# CUSTOMER RETENTION

Submitted by

Aamina Ruvaida KO

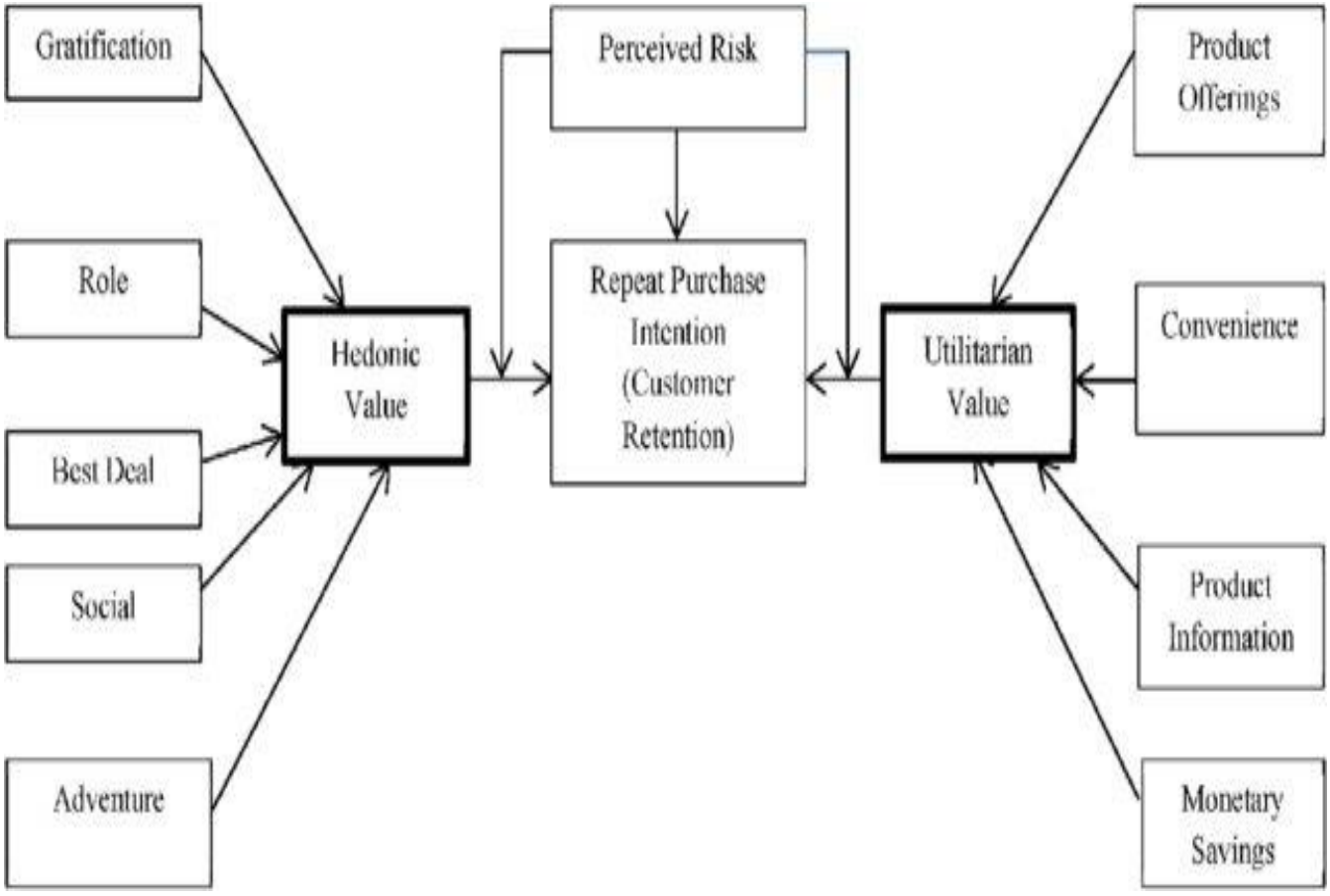
Content:

1) What is Customer Retention?
2) Why Customer Retention is important?
3) What are the Benefits of Customer Retention?
4) Exploratory Data Analysis of Customer Retention
5) Conclusion

## Introduction:

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

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.



## What is Customer Retention?

Customer retention is focused on existing customers. The goal is to increase repeat purchases by building customer loyalty through excellent customer service, product value and a distinct advantage over similar products or services.

Customer retention is a company's ability to turn first-time customers into repeat buyers and prevent them from switching to a competitor. It indicates the quality of a product or service and the degree of customer loyalty. Retention is best achieved by overcoming barriers to switching, maximizing the value of products and services, meeting customer expectations, and enriching the customer experience.

## Why Customer Retention is important?

Customer retention starts with the first interaction any customer has with a business and continues throughout the entire lifetime of a relationship with that business. Successful customer retention takes the entire customer lifecycle into account. A company's ability to attract and then retain new customers is related not only to the product or service they offer, but also how they service their customers, the value their customers perceive because of using their services and the reputation their brand holds across the market.

A frequent rule of thumb that is often cited is that the cost to acquire a new customer can be 5x higher than it does to retain an existing customer.

Customer retention is essential for any sustainable business model (sustainable in the sense that the business can be profitable over a long period of time.


## What are the Benefits of Customer Retention?

Four major benefits of customer retention:

1. Customer loyalty:

   Current customers already trust your brand, so it is easier to make them repeat customers.

2. Brand ambassadorship:

   Loyal customers act as vehicles of brand sentiment and customer acquisition via word-of-mouth marketing (e.g. testimonials and referrals).

3. Cost savings:

   Repeat customers trust the brand, so there is no need for an extensive retention marketing strategy or advertising spend (versus new customers that require extensive spend to create brand sentiment and trust).

4. Improved profitability:

   Satisfying new and repeat customers sustains loyalty and increases the bottom line. In fact, happy customers are prone to make repeat purchases over a longer period of time.

# *Exploratory Data Analysis:*

The data which contains in the Customer retention dataset.

In [2]:
```
# Loading the dataset
df=pd.read_excel("customer_retentions.xlsx")
df
```

Out[2]:

| | 1Gender of respondent | 2 How old are you? | 3 Which city do you shop online from? | 4 What is the Pin Code of where you shop online from? | 5 Since How Long You are Shopping Online ? | 6 How many times you have made an online purchase in the past 1 year? | 7 How do you access the internet while shopping on-line? | 8 Which device do you use to access the online shopping? | 9 What is the screen size of your mobile device? \t\t\t\t\t\t | 10 What is the operating system (OS) of your device? \t\t\t\t | ... | Longer time to get logged in (promotion, sales period) | Longer time in displaying graphics and photos (promotion, sales period) | Late declaration of price (promotion, sales period) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | Male | 31-40 years | Delhi | 110009 | Above 4 years | 31-40 times | Dial-up | Desktop | Others | Window/windows Mobile | ... | Amazon.in | Amazon.in | Flipkart.com |
| 1 | Female | 21-30 years | Delhi | 110030 | Above 4 years | 41 times and above | Wi-Fi | Smartphone | 4.7 inches | IOS/Mac | ... | Amazon.in, Flipkart.com | Myntra.com | snapdeal.com |
| 2 | Female | 21-30 years | Greater Noida | 201308 | 3-4 years | 41 times and above | Mobile Internet | Smartphone | 5.5 inches | Android | ... | Myntra.com | Myntra.com | Myntra.com |
| 3 | Male | 21-30 years | Karnal | 132001 | 3-4 years | Less than 10 times | Mobile Internet | Smartphone | 5.5 inches | IOS/Mac | ... | Snapdeal.com | Myntra.com, Snapdeal.com | Myntra.com |
| 4 | Female | 21-30 years | Bangalore | 530068 | 2-3 years | 11-20 times | Wi-Fi | Smartphone | 4.7 inches | IOS/Mac | ... | Flipkart.com, Paytm.com | Paytm.com | Paytm.com |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| 264 | Female | 21-30 years | Solan | 173212 | 1-2 years | Less than 10 times | Mobile Internet | Smartphone | 5.5 inches | Android | ... | Amazon.in | Amazon.in | Amazon.in |

| /hat is the operating m (OS) of ır device? \t\t\t\t | ... | Longer time to get logged in (promotion, sales period) | Longer time in displaying graphics and photos (promotion, sales period) | Late declaration of price (promotion, sales period) | Longer page loading time (promotion, sales period) | Limited mode of payment on most products (promotion, sales period) | Longer delivery period | Change in website/Application design | Frequent disruption when moving from one page to another | Website is as efficient as before | Which of the Indian online retailer would you recommend to a friend? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| w/windows Mobile | ... | Amazon.in | Amazon.in | Flipkart.com | Flipkart.com | Amazon.in | Paytm.com | Flipkart.com | Amazon.in | Amazon.in | Flipkart.com |
| IOS/Mac | ... | Amazon.in, Flipkart.com | Myntra.com | snapdeal.com | Snapdeal.com | Snapdeal.com | Snapdeal.com | Amazon.in | Myntra.com | Amazon.in, Flipkart.com | Amazon.in, Myntra.com |
| Android | ... | Myntra.com | Myntra.com | Myntra.com | Myntra.com | Amazon.in | Paytm.com | Paytm.com | Paytm.com | Amazon.in | Amazon.in, Paytm.com, Myntra.com |
| IOS/Mac | ... | Snapdeal.com | Myntra.com, Snapdeal.com | Myntra.com | Paytm.com | Paytm.com | Paytm.com | Amazon.in, Flipkart.com | Amazon.in, Flipkart.com | Amazon.in, Flipkart.com, Paytm.com | Amazon.in, Flipkart.com |
| IOS/Mac | ... | Flipkart.com, Paytm.com | Paytm.com | Paytm.com | Paytm.com | Snapdeal.com | Paytm.com | Amazon.in | Snapdeal.com | Paytm.com | Amazon.in, Myntra.com |
| ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Android | ... | Amazon.in | Amazon.in | Amazon.in | Amazon.in | Amazon.in | Amazon.in | Amazon.in | Amazon.in | Amazon.in | Amazon.in |
| Android | ... | Flipkart.com | Flipkart.com | Flipkart.com | Flipkart.com | Flipkart.com | Flipkart.com | Flipkart.com | Flipkart.com | Flipkart.com | Flipkart.com |
| w/windows Mobile | ... | Amazon.in | Snapdeal.com | Amazon.in | Snapdeal.com | Snapdeal.com | Snapdeal.com | Snapdeal.com | Snapdeal.com | Amazon.in | Amazon.in |

Libraries we used in Python.

```
In [1]: # Importing Libraries
        import pandas as pd
        import numpy as np
        import seaborn as sns
        import matplotlib.pyplot as plt
        import warnings
        warnings.filterwarnings('ignore')
```

Statistical Summary of data:

```
In [9]: # Checking the statistical Summary of data
        df.describe()
```

Out[9]:

| | 4 What is the Pin Code of where you shop online from? |
|---|---|
| count | 269.000000 |
| mean | 220465.747212 |
| std | 140524.341051 |
| min | 110008.000000 |
| 25% | 122018.000000 |
| 50% | 201303.000000 |
| 75% | 201310.000000 |
| max | 560037.000000 |

There are no Missing values in data

```
In [12]: df.isnull().sum()
```

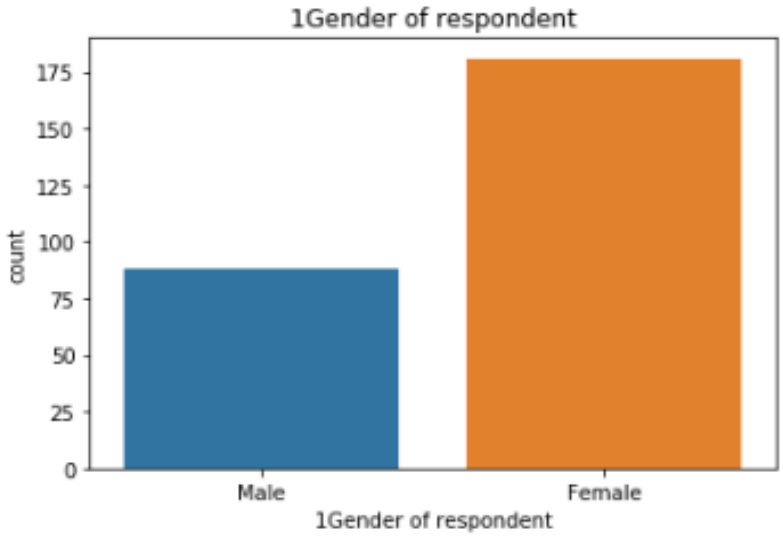
```
Out[12]: 1Gender of respondent                                    0
         2 How old are you?                                      0
         3 Which city do you shop online from?                   0
         4 What is the Pin Code of where you shop online from?   0
         5 Since How Long You 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
```

**Majority of Customer is Female. Only 88 Customers is Male.**

Female is purchasing more than male.

In [15]:
```
print(df['1Gender of respondent'].value_counts())
sns.countplot(df['1Gender of respondent'])
plt.title("1Gender of respondent")
plt.show()
```

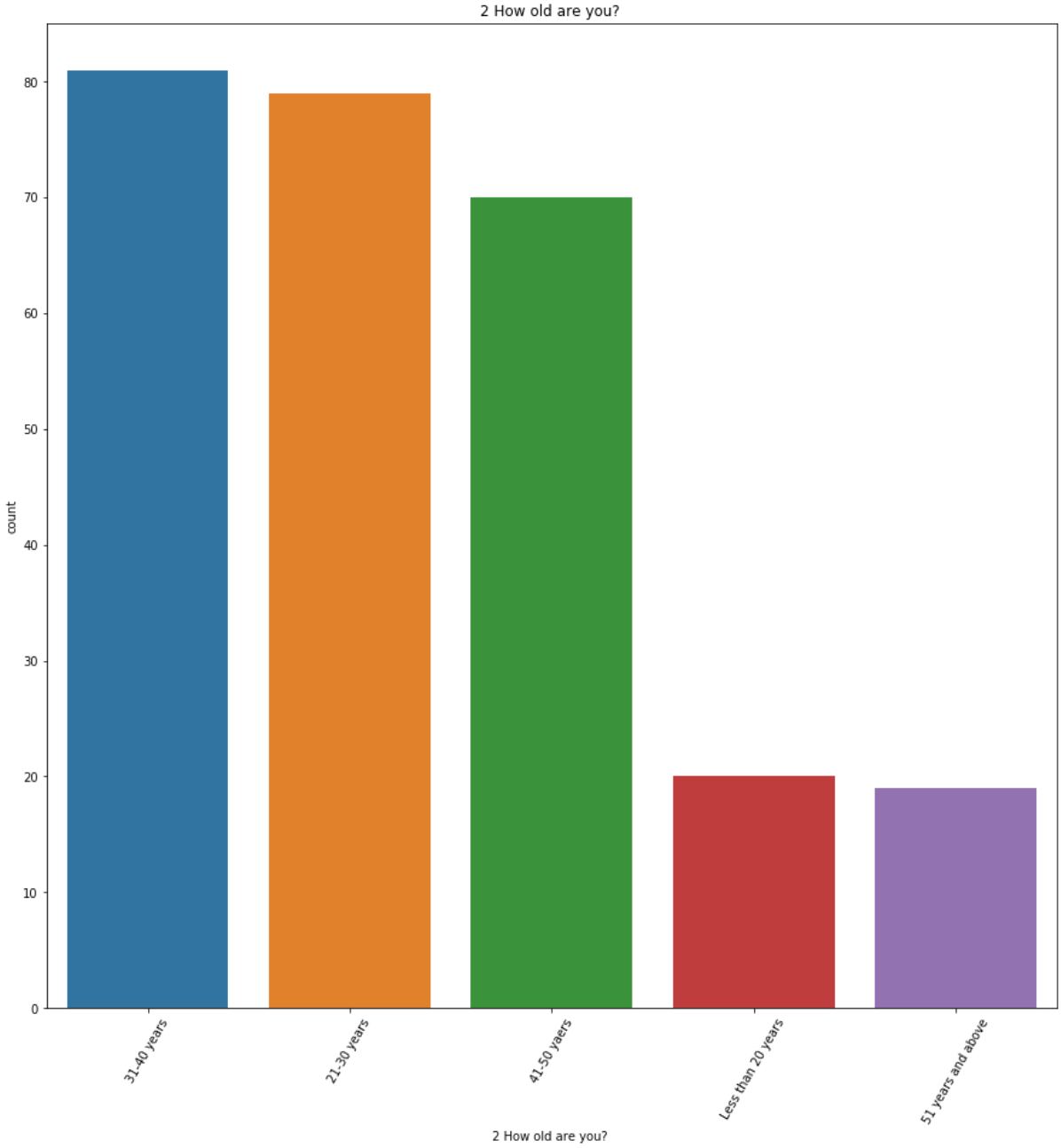
```
Female    181
Male       88
Name: 1Gender of respondent, dtype: int64
```




In [16]:
```
# Checking the how old customer's are who purchasing through e-commerce
print(df["2 How old are you? "].value_counts())
plt.figure(figsize=(15,15))
sns.countplot(df["2 How old are you? "])
plt.xticks(rotation=60)
plt.title("2 How old are you? ")
plt.show()
```

```
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
```

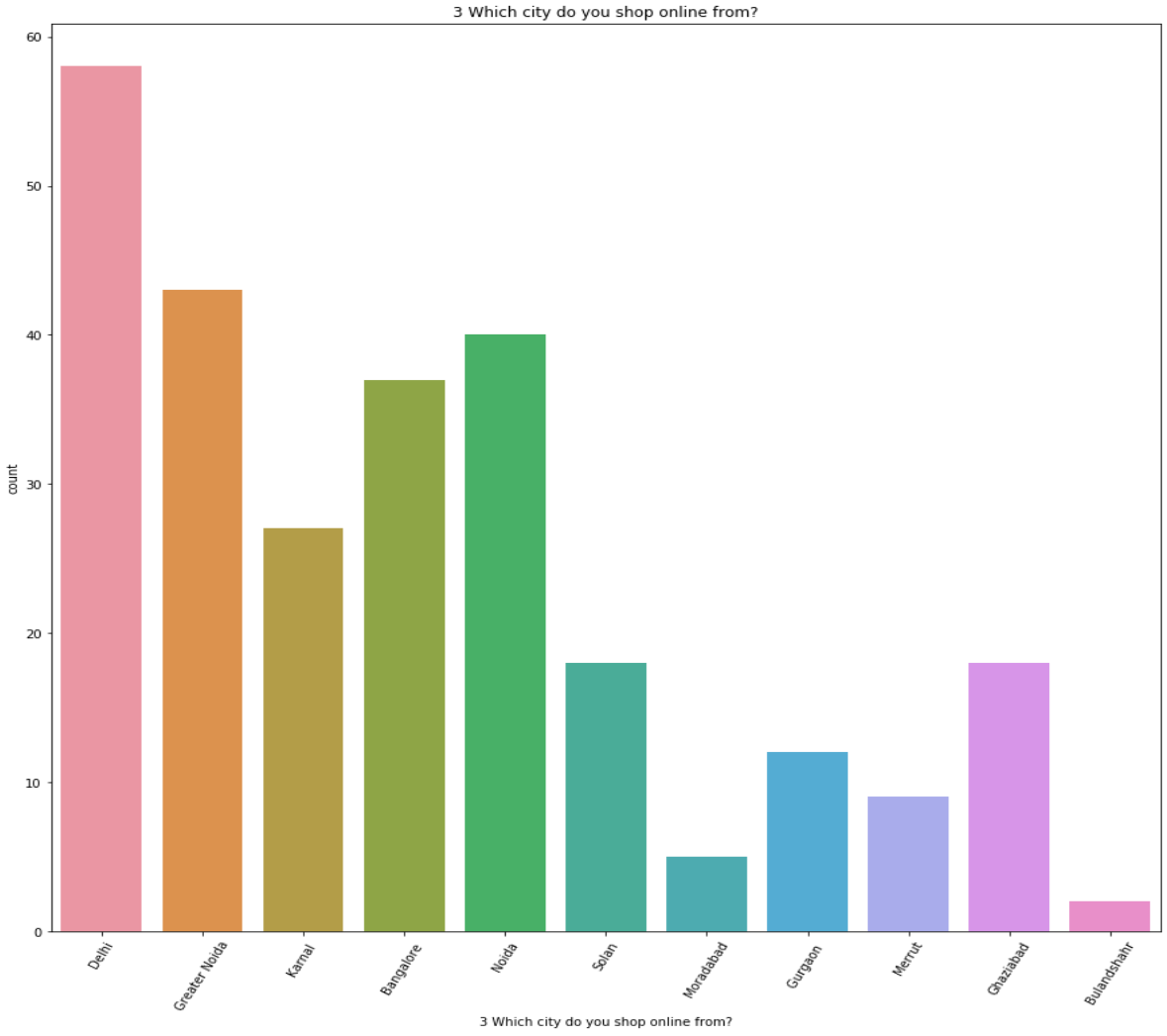
Majority of customers are in the range of 31-40years.



**Majority of Customers are from Delhi purchasing through Online**

In [17]:
```
# Checking the count of city
print(df["3 Which city do you shop online from?"].value_counts())
plt.figure(figsize=(15,15))
sns.countplot(df["3 Which city do you shop online from?"])
plt.xticks(rotation=60)
plt.title("3 Which city do you shop online from?")
plt.show()
```

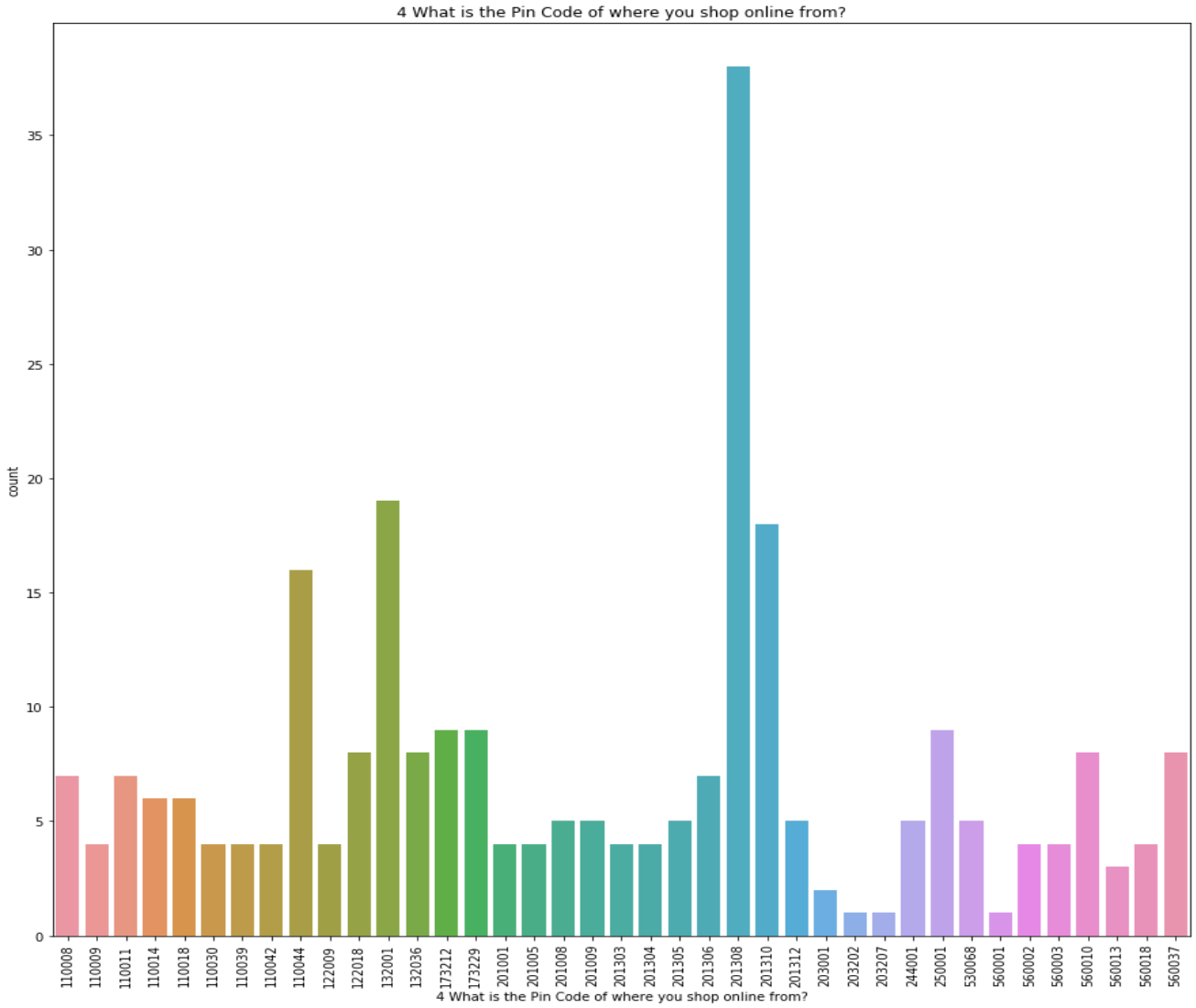
```
Delhi             58
Greater Noida     43
Noida             40
Bangalore         37
Karnal            27
Solan             18
Ghaziabad         18
Gurgaon           12
Merrut             9
Moradabad          5
Bulandshahr        2
Name: 3 Which city do you shop online from?, dtype: int64
```



# Checking the pincode of customer purchase, majority of purchasing with the pincode 201308

In [18]:
```
# Checking the pincode from which city is purchasing more in e-commerce.
print(df["4 What is the Pin Code of where you shop online from?"].value_counts())
plt.figure(figsize=(15,15))
sns.countplot(df["4 What is the Pin Code of where you shop online from?"])
plt.xticks(rotation=90)
plt.title("4 What is the Pin Code of where you shop online from?")
plt.show()
```

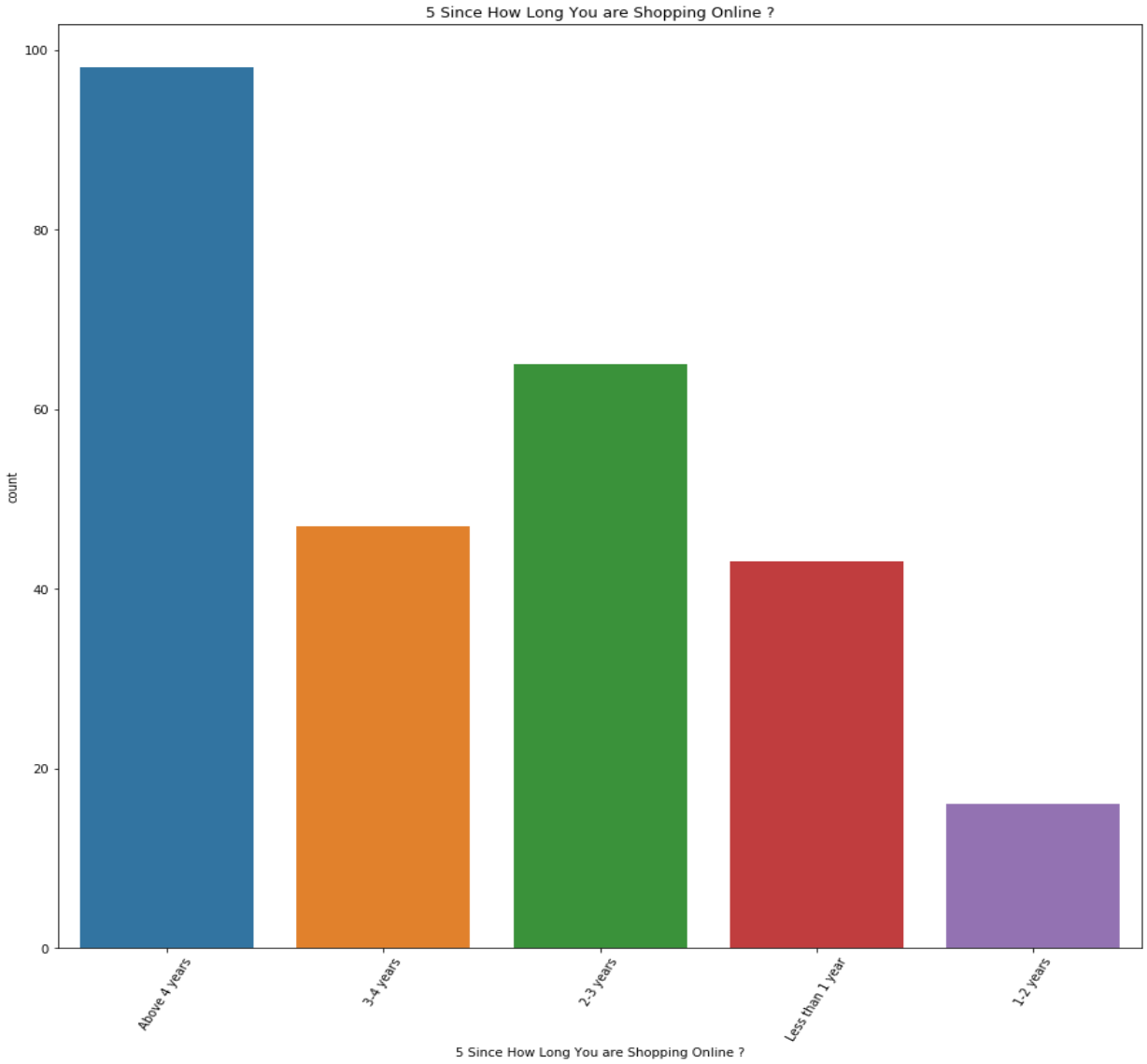
```
201308    38
132001    19
201310    18
110044    16
173229     9
173212     9
250001     9
122018     8
560037     8
132036     8
560010     8
110011     7
110008     7
201306     7
110014     6
110018     6
201008     5
201009     5
201305     5
201312     5
244001     5
530068     5
201005     4
110009     4
110042     4
110039     4
110030     4
201304     4
122009     4
201303     4
560018     4
201001     4
560003     4
560002     4
560013     3
203001     2
203207     1
560001     1
203202     1
```




In [19]:
```
# Checking the count of customer how long they are shopping online
print(df["5 Since How Long You are Shopping Online ?"].value_counts())
plt.figure(figsize=(15,15))
sns.countplot(df["5 Since How Long You are Shopping Online ?"])
plt.xticks(rotation=60)
plt.title("5 Since How Long You are Shopping Online ?")
plt.show()
```

```
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
```

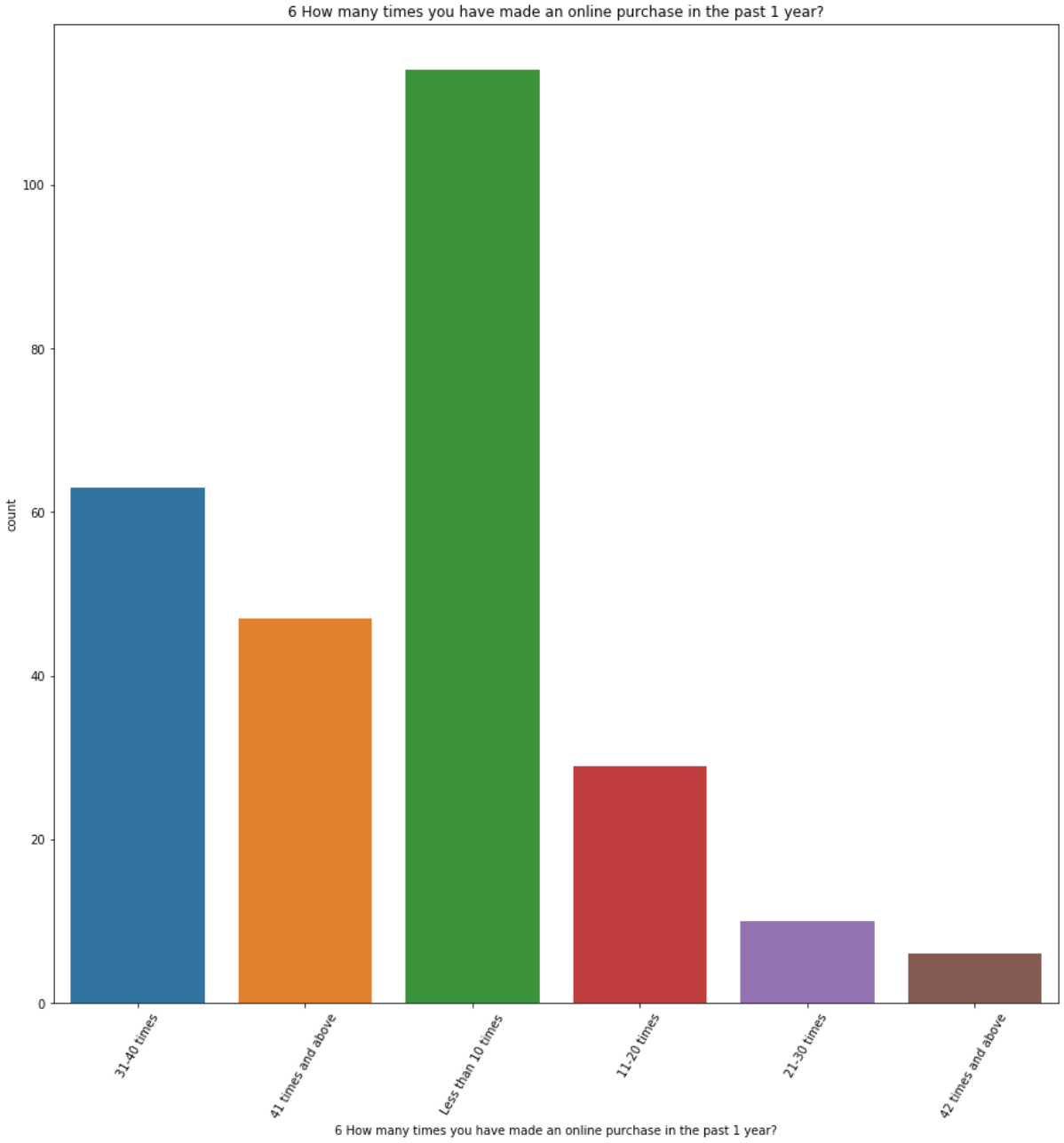
# Majority of Customers are purchasing through online above 4 years




In [20]:
```
# Checking the count of customers how many times they have purchase in Online
print(df["6 How many times you have made an online purchase in the past 1 year?"].value_counts())
plt.figure(figsize=(15,15))
sns.countplot(df["6 How many times you have made an online purchase in the past 1 year?"])
plt.xticks(rotation=60)
plt.title("6 How many times you have made an online purchase in the past 1 year?")
plt.show()
```

```
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
```

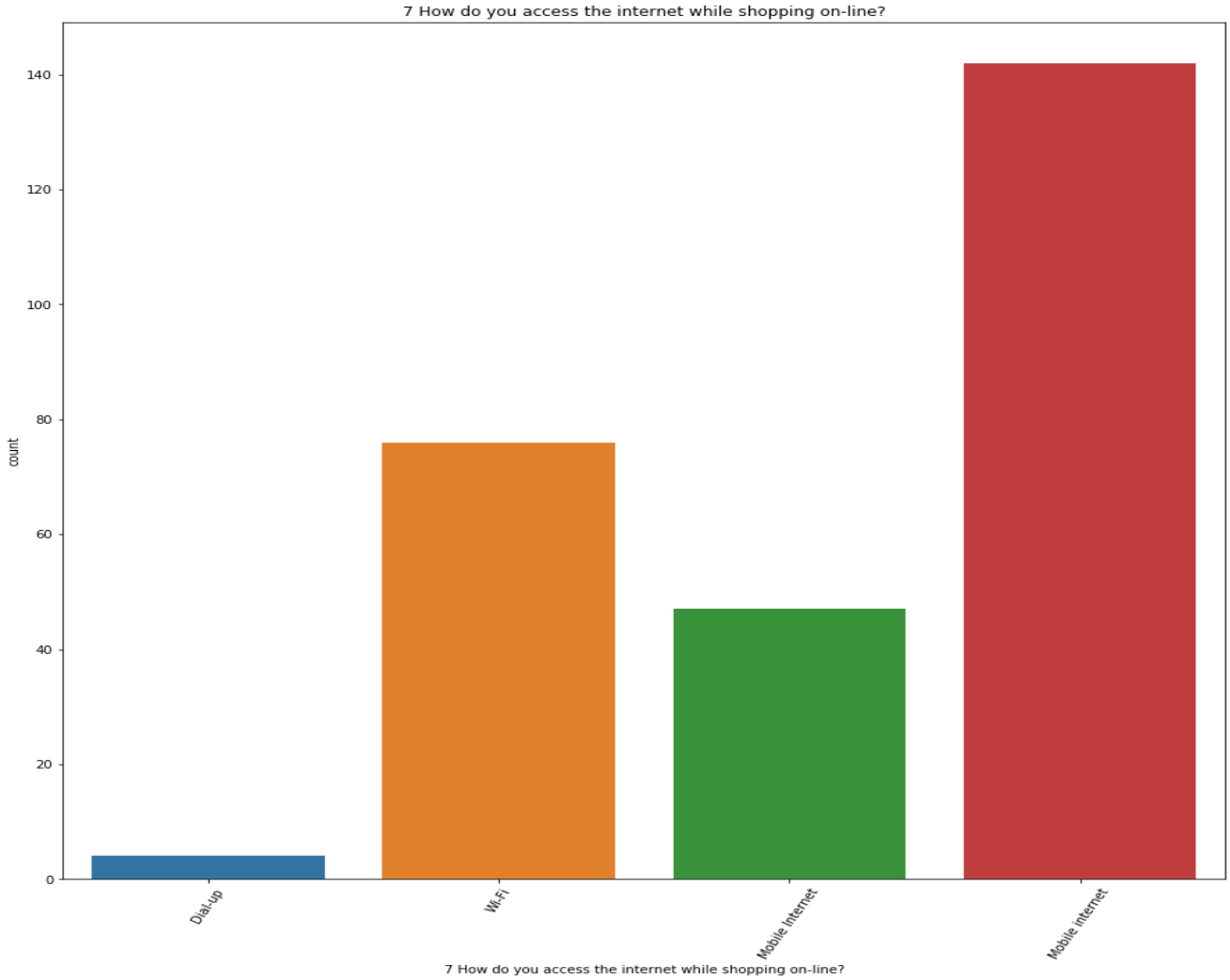
# In 1 year, majority of customers purchase less than 10 times



In [21]:
```
# Checking the count of customers to know which mode customer are using while purchasing
print(df["7 How do you access the internet while shopping on-line?"].value_counts())
plt.figure(figsize=(15,15))
sns.countplot(df["7 How do you access the internet while shopping on-line?"])
plt.xticks(rotation=60)
plt.title("7 How do you access the internet while shopping on-line?")
plt.show()
```

```
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
```

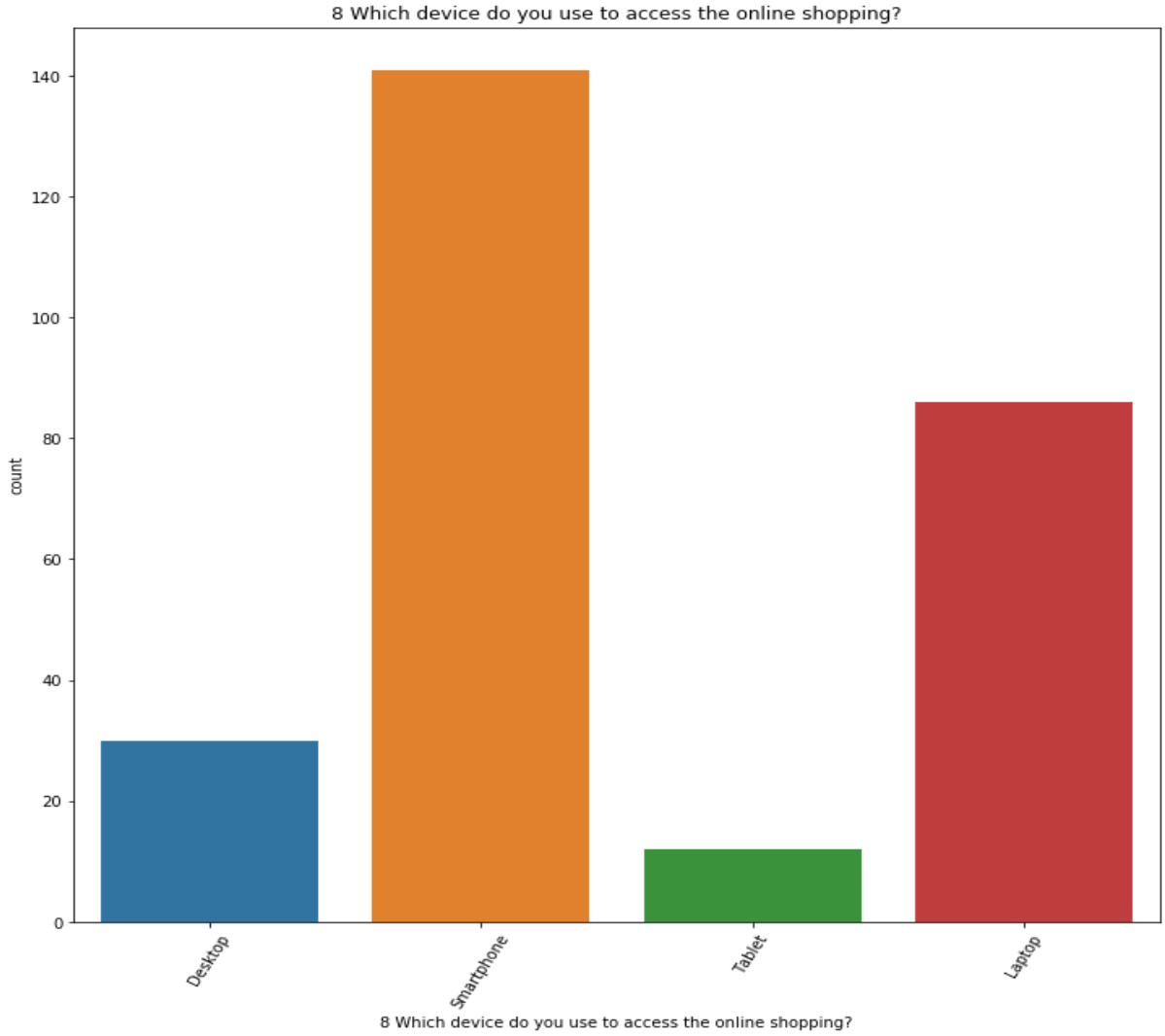
Majority of Customers are using Mobile internet while purchasing items in Online



In [22]:
```
# Checking the count, which device customer use to do online shopping
print(df["8 Which device do you use to access the online shopping?"].value_counts())
plt.figure(figsize=(12,12))
sns.countplot(df["8 Which device do you use to access the online shopping?"])
plt.xticks(rotation=60)
plt.title("8 Which device do you use to access the online shopping?")
plt.show()
```

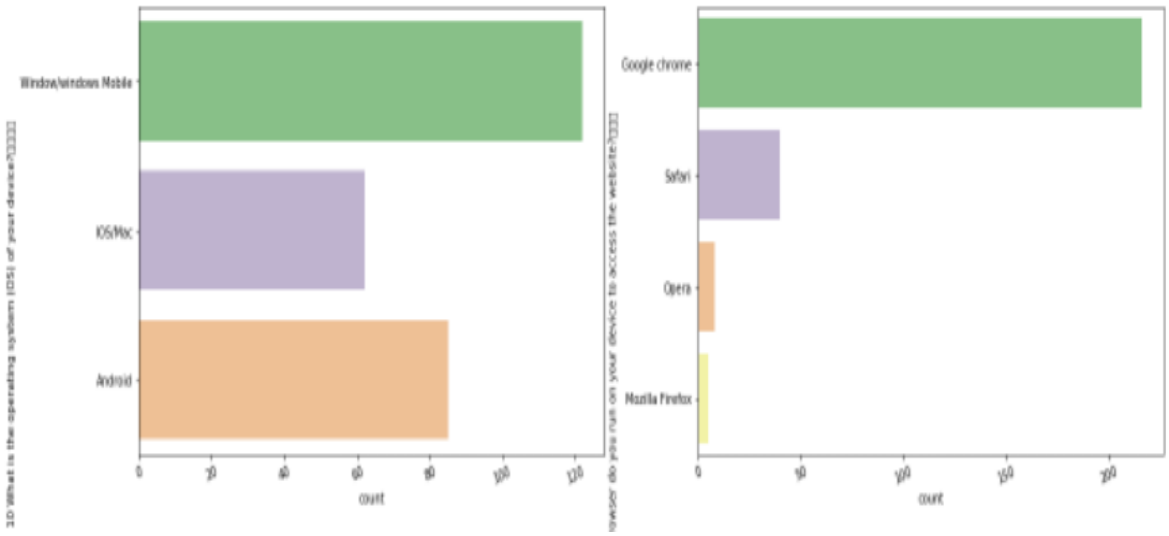
```
Smartphone    141
Laptop         86
Desktop        30
Tablet         12
Name: 8 Which device do you use to access the online shopping?, dtype: int64
```

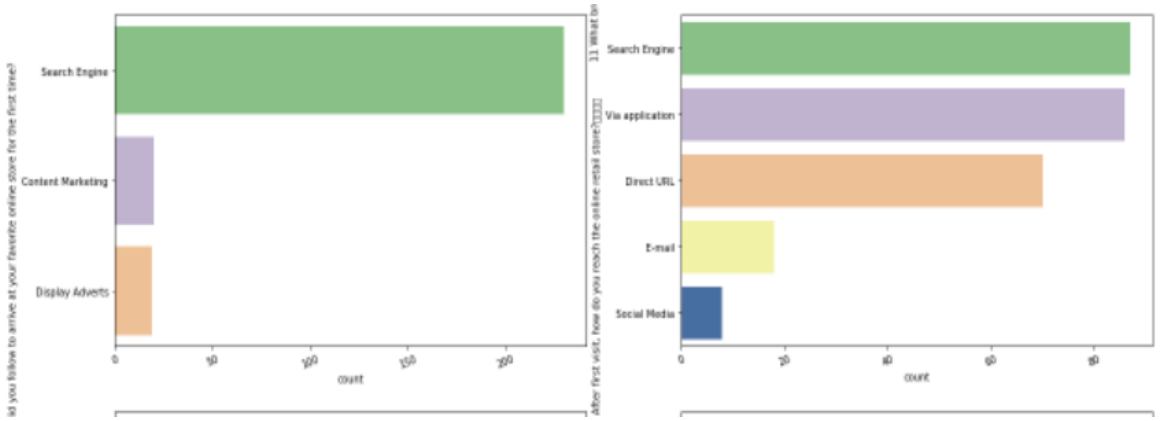
Majority of Customers are using Smart phone while purchasing

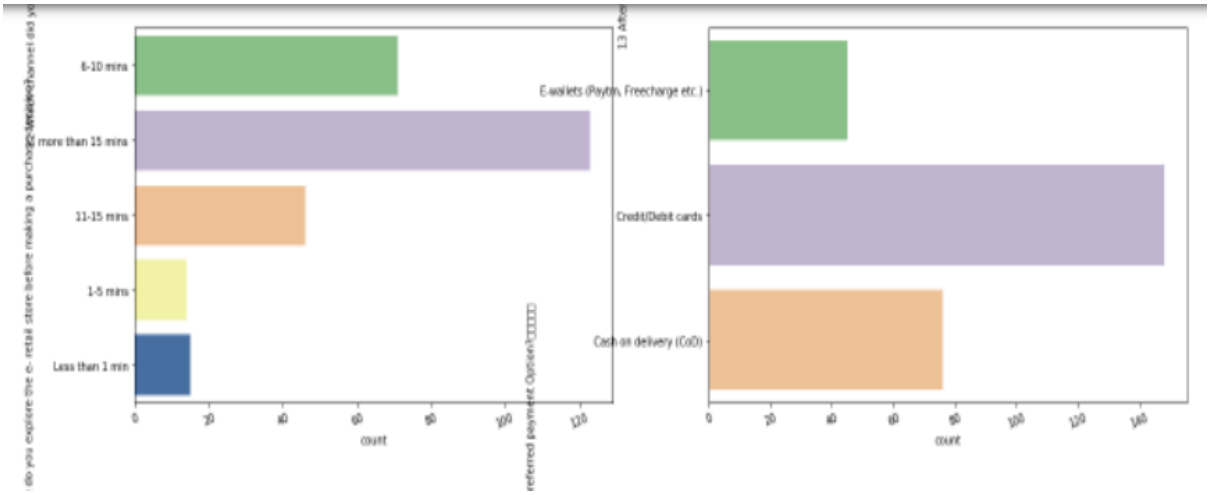


In [37]:
```
plt.figure(figsize=(20,20))
m=1
for i in df.columns[9:15]:
    plt.subplot(3,2,m)
    m=m+1
    axes=sns.countplot(y=df[i],palette='Accent')
    plt.xticks(rotation=20)


    total=len(df[i])
    for p in axes.patches:
        percentage = '{:.1f}%'.format(100 * p.get_width()/total)
        x=p.get_x()+p.get_width()+0.02
        y=p.get_y()+p.get_width()/2
        axes.annotate(percentage,(x,y))
        plt.tight_layout()
```

Majority of Customers are using Google chrome, Windows Android mobile phone. For payment customers are using credit/debit card.

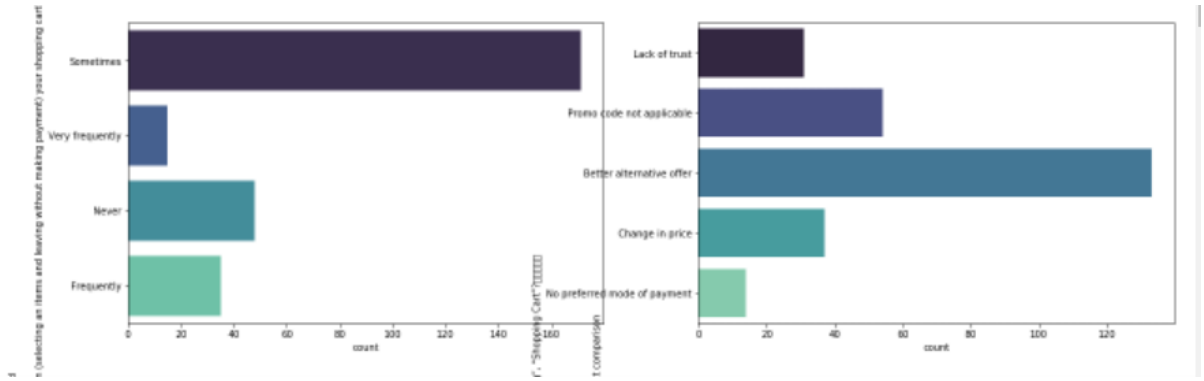


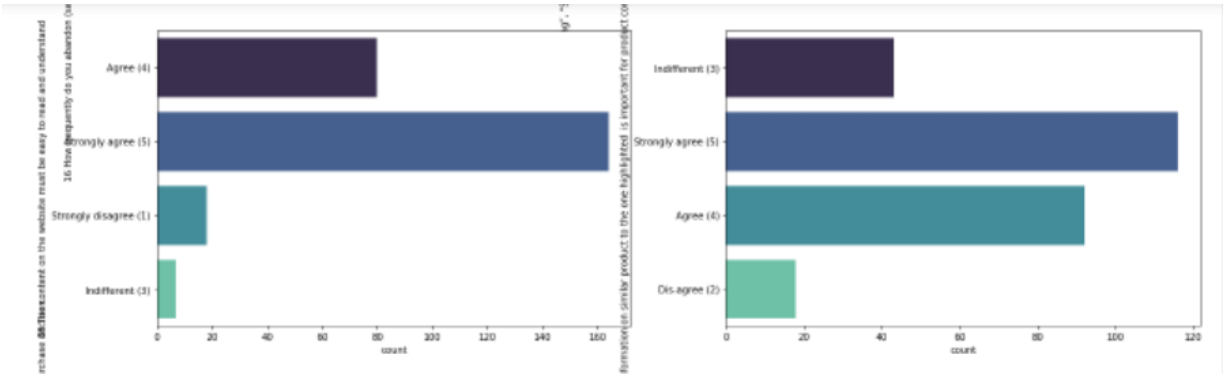


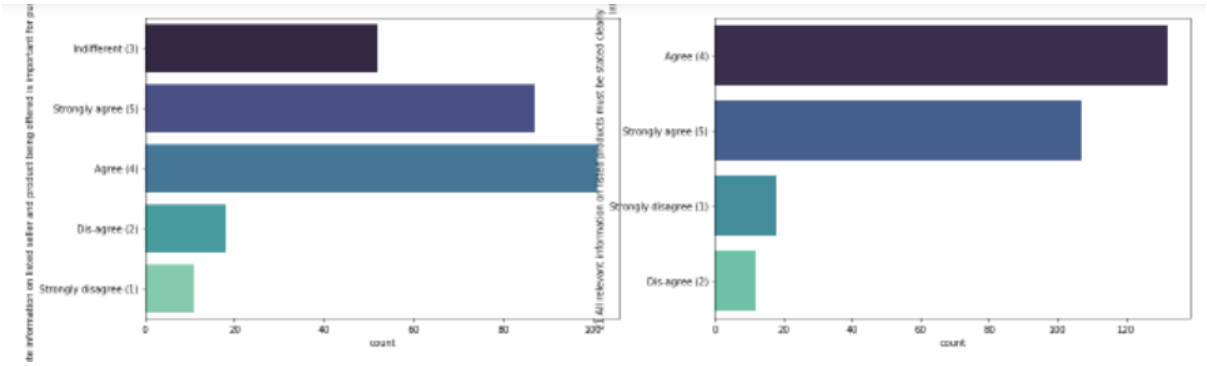




In [63]:
```
plt.figure(figsize=(20,20))
m=1
for i in df.columns[15:21]:
    plt.subplot(3,2,m)
    m=m+1
    axes=sns.countplot(y=df[i],palette='mako')

    total=len(df[i])
    for p in axes.patches:
        percentage='{:.1f}%'. format(100*p.get_width()/total)
        x=p.get_x()+p.get_width()+0.02
        y=p.get_y()+p.get_width()/2
        axes.annotate(percentage,(x,y))
plt.tight_layout()
```

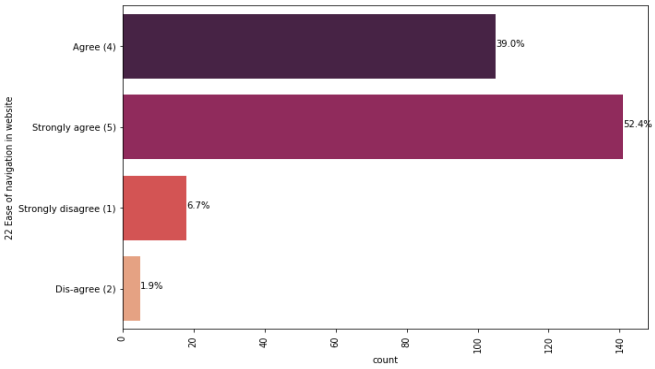
Majority of Customers are strongly agreeing that shopping through online is flexible and compatible. Easy to use and user-friendly website. Customers get credit for every purchase and gives offer/discounts for items.

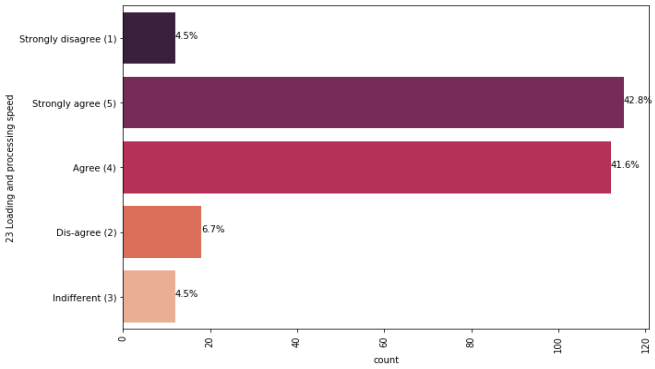


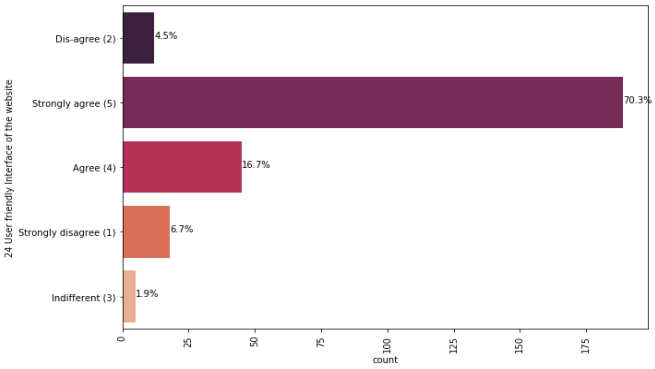



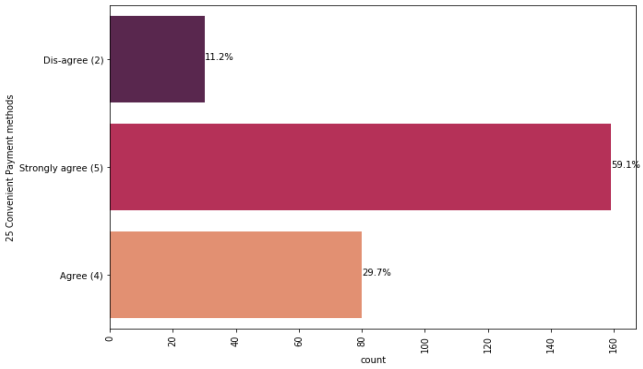



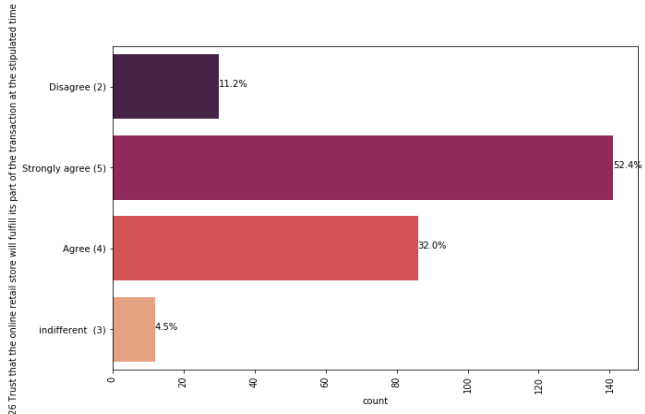
In [60]:
```
plt.figure(figsize=(20,20))
m=1
for i in df.columns[21:26]:
    plt.subplot(3,2,m)
    m=m+1
    axes = sns.countplot(y = df[i],palette='rocket')
    plt.xticks(rotation=90)


    total = len(df[i])
    for p in axes.patches:
        percentage = '{:.1f}%'.format(100 * p.get_width()/total)
        x = p.get_x() + p.get_width() + 0.02
        y = p.get_y() + p.get_height()/2
        axes.annotate(percentage, (x, y))

plt.tight_layout()
```



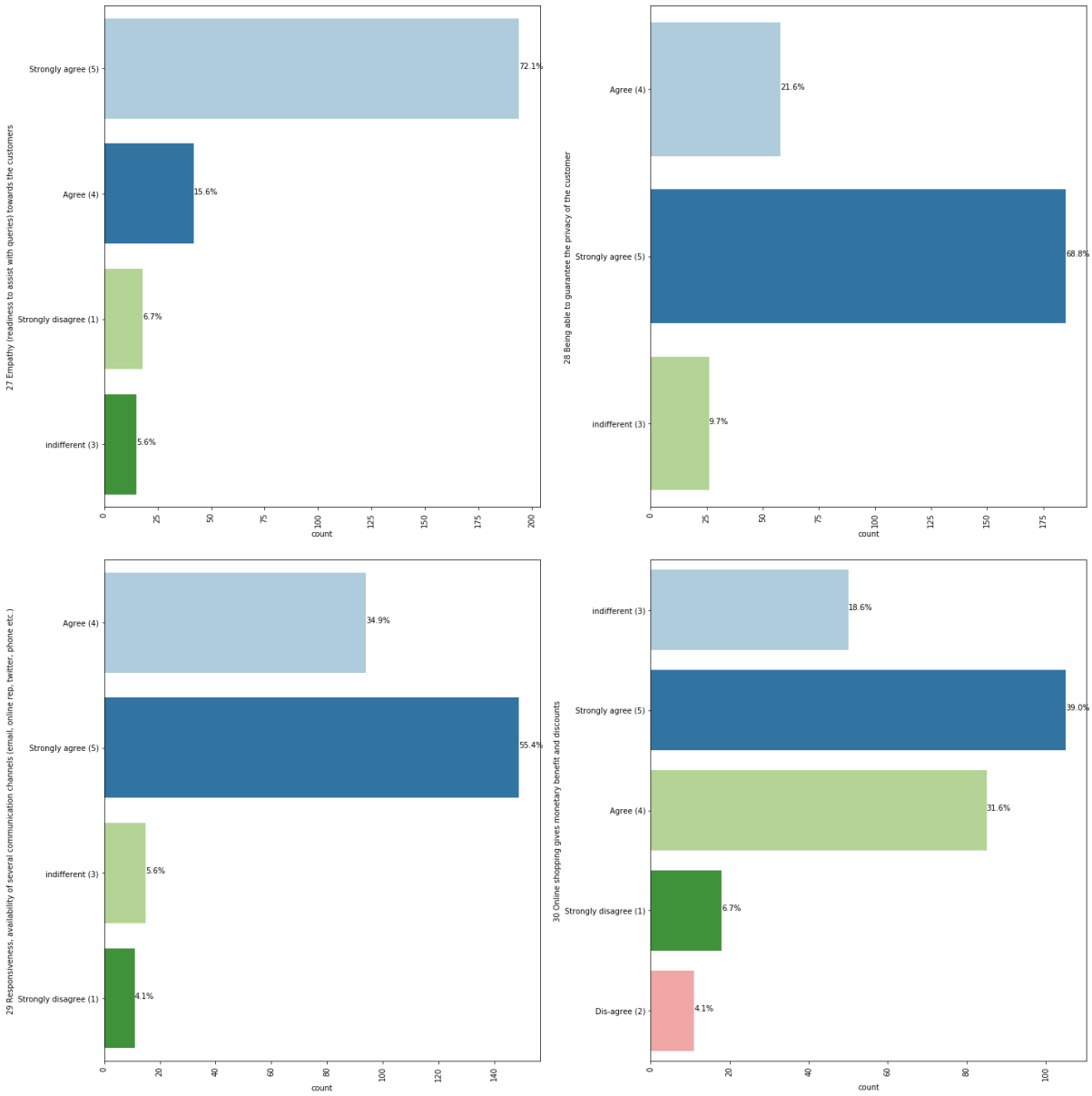



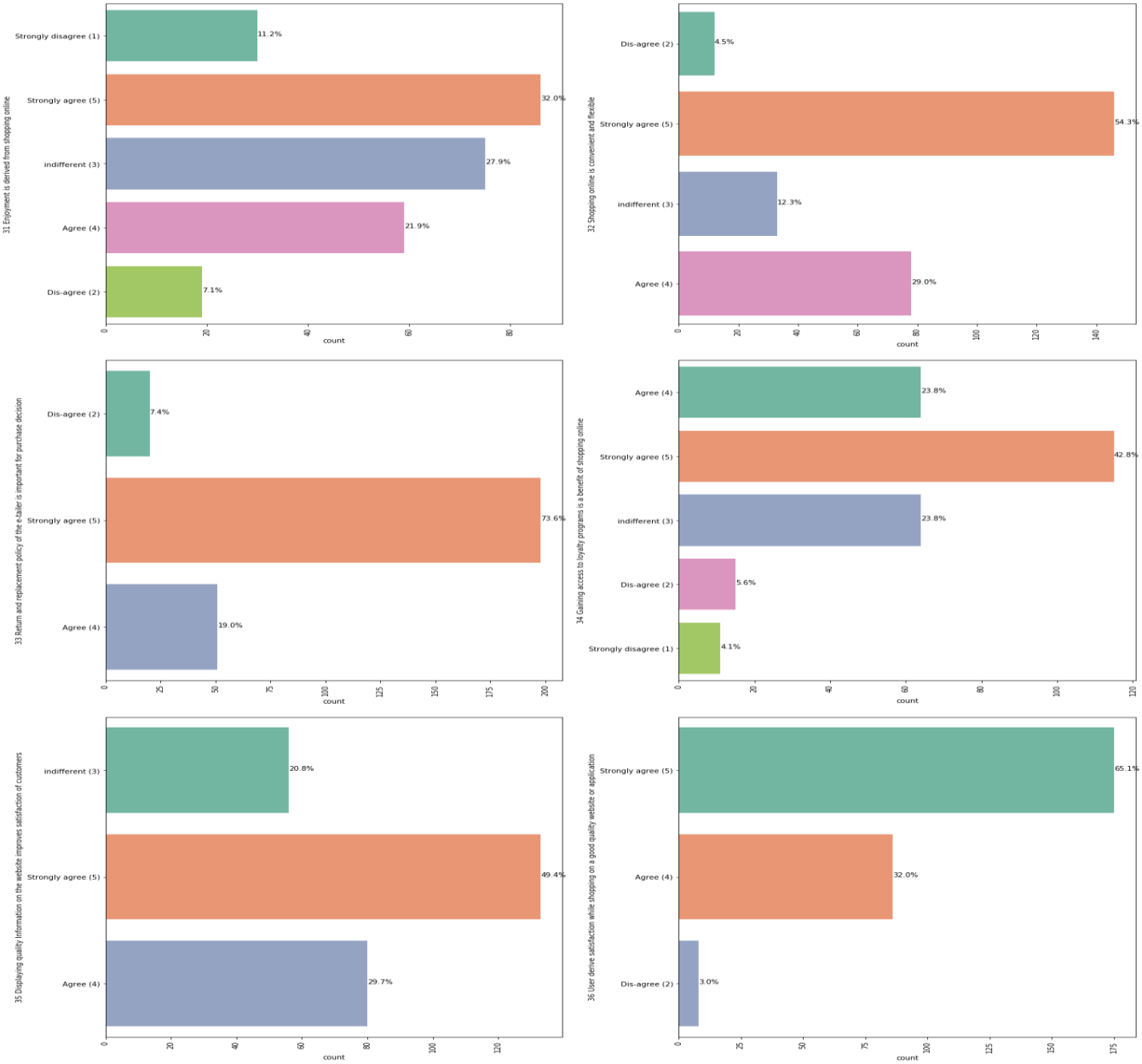



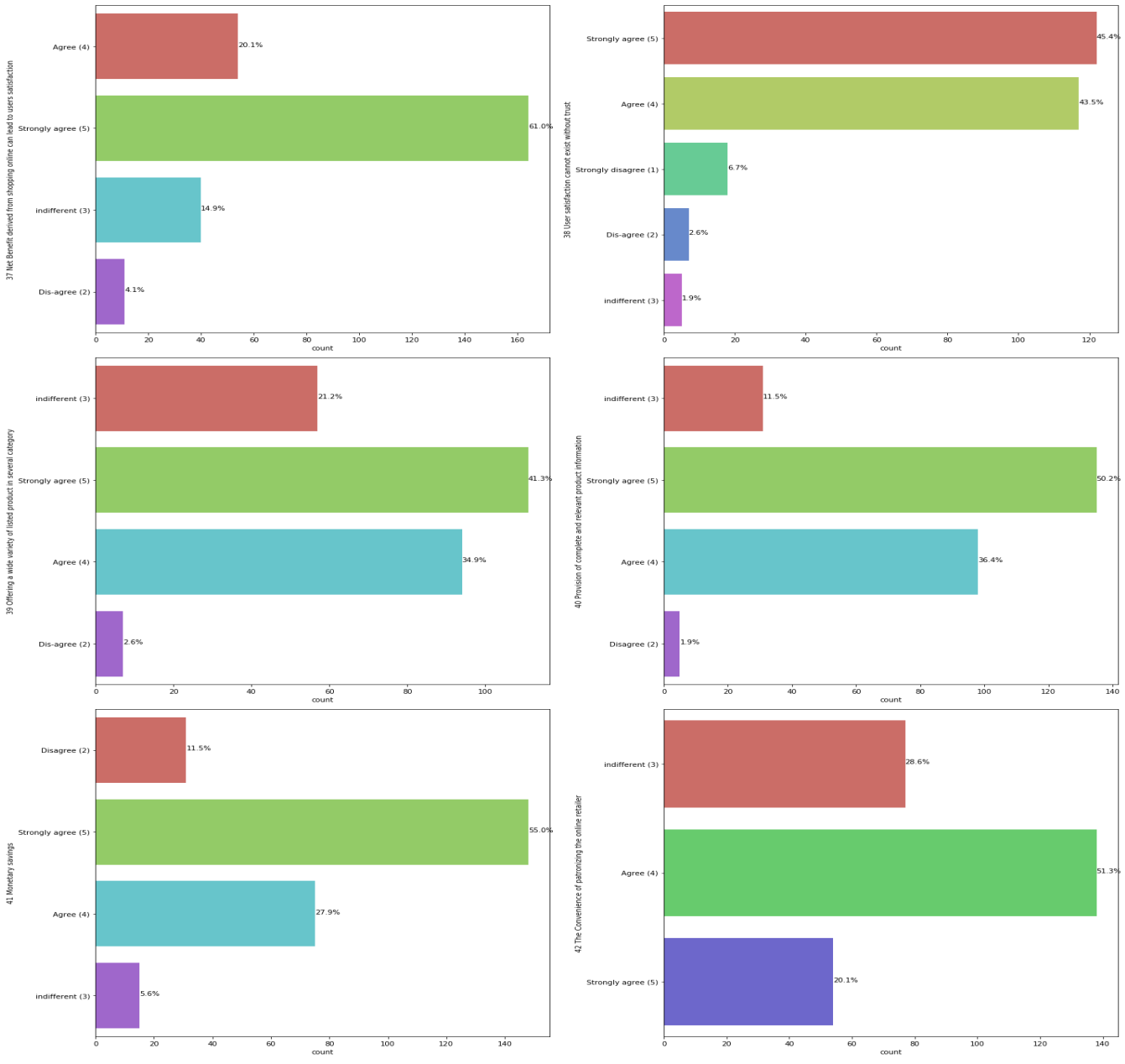
In [59]:
```
plt.figure(figsize=(20,20))
m=1
for i in df.columns[26:30]:
    plt.subplot(2,2,m)
    m=m+1
    axes = sns.countplot(y = df[i],palette='Paired')
    plt.xticks(rotation=90)


    total = len(df[i])
    for p in axes.patches:
        percentage = '{:.1f}%'.format(100 * p.get_width()/total)
        x = p.get_x() + p.get_width() + 0.02
        y = p.get_y() + p.get_height()/2
        axes.annotate(percentage, (x, y))

plt.tight_layout()
```



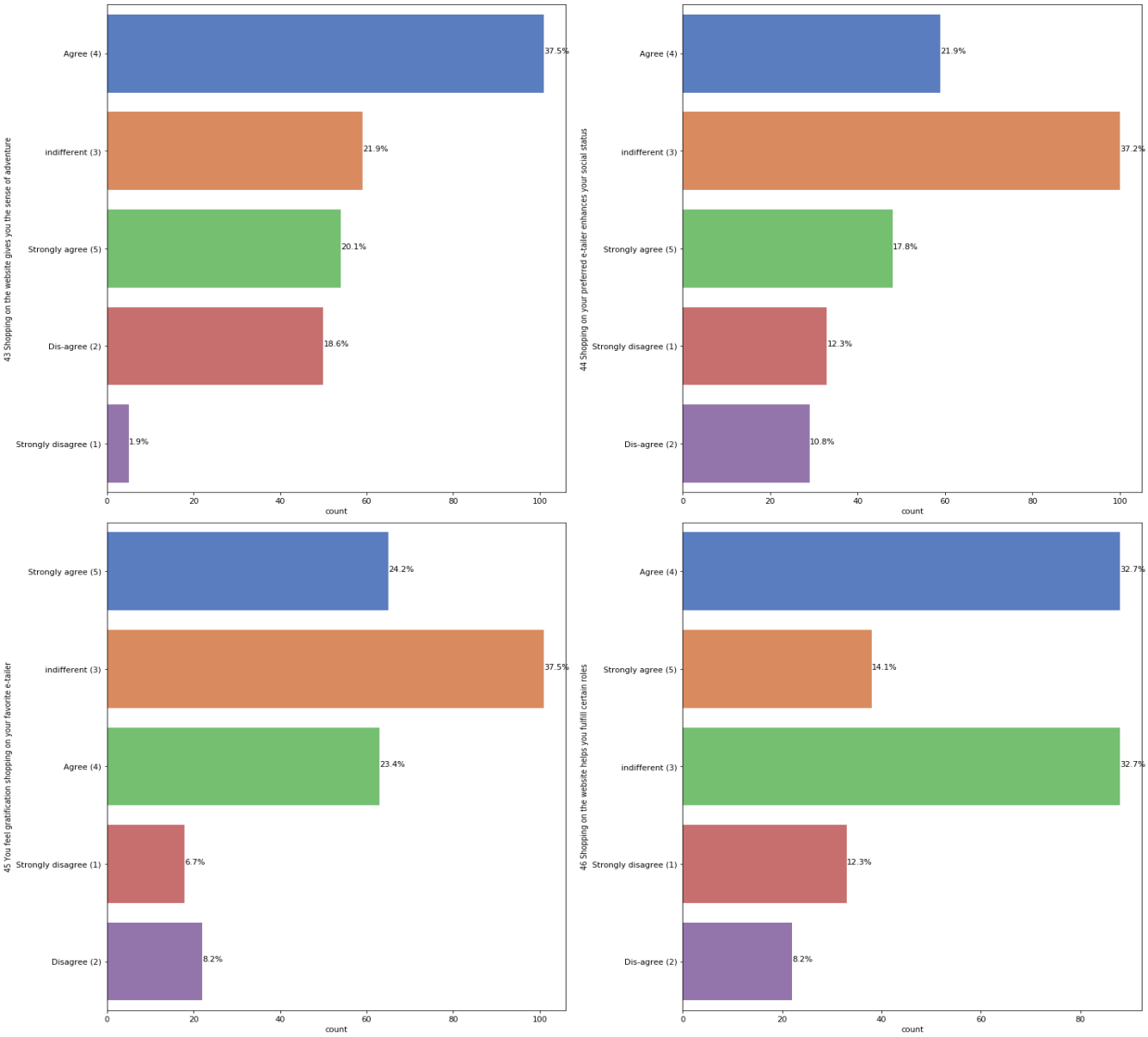
In [53]:
```
plt.figure(figsize=(20,25))
m=1
for i in df.columns[30:36]:
    plt.subplot(3,2,m)
    m=m+1
    axes = sns.countplot(y = df[i],palette='Set2')
    plt.xticks(rotation=90)


    total = len(df[i])
    for p in axes.patches:
        percentage = '{:.1f}%'.format(100 * p.get_width()/total)
        x = p.get_x() + p.get_width() + 0.02
        y = p.get_y() + p.get_height()/2
        axes.annotate(percentage, (x, y))

plt.tight_layout()
```



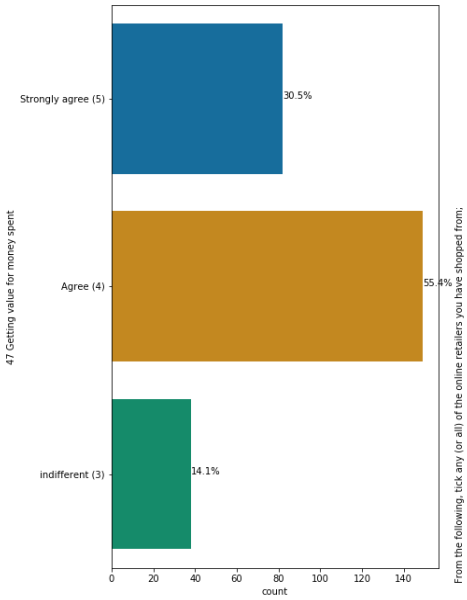
In [65]:
```
plt.figure(figsize=(20,25))
m=1
for i in df.columns[36:42]:
    plt.subplot(3,2,m)
    m=m+1
    axes = sns.countplot(y = df[i],palette='hls')


    total = len(df[i])
    for p in axes.patches:
        percentage = '{:.1f}%'.format(100 * p.get_width()/total)
        x = p.get_x() + p.get_width() + 0.02
        y = p.get_y() + p.get_height()/2
        axes.annotate(percentage, (x, y))

plt.tight_layout()
```

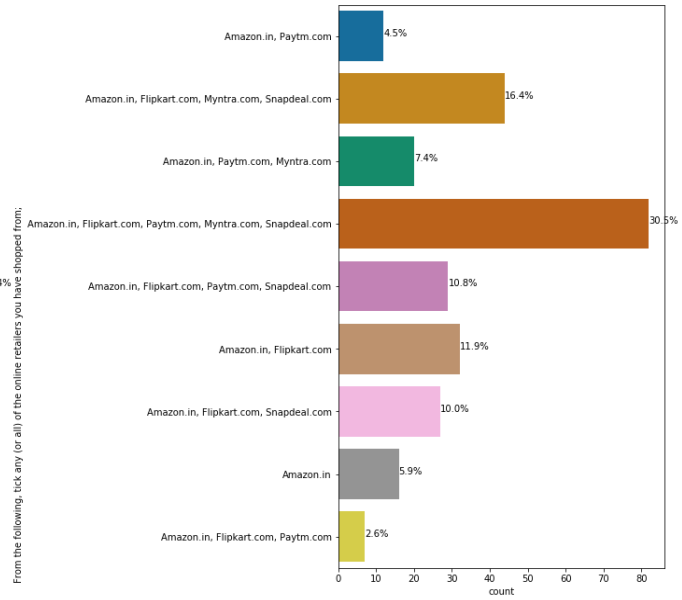


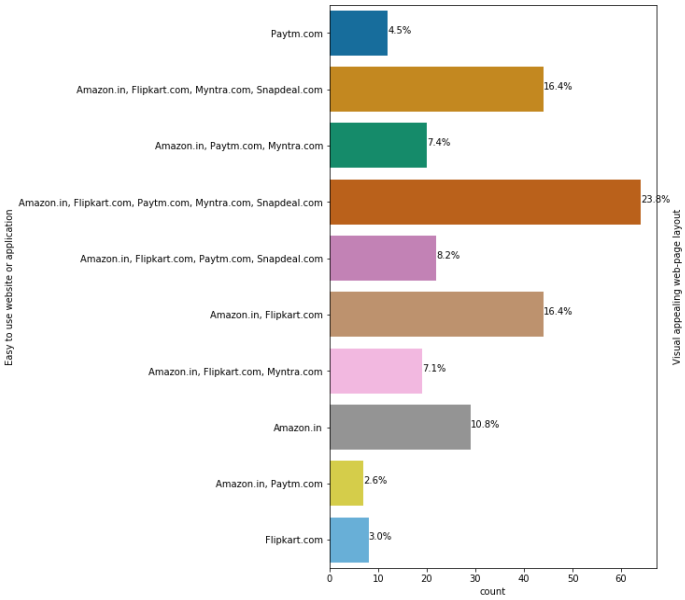
In [68]:
```
plt.figure(figsize=(20,20))
m=1
for i in df.columns[42:46]:
    plt.subplot(2,2,m)
    m=m+1
    axes = sns.countplot(y = df[i],palette='muted')


    total = len(df[i])
    for p in axes.patches:
        percentage = '{:.1f}%'.format(100 * p.get_width()/total)
        x = p.get_x() + p.get_width() + 0.02
        y = p.get_y() + p.get_height()/2
        axes.annotate(percentage, (x, y))

plt.tight_layout()
```

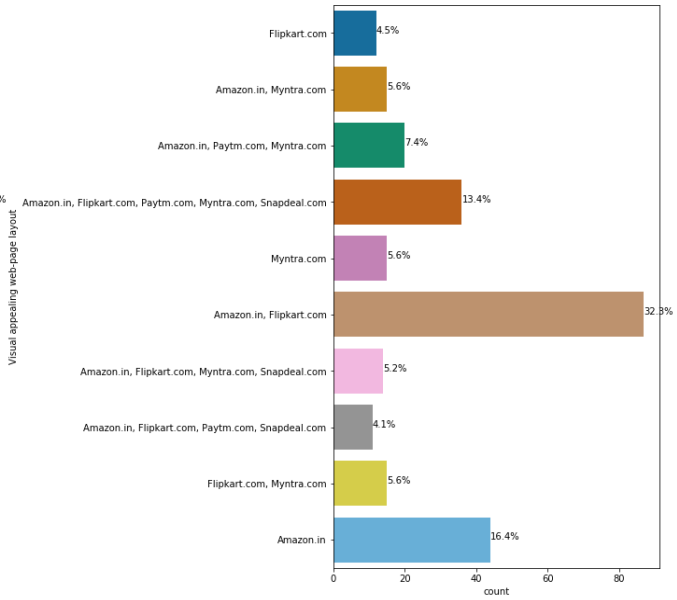


In [70]:
```
plt.figure(figsize=(20,20))
m=1
for i in df.columns[46:50]:
    plt.subplot(2,2,m)
    m=m+1
    axes = sns.countplot(y = df[i],palette='colorblind')


    total = len(df[i])
    for p in axes.patches:
        percentage = '{:.1f}%'.format(100 * p.get_width()/total)
        x = p.get_x() + p.get_width() + 0.02
        y = p.get_y() + p.get_height()/2
        axes.annotate(percentage, (x, y))

plt.tight_layout()
```



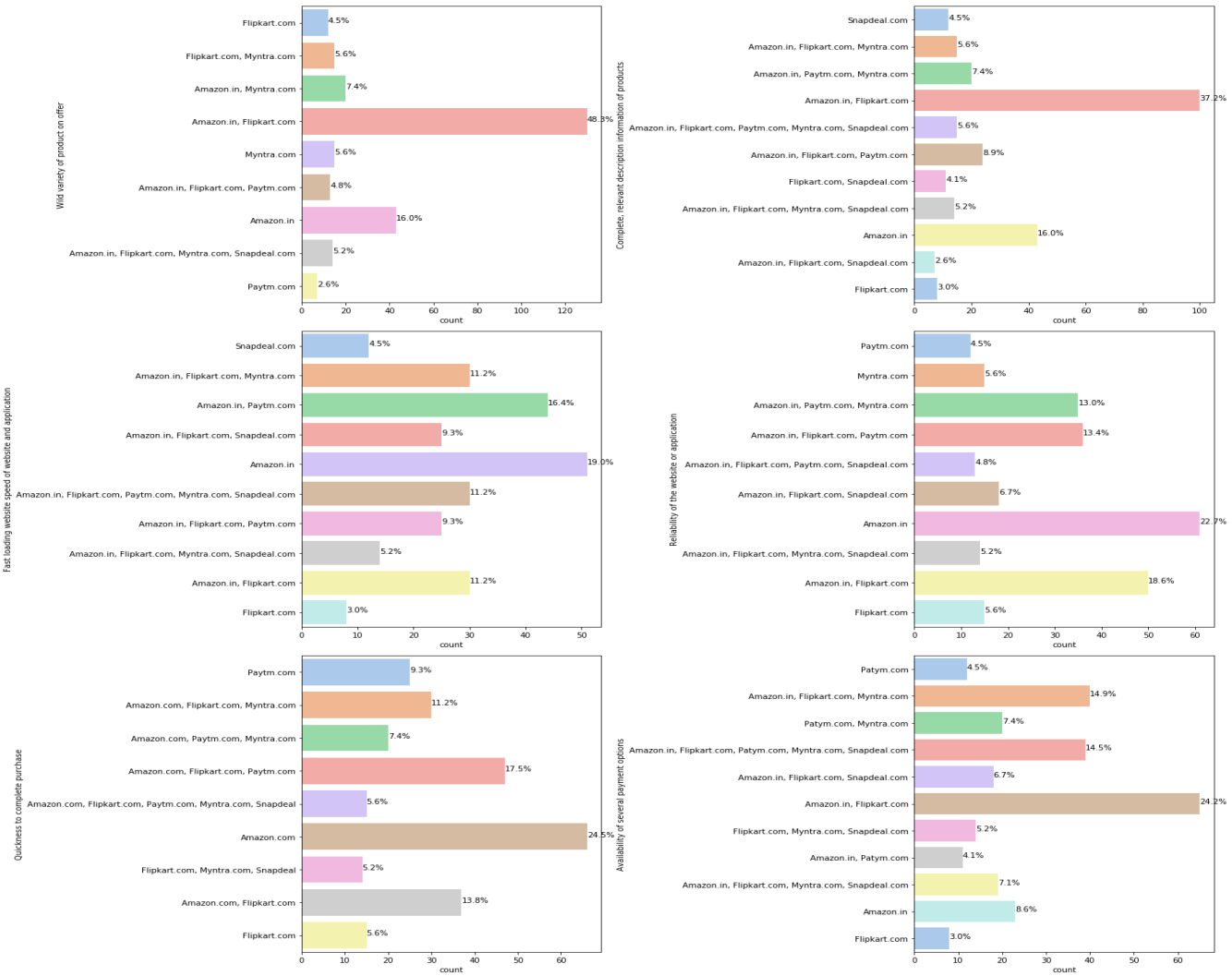



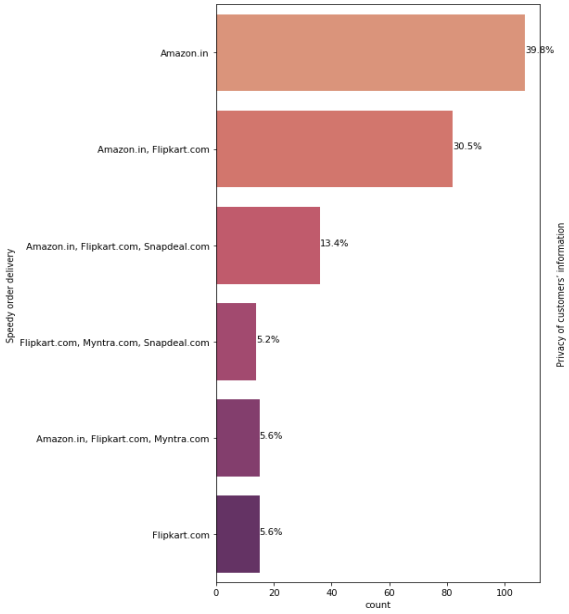
In [72]:
```
plt.figure(figsize=(20,20))
m=1
for i in df.columns[50:56]:
    plt.subplot(3,2,m)
    m=m+1
    axes = sns.countplot(y = df[i],palette='pastel')


    total = len(df[i])
    for p in axes.patches:
        percentage = '{:.1f}%'.format(100 * p.get_width()/total)
        x = p.get_x() + p.get_width() + 0.02
        y = p.get_y() + p.get_height()/2
        axes.annotate(percentage, (x, y))

plt.tight_layout()
```

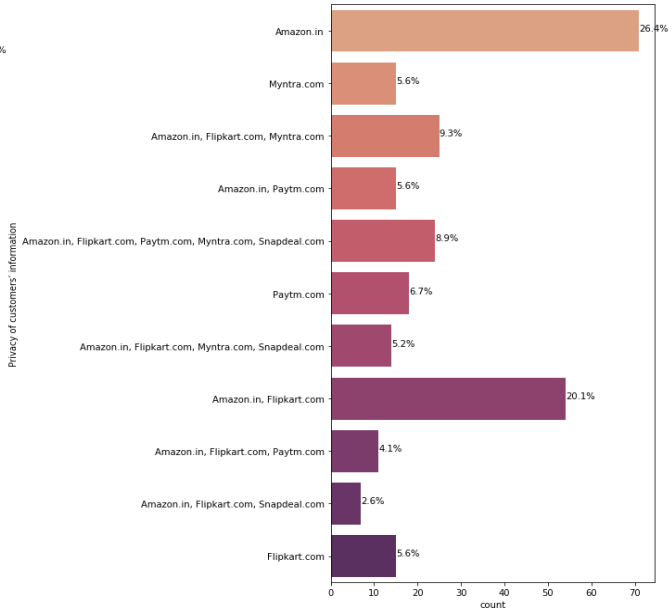
Majority of Customer’s are using Amazon and flip kart for shopping. As it provides good service, fast delivery. It also provides product return policy, where there is no charge to customer for any product return or Cancellation fees.

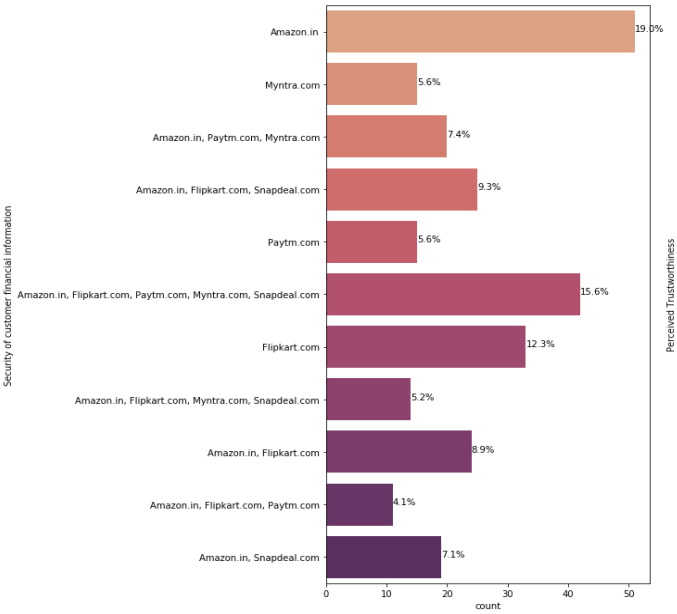


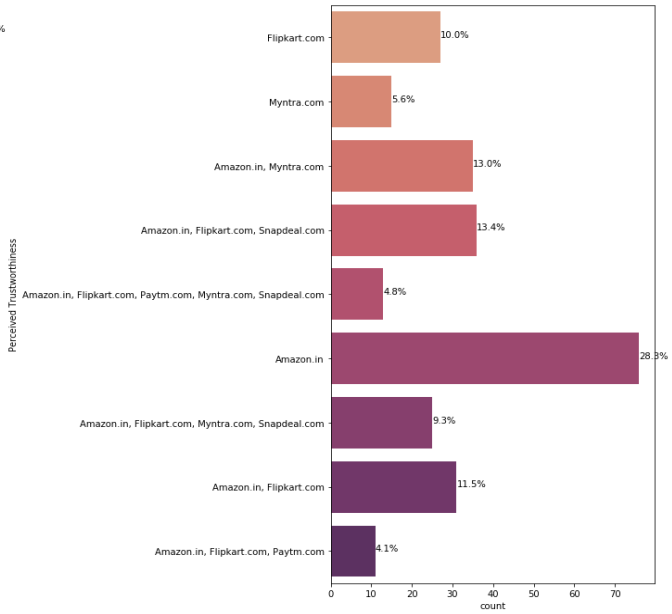

In [83]:
```
plt.figure(figsize=(20,20))
m=1
for i in df.columns[56:60]:
    plt.subplot(2,2,m)
    m=m+1
    axes = sns.countplot(y = df[i],palette='flare')


    total = len(df[i])
    for p in axes.patches:
        percentage = '{:.1f}%'.format(100 * p.get_width()/total)
        x = p.get_x() + p.get_width() + 0.02
        y = p.get_y() + p.get_height()/2
        axes.annotate(percentage, (x, y))

plt.tight_layout()
```

Among Customer review, we found that Amazon is the top most shopping website. Where more customers are purchasing and it has built a strong customer relationship.

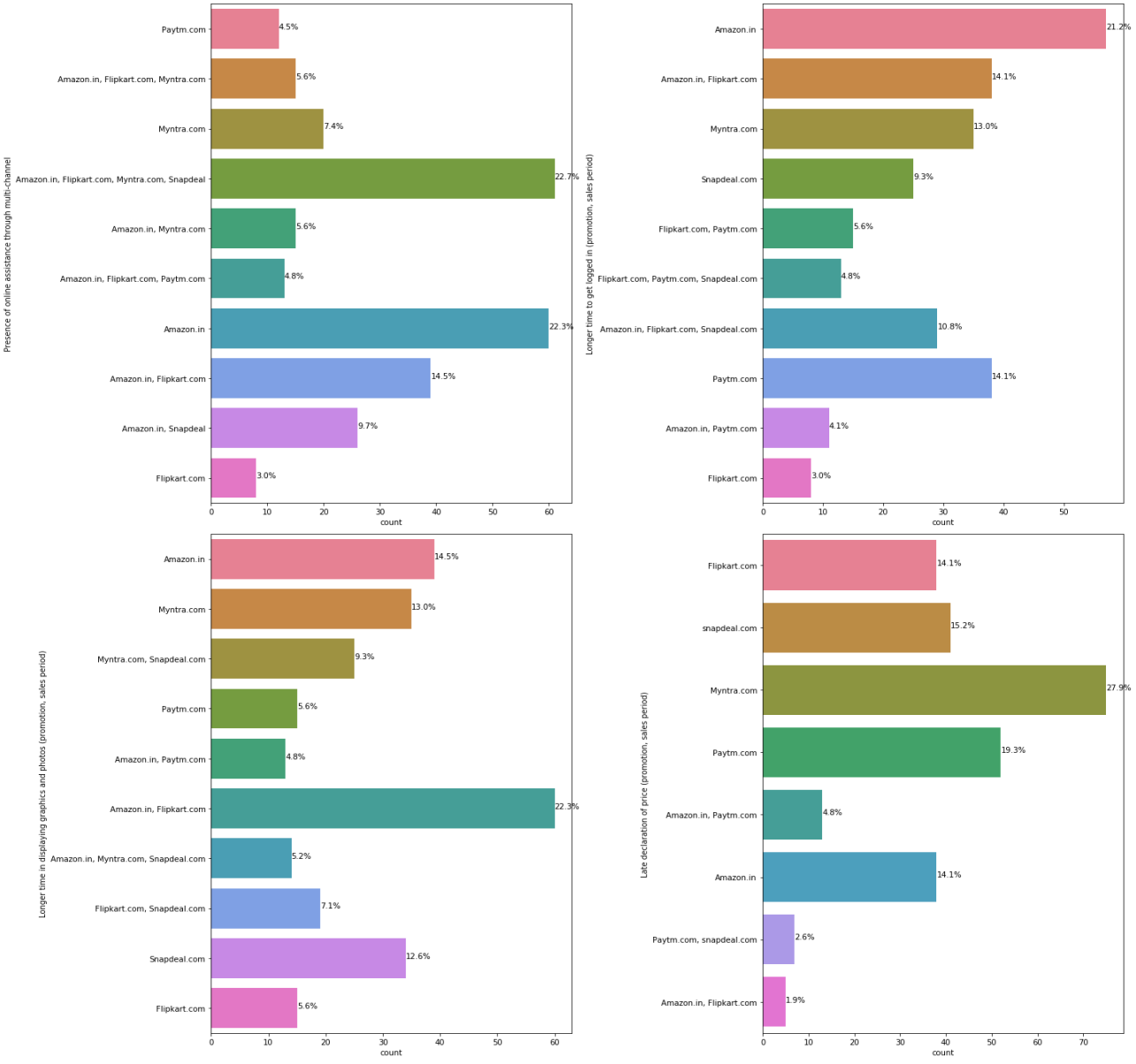


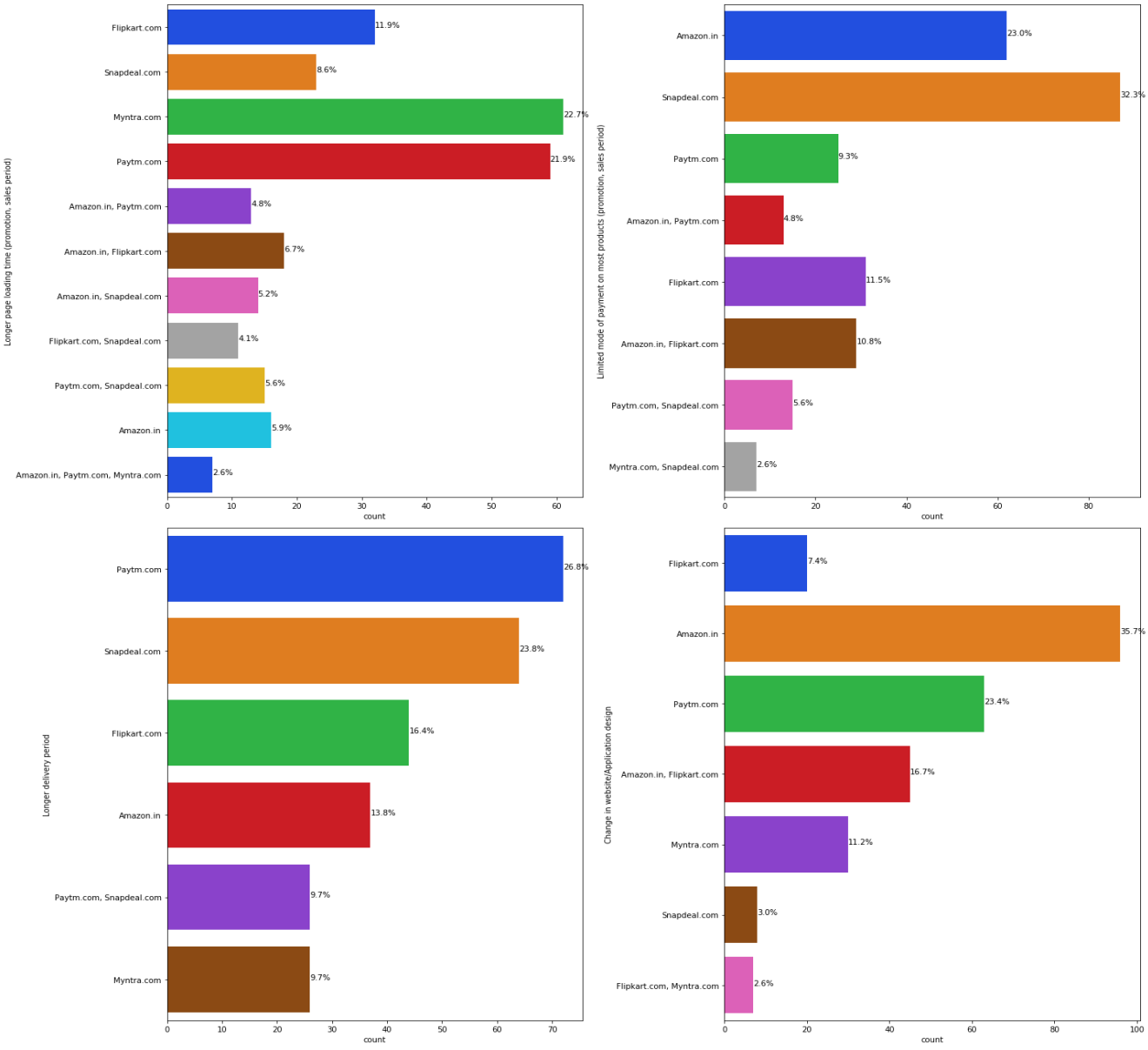



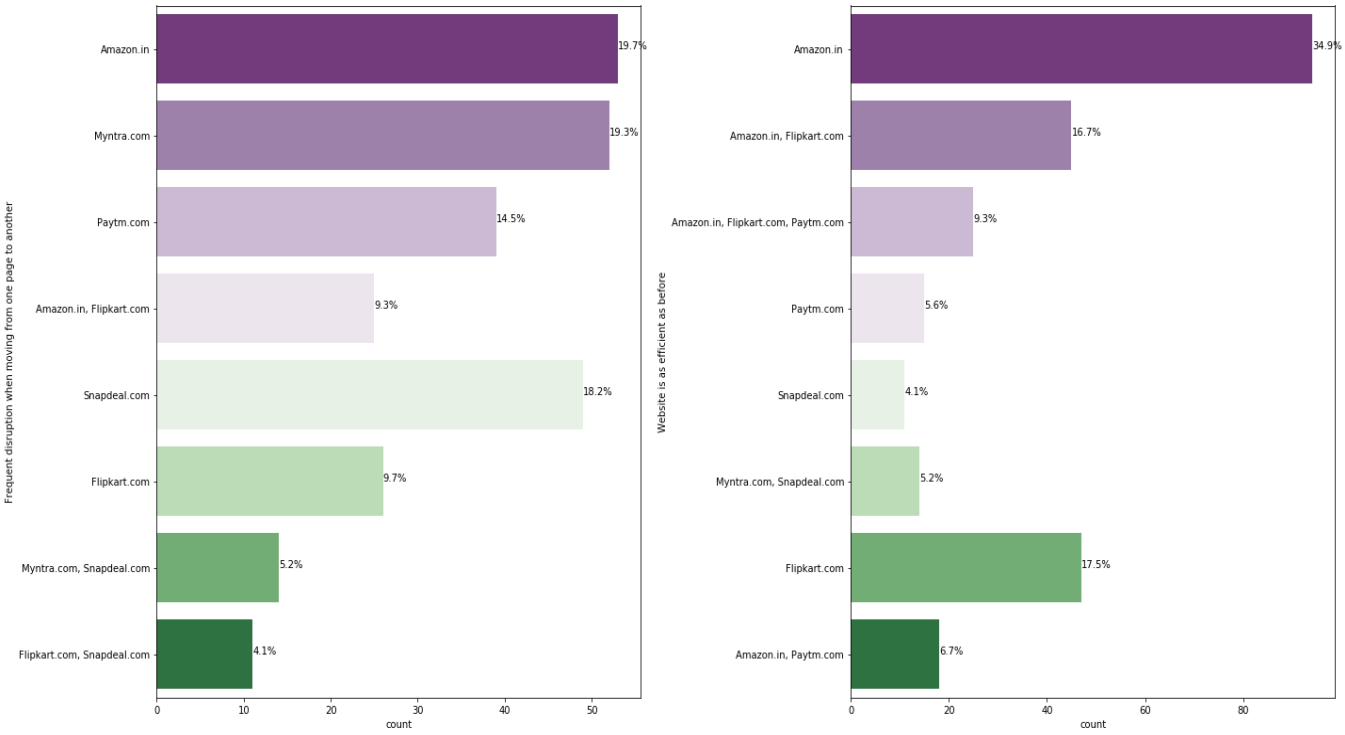
In [86]:
```
plt.figure(figsize=(20,20))
m=1
for i in df.columns[60:64]:
    plt.subplot(2,2,m)
    m=m+1
    axes = sns.countplot(y = df[i],palette='husl')


    total = len(df[i])
    for p in axes.patches:
        percentage = '{:.1f}%'.format(100 * p.get_width()/total)
        x = p.get_x() + p.get_width() + 0.02
        y = p.get_y() + p.get_height()/2
        axes.annotate(percentage, (x, y))

plt.tight_layout()
```



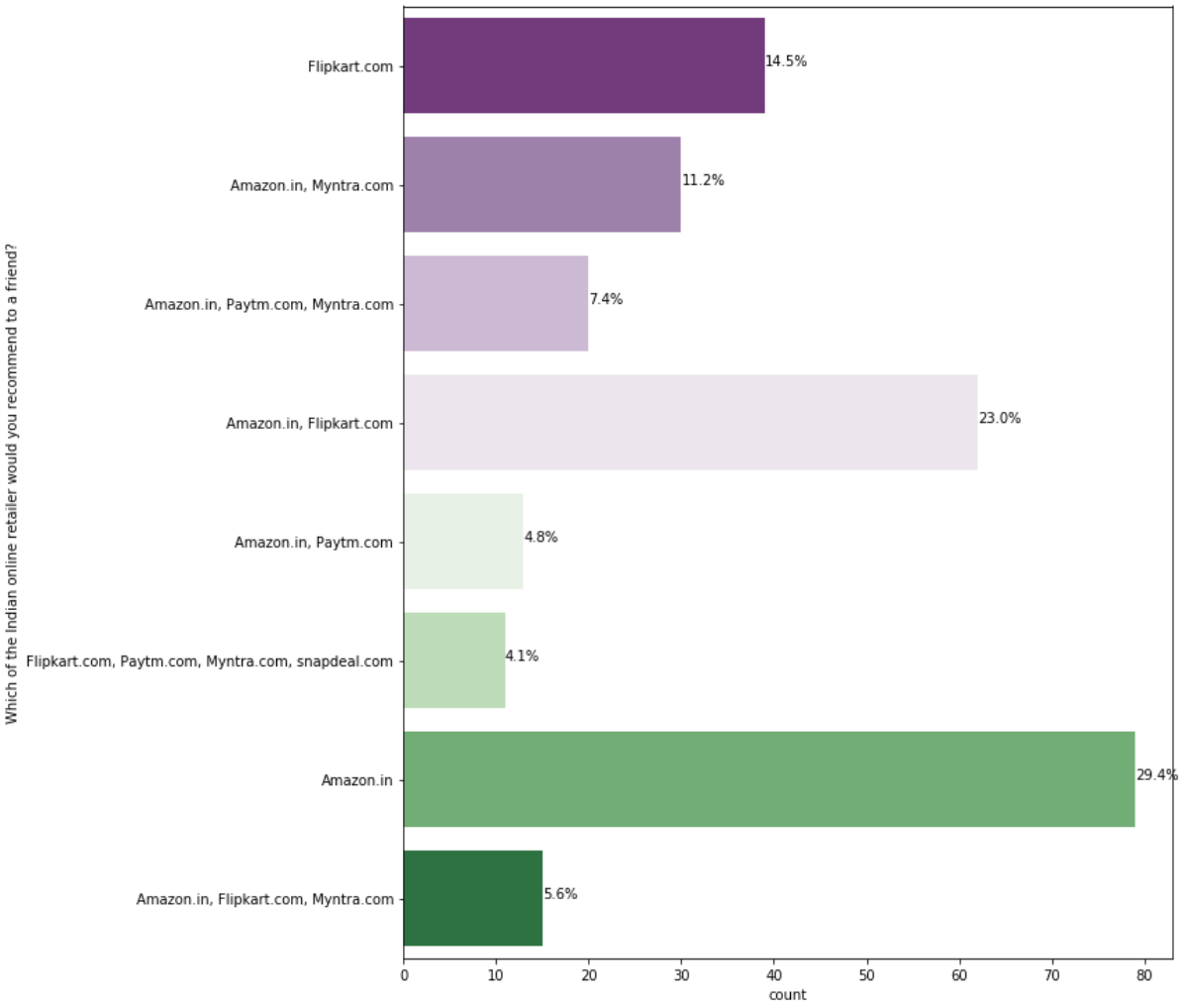
In [87]:
```
plt.figure(figsize=(20,20))
m=1
for i in df.columns[64:68]:
    plt.subplot(2,2,m)
    m=m+1
    axes = sns.countplot(y = df[i],palette='bright')


    total = len(df[i])
    for p in axes.patches:
        percentage = '{:.1f}%'.format(100 * p.get_width()/total)
        x = p.get_x() + p.get_width() + 0.02
        y = p.get_y() + p.get_height()/2
        axes.annotate(percentage, (x, y))

plt.tight_layout()
```



In [100]:
```
plt.figure(figsize=(20,20))
m=1
for i in df.columns[68:70]:
    plt.subplot(2,2,m)
    m=m+1
    axes = sns.countplot(y = df[i],palette='PRGn')


    total = len(df[i])
    for p in axes.patches:
        percentage = '{:.1f}%'.format(100 * p.get_width()/total)
        x = p.get_x() + p.get_width() + 0.02
        y = p.get_y() + p.get_height()/2
        axes.annotate(percentage, (x, y))

plt.tight_layout()
```



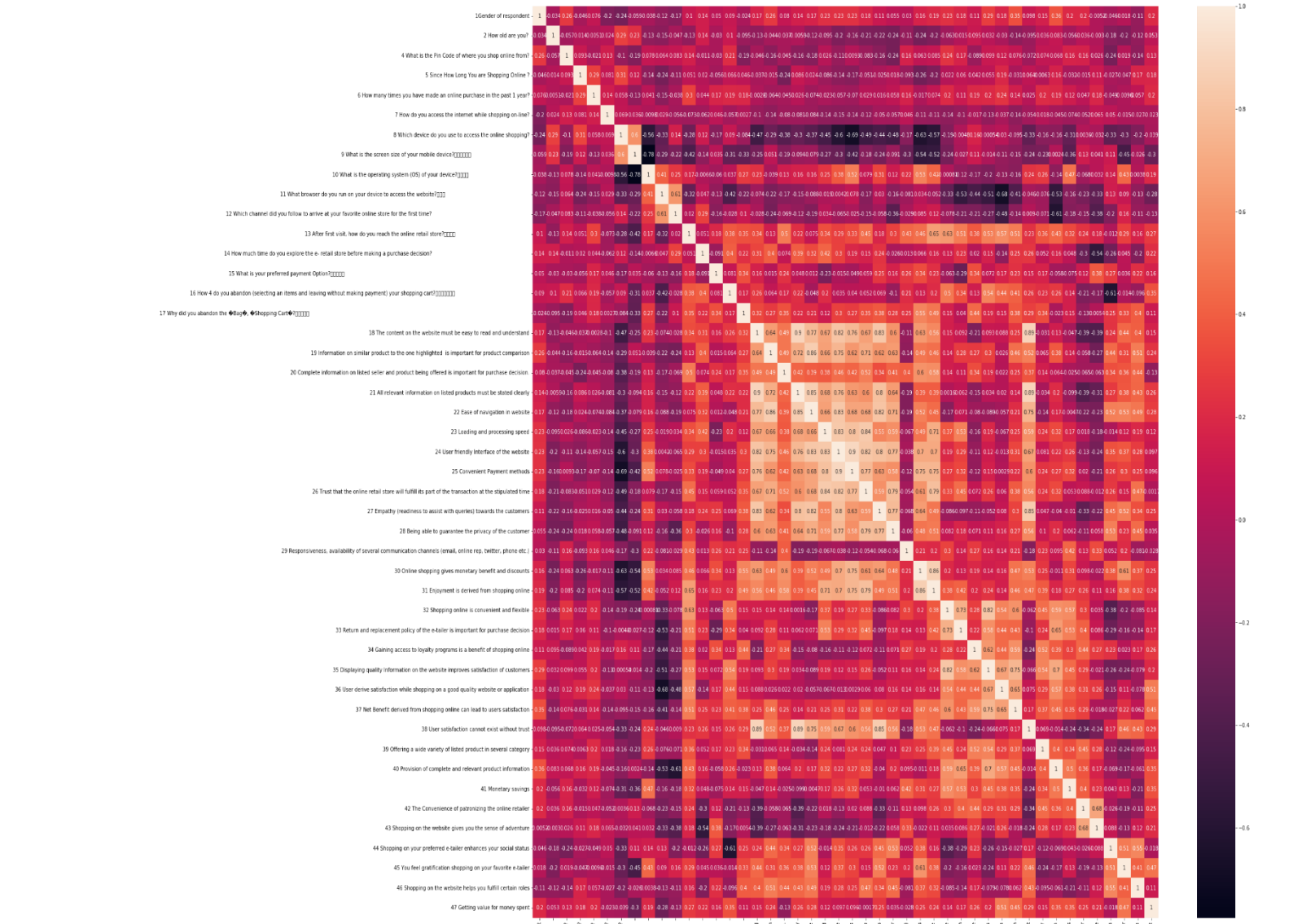

In [103]:
```
plt.figure(figsize=(20,20))
m=1
for i in df.columns[70:72]:
    plt.subplot(2,2,m)
    m=m+1
    axes = sns.countplot(y = df[i],palette='PRGn')


    total = len(df[i])
    for p in axes.patches:
        percentage = '{:.1f}%'.format(100 * p.get_width()/total)
        x = p.get_x() + p.get_width() + 0.02
        y = p.get_y() + p.get_height()/2
        axes.annotate(percentage, (x, y))

plt.tight_layout()
```




# Correlation:

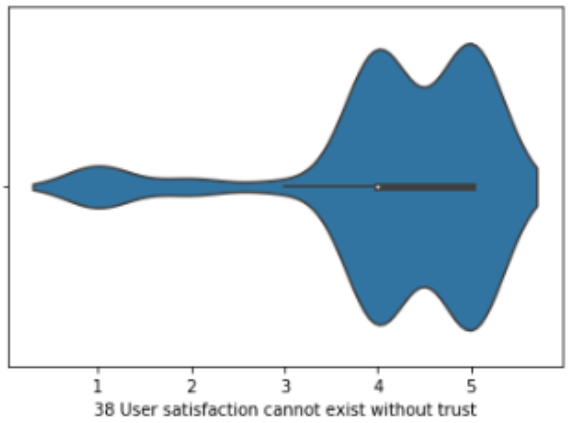
# dfs.corr()

| | 1Gender of respondent | 2 How old are you? | 4 What is the Pin Code of where you shop online from? | 5 Since How Long You are Shopping Online ? | many times you have made an online purchase in the past 1 year? | 7 How do you access the internet while shopping on-line? | 8 Which device do you use to access the online shopping? | 9 What is the screen size of your mobile device? \t\t\t\t\t\t | 10 What is the operating system (OS) of your device? \t\t\t\t | browser do you run on your device to access the website? \t\t\t | ... | 38 User satisfaction cannot exist without trust | Offering a wide variety of listed product in several category | ir |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1Gender of respondent | 1.000000 | -0.034449 | 0.260696 | -0.046005 | 0.076121 | -0.200974 | -0.241847 | -0.058760 | -0.038207 | -0.116712 | ... | 0.097540 | 0.152595 | |
| 2 How old are you? | -0.034449 | 1.000000 | -0.057393 | 0.014049 | 0.005089 | 0.024228 | 0.292176 | 0.227841 | -0.133597 | -0.151708 | ... | -0.094664 | 0.035895 | |
| 4 What is the Pin Code of where you shop online from? | 0.260696 | -0.057393 | 1.000000 | 0.092980 | -0.021229 | 0.134879 | -0.103424 | -0.189814 | 0.077905 | 0.063588 | ... | -0.072355 | 0.073624 | |
| 5 Since How Long You are Shopping Online | -0.046005 | 0.014049 | 0.092980 | 1.000000 | 0.291104 | 0.080738 | 0.309634 | 0.118596 | -0.141768 | -0.236578 | ... | 0.063752 | 0.006272 | |


1Gender of respondent
2 How old are you?
4 What is the Pin Code of where you shop online from?
5 Since How Long You are Shopping Online ?
6 How many times you have made an online purchase in the past 1 year?
7 How do you access the internet while shopping on-line?
8 Which device do you use to access the online shopping?
9 What is the screen size of your mobile device?
10 What is the operating system (OS) of your device?
11 What browser do you run on your device to access the website?
12 Which channel did you follow to arrive at your favorite online store for the first time?
13 After first visit, how do you reach the online retail store?
14 How much time do you explore the e- retail store before making a purchase decision?
15 What is your preferred payment Option?
16 How 4 do you abandon (selecting an items and leaving without making payment) your shopping cart?
17 Why did you abandon the Bag, Shopping Cart
18 The content on the website must be easy to read and understand
19 Information on similar product to the one highlighted is important for product comparison
20 Complete information on listed seller and product being offered is important for purchase decision
21 All relevant information on listed products must be stated clearly
22 Ease of navigation in website
23 Loading and processing speed
24 User friendly Interface of the website
25 Convenient Payment methods
26 Trust that the online retail store will fulfill its part of the transaction at the stipulated time
27 Empathy (readiness to assist with queries) towards the customers
28 Being able to guarantee the privacy of the customer
29 Responsiveness, availability of several communication channels (email, online rep, twitter, phone etc.)
30 Online shopping gives monetary benefit and discounts
31 Enjoyment is derived from shopping online
32 Shopping online is convenient and flexible
33 Return and replacement policy of the e-tailer is important for purchase decision
34 Gaining access to loyalty programs is a benefit of shopping online
35 Displaying quality information on the website improves satisfaction of customers
36 User derive satisfaction while shopping on a good quality website or application
37 Net Benefit derived from shopping online can lead to users satisfaction
38 User satisfaction cannot exist without trust
39 Offering a wide variety of listed product in several category
40 Provision of complete and relevant product information
41 Monetary savings
42 The Convenience of patronizing the online retailer
43 Shopping on the website gives you the sense of adventure
44 Shopping on your preferred e-tailer enhances your social status
45 You feel gratification shopping on your favorite e-tailer
46 Shopping on the website helps you fulfil certain roles
47 Getting value for money spent
1.0
0.8
0.6
0.4
0.2
0.0
−0.2
−0.4
−0.6

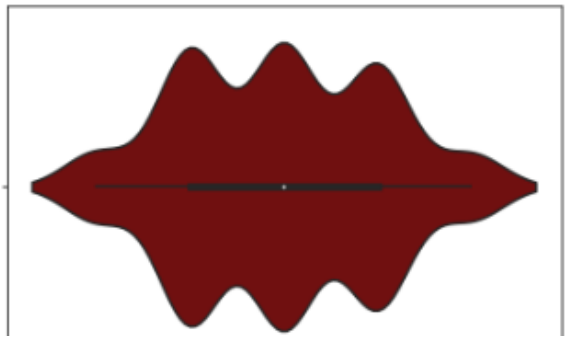
In [151]:
```
sns.violinplot(x='38 User satisfaction cannot exist without trust',data=dfs)
```

Out[151]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x21ad4e94b48>
```



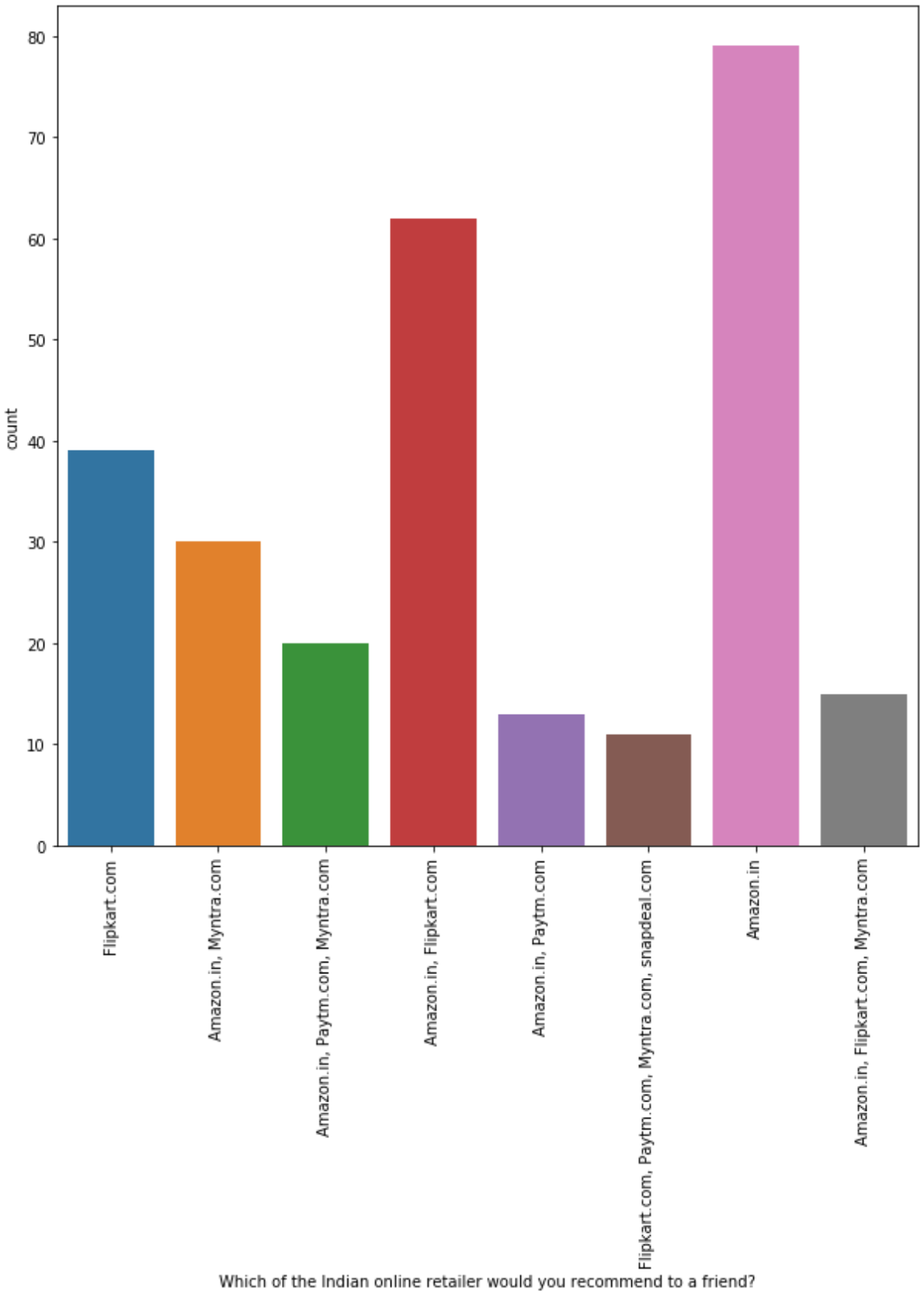

In [153]:
```
sns.violinplot(x='2 How old are you? ',data=dfs,color='maroon')
```

Out[153]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x21ad4ea31c8>
```



In [145]:
```
#Checking which Online shopping platform customer recommend to friends
plt.figure(figsize=(10,10))
sns.countplot(df["Which of the Indian online retailer would you recommend to a friend?"])
plt.xticks(rotation=90)
df["Which of the Indian online retailer would you recommend to a friend?"].value_counts()
```

Out[145]:
```
Amazon.in                                          79
Amazon.in, Flipkart.com                            62
Flipkart.com                                       39
Amazon.in, Myntra.com                              30
Amazon.in, Paytm.com, Myntra.com                   20
Amazon.in, Flipkart.com, Myntra.com                15
Amazon.in, Paytm.com                               13
Flipkart.com, Paytm.com, Myntra.com, snapdeal.com  11
Name: Which of the Indian online retailer would you recommend to a friend?, dtype: int64
```


count
0
10
20
30
40
50
60
70
80
Flipkart.com
Amazon.in, Myntra.com
Amazon.in, Paytm.com, Myntra.com
Amazon.in, Flipkart.com
Amazon.in, Paytm.com
Flipkart.com, Paytm.com, Myntra.com, snapdeal.com
Amazon.in
Amazon.in, Flipkart.com, Myntra.com
Which of the Indian online retailer would you recommend to a friend?

# Conclusion:

In Customer review, majority of customer recommend Amazon to friend, dear ones. Then comes next Flipkart. Least visiting customer website is Paytm.

Amazon is recommended by 81.4% of the customers.

· Snapdeal is recommended by 4.1% of the customers.

· Flipkart is recommended by 47.2 of the customers.

· Myntra is recommended by 28% of the customers.

· Paytm is recommended by 16% of the customers

In the final conclusion, we came to know that to have a customer retention. We have to build a strong customer relationship like Amazon. By providing good service, 24hours support team for customers queries. Wide varieties of product available in every category. Lots of discount, offer, coupon provide to customer. So, customer will force to visit our sites next time. If provide good service to 1 customer, that customer will bring another 10 customers. Like this the customer chain will grow and if customer satisfied then our business also grows. Most important the customer need is to have good quality product with a cheap price.

Amazon not only gives a good service to customers but also to sellers. It will give wide option to seller to list the products in Amazon. Better product image, price compatibility. FBA. Fast delivery. Amazon interface is user friendly and the content is easy to read. It protects customer information both financial and personal information from leakage. Based on the analysis of we found that to have a customer retain for a long period of time. We need to give the best value to Customer, so customer won’t think for second option.