**FLIP ROBO**

# CUSTOMER RETENTION CASE STUDY PROJECT REPORT

**SUBMITTED BY:**

**NASHEED ASAD**

# ACKNOWLEDGMENT

I have taken efforts in this project. However, it would not have been possible without the kind support and help of many individuals and organizations. I would like to extend my sincere thanks to all of them.

I am highly indebted to Flip Robo Technologies for their guidance and constant supervision as well as for providing necessary information regarding the project & also for their support in completing the project.

I want to thank my SME Mrs. Khusboo Garg for providing the Dataset and helping us to solve the problem and addressing out our Query in right time.

I would like to express my gratitude towards my parents & members of Flip Robo for their kind co-operation and encouragement which help me in completion of this project.

I would like to express my special gratitude and thanks to industry persons for giving me such attention and time.

# INTRODUCTION

Customer satisfaction has emerged as one of the most important factors that guarantee the success of the 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 online customers repeat purchase intention. The combination of both utilitarian value and hedonistic values is needed to affect the repeat purchase intention (loyalty) positively. The data is collected from Indian online shoppers. Results indicate the e-retail success factors, which are very much critical for customer satisfaction. By increasing the utilitarian value and hedonistic values derived by the customers, customer satisfaction and hence the customer's repeat purchase intention can be increased significantly.

# OBJECTIVE

Our major goal in performing this project is to evaluate if people are purchasing items from e-commerce websites, how they gave feedback to these websites based on many positive and negative aspects, and also the details of the users based on factors such as age, gender, and so on.
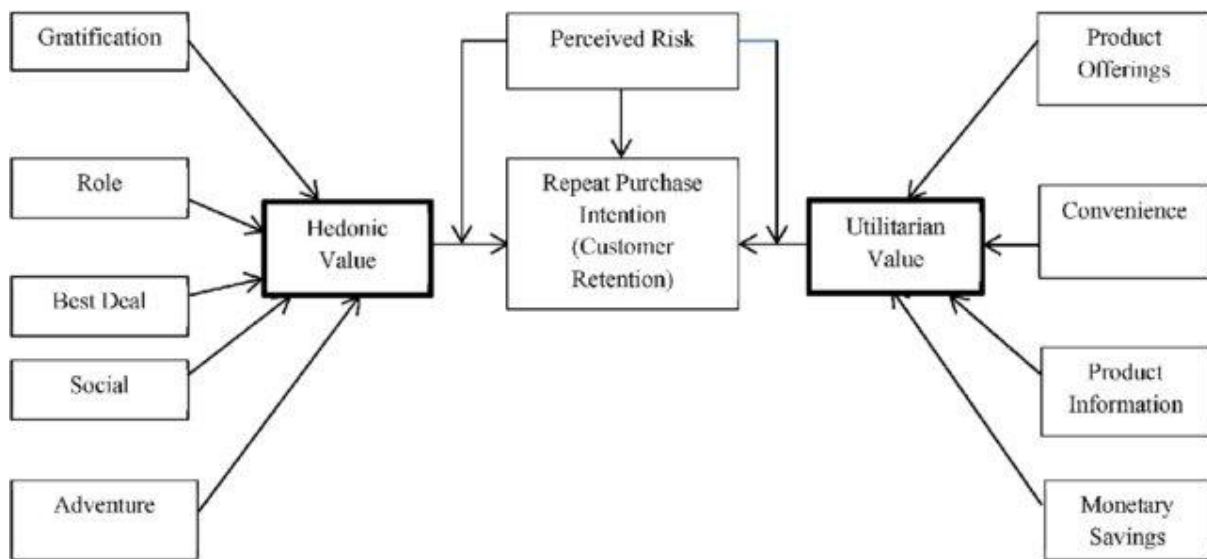


The Hedonic value consists of factors like Gratification, Role, Best Deal, Social and Adventure.

The Utilitarian value consists of factors like Product Offerings, Convenience, Product Information and Monetary Savings.

Customer Retention is based on 3 factors, according to the above diagram. They are:
Perceived Risk, Hedonic value and Utilitarian value

# Hardware and Software Requirements

The hardware utilised for this project is a laptop with high-end specifications and a steady internet connection. When it came to the software, I utilised anaconda navigator and Jupyter notebook to conduct my Python programming and analysis.

Microsoft Excel is required to use an excel file. In Jupyter notebook, I utilised several Python libraries to complete this project, which I have listed below with appropriate substantiation:

1. Pandas - It is a library that is used to read data, visualise it, and analyse it.
2. NumPy- utilised for dealing with arrays and different mathematical methods.
3. Seaborn- a visualization tool for plotting many sorts of plots.
4. Matplotlib- It provides an object-oriented API for embedding plots into applications.

# Data sources and their formats

The data was provided to us in an excel file by a highly confidential firm. They had also supplied the problem statement, which explained what they needed from us as well as the criteria that had to be met.

Let's look at the data now. I've attached a snapshot to give you an idea of what I'm talking about.

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

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

```
df=pd.read_excel(r'C:\Users\delkl\Desktop\DataTrained Data Science Projects\FlipRobo\Customer_retention_dataset\customer_retention_datase
t.xlsx')
df.head()
```

| | 1Gender of respondent | 2 How old are you? | 3 Which city do you shop online from? | 4 What is the Pin Code of where you shop online from? | 5 Since How Long You are Shopping Online ? | 6 How many times you have made an online purchase in the past 1 year? | 7 How do you access the internet while shopping on-line? | 8 Which device do you use to access the online shopping? | 9 What is the screen size of your mobile device? \t\t\t\t\t\t | 10 What is the operating system (OS) of your device? \t\t\t\t | 11 What browser do you run on your device to access the website? \t\t\t | 12 Which channel did you follow to arrive at your favorite online store for the first time? | 13 After first visit, how do you reach the online retail store? \t\t\t\t | 14 How much time do you explore the e-retail store before making a purchase decision? | 15 W pre pa O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | Male | 31-40 years | Delhi | 110009 | Above 4 years | 31-40 times | Dial-up | Desktop | Others | Window/windows Mobile | Google chrome | Search Engine | Search Engine | 6-10 mins | E- ( Free |
| 1 | Female | 21-30 years | Delhi | 110030 | Above 4 years | 41 times and above | Wi-Fi | Smartphone | 4.7 inches | IOS/Mac | Google chrome | Search Engine | Via application | more than 15 mins | Cred |
| 2 | Female | 21-30 years | Greater Noida | 201308 | 3-4 years | 41 times and above | Mobile Internet | Smartphone | 5.5 inches | Android | Google chrome | Search Engine | Via application | 11-15 mins | E- ( Free |
| 3 | Male | 21-30 years | Karnal | 132001 | 3-4 years | Less than 10 times | Mobile Internet | Smartphone | 5.5 inches | IOS/Mac | Safari | Search Engine | Search Engine | 6-10 mins | Cred |
| 4 | Female | 21-30 years | Bangalore | 530068 | 2-3 years | 11-20 times | Wi-Fi | Smartphone | 4.7 inches | IOS/Mac | Safari | Content Marketing | Via application | more than 15 mins | Cred |

- This dataset has 269 rows and 71 columns.
- Our goal is to explore data insights and conduct in-depth data analysis.

# Data Analysis

```
1  df.shape
```
(269, 71)

```
1  df.drop_duplicates(inplace=True)
```

```
1  df.shape
```
(103, 71)

Initially, we saw we had 269 rows and 71 columns but after removing the duplicates we are left with 103 rows and 71 columns.

```
1  df.isna().sum().any()
```
False

There are no null values in the dataset. Also there are 70 columns of object datatype and only 1 column of int datatype.

We will divide the given dataset into 5 parts for EDA for Univariate Analysis:

1. Information about customer
2. Utilitarian value
3. Hedonic value
4. Perceived risk
5. Customer experience

# Part 1 - Customer Information

```
df['Gender of respondent'].value_counts()
```

```
Female    66
Male      37
Name: Gender of respondent, dtype: int64
```

```
labels='Female','Male'

fig,ax=plt.subplots()
ax.pie(df['Gender of respondent'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
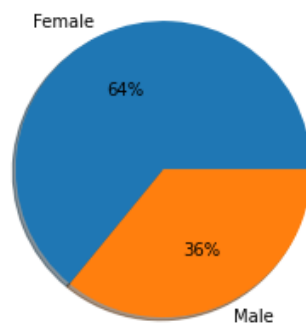


```
df['How old are you?'].value_counts()
```

```
21-30 years          32
31-40 years          30
41-50 yaers          29
51 years and above    6
Less than 20 years    6
Name: How old are you?, dtype: int64
```

```
labels='21-30 years','31-40 years','41-50 yaers','51 years and above','Less than 20 years'

fig,ax=plt.subplots()
ax.pie(df['How old are you?'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
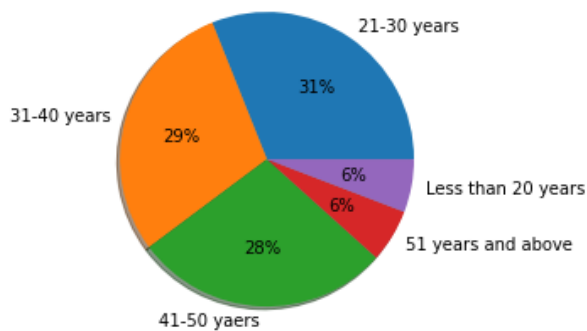
```
df['Since How Long You are Shopping Online ?'].value_counts()
```

```
Above 4 years        39
2-3 years            23
Less than 1 year     18
3-4 years            16
1-2 years             7
Name: Since How Long You are Shopping Online ?, dtype: int64
```
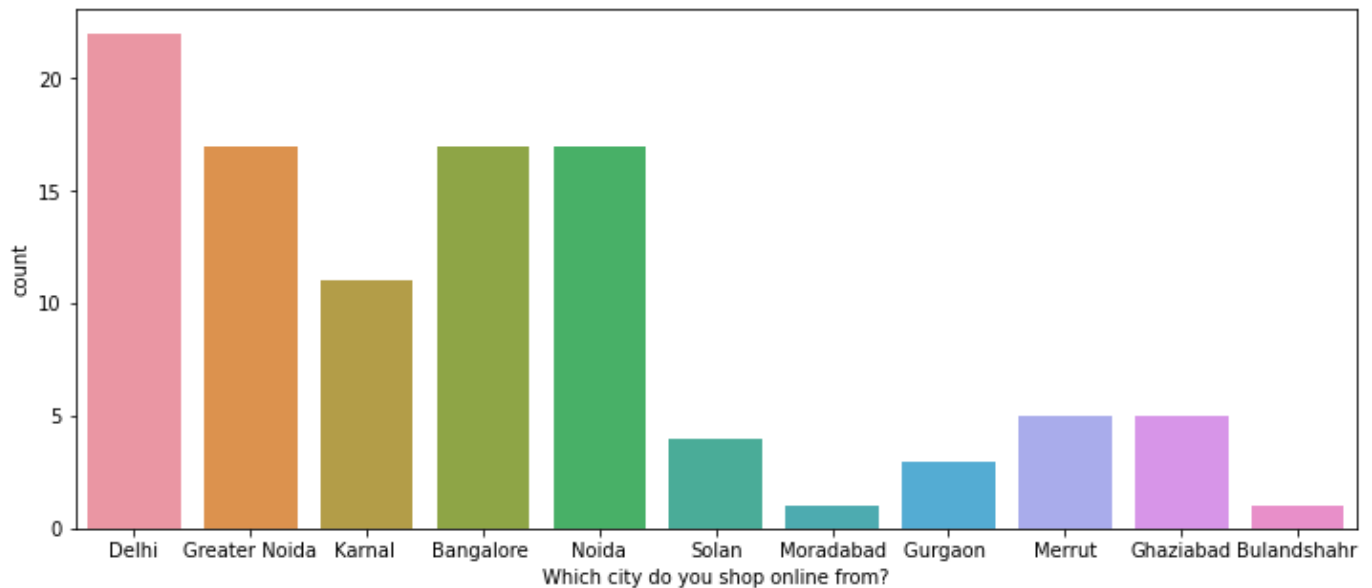
```python
labels='Above 4 years','2-3 years','Less than 1 year','3-4 years','1-2 years'

fig,ax=plt.subplots()
ax.pie(df['Since How Long You are Shopping Online ?'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
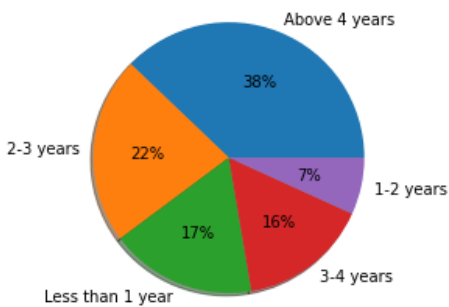


```python
1  plt.figure(figsize=(12,5))
2  sns.countplot(df['Which city do you shop online from?'])
```

```
<AxesSubplot:xlabel='Which city do you shop online from?', ylabel='count'>
```

```
df['How many times you have made an online purchase in the past  year?'].value_counts()
```

```
Less than 10 times    39
31-40 times           24
41 times and above    22
11-20 times           12
21-30 times            4
42 times and above     2
Name: How many times you have made an online purchase in the past  year?, dtype: int64
```

```
labels='Less than 10 times','31-40 times','41 times and above','11-20 times','21-30 times','42 times and above'

fig,ax=plt.subplots()
ax.pie(df['How many times you have made an online purchase in the past  year?'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
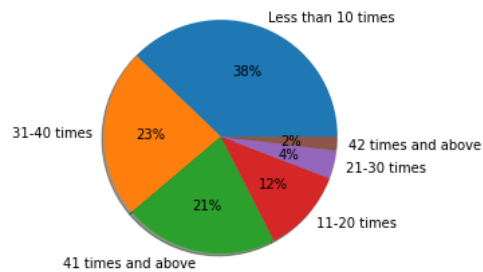


```
df['How do you access the internet while shopping on-line?'].value_counts()
```
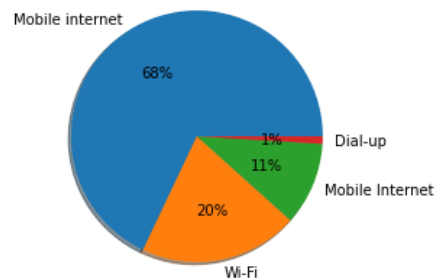
```
Mobile internet    70
Wi-Fi              21
Mobile Internet    11
Dial-up             1
Name: How do you access the internet while shopping on-line?, dtype: int64
```

```
labels='Mobile internet','Wi-Fi','Mobile Internet','Dial-up'

fig,ax=plt.subplots()
ax.pie(df['How do you access the internet while shopping on-line?'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```

```
df['Which device do you use to access the online shopping?'].value_counts()
```

```
Smartphone    52
Laptop        32
Desktop       13
Tablet         6
Name: Which device do you use to access the online shopping?, dtype: int64
```

```
labels='Smartphone','Laptop','Desktop','Tablet'

fig,ax=plt.subplots()
ax.pie(df['Which device do you use to access the online shopping?'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
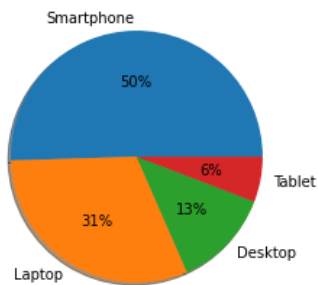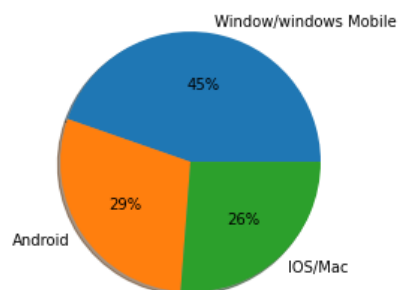


```
df['What is the operating system (OS) of your device?'].value_counts()
```

```
Window/windows Mobile    46
Android                  30
IOS/Mac                  27
Name: What is the operating system (OS) of your device?, dtype: int64
```

```
labels='Window/windows Mobile','Android','IOS/Mac'

fig,ax=plt.subplots()
ax.pie(df['What is the operating system (OS) of your device?'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```

```python
df['What browser do you run on your device to access the website?'].value_counts()
```

```
Google chrome      80
Safari             19
Mozilla Firefox     2
Opera               2
Name: What browser do you run on your device to access the website?, dtype: int64
```

```python
labels='Google chrome','Safari','Mozilla Firefox','Opera'

fig,ax=plt.subplots()
ax.pie(df['What browser do you run on your device to access the website?'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
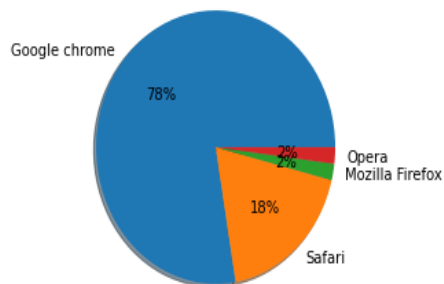


```python
df['Which channel did you follow to arrive at your favorite online store for the first time?'].value_counts()
```

```
Search Engine       86
Content Marketing   10
Display Adverts      7
Name: Which channel did you follow to arrive at your favorite online store for the first time?, dtype: int64
```

```python
labels='Search Engine','Content Marketing','Display Adverts'

fig,ax=plt.subplots()
ax.pie(df['Which channel did you follow to arrive at your favorite online store for the first time?'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
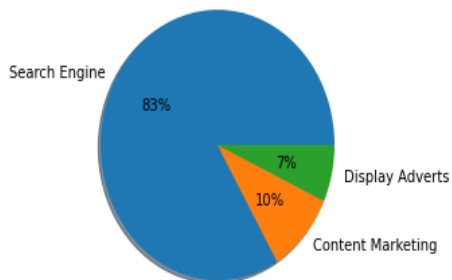
```
df['After first visit, how do you reach the online retail store?'].value_counts()
```

```
Via application    34
Search Engine      33
Direct URL         26
E-mail              8
Social Media        2
Name: After first visit, how do you reach the online retail store?, dtype: int64
```

```
labels='Via application','Search Engine','Direct URL','E-mail','Social Media'

fig,ax=plt.subplots()
ax.pie(df['After first visit, how do you reach the online retail store?'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
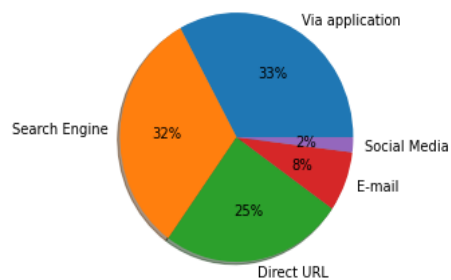


```
df['How much time do you explore the e- retail store before making a purchase decision?'].value_counts()
```

```
more than 15 mins    48
6-10 mins            31
11-15 mins           15
1-5 mins              5
Less than 1 min       4
Name: How much time do you explore the e- retail store before making a purchase decision?, dtype: int64
```

```
labels='more than 15 mins','6-10 mins','11-15 mins','1-5 mins','Less than 1 min'

fig,ax=plt.subplots()
ax.pie(df['How much time do you explore the e- retail store before making a purchase decision?'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
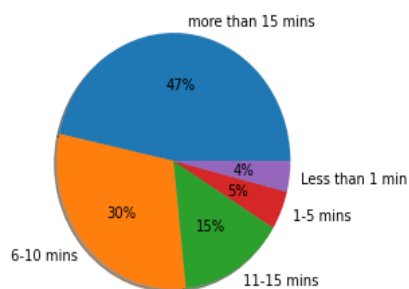
```
df['What is your preferred payment Option?'].value_counts()
```

```
Credit/Debit cards                    59
Cash on delivery (CoD)                25
E-wallets (Paytm, Freecharge etc.)    19
Name: What is your preferred payment Option?, dtype: int64
```

```
labels='Credit/Debit cards','Cash on delivery (CoD)','E-wallets (Paytm, Freecharge etc.)'

fig,ax=plt.subplots()
ax.pie(df['What is your preferred payment Option?'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
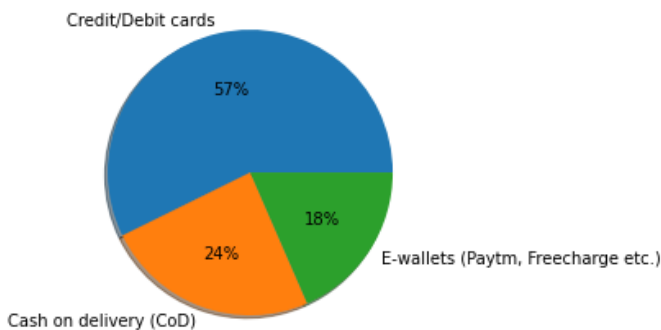


## Observations on Customer Information

- Around 64% are women and 36% are men out of the entire participants.
- Among the participants, most of the people belong to 21-50 years age group. We can conclude that the correspondents are mostly from working class.
- The respondents are majorly residing in Delhi, Greater Noida, Noida and Bangalore.
- Around 54% of the participants have been shopping for more than 3 years and a considerable amount of people (around 17%) who are shopping since less than one year.
- Majority of the people have shopped for less than 10 times in the past year.

- Around 50% are Smartphone users and 68% use mobile internet which means E-commerce websites should be compatible with all kinds of Smartphone browsers to attract more customers.
-  Most customers use Windows OS followed by Android and Mac.
- Google Chrome is majorly used to access the shopping website.
- Many use search engine to find their favorite online store. Content Marketing and display ads are not that impactful. Therefore, E-commerce websites should be search engine optimized at all times and companies should spend on ads on search engines.
- Also after repeated visits, people still use search engines instead of using an app.
- Majority of the people spend more than 15 minutes before making a purchase.
- The major payment method used by all is Credit/Debit cards followed by COD and E-wallets.

# Part 2 - Utilitarian Values

```
df['The content on the website must be easy to read and understand'].value_counts()
```

```
Strongly agree (5)        60
Agree (4)                 33
Strongly disagree (1)      8
Indifferent (3)            2
Name: The content on the website must be easy to read and understand, dtype: int64
```

```
labels='Strongly agree (5)','Agree (4)','Strongly disagree (1)','Indifferent (3)'

fig,ax=plt.subplots()
ax.pie(df['The content on the website must be easy to read and understand'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
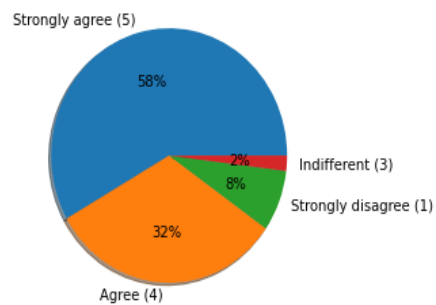


```
df['Information on similar product to the one highlighted  is important for product comparison'].value_counts()
```

```
Strongly agree (5)    40
Agree (4)             35
Indifferent (3)       20
Dis-agree (2)          8
Name: Information on similar product to the one highlighted  is important for product comparison, dtype: int64
```

```
labels='Strongly agree (5)','Agree (4)','Indifferent (3)','Dis-agree (2)'

fig,ax=plt.subplots()
ax.pie(df['Information on similar product to the one highlighted  is important for product comparison'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
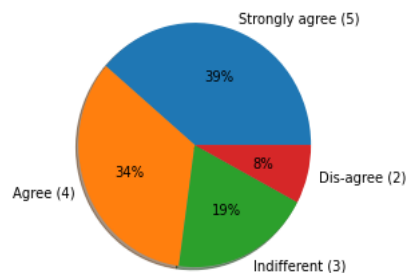
```
df['Complete information on listed seller and product being offered is important for purchase decision.'].value_counts()
```

```
Agree (4)                38
Strongly agree (5)       30
Indifferent (3)          24
Dis-agree (2)             8
Strongly disagree (1)     3
Name: Complete information on listed seller and product being offered is important for purchase decision., dtype: int64
```

```
labels='Agree (4)','Strongly agree (5)','Indifferent (3)','Dis-agree (2)','Strongly disagree (1)'

fig,ax=plt.subplots()
ax.pie(df['Complete information on listed seller and product being offered is important for purchase decision.'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
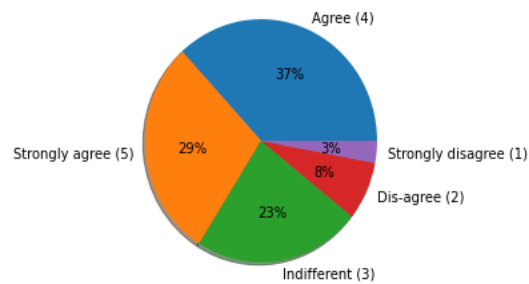


```
df['All relevant information on listed products must be stated clearly'].value_counts()
```

```
Agree (4)                54
Strongly agree (5)       37
Strongly disagree (1)     8
Dis-agree (2)             4
Name: All relevant information on listed products must be stated clearly, dtype: int64
```

```
labels='Agree (4)','Strongly agree (5)','Strongly disagree (1)','Dis-agree (2)'

fig,ax=plt.subplots()
ax.pie(df['All relevant information on listed products must be stated clearly'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
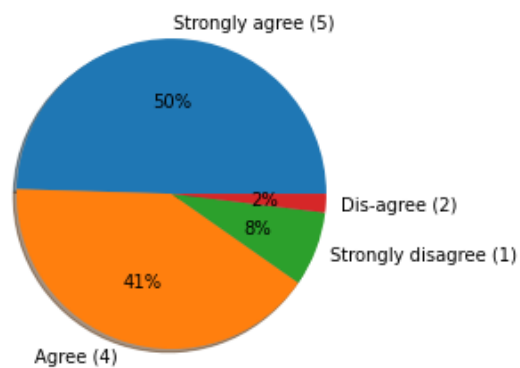```

```
df['Ease of navigation in website'].value_counts()
```
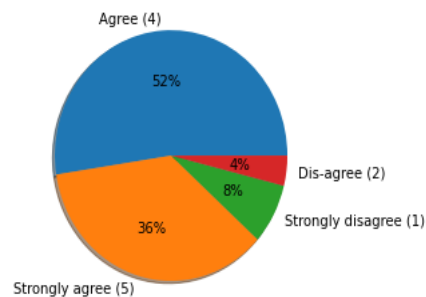
```
Strongly agree (5)        51
Agree (4)                 42
Strongly disagree (1)      8
Dis-agree (2)              2
Name: Ease of navigation in website, dtype: int64
```

```
labels='Strongly agree (5)','Agree (4)','Strongly disagree (1)','Dis-agree (2)'

fig,ax=plt.subplots()
ax.pie(df['Ease of navigation in website'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```



```
df['Loading and processing speed'].value_counts()
```

```
Strongly agree (5)        45
Agree (4)                 41
Dis-agree (2)              8
Strongly disagree (1)      5
Indifferent (3)            4
Name: Loading and processing speed, dtype: int64
```

```
labels='Strongly agree (5)','Agree (4)','Dis-agree (2)','Strongly disagree (1)','Indifferent (3)'

fig,ax=plt.subplots()
ax.pie(df['Loading and processing speed'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```

```
df['User friendly Interface of the website'].value_counts()
```
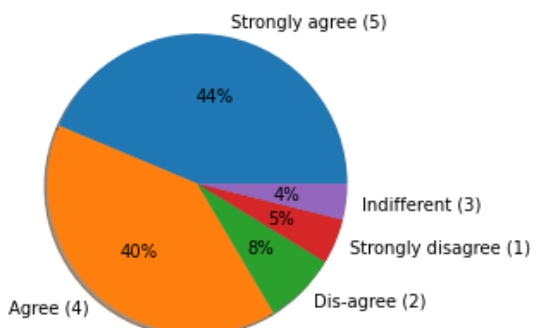
```
Strongly agree (5)        72
Agree (4)                 16
Strongly disagree (1)      8
Dis-agree (2)              5
Indifferent (3)            2
Name: User friendly Interface of the website, dtype: int64
```

```
labels='Strongly agree (5)','Agree (4)','Strongly disagree (1)','Dis-agree (2)','Indifferent (3)'

fig,ax=plt.subplots()
ax.pie(df['User friendly Interface of the website'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
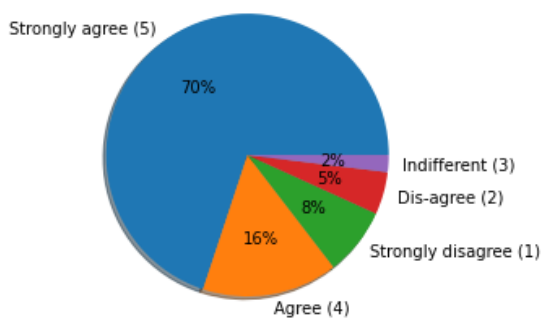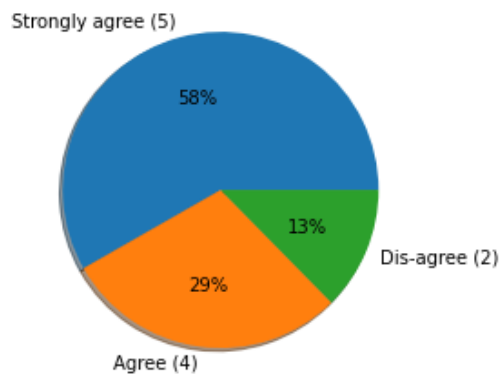


```
df['Convenient Payment methods'].value_counts()
```

```
Strongly agree (5)    60
Agree (4)             30
Dis-agree (2)         13
Name: Convenient Payment methods, dtype: int64
```

```
labels='Strongly agree (5)','Agree (4)','Dis-agree (2)'

fig,ax=plt.subplots()
ax.pie(df['Convenient Payment methods'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```

```
df['Trust that the online retail store will fulfill its part of the transaction at the stipulated time'].value_counts()
```

```
Strongly agree (5)    52
Agree (4)             34
Disagree (2)          13
indifferent  (3)       4
Name: Trust that the online retail store will fulfill its part of the transaction at the stipulated time, dtype: int64
```

```
labels='Strongly agree (5)','Agree (4)','Dis-agree (2)','indifferent (3)'

fig,ax=plt.subplots()
ax.pie(df['Trust that the online retail store will fulfill its part of the transaction at the stipulated time'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
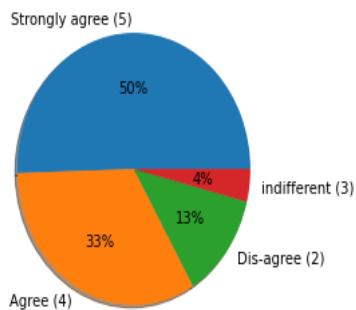


```
df['Empathy (readiness to assist with queries) towards the customers'].value_counts()
```

```
Strongly agree (5)      75
Agree (4)               16
Strongly disagree (1)    8
indifferent (3)          4
Name: Empathy (readiness to assist with queries) towards the customers, dtype: int64
```

```
labels='Strongly agree (5)','Agree (4)','Strongly disagree (1)','indifferent (3)'

fig,ax=plt.subplots()
ax.pie(df['Empathy (readiness to assist with queries) towards the customers'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
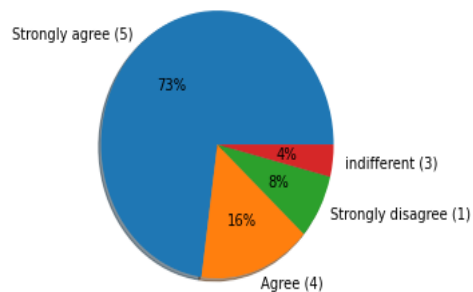
```
df['Being able to guarantee the privacy of the customer'].value_counts()
```

```
Strongly agree (5)    69
Agree (4)             24
indifferent (3)       10
Name: Being able to guarantee the privacy of the customer, dtype: int64
```

```
labels='Strongly agree (5)','Agree (4)','indifferent (3)'

fig,ax=plt.subplots()
ax.pie(df['Being able to guarantee the privacy of the customer'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
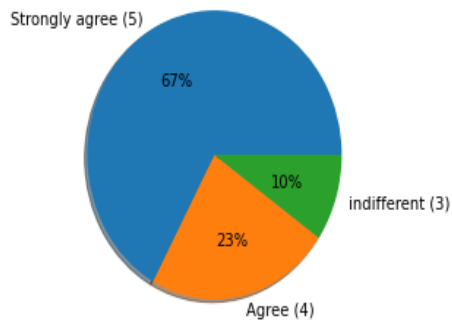


```
df['Online shopping gives monetary benefit and discounts'].value_counts()
```

```
Strongly agree (5)        41
Agree (4)                 33
indifferent (3)           16
Strongly disagree (1)      8
Dis-agree (2)              5
Name: Online shopping gives monetary benefit and discounts, dtype: int64
```

```
labels='Strongly agree (5)','Agree (4)','indifferent (3)','Strongly disagree (1)','Dis-agree (2)'

fig,ax=plt.subplots()
ax.pie(df['Online shopping gives monetary benefit and discounts'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
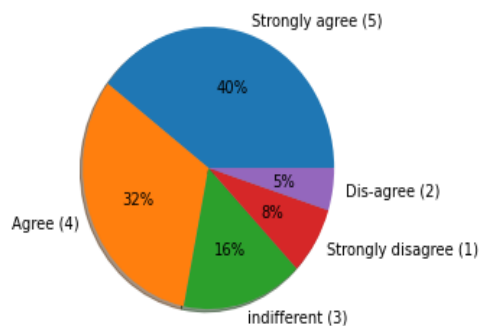
```
df['Shopping online is convenient and flexible'].value_counts()
```

```
Strongly agree (5)    56
Agree (4)             29
indifferent (3)       13
Dis-agree (2)          5
Name: Shopping online is convenient and flexible, dtype: int64
```

```
labels='Strongly agree (5)','Agree (4)','indifferent (3)','Dis-agree (2)'

fig,ax=plt.subplots()
ax.pie(df['Shopping online is convenient and flexible'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
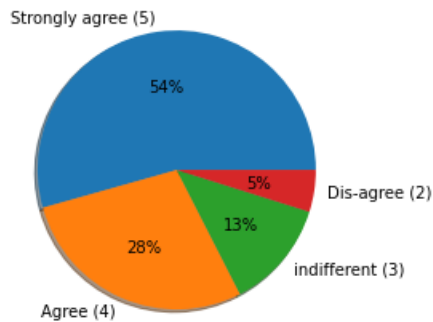


```
df['Return and replacement policy of the e-tailer is important for purchase decision'].value_counts()
```

```
Strongly agree (5)    76
Agree (4)             20
Dis-agree (2)          7
Name: Return and replacement policy of the e-tailer is important for purchase decision, dtype: int64
```

```
labels='Strongly agree (5)','Agree (4)','Dis-agree (2)'

fig,ax=plt.subplots()
ax.pie(df['Return and replacement policy of the e-tailer is important for purchase decision'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
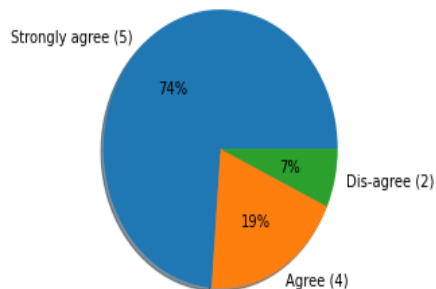
```python
df['Gaining access to loyalty programs is a benefit of shopping online'].value_counts()
```

```
Strongly agree (5)        44
Agree (4)                 24
indifferent (3)           22
Dis-agree (2)              8
Strongly disagree (1)      5
Name: Gaining access to loyalty programs is a benefit of shopping online, dtype: int64
```

```python
labels='Strongly agree (5)','Agree (4)','indifferent (3)','Dis-agree (2)','Strongly disagree (1)'

fig,ax=plt.subplots()
ax.pie(df['Gaining access to loyalty programs is a benefit of shopping online'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
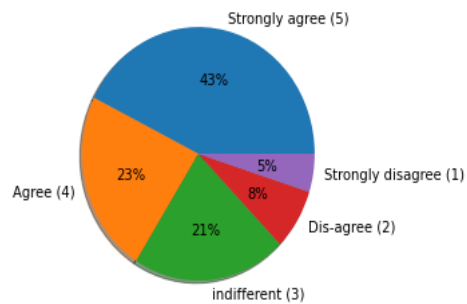


```python
df['Offering a wide variety of listed product in several category'].value_counts()
```

```
Strongly agree (5)    42
Agree (4)             39
indifferent (3)       20
Dis-agree (2)          2
Name: Offering a wide variety of listed product in several category, dtype: int64
```

```python
labels='Strongly agree (5)','Agree (4)','indifferent (3)','Dis-agree (2)'

fig,ax=plt.subplots()
ax.pie(df['Offering a wide variety of listed product in several category'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
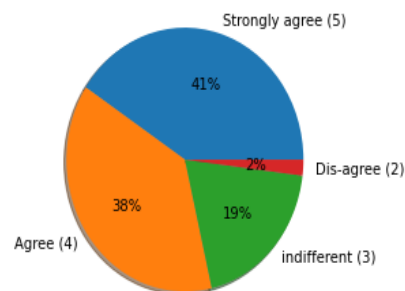
```
df['Monetary savings'].value_counts()
```

```
Strongly agree (5)    59
Agree (4)             27
Disagree (2)          12
indifferent (3)        5
Name: Monetary savings, dtype: int64
```

```
labels='Strongly agree (5)','Agree (4)','Disagree (2)','indifferent (3)'

fig,ax=plt.subplots()
ax.pie(df['Monetary savings'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
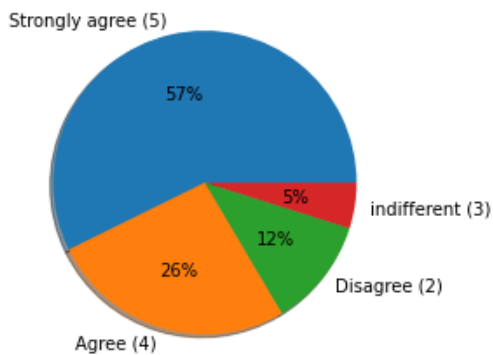


## Observation on Utilitarian Values

- The majority of participants strongly believe that the website's content must be simple to read and understand.

- Approximately 73% of all customers believe that information on similar products to the one highlighted is useful for product comparison.

- The majority of participants think that providing comprehensive information on the listed seller and the goods being offered is critical for making a purchase choice.

- The majority of buyers expect all essential information about listed items to be provided properly.

- 91% of customers want a user-friendly website layout as well as ease of navigation; they also want the loading and processing speed to be as fast as possible.

- 83% of customers believe that the online retailer will complete its portion of the transaction within the time frame specified.

- Approximately 66% obtain loyalty programs from their shopping platforms.

- Many customers believe that purchasing online saves them money because of the cost and discount considerations.

# Part 3 - Hedonic Values

```python
df['The Convenience of patronizing the online retailer'].value_counts()
```

```
Agree (4)          55
indifferent (3)    28
Strongly agree (5) 20
Name: The Convenience of patronizing the online retailer, dtype: int64
```

```python
labels='Agree (4)','indifferent (3)','Strongly agree (5)'

fig,ax=plt.subplots()
ax.pie(df['The Convenience of patronizing the online retailer'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
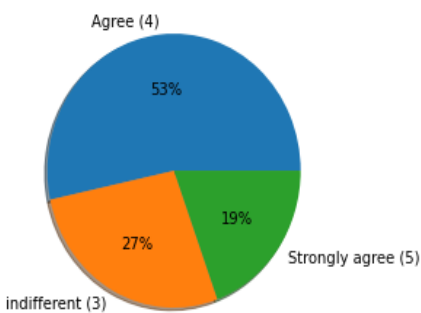


```python
df['Shopping on the website gives you the sense of adventure'].value_counts()
```

```
Agree (4)              42
indifferent (3)        24
Strongly agree (5)     20
Dis-agree (2)          15
Strongly disagree (1)   2
Name: Shopping on the website gives you the sense of adventure, dtype: int64
```

```python
labels='Agree (4)','indifferent (3)','Strongly agree (5)','Dis-agree (2)','Strongly disagree (1)'

fig,ax=plt.subplots()
ax.pie(df['Shopping on the website gives you the sense of adventure'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
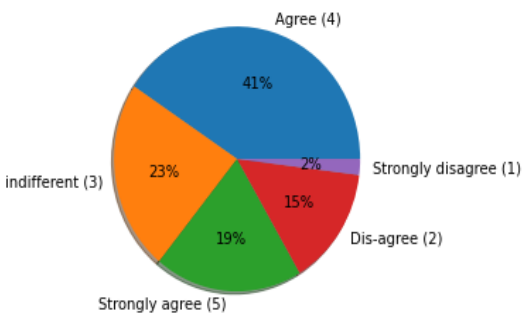
```python
df['Shopping on your preferred e-tailer enhances your social status'].value_counts()
```

```
indifferent (3)          39
Agree (4)                21
Strongly agree (5)       17
Strongly disagree (1)    16
Dis-agree (2)            10
Name: Shopping on your preferred e-tailer enhances your social status, dtype: int64
```

```python
labels='indifferent (3)','Agree (4)','Strongly agree (5)','Strongly disagree (1)','Dis-agree (2)'

fig,ax=plt.subplots()
ax.pie(df['Shopping on your preferred e-tailer enhances your social status'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```



```python
df['Shopping on the website helps you fulfill certain roles'].value_counts()
```

```
indifferent (3)          35
Agree (4)                33
Strongly disagree (1)    16
Strongly agree (5)       12
Dis-agree (2)             7
Name: Shopping on the website helps you fulfill certain roles, dtype: int64
```

```python
labels='indifferent (3)','Agree (4)','Strongly disagree (1)','Strongly agree (5)','Dis-agree (2)'

fig,ax=plt.subplots()
ax.pie(df['Shopping on the website helps you fulfill certain roles'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
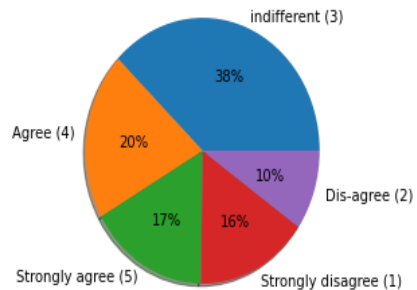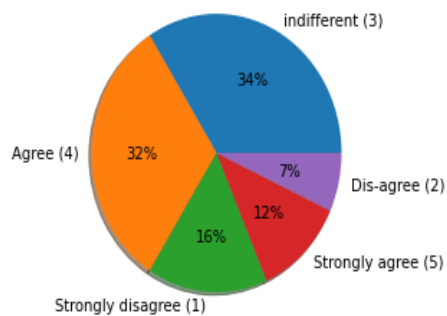
```
df['Getting value for money spent'].value_counts()

Agree (4)             57
Strongly agree (5)    32
indifferent (3)       14
Name: Getting value for money spent, dtype: int64
```

```python
labels='Agree (4)','Strongly agree (5)','indifferent (3)'

fig,ax=plt.subplots()
ax.pie(df['Getting value for money spent'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
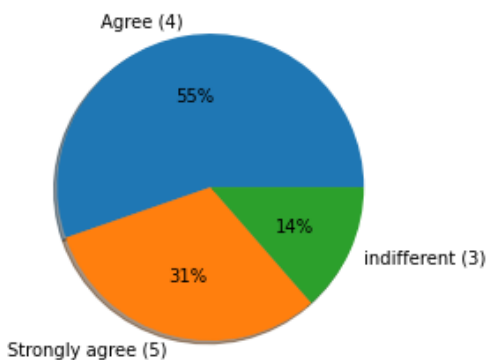


## Observation on Hedonic Values

- 72% of participants think that shopping from an online business is convenient.

- More than half of online shoppers admit that they enjoy the sense of adventure that comes with internet buying.

- Many customers do not believe that purchasing on their favorite website improves their social standing.

- Half of all participants claim that purchasing on the website assists them in fulfilling certain responsibilities.

- 86% of customers think that they receive good value for their money when they purchase online.

# Part 4 - Perceived Risk

```
df['How frequently do you abandon (selecting an items and leaving without making payment) your shopping cart?'].value_counts()
```

```
Sometimes          64
Never              17
Frequently         16
Very frequently     6
Name: How frequently do you abandon (selecting an items and leaving without making payment) your shopping cart?, dtype: int64
```

```
labels='Sometimes','Never','Frequently','Very frequently'

fig,ax=plt.subplots()
ax.pie(df['How frequently do you abandon (selecting an items and leaving without making payment) your shopping cart?'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```



```
df['Why did you abandon the "Bag", "Shopping Cart"?'].value_counts()
```
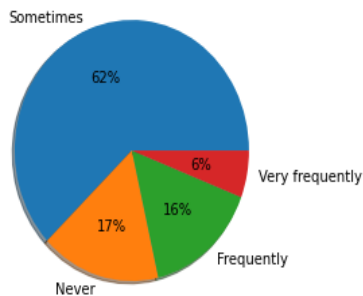
```
Better alternative offer       49
Promo code not applicable      21
Change in price                15
Lack of trust                  13
No preferred mode of payment    5
Name: Why did you abandon the "Bag", "Shopping Cart"?, dtype: int64
```

```
labels='Better alternative offer','Promo code not applicable','Change in price','Lack of trust','No preferred mode of payment'

fig,ax=plt.subplots()
ax.pie(df['Why did you abandon the "Bag", "Shopping Cart"?'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
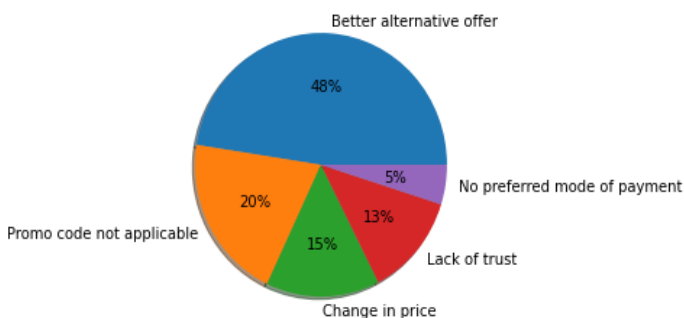
## Observation on Perceived Risk

Many customers quit their shopping carts owing to a variety of causes such as a better alternative offer, a discount code that is no longer valid, a price change, a lack of trust, and no preferred mode of payment.

# Part 5 - Customer Experience

```
df['From the following, tick any (or all) of the online retailers you have shopped from;'].value_counts()
```

```
Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com     36
Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com                16
Amazon.in, Flipkart.com                                          12
Amazon.in, Flipkart.com, Paytm.com, Snapdeal.com                 12
Amazon.in, Paytm.com, Myntra.com                                  8
Amazon.in, Flipkart.com, Snapdeal.com                             8
Amazon.in, Paytm.com                                              5
Amazon.in                                                         4
Amazon.in, Flipkart.com, Paytm.com                                2
Name: From the following, tick any (or all) of the online retailers you have shopped from;, dtype: int64
```

```
labels='Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com','Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com','Amazon.in, Fli
pkart.com','Amazon.in, Flipkart.com, Paytm.com, Snapdeal.com','Amazon.in, Paytm.com, Myntra.com','Amazon.in, Flipkart.com, Snapdeal.co
m','Amazon.in, Paytm.com','Amazon.in','Amazon.in, Flipkart.com, Paytm.com'

fig,ax=plt.subplots()
ax.pie(df['From the following, tick any (or all) of the online retailers you have shopped from;'].value_counts(),labels=labels,autopct='%
0.0f%%',shadow=True)

plt.show()
```
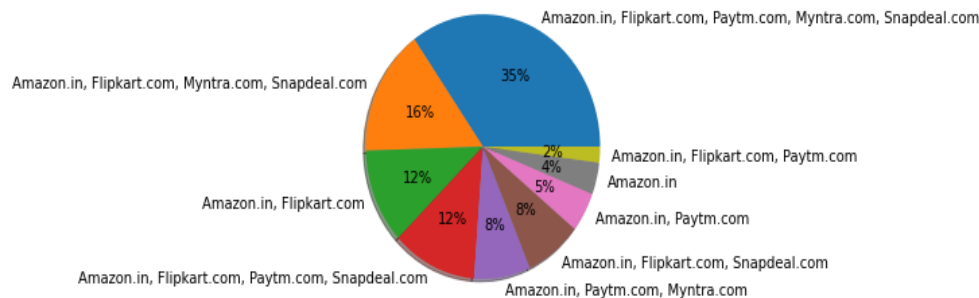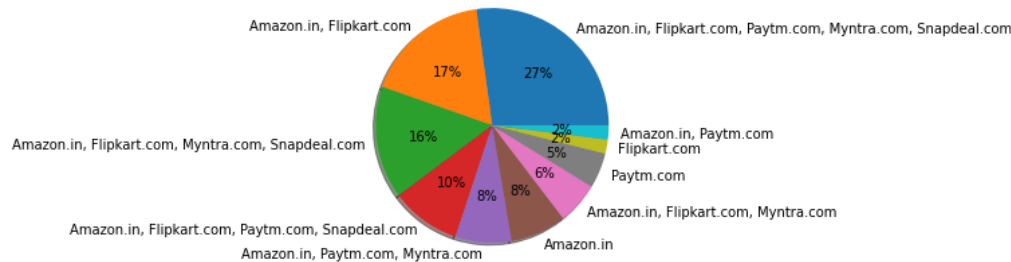
```
df['Easy to use website or application'].value_counts()
```

```
Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com    28
Amazon.in, Flipkart.com                                         18
Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com              16
Amazon.in, Flipkart.com, Paytm.com, Snapdeal.com               10
Amazon.in, Paytm.com, Myntra.com                                8
Amazon.in                                                       8
Amazon.in, Flipkart.com, Myntra.com                             6
Paytm.com                                                       5
Flipkart.com                                                    2
Amazon.in, Paytm.com                                            2
Name: Easy to use website or application, dtype: int64
```
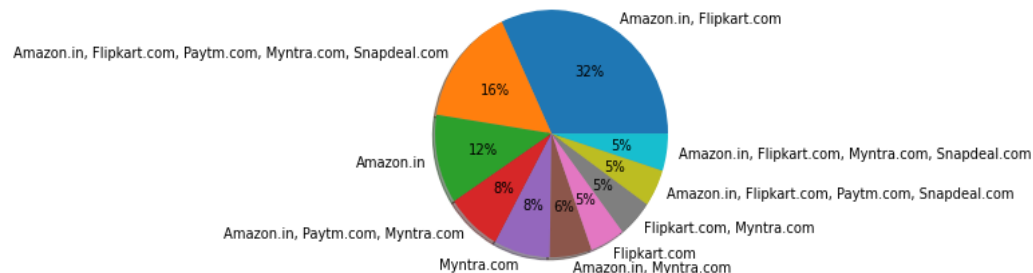
```
labels='Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com','Amazon.in, Flipkart.com','Amazon.in, Flipkart.com, Myntra.com, Sna
pdeal.com','Amazon.in, Flipkart.com, Paytm.com, Snapdeal.com','Amazon.in, Paytm.com, Myntra.com','Amazon.in','Amazon.in, Flipkart.com, My
ntra.com','Paytm.com','Flipkart.com','Amazon.in, Paytm.com'
fig,ax=plt.subplots()
ax.pie(df['Easy to use website or application'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```



```
df['Visual appealing web-page layout'].value_counts()
```

```
Amazon.in, Flipkart.com                                         33
Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com    16
Amazon.in                                                       12
Amazon.in, Paytm.com, Myntra.com                                8
Myntra.com                                                       8
Amazon.in, Myntra.com                                            6
Flipkart.com                                                     5
Flipkart.com, Myntra.com                                         5
Amazon.in, Flipkart.com, Paytm.com, Snapdeal.com                5
Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com               5
Name: Visual appealing web-page layout, dtype: int64
```

```
labels='Amazon.in, Flipkart.com','Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com','Amazon.in','Amazon.in, Paytm.com, Myntr
a.com','Myntra.com','Amazon.in, Myntra.com','Flipkart.com','Flipkart.com, Myntra.com','Amazon.in, Flipkart.com, Paytm.com, Snapdeal.co
m','Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com'

fig,ax=plt.subplots()
ax.pie(df['Visual appealing web-page layout'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```

```
df['Wild variety of product on offer'].value_counts()
```

```
Amazon.in, Flipkart.com                              50
Amazon.in                                            13
Amazon.in, Myntra.com                                 8
Myntra.com                                            8
Flipkart.com, Myntra.com                              6
Amazon.in, Flipkart.com, Paytm.com                    6
Flipkart.com                                          5
Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com     5
Paytm.com                                             2
Name: Wild variety of product on offer, dtype: int64
```

```
labels='Amazon.in, Flipkart.com','Amazon.in','Amazon.in, Myntra.com','Myntra.com','Flipkart.com, Myntra.com','Amazon.in, Flipkart.com, Pa
ytm.com','Flipkart.com','Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com','Paytm.com'

fig,ax=plt.subplots()
ax.pie(df['Wild variety of product on offer'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
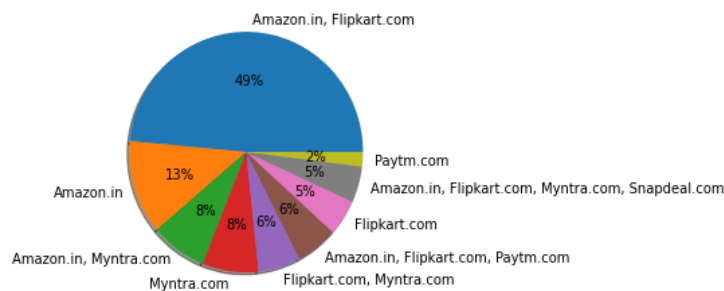


```
df['Complete, relevant description information of products'].value_counts()
```
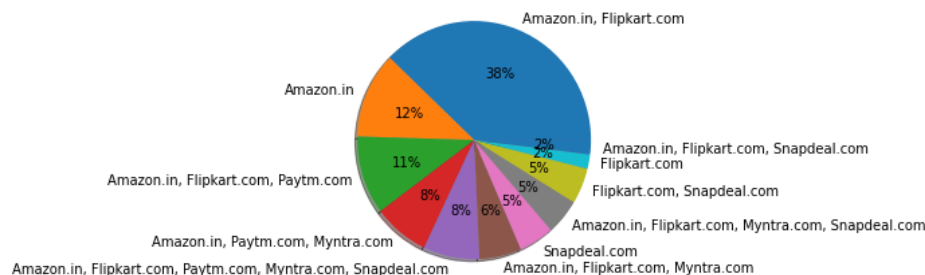
```
Amazon.in, Flipkart.com                                          39
Amazon.in                                                        12
Amazon.in, Flipkart.com, Paytm.com                               11
Amazon.in, Paytm.com, Myntra.com                                  8
Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com      8
Amazon.in, Flipkart.com, Myntra.com                               6
Snapdeal.com                                                      5
Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com                 5
Flipkart.com, Snapdeal.com                                        5
Flipkart.com                                                      2
Amazon.in, Flipkart.com, Snapdeal.com                             2
Name: Complete, relevant description information of products, dtype: int64
```

```
labels='Amazon.in, Flipkart.com','Amazon.in','Amazon.in, Flipkart.com, Paytm.com','Amazon.in, Paytm.com, Myntra.com','Amazon.in, Flipkar
t.com, Paytm.com, Myntra.com, Snapdeal.com','Amazon.in, Flipkart.com, Myntra.com','Snapdeal.com','Amazon.in, Flipkart.com, Myntra.com, Sn
apdeal.com','Flipkart.com, Snapdeal.com','Flipkart.com','Amazon.in, Flipkart.com, Snapdeal.com'

fig,ax=plt.subplots()
ax.pie(df['Complete, relevant description information of products'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```

```
df['Fast loading website speed of website and application'].value_counts()
```
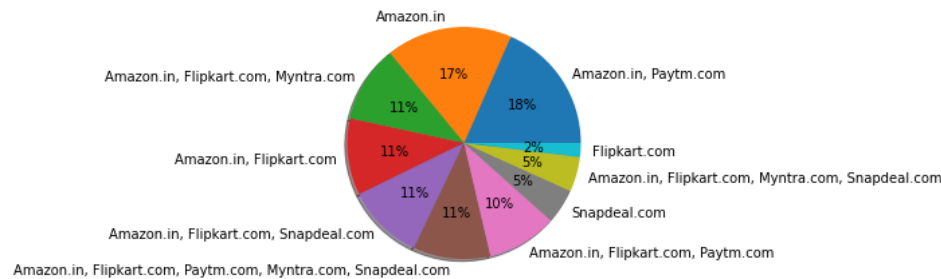
```
Amazon.in, Paytm.com                                             19
Amazon.in                                                        18
Amazon.in, Flipkart.com, Myntra.com                              11
Amazon.in, Flipkart.com                                          11
Amazon.in, Flipkart.com, Snapdeal.com                            11
Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com     11
Amazon.in, Flipkart.com, Paytm.com                               10
Snapdeal.com                                                      5
Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com                5
Flipkart.com                                                      2
Name: Fast loading website speed of website and application, dtype: int64
```

```
labels='Amazon.in, Paytm.com','Amazon.in','Amazon.in, Flipkart.com, Myntra.com','Amazon.in, Flipkart.com','Amazon.in, Flipkart.com, Snapd
eal.com','Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com','Amazon.in, Flipkart.com, Paytm.com','Snapdeal.com','Amazon.in, F
lipkart.com, Myntra.com, Snapdeal.com','Flipkart.com'

fig,ax=plt.subplots()
ax.pie(df['Fast loading website speed of website and application'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```



```
df['Reliability of the website or application'].value_counts()
```

```
Amazon.in                                             20
Amazon.in, Flipkart.com                               18
Amazon.in, Paytm.com, Myntra.com                      16
Amazon.in, Flipkart.com, Paytm.com                    16
Amazon.in, Flipkart.com, Snapdeal.com                  7
Amazon.in, Flipkart.com, Paytm.com, Snapdeal.com       6
Myntra.com                                             6
Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com      5
Paytm.com                                              5
Flipkart.com                                           4
Name: Reliability of the website or application, dtype: int64
```

```
labels='Amazon.in', 'Amazon.in, Flipkart.com','Amazon.in, Paytm.com, Myntra.com','Amazon.in, Flipkart.com, Paytm.com','Amazon.in, Flipkar
t.com, Snapdeal.com','Amazon.in, Flipkart.com, Paytm.com, Snapdeal.com','Myntra.com','Amazon.in, Flipkart.com, Myntra.com, Snapdeal.co
m','Paytm.com','Flipkart.com'

fig,ax=plt.subplots()
ax.pie(df['Reliability of the website or application'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
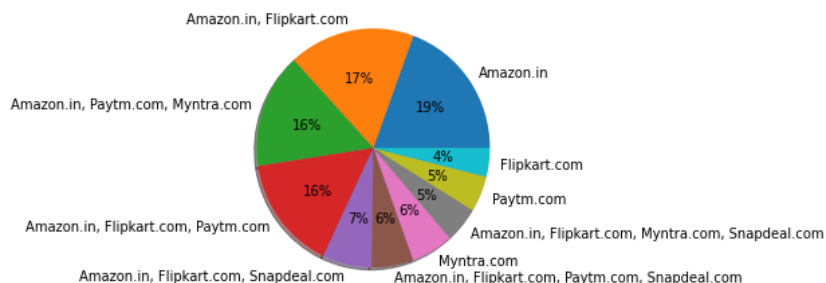
```python
df['Quickness to complete purchase'].value_counts()
```

```
Amazon.com                                                      22
Amazon.com, Flipkart.com, Paytm.com                             21
Amazon.com, Flipkart.com                                        13
Amazon.com, Flipkart.com, Myntra.com                            11
Paytm.com                                                       11
Amazon.com, Flipkart.com, Paytm.com, Myntra.com, Snapdeal        8
Amazon.com, Paytm.com, Myntra.com                                8
Flipkart.com, Myntra.com, Snapdeal                               5
Flipkart.com                                                     4
Name: Quickness to complete purchase, dtype: int64
```

```python
labels='Amazon.com','Amazon.com, Flipkart.com, Paytm.com','Amazon.com, Flipkart.com','Amazon.com, Flipkart.com, Myntra.com','Paytm.co
m','Amazon.com, Flipkart.com, Paytm.com, Myntra.com, Snapdeal','Amazon.com, Paytm.com, Myntra.com','Flipkart.com, Myntra.com, Snapdea
l','Flipkart.com'

fig,ax=plt.subplots()
ax.pie(df['Quickness to complete purchase'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
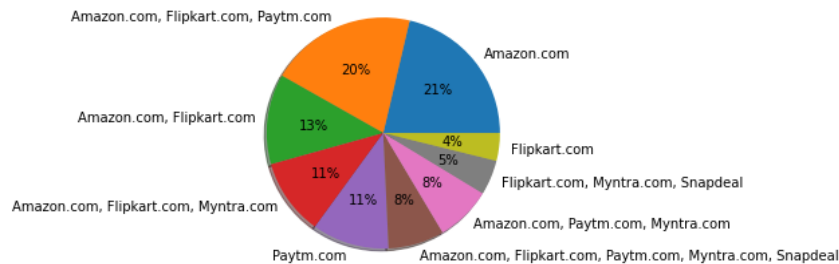


```python
df['Availability of several payment options'].value_counts()
```
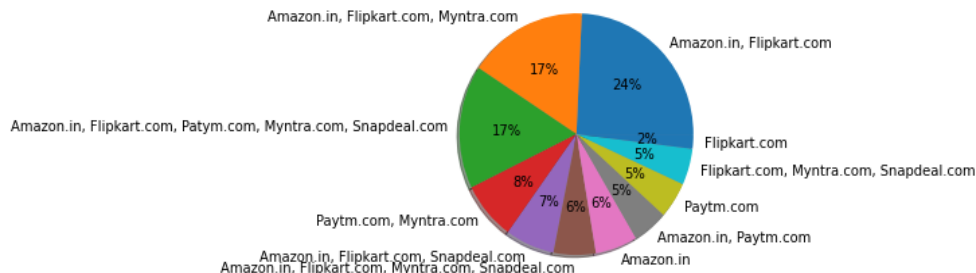
```
Amazon.in, Flipkart.com                                        25
Amazon.in, Flipkart.com, Myntra.com                            17
Amazon.in, Flipkart.com, Patym.com, Myntra.com, Snapdeal.com   17
Patym.com, Myntra.com                                           8
Amazon.in, Flipkart.com, Snapdeal.com                           7
Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com               6
Amazon.in                                                       6
Amazon.in, Patym.com                                            5
Patym.com                                                       5
Flipkart.com, Myntra.com, Snapdeal.com                          5
Flipkart.com                                                    2
Name: Availability of several payment options, dtype: int64
```

```python
labels='Amazon.in, Flipkart.com','Amazon.in, Flipkart.com, Myntra.com','Amazon.in, Flipkart.com, Patym.com, Myntra.com, Snapdeal.com','Pa
ytm.com, Myntra.com','Amazon.in, Flipkart.com, Snapdeal.com','Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com','Amazon.in','Amazon.in,
Paytm.com','Paytm.com','Flipkart.com, Myntra.com, Snapdeal.com','Flipkart.com'

fig,ax=plt.subplots()
ax.pie(df['Availability of several payment options'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```

```
df['Speedy order delivery'].value_counts()
```
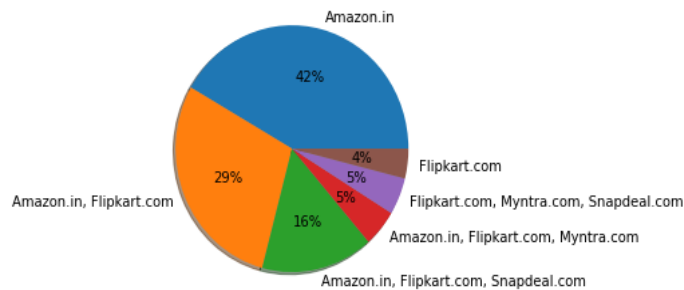
```
Amazon.in                                        43
Amazon.in, Flipkart.com                          30
Amazon.in, Flipkart.com, Snapdeal.com            16
Amazon.in, Flipkart.com, Myntra.com               5
Flipkart.com, Myntra.com, Snapdeal.com            5
Flipkart.com                                      4
Name: Speedy order delivery, dtype: int64
```

```
labels='Amazon.in','Amazon.in, Flipkart.com','Amazon.in, Flipkart.com, Snapdeal.com','Amazon.in, Flipkart.com, Myntra.com','Flipkart.com,
Myntra.com, Snapdeal.com', 'Flipkart.com'

fig,ax=plt.subplots()
ax.pie(df['Speedy order delivery'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```



```
df['Privacy of customers' information'].value_counts()
```

```
Amazon.in                                                      24
Amazon.in, Flipkart.com                                        19
Amazon.in, Flipkart.com, Myntra.com                            11
Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com   11
Paytm.com                                                       8
Amazon.in, Paytm.com                                            8
Myntra.com                                                      6
Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com              5
Amazon.in, Flipkart.com, Paytm.com                             5
Flipkart.com                                                    4
Amazon.in, Flipkart.com, Snapdeal.com                          2
Name: Privacy of customers' information, dtype: int64
```

```
labels='Amazon.in','Amazon.in, Flipkart.com','Amazon.in, Flipkart.com, Myntra.com','Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapd
eal.com','Paytm.com','Amazon.in, Paytm.com','Myntra.com','Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com','Amazon.in, Flipkart.com, Pa
ytm.com','Flipkart.com','Amazon.in, Flipkart.com, Snapdeal.com'

fig,ax=plt.subplots()
ax.pie(df['Privacy of customers' information'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
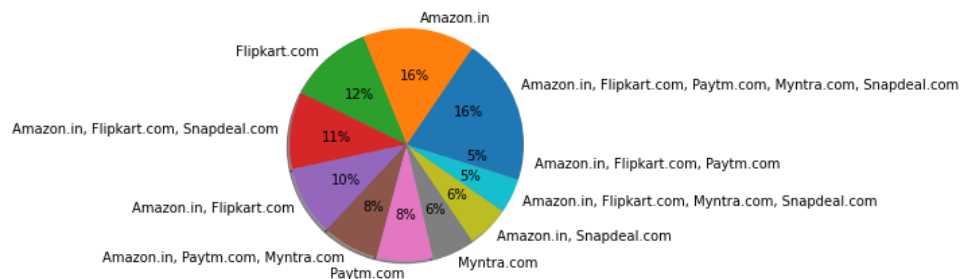
```
df['Security of customer financial information'].value_counts()
```
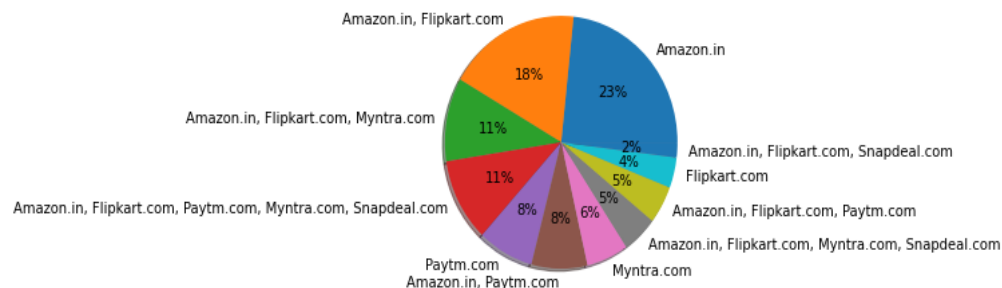
```
Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com    16
Amazon.in                                                       16
Flipkart.com                                                    12
Amazon.in, Flipkart.com, Snapdeal.com                          11
Amazon.in, Flipkart.com                                        10
Amazon.in, Paytm.com, Myntra.com                                8
Paytm.com                                                       8
Myntra.com                                                      6
Amazon.in, Snapdeal.com                                         6
Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com               5
Amazon.in, Flipkart.com, Paytm.com                              5
Name: Security of customer financial information, dtype: int64
```

```
labels='Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com','Amazon.in','Flipkart.com','Amazon.in, Flipkart.com, Snapdeal.co
m','Amazon.in, Flipkart.com','Amazon.in, Paytm.com, Myntra.com','Paytm.com','Myntra.com','Amazon.in, Snapdeal.com','Amazon.in, Flipkart.c
om, Myntra.com, Snapdeal.com','Amazon.in, Flipkart.com, Paytm.com'

fig,ax=plt.subplots()
ax.pie(df['Security of customer financial information'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```



```
df['Perceived Trustworthiness'].value_counts()
```
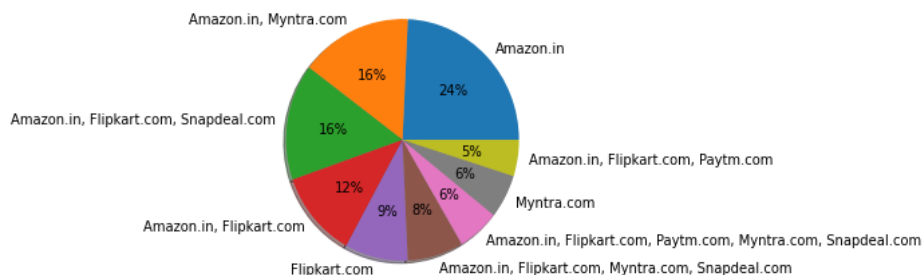
```
Amazon.in                                                       25
Amazon.in, Myntra.com                                           16
Amazon.in, Flipkart.com, Snapdeal.com                          16
Amazon.in, Flipkart.com                                        12
Flipkart.com                                                     9
Amazon.in, Flipkart.com, Myntra.com, Snapdeal.com               8
Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com    6
Myntra.com                                                       6
Amazon.in, Flipkart.com, Paytm.com                              5
Name: Perceived Trustworthiness, dtype: int64
```

```
labels='Amazon.in','Amazon.in, Myntra.com','Amazon.in, Flipkart.com, Snapdeal.com','Amazon.in, Flipkart.com','Flipkart.com','Amazon.in, F
lipkart.com, Myntra.com, Snapdeal.com','Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com','Myntra.com','Amazon.in, Flipkart.c
om, Paytm.com'

fig,ax=plt.subplots()
ax.pie(df['Perceived Trustworthiness'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```

```
df['Presence of online assistance through multi-channel'].value_counts()
```

```
Amazon.in, Flipkart.com, Myntra.com, Snapdeal     24
Amazon.in                                         21
Amazon.in, Flipkart.com                           15
Amazon.in, Snapdeal                                8
Myntra.com                                         8
Amazon.in, Myntra.com                              8
Amazon.in, Flipkart.com, Myntra.com                6
Amazon.in, Flipkart.com, Paytm.com                 6
Paytm.com                                          5
Flipkart.com                                       2
Name: Presence of online assistance through multi-channel, dtype: int64
```

```
labels='Amazon.in, Flipkart.com, Myntra.com, Snapdeal','Amazon.in','Amazon.in, Flipkart.com','Amazon.in, Snapdeal','Myntra.com','Amazon.in, Myntra.com','Amazon.in, Flipkart.com, Myntra.com','Amazon.in, Flipkart.com, Paytm.com','Paytm.com','Flipkart.com'

fig,ax=plt.subplots()
ax.pie(df['Presence of online assistance through multi-channel'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
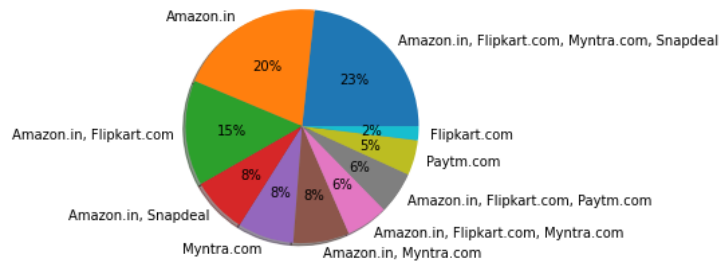


```
df['Longer time to get logged in (promotion, sales period)'].value_counts()
```

```
Amazon.in                                         18
Amazon.in, Flipkart.com                           16
Paytm.com                                         14
Myntra.com                                        13
Snapdeal.com                                      11
Amazon.in, Flipkart.com, Snapdeal.com             10
Flipkart.com, Paytm.com                            8
Flipkart.com, Paytm.com, Snapdeal.com              6
Amazon.in, Paytm.com                               5
Flipkart.com                                       2
Name: Longer time to get logged in (promotion, sales period), dtype: int64
```

```
labels='Amazon.in','Amazon.in, Flipkart.com','Paytm.com','Myntra.com','Snapdeal.com','Amazon.in, Flipkart.com, Snapdeal.com','Flipkart.com, Paytm.com','Flipkart.com, Paytm.com, Snapdeal.com','Amazon.in, Paytm.com','Flipkart.com'

fig,ax=plt.subplots()
ax.pie(df['Longer time to get logged in (promotion, sales period)'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```

```
df['Longer time in displaying graphics and photos (promotion, sales period)'].value_counts()
```
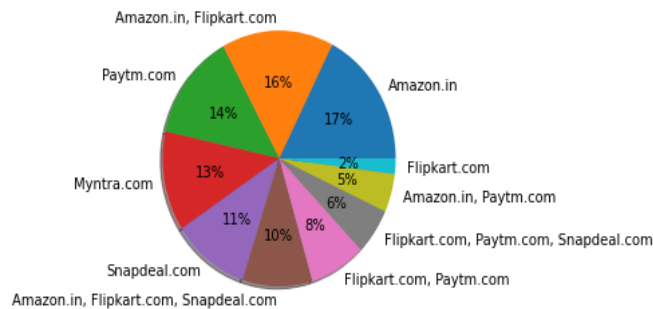
```
Amazon.in, Flipkart.com              25
Myntra.com                           14
Amazon.in                            14
Myntra.com, Snapdeal.com             11
Snapdeal.com                         10
Paytm.com                             8
Flipkart.com, Snapdeal.com            6
Amazon.in, Paytm.com                  6
Amazon.in, Myntra.com, Snapdeal.com   5
Flipkart.com                          4
Name: Longer time in displaying graphics and photos (promotion, sales period), dtype: int64
```
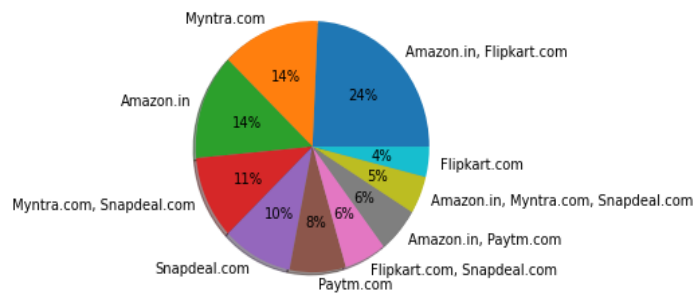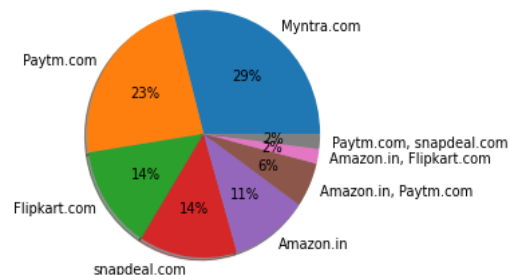
```
labels='Amazon.in, Flipkart.com','Myntra.com','Amazon.in','Myntra.com, Snapdeal.com','Snapdeal.com','Paytm.com','Flipkart.com, Snapdeal.c
om','Amazon.in, Paytm.com','Amazon.in, Myntra.com, Snapdeal.com','Flipkart.com'

fig,ax=plt.subplots()
ax.pie(df['Longer time in displaying graphics and photos (promotion, sales period)'].value_counts(),labels=labels,autopct='%0.0f%%',shado
w=True)

plt.show()
```



```
df['Late declaration of price (promotion, sales period)'].value_counts()
```

```
Myntra.com               30
Paytm.com                24
Flipkart.com             14
snapdeal.com             14
Amazon.in                11
Amazon.in, Paytm.com      6
Amazon.in, Flipkart.com   2
Paytm.com, snapdeal.com   2
Name: Late declaration of price (promotion, sales period), dtype: int64
```

```
labels='Myntra.com','Paytm.com','Flipkart.com','snapdeal.com','Amazon.in','Amazon.in, Paytm.com','Amazon.in, Flipkart.com','Paytm.com, sn
apdeal.com'

fig,ax=plt.subplots()
ax.pie(df['Late declaration of price (promotion, sales period)'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```

```
df['Longer page loading time (promotion, sales period)'].value_counts()
```
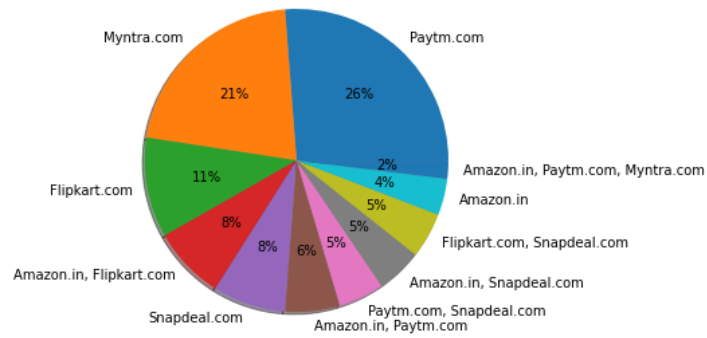
```
Paytm.com                              27
Myntra.com                             22
Flipkart.com                           11
Amazon.in, Flipkart.com                 8
Snapdeal.com                            8
Amazon.in, Paytm.com                    6
Paytm.com, Snapdeal.com                 5
Amazon.in, Snapdeal.com                 5
Flipkart.com, Snapdeal.com              5
Amazon.in                               4
Amazon.in, Paytm.com, Myntra.com        2
Name: Longer page loading time (promotion, sales period), dtype: int64
```

```
labels='Paytm.com','Myntra.com','Flipkart.com','Amazon.in, Flipkart.com','Snapdeal.com','Amazon.in, Paytm.com','Paytm.com, Snapdeal.co
m','Amazon.in, Snapdeal.com','Flipkart.com, Snapdeal.com','Amazon.in','Amazon.in, Paytm.com, Myntra.com'

fig,ax=plt.subplots()
ax.pie(df['Longer page loading time (promotion, sales period)'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True,radius=1.3)

plt.show()
```



```
df['Limited mode of payment on most products (promotion, sales period)'].value_counts()
```

```
Snapdeal.com                           33
Amazon.in                              22
Amazon.in, Flipkart.com                13
Flipkart.com                           11
Paytm.com                              11
Amazon.in, Paytm.com                    6
Paytm.com, Snapdeal.com                 5
Myntra.com, Snapdeal.com                2
Name: Limited mode of payment on most products (promotion, sales period), dtype: int64
```

```
labels='Snapdeal.com','Amazon.in','Amazon.in, Flipkart.com','Flipkart.com','Paytm.com','Amazon.in, Paytm.com','Paytm.com, Snapdeal.co
m','Myntra.com, Snapdeal.com'

fig,ax=plt.subplots()
ax.pie(df['Limited mode of payment on most products (promotion, sales period)'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=Tru
e)

plt.show()
```
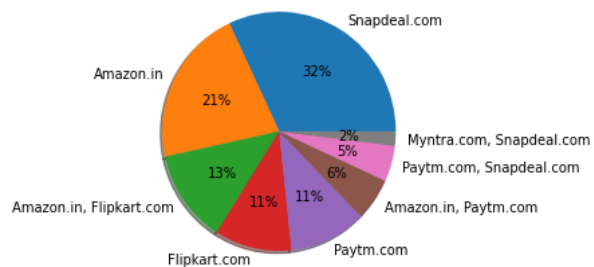
```
df['Longer delivery period'].value_counts()
```
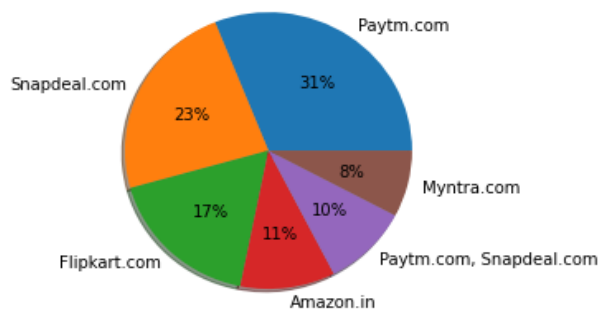
```
Paytm.com                     32
Snapdeal.com                  24
Flipkart.com                  18
Amazon.in                     11
Paytm.com, Snapdeal.com       10
Myntra.com                     8
Name: Longer delivery period, dtype: int64
```

```
labels='Paytm.com','Snapdeal.com','Flipkart.com','Amazon.in','Paytm.com, Snapdeal.com','Myntra.com'

fig,ax=plt.subplots()
ax.pie(df['Longer delivery period'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```



```
df['Change in website/Application design'].value_counts()
```

```
Amazon.in                     38
Paytm.com                     23
Amazon.in, Flipkart.com       18
Myntra.com                    13
Flipkart.com                   7
Snapdeal.com                   2
Flipkart.com, Myntra.com       2
Name: Change in website/Application design, dtype: int64
```

```
labels='Amazon.in','Paytm.com','Amazon.in, Flipkart.com','Myntra.com','Flipkart.com','Snapdeal.com','Flipkart.com, Myntra.com'

fig,ax=plt.subplots()
ax.pie(df['Change in website/Application design'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True,radius=1.3)

plt.show()
```
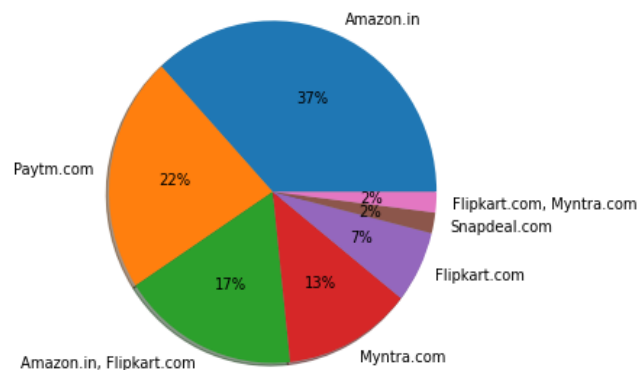
```
df['Frequent disruption when moving from one page to another'].value_counts()
```

```
Myntra.com                        21
Amazon.in                         19
Snapdeal.com                      18
Paytm.com                         14
Amazon.in, Flipkart.com           11
Flipkart.com                      10
Myntra.com, Snapdeal.com           5
Flipkart.com, Snapdeal.com         5
Name: Frequent disruption when moving from one page to another, dtype: int64
```

```
labels='Myntra.com','Amazon.in','Snapdeal.com','Paytm.com','Amazon.in, Flipkart.com','Flipkart.com','Myntra.com, Snapdeal.com','Flipkart.com, Snapdeal.com'

fig,ax=plt.subplots()
ax.pie(df['Frequent disruption when moving from one page to another'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
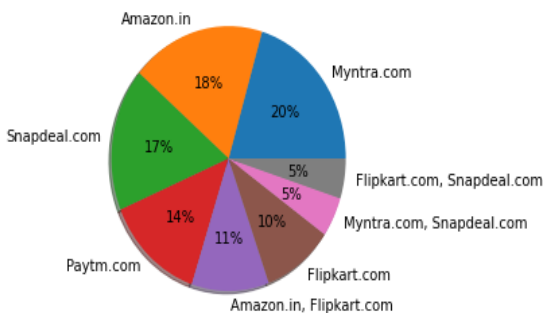


```
df['Website is as efficient as before'].value_counts()
```

```
Amazon.in                                35
Flipkart.com                             17
Amazon.in, Flipkart.com                  15
Amazon.in, Flipkart.com, Paytm.com       11
Paytm.com                                 8
Amazon.in, Paytm.com                      7
Snapdeal.com                              5
Myntra.com, Snapdeal.com                  5
Name: Website is as efficient as before, dtype: int64
```

```
labels='Amazon.in','Flipkart.com','Amazon.in, Flipkart.com','Amazon.in, Flipkart.com, Paytm.com','Paytm.com','Amazon.in, Paytm.com','Snapdeal.com','Myntra.com, Snapdeal.com'

fig,ax=plt.subplots()
ax.pie(df['Website is as efficient as before'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
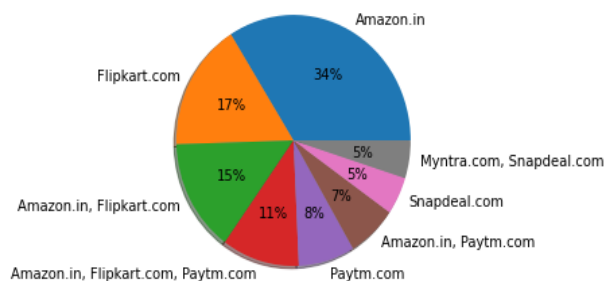
```
df['Which of the Indian online retailer would you recommend to a friend?'].value_counts()
```

```
Amazon.in                                              28
Amazon.in, Flipkart.com                                22
Flipkart.com                                           15
Amazon.in, Myntra.com                                  14
Amazon.in, Paytm.com, Myntra.com                        8
Amazon.in, Paytm.com                                    6
Flipkart.com, Paytm.com, Myntra.com, snapdeal.com       5
Amazon.in, Flipkart.com, Myntra.com                     5
Name: Which of the Indian online retailer would you recommend to a friend?, dtype: int64
```

```python
labels='Amazon.in','Amazon.in, Flipkart.com','Flipkart.com','Amazon.in, Myntra.com','Amazon.in, Paytm.com, Myntra.com','Amazon.in, Paytm.com','Flipkart.com, Paytm.com, Myntra.com, snapdeal.com','Amazon.in, Flipkart.com, Myntra.com'

fig,ax=plt.subplots()
ax.pie(df['Which of the Indian online retailer would you recommend to a friend?'].value_counts(),labels=labels,autopct='%0.0f%%',shadow=True)

plt.show()
```
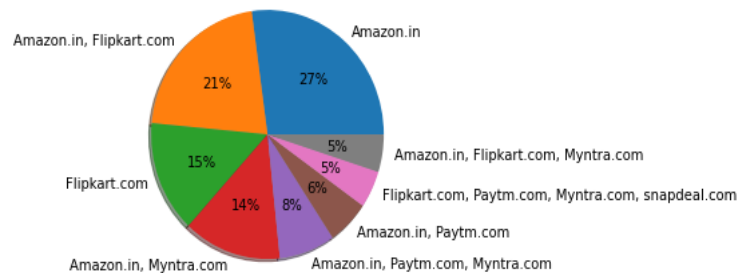


## Observations on Customer Experience

## Positive points:

- The majority of online shoppers have mostly purchased from Amazon.in, Flipkart.com, Snapdeal.com, Paytm.com, and Myntra.com

- Amazon, Flipkart, Snapdeal, Myntra, and Paytm appear to have user-friendly websites or applications.

- Amazon.in and Flipkart.com have aesthetically pleasing web-page layouts.

- Amazon.in and Flipkart.com provide a broad range of items.

- When compared to other other websites, Amazon.in and Flipkart.com provide full and relevant product description information.

- The websites of Amazon.in and Paytm.com load quickly.

- Amazon.in and Flipkart.com have a high level of consumer trust.

- Amazon.in, Flipkart.com, and Paytm.com are all quick to complete purchases.

- Amazon.in and Flipkart.com accept a variety of payment methods.

- Orders are delivered quickly on Amazon.in and Flipkart.com.

- According to consumers, Amazon.in and Flipkart.com protect the privacy and security of their financial information.

- Amazon.in has the highest level of perceived trustworthiness.

- Amazon.in, Flipkart.com, Myntra, and Snapdeal.com are the most prominent providers of multi-channel online help.

## Negative Points:

- Amazon.in, Flipkart.com, and Paytm.com take longer to log in.

- It takes longer time for Amazon.in and Flipkart.com to show graphics and pictures.

- Late price declaration is a practice at Myntra.com, Paytm.com, Flipkart, and Snapdeal.com.

- Myntra.com and Paytm has a longer page loading time (promotion, sales period).
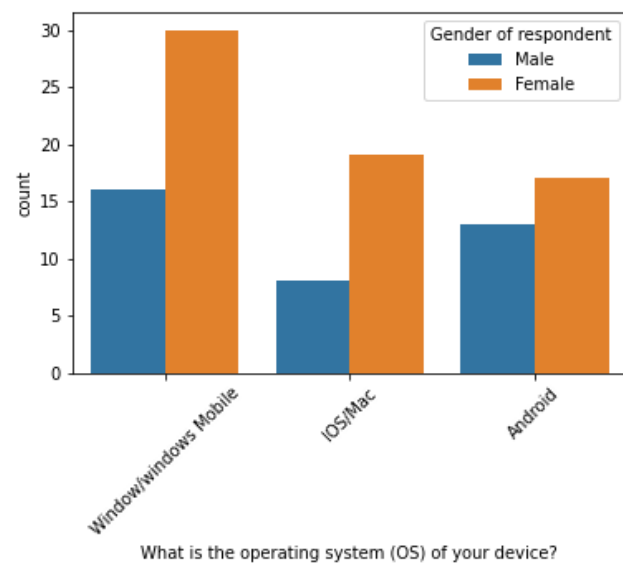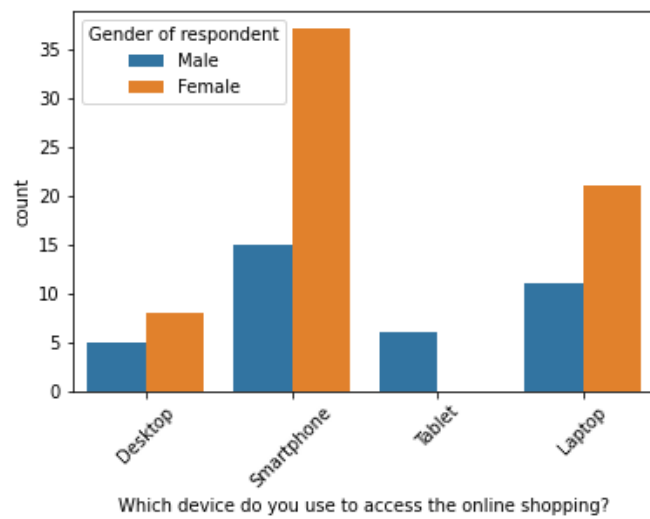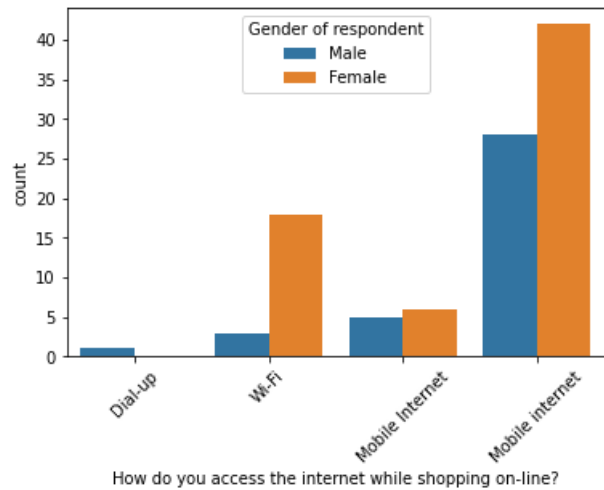
- Most items on Amazon.in and Snapdeal.com have a limited mode of payment.

- Paytm.com, snapdeal.com, Flipkart.com has a longer delivery period.

- The website/application design of Amazon.in and Paytm.com changes on a regular basis.

- There is frequent interruption while switching from one page to another on Amazon.in, Myntra.in, Snapdeal.com, and Paytm.com.

- The Amazon.in and Flipkart.com websites are still as efficient as before.

- The top recommended Indian internet store websites appear to be Amazon.in and Flipkart.com.
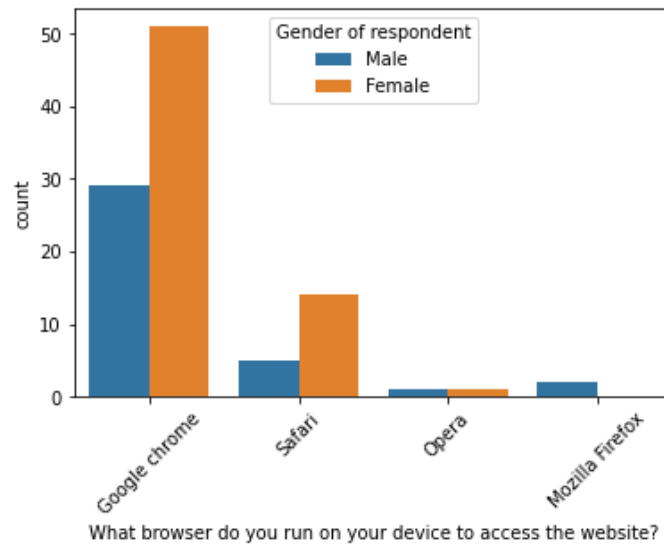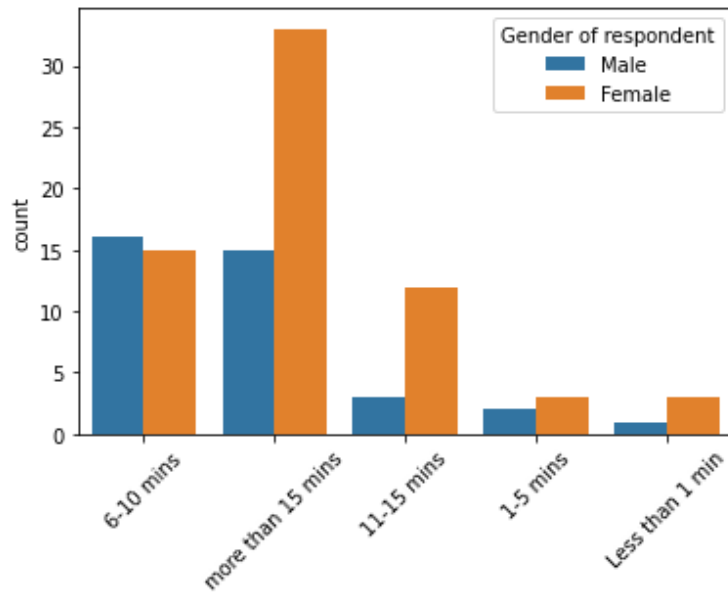
# Bivariate Analysis

```
for i in df.columns:
    plt.figure(i)
    sns.countplot(df[i],hue=df['Gender of respondent'])
    plt.xticks(rotation=45)
```
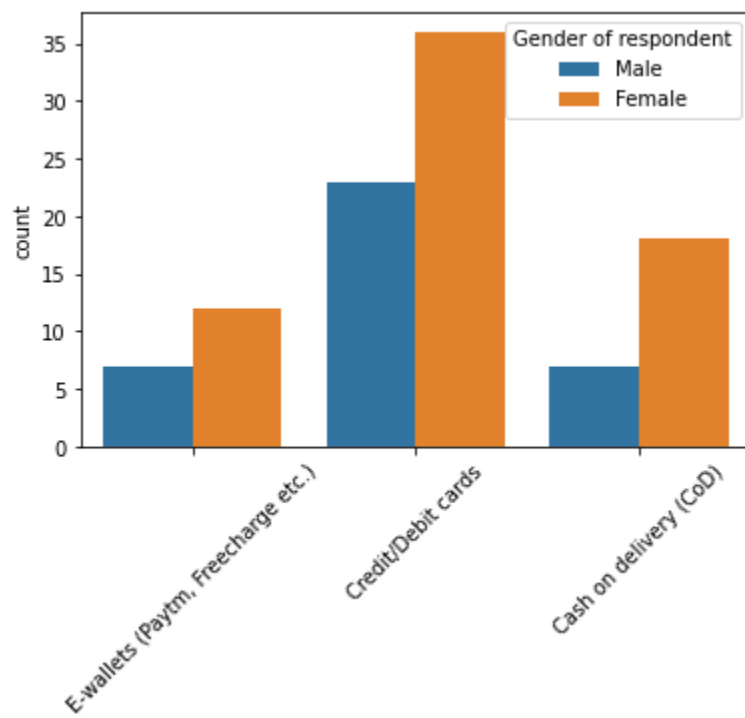
Which city do you shop online from?



Since How Long You are Shopping Online ?



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

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



Which device do you use to access the online shopping?



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

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



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



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

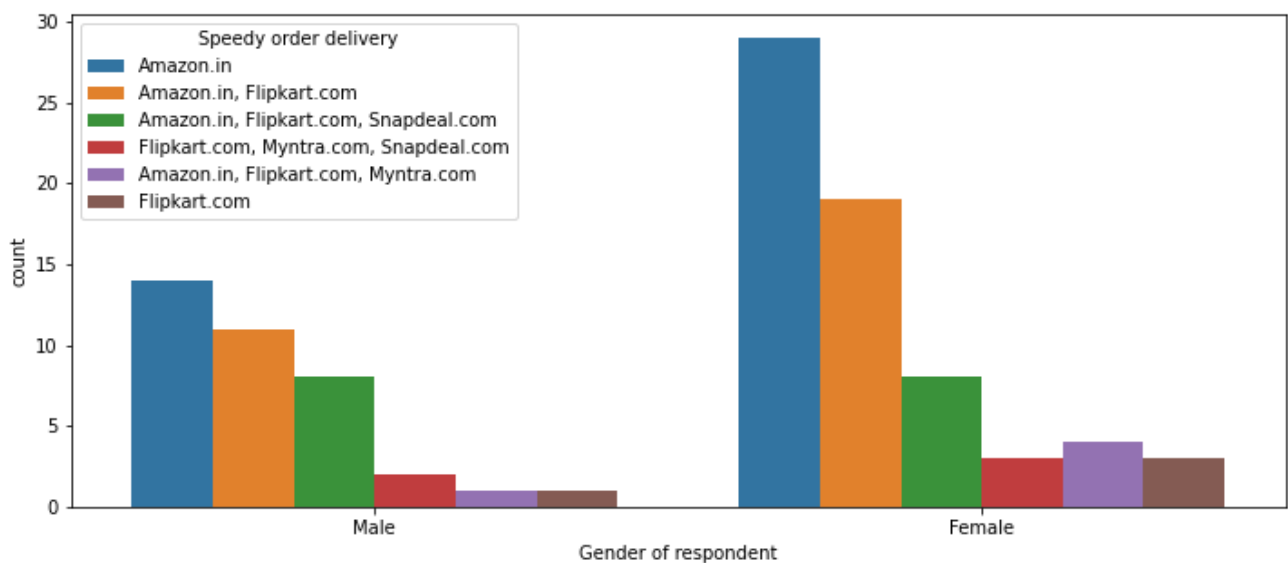How much time do you explore the e- retail store before making a purchase decision?



What is your preferred payment Option?

```
plt.figure(figsize=(12,5))
sns.countplot(x='Gender of respondent',hue='Which of the Indian online retailer would you recommend to a friend?',data=df)
```
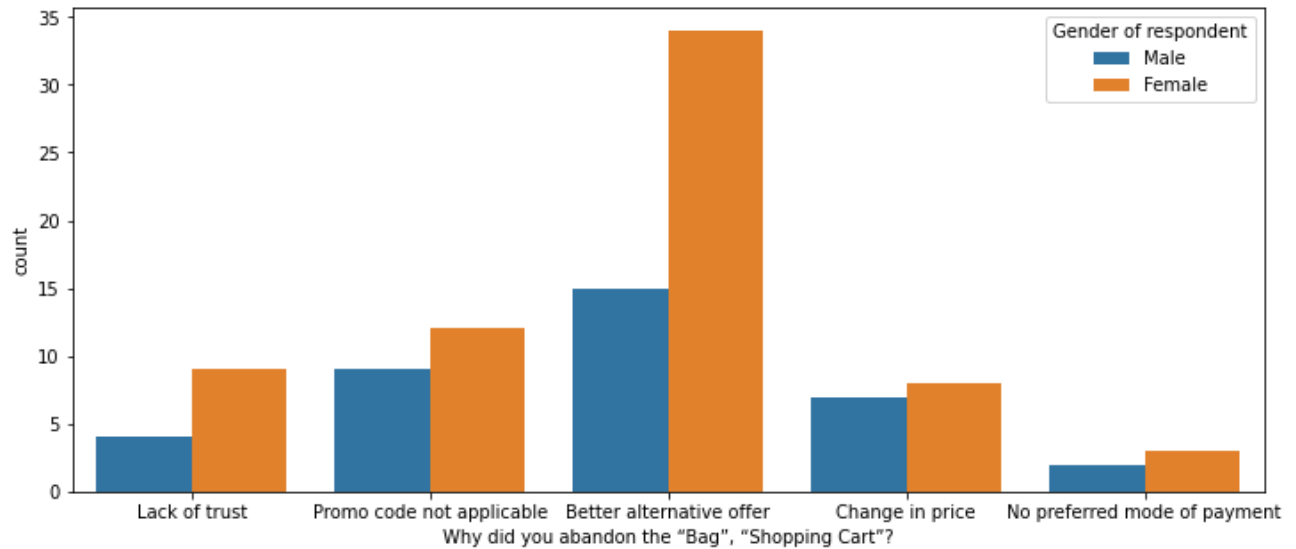
`<AxesSubplot:xlabel='Gender of respondent', ylabel='count'>`
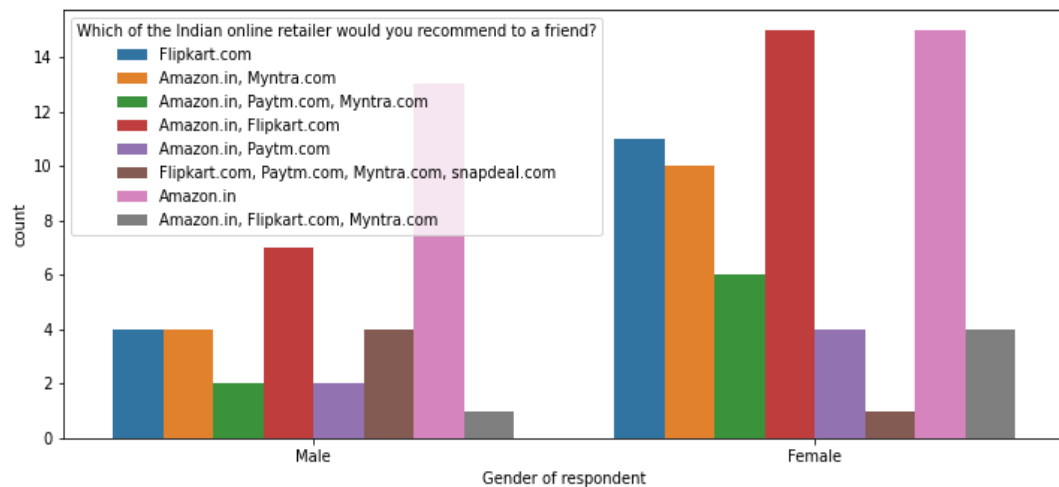


```
plt.figure(figsize=(12,5))
sns.countplot(x='Gender of respondent',hue='Speedy order delivery',data=df)
```
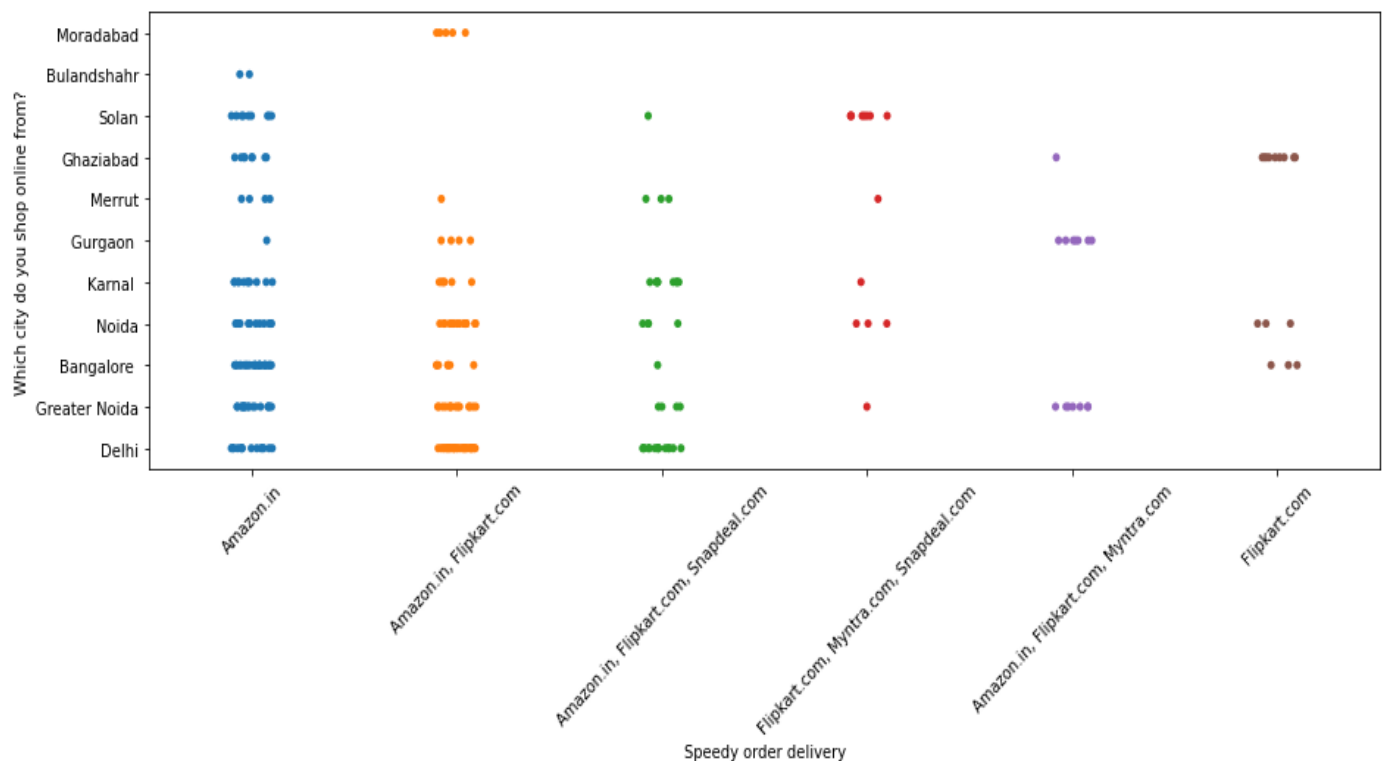
`<AxesSubplot:xlabel='Gender of respondent', ylabel='count'>`

```
plt.figure(figsize=(12,5))
sns.countplot(x='Why did you abandon the "Bag", "Shopping Cart"?',hue='Gender of respondent',data=df)
```

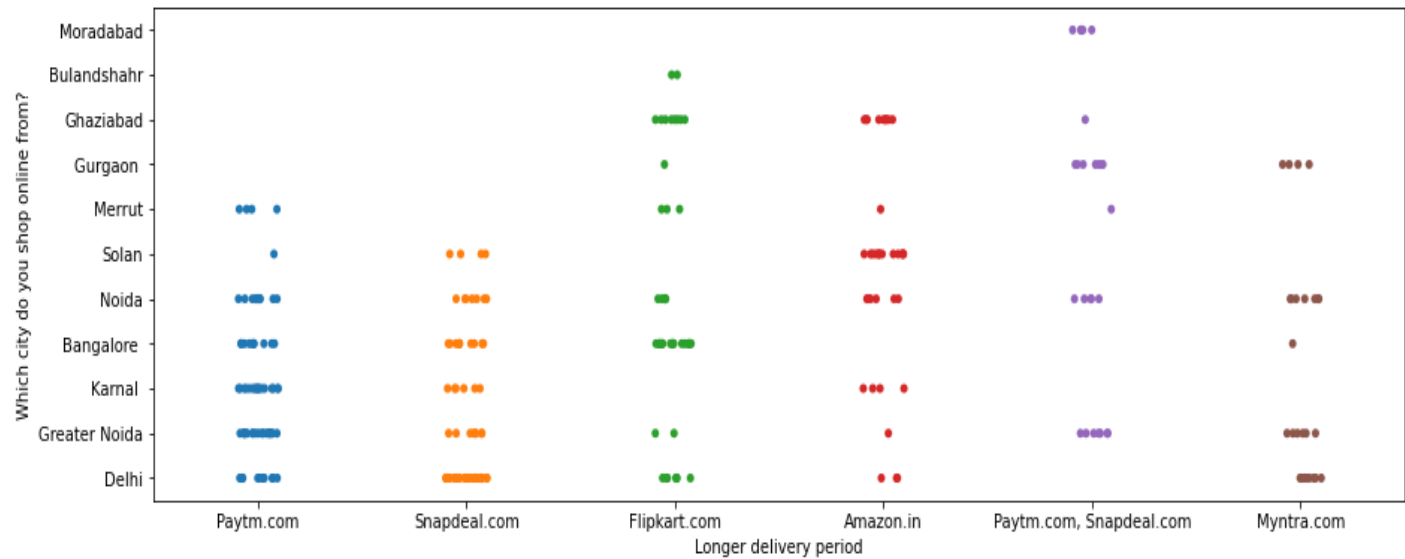<AxesSubplot:xlabel='Why did you abandon the "Bag", "Shopping Cart"?', ylabel='count'>



```
plt.figure(figsize=(15,5))
plt.xticks(rotation=45)
sns.stripplot(df['Speedy order delivery'],df['Which city do you shop online from?'])
```

<AxesSubplot:xlabel='Speedy order delivery', ylabel='Which city do you shop online from?'>

```
plt.figure(figsize=(15,5))
sns.stripplot(df['Longer delivery period'],df['Which city do you shop online from?'])
```

```
<AxesSubplot:xlabel='Longer delivery period', ylabel='Which city do you shop online from?'>
```



```
plt.figure(figsize=(15,5))
sns.stripplot(df['Why did you abandon the "Bag", "Shopping Cart"?'],df['From the following, tick any (or all) of the online retailers you
have shopped from;'])
```

```
<AxesSubplot:xlabel='Why did you abandon the "Bag", "Shopping Cart"?', ylabel='From the following, tick any (or all) of the online retail
ers you have shopped from;'>
```
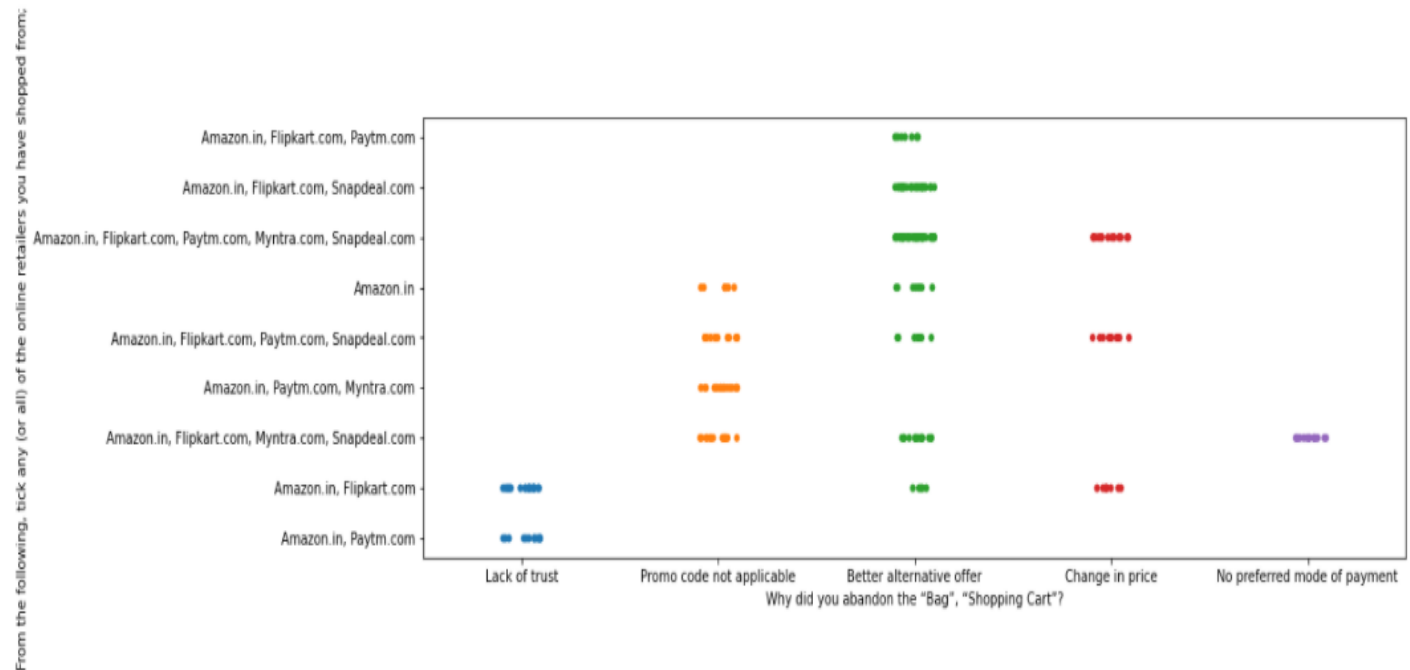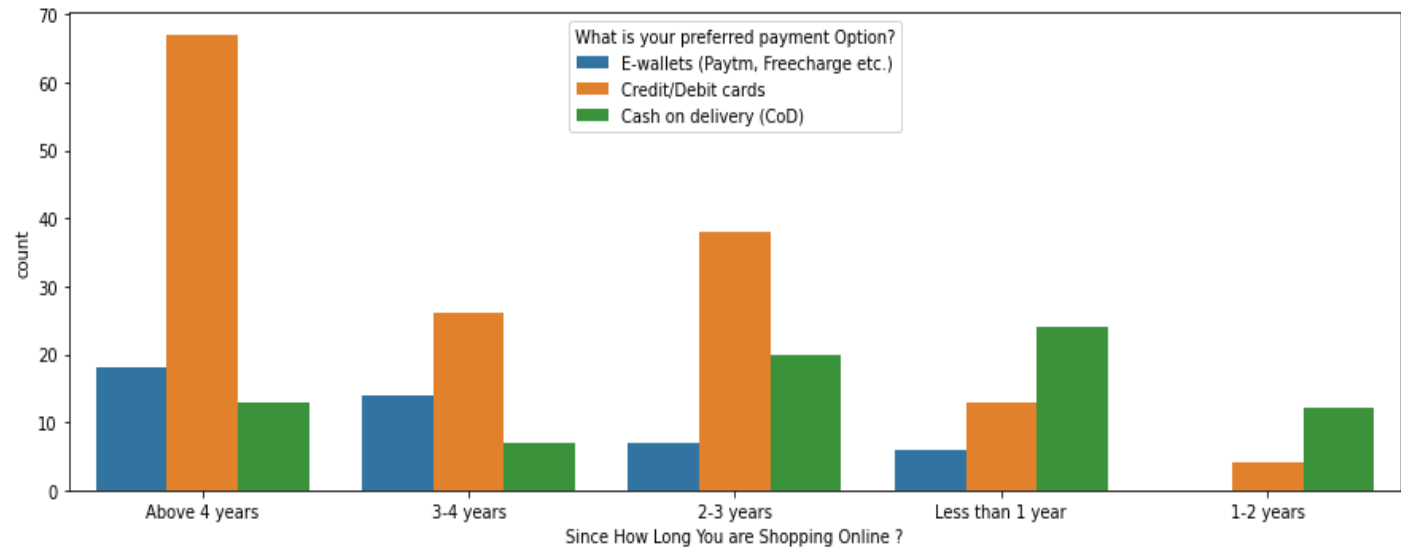
```
plt.figure(figsize=(15,5))
sns.countplot(x='Since How Long You are Shopping Online ?',hue='Which of the Indian online retailer would you recommend to a friend?',dat
a=df)
```

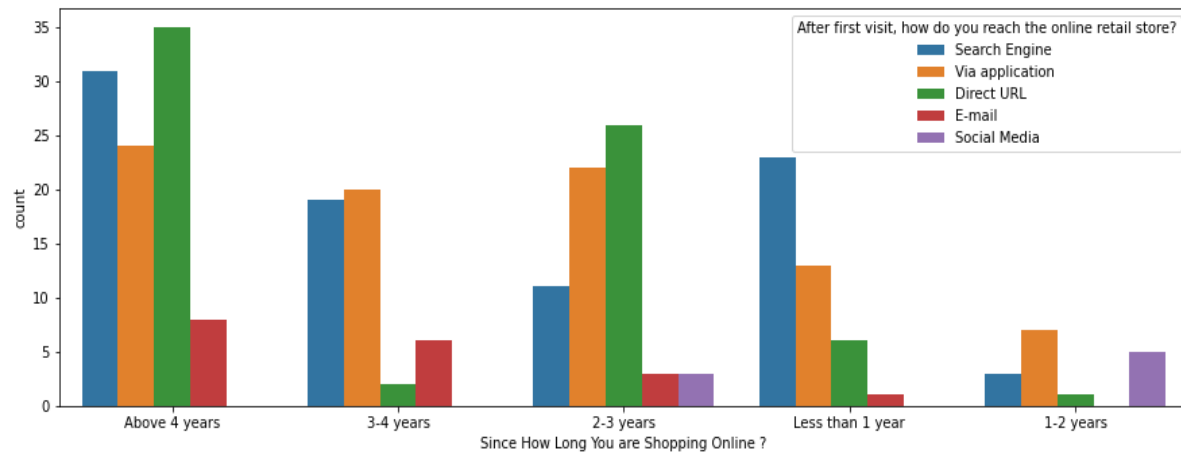<AxesSubplot:xlabel='Since How Long You are Shopping Online ?', ylabel='count'>
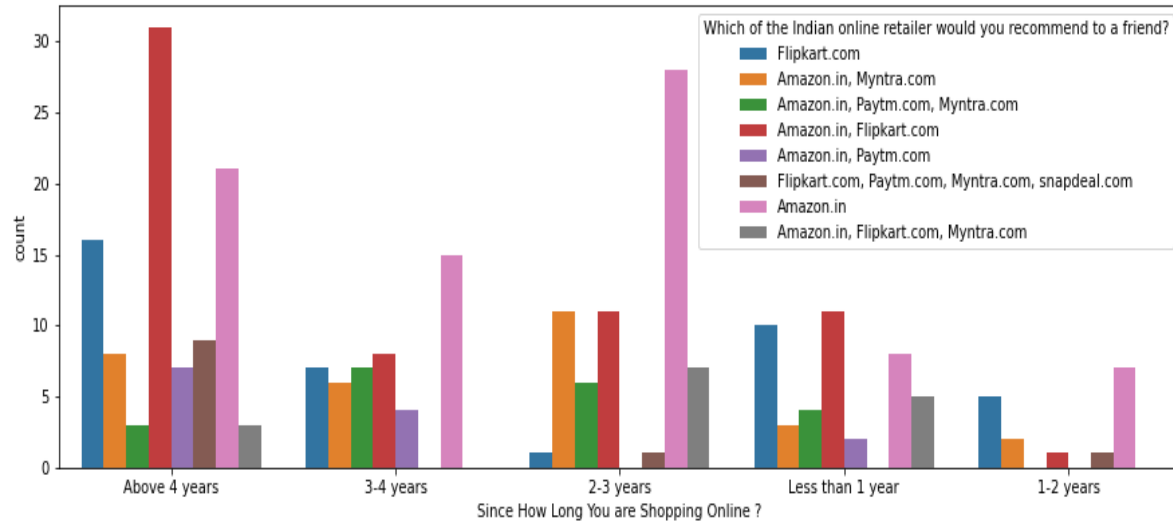


```
plt.figure(figsize=(15,5))
sns.countplot(x='Since How Long You are Shopping Online ?',hue='What is your preferred payment Option?',data=df)
```

<AxesSubplot:xlabel='Since How Long You are Shopping Online ?', ylabel='count'>

```
plt.figure(figsize=(15,5))
sns.countplot(x='Since How Long You are Shopping Online ?',hue='After first visit, how do you reach the online retail store?',data=df)
```

```
<AxesSubplot:xlabel='Since How Long You are Shopping Online ?', ylabel='count'>
```



```
plt.figure(figsize=(15,5))
sns.countplot(x='Since How Long You are Shopping Online ?',hue='Which device do you use to access the online shopping?',data=df)
```

```
<AxesSubplot:xlabel='Since How Long You are Shopping Online ?', ylabel='count'>
```



## Observations

- Most of the male are around 31-40 years while female are around 21-30 years of age.

- Most male shop from Delhi and Noida while female shop from Greater Noida region and Bangalore. Solan and Meerut don't have male customers while Moradabad and Bulandshahr don't have female customers.

- Both male and female customers have been shopping for more than 4 years.

- Both male and female use mobile internet to gain internet while a small sect of male use dial up connection.

- Both male and female arrive at the website thorugh search engine
- Male arrive through search engines and direct URL while females use app for surfing their favourite store.
- Females take the maximum time to decide on their purchase.
- Both male and female abandon the cart because they get better alternative offer.
- Male would recommend Amazon to their friend while female would recommend both amazon and flipkart.
- We can clearly see that most of the time people abandon the bag is beacuse they get a better alternative offer or promo code not applicable. There is also lack of trust seen in amazon, flipkart and paytm by some people.
- Paytm has longer delivery period in Greater Noida and Karnal, Snapdeal has in Delhi, Flipkart has in Bangalore, Amazon has in Solan, Myntra has in Greater Noida.
- Amazon delivers the fastest in Bangalore, Flipkart in Ghazaiabad.
- People shopping for a long time have been using laptops while the rest rely on smartphones.

- Even though people who are shopping online for more than 3 years donot use the application rather use search engine and direct url's in large numbers.
- People who have been shopping for less than 2 years rely on COD while the rest trust enough to use their credit/debit cards.
- Amazon and flipkart are the most trusted brands and peple would recommend these platforms to their friends irrespective of their years of shopping experience.

## Conclusion

The purpose of this study is to understand the influence of utilitarian values, hedonic values, customer experience and perceived risk on E-commerce customer satisfaction in India.

The analysis shows that the Utilitarian Value significantly influences Customer Satisfaction, meaning that the level of Utilitarian Value of e-commerce customers will affect the level of Customer Satisfaction. In other words, the better (higher) Utilitarian Value given by e-commerce products will lead to satisfaction with customers. Hedonic Value significantly influences Customer Satisfaction, meaning that the high and low Hedonic Value of e-commerce customers will affect the level of Customer Satisfaction. In other words, the higher the Hedonic Value given by e-commerce products will lead to the satisfaction of e-commerce customers.

Based on all the factors mentioned above, we see Amazon and Flipkart are doing great in their performance on customer satisfaction and retention.