



Customer Retention Project

Submitted by:

Saket Mirajgave

Acknowledgement

Presenting this report gives me great joy and satisfaction. Working on this project was a fantastic experience that taught me a lot about data analysis. Flip Robo Technologies provided all of the necessary information and datasets, which aided me in finishing the project. I'd like to express my gratitude to Shubham Yadav, my subject matter expert, for providing the dataset and detailed directions for doing the case study.

Sources used.

- www.analyticsvidya.com
- www.stackoverflow.com
- www.towardsdatascience.com

INTRODUCTION

- **Business Problem Framing**

The objective was to perform extensive data analysis on a given dataset and produce valuable insights that will help in customer retention.

- **Conceptual Background of the Domain Problem**

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.

- **Review of Literature**

We have to apply our analytical skills to give findings and conclusion in detailed data analysis.

We may or may not create the Machine learning model.

- **Motivation for the Problem Undertaken**

1. The objective behind to take this project is to harness the required data science skills.
2. Improve the analytical thinking.
3. Get into the real world problem solving mechanics

- Data Sources and their formats

We have been given 2 dataset. Both were same in terms of data but the 2nd file was coded.

The data was collected through the survey.

- Data Preprocessing Done

Below were the steps taken in data pre-processing.

1. Null values

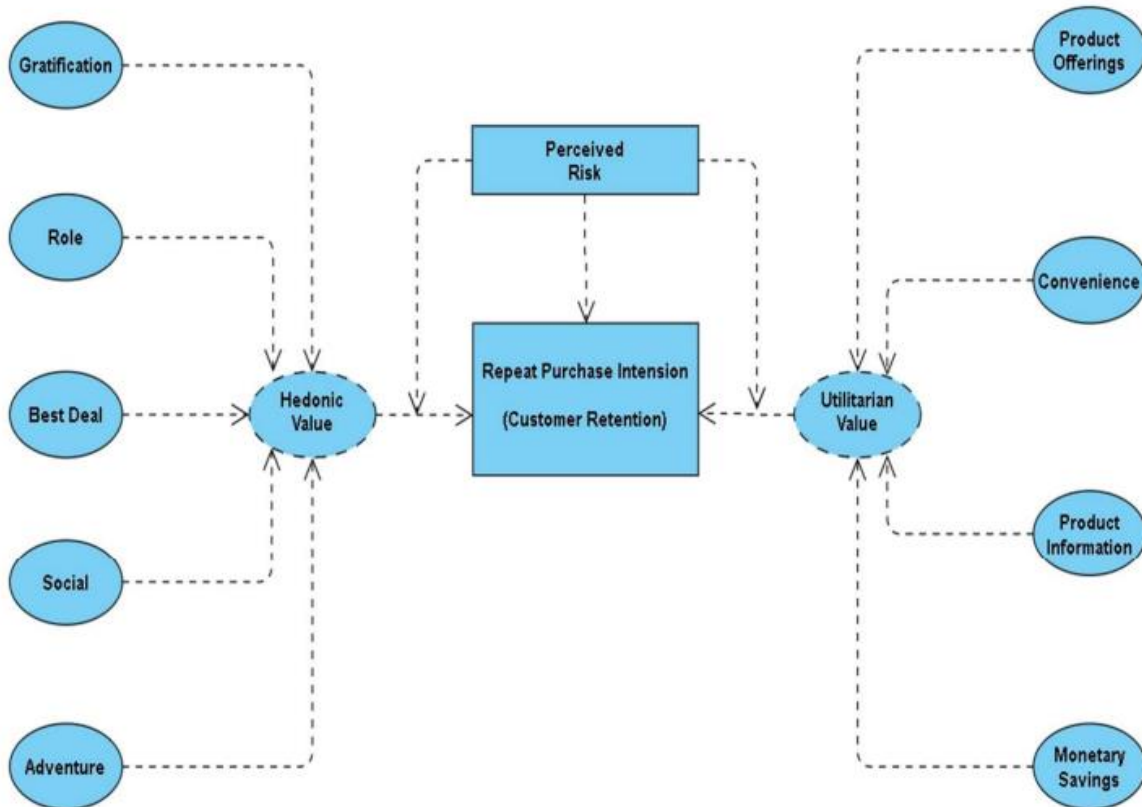
We checked for Null values but there were no Null values present in the dataset.

2. Columns Renamed

Some columns were renamed while doing the analysis. It was done to have the better understanding and making our task simpler.

3. EDA was processed on the complete data to gain some insights.

Use Case Diagram



We can see from the above use case diagram that our Customer Retention approach is based on Hedonic and Utilitarian value. We also see that our clients' buy and repurchase intentions are influenced by perceived risks. The Hedonic value consists of five primary components: satisfaction, role, best bargain, social aspect, and adventurous sensation. Product options, convenience, product knowledge, and monetary savings are all examples of utilitarian value.

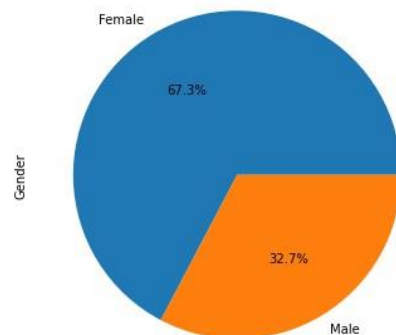
- Data Inputs- Logic- Output Relationships

EDA was performed by creating valuable insights using various visualization libraries

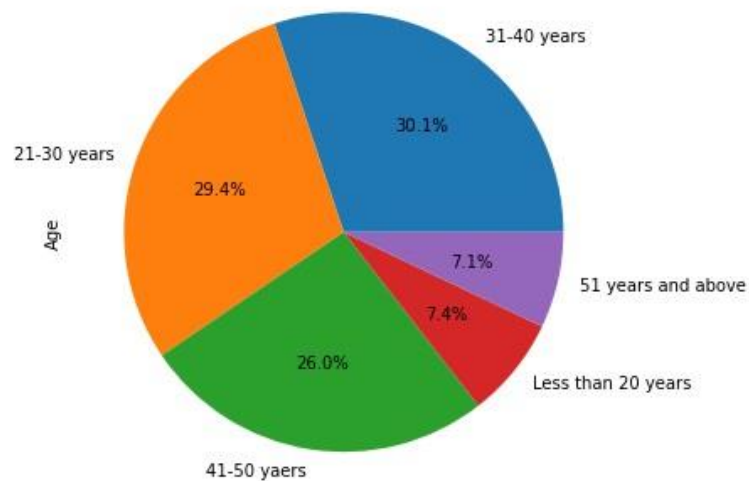
```
#importing the Libraries
import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
%matplotlib inline
import warnings
warnings.filterwarnings('ignore')
```

- Visualizations

Below were the pattern drawn from the visualization.

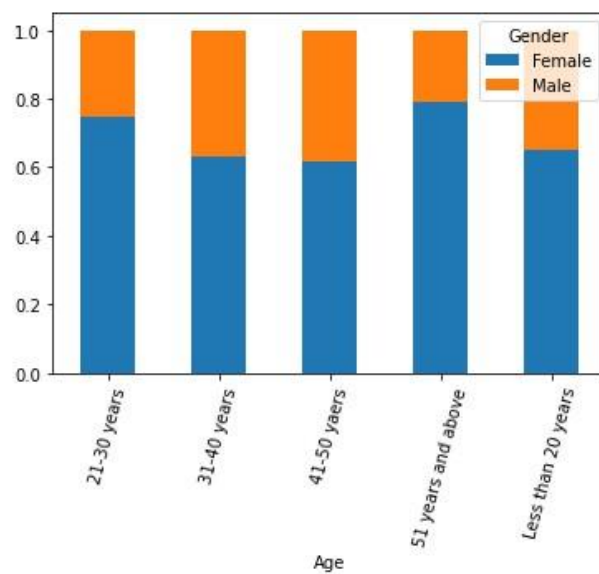


67.3% of the users are female

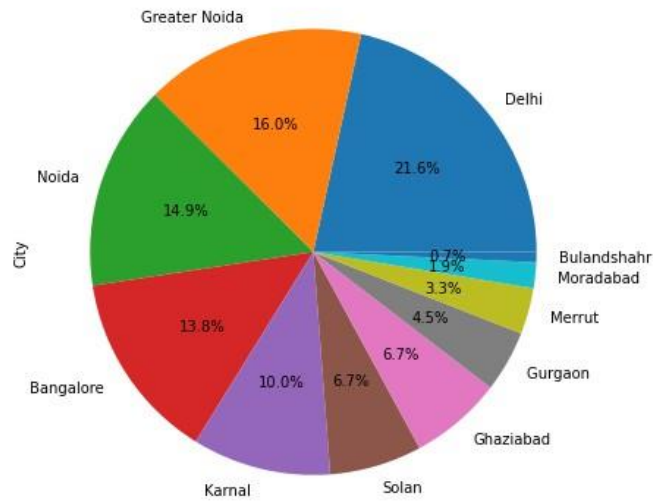


Observation:

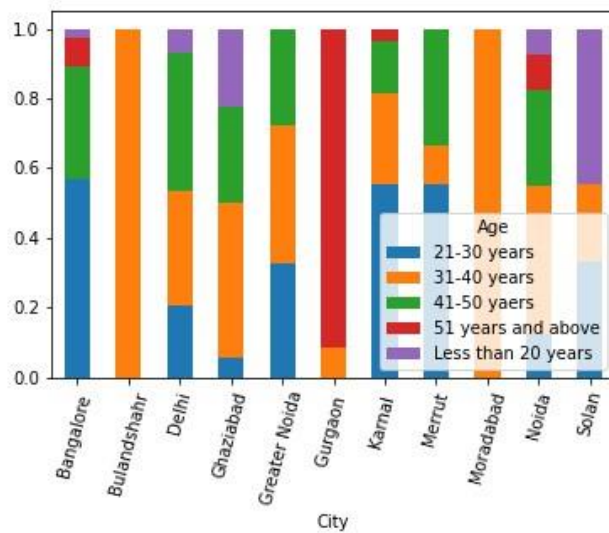
1. We have good distribution of age from 21-50 years.
2. Below 20 the data is less as they may not be able to shop online as they cannot hold CC.
3. Above 51 are not too tech savvy. Hence the distribution is less.



There are 60% of the female who shop online between age 31-50

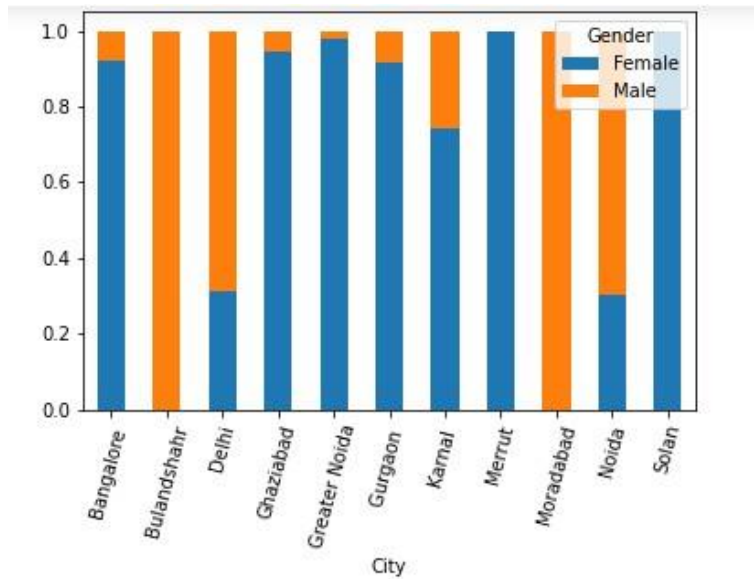


The data is mostly from the people of Delhi, Greater Noida, Noida and Bangalore



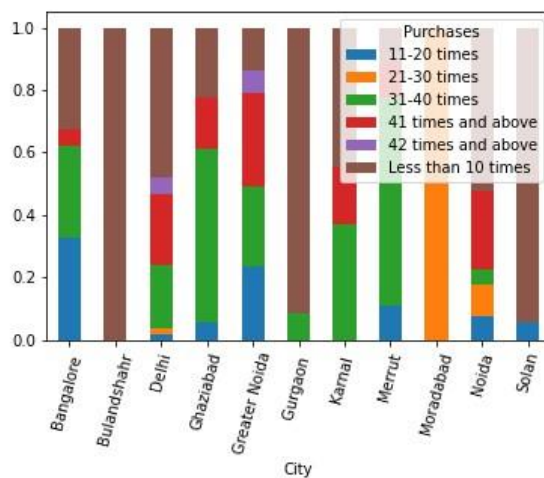
Observation

1. 51 years and above are active user in Gurgaon followed by 31-40 years
2. In Moradabad and Bulandshahr, both is the least contributing city, 31-40 years are most active user
3. More than 50% of the Bangalore, Karnal and Merrut users are between 21-30 years



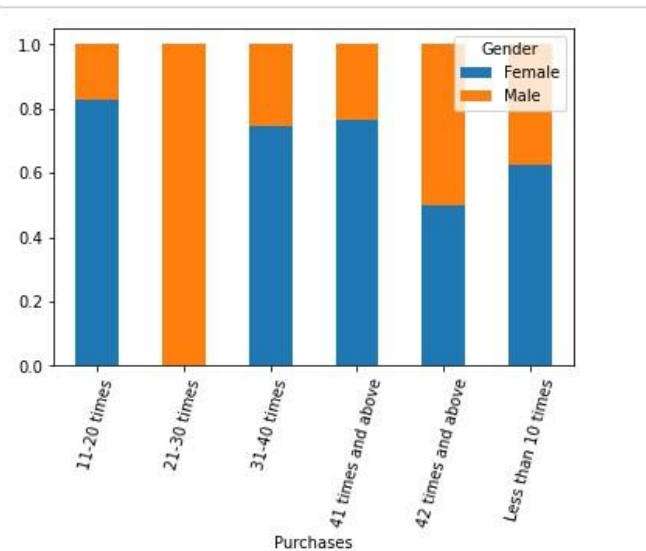
Observation:

1. There are only Male users in Bulandshahr and Moradabad
2. There are only female users in Solan and Merrut
3. 90% of the users in Bangalore are female.
4. 70% of the users in Delhi are Male

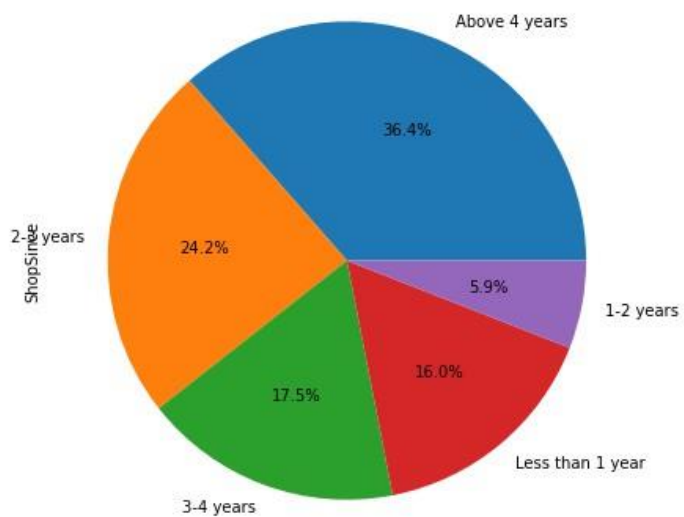


Observation:

1. Bangalore has shown high number of purchases as majority of the user are between 21-30 years.
2. Meerut less than 15% users has less than 10 times purchases.
3. Moradabad who has active users between 31-40 years has shown good performance with purchases between 21-30 times.
4. However same cannot be said about Bulandshahr, which has shown least performance with the same age group as Moradabad.
5. Solan who has good distribution of age has also shown poor performance.

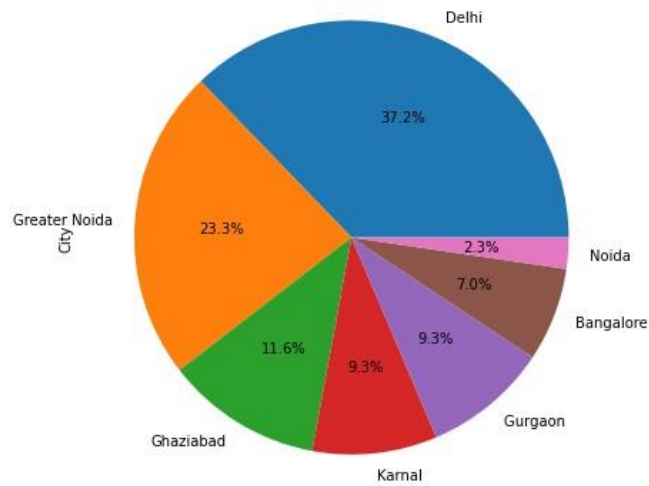


The above graph shows that female users shopped online more.

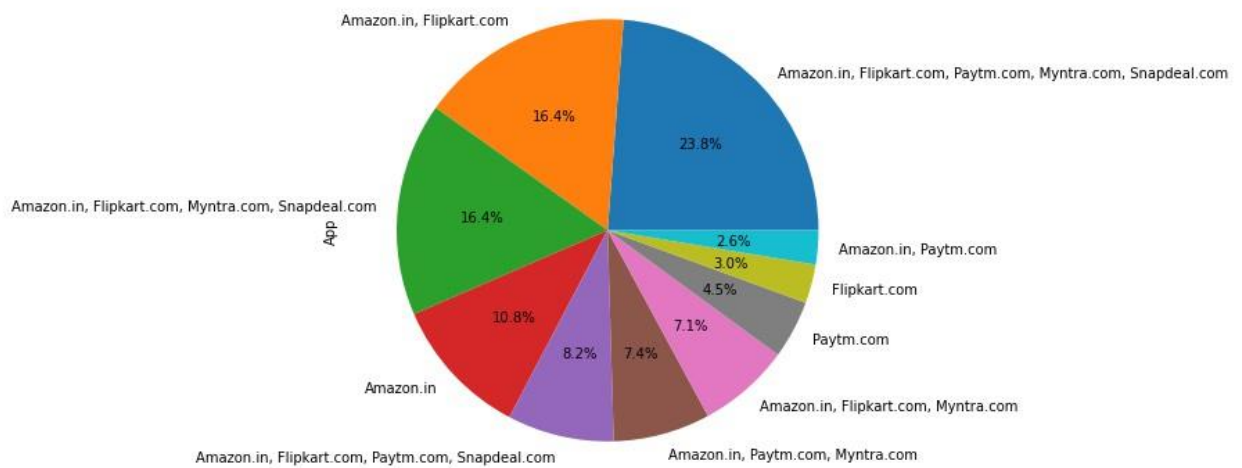


Observation:

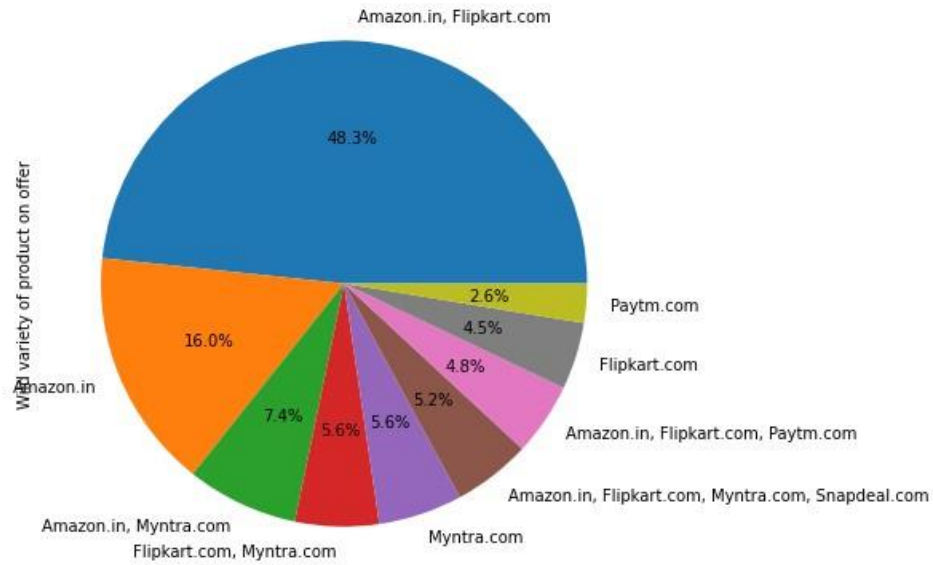
1. 36.40% of the users are shopping online for more than 4 years and 17.5% between 3-4 years.
2. 16.0% have started using recently



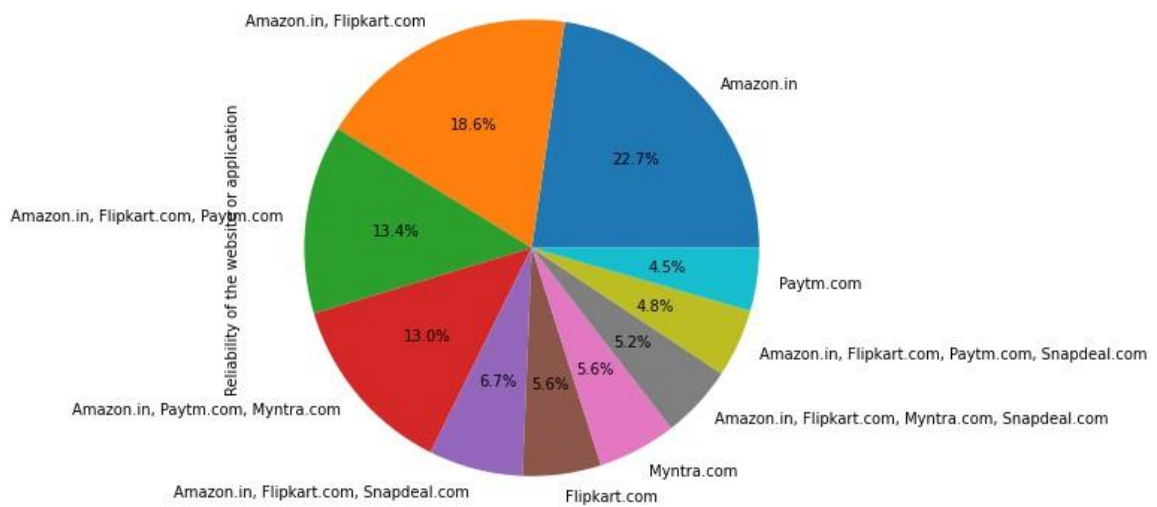
1. Majority of the new user are from Delhi followed by Greater Noida
2. There are no new user from the city of Moradabad, Bulandshahr and Meerut



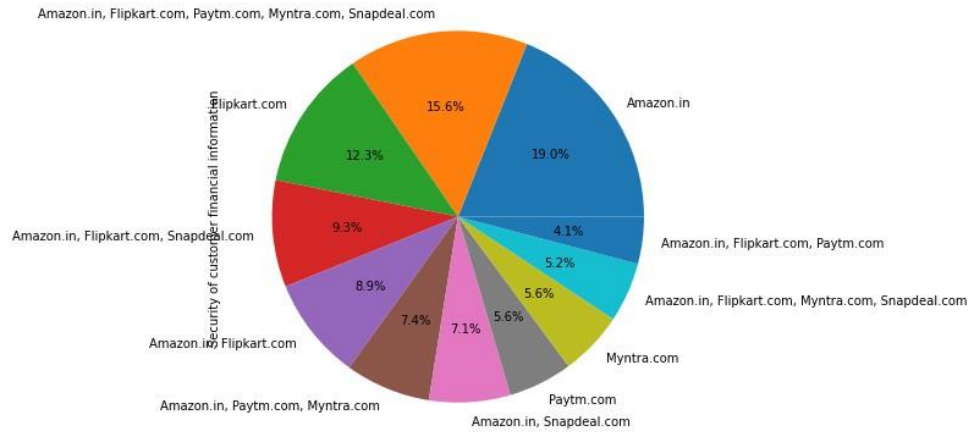
Amazon, Flipkart, Myntra and Paytm are the most common apps used for shopping online



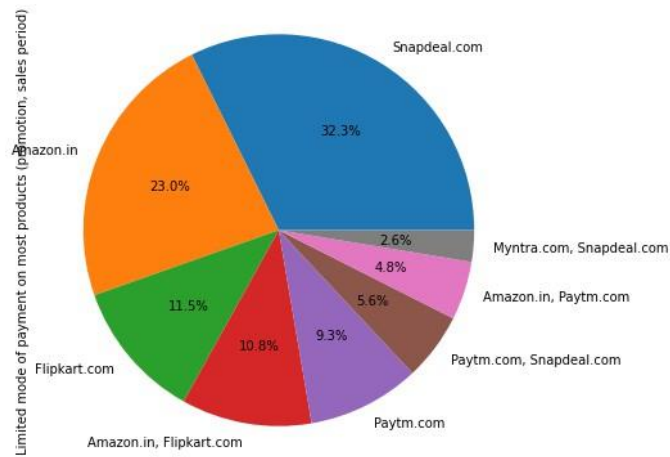
1. Amazon and Flipkart offers wide variety of the product
2. Paytm and Snapdeal are falling behind in terms of the product variety



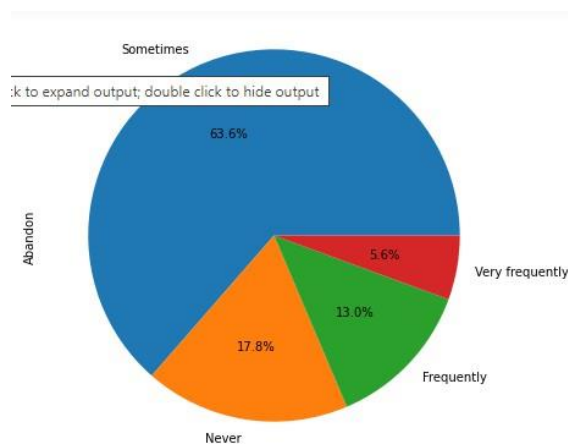
Amazon, Flipkart and Paytm are the most reliable application



Users believe in Amazon, Flipkart and Myntra about the security of their financial transaction

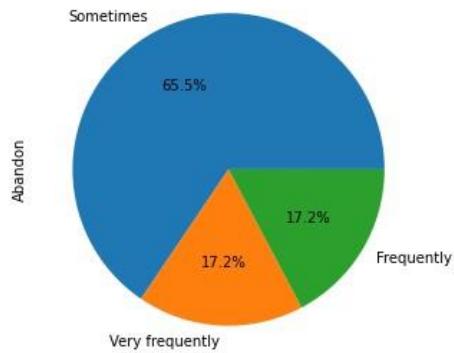


Most user feels that Snapdeal has limited payment option

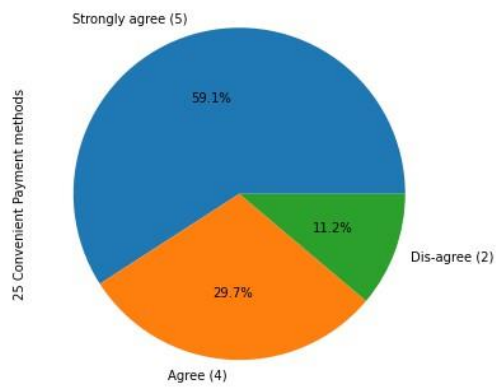


Observation:

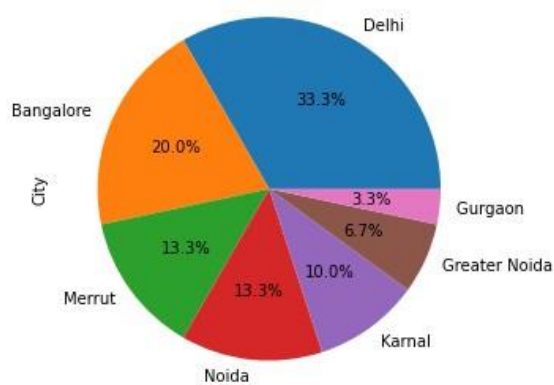
1. 63.6% of the user sometimes abandon the shopping cart.
2. 5.6% do it very frequently
3. 17.8% never abandon their shopping cart



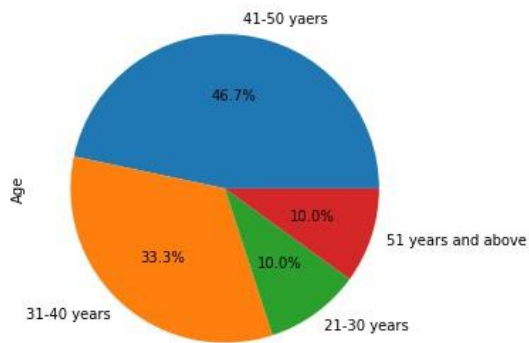
1. As we have observed earlier Snapdeal has limited option of payment hence we can see 34.4% of the user frequently abandon their purchase on Snapdeal.com and 65.5% sometimes.
2. There are no user who 'never' abandon when purchasing on snapdeal



1. 59.1% strongly agree that convenient payment method are available
2. 11.2% disagree

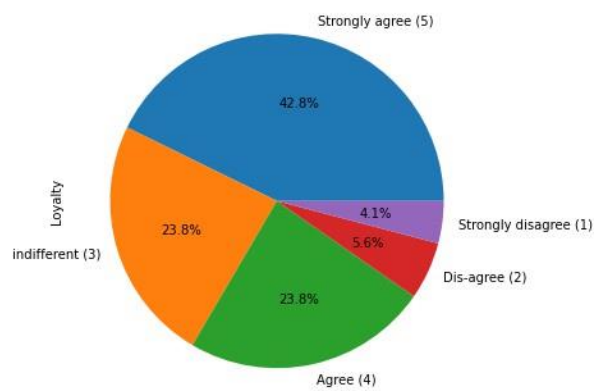


1. 33.3% of the user in Delhi disagree with the convenient payment option followed by Bangalore

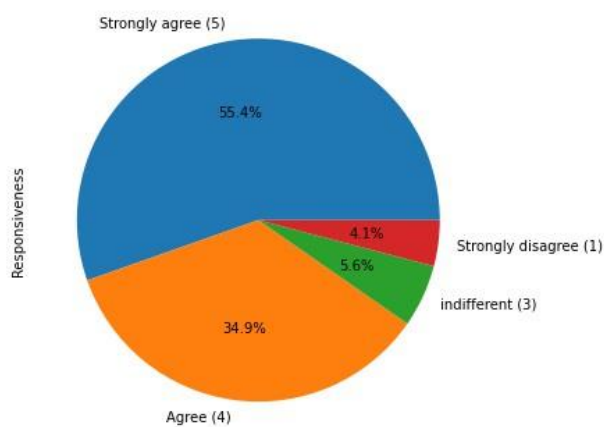


Users between age 41-50 years compromise 46.7% of the users who disagree with the convenient payment option.

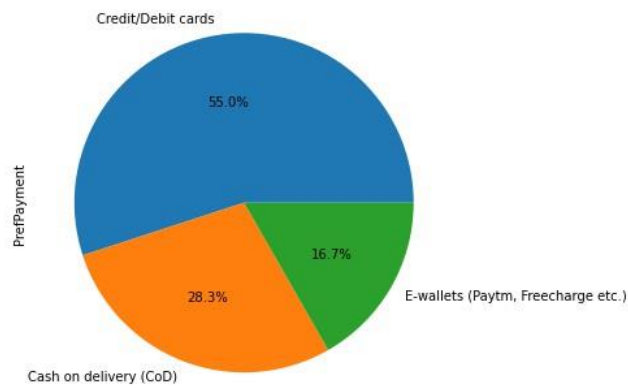
Does this Users do not have CC or they are looking for a better option like COD?



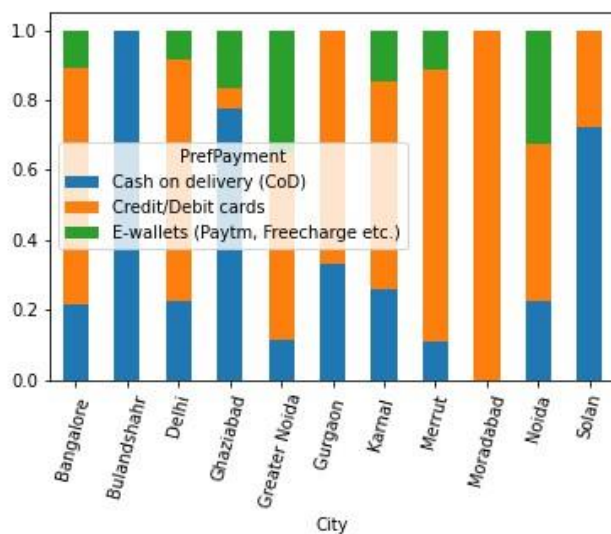
1. 42.8% strongly agree and 23.8% agree that loyalty program is the benefit of shopping online



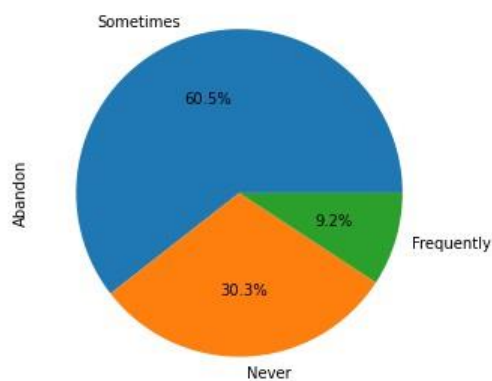
55.4% strongly agree that there should be several communication channel for responsiveness



55% of the users preferred payment option as Credit card followed by CoD which is 28.3%



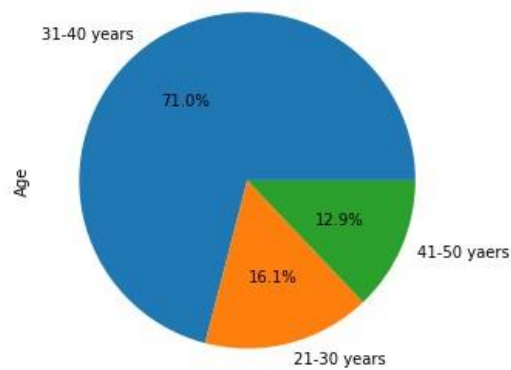
1. Users in Bulandshahr prefers only COD as preferred payment.
2. More than 70% of users in Ghaziabad and Solan too prefer COD payment option.
3. Users in Moradabad prefers payment through Credit/Debit cards.
4. E-wallets payment are demand in Greater Noida and Noida



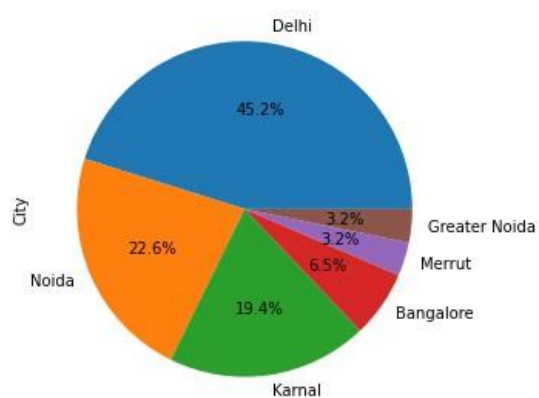
30.3% of the users will never abandon if they get CoD option as a preferred payment



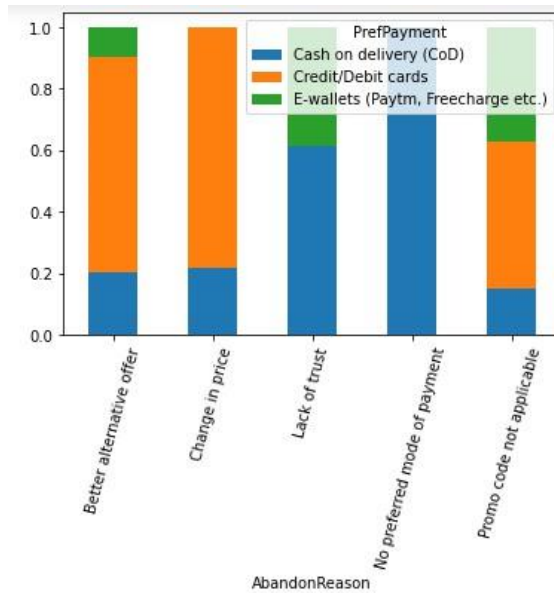
1. 49.4% abandon their shopping cart/bag as they get better alternative option
2. 20.1% abandon as their promo code is not applicable.



71% users from age group 31-40 abandon their shopping bag due to lack of trust

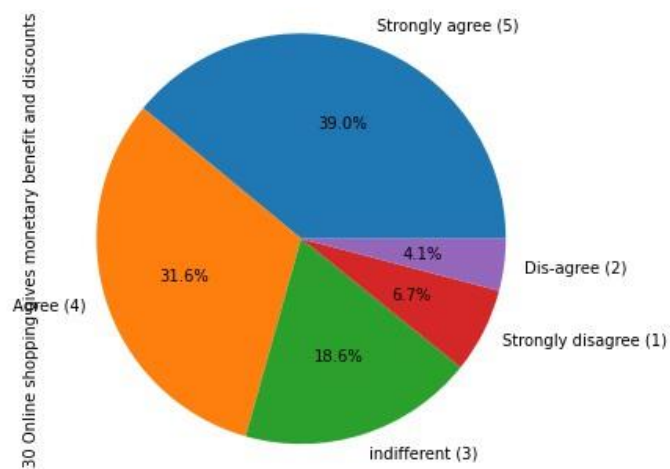


45.2% users from Delhi and 22.6% from Noida do not trust the application or website.



Observation:

1. Credit card users keep looking for better alternate option and abandon their purchase if the price changes.
2. CC users trust the application they use.
3. They also frequently look for promo offers, additional cashback from their bank, etc. Hence they abandon their shopping bag.



There is a strong agreement among the user that online shopping gives them monetary benefits.

- Interpretation of the Results
- 1. Maximum people have shopped from these 5 companies - Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com.

- 2. Most people find Easy to use website or application are - Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com
Also, Amazon.com and Flipkart.com are the major choices.
- 3. In terms of Visual appealing web-page layout also, Amazon.com and Flipkart.com seem to take the lead.
- 4. Talking about Wide variety of product on offer: Amazon.com and Flipkart.com are the major choices.
- 5. Complete, relevant description information of products: Once again, maximum people have chosen to go with mazon.com and Flipkart.com
- 6. Fast loading website speed of website and application: Amazon seems to take the lead in this category, although paytm and Flipkart are not far behind.
- 7. Reliability of the website or application: Amazon seems to take the lead in this category too, although Flipkart and paytm are not far behind.
- 8. Quickness to complete purchase: Amazon seems to take the lead in this category too, although Flipkart and paytm are not far behind.
- 9. Availability of several payment options: Here, Amazon and Flipkart, both are the favourites. Although a lot of people also tend to go towards Myntra
- 10. Speedy order delivery: Amazon seems to take the lead in this category too, followed by Flipkart.
- 11. Privacy of customers' information: Amazon has a good reputation for maintaining privacy, followed by Flipkart
- 12. Security of customer financial information: Here other than Amazon and Flipkart, Paytm.com, Myntra.com, Snapdeal.com are also trusted by a lot of people. This shows that all compamnies pay special attention to security.
- 13. Perceived Trustworthiness: Amazon and Flipkart are winners here as well. Though Myntra.com, Snapdeal.com are also not far behind.
- 14. Presence of online assistance through multi-channel: Amazon.in, Flipkart.com, Myntra.com, Snapdeal

- 15. Longer time to get logged in (promotion, sales period): Amazon, paytm
- 16. Longer time in displaying graphics and photos (promotion, sales period): Amazon.in, Flipkart.com
- 17. Late declaration of price: Myntra, Paytm, Snapdeal. These companies should work on this area to improve.
- 18. Longer page loading time (promotion, sales period): Myntra and Paytm have bad feedback in this. Flipkart should also have a look into it, as it is at the 3rd place.
- 19. Limited mode of payment on most products (promotion, sales period): Snapdeal is the most voted answer for this.
- 20. Longer delivery period: Paytm and Snapdeal need to shorten their delivery time.
- 21. Change in website/Application design: Amazon.in
- 22. Frequent disruption when moving from one page to another: Amazon.in
- 23. Website is as efficient as before: Amazon.in
- 24. Which of the Indian online retailer would you recommend to a friend?: Amazon/Flipkart

CONCLUSION

- Customer satisfaction is important to win the customer back. There is lot of competition in e-commerce space of retailers hence company should focus in offering the best service.
- **Convenience**
- The interface should be user friendly. There should be complete description of the product on the website or application and it should be efficient to use.
- **Security**
- Company should win customer trust that their personal and financial details are secure with us and will not be used for any fraudulent activity.

- ***Loyalty***
- One of the best methods to retain the customer is to have a rewarding loyalty program. Customer should feel invested in the company and they will be happy that every purchase they are making will lead to more rewarding experience.
- ***Technical***
- Any issue while browsing should be addressed. Customer may lose out on the deal if there are some glitches or technical issue with the website. The browsing should be quick especially during the sale or promotion period.

- **Learning Outcomes of the Study in respect of Data Science**

The models we create will be as good as the data you trained the model with, Data study and visualization is the most important part for Data Science. You can derive various insights from the data and that's also help in feature extraction.

- **Limitations of this work and Scope for Future Work**

We really need more data to understand the customer behavior precisely. It will increase the probability of drawing the correct conclusions.