Customer Retention

Submitted by:

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ACKNOWLEDGMENT

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

We are highly indebted to Flip Robo technology 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 thanks and appreciations also go to our colleague in developing the project and people who have willingly helped us out with their abilities.

Thanks all.

Ram kmar

INTRODUCTION

- Customer satisfaction has emerged as one of the most important factors that guarantee the success of online store; it has been posited as a key stimulant of purchase, repurchase intentions and customer loyalty.

- A comprehensive review of the literature, theories and models have been carried out to propose the models for customer activation and customer retention. Five major factors that contributed to the success of an e-commerce store have been identified as: service quality, system quality, information quality, trust and net benefit.

- The research furthermore investigated the factors that influence the online customers repeat purchase intention. The combination of both utilitarian value and hedonistic values are needed to affect the repeat purchase intention (loyalty) positively.

- The data is collected from the Indian online shoppers. Results indicate the e-retail success factors, which are very much critical for customer satisfaction.

Analytical Problem Framing

- Import library and load the dataset.

importing required libraries

```
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
import warnings
warnings.filterwarnings('ignore')
```

```
#load dataset
import pandas as pd
df = pd.read_excel('C:/Users/dipak/Desktop/customer_retention.xlsx')
df.head(3)
```

	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)	Longe loadir (pron sales p
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	Flipk
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	Snapde
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	Mynt

3 rows × 71 columns

- Display all column name of dataset.

```
#checking data dimension
df.shape
```

```
(269, 71)
```

```
#display columns of dataframe
df.columns
```

```
Index(['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 What is your preferred payment Option?\t\t\t\t\t
',
       '16 How frequently do you abandon (selecting an items and leaving without making payment) your shopping cart?\t\t\t\t\t
\t\t                                                  ',
       '17 Why did you abandon the “Bag”, “Shopping Cart”?\t\t\t\t\t
',
       '18 The content on the website must be easy to read and understand',
       '19 Information on similar product to the one highlighted  is important for product comparison',
       '20 Complete information on listed 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'
```

- Display datatypes and sum of null values.

```
#display datatypes of columns
df.dtypes
```

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

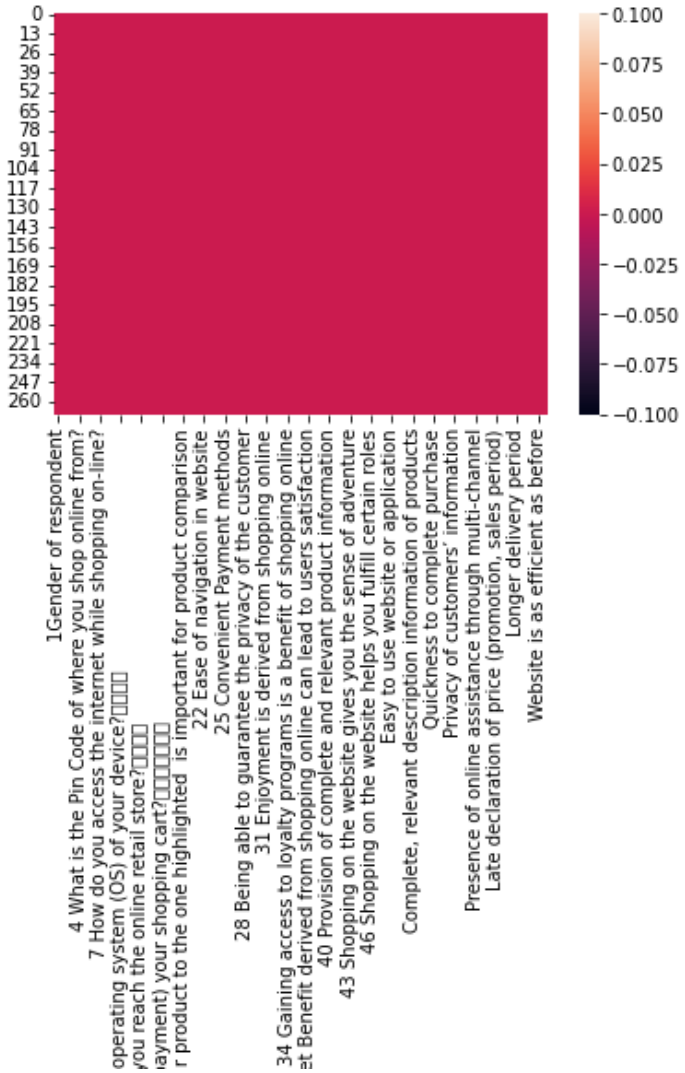
```
#display sum of null values in columns
df.isnull().sum()
```

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

- Display null values of columns using heatmap.

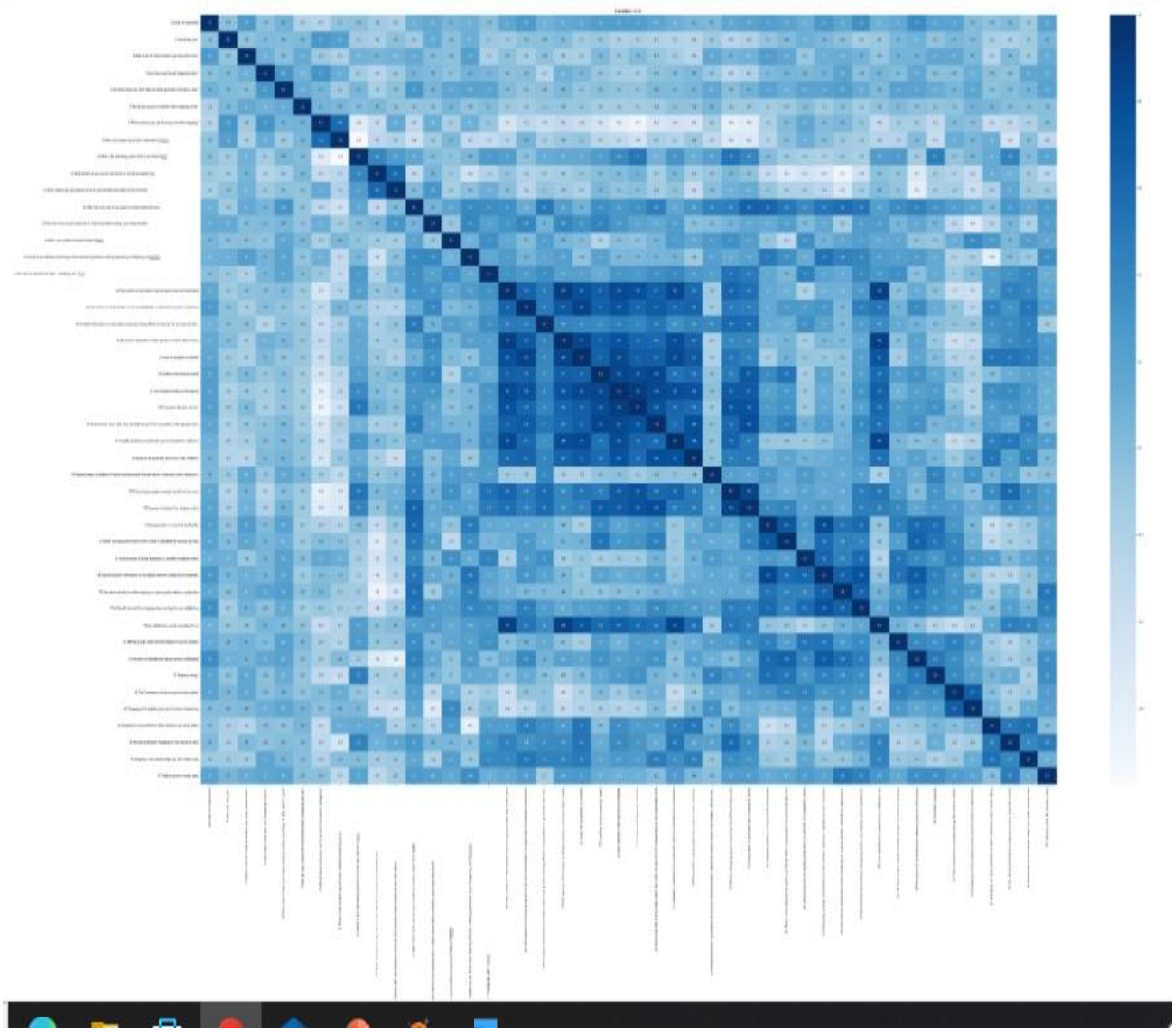
```
#display heatmap of null values in columns
sns.heatmap(df.isnull())
```

```
<AxesSubplot:>
```



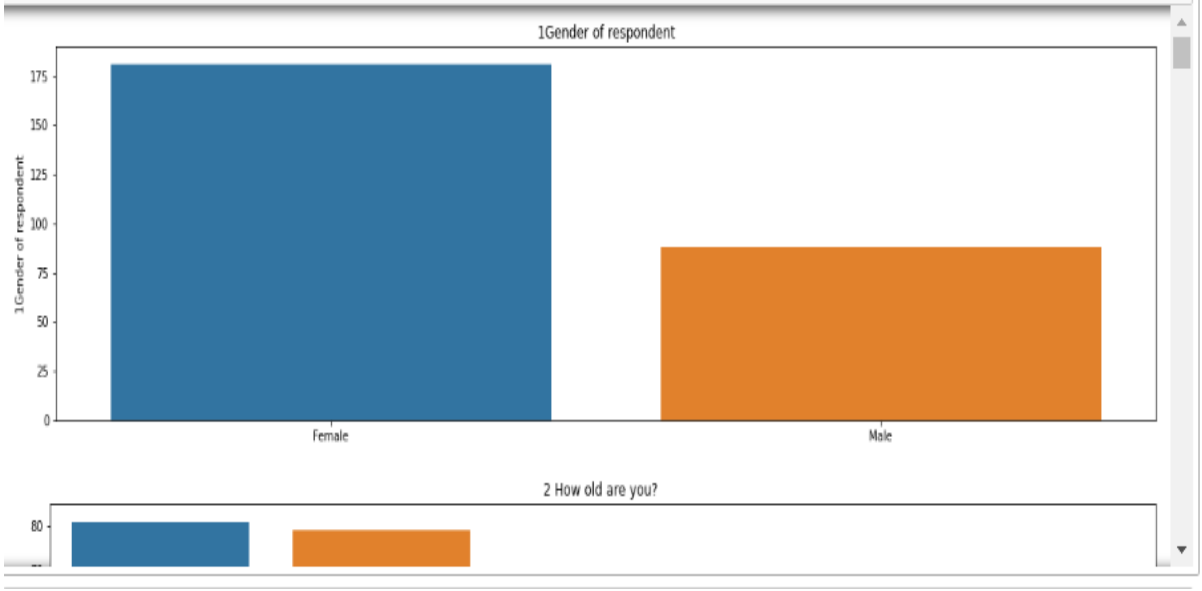
- Display correlation of columns using heatmap.

```
#check correlation matrix with heatmap.
corr_mat = df2.corr()
plt.figure(figsize=(80,40))
sns.heatmap(corr_mat, annot=True, fmt = '.1f',cmap = 'Blues')
plt.title('Correlation matrix')
plt.show()
```



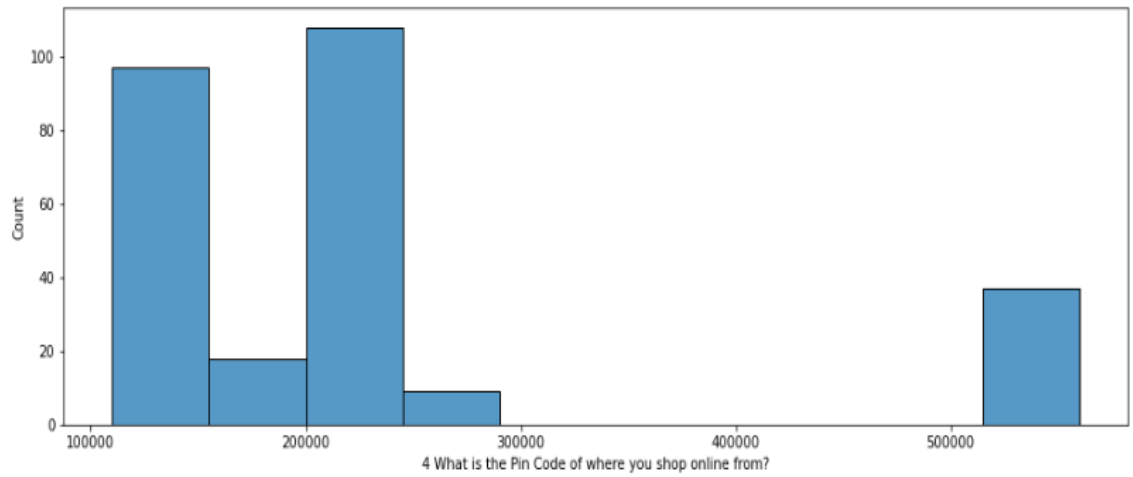
- Display barplot of all columns.

```
#barplot of all columns.
for i in df.columns:
    plot = plt.figure(figsize=(20,5))
    sns.barplot(df[i].value_counts().index,df[i].value_counts()).set_title(i)
    plt.show()
```



- Display histplot of city pincode column.

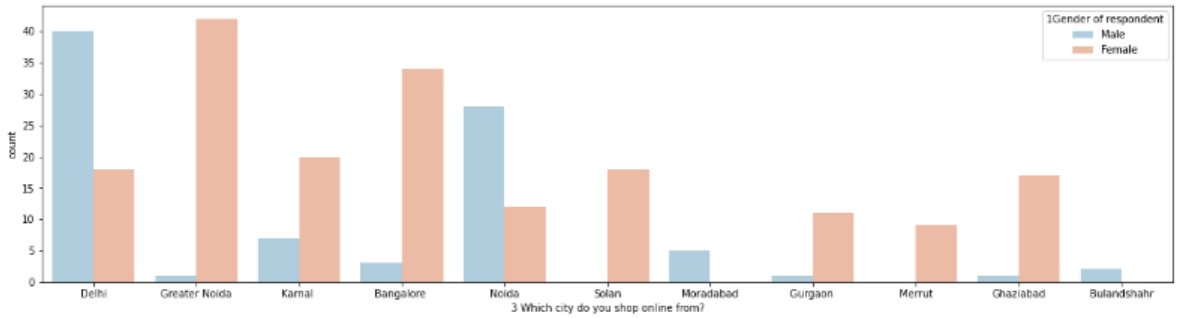
```
#dislay histplot of pinccode column.
plt.figure(figsize=(15,5))
sns.histplot(x = '4 What is the Pin Code of where you shop online from?', data=df, multiple='dodge', bins=10)
plt.show()
```



- Display countplot of two categorical variables.

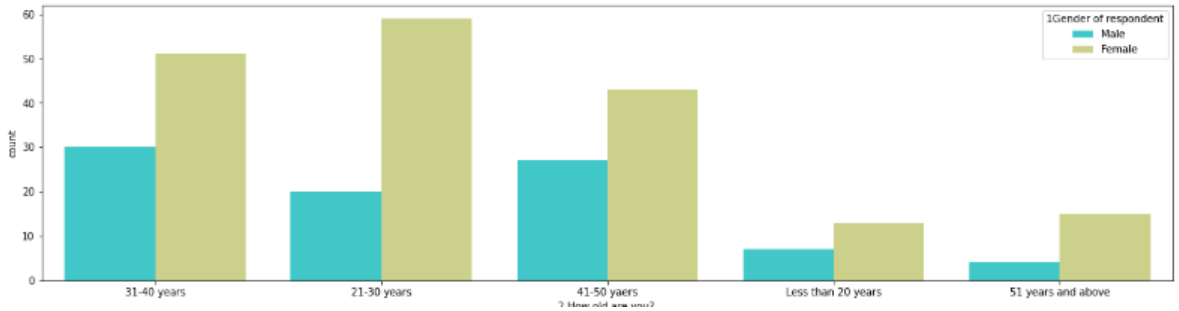
```
#count plot on two categorical variable.
plot = plt.figure(figsize=(20,5))
sns.countplot(x='3 Which city do you shop online from?', hue='1Gender of respondent', data=df, palette='RdBu_r')
```

```
<AxesSubplot:xlabel='3 Which city do you shop online from?', ylabel='count'>
```



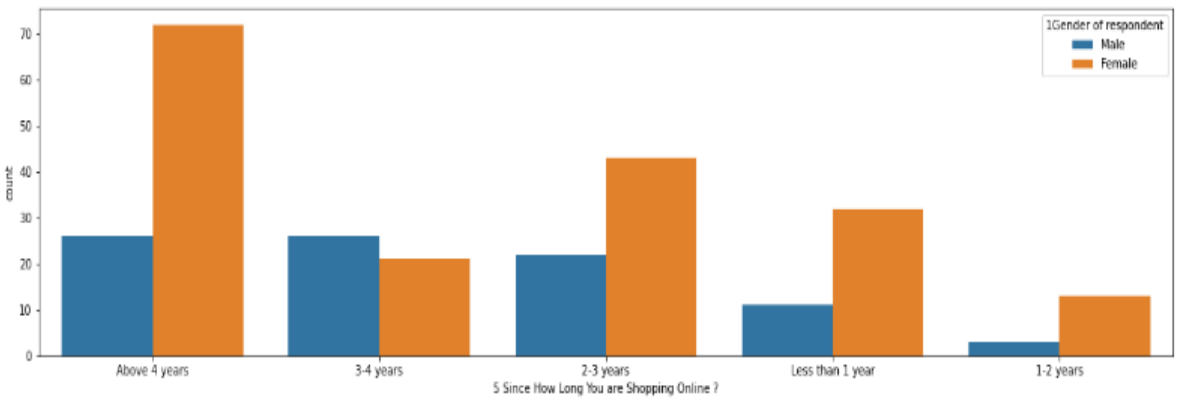

```
#count plot on two categorical variable.
plot = plt.figure(figsize=(20,5))
sns.countplot(x='2 How old are you? ', hue='1Gender of respondent', data=df, palette='rainbow')
```

```
<AxesSubplot:xlabel='2 How old are you? ', ylabel='count'>
```



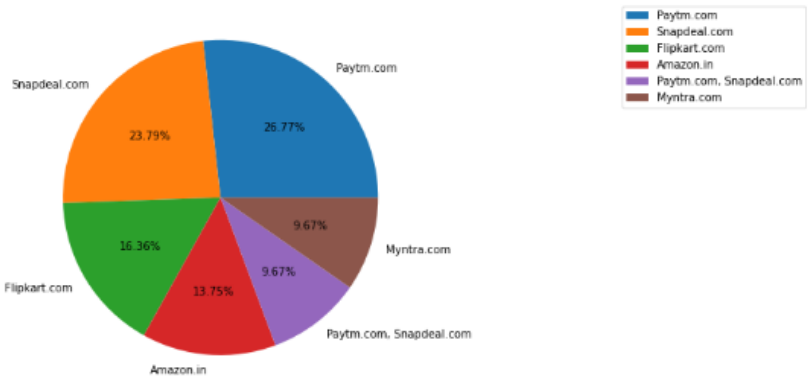

```
#count plot on two categorical variable.
plot = plt.figure(figsize=(20,5))
sns.countplot(x='5 Since How Long You are Shopping Online ?', hue='1Gender of respondent', data=df)
```

```
<AxesSubplot:xlabel='5 Since How Long You are Shopping Online ?', ylabel='count'>
```



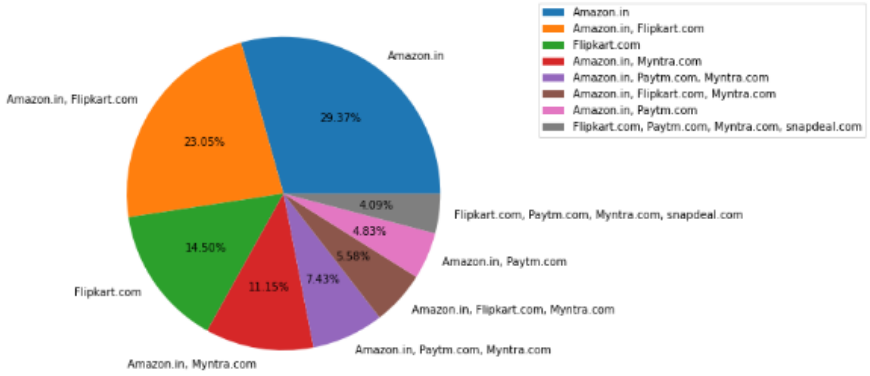
- Display pie chart of longer delivery variable.

```
#display pie chart of target variable.
fig = plt.figure(figsize=(15,5))
ax = fig.add_axes([0,0,1,1])
ax.axis('equal')
ax.pie(your_values,labels=your_labels,autopct='%2.2f%%')
plt.legend()
plt.show()
```



- Display pie chart of which Indian online retailer recommend to a friend (target) variable.

```
#display pie chart of target variable.
fig = plt.figure(figsize=(15,5))
ax = fig.add_axes([0,0,1,1])
ax.axis('equal')
ax.pie(your_values,labels=your_labels,autopct='%2.2f%%')
plt.legend()
plt.show()
```



- Hardware and Software Requirements and Tools Used

- **Language :-** Python
- **Tool:-** Jupyter
- **OS:-** Windows 10
- **RAM:-** 8gb

CONCLUSION

- As per visualization and analysis Amazon and Flipkart are best Indian online retailer to recommend as a friend because of delivery speed, reliability trustworthy in customer privacy, security, wild variety of product, user friendly content and graphics etc.