

# PROJECTS

## CUSTOMER RETENTION

Submitted By:

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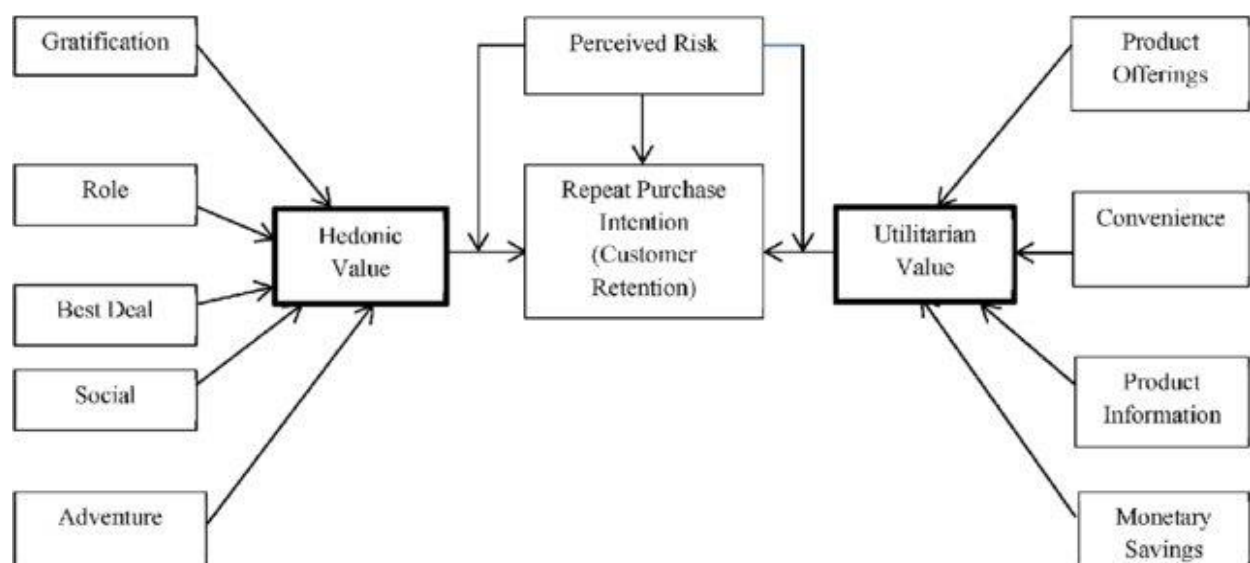
Acknowledgement:

References:

1. google.com
2. ibm.com
3. Wikipedia

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

Customer satisfaction has emerged as one of the most important factors that guarantee the success of online store; it has been posited as a key stimulant of purchase, repurchase intentions and customer loyalty. A comprehensive review of the literature, theories and models have been carried out to propose the models for customer activation and customer retention. Five major factors that contributed to the success of an e-commerce store have been identified as: service quality, system quality, information quality, trust and net benefit. The research furthermore investigated the factors that influence the online customers repeat purchase intention. The combination of both utilitarian value and hedonistic values are needed to affect the repeat purchase intention (loyalty) positively. The data is collected from the Indian online shoppers. Results indicate the e-retail success factors, which are very much critical for customer satisfaction.



Key Method Utilitarian value is proposed as a formative second-order construct formed by product offerings, product information, monetary savings and convenience.

Hedonic value is also proposed as a formative second-order construct formed by the six hedonic benefits that have been identified in prior research

## What is customer retention?

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

## Benefits of Customer retention:

Customer retention helps facilitate the growth and stabilization of your customer base and company revenue. By increasing their customer retention rate (CRR), companies can increase profits by over 90%. [1] By consistently delivering value, companies fulfill their brand promises which elevate credibility, trust and brand sentiment.

Here are the four major benefits of customer retention:

- 1.Customer loyalty: Current customers already trust your brand, so it is easier to make them repeat customers.
- 2.Brand ambassadorship: Loyal customers act as vehicles of brand sentiment and customer acquisition via word-of-mouth marketing (e.g. testimonials and referrals).
- 3.Cost savings: Repeat customers trust the brand, so there is no need for an extensive retention marketing strategy or advertising spend (versus new customers that require extensive spend to create brand sentiment and trust).
- 4.Improved profitability: Satisfying new and repeat customers sustains loyalty and increases the bottom line. In fact, happy customers are prone to make repeat purchases over a longer period of time.

## Analytical Problem Framing:

We are using the data provided by the service provider in the Microsoft excel format(.xlsx).  
The sample data for the reference is as shown below:

df.sample(2)

1 Gender 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?	10 What is the operating system (OS) of your device?	11 What browser do you run on your device to access the website?	12 Which channel did you follow to arrive at your favorite online store for the first time?	13 After first visit, how do you reach the online retail store?	14 How much time do you explore the e-retail store before making a purchase decision?	15 What is your preferred payment Option?
Female	41-50 yaers	Merrut	250001	2-3 years	31-40 times	Mobile internet	Desktop	Others	Window/windows Mobile	Google chrome	Search Engine	E-mail	6-10 mins	Credit/Debit cards
Female	21-30 years	Karnal	132001	Less than 1 year	41 times and above	Wi-Fi	Smartphone	5.5 inches	Android	Google chrome	Search Engine	Via application	11-15 mins	E-wallets (Paytm, Freecharge etc.)

### • Information about Dataset:

The dataset is having 269 rows and 71 columns. I have used profiling report and seaborn for detailed analysis of each features as there are multiple features in the dataset.

### • Data Sources and their formats:

The dataset is provided by service provider and the format is xlsx. There are two sheets (one is detailed) and second is encoded in the excel file. I have used the detailed excel sheet.

### • Data Pre-processing :

- 1) Importing Libraries.
- 2) Read the CSV file and convert into data frame.
- 3) Checking the data dimensions for the original dataset.
- 4) Looking for null values if any, in heat map.
- 5) Checking the summary of the dataset.
- 6) Checking unique values.
- 7) Checking all the categorical columns in the dataset.
- 8) Visualizing each features using matplotlib and Seaborn.
- 9) Performed encoding.

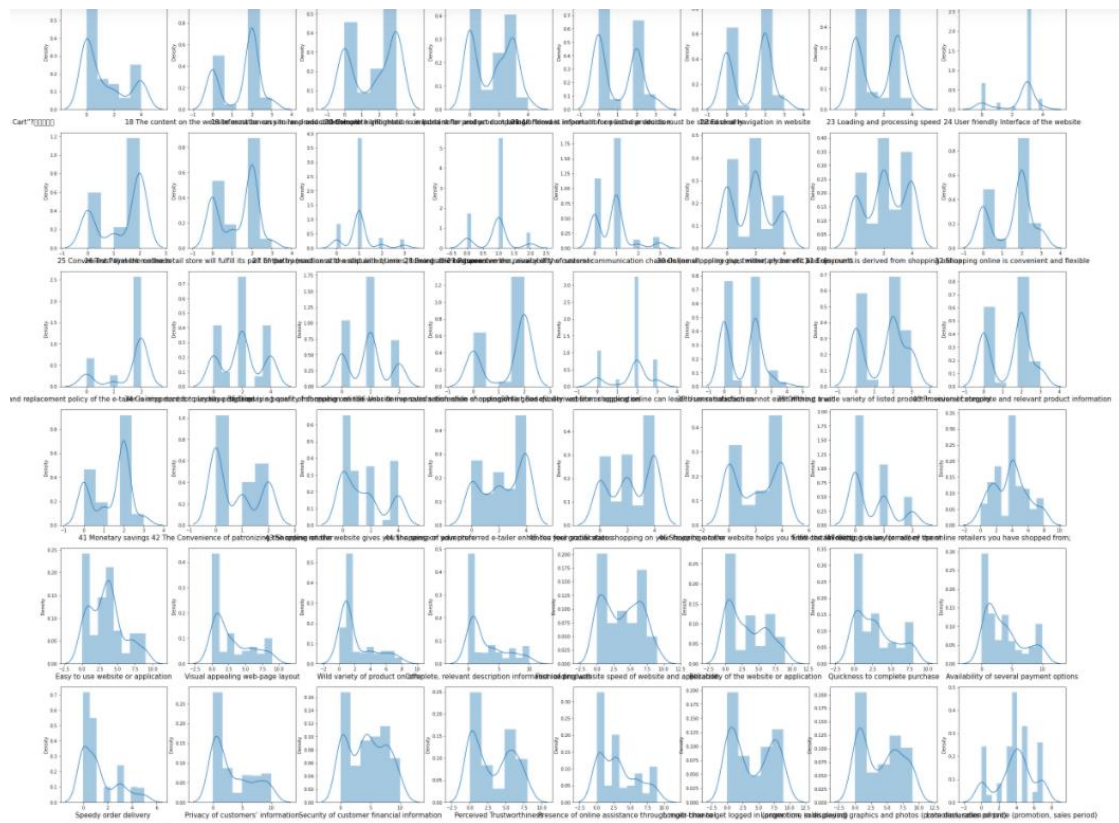
10) Checked for co-relation.

11) Checked for Outliers/Skewness.

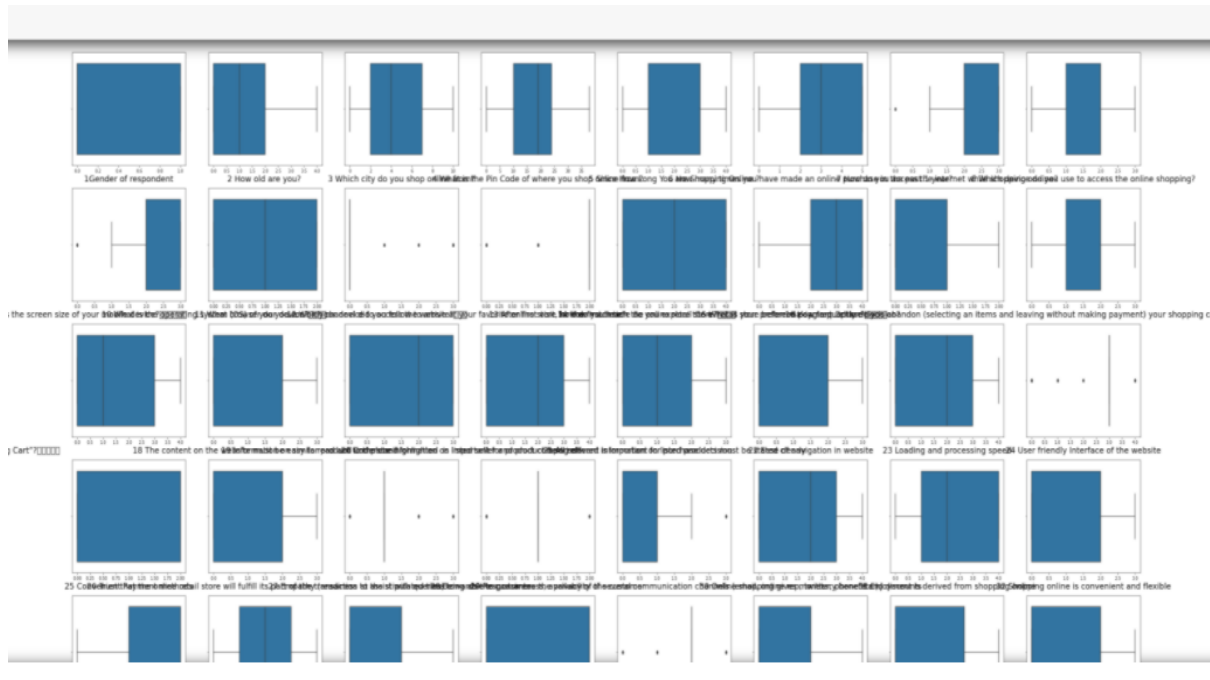
## • Exploratory Data Analysis through Visualizations :

- 1) Profiling Report analysis
- 2) Checked for the trend and patterns for each features to decide feature importance.
- 3) Visualizing each features using matplotlib and Seaborn to check the relationship and count of each features.

**Skewness:** (*checked & removed*)



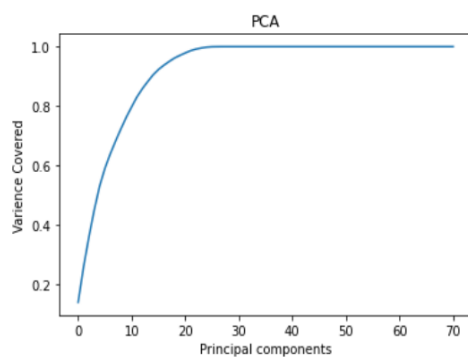
Outliers: (checked & removed)



## PCA: Principal component Analysis

(For best 25 components)

```
plt.xlabel('Principal components')
plt.ylabel('Variance Covered')
plt.title('PCA')
plt.show()
```



```
: pca=PCA(n_components=25)
```

```
: new_pcomp=pca.fit_transform(x_scaled)
```

```
: princi_comp=pd.DataFrame(new_pcomp,columns=['PC1','PC2','PC3','PC4','PC5','PC6','PC7','PC8','PC9','PC10','PC11','PC12','PC13','PC14','PC15','PC16','PC17','PC18','PC19','PC20','PC21','PC22','PC23','PC24','PC25'])
```

```
: princi_comp
```

## Observations:

- all columns are object types only '4 What is the Pin Code of where you shop online from?' is integer type
- There is no missing value present in the dataset
- There is no missing value present in the dataset
- 31-40 years age group customers are more who are doing online purchase and 21-50 years of age group of people also doing online shopping
- 201308 has the maximum number of counts for online shopping
- Delhi has a maximum number of customers followed by greater Noida & Noida
- Bulandshahr city has a minimum number of buyers for online shopping
- maximum buyers are preferred online shopping since 4+ years
- Maximum number of online buyers purchased less than 10 products in past one year.
- Mobile internet access is more while shopping online
- Smart Phone has been used more for online shopping followed by laptop
- Smartphones having screen sizes other than 4.7, 5.5 & 5 inches had been used more times for online shopping
- Window/windows OS is the max used in customers device than android and mac/iOS
- Google Chrome browser is used maximum times to access the website as compared to other browsers
- maximum customer follow search Engine to arrive at favourite online store
- customers explore the particular website more than 15 times before making a purchase decision
- Credit/Debit has been used more than other options for online purchases
- Maximum buyer chooses to add the product to the cart & leave without making payment because of a better alternative offer
- Content & all relevant information on the website must be easy to read & understand
- Maximum number of people strongly agree that information on a similar product to the one highlighted is important for product comparison
- Maximum number of people strongly agree that complete information on the listed sellers and the product being offered is important for purchase decisions
- Most buyers strongly agree that the loading & processing speed of the website should be fast which makes the website user- friendly
- For online purchases, the payment method is a key factor to retain the customer, also buyers trust that online retail stores would fulfill their part of the transaction at the stipulated time
- More number of customers strongly agree that customer service & customer privacy is very much important to retain the customer
- Online shopping provides monetary benefits and discounts on the product that customers would buy for & visit the website again to shop
- Maximum number of people enjoys online shopping, which is more convenient & easier to use

- Most buyers strongly agree that the return & replacement policy is important for purchase decisions
- 
- People strongly agreed that gaining access to loyalty programs is a benefit of online shopping
- Maximum number of customers strongly agree that provided quality information on the website improves satisfaction & trust of the customer
- Offering a wide variety of products in several categories with correct information helps to retain the customer
- Frequent online shopping gives a sense of adventure
- Shopping on your preferred e-tailer enhances social status is indifferent to the maximum number of customers
- • Most people prefer to shop online from Amazon.in, Flipkart.com, Paytm.com, Myntra.com & Snapdeal.com as these are more user friendly
- The best visually appealing web page layout is Amazon.in & flipkart.com
- Wide variety of products & its offer are mostly available on Amazon.in & flipkart.com.
- Complete, relevant description information of products are available in Amazon.in & flipkart.com
- Amazon is best in terms of Trustworthiness/reliability, quickness to complete purchase & fast loading speed on website & application
- Amazon & Flipkart.com has several payment options whereas Snapdeal has a limited mode of payment method
- Amazon gives speedy delivery of products fooled by flipkart and snapdeal
- Amazon has capacity of keeping longer time to get logged in (promotion, sales period)
- Amazon, Flipkart takes longer time in displaying graphics and photos (promotion, sales period)
- Myntra delays late declaration of price (promotion, sales period)
- Myntra and Paytm takes longer time for page loading time (promotion, sales period)
- Snapdeal has limited mode of payment on most products (promotion, sales period)
- Amazon mostly Change in website/Application design
- Amazon disrupts frequently when moving one page to another
- customer recommended Amazon as a Indian online retailer to their friends

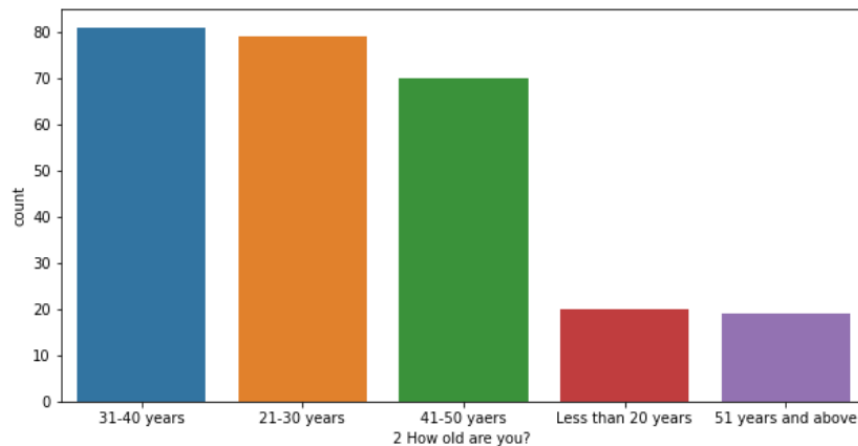


## Graphical findings:

- Age of the customers: Customers by the age group of 31-40 years and 21-30 years have highly active online transactions compared to other lower and higher age groups

```
In [32]: plt.figure(figsize=(10,5))  
sns.countplot(x='2 How old are you? ',data=df)
```

```
Out[32]: <AxesSubplot:xlabel='2 How old are you? ', ylabel='count'>
```

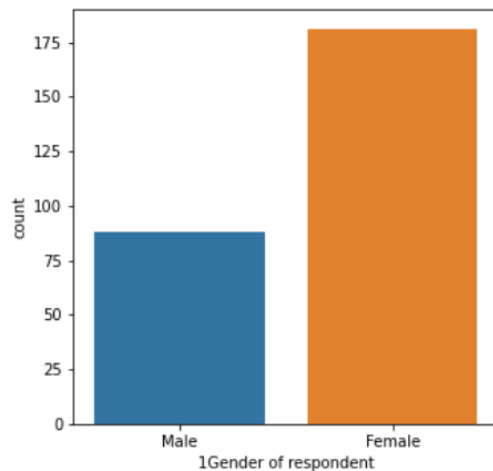


```
In [ ]: # Observation:  
# 31-40years agegroup customers are more who are doing online purchase  
# Almost 21-50years age group of people doing online shopping  
# below 20 and 51 and above people dont like online shopping
```

- Gender of the customers: Female Customers are more than male customers

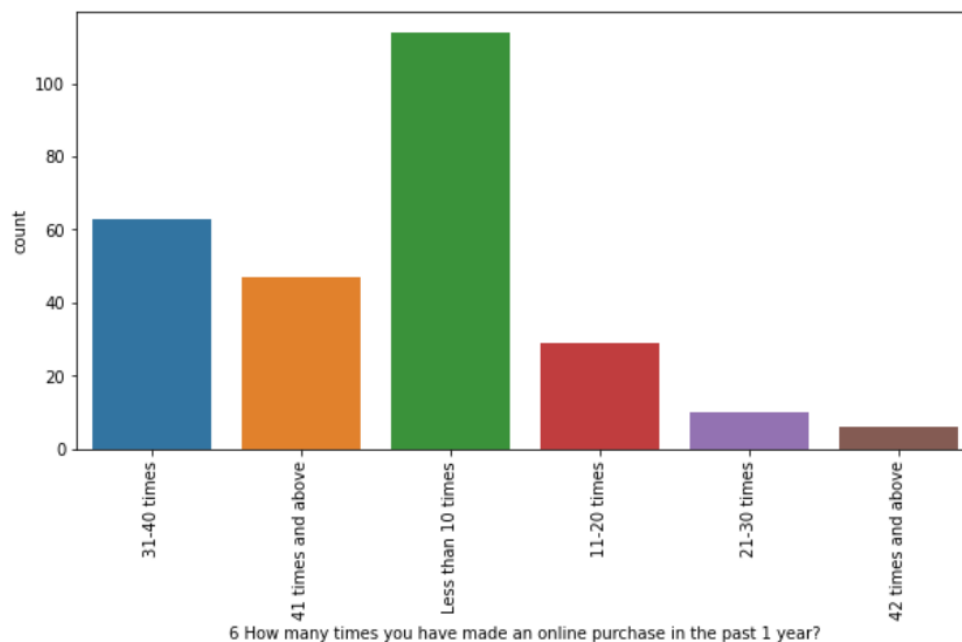
```
In [30]: plt.figure(figsize=(5,5))
sns.countplot(x='1Gender of respondent',data=df)
```

```
Out[30]: <AxesSubplot:xlabel='1Gender of respondent', ylabel='count'>
```

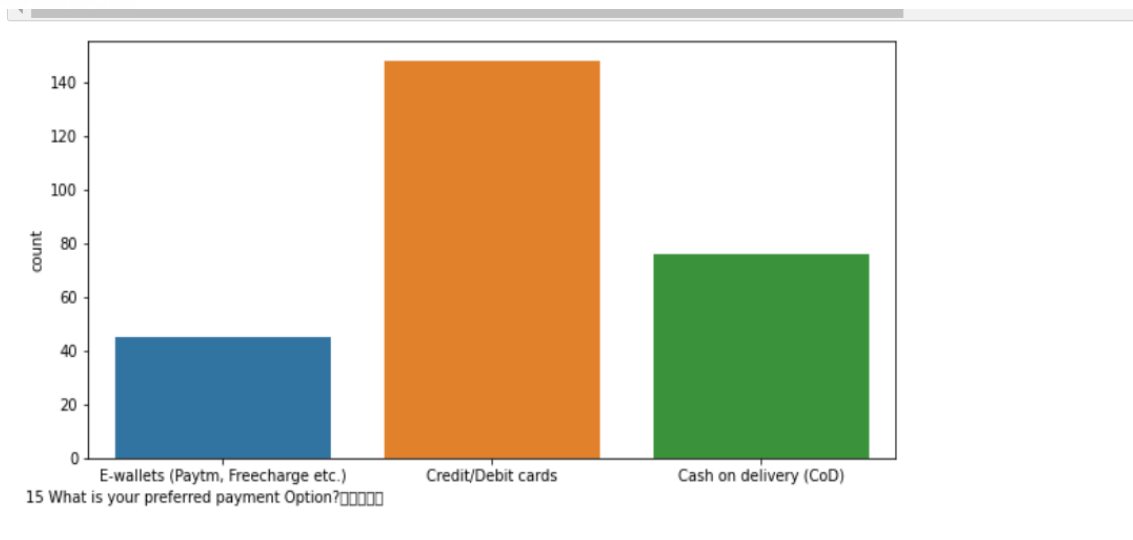


```
In [ ]: # Observation:
# female customer is more than male customers
```

- Number of times shopping is made in past one year: Highest number of people shopped online less than 10 times in the past one year

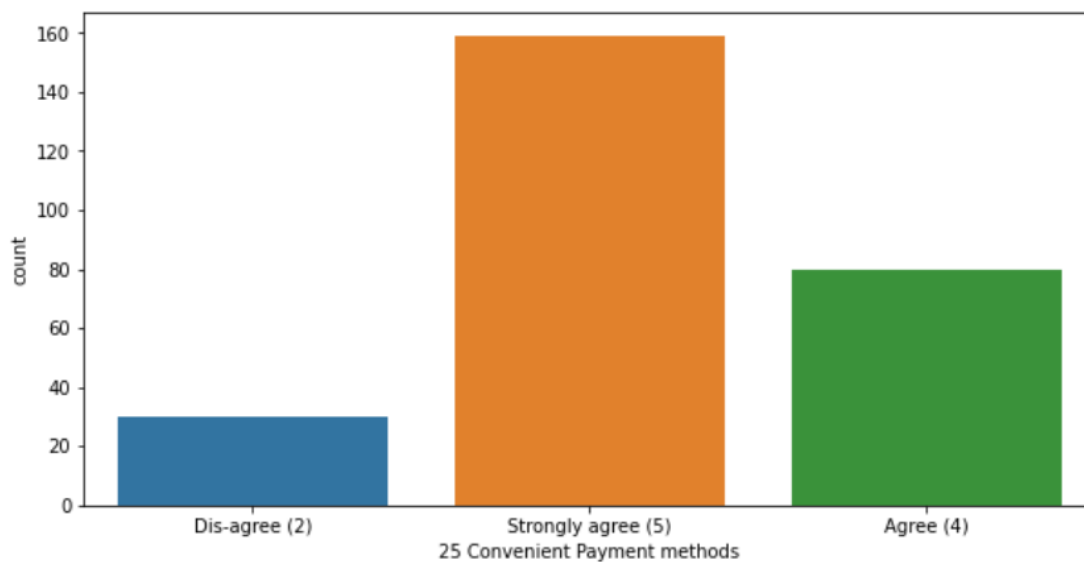


- Customers preferred payment option: Most customers prefer Credit/Debit cards as a payment option, while some of the customers prefer Cash on delivery.



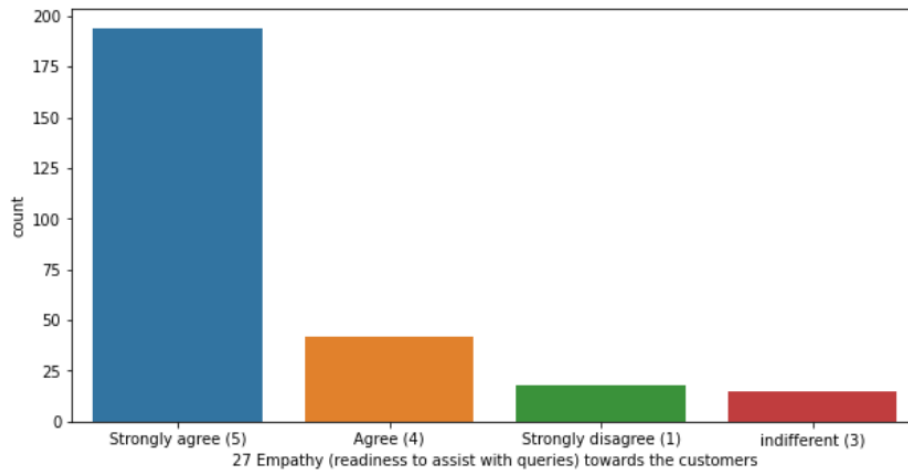
- Customers preferred convenient payment method: Most customers prefer convenient payment method for payment option.

```
plt.figure(figsize=(10,5))
sns.countplot(x='25 Convenient Payment methods',data=df)
plt.xticks(rotation=0)
plt.show()
```



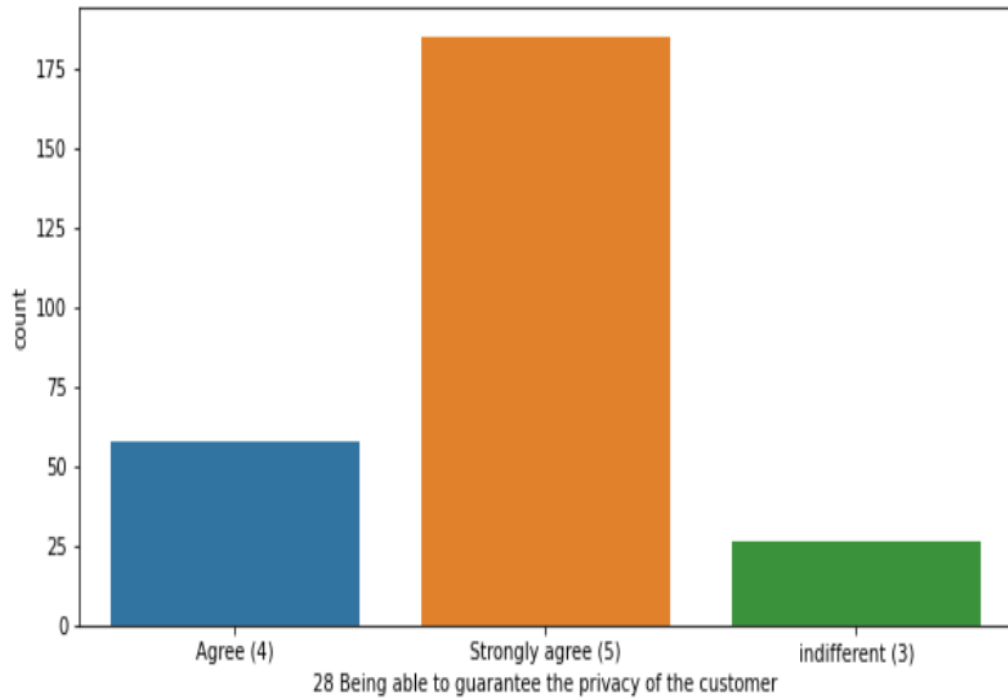
- Empathy towards customers: Most customers strongly believe that Empathy towards customers are necessary for online shopping

```
plt.figure(figsize=(10,5))
sns.countplot(x='27 Empathy (readiness to assist with queries) towards the customers',data=df)
plt.xticks(rotation=0)
plt.show()
```

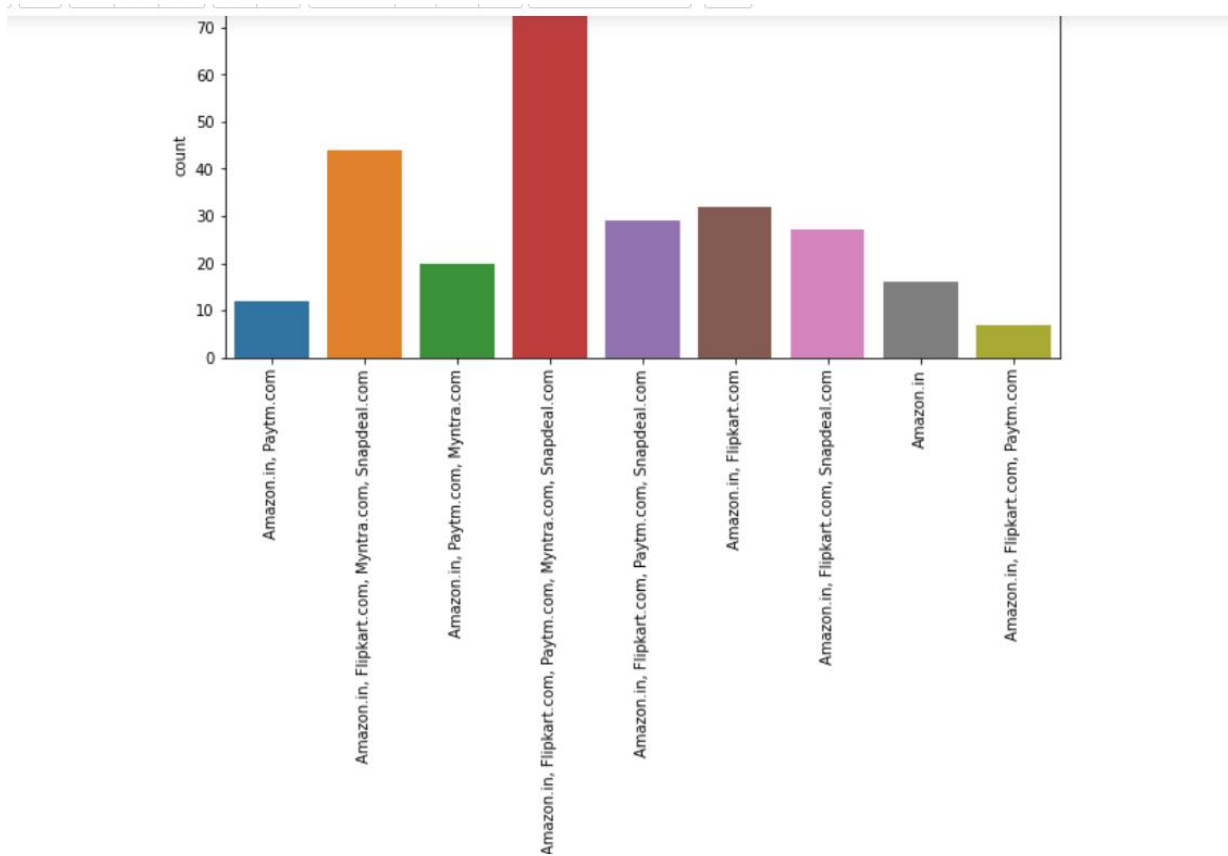


- Privacy of customers: Most customers strongly believe that privacy of customers are necessary for online shopping

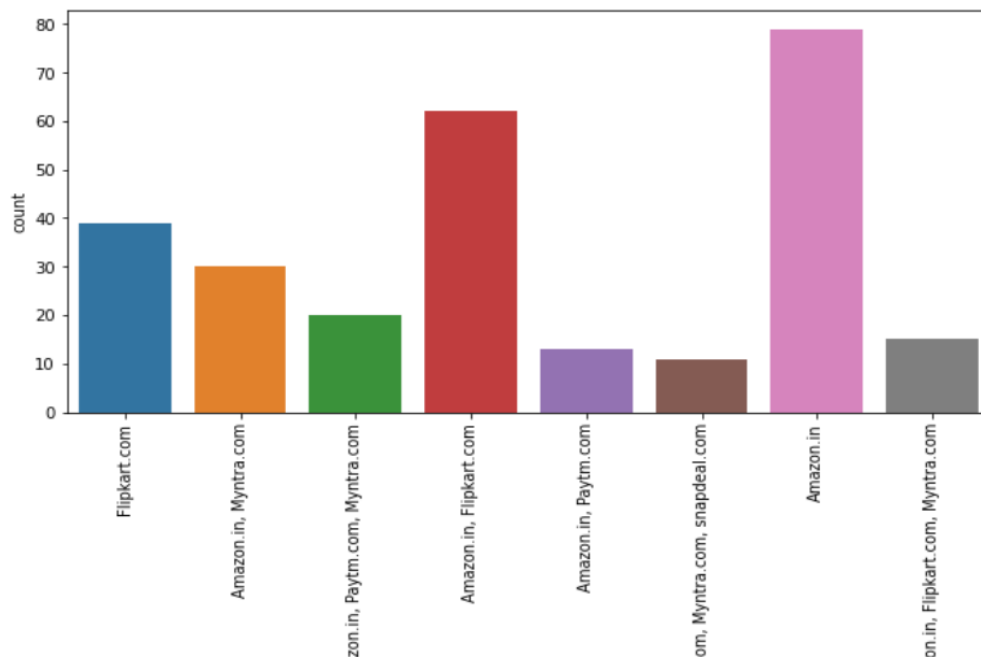
```
In [53]: plt.figure(figsize=(10,5))  
sns.countplot(x='28 Being able to guarantee the privacy of the customer',data=df)  
plt.xticks(rotation=0)  
plt.show()
```



- Online Retailer: Most customers believe in Amazon.in, flipkart.com, Paytm.com, snapdeal.com

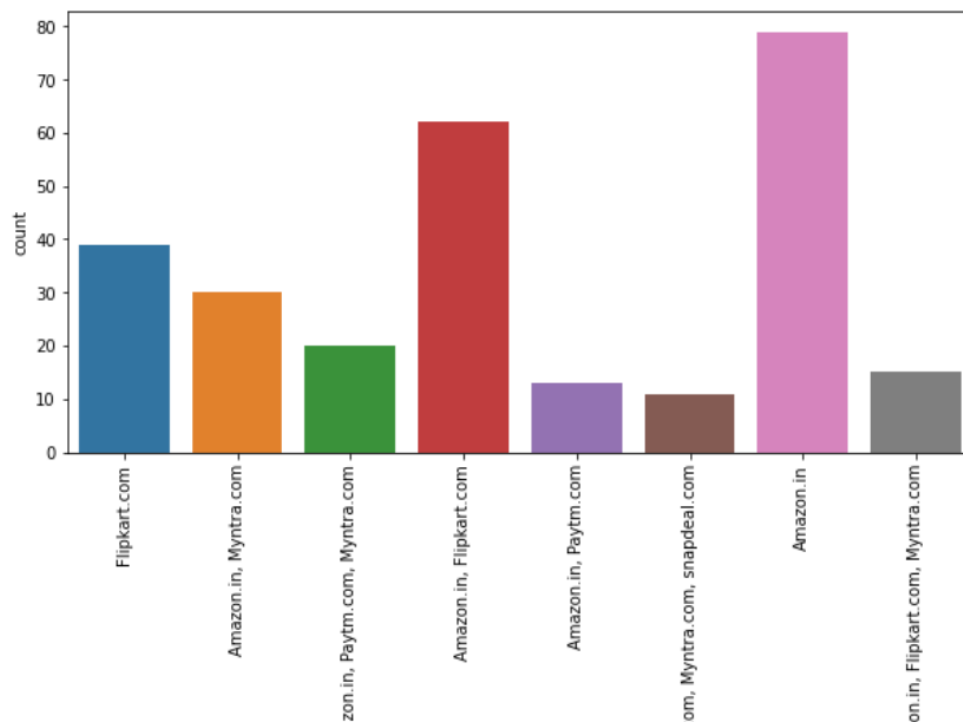


- Online Retailer: Most customers believe in Amazon.in, flipkart.com, Paytm.com, snapdeal.com

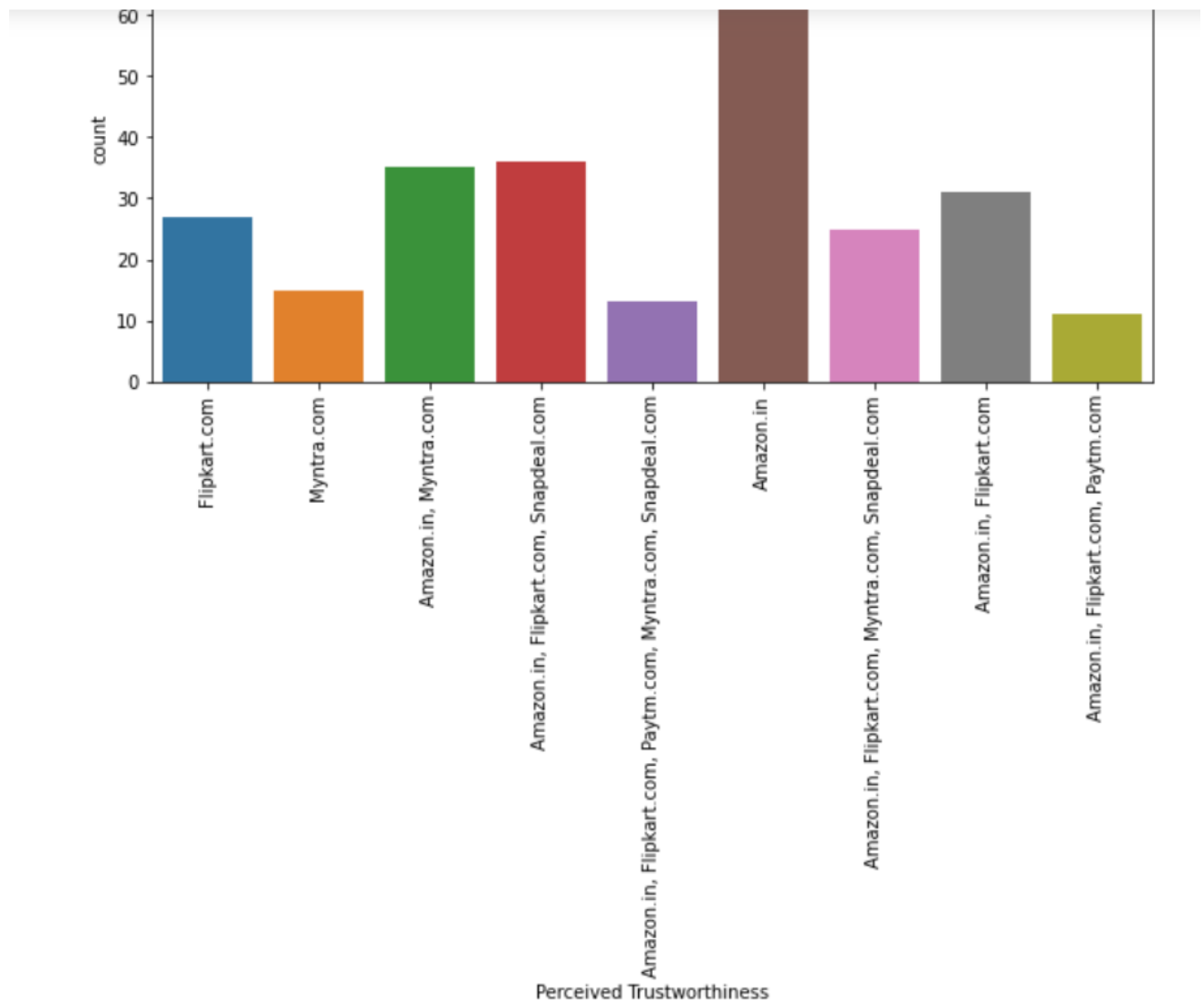


- Online Retailer: Most customers believe in Amazon.in then flipkart.com

```
plt.figure(figsize=(10,5))  
sns.countplot(x= 'Which of the Indian online retailer would you recommend to a friend?',data=df)  
plt.xticks(rotation=90)  
plt.show()
```

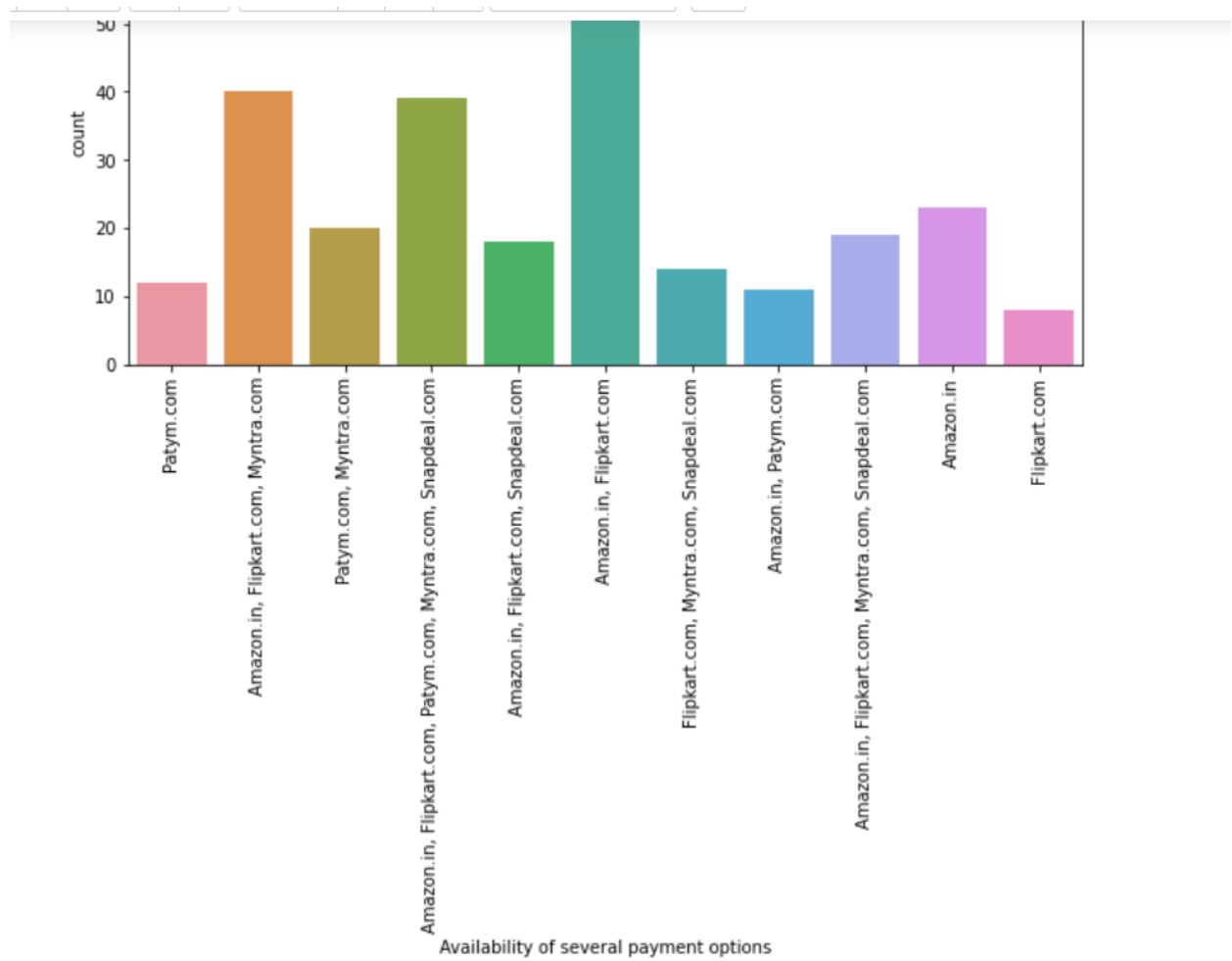


- Perceived trustworthiness : Most trusted shopping site , customers believe in Amazon.in





- Best Online Retailer: Most customers believe in Amazon.in, flipkart.com



## **CONCLUSION:**

Retention analysis is an integral part of your customer retention and marketing strategies. By taking full advantage of the data you collect by tracking customer behaviour, requesting feedback, and studying important metrics, you can decrease the churn rate, improve customer satisfaction, and boost your revenue.

### **• Limitations of this work and Scope for Future Work:**

We are able to properly analyse the valuable feedback of the customers but the dataset was very small as it may result in bias understanding. If we are able to increase the feedbacks from more customers all over, it would provide a great understanding of the strategies that we will have to use to improve customer retention