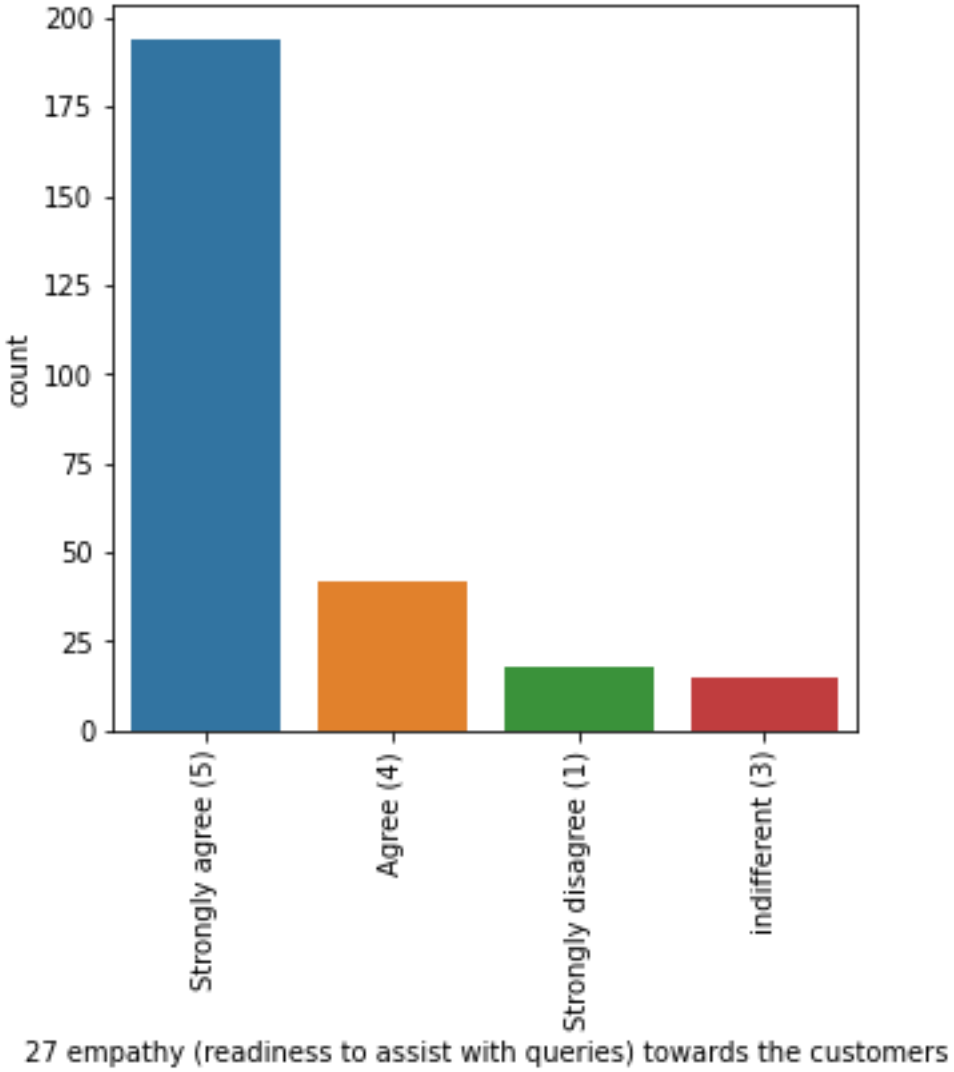
26 trust that the online retail store will fulfill its part of the transaction at the stipulated time

Analysis:

so, it's a trust point. acc. to 84% customers, the online retail store will fulfill its part at the stipulated time.

Column 27:

```
for column 27 empathy (readiness to assist with queries) towards the customer
s,
count values are
Strongly agree (5)       194
Agree (4)                 42
Strongly disagree (1)     18
indifferent (3)           15
Name: 27 empathy (readiness to assist with queries) towards the customers, dt
ype: int64

ratio of Strongly agree (5) is :      72.12 %
ratio of Totally Agreed count is :    87.73 %
```

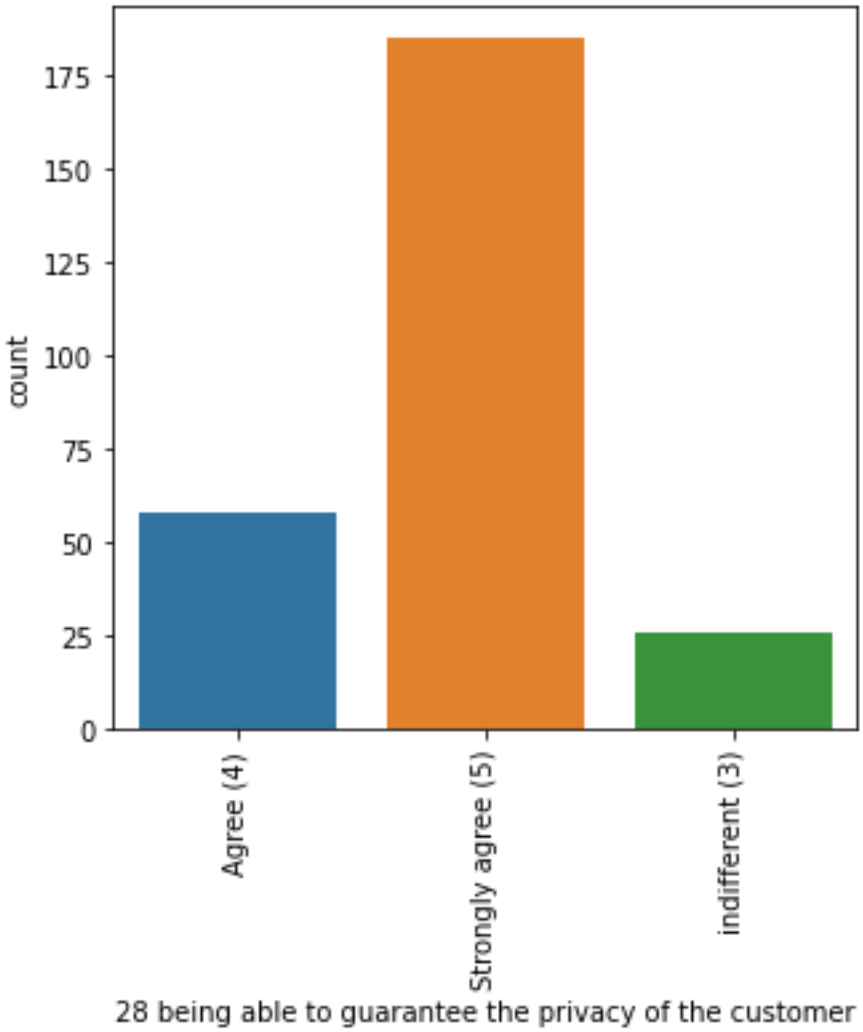


Analysis:

yes, this is also the main point that the companies should consider, i.e. the issue redressal/ grivience redressal system should be so fast and convenient that if a customer finds any issue on the online

platform, then his/her queries should be resolved at the first instant. and also, the staff/system associated with the issue redressal system should be cooperative and polite and that system should consider the value of customer's money and time.
Column 28:

```
for column 28 being able to guarantee the privacy of the customer,
count values are
Strongly agree (5)    185
Agree (4)              58
indifferent (3)        26
Name: 28 being able to guarantee the privacy of the customer, dtype: int64

ratio of Strongly agree (5) is :      68.77 %
ratio of Totally Agreed count is :    90.33 %
```

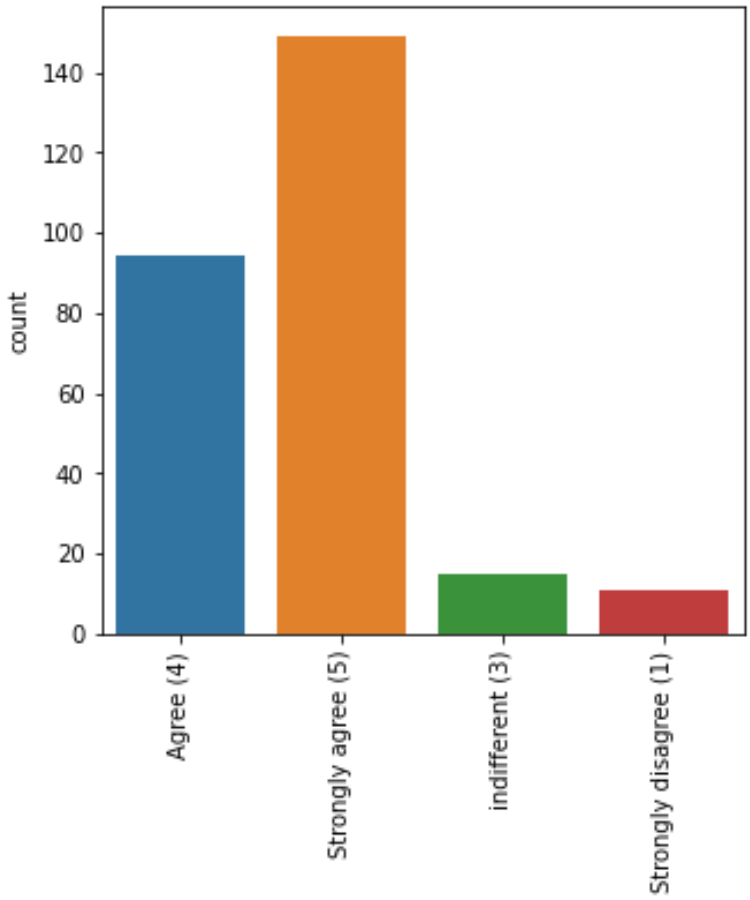


Analysis:

acc. to above suggestions, it's highly recommended that the privacy of the customers be maintained because it's such type of thing which holds it's importance over all other things.

Column 29:

```
for column 29 responsiveness, availability of several communication channels
(email, online rep, twitter, phone etc.),
count values are
Strongly agree (5)       149
Agree (4)                 94
indifferent (3)           15
Strongly disagree (1)     11
Name: 29 responsiveness, availability of several communication channels (emai
l, online rep, twitter, phone etc.), dtype: int64

ratio of Strongly agree (5) is :      55.39 %
ratio of Totally Agreed count is :    90.33 %
```



29 responsiveness, availability of several communication channels (email, online rep, twitter, phone etc.)

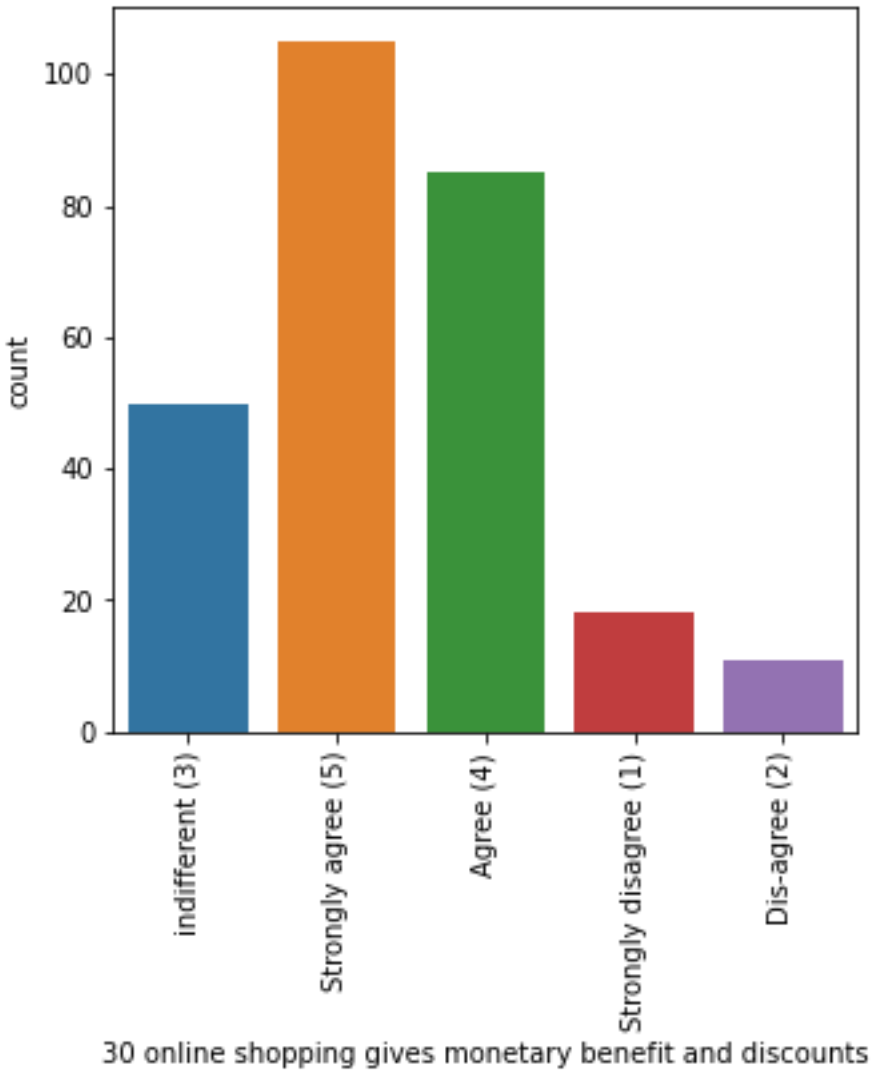
Analysis:

it's neccessary to available om several communication channels. almost 90% of customers think this.

Column 30:

```
for column 30 online shopping gives monetary benefit and discounts,
count values are
```

```
Strongly agree (5)       105
Agree (4)                 85
indifferent (3)           50
Strongly disagree (1)     18
Dis-agree (2)             11
Name: 30 online shopping gives monetary benefit and discounts, dtype: int64

ratio of Strongly agree (5) is :      39.03 %
ratio of Totally Agreed count is :    70.63 %
```



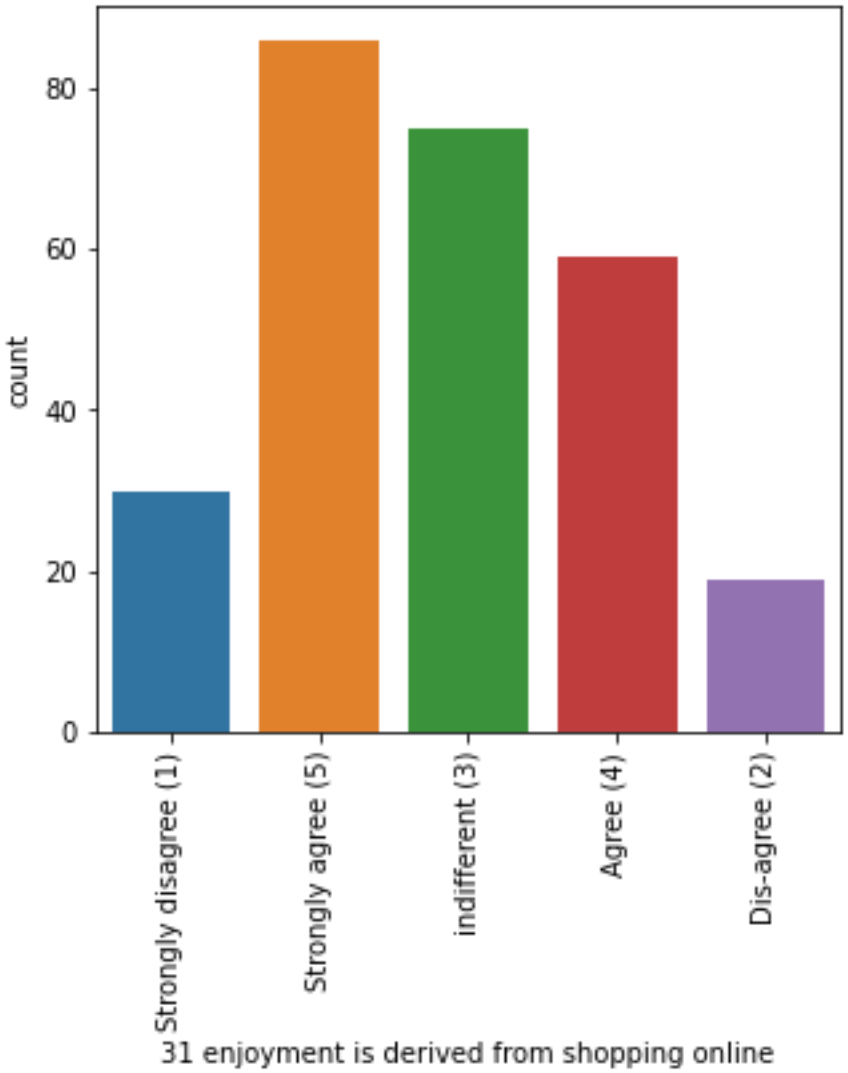
Analysis:

70% customers think that online shopping gives monetary benefits.

Column 31:

```
for column 31 enjoyment is derived from shopping online,
count values are
Strongly agree (5)       86
```

```
indifferent (3)          75
Agree (4)                59
Strongly disagree (1)    30
Dis-agree (2)            19
Name: 31 enjoyment is derived from shopping online, dtype: int64

ratio of Strongly agree (5) is :      31.97 %
ratio of Totally Agreed count is :    53.9 %
```

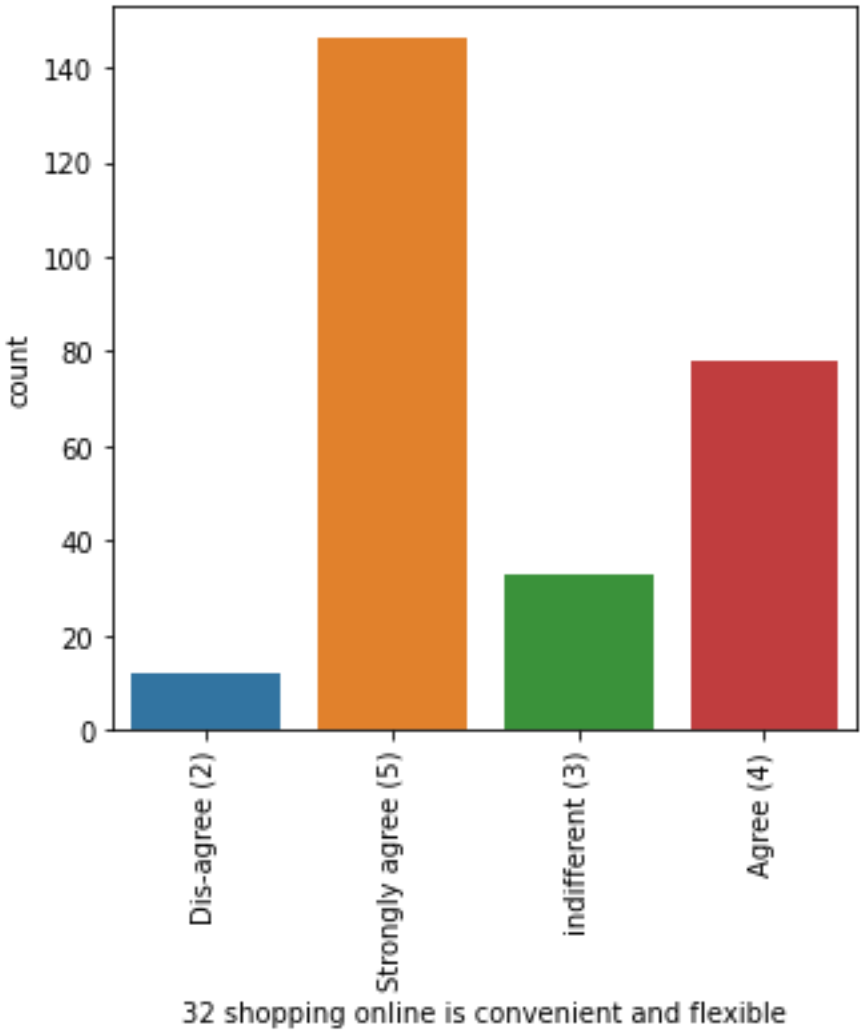


Analysis:

there are mixed sentiments regarding enjoyment..
column 32:

```
for column 32 shopping online is convenient and flexible,
count values are
Strongly agree (5)    146
Agree (4)              78
```

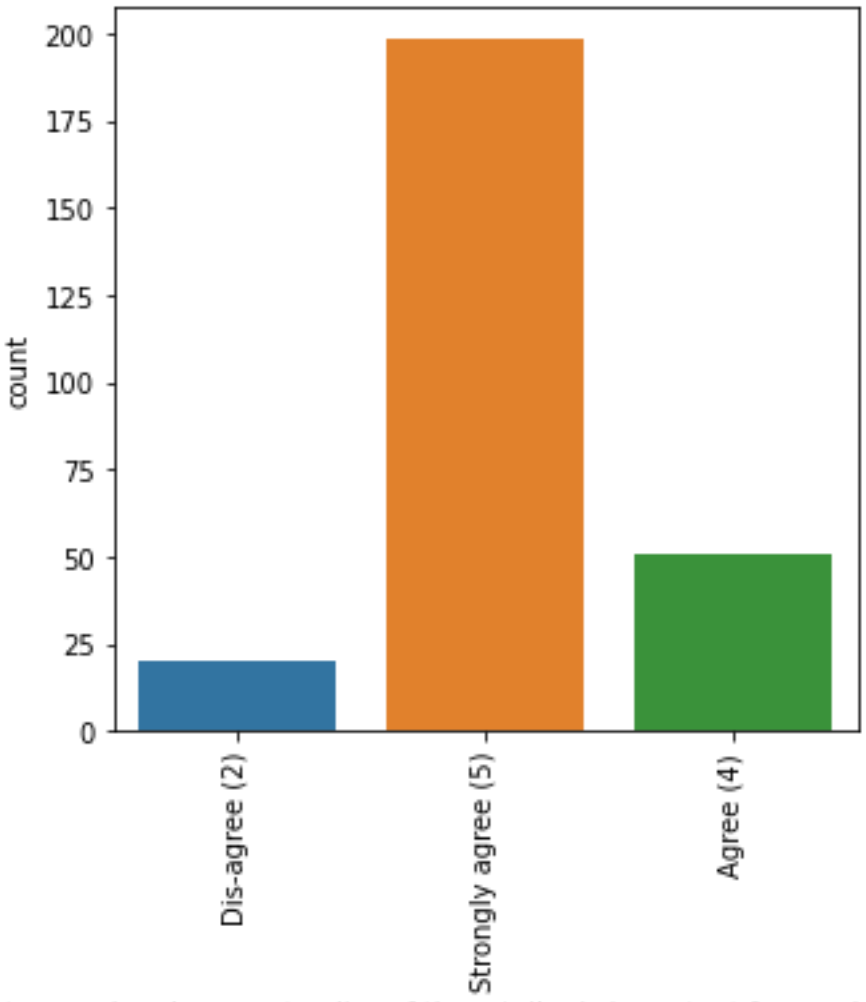
```
indifferent (3)         33
Dis-agree (2)           12
Name: 32 shopping online is convenient and flexible, dtype: int64

ratio of Strongly agree (5) is :       54.28 %
ratio of Totally Agreed count is :     83.27 %
```



Column 33:

```
for column 33 return and replacement policy of the e-tailer is important for
purchase decision,
count values are
Strongly agree (5)    198
Agree (4)              51
Dis-agree (2)          20
Name: 33 return and replacement policy of the e-tailer is important for purch
ase decision, dtype: int64

ratio of Strongly agree (5) is :       73.61 %
```

```
ratio of Totally Agreed count is :     92.57 %
```



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

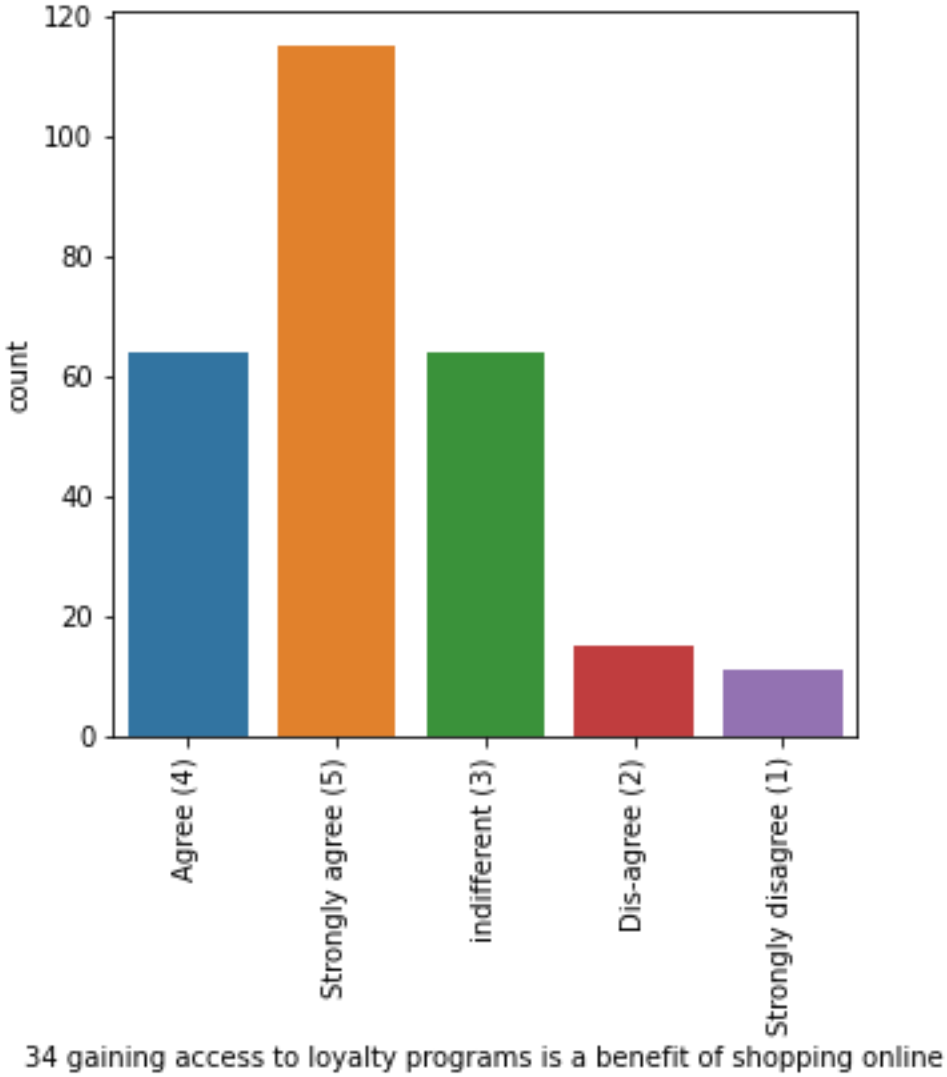
Analysis:

this is the main feature of online shopping which attracts the customers the most towards inline shopping. so, this facility of return and replacement policy should be provided by online company to attract the customers.

Column 34:

```
for column 34 gaining access to loyalty programs is a benefit of shopping onl
ine,
count values are
Strongly agree (5)       115
Agree (4)                 64
indifferent (3)           64
Dis-agree (2)             15
Strongly disagree (1)     11
```

```
Name: 34 gaining access to loyalty programs is a benefit of shopping online,
dtype: int64

ratio of Strongly agree (5) is :       42.75 %
ratio of Totally Agreed count is :     66.54 %
```



34 gaining access to loyalty programs is a benefit of shopping online

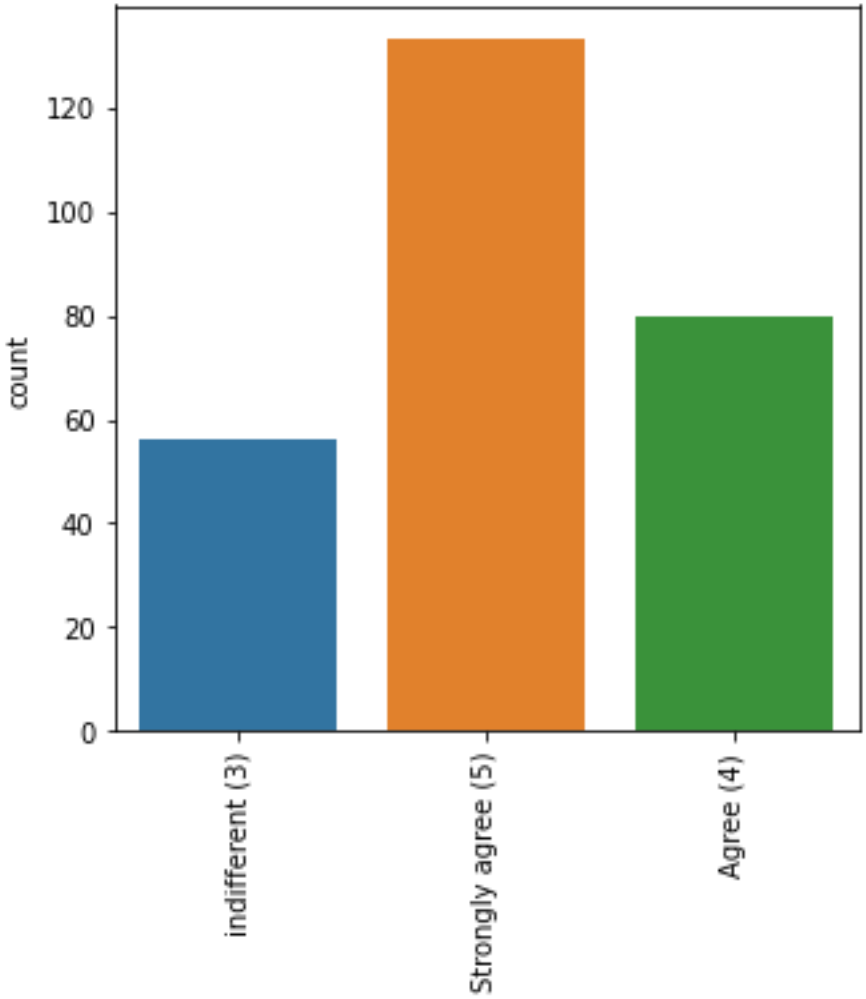
Analysis:

two-third of the customers are agreed on the fact that loyalty program is online shopping's benefit.

Column 35:

```
for column 35 displaying quality information on the website improves satisfac
tion of customers,
count values are
Strongly agree (5)    133
Agree (4)              80
indifferent (3)        56
```

```
Name: 35 displaying quality information on the website improves satisfaction
of customers, dtype: int64

ratio of Strongly agree (5) is :       49.44 %
ratio of Totally Agreed count is :     79.18 %
```



35 displaying quality information on the website improves satisfaction of customers

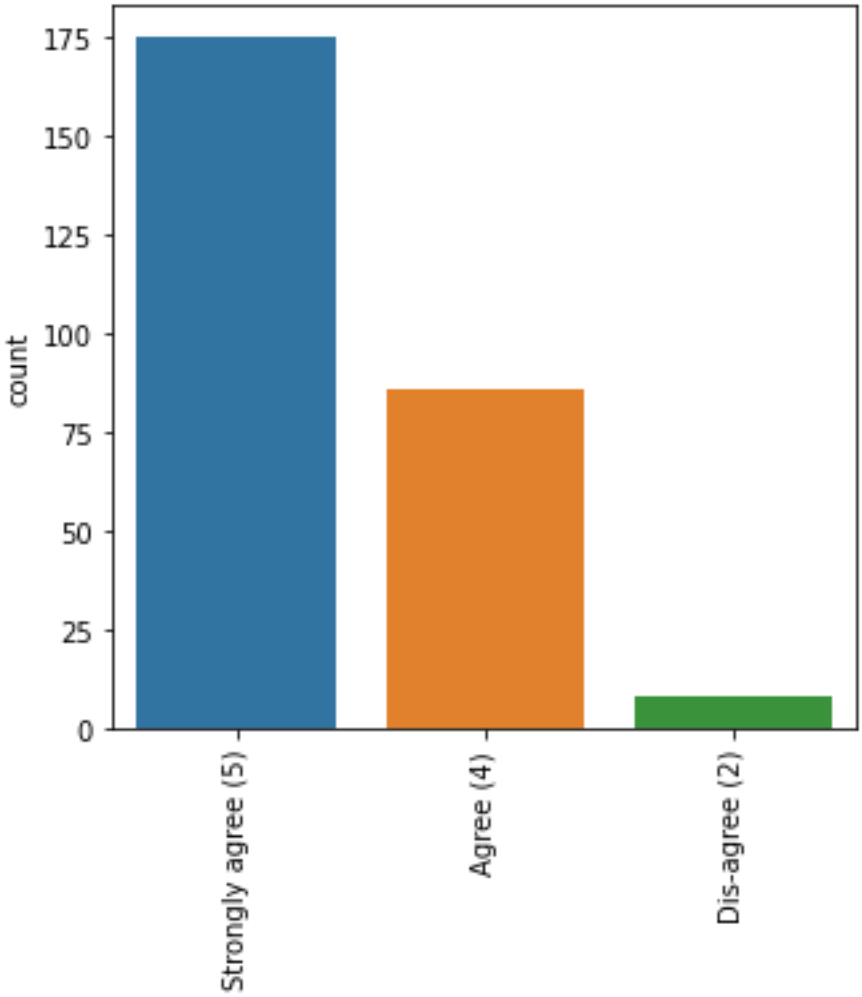
Analysis:

again same thing which was depicted by column 18 the content on the website must be easy to read and understand.

Column 36:

```
for column 36 user derive satisfaction while shopping on a good quality websi
te or application,
count values are
Strongly agree (5)    175
Agree (4)              86
Dis-agree (2)           8
```

```
Name: 36 user derive satisfaction while shopping on a good quality website or
application, dtype: int64

ratio of Strongly agree (5) is :       65.06 %
ratio of Totally Agreed count is :     97.03 %
```

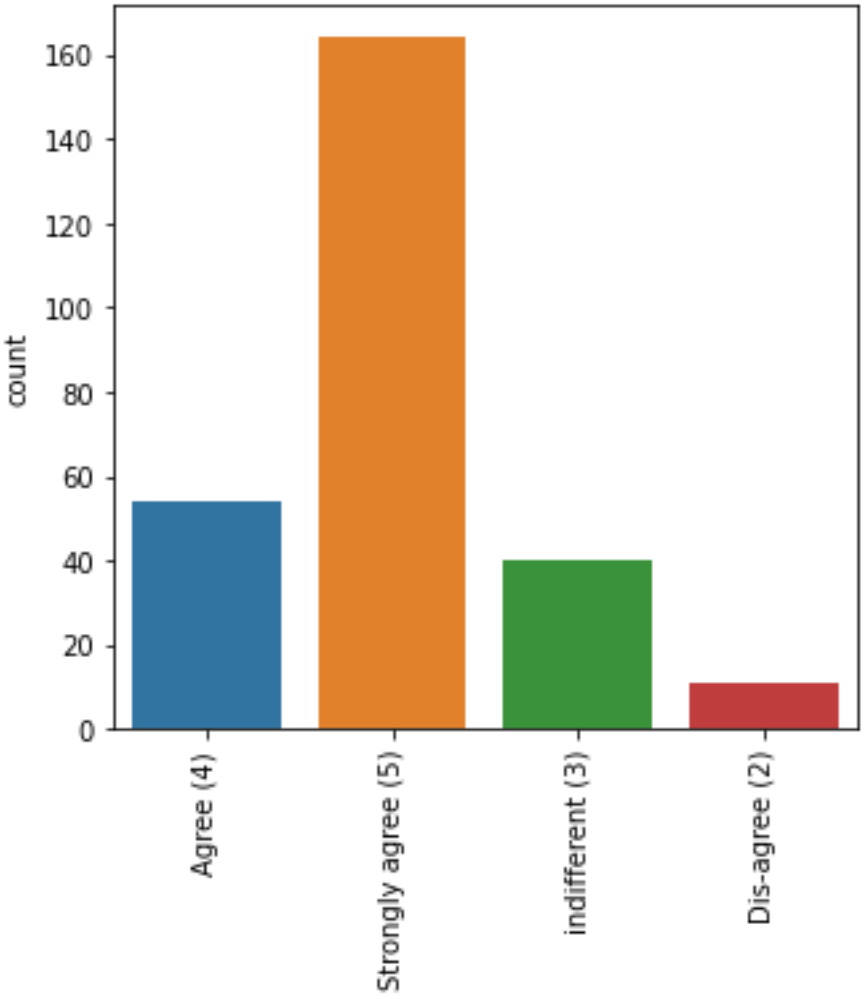


36 user derive satisfaction while shopping on a good quality website or application

Column 37:

```
for column 37 net benefit derived from shopping online can lead to users sati
sfaction,
count values are
Strongly agree (5)    164
Agree (4)              54
indifferent (3)        40
Dis-agree (2)          11
Name: 37 net benefit derived from shopping online can lead to users satisfact
ion, dtype: int64
```

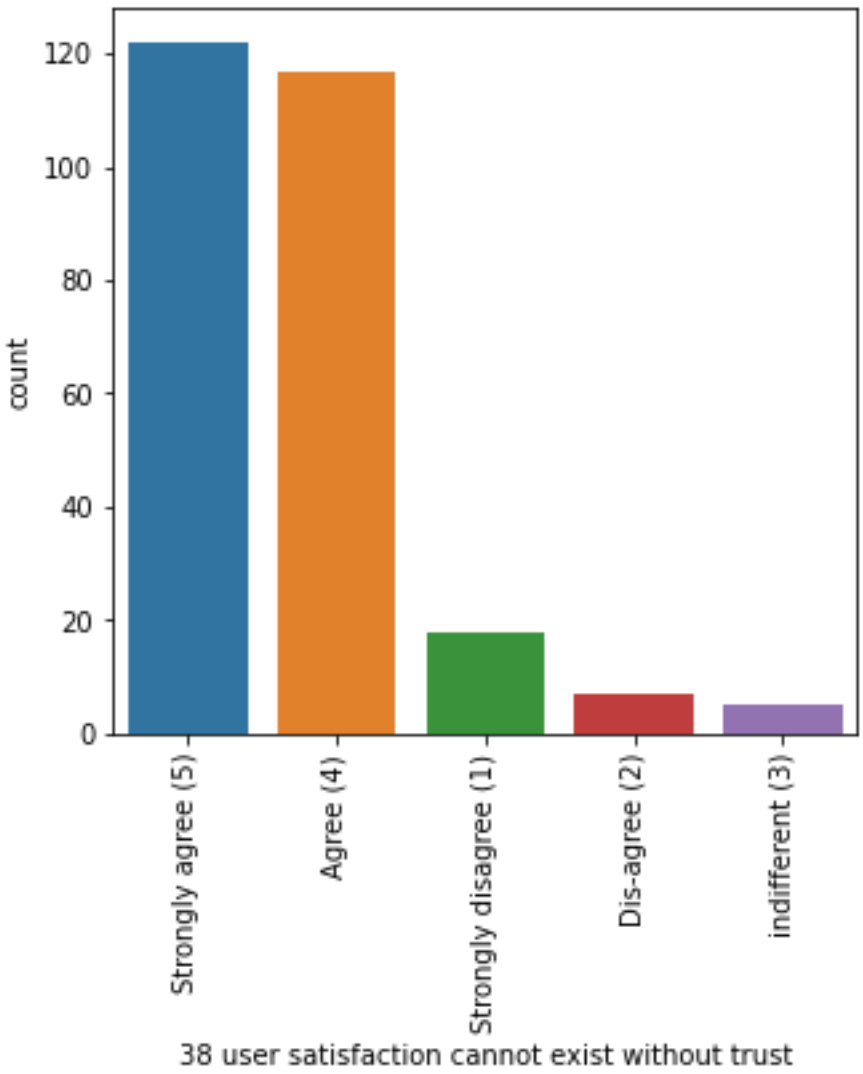
```
ratio of Strongly agree (5) is :       60.97 %
ratio of Totally Agreed count is :     81.04 %
```



37 net benefit derived from shopping online can lead to users satisfaction

Column 38:

```
for column 38 user satisfaction cannot exist without trust,
count values are
Strongly agree (5)       122
Agree (4)                117
Strongly disagree (1)     18
Dis-agree (2)              7
indifferent (3)            5
Name: 38 user satisfaction cannot exist without trust, dtype: int64

ratio of Strongly agree (5) is :       45.35 %
ratio of Totally Agreed count is :     88.85 %
```



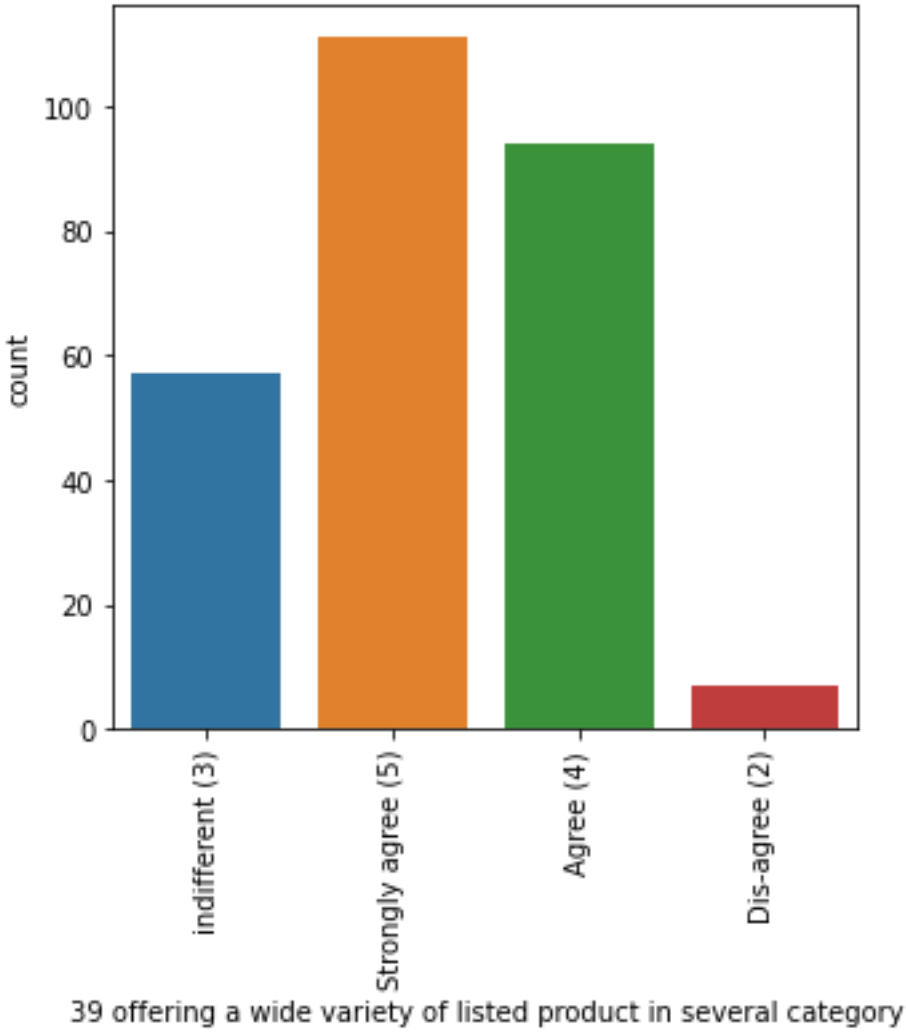
Analysis:

all of the above three columns depict that almost 90% customers think that users get satisfied when they trust on particular online shopping company. this satisfaction comes when they work on good quality website. so, in order to impart trust in the customers, online companies need to improve quality of their websites and should improve on all the factors which are listed in the earlier columns like the websites/apps should be user friendly, quality information should be there, issues redressal sytem be there and there should be list of products for the comparisons.

Column 39:

```
for column 39 offering a wide variety of listed product in several category,
count values are
Strongly agree (5)    111
Agree (4)              94
indifferent (3)        57
Dis-agree (2)           7
```

```
Name: 39 offering a wide variety of listed product in several category, dtype
: int64

ratio of Strongly agree (5) is :       41.26 %
ratio of Totally Agreed count is :     76.21 %
```



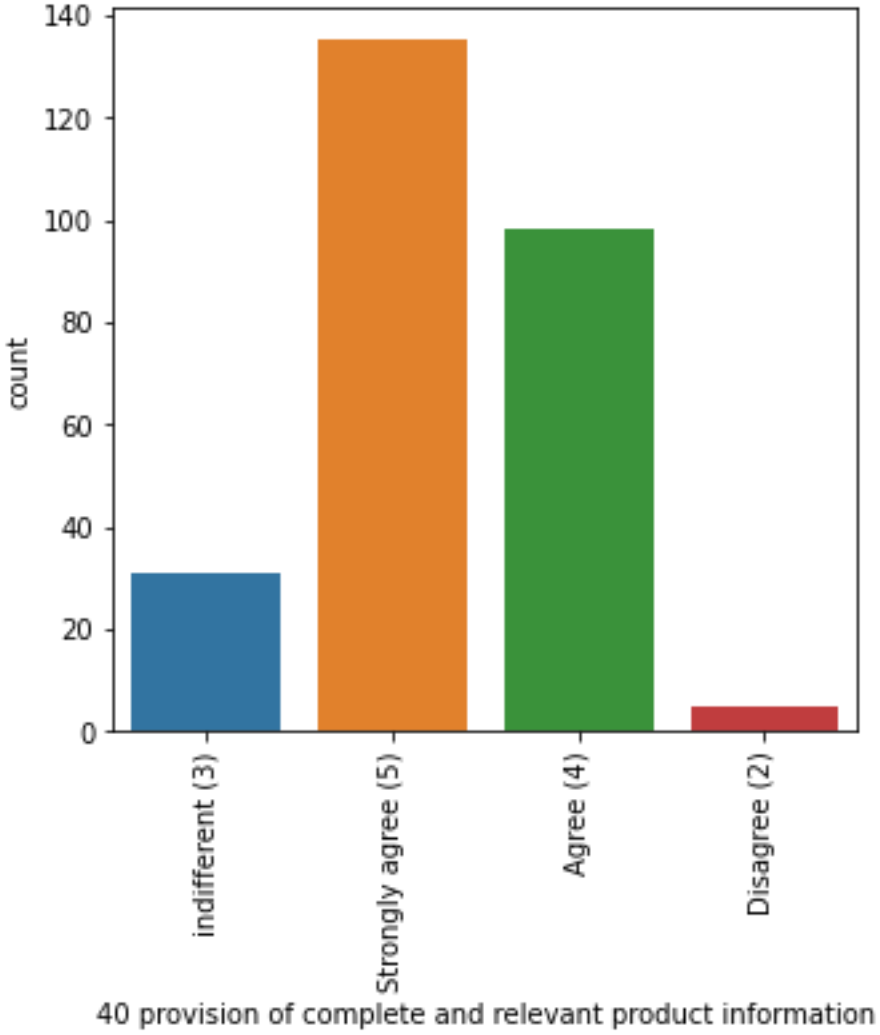
Analysis:

so, as described in earlier columns, a wide variety of products should be available on the online shopping company. so, as much as products will be there, the more customers will be attracted and they will be satisfied more. this will enhance their business.

Column 40:

```
for column 40 provision of complete and relevant product information,
count values are
Strongly agree (5)    135
Agree (4)              98
indifferent (3)        31
Disagree (2)            5
```

```
Name: 40 provision of complete and relevant product information, dtype: int64

ratio of Strongly agree (5) is :       50.19 %
ratio of Totally Agreed count is :     86.62 %
```



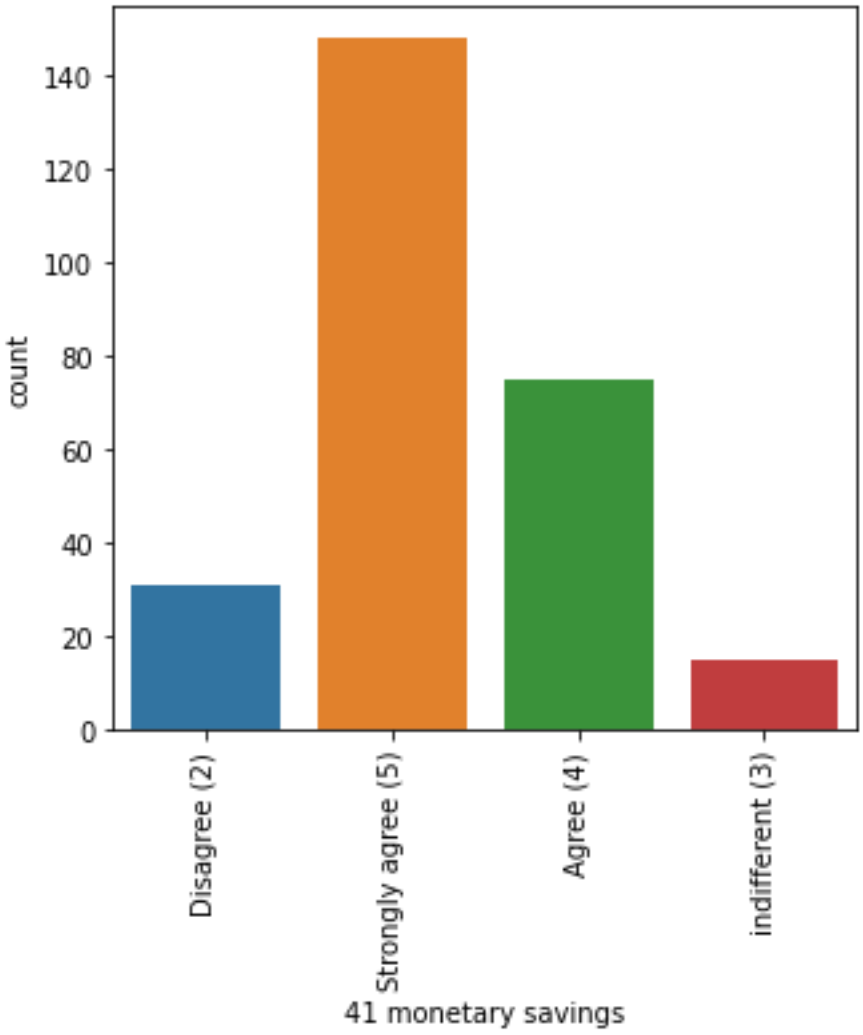
Analysis:

this is again also giving the same information as we got in earlier columns like in column 18

column 41:

```
for column 41 monetary savings,
count values are
Strongly agree (5)    148
Agree (4)              75
Disagree (2)           31
indifferent (3)        15
Name: 41 monetary savings, dtype: int64
```

```
ratio of Strongly agree (5) is :       55.02 %
ratio of Totally Agreed count is :     82.9 %
```

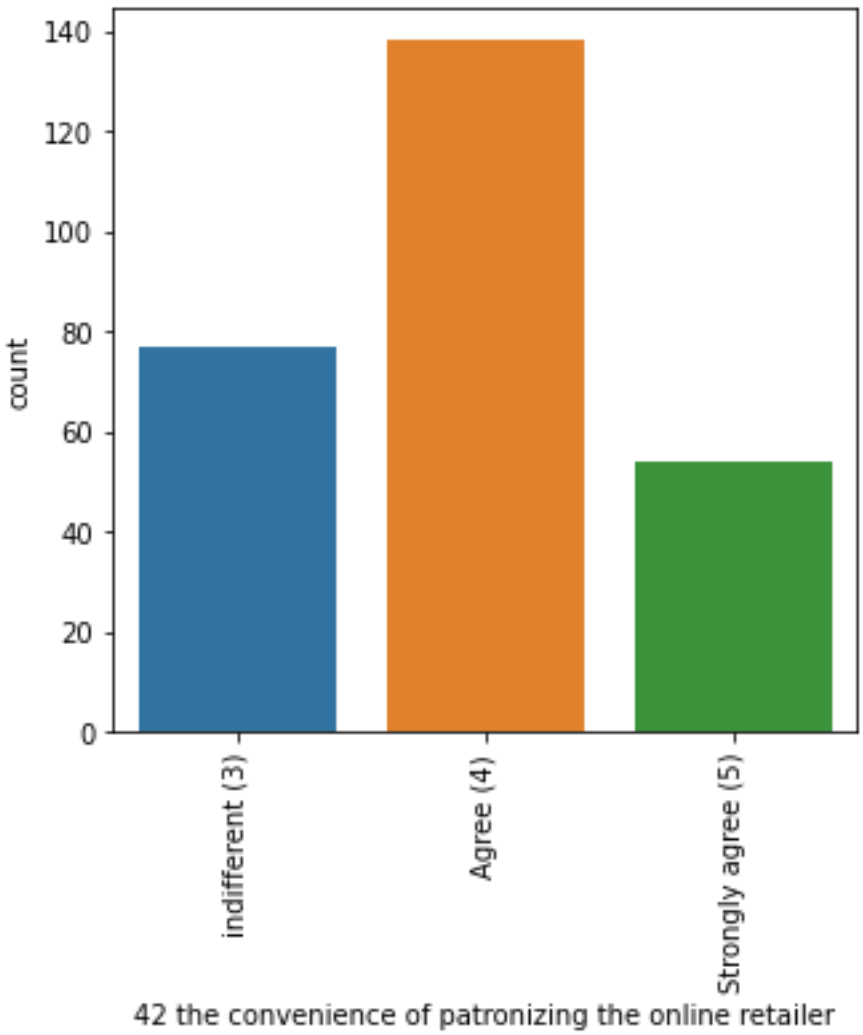


Analysis:

almost 82% customers are agreed on the point that the online shopping provides monetary savings.

Column 42:

```
for column 42 the convenience of patronizing the online retailer,
count values are
Agree (4)              138
indifferent (3)         77
Strongly agree (5)      54
Name: 42 the convenience of patronizing the online retailer, dtype: int64

ratio of Agree (4) is :        51.3 %
ratio of Totally Agreed count is :     71.38 %
```



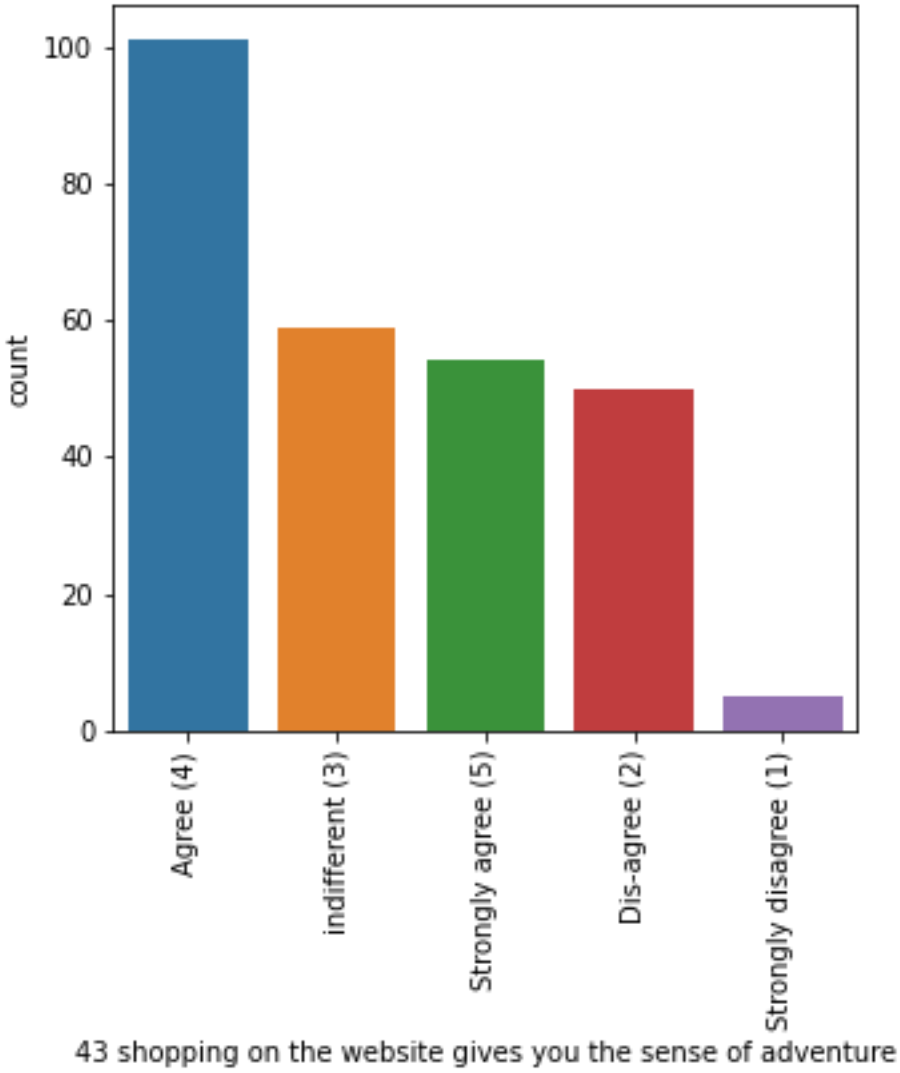
Analysis:

so, it's not like that only customers are patronized in online shopping or only they are getting all the benefits, besides it, the online retailer are also getting convenience of patronizing on online platforms as their payments are safe with the online shopping companies. also, if any customer is betraying them by making excuse of quality, then they have the quality checkup team to do so. so, acc. to a lot of customers, they also feel that the oline retailers are also safe on this platform.

Column 43:

```
for column 43 shopping on the website gives you the sense of adventure,
count values are
Agree (4)                101
indifferent (3)           59
Strongly agree (5)        54
Dis-agree (2)             50
Strongly disagree (1)      5
```

```
Name: 43 shopping on the website gives you the sense of adventure, dtype: int
64

ratio of Agree (4) is :        37.55 %
ratio of Totally Agreed count is :    57.62 %
```



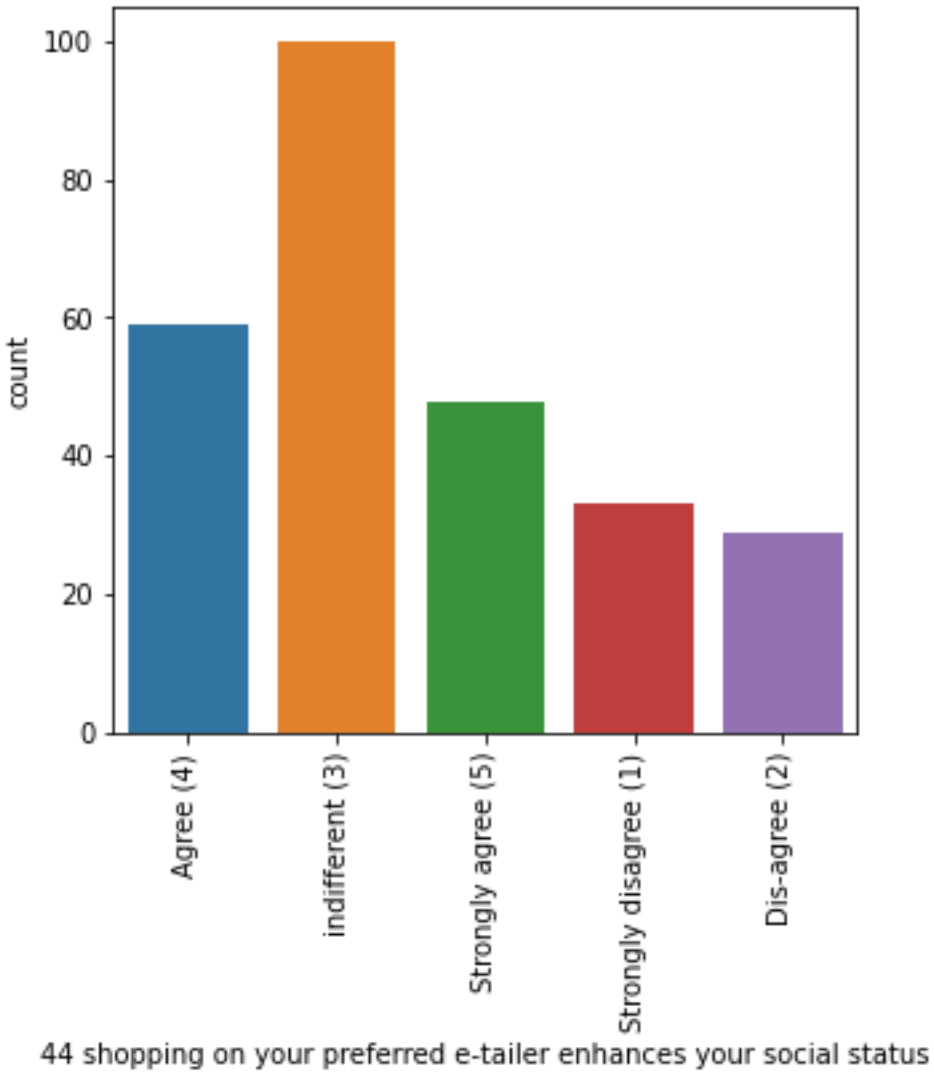
Analysis:

there are mix sentiments regarding this. some think that the online shopping gives the feeling of adventure. some others think that it's not so. some has nothing to do with this feeling. they only shop there, that's it.

Column 44:

```
for column 44 shopping on your preferred e-tailer enhances your social status
,
count values are
```

```
indifferent (3)          100
Agree (4)                 59
Strongly agree (5)        48
Strongly disagree (1)     33
Dis-agree (2)             29
Name: 44 shopping on your preferred e-tailer enhances your social status, dty
pe: int64

ratio of indifferent (3) is :  37.17 %
ratio of Totally Agreed count is :    39.78 %
```

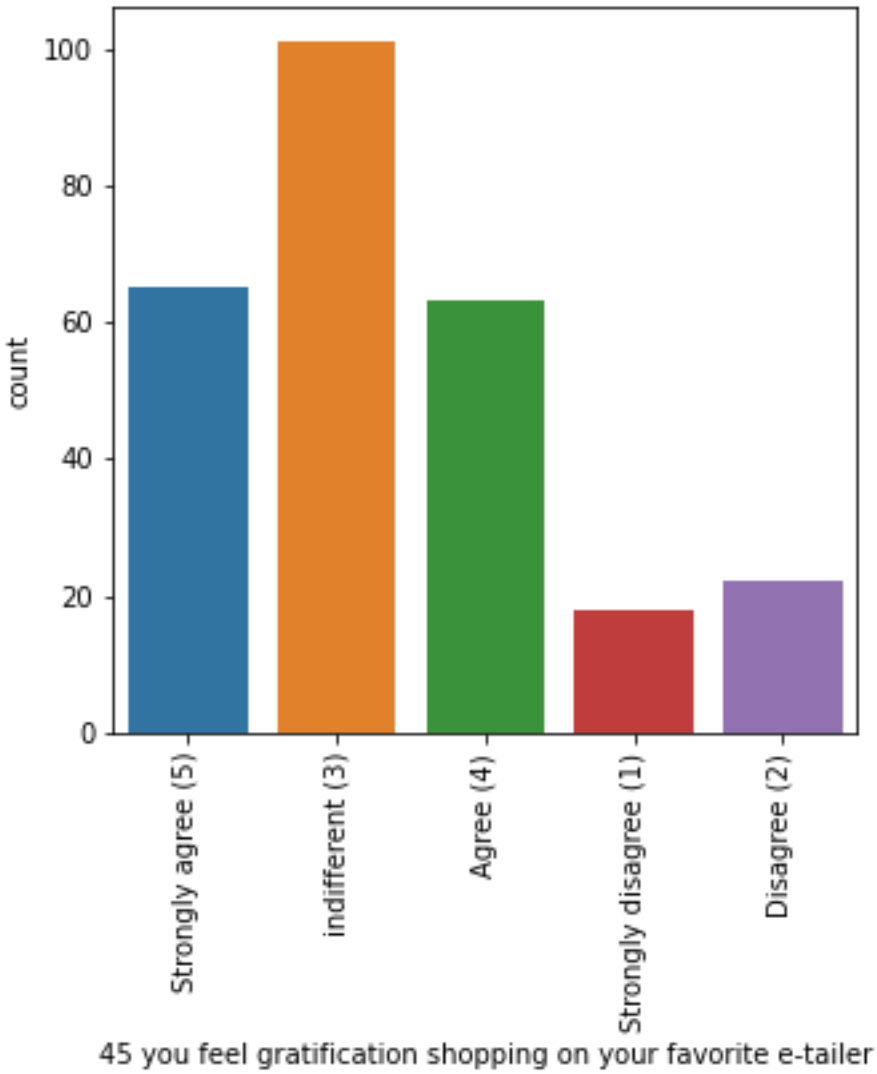


Analysis:

there is a long list of te customers or the maximum ratio of the customers think that they don't bother about that if the shopping on their preferred site enhances their social status or not. they don't think about this. almost 37% (more than one third) of entire customers list fall in this range.

Column 45:

```
for column 45 you feel gratification shopping on your favorite e-tailer,
count values are
indifferent (3)          101
Strongly agree (5)        65
Agree (4)                 63
Disagree (2)              22
Strongly disagree (1)     18
Name: 45 you feel gratification shopping on your favorite e-tailer, dtype: in
t64

ratio of indifferent (3) is :  37.55 %
ratio of Totally Agreed count is :    47.58 %
```

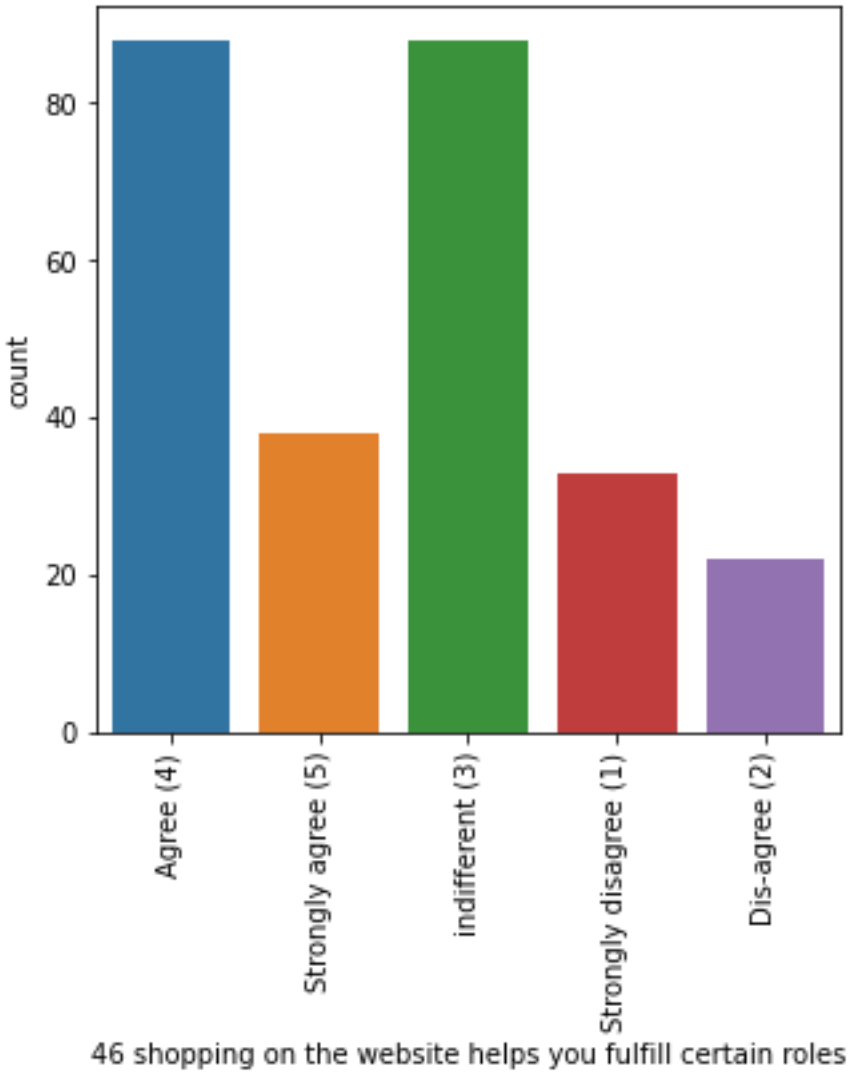


Analysis:

similarly, as depicted from the last column , there is also a long list of the customers who have nothing to do with the gratification feeling. they don't bother about it.

Column 46:

```
for column 46 shopping on the website helps you fulfill certain roles,
count values are
Agree (4)                88
indifferent (3)          88
Strongly agree (5)       38
Strongly disagree (1)    33
Dis-agree (2)            22
Name: 46 shopping on the website helps you fulfill certain roles, dtype: int6
4

ratio of Agree (4) is :        32.71 %
ratio of Totally Agreed count is :    46.84 %
```

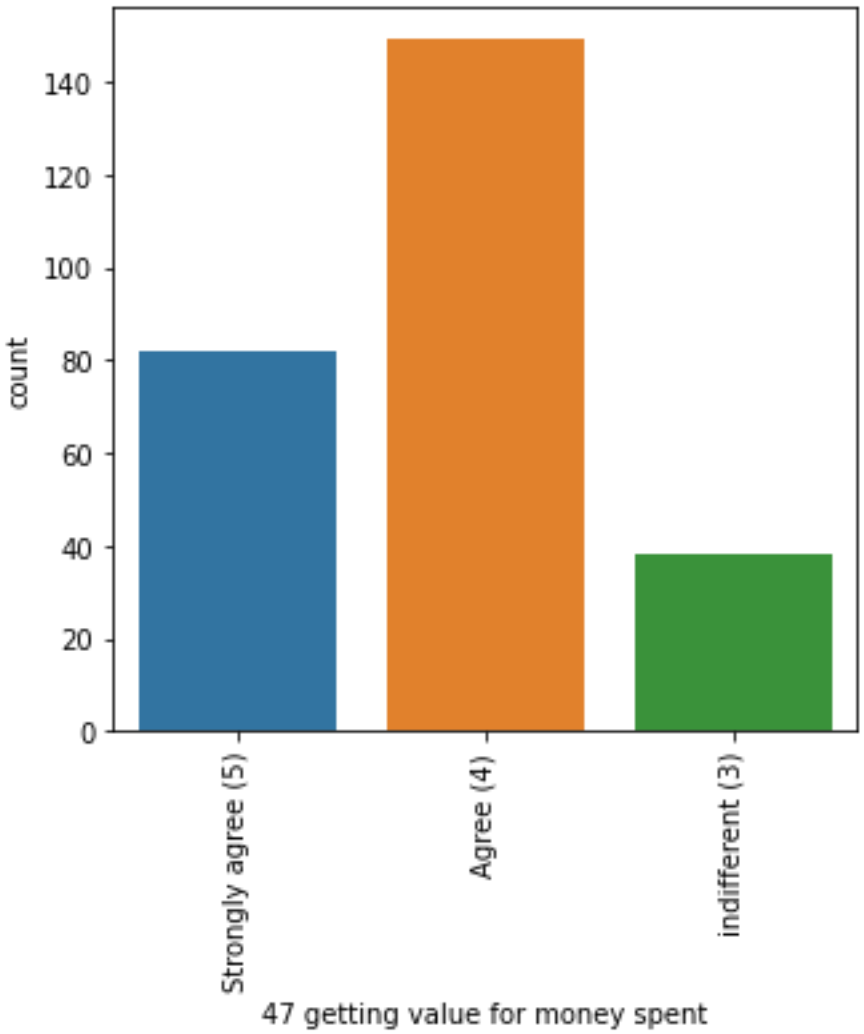


Analysis:

again , there are mixed emotions.so, we can say that when it comes to social sentiments, the customers don't even bother about it. they only use this online shopping platform to buy the products and they have no feelings regarding their social status enhancement, their gratifcation feeling, their fulfillment of certain roles etc. so, in short, these online shopping companies don't change any social feelings of the customers like the social sites do. they are only a carrier to provide the items which the customers want.

Column 47:

```
for column 47 getting value for money spent,
count values are
Agree (4)              149
Strongly agree (5)      82
indifferent (3)         38
Name: 47 getting value for money spent, dtype: int64

ratio of Agree (4) is :        55.39 %
ratio of Totally Agreed count is :    85.87 %
```



Analysis:

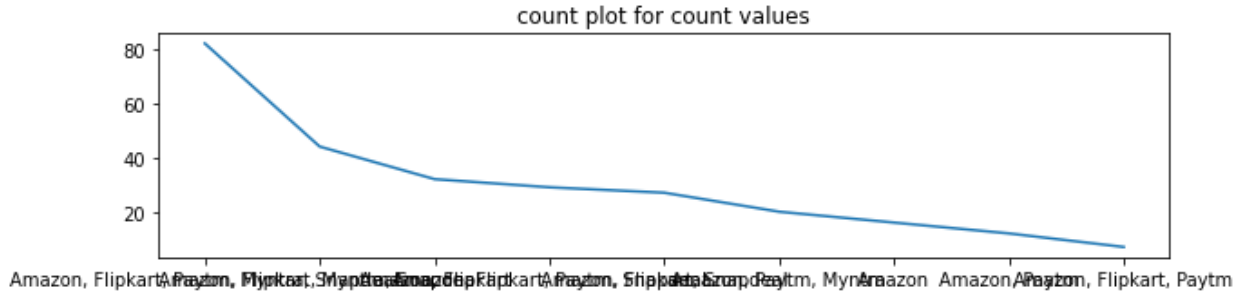
this feature also depicts the same thing as depicted in earlier column of showing monetary benefits. yes, a large proportion of the customers think that the value spent on online shopping sites give them a worth and they get lot of benefits from it.

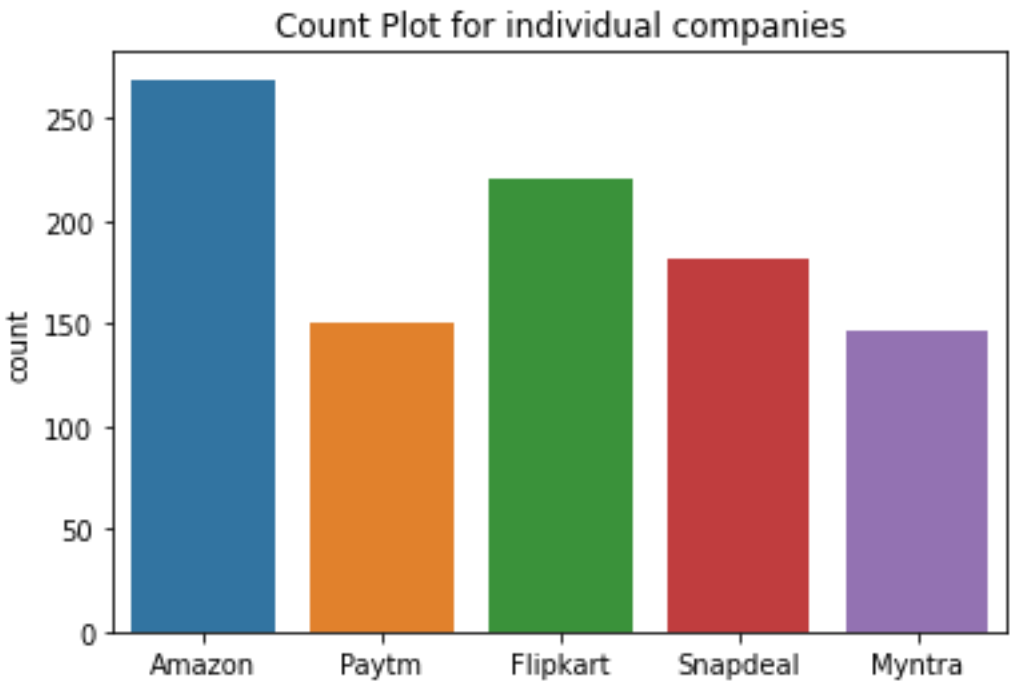
Points:

this was all about the suggestions from the customers which every online retail company should follow in order to enhance its business and customers' count.
now, there are some survey results which tell that to which companies, the customers are attracted the most. so, based on these results, the companies which are not at the first choice of the customers should take some measure in order to overcome their shortcomings. they can enlist their shortcomings based on some suggestions column's interpretations described above and on the results of the upcoming columns, they can also decide in which field they have not become the first choice of the customers.

Column 48:

```
for column from the following, tick any (or all) of the online retailers you
have shopped from;
,
count values are
Amazon, Flipkart, Paytm, Myntra, Snapdeal    82
Amazon, Flipkart, Myntra, Snapdeal           44
Amazon, Flipkart                             32
Amazon, Flipkart, Paytm, Snapdeal            29
Amazon, Flipkart, Snapdeal                   27
Amazon, Paytm, Myntra                        20
Amazon                                       16
Amazon, Paytm                                12
Amazon, Flipkart, Paytm                       7
Name: from the following, tick any (or all) of the online retailers you have
shopped from;
, dtype: int64

ratio of Amazon, Flipkart, Paytm, Myntra, Snapdeal is :      30.48 %
```






```
No. of times Amazon chosen: 269
No. of times Flipkart chosen: 221
No. of times Snapdeal chosen: 182
No. of times Paytm chosen: 150
No. of times Myntra chosen: 146
maximum times 269 the company Amazon chosen, whose %age becomes 100.0 %
minimum times 146 the company Myntra chosen, whose %age becomes 54.28 %
```

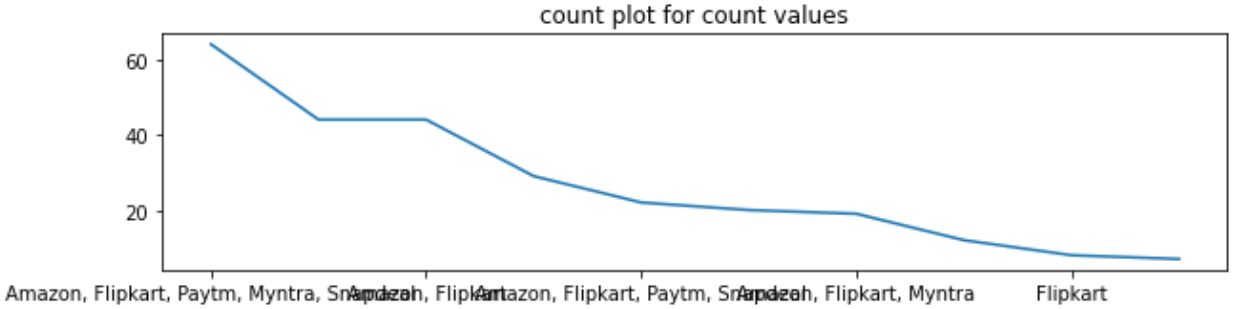
analysis:

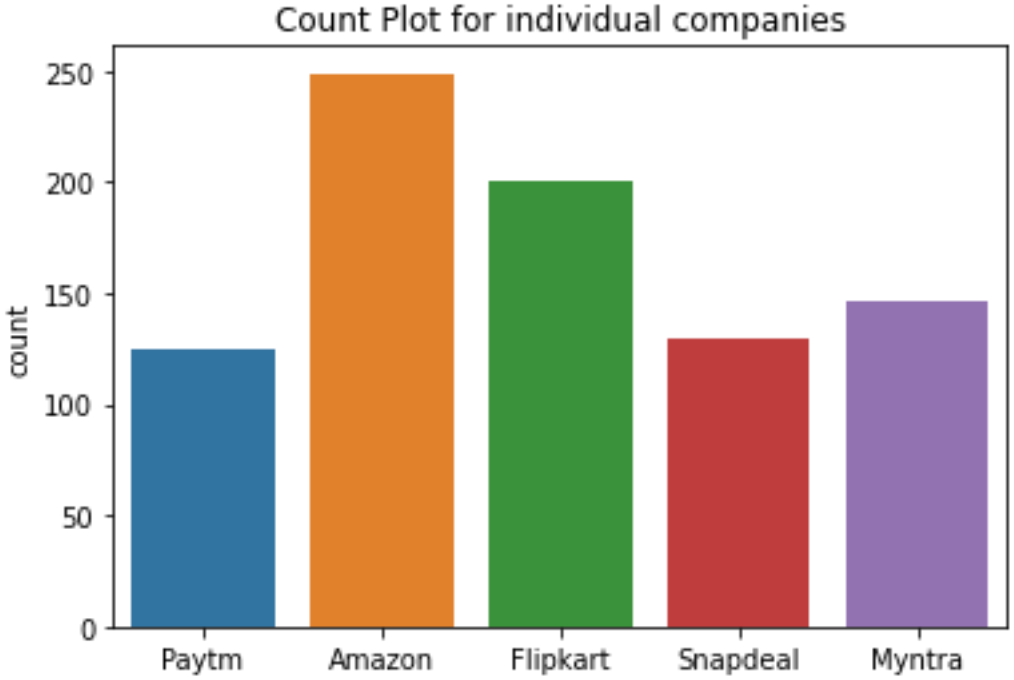
from the above analysis, it's clear that all customers have shopped from Amazon.com, the second one name falls in this list is Flipkart and the last one is Myntra.com.

column 49:

```
for column easy to use website or application,
count values are
Amazon, Flipkart, Paytm, Myntra, Snapdeal    64
Amazon, Flipkart, Myntra, Snapdeal           44
Amazon, Flipkart                             44
Amazon                                       29
Amazon, Flipkart, Paytm, Snapdeal            22
Amazon, Paytm, Myntra                        20
Amazon, Flipkart, Myntra                     19
Paytm                                        12
Flipkart                                      8
```

```
Amazon, Paytm                                   7
Name: easy to use website or application, dtype: int64

ratio of Amazon, Flipkart, Paytm, Myntra, Snapdeal is :      23.79 %
```





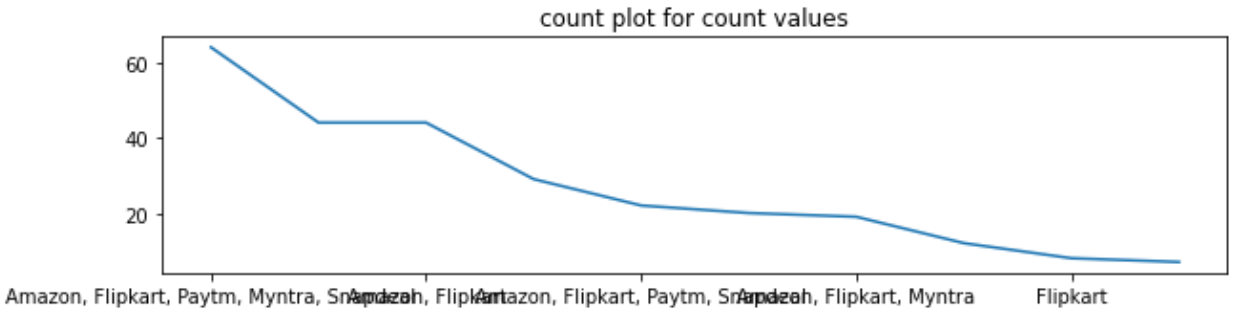

```
No. of times Amazon chosen: 249
No. of times Flipkart chosen: 201
No. of times Snapdeal chosen: 130
No. of times Paytm chosen: 125
No. of times Myntra chosen: 147
maximum times 249 the company Amazon chosen, whose %age becomes 92.57 %
minimum times 125 the company Paytm chosen, whose %age becomes 46.47 %
```

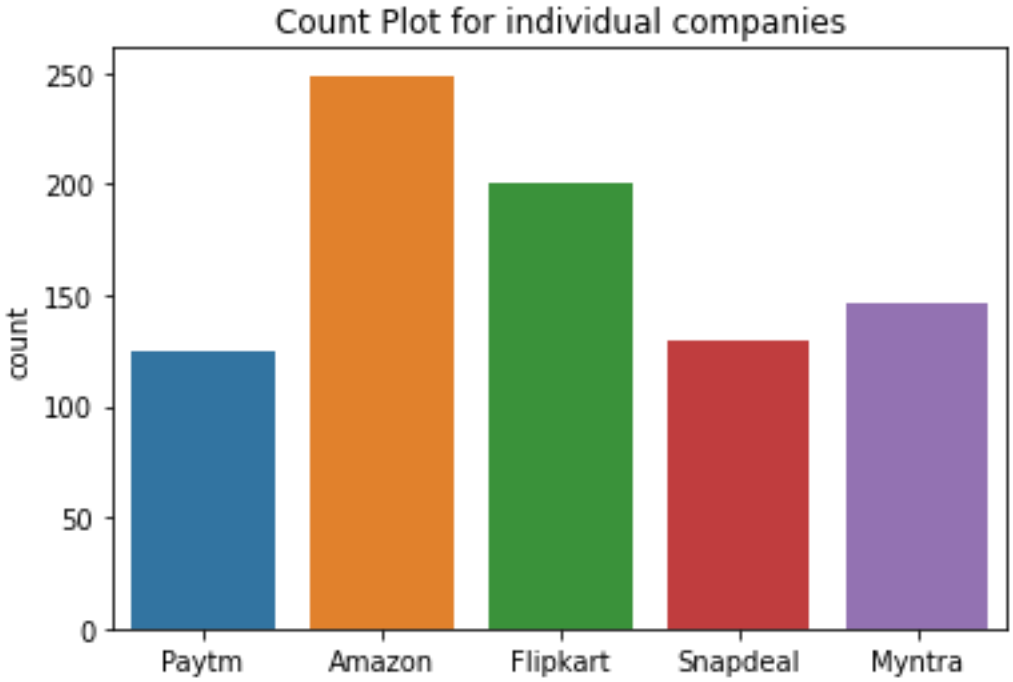
analysis:

in this analysis of easy to use website or app, again amazon tops in the list with 92.5% votes and paytm is the lowest with 46%

column 50:

```
for column easy to use website or application,
count values are
Amazon, Flipkart, Paytm, Myntra, Snapdeal    64
Amazon, Flipkart, Myntra, Snapdeal           44
Amazon, Flipkart                             44
Amazon                                       29
Amazon, Flipkart, Paytm, Snapdeal            22
Amazon, Paytm, Myntra                        20
Amazon, Flipkart, Myntra                     19
Paytm                                        12
Flipkart                                      8
Amazon, Paytm                                 7
Name: easy to use website or application, dtype: int64

ratio of Amazon, Flipkart, Paytm, Myntra, Snapdeal is :      23.79 %
```






```
No. of times Amazon chosen: 249
```

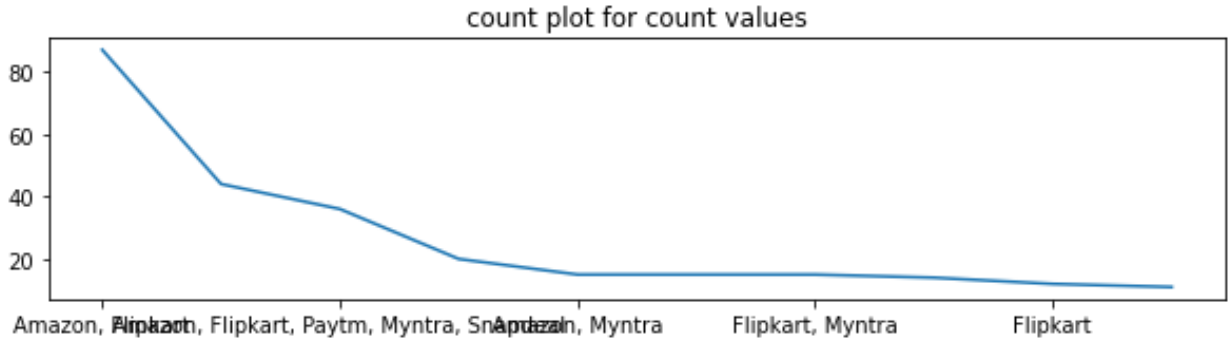
```
No. of times Flipkart chosen: 201
No. of times Snapdeal chosen: 130
No. of times Paytm chosen: 125
No. of times Myntra chosen: 147
maximum times 249 the company Amazon chosen, whose %age becomes 92.57 %
minimum times 125 the company Paytm chosen, whose %age becomes 46.47 %
```

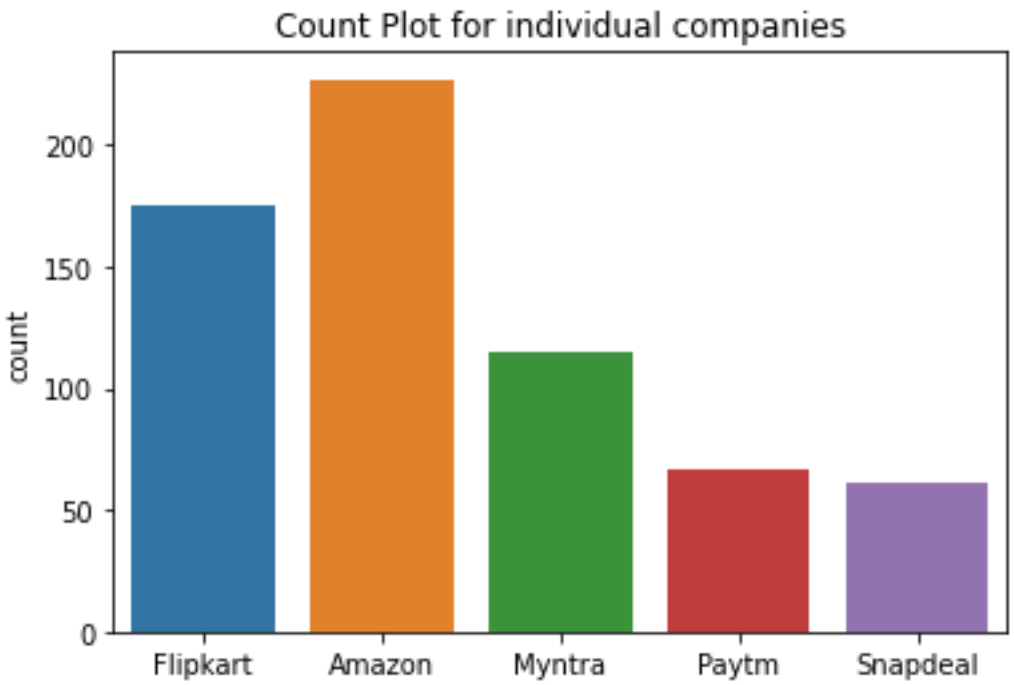
analysis:

in this analysis of easy to use website or app, again amazon tops in the list with 92.5% votes and paytm is the lowest with 46%

column 51:

```
for column visual appealing web-page layout,
count values are
Amazon, Flipkart                              87
Amazon                                        44
Amazon, Flipkart, Paytm, Myntra, Snapdeal     36
Amazon, Paytm, Myntra                         20
Amazon, Myntra                                15
Myntra                                        15
Flipkart, Myntra                              15
Amazon, Flipkart, Myntra, Snapdeal            14
Flipkart                                      12
Amazon, Flipkart, Paytm, Snapdeal             11
Name: visual appealing web-page layout, dtype: int64

ratio of Amazon, Flipkart is :        32.34 %
```






```
No. of times Amazon chosen: 227
No. of times Flipkart chosen: 175
No. of times Snapdeal chosen: 61
No. of times Paytm chosen: 67
No. of times Myntra chosen: 115
maximum times 227 the company Amazon chosen, whose %age becomes 84.39 %
minimum times 61 the company Snapdeal chosen, whose %age becomes 22.68 %
```

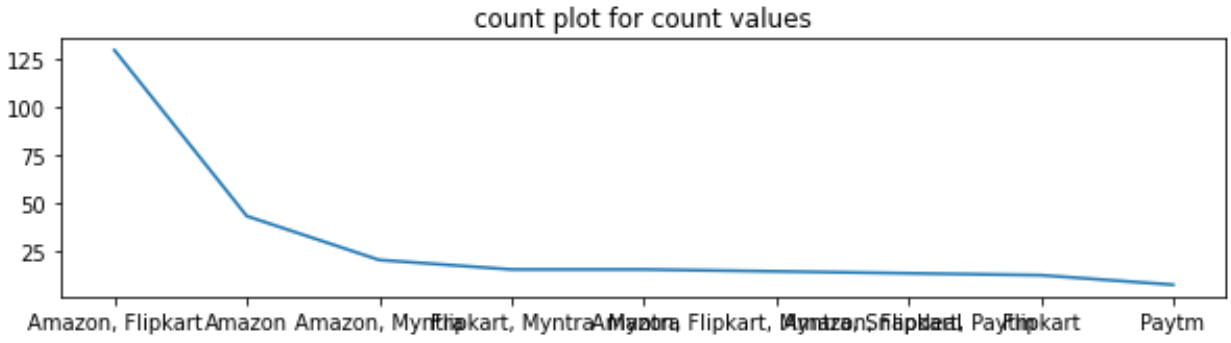
analysis:

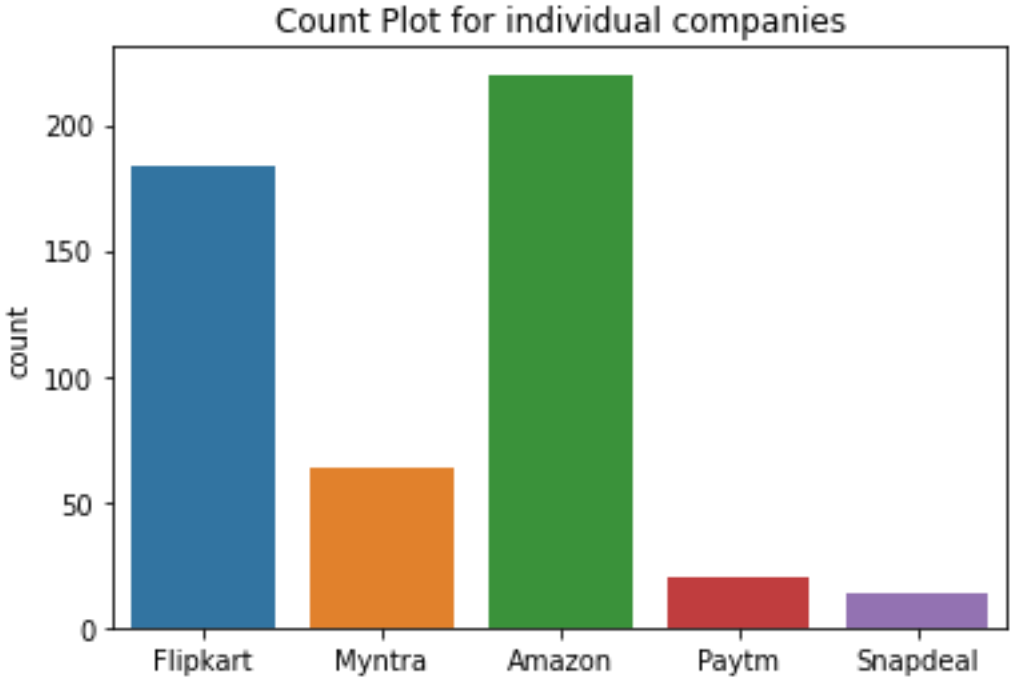
it means webpage of amazon appeals the customers the most with 84% likings and webpage of snapdeal with minimum likings of 22% is liked the least.

Column 52:

```
for column wild variety of product on offer,
count values are
Amazon, Flipkart                    130
Amazon                               43
Amazon, Myntra                       20
Flipkart, Myntra                     15
Myntra                               15
Amazon, Flipkart, Myntra, Snapdeal   14
Amazon, Flipkart, Paytm              13
Flipkart                             12
Paytm                                 7
```

```
Name: wild variety of product on offer, dtype: int64

ratio of Amazon, Flipkart is :         48.33 %
```






```
No. of times Amazon chosen: 220
No. of times Flipkart chosen: 184
No. of times Snapdeal chosen: 14
No. of times Paytm chosen: 20
No. of times Myntra chosen: 64
maximum times 220 the company Amazon chosen, whose %age becomes 81.78 %
minimum times 14 the company Snapdeal chosen, whose %age becomes 5.2 %
```

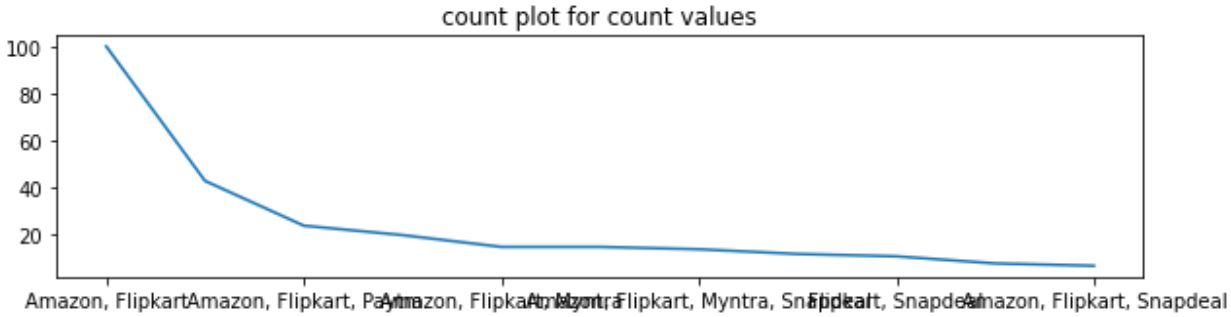
analysis:

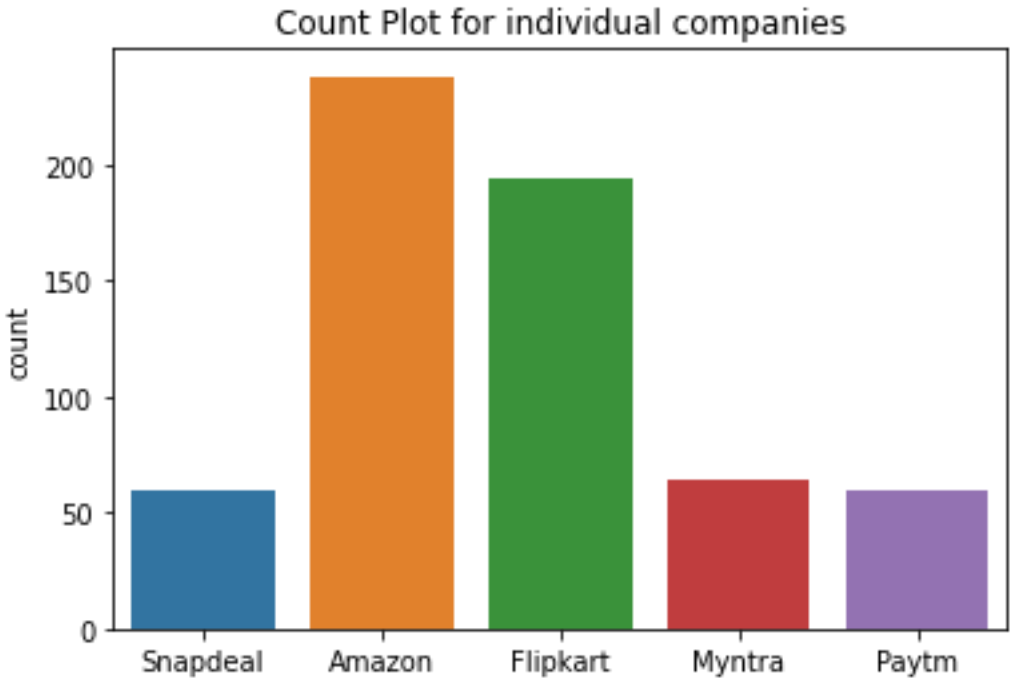
again, amazon is on the top here with 81 % votes for having wide variety of products. and snapdeal is having least votes of 5%. so, snapdeal needs to work on this.

Column 53:

```
for column complete, relevant description information of products,
```

```
count values are
Amazon, Flipkart                                  100
Amazon                                             43
Amazon, Flipkart, Paytm                            24
Amazon, Paytm, Myntra                              20
Amazon, Flipkart, Myntra                           15
Amazon, Flipkart, Paytm, Myntra, Snapdeal          15
Amazon, Flipkart, Myntra, Snapdeal                 14
Snapdeal                                           12
Flipkart, Snapdeal                                 11
Flipkart                                            8
Amazon, Flipkart, Snapdeal                          7
Name: complete, relevant description information of products, dtype: int64

ratio of Amazon, Flipkart is :        37.17 %
```






```
No. of times Amazon chosen: 238
No. of times Flipkart chosen: 194
```

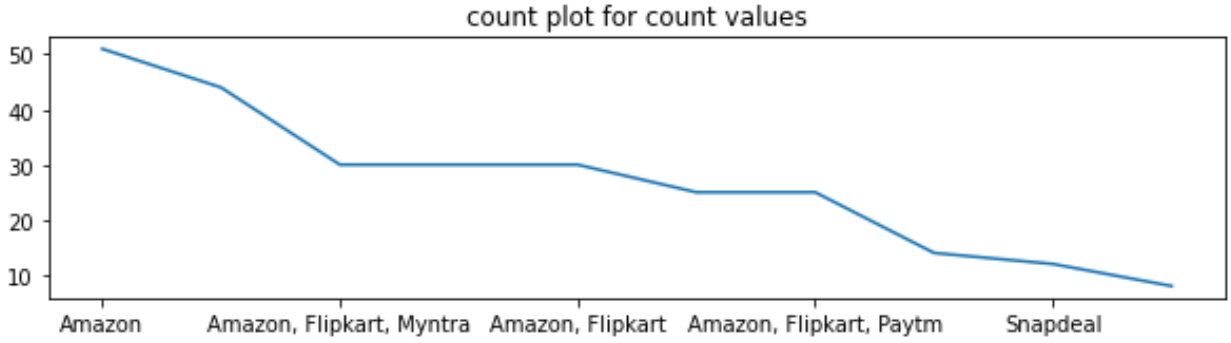
```
No. of times Snapdeal chosen: 59
No. of times Paytm chosen: 59
No. of times Myntra chosen: 64
maximum times 238 the company Amazon chosen, whose %age becomes 88.48 %
minimum times 59 the company Snapdeal chosen, whose %age becomes 21.93 %
```

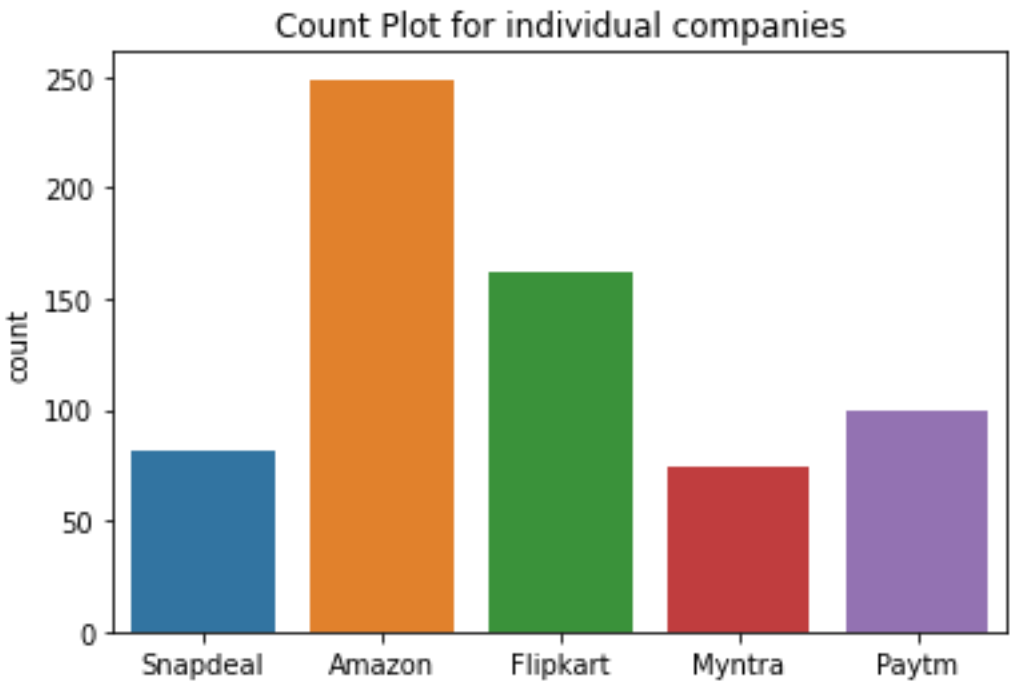
analysis:

again ,amazon is on the top regarding providing relevant information with 88% votes and snapdeal is performing poor here also with 21% votes.

Column 54:

```
for column fast loading website speed of website and application,
count values are
Amazon                                          51
Amazon, Paytm                                   44
Amazon, Flipkart, Myntra                        30
Amazon, Flipkart, Paytm, Myntra, Snapdeal       30
Amazon, Flipkart                                30
Amazon, Flipkart, Snapdeal                      25
Amazon, Flipkart, Paytm                         25
Amazon, Flipkart, Myntra, Snapdeal              14
Snapdeal                                        12
Flipkart                                         8
Name: fast loading website speed of website and application, dtype: int64

ratio of Amazon is :   18.96 %
```






```
No. of times Amazon chosen: 249
No. of times Flipkart chosen: 162
No. of times Snapdeal chosen: 81
No. of times Paytm chosen: 99
No. of times Myntra chosen: 74
maximum times 249 the company Amazon chosen, whose %age becomes 92.57 %
minimum times 74 the company Myntra chosen, whose %age becomes 27.51 %
```

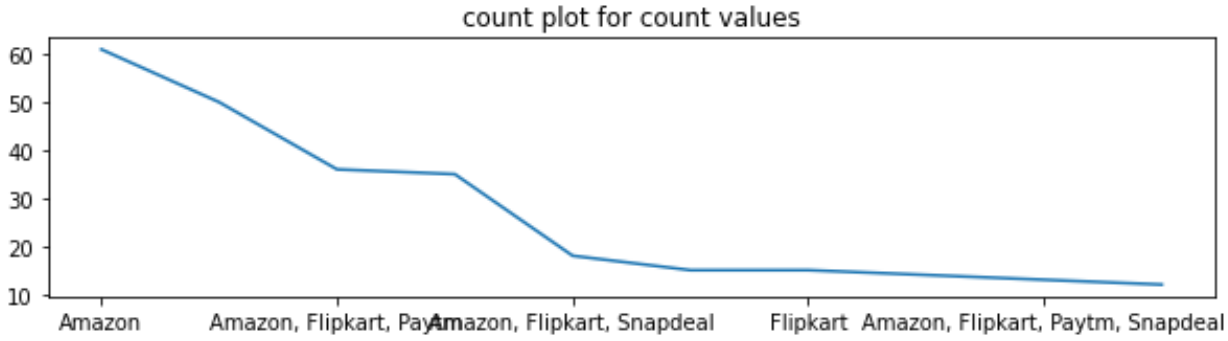
analysis:

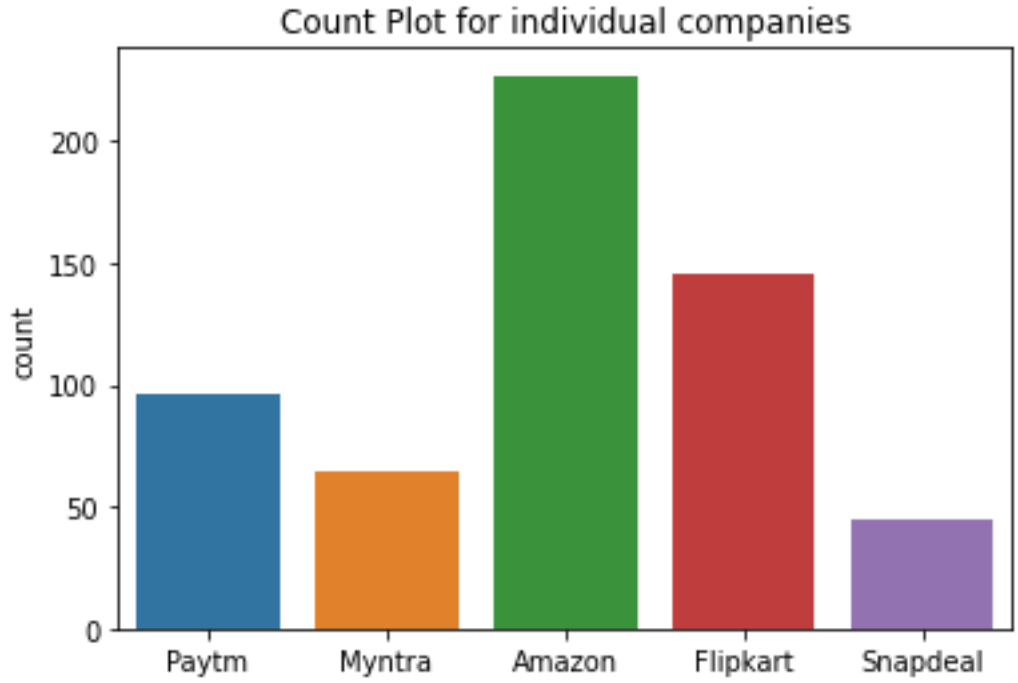
amazon is the fastest amongst all these with 92% votes and myntra is the slowest with 27%votes.

Column 55:

```
for column reliability of the website or application,
count values are
Amazon                                61
Amazon, Flipkart                      50
Amazon, Flipkart, Paytm               36
Amazon, Paytm, Myntra                 35
Amazon, Flipkart, Snapdeal            18
Myntra                                15
Flipkart                              15
Amazon, Flipkart, Myntra, Snapdeal    14
Amazon, Flipkart, Paytm, Snapdeal     13
Paytm                                 12
Name: reliability of the website or application, dtype: int64
```

```
ratio of Amazon is :   22.68 %
```






```
No. of times Amazon chosen: 227
No. of times Flipkart chosen: 146
No. of times Snapdeal chosen: 45
No. of times Paytm chosen: 96
No. of times Myntra chosen: 64
maximum times 227 the company Amazon chosen, whose %age becomes 84.39 %
minimum times 45 the company Snapdeal chosen, whose %age becomes 16.73 %
```

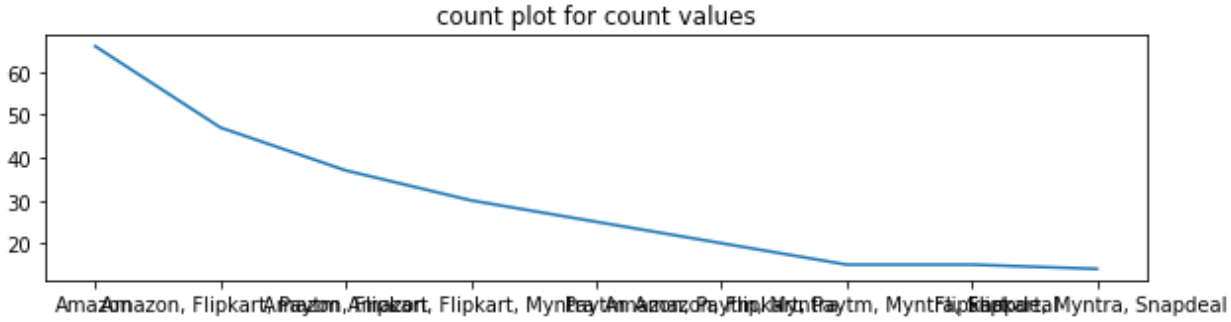
analysis:

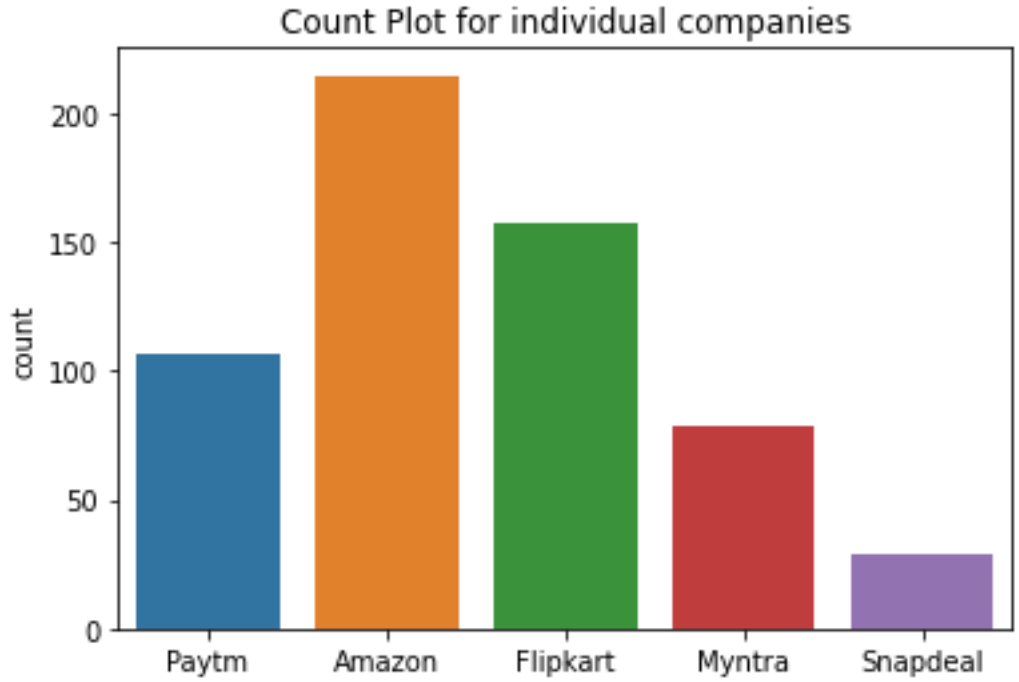
again amazon is on the top and snapdeal is at the bottom.

Column 56:

```
for column quickness to complete purchase,
count values are
```

```
Amazon                                          66
Amazon, Flipkart, Paytm                         47
Amazon, Flipkart                                37
Amazon, Flipkart, Myntra                        30
Paytm                                           25
Amazon, Paytm, Myntra                           20
Amazon, Flipkart, Paytm, Myntra, Snapdeal       15
Flipkart                                        15
Flipkart, Myntra, Snapdeal                      14
Name: quickness to complete purchase, dtype: int64

ratio of Amazon is :   24.54 %
```






```
No. of times Amazon chosen: 215
No. of times Flipkart chosen: 158
No. of times Snapdeal chosen: 29
No. of times Paytm chosen: 107
No. of times Myntra chosen: 79
```

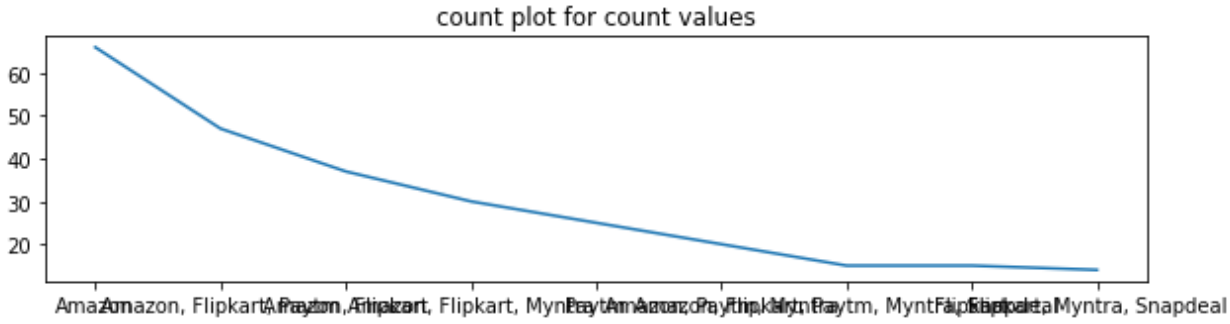
```
maximum times 215 the company Amazon chosen, whose %age becomes 79.93 %
minimum times 29 the company Snapdeal chosen, whose %age becomes 10.78 %
```

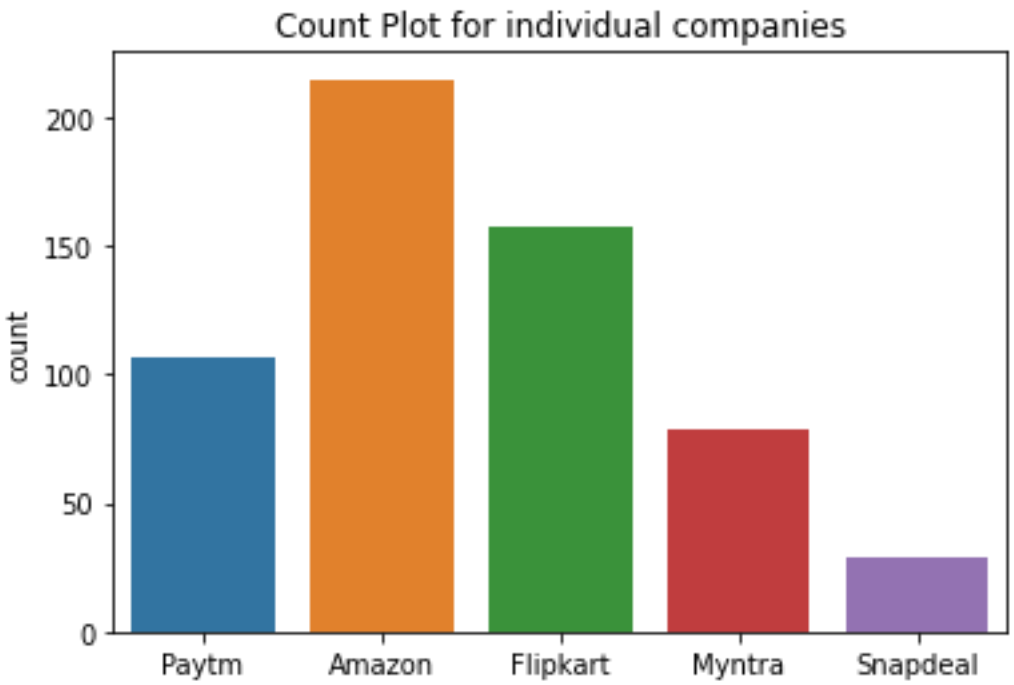
analysis:

here, also amazon on the top to be quicker on completing payments for the purchase and snapdeal is the slowest.

Column 57:

```
for column quickness to complete purchase,
count values are
Amazon                                        66
Amazon, Flipkart, Paytm                       47
Amazon, Flipkart                              37
Amazon, Flipkart, Myntra                      30
Paytm                                         25
Amazon, Paytm, Myntra                         20
Amazon, Flipkart, Paytm, Myntra, Snapdeal     15
Flipkart                                      15
Flipkart, Myntra, Snapdeal                    14
Name: quickness to complete purchase, dtype: int64

ratio of Amazon is :   24.54 %
```





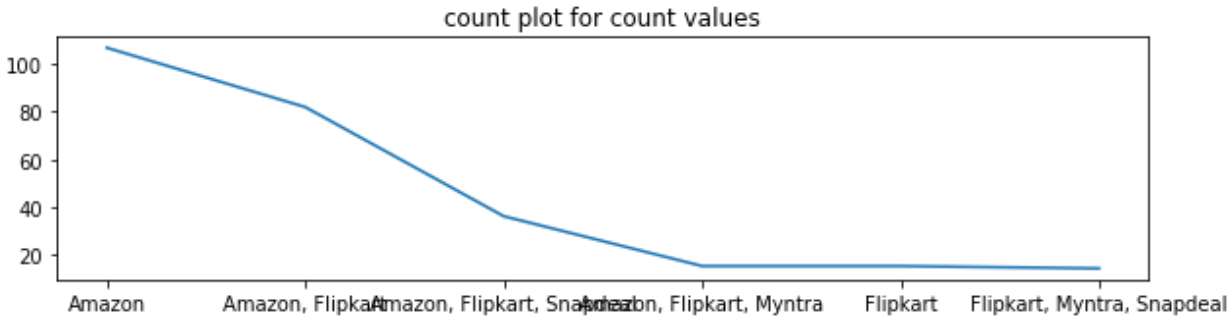

```
No. of times Amazon chosen: 215
No. of times Flipkart chosen: 158
No. of times Snapdeal chosen: 29
No. of times Paytm chosen: 107
No. of times Myntra chosen: 79
maximum times 215 the company Amazon chosen, whose %age becomes 79.93 %
minimum times 29 the company Snapdeal chosen, whose %age becomes 10.78 %
```

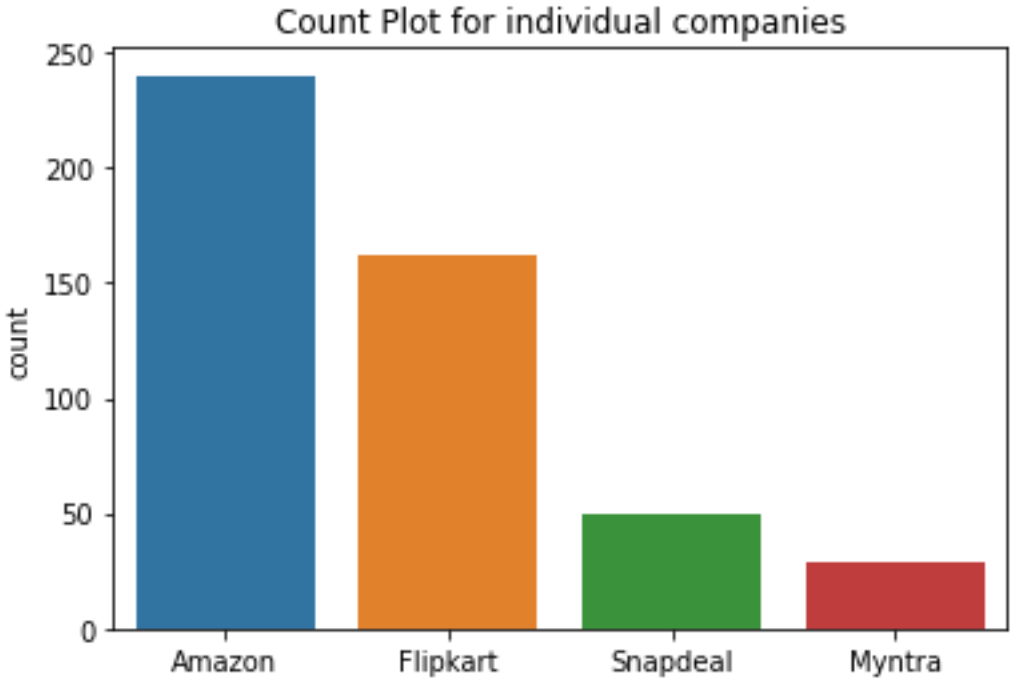
analysis:

here, also amazon on the top to be quicker on completing payments for the purchase and snapdeal is the slowest.

Column 57:

```
for column speedy order delivery ,
count values are
Amazon                          107
Amazon, Flipkart                 82
Amazon, Flipkart, Snapdeal       36
Amazon, Flipkart, Myntra         15
Flipkart                         15
Flipkart, Myntra, Snapdeal       14
Name: speedy order delivery , dtype: int64

ratio of Amazon is :   39.78 %
```






```
No. of times Amazon chosen: 240
No. of times Flipkart chosen: 162
No. of times Snapdeal chosen: 50
No. of times Paytm chosen: 0
No. of times Myntra chosen: 29
maximum times 240 the company Amazon chosen, whose %age becomes 89.22 %
minimum times 0 the company Paytm chosen, whose %age becomes 0.0 %
```

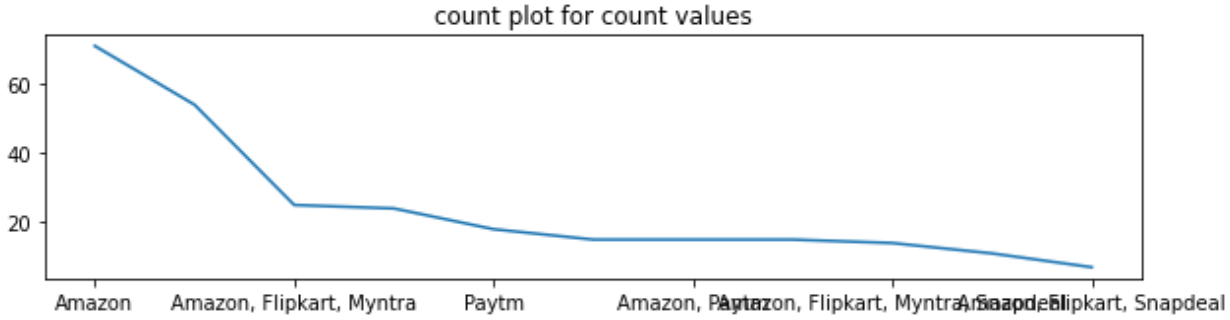
analysis:

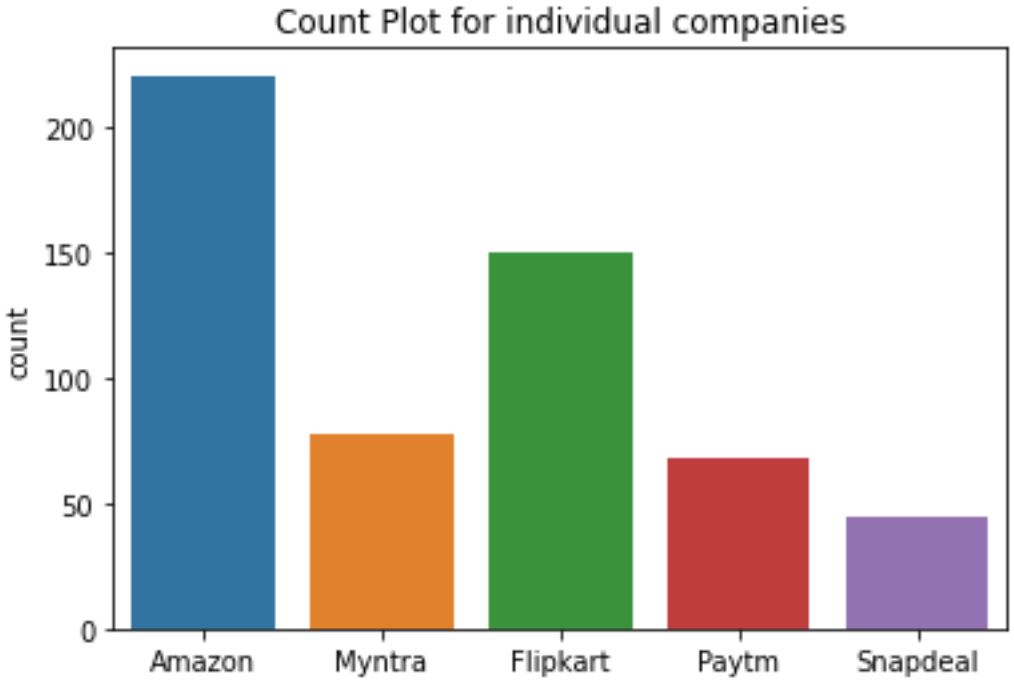
yes, this is also a main field for which the customers are highly concious. yes, again amazon is at the top of delivering products quickly and no one has chosen paytm for this.

Column 57:

```
for column privacy of customers' information,
count values are
Amazon                                          71
Amazon, Flipkart                                54
```

```
Amazon, Flipkart, Myntra                          25
Amazon, Flipkart, Paytm, Myntra, Snapdeal         24
Paytm                                             18
Myntra                                            15
Amazon, Paytm                                     15
Flipkart                                          15
Amazon, Flipkart, Myntra, Snapdeal                14
Amazon, Flipkart, Paytm                           11
Amazon, Flipkart, Snapdeal                         7
Name: privacy of customers' information, dtype: int64

ratio of Amazon is :   26.39 %
```






```
No. of times Amazon chosen: 221
No. of times Flipkart chosen: 150
No. of times Snapdeal chosen: 45
No. of times Paytm chosen: 68
No. of times Myntra chosen: 78
```

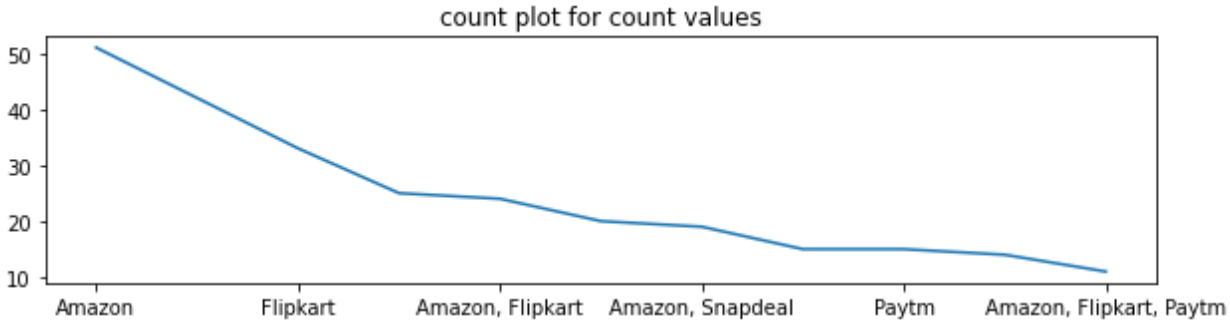
```
maximum times 221 the company Amazon chosen, whose %age becomes 82.16 %
minimum times 45 the company Snapdeal chosen, whose %age becomes 16.73 %
```

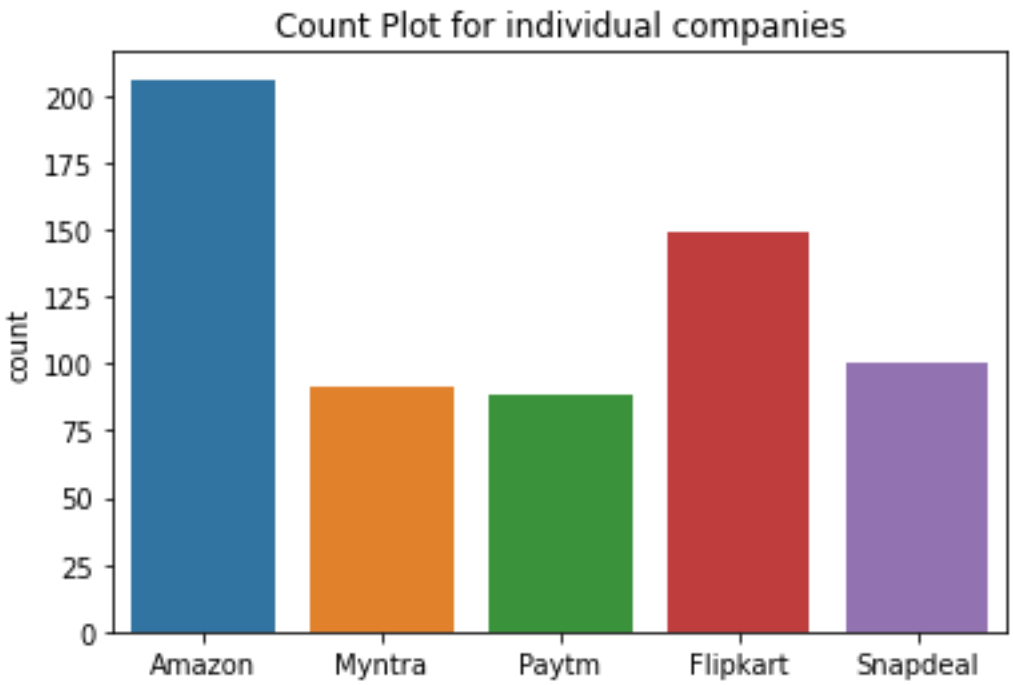
analysis:

also, customers are sure about amazon that it maintains its customers' privacy. but for snapdeal, it's not the case. very few trust it on this issue. so, it needs to work on this.

Column 58:

```
for column security of customer financial information,
count values are
Amazon                                          51
Amazon, Flipkart, Paytm, Myntra, Snapdeal       42
Flipkart                                        33
Amazon, Flipkart, Snapdeal                      25
Amazon, Flipkart                                24
Amazon, Paytm, Myntra                           20
Amazon, Snapdeal                                19
Myntra                                          15
Paytm                                           15
Amazon, Flipkart, Myntra, Snapdeal              14
Amazon, Flipkart, Paytm                         11
Name: security of customer financial information, dtype: int64

ratio of Amazon is :   18.96 %
```






```
No. of times Amazon chosen: 206
No. of times Flipkart chosen: 149
No. of times Snapdeal chosen: 100
No. of times Paytm chosen: 88
No. of times Myntra chosen: 91
maximum times 206 the company Amazon chosen, whose %age becomes 76.58 %
minimum times 88 the company Paytm chosen, whose %age becomes 32.71 %
```

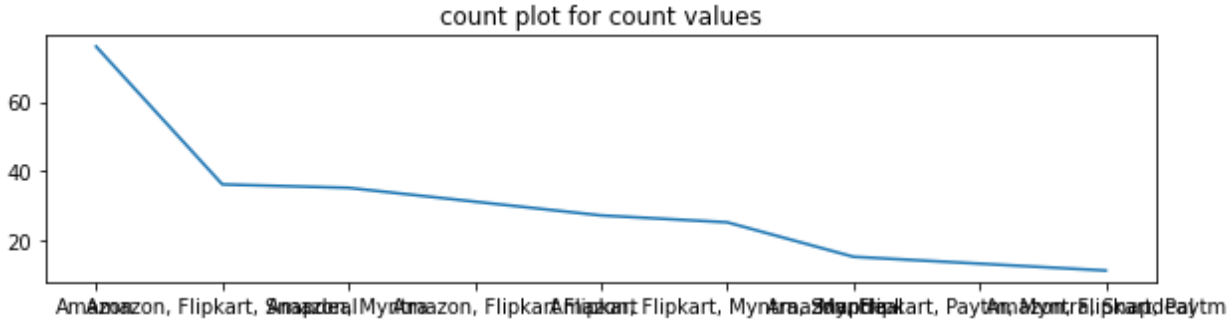
analysi:

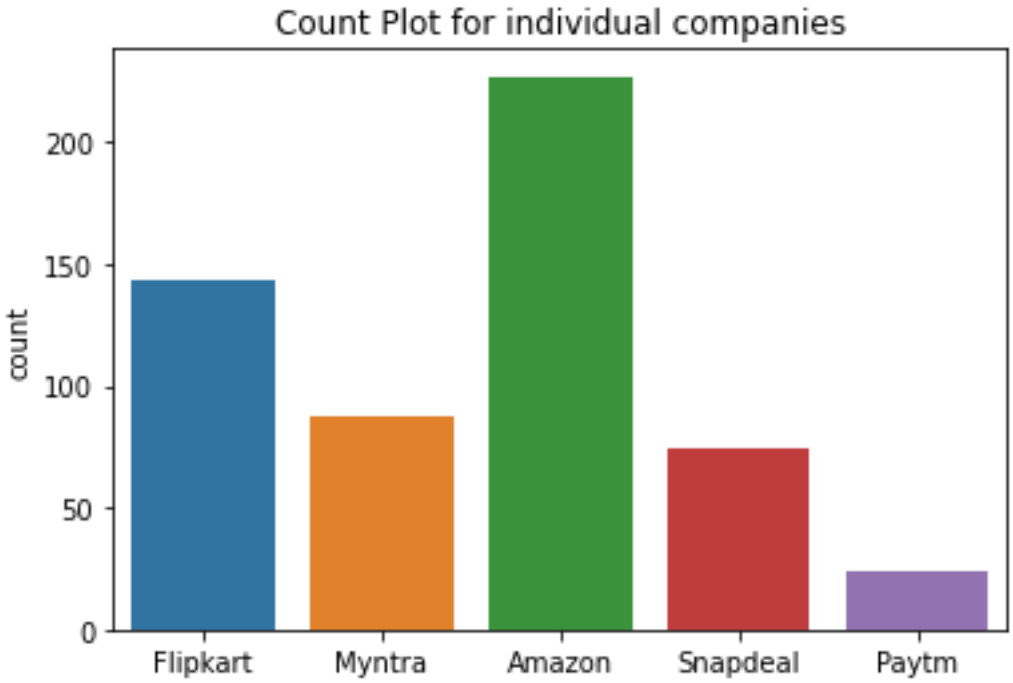
this is also the topmost feature which everyone wants. and again, amazon is at the top here abd paytm is at the lowest position here.

Column 59:

```
for column perceived trustworthiness,
count values are
Amazon                                          76
Amazon, Flipkart, Snapdeal                      36
Amazon, Myntra                                  35
Amazon, Flipkart                                31
Flipkart                                        27
Amazon, Flipkart, Myntra, Snapdeal              25
Myntra                                          15
Amazon, Flipkart, Paytm, Myntra, Snapdeal       13
Amazon, Flipkart, Paytm                         11
Name: perceived trustworthiness, dtype: int64
```

```
ratio of Amazon is :   28.25 %
```






```
No. of times Amazon chosen: 227
No. of times Flipkart chosen: 143
No. of times Snapdeal chosen: 74
No. of times Paytm chosen: 24
No. of times Myntra chosen: 88
maximum times 227 the company Amazon chosen, whose %age becomes 84.39 %
minimum times 24 the company Paytm chosen, whose %age becomes 8.92 %
```

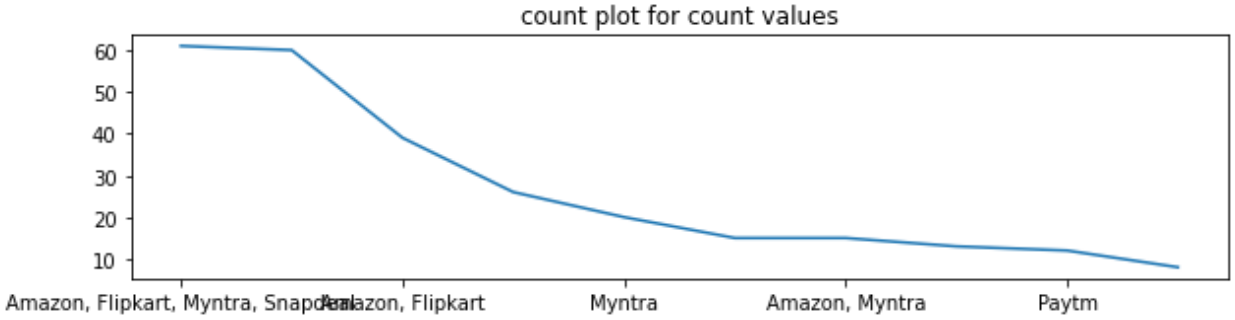
analysis:

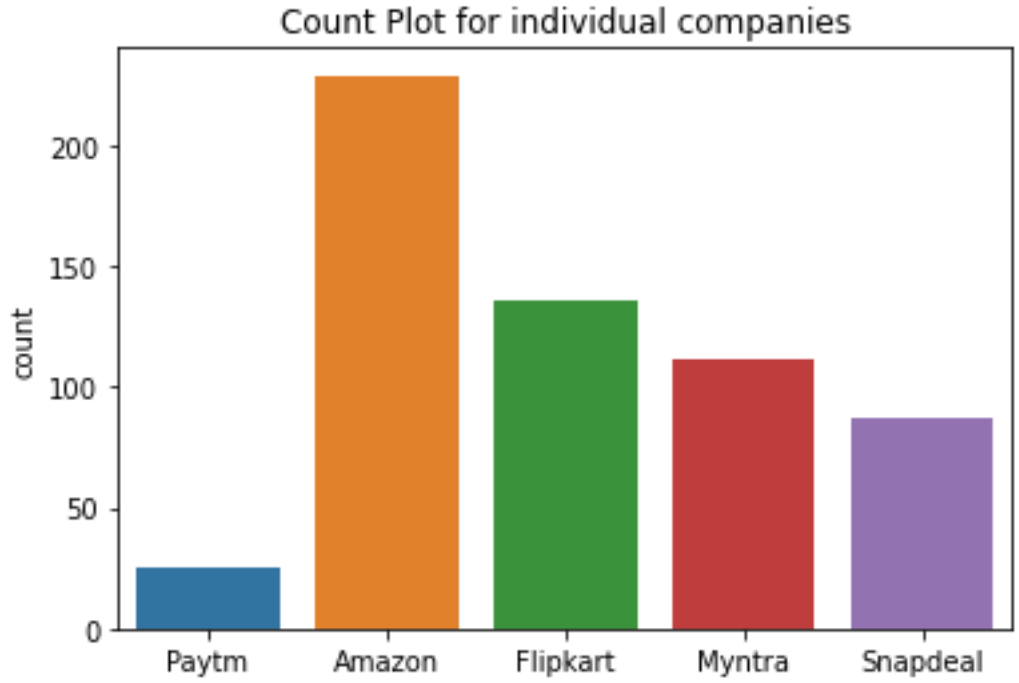
it was obvious from the above all columns' interpretations that the amazon is most trustworthy yet and yes, we got it. and paytm, is again at the lowest position here.

Column 60:

```
for column presence of online assistance through multi-channel,
```

```
count values are
Amazon, Flipkart, Myntra, Snapdeal    61
Amazon                                60
Amazon, Flipkart                      39
Amazon, Snapdeal                      26
Myntra                                20
Amazon, Flipkart, Myntra              15
Amazon, Myntra                        15
Amazon, Flipkart, Paytm               13
Paytm                                 12
Flipkart                               8
Name: presence of online assistance through multi-channel, dtype: int64

ratio of Amazon, Flipkart, Myntra, Snapdeal is :     22.68 %
```






```
No. of times Amazon chosen: 229
No. of times Flipkart chosen: 136
No. of times Snapdeal chosen: 87
```

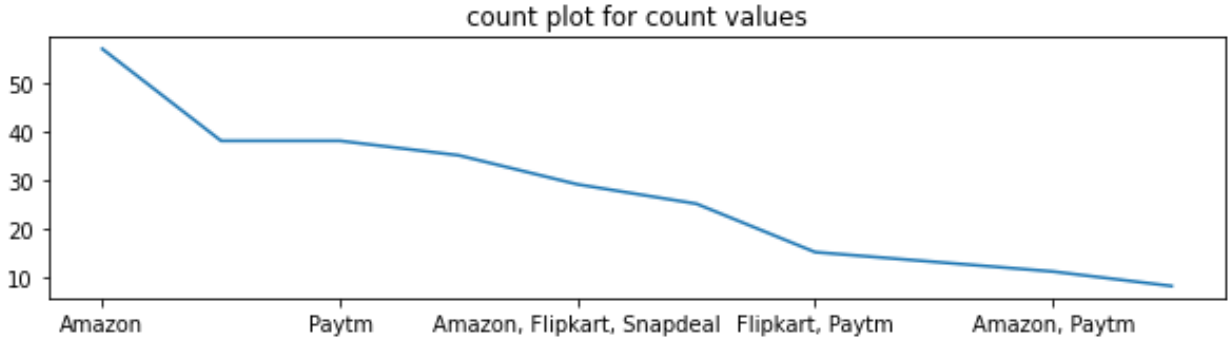
```
No. of times Paytm chosen: 25
No. of times Myntra chosen: 111
maximum times 229 the company Amazon chosen, whose %age becomes 85.13 %
minimum times 25 the company Paytm chosen, whose %age becomes 9.29 %
```

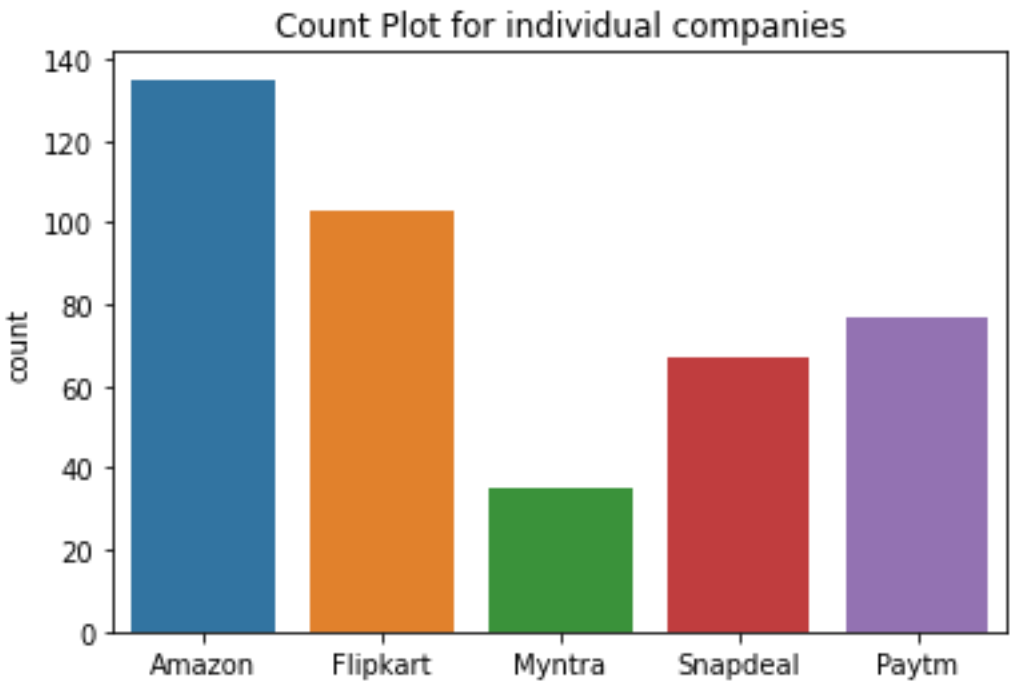
analysis:

so, here, also amazon is the best company among all these to provide online assistance throgh multiple channels and paytm is at the lowest option.

Column 61:

```
for column longer time to get logged in (promotion, sales period),
count values are
Amazon                          57
Amazon, Flipkart                38
Paytm                           38
Myntra                          35
Amazon, Flipkart, Snapdeal      29
Snapdeal                        25
Flipkart, Paytm                 15
Flipkart, Paytm, Snapdeal       13
Amazon, Paytm                   11
Flipkart                         8
Name: longer time to get logged in (promotion, sales period), dtype: int64

ratio of Amazon is :   21.19 %
```






```
No. of times Amazon chosen: 135
No. of times Flipkart chosen: 103
No. of times Snapdeal chosen: 67
No. of times Paytm chosen: 77
No. of times Myntra chosen: 35
maximum times 135 the company Amazon chosen, whose %age becomes 50.19 %
minimum times 35 the company Myntra chosen, whose %age becomes 13.01 %
```

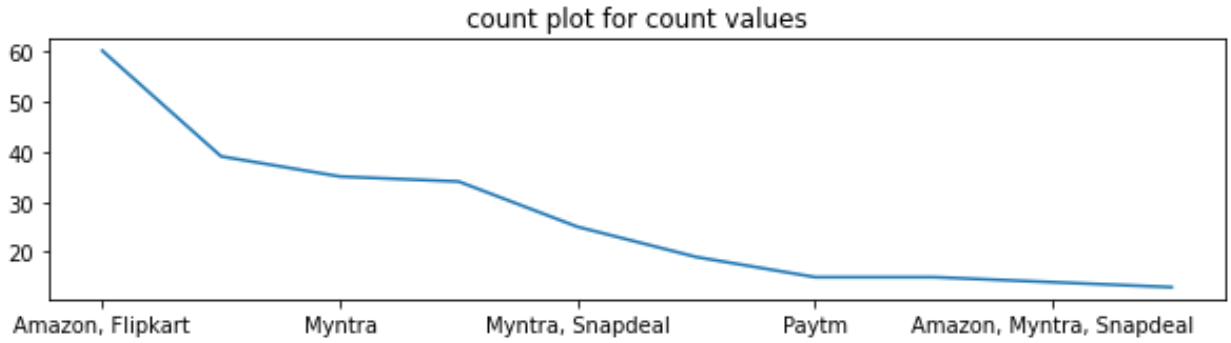
analysis:

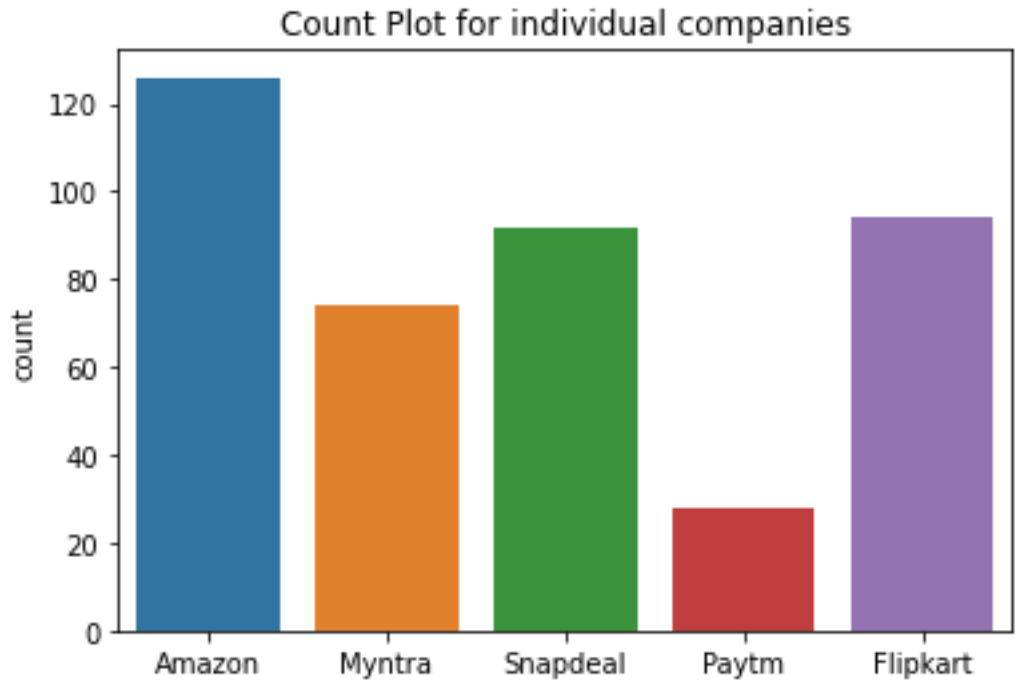
ok, this is the first time where amazon topped in a negative feature. amazon is taking the longest time amongst all to log in and myntra is performing the best in this field.

Column 62:

```
for column longer time in displaying graphics and photos (promotion, sales pe
riod),
count values are
Amazon, Flipkart            60
Amazon                      39
Myntra                      35
Snapdeal                    34
Myntra, Snapdeal            25
Flipkart, Snapdeal          19
Paytm                       15
Flipkart                    15
Amazon, Myntra, Snapdeal    14
```

```
Amazon, Paytm                13
Name: longer time in displaying graphics and photos (promotion, sales period)
, dtype: int64

ratio of Amazon, Flipkart is :        22.3 %
```





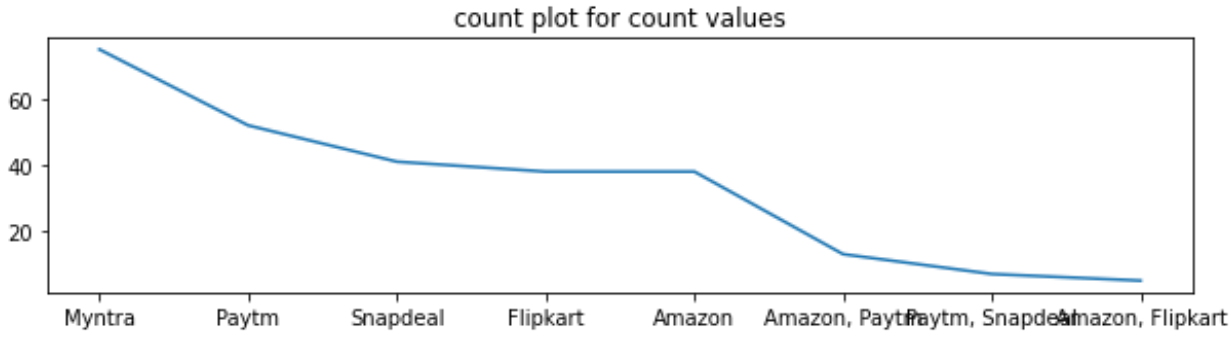

```
No. of times Amazon chosen: 126
No. of times Flipkart chosen: 94
No. of times Snapdeal chosen: 92
No. of times Paytm chosen: 28
No. of times Myntra chosen: 74
maximum times 126 the company Amazon chosen, whose %age becomes 46.84 %
minimum times 28 the company Paytm chosen, whose %age becomes 10.41 %
```

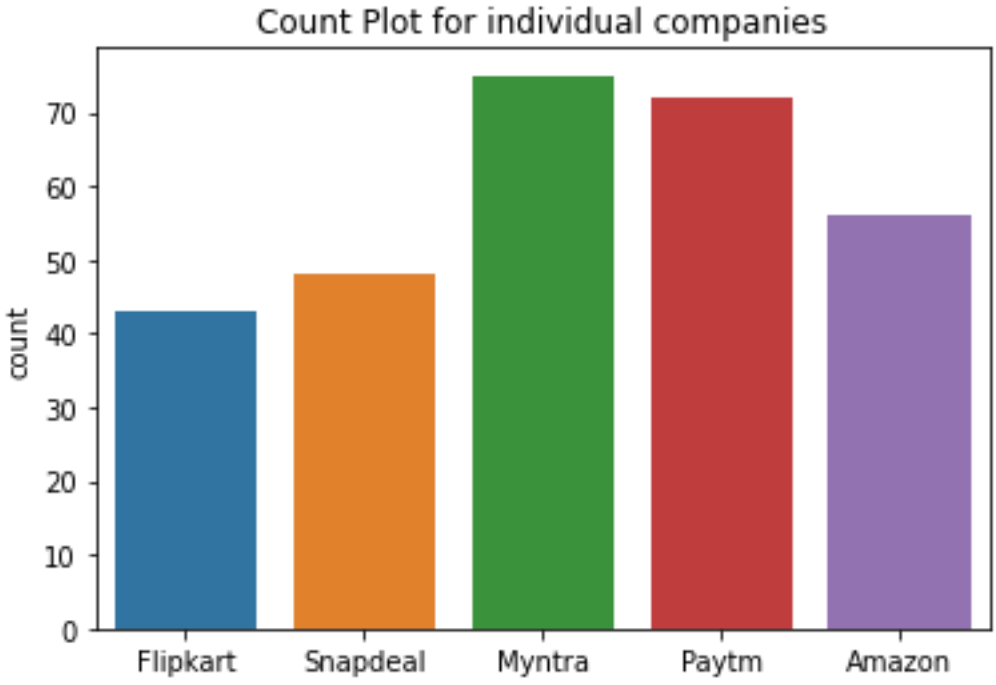
analysis:

again amazon topped here in a negative approach. it's taking longest time to load pictures and all. and paytm is taking lowest. so,amazon should work on these fields of longer time to login and longer time to load pictures.

Column 63:

```
for column late declaration of price (promotion, sales period),
count values are
Myntra                75
Paytm                 52
Snapdeal              41
Flipkart              38
Amazon                38
Amazon, Paytm         13
Paytm, Snapdeal        7
Amazon, Flipkart       5
Name: late declaration of price (promotion, sales period), dtype: int64

ratio of Myntra is :   27.88 %
```






```
No. of times Amazon chosen: 56
No. of times Flipkart chosen: 43
```

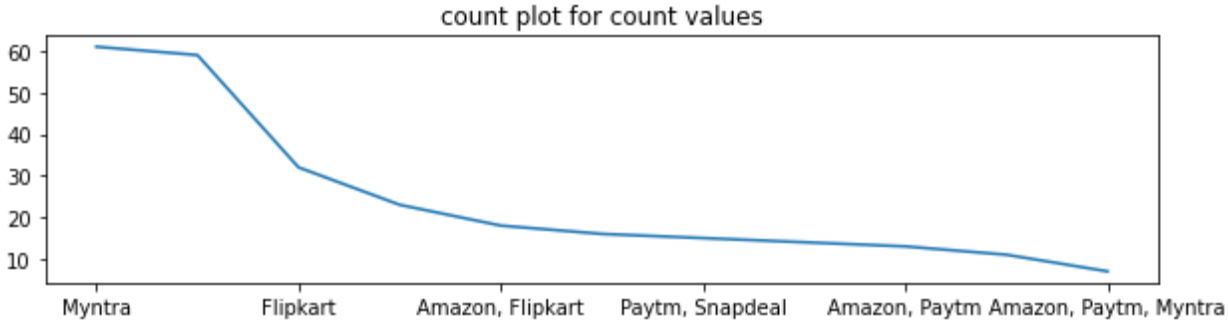
```
No. of times Snapdeal chosen: 48
No. of times Paytm chosen: 72
No. of times Myntra chosen: 75
maximum times 75 the company Myntra chosen, whose %age becomes 27.88 %
minimum times 43 the company Flipkart chosen, whose %age becomes 15.99 %
```

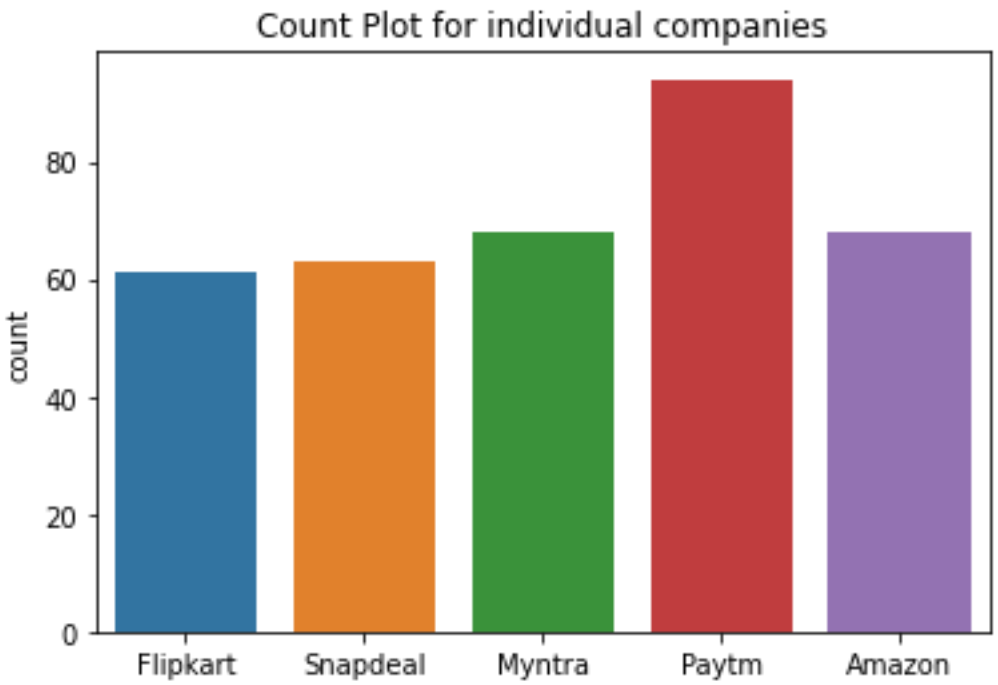
analysis:

myntra is opening its cards at the end among all on declaring prices and flipkart is performing best here.

Column 65:

```
for column longer page loading time (promotion, sales period),
count values are
Myntra                   61
Paytm                    59
Flipkart                 32
Snapdeal                 23
Amazon, Flipkart         18
Amazon                   16
Paytm, Snapdeal          15
Amazon, Snapdeal         14
Amazon, Paytm            13
Flipkart, Snapdeal       11
Amazon, Paytm, Myntra     7
Name: longer page loading time (promotion, sales period), dtype: int64

ratio of Myntra is :   22.68 %
```






```
No. of times Amazon chosen: 68
No. of times Flipkart chosen: 61
No. of times Snapdeal chosen: 63
No. of times Paytm chosen: 94
No. of times Myntra chosen: 68
maximum times 94 the company Paytm chosen, whose %age becomes 34.94 %
minimum times 61 the company Flipkart chosen, whose %age becomes 22.68 %
```

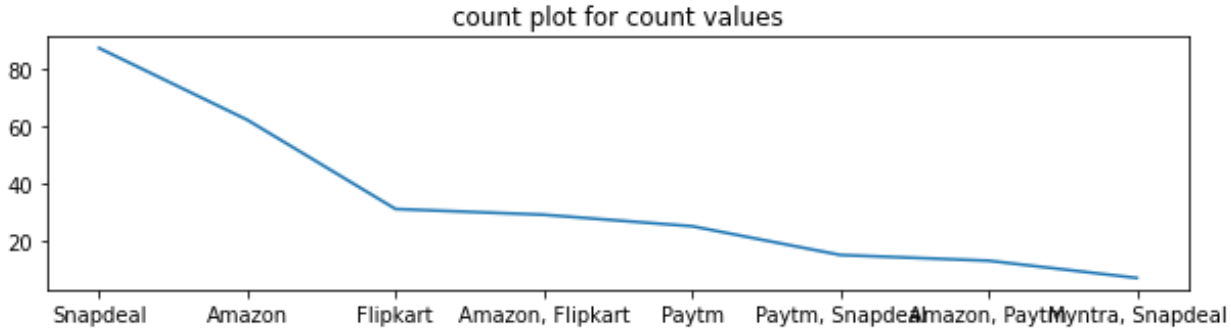
analysis:

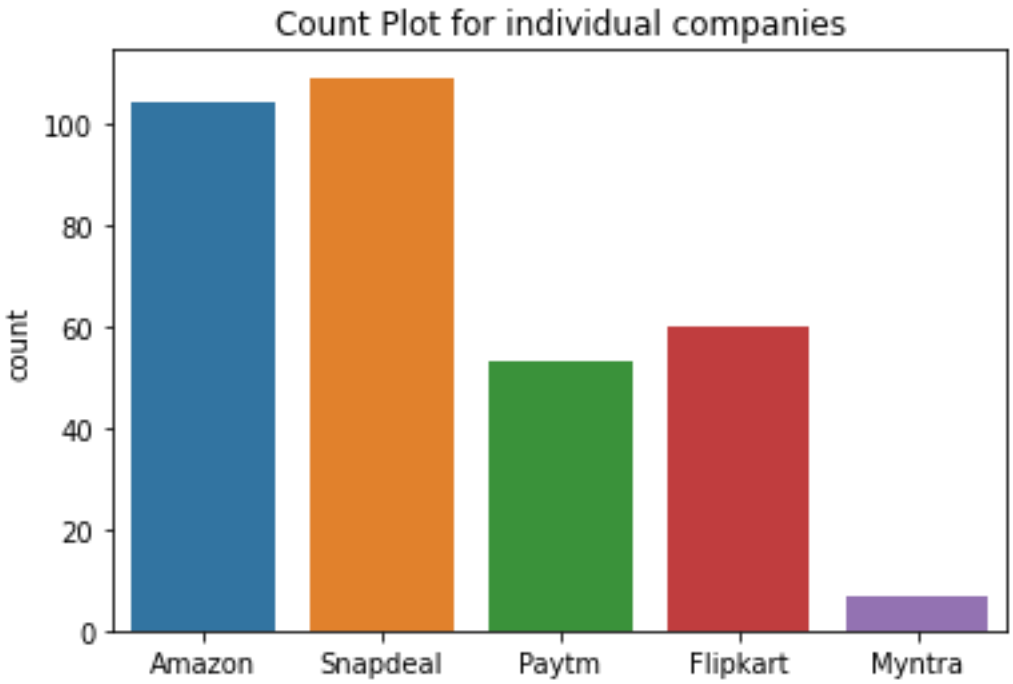
paytm is takking longest page loading time and flipkart is taking lowest time.

Column 66:

```
for column limited mode of payment on most products (promotion, sales period)
,
count values are
Snapdeal            87
Amazon              62
Flipkart            31
Amazon, Flipkart    29
Paytm               25
Paytm, Snapdeal     15
Amazon, Paytm       13
Myntra, Snapdeal     7
```

```
Name: limited mode of payment on most products (promotion, sales period), dty
pe: int64

ratio of Snapdeal is :         32.34 %
```





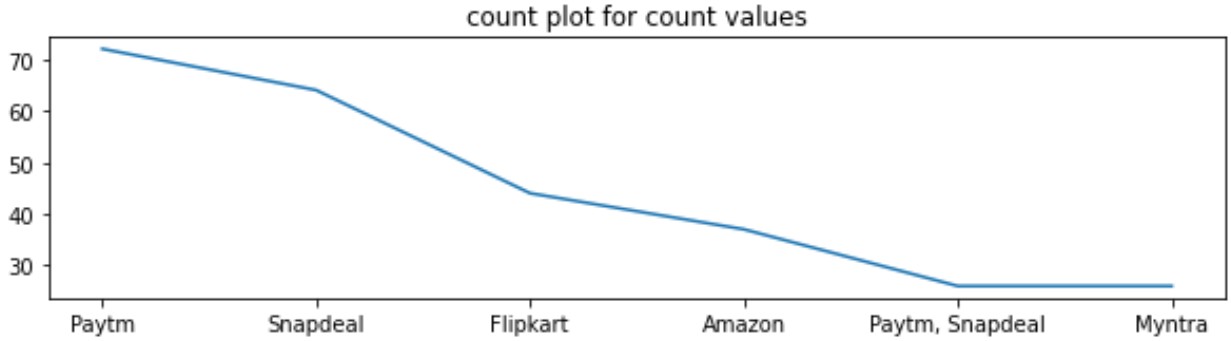

```
No. of times Amazon chosen: 104
No. of times Flipkart chosen: 60
No. of times Snapdeal chosen: 109
No. of times Paytm chosen: 53
No. of times Myntra chosen: 7
maximum times 109 the company Snapdeal chosen, whose %age becomes 40.52 %
minimum times 7 the company Myntra chosen, whose %age becomes 2.6 %
```

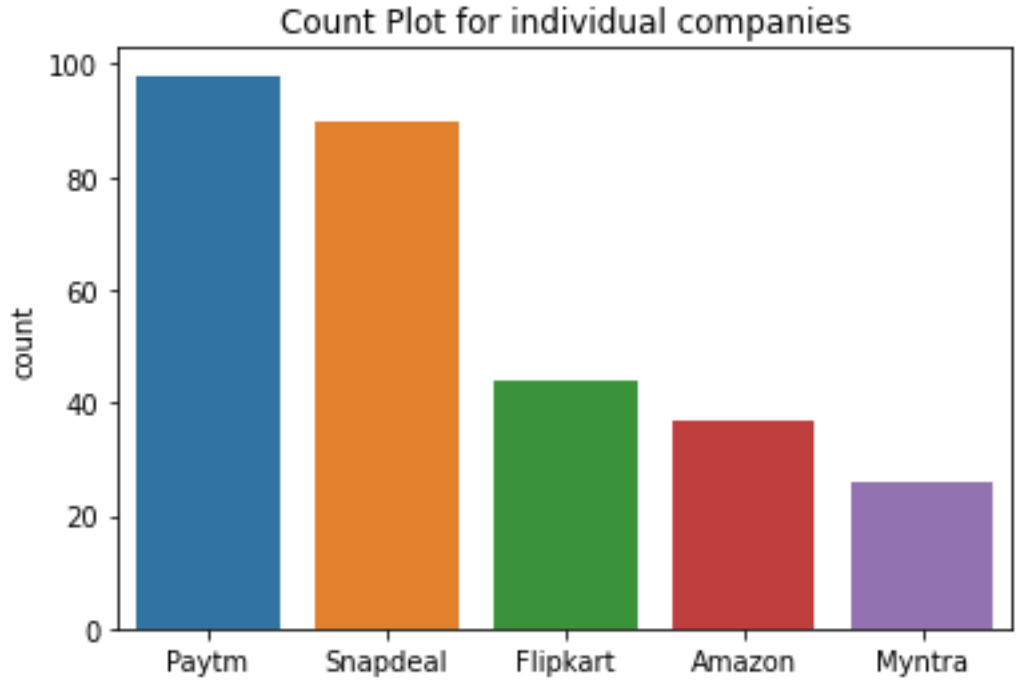
analysis:

snapdeal is selected the most by customers having limited mode of payments on most products whereas myntra is selected the least.

Column 67:

```
or column longer delivery period,
count values are
Paytm               72
Snapdeal            64
Flipkart            44
Amazon              37
Paytm, Snapdeal     26
Myntra              26
Name: longer delivery period, dtype: int64

ratio of Paytm is :    26.77 %
```

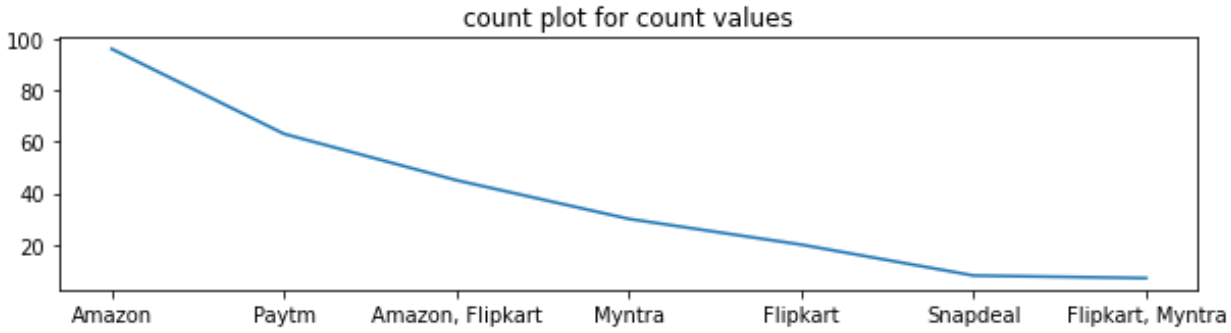


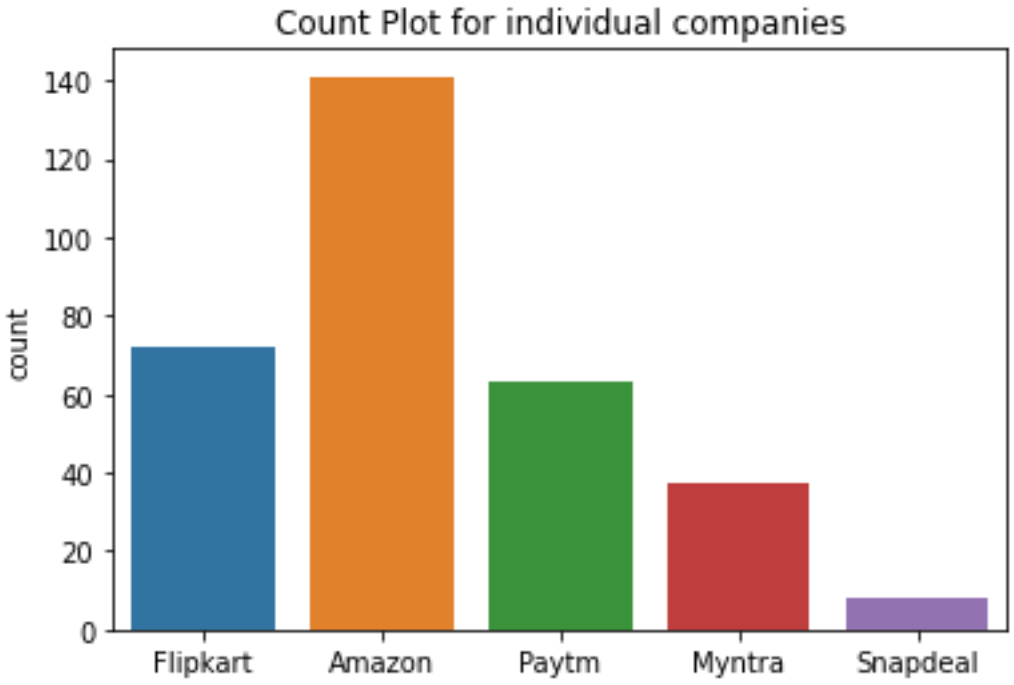



```
No. of times Amazon chosen: 37
No. of times Flipkart chosen: 44
No. of times Snapdeal chosen: 90
No. of times Paytm chosen: 98
No. of times Myntra chosen: 26
maximum times 98 the company Paytm chosen, whose %age becomes 36.43 %
```

```
minimum times 26 the company Myntra chosen, whose %age becomes 9.67 %
```
analysis:
paytm is taking longest time to deliver products and myntra is delivering the products the faster among all.
Column 68:

```
for column change in website/application design,
count values are
Amazon              96
Paytm               63
Amazon, Flipkart    45
Myntra              30
Flipkart            20
Snapdeal             8
Flipkart, Myntra     7
Name: change in website/application design, dtype: int64

ratio of Amazon is :   35.69 %
```





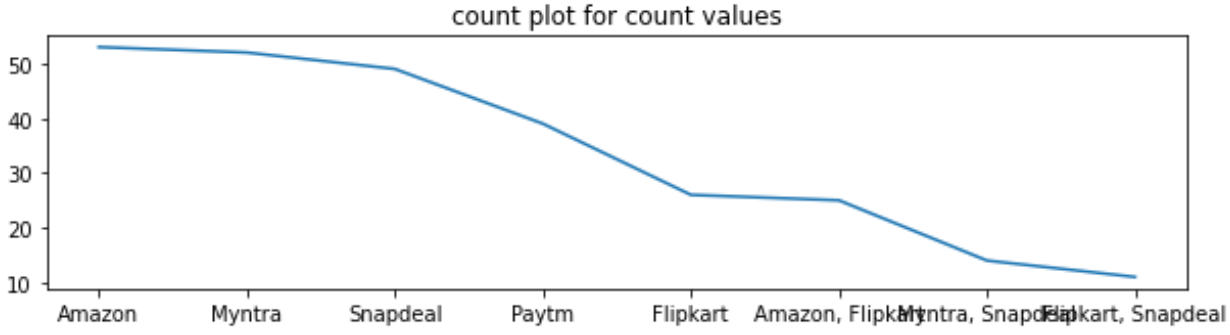
```
No. of times Amazon chosen: 141
No. of times Flipkart chosen: 72
No. of times Snapdeal chosen: 8
No. of times Paytm chosen: 63
No. of times Myntra chosen: 37
maximum times 141 the company Amazon chosen, whose %age becomes 52.42 %
minimum times 8 the company Snapdeal chosen, whose %age becomes 2.97 %
```

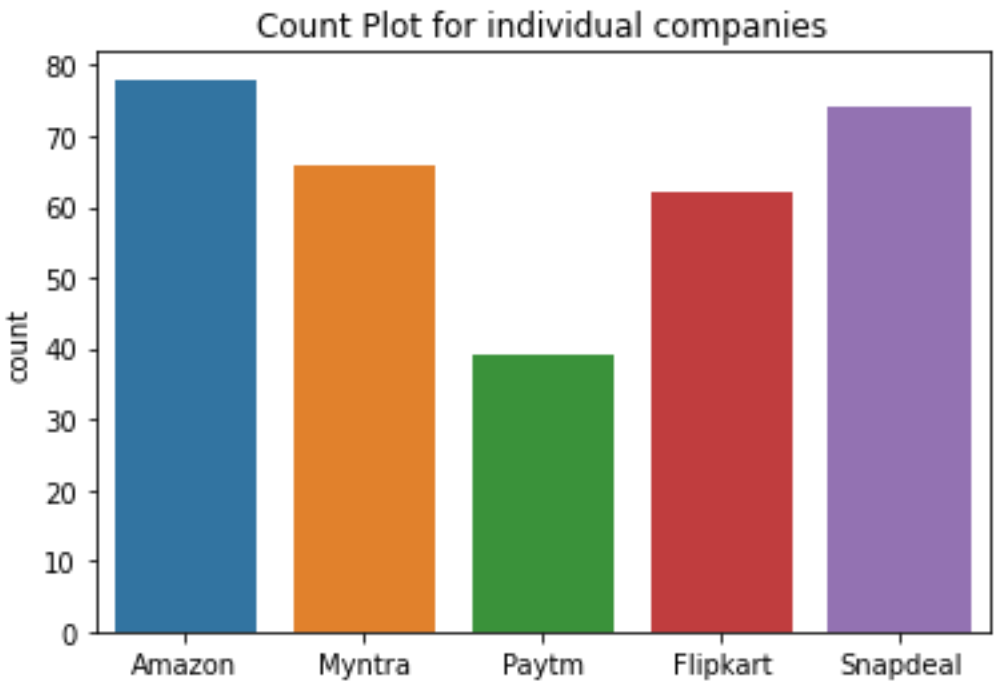
analysis:

it means amazon is changing its website/app design most frequently whereas snapdeal is changing it least frequently.

Column 69:

```
for column frequent disruption when moving from one page to another,
count values are
Amazon                53
Myntra                52
Snapdeal              49
Paytm                 39
Flipkart              26
Amazon, Flipkart      25
Myntra, Snapdeal      14
Flipkart, Snapdeal    11
Name: frequent disruption when moving from one page to another, dtype: int64

ratio of Amazon is :   19.7 %
```





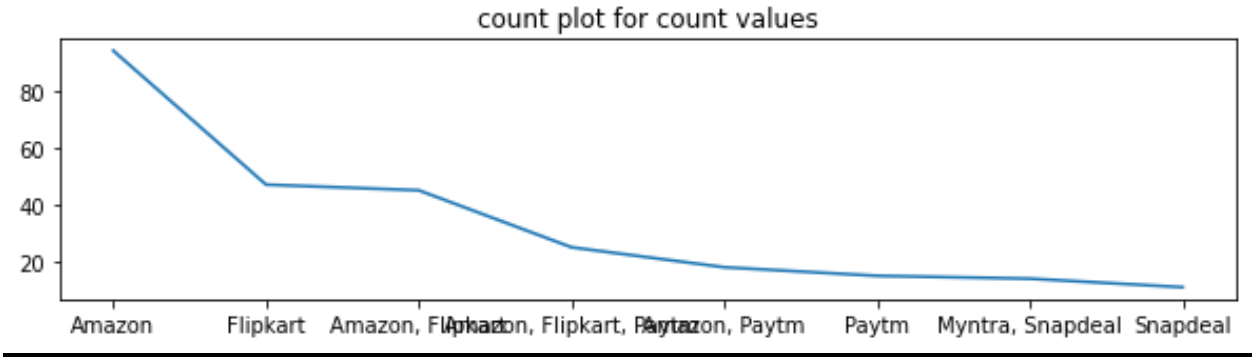

```
No. of times Amazon chosen: 78
No. of times Flipkart chosen: 62
No. of times Snapdeal chosen: 74
No. of times Paytm chosen: 39
No. of times Myntra chosen: 66
maximum times 78 the company Amazon chosen, whose %age becomes 29.0 %
minimum times 39 the company Paytm chosen, whose %age becomes 14.5 %
```

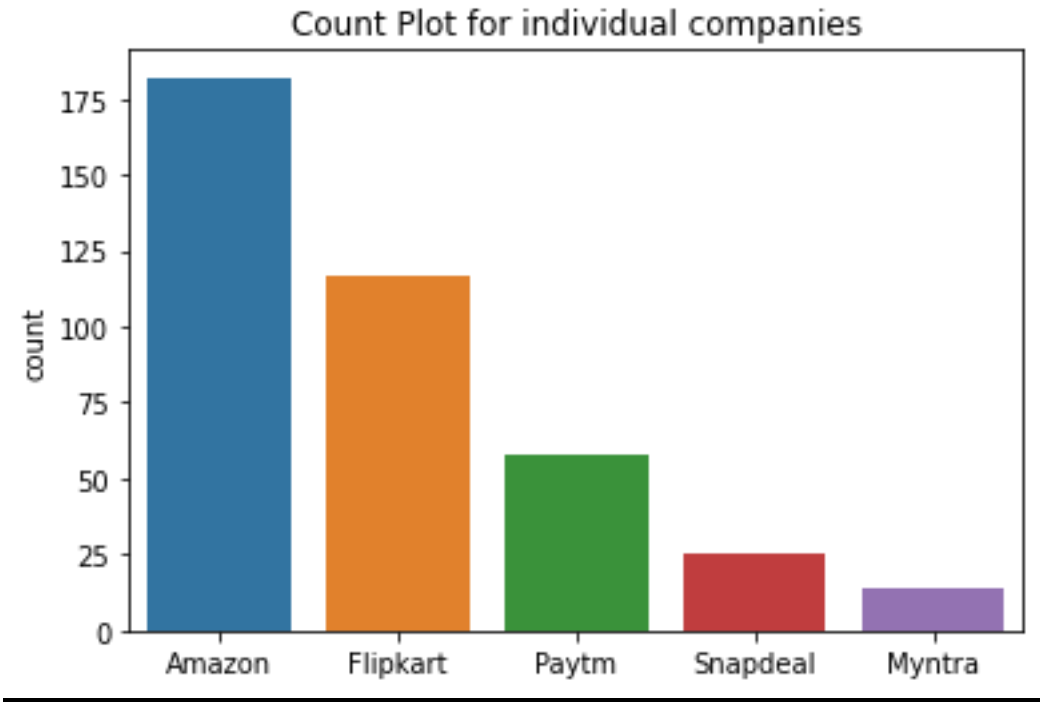
analysis:

amazon is performing poor in this regard and paytm is performing the best in this regard.

Column 70:

```
for column website is as efficient as before,
count values are
Amazon                    94
Flipkart                  47
Amazon, Flipkart          45
Amazon, Flipkart, Paytm   25
Amazon, Paytm             18
Paytm                     15
Myntra, Snapdeal          14
Snapdeal                  11
Name: website is as efficient as before, dtype: int64

ratio of Amazon is :   34.94 %
```






```
No. of times Amazon chosen: 182
No. of times Flipkart chosen: 117
No. of times Snapdeal chosen: 25
No. of times Paytm chosen: 58
No. of times Myntra chosen: 14
maximum times 182 the company Amazon chosen, whose %age becomes 67.66 %
minimum times 14 the company Myntra chosen, whose %age becomes 5.2 %
```

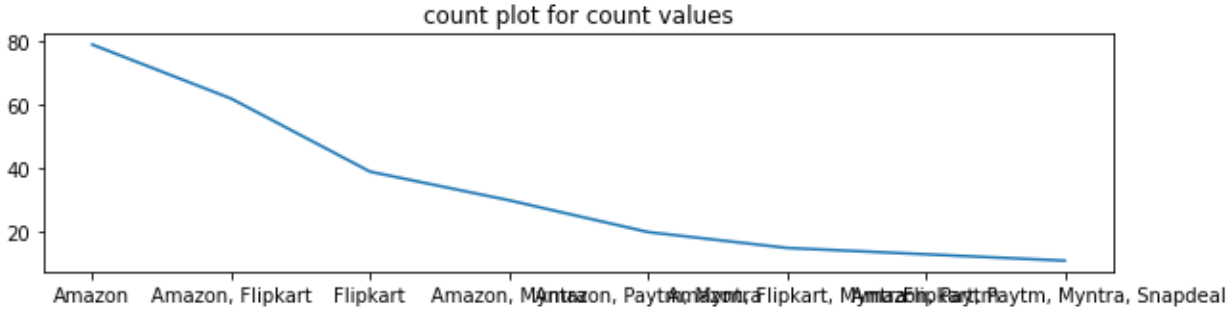
analysis:

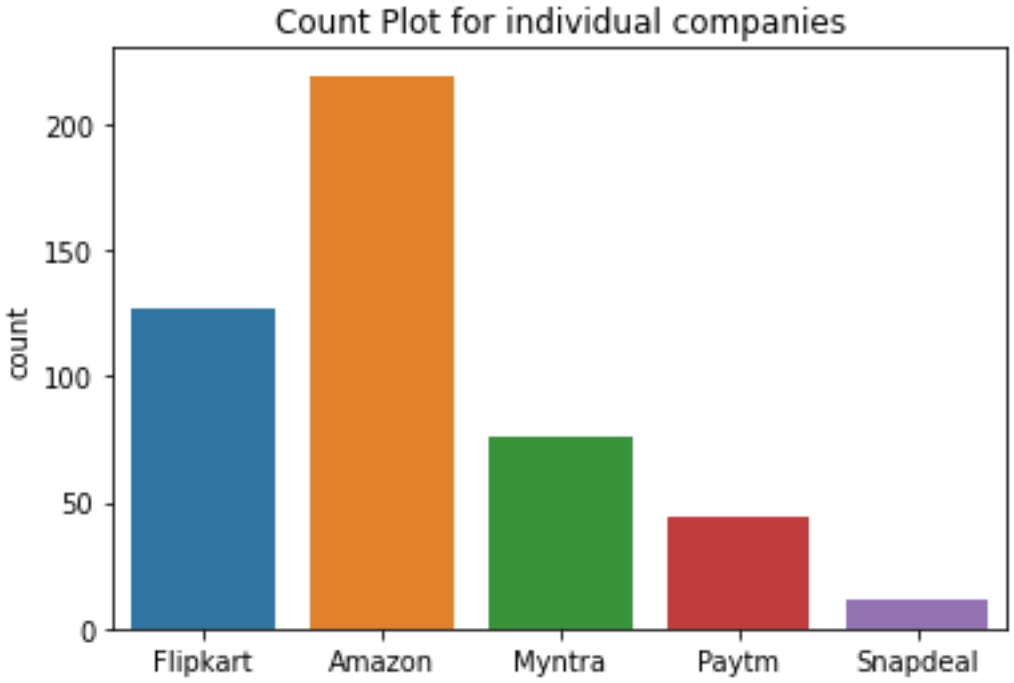
amazon is performing in the best way here and myntra is performing the worst here.

Column 71:

```
for column which of the indian online retailer would you recommend to a frien
d?,
count values are
Amazon
```

```
Amazon, Flipkart                        62
Flipkart                                39
Amazon, Myntra                          30
Amazon, Paytm, Myntra                   20
Amazon, Flipkart, Myntra                15
Amazon, Paytm                           13
Flipkart, Paytm, Myntra, Snapdeal       11
Name: which of the indian online retailer would you recommend to a friend?, d
type: int64

ratio of Amazon is :   29.37 %
```



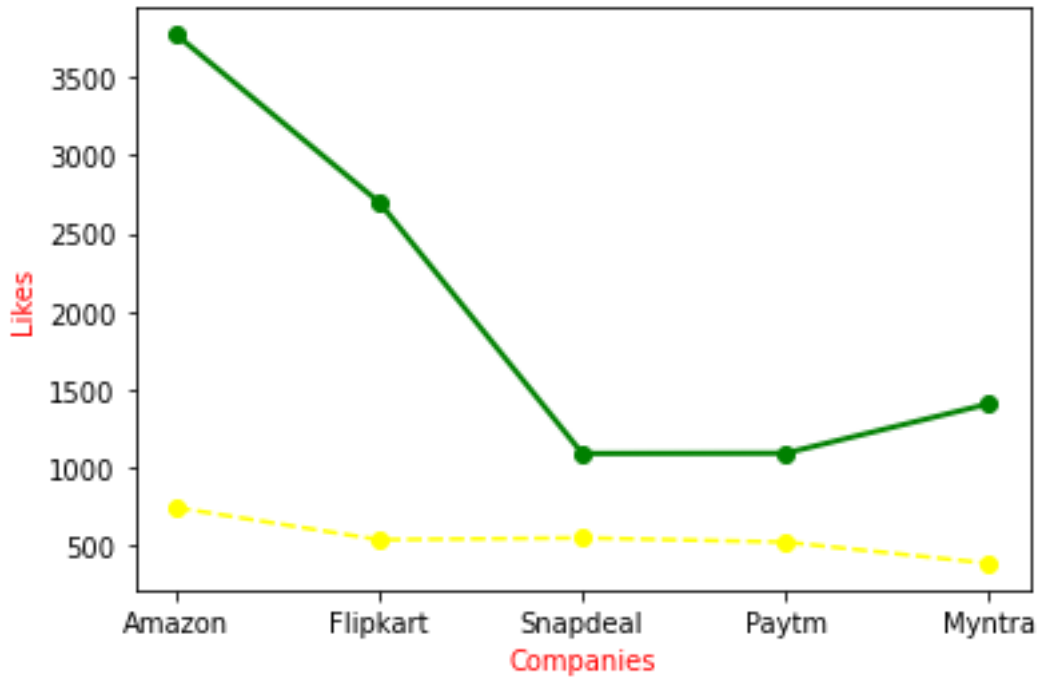



```
No. of times Amazon chosen: 219
No. of times Flipkart chosen: 127
No. of times Snapdeal chosen: 11
No. of times Paytm chosen: 44
No. of times Myntra chosen: 76
maximum times 219 the company Amazon chosen, whose %age becomes 81.41 %
minimum times 11 the company Snapdeal chosen, whose %age becomes 4.09 %
```

```
overall positive likes for Amazon :3774
overall positive likes for Flipkart :2700
overall positive likes for Snapdeal :1091
overall positive likes for Paytm :1093
overall positive likes for Myntra :1409


overall negative likes for Amazon :745
overall negative likes for Flipkart :539
overall negative likes for Snapdeal :551
overall negative likes for Paytm :524
overall negative likes for Myntra :388
```

so, it was as apparent from the last all features as amazon was performing the best in all the factors except some of them that's why it has become the first choice of the customers to be referred to their friends. so, amazon is performing the best here with 81% customers will refer it and snapdeal is performing the worst here as it got only 4% votes to be referred to the friends here.

let's visualize the overall performances of these companies based on the votes they got.
there are two kind of votes:
A). one is Positive votes : - these are the votes which every company got in the columns where a company is
getting votes in the way if it's doing good things in the favour of customers like: as amazon is maitaining
the privacy of the customers better, it's being selected by the customers the most and hence, got positive likes.
B). second is Negative votes:- these are the votes which a companmy is getting in the columns where a company
is getting votes in the way it's not doing good things in the favour of customers, like, if the webpage of the amazon is
getting more time to download, then it's not in the favour of customers and hence, getting Neagative likes.
columns no. from 62 to 69 are producing negative likes for any company. i have mentioned this special thing in my
function countplot().



CONCLUSION:
SO, AS SEEN ABOVE, THIS DATASET HAS 71 COLUMNS WHICH CAN BE DIVIDED INTO THREE PARTS:
a). ONE IS THE CUSTOMERS' BASIC INFORMATION AND THEIR WAYS TO APPROACH TO THE ONLINE SHOPPING SITES AND THEIR USUAL
BEHAVIOUR ON THESE SITES FROM IST TO SEVENTEENTH COLUMN.
b). SECOND IS THE BASIC SURVEY REPORT FROM THE CUSTOMERS REGARDING THEIR DEMANDS OR CHOICES FROM THESE COMPANIES FROM
EIGHTEENTH TO FORTY SEVENTH COLUMN.
c). THIRD IS THEIR RESPONSE TO THESE COMPANIES BASED ON THE PERFORMANCES OF THESE COMPANIES BASED ON DIFFERENT PARAMETERS FROM
FORTY EIGHTH COLUMN TO SECOND LAST COLUMN.
d). AND IN THE VERY LAST COLUMN OF THIS DATASET, THEIR CHOICE OF BEST COMPANY BASED ON THE ABOVE ALL PARAMETERS AND HENCE
THEIR REFERENCE TO THEIR FRIENDS BASED ON THEIR CHOICES.
e). SO, IN THIS WAY, THIS DATASET IS PROVIDING THE DETAILS OF THE CUSTOMERS, THEIR BEHAVIOUR AND THEIR CHOICES ACC. TO WHICH
THESE RETAIL SHOPPING COMPANIES CAN MODIFY THEMSELVES SO THAT TO ENHANCE THEIR CUSTOMER BASE AND THEIR BUSINESS AND
ALSO TO RETAIN THEIR OLD CUSTOMERS BY RMOVING THEIR SHORTCOMINGS.
f). ALSO, IN THE LAST COLUMNS, WHERE THE PERFORMANCES OF THE COMPANIES IS CHOSEN BY THE CUSTOMERS BY SELECTING THE COMPANIES
BASED ON THEIR EXPERIENCES WITH THESE COMPANIES , ALSO GIVE THE IDEAS TO THESE COMPANIES ABOUT THEIR SHORTCOMINGS AND
THEIR FIELDS OF IMPROVEMENT.
g). IN THE VERY LAST, IT'S CONCLUDED THAT 'AMAZON.COM' IS THE FIRST CHOICE OF A LARGE PROPRTION OF THE CUSTOMERS AND HENCE, IT HAS
GOT THE MAXIMUM NO OF LIKINGS 3774 IN THE COLUMNS WHERE A COMPANY WHICH IS PERFORMING BETTER IS GETTING MORE VOTES. BUT ALSO GOT

MAXIMUM NEGATIVE LIKES 774 IN THE COLUMNS WHERE A COMPANY WHICH IS PERFORMING POORER IS GETTING MORE VOES. SO, THERE IS ALSO
SOME NEEDS OF IMPROVEMENT IN AMAZON.COM FOR WHICH THEY CAN TAKE FEEDBACK FROM THE OUTPUTS OF THESE COLUMNS.
h). OVERALL, IN THE VERY LAST COLUMN, 81% OF THE CUSTOMERS (219) CHOSE AMAZON TO BE THE BEST COMPANY WHICH THEY CAN REFER TO THEIR
FRIENDS. HENCE, AMAZON IS THE FIRST CHOICE FOR THE CUSTOMERS.

1077