



Customer Retention Analysis

Submitted by

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ACKNOWLEDGMENT

I would like to express my sincere gratitude to my mentors from Data Trained academy as well as Flip Robo Technologies who gave me the opportunity to do project which was a great chance for learning and development.

I am also thankful to my family and friends who helped me a lot in gathering different information and guiding me from time to time in making this project. In this project I have applied my basic knowledge acquired of analytics learnt from the DATA TRAINED institute. I also referred some of the websites for further information.

References

<https://addepto.com/customer-retention-analysis-churn-prediction/>

<https://www.kaggle.com/code/aparnashastry/customer-retention-by-reducing-the-churn/notebook>

<https://getthematic.com/insights/5-ways-data-and-text-analytics-improve-customer-retention/>

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INTRODUCTION

In the emerging global economy, e-commerce and e-business have increasingly become a necessary component of business strategy and a strong catalyst for economic development. The integration of Information and Communications Technology (ICT) in business has revolutionized relationships within organizations and those between and among organizations and individuals.

The name of the game is strategic positioning, the ability of a company to determine emerging opportunities and utilize the necessary human capital skills to make the most of these opportunities through an e-business strategy that is simple, workable and practicable within the context of a global information milieu and new economic environment.

With its effect of leveling the playing field, e-commerce coupled with the appropriate strategy and policy approach enables small and medium scale enterprises to compete with large and capital-rich businesses.

The trend of online shopping has increased in recent times with the increase of e-commerce and digital technology. With just a single click of a button, you can shop for everything by sitting at your home as per your choice, convenience and budget. The most significant and the crucial part is the customer retention.

Customer retention is very crucial in any business that hopes to thrive in a highly competitive and flooded business market. Attraction of customers is said to be more difficult than retention and this is where the issue of customer relation management comes in. Research shows that retaining one existing customer is six to seven more times profitable than attracting a new one. Since retention and satisfaction of customers is not as difficult as attracting them, what should a business be doing in order to ensure that retention does not become a giant task in the course of business? To get a deeper grasp of customer retention in relation to business success, this paper analyzes the meaning and importance of customer retention in relation to strategic management, customer satisfaction, customer behavior, active customers, retention marketing and customer relation management.

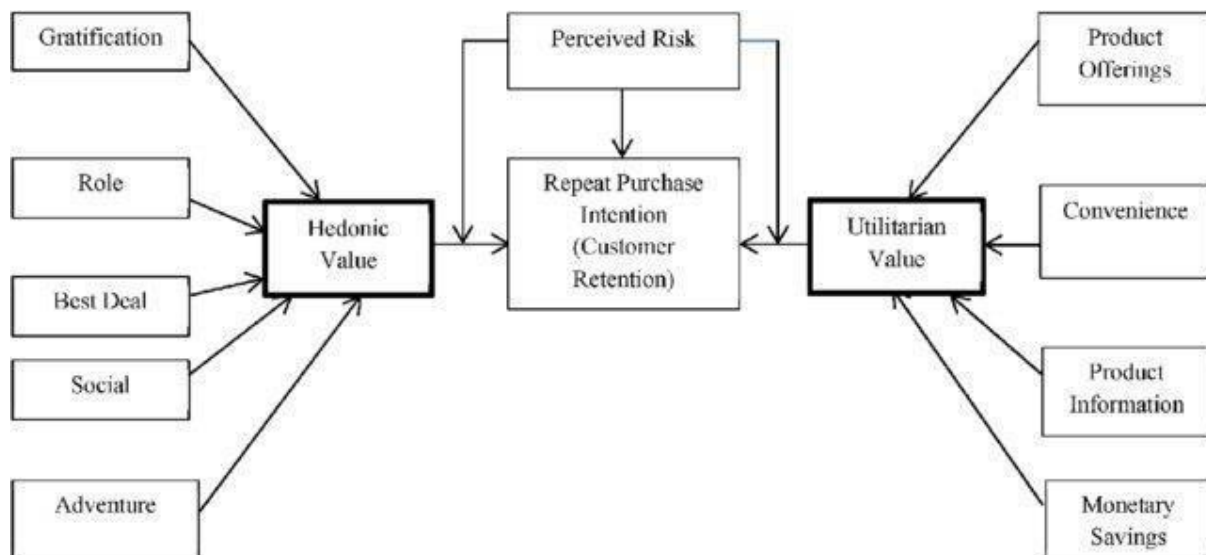
Problem Statement:

The online purchasing rate is increasing day by day. Customers' satisfaction is most important for any business development. The first question that comes into our mind is "What individual factors motivate a buyer to purchase online as well as restrain to purchase online?". We will discuss about this in data analysis part. The main aim of this project is to explore consumer perceptions of internet-based retailing.

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 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.

Utilitarian value: Utilitarian value is an objective value which provides some functional benefits to the consumers and helps consumers to accomplish practical tasks. This seems to be goal-oriented rational and deliberate and product acquisitions where the shopping is perceived to be the work or necessity.

Hedonistic value: Hedonistic value is subjective (Psychological) value which provides an experiential satisfaction. In other words, the immediate psychological gratification that comes from experiencing some activity or from consumption of a product. This is more subjective and personal than the utilitarian and the results more from fun than from task completion.



Understanding of the Domain Problem:

The problem statement allows us to know how customers have expectations on technology based self-service quality and suggested five main attributes of ecommerce store quality, that are service quality, system quality, information quality, trust and net benefit. The result of this study shows both easy to use and pleasure while using were significant determinants of service quality, while speed of delivery and reliability has positive impact on service quality.

Many businesses focus on customer loyalty programs to remain competitive in today's marketplaces and explore innovative ways to keep their existing customers engaged. Customer retention is a simple concept. Yet, it often requires effort from every department to improve the customer experience and build lasting trust. So, what is customer retention and why it is so important. Let's know about it.

Customer Retention:

Customer retention has been defined as the process of consciously and constantly making efforts towards reducing customer defection and increasing their loyalty towards a given business enterprise. Customer retention begins at the time the business establishes the first contact with a potential customer and continues throughout the entire lifespan of the enterprise. Customer retention is enhanced by customer satisfaction, which comes about as a result of giving the customer more than they ask for or expect.

It's more about the value of the customer, more than it is about making profits. Customer retention is the centre of strategic planning and management which is a system of activities aimed at making a customer gain an advantage positioning through the transaction process, hence making them ready for successive purchasing.

Importance of Retention:

Customer retention measures not only how successful a company is at acquiring new customers but also how successful they are at satisfying existing customers it also increases ROI boosts loyalty and bring in new customers.

It's also easier and more cost-effective to retain customers than to acquire new ones, returning customers spend more and buy more often, and refer friends and family. Only a 5% increase in customer retention can increase company revenue by 25-95%. It's up to five times cheaper to retain your current customers than it is to acquire new ones.

The probability of making a sale to an existing customer is 60-70%. Retaining your current customers increases word-of-mouth recommendations and loyalty. Existing customers are more likely to spend 30% more on a new product than a first-time customer.

A higher customer retention rate leads to greater profits and lifetime customer value (LCV). Long-term customers can provide useful data and feedback for future brand campaigns and strategies.

Customer retention can suffer when you attract new customers and grow quickly but struggle to implement a strong customer service strategy as a foundation to support that growth.

The good news is that you've already done the hardest work by attracting those new customers. Once customers have purchased from you the first time, it is much easier to keep them happy.

Drive Towards the Problem:

The main objective behind this problem is to help the ecommerce sites to find the e-retail factors for customers activation and retention. The online shopping is considered to be convenient by most of the people. The store is always open and it is easy, less stress and time saving to shop from home. Participants also seemed to agree that internet shopping gives access to a large range of stores and products from the entire world and offers best price to their consumers. So, in this project we will be analyzing how these online stores attracts the customers and whether the customers satisfied by their products or not.

ANALYSIS OF THE PROBLEM

Mathematical/ Analytical Modelling of the Problem:

The main thing is, the data given is unsupervised data. The problem statement contains both utilitarian value and hedonic value. I have performed both univariate and bivariate analysis to analyse these values using different plots like pie plot, count plot, distribution plot, factor plot which give better pattern for analysing the data. In this project various mathematical and statistical analysis such as describing the statistical summary of the columns are performed. Since the dataset contains object data type, label encoding method is used to convert the object data into numerical data. Checked for correlation between the features and visualized it using heat map. Based on the analysis we can observe which website gives more satisfaction to their customers and retain their loyalty towards the company which in turn makes their growth enormous.

Sources and their formats:

The dataset provide is from the Indian online shopping websites. Results indicate the e-retail success factors, which are very much critical for customer satisfaction. The dataset is provided by the Flip Robo Technologies during the internship period.

The dataset contains 269 rows and 71 columns which is comprised of categorical columns. All the features contain object data type except the feature Pin code (integer data type). While describing the data I found skewness and outliers present in the columns. Since all the columns are categorical so I haven't removed outliers and skewness.

Data Pre-processing:

- Initially the necessary libraries are imported followed by the dataset.
- Dataset dimension, description, its types and features are checked. Then followed by its info and the unique values.
- The column names were bigger so modified to use it in a simple way for the analysis.
- Then null values were checked and found no null values present in the dataset and visualized it using heat map.
- The value count of each column was displayed and found some of the unwanted entries so replaced them.
- Visualized each feature using seaborn and matplotlib libraries by plotting count plot, pie plot, distribution plot, box plot and factor plot.
- Performed label encoding.

```
columns = ['Gender', 'Age', 'ShoppingCity', 'Pincode', 'ShoppingSince', 'ShoppingFrequency', 'NetAccess', 'Device', 'MobScreenSize', 'OS', 'WebBrowser', 'ChannelUsed', 'LoginMode', 'ExploreTime', 'PaymentMode', 'ItemsAbandon', 'AbandonReason', 'WebsiteContent', 'SimilarProdInfo', 'SellerProdInfo', 'ListedProdInfo', 'Navigation', 'ProsSpeed', 'WebUserFriendly', 'Easypayment', 'TransacTrust', 'Empathy', 'Privacy', 'CommResponse', 'Discount', 'Satisfaction', 'Convenience', 'Returns', 'LoyalAccess', 'QualityInfo', 'GoodQualWeb', 'NetBenif', 'Usersatis', 'VarietyProd', 'RelevantProdInfo', 'Monetarysave', 'PatroniseRetailer', 'Adventure', 'SocialStat', 'Gratification', 'FullfillRoles', 'ValforMoney', 'Shopfrom', 'WebEase', 'VisualAppeal', 'WildVariety', 'CompleteDescp', 'FastLoading', 'Reliability', 'QuickPurchase', 'SeveralPayment', 'SpeedDelivery', 'CustomerPrivacy', 'FinanceSecurity', 'Trustworth', 'OnlineAssist', 'LongLogin', 'LongDisplay', 'LatePrice', 'LongLoad', 'LimitedPay', 'LongDelivery', 'ChangeWebDesign', 'FreqDisruption', 'WebEfficient', 'Recommendation']
```

```
df.columns=columns
```

```
df.columns
```

```
Index(['Gender', 'Age', 'ShoppingCity', 'Pincode', 'ShoppingSince', 'ShoppingFrequency', 'NetAccess', 'Device', 'MobScreenSize', 'OS', 'WebBrowser', 'ChannelUsed', 'LoginMode', 'ExploreTime', 'PaymentMode', 'ItemsAbandon', 'AbandonReason', 'WebsiteContent', 'SimilarProdInfo', 'SellerProdInfo', 'ListedProdInfo', 'Navigation', 'ProsSpeed', 'WebUserFriendly', 'Easypayment', 'TransacTrust', 'Empathy', 'Privacy', 'CommResponse', 'Discount', 'Satisfaction', 'Convenience', 'Returns', 'LoyalAccess', 'QualityInfo', 'GoodQualWeb', 'NetBenif', 'Usersatis', 'VarietyProd', 'RelevantProdInfo', 'Monetarysave', 'PatroniseRetailer', 'Adventure', 'SocialStat', 'Gratification', 'FullfillRoles', 'ValforMoney', 'Shopfrom', 'WebEase', 'VisualAppeal', 'WildVariety', 'CompleteDescp', 'FastLoading', 'Reliability', 'QuickPurchase', 'SeveralPayment', 'SpeedDelivery', 'CustomerPrivacy', 'FinanceSecurity', 'Trustworth', 'OnlineAssist', 'LongLogin', 'LongDisplay', 'LatePrice', 'LongLoad', 'LimitedPay', 'LongDelivery', 'ChangeWebDesign', 'FreqDisruption', 'WebEfficient', 'Recommendation'], dtype='object')
```

```
df.head()
```

Gender	Aae	ShoppinaCitiv	Pincode	ShoppinaSince	ShoppinaFreauencv	NetAccess	Device	MobScreenSize	OS	WebBrowser	Channell
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Checked the skewness and outliers. Since all the columns are categorical, so I haven't removed skewness and outliers. Checked the correlation between the features and visualized it using heat map. Described the data using describe().

Tools Used:

Hardware required:

- Processor: core i5 or above
- RAM: 8 GB or above
- ROM/SSD: 250 GB or

above Software required:

- Anaconda 3- language used Python 3
- Microsoft Excel

Libraries:

The important libraries that I have used for this project are below.

```
import numpy as np
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
import warnings
import os
import scipy as stats
from sklearn.preprocessing import LabelEncoder
%matplotlib inline
warnings.filterwarnings('ignore')
```

numpy:

It is defined as a Python package used for performing the various numerical computations and processing of the multidimensional and single dimensional array elements. The calculations using Numpy arrays are faster than the normal Python array.

pandas:

Pandas is a Python library that is used for faster data analysis, data cleaning and data pre-processing. The data-frame term is coming from Pandas only.

matplotlib.pyplot as plt and seaborn as sns:

Matplotlib and Seaborn acts as the backbone of data visualization through Python.

Matplotlib: It is a Python library used for plotting graphs with the help of other libraries like Numpy and Pandas. It is a powerful tool for visualizing data in Python. It is used for creating statical interferences and plotting 2D graphs of arrays.

Seaborn: It is also a Python library used for plotting graphs with the help of Matplotlib, Pandas, and Numpy. It is built on the roof of Matplotlib and is considered as a superset of the Matplotlib library. It helps in visualizing univariate and bivariate data.

From sklearn.preprocessing import LabelEncoder:

There are several encoding techniques like Label Encoder, OneHotEncoder, Ordinal Encoder. In this project I have used Label Encoder technique to convert categorical data or object type data into numerical data.

EVALUATION

Problem-solving approaches:

Using “.replace()” function to replace unwanted entries in the columns.

Using “Label Encoder” method to encode the categorical features into numerical.

Described the statistical details of the features using “.describe()” method.

Used “Pearson’s method” to check the correlation between the Features.

Performed both univariate and bivariate analysis using seaborn and matplotlib

Visualization:

Performed both univariate and bivariate analysis to visualize the data. In univariate analysis pie plots, count plots and distribution plot were plotted and in bivariate analysis countplot, factor plot and boxplots were used.

Observations from the univariate analysis:

- Gender: The number of Female customers are more when compared to Male. Female customers are about 67% which is higher than the Male who are about 32% shopped online.
- Age: Comparitively people between 31-40 yrs and 21-30 yrs of age have the same percent of shopping online. The least would be people who are 51 yrs and above and also who are less than 20 yrs of age.
- Net Access: Around 70% of people use their mobile internet to shop online. The least would be the dial up method to purchase.
- OS: Most of the commonly used os is shown as the windows and the android comes next to that comprising 31%.
- ChannelUsed: More than half comprising 85% people use the search engine to purchase online rather seeing the display adverts that is of only 7%.
- PaymentMode: People use their credit/debit cards which is 55% and the least mode would be e wallets.
- EasyPayment: People about 88.85% agree that the payment method is esay while shopping online.
- Privacy: The customers purchasing online 90% agree that the privacy is guarenteed.
- Discount: Most people purchase online are those attracted to the discount offers. They are about 70% of people.
- Satisfaction: Only 53% of people are enjoying and also satisfied while purchasing online.
- Returns: People about 92% agree that the return and replacement polity is satisfied while the purchase online.
- LoyalAccess: About 66% of people agree that they are benefited with the loyal access.
- QualityInfo: 79% of the customers agreed that displaying quality information on the website improves satisfaction of customers since they believe that displaying quality information have significant association with customer satisfaction. And remaining 21% of the customers are in neutral situation.
- GoodQuality: 97% of the customers agreed that they are satisfied while shopping on a good quality website and 3% of the customers disagreed with it.
- NetBenefit: About 81% of the customers agreed that the net benefit derived from shopping online can lead to users satisfaction.

- UserSatisfaction: 88.85% agreed that the customers satisfaction cannot exists without trust. The companies must learn how to manage the customers' trust.
- MonetarySavings: 82.90% customers agreed to receive monetary savings. The ecommerce company need to know that the best way to sell online is to make the consumer feel that he is saving money doing so. And not just feel, online shopping should result in a lot of saving for the consumer. This saving would automatically get converted into trust and brand equity for the seller. To do this the online companies should offer the best deals and bargains to the consumer through social platforms. If the retailers gives some discounted prices then the customers can make money savings.
- Patronizing Retail Convenience: 71% of the customers agreed that the Convenience of patronizing the online retailer. Adventure: 57% of the customers agreed that shopping on the website gives the sense of adventure. The adventures in the shopping websites gives positive activity to experience an amplified enjoyment to the customers while shopping on websites.
- SocialStatus: Around 39.78% customers agreed that shopping on preferred e-tailer enhances the social status of the customers.
- Gratification: 47.58% of the customers agreed that they felt gratified while shopping on their favourite e-tailer.
- MoneyWorthy: Around 86% of the customers agreed that they are getting value for their money while shopping and 14% of the customers thinks either they are wasting money or getting benefit products from their money.

These were observed using the pieplot. Some other observations using the count plot as follows.

- Customers are mostly from the city Delhi, Greater Noida, Noida and Bangalore are used to shop online and the shopping count is high in these cities.
- The customers found shopping online for more than 4 years and the count is high for the same followed by the customers shopping for 2-3 years.
- In last 1 year, most of the customers were purchased online less than 10 times and only few of the customers purchased online 21-30 times.
- People who use Smartphone device to access the online shopping are high and only few customers used Tablet to access the online shopping.
- The count is high for others mobile screen size followed by 5.5 inches screen size and 5 inches screen size has least count. That means, the customers who have their mobile screen size other than mentioned inches shopped more online followed by 5.5 inches and the customers having mobile screen size 5 inches shopped very less.

- Most of the people used Google chrome to access the website and only few of the customers used Opera and Mozilla Firefox to access the online shopping website.
- Many people used Search Engine and Via application to reach the online retail store after their first visit and also some customers used Detect URL to reach the online store. Which means these customers have downloaded their most favourite application to reach the online stores easily.
- Many customers took more than 15 mins before making the purchase decision and some of the customers explored 6-10 mins.
- Most of the customers abandoned their shopping cart sometimes and some of the customers abandoned their shopping cart frequently.
- Around 133 customers abandoned their bag due to some better alternative offer and 54 customers abandoned due to promo code not applicable.
- Around 90% of the customers agreed that the content on the website is easy to read and understand.
- Around 77% of the customers agreed that the information on similar product to the one highlighted is important for product comparison.
- About 70% of the customers agreed that complete information on listed seller and product being offered is important for purchase decision.
- 88.84% of the customers agreed that all relevant information on listed products must be stated clearly and only 11% of the customers disagreed with it.
- 91% of the customers agreed that ease of navigation in website helps them more.
- Most of the customers agreed that they have no issues with the loading and processing speed.
- 87% of the customers agreed with user friendly website interface. Creating new user-friendly websites will impact on customers to shop more online. By doing these customers don't have to work around much and overall shopping experience would be smooth. • 84% of the customers trusted that the online retail store will fulfil its part of the transaction at the stipulated time.
- The count is high for the customers who agreed the empathy (readiness to assist with queries) towards the customers in the online shopping website is very helpful. If the online shopping companies ready to assist with customers queries then there will be benefit for both company and the customers.
- The count is high for the customers who agreed that the responsiveness, availability of several communication channels will help them more while

shopping online which means if one channel is not available then customers can easily reach out to other channel to fulfil their benefits. So, it is important for the companies to provide various channels to communicate with the customers.

- 83% of the customers agreed that shopping online is convenient and flexible and 12% of the customers are indifferent which means either they are agreed to this or disagreed and only 5% of the customers completely disagreed with it. • Most of the customers agreed to offering a wide variety of listed product in several category and the count is high for the same.

- Around 86% of the customers would like to have provision of complete and relevant product information in the online shopping website.

- 47% of the customers agreed that shopping on the website helps them fulfilling certain roles and 33% of the customers are in confusion whether to agree or disagree and only 20% of the customers disagrees with it.

- Most of the people shopped from Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com companies and they think that it is easy to use website or application in these companies.

- Amazon.in and Flipkart.com have high visual appealing web-page layout compared to others.

- 48% of the customers says that amazon and flip kart shows wide variety of products in their shopping websites compared to other websites. It's important for the companies to show different types of products to gain customer's rate.

- 37% of the customers liked amazon and flip kart in displaying complete and relevant information of the products.

- Around 51 customers says that Amazon.in is the fast-loading website and application and they liked it. About 44 customers liked the web speed of both amazon and Paytm followed by amazon ad flip kart.

- The count is high for amazon followed by amazon and flip kart which means most of the customers liked the reliability of website or application in amazon and flip kart.

- Most of the customers likes Amazon's quickness to complete the purchase followed by Flipkart's and only few of the customers likes Myntra website.

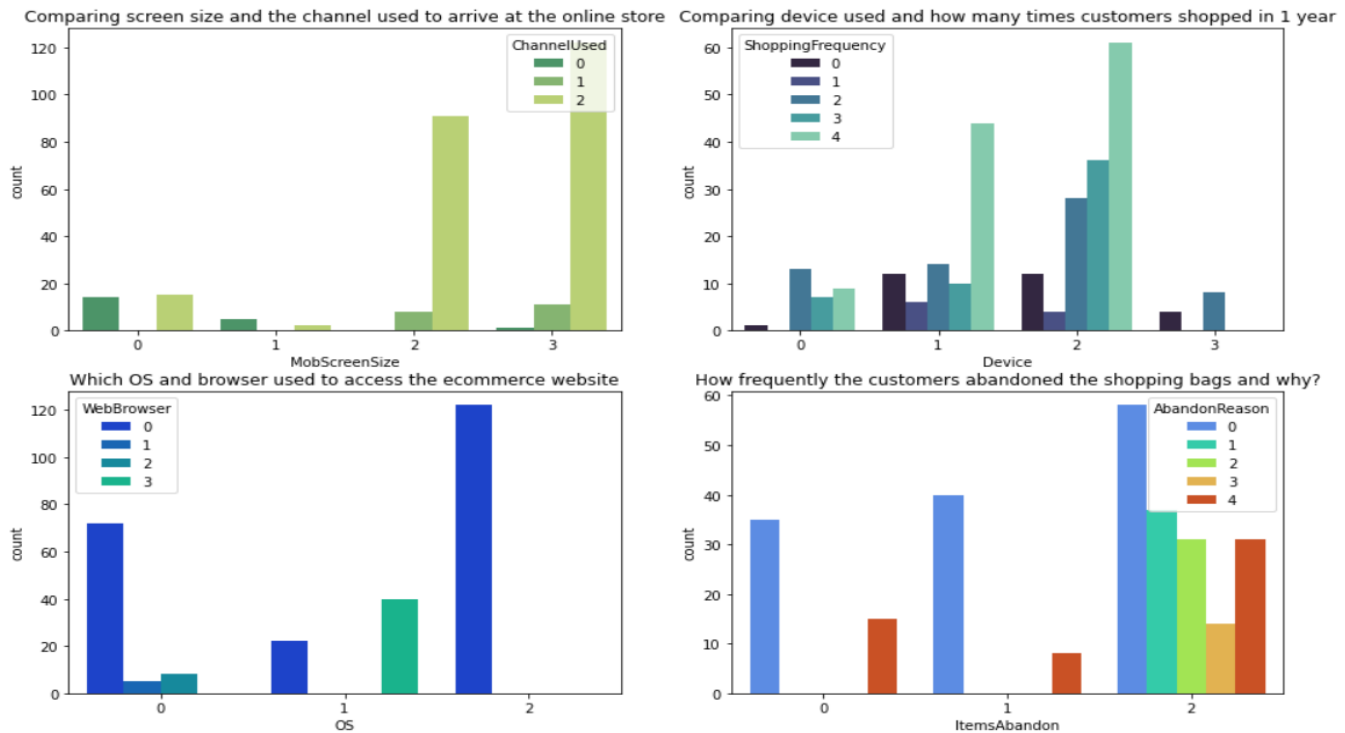
- In Amazon and flip kart websites there are several payment options available compared to the other shopping websites.

- Most of the customers liked Amazon's delivery speed followed by flip kart and Snapdeal.

- Most of the customers trusts amazon followed by flip kart in terms of keeping the privacy of their data information.

- The count is high for the customers who believes that amazon website keeps their financial information secrete also the customers trusts flip kart, Myntra, Snapdeal and Paytm in terms of keeping their financial information secured.
- Most of the customers believed that Amazon has perceived trustworthiness compared to others. Apart from these customers believed that flip kart and Myntra also have perceived trustworthiness.
- Most of the customers like Amazon in terms of presence of online assistance through multi-channel followed by flip kart, Myntra and Snapdeal.
- Most of the customers agreed that Amazon takes longer time to get logged them in.
- Customers believes that Amazon and flip kart takes longer time in display the graphics and photos in sales period.
- Customers says that Myntra and Paytm have late declaration of price in promotion/sales period compared to others.
- Also, Myntra and Paytm takes longer page loading time.
- Snapdeal.com has limited mode of payment on most products followed by Amazon.in.
- In terms of time taken in product delivery Paytm has highest count followed by Snapdeal.com.
- The customers mostly disliked change in website/Application design on amazon followed by Paytm.
- People disliked frequent disruption when moving from one page to another on amazon, Myntra and Snapdeal.
- Many People believe that Amazon and flip kart website is as efficient as before.
- Most of the customers would like to recommend amazon retailer to a friend followed by flip kart.

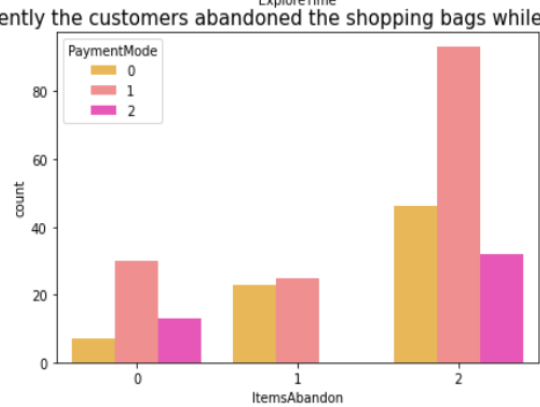
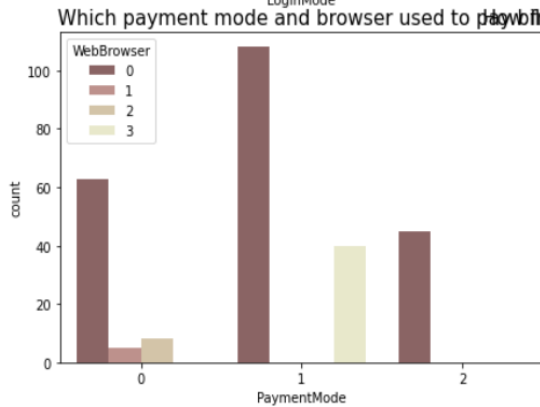
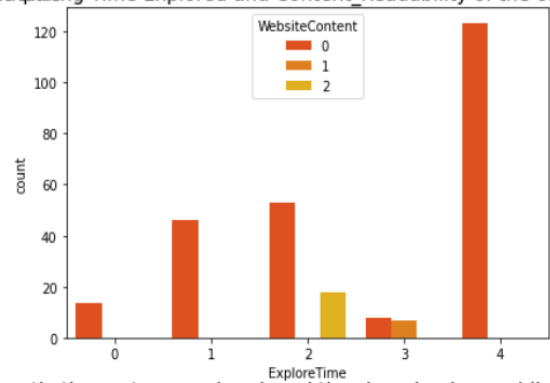
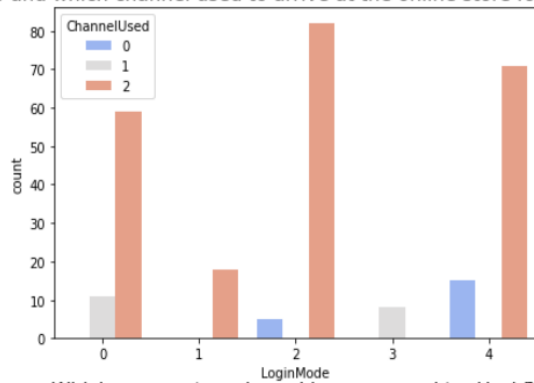
Observations from Bivariate Analysis:



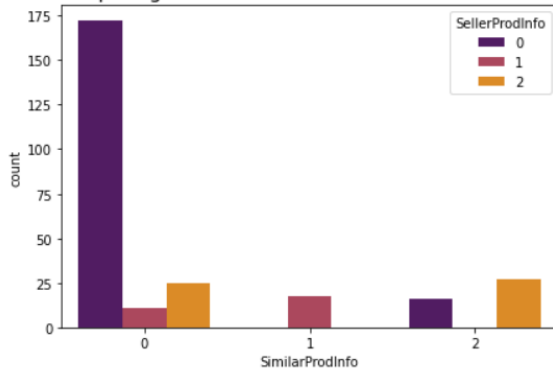
The customers having their mobile screen size say 6 and 5.5 inches have followed search engine channel to arrive at their favourite online store for the first time.

- Most of the customers used Smartphones 31-40 times in an year to access the ecommerce websites to shop the products.
- Many People who have windows operating system in their device ran Google chrome to access the ecommerce shopping websites and some of the customers having IOS/Mac operating system used Google chrome as well as Safari to reach the online shopping store.
- Due to lack of trust on the ecommerce websites, sometimes most of the customers abandoned the websites and some of the customers abandoned the shopping website due to the promo code not applicable. which means, if the product is having the special price or some catalogue price rule is applicable on it. Then coupon code should not be applicable on the products. So, it is important for the ecommerce companies to create discount price, offers, coupon codes to retain the customers.

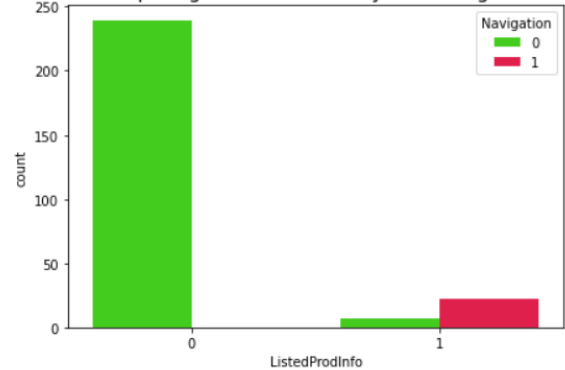
How and which channel used to arrive at the online store for Continuing Time Explored and Content Readability of the customers



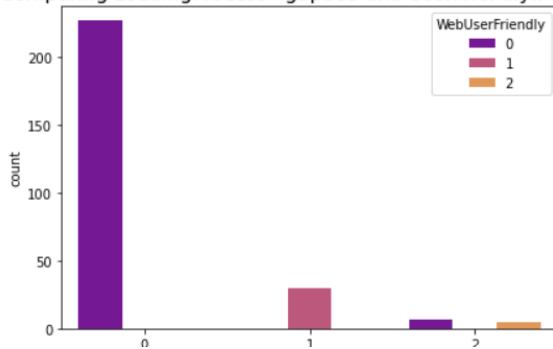
Comparing SimilarProductInfo and SellerProductInfo



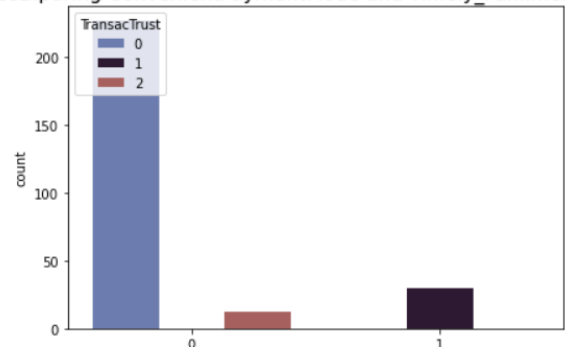
Comparing ProductInfoClarity and Navigation



Comparing LoadingProcessingSpeed and UserFriendlyInterface



Comparing ConvenientPaymentMode and Timely_Fulfilment_Trust



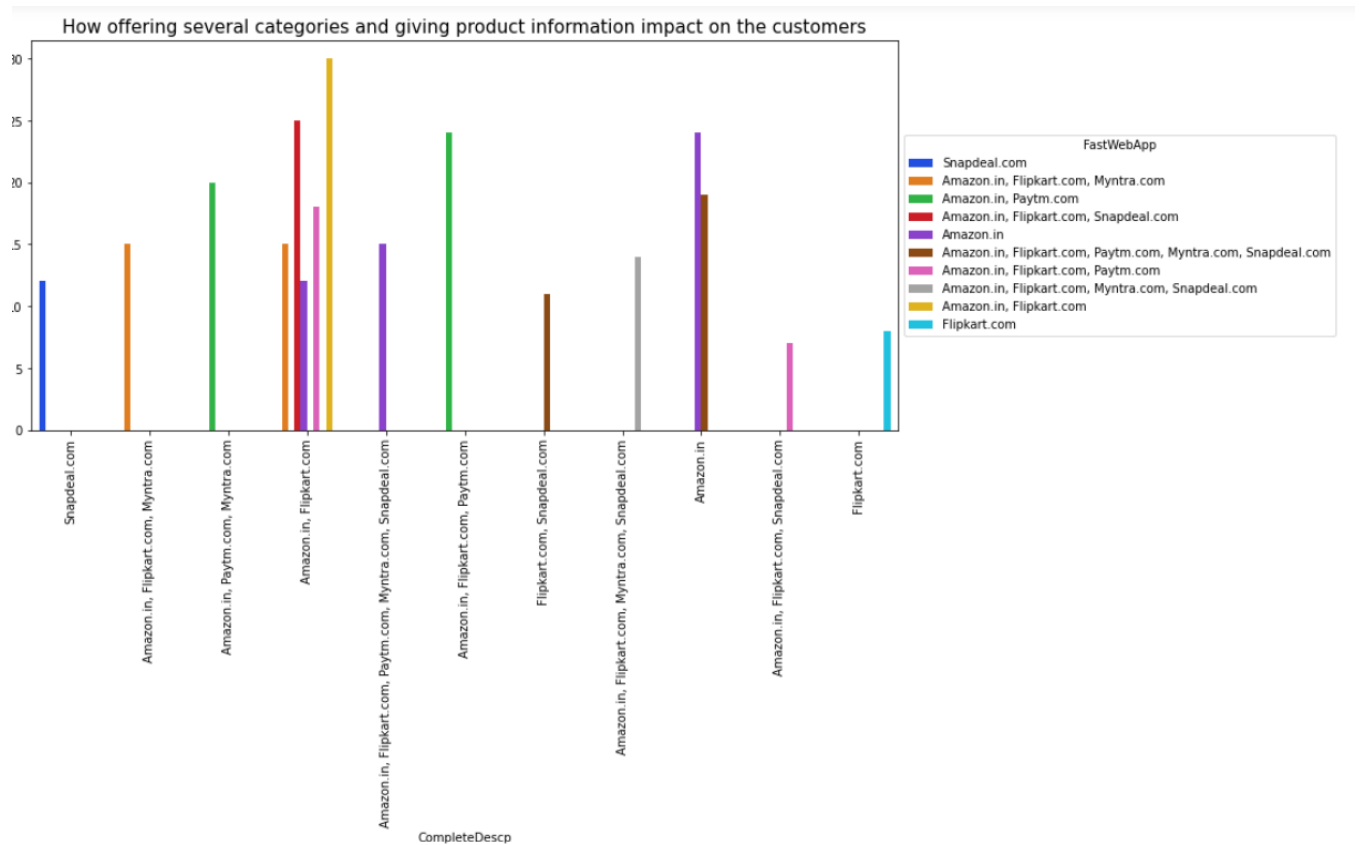
Observations:

- Many customers agreed that displaying quality information on the website improves satisfaction of customers since they believe that displaying quality information have significant association with customer satisfaction and they are satisfied and happy while shopping on good quality websites. In order to obtain high levels of customer satisfaction, high service quality is needed, which often leads to favourable behavioural intentions also a website with good system quality, information quality, and electronic service quality is a key to success in e-commerce. So, the online e-tailers must display all the information about the product then only customers get an idea to buy the products regularly.
- Most of the customers agreed that net Benefit derived from shopping online can lead to users' satisfaction also they believe that user satisfaction cannot exist without trust. The e-tailer should provide crediting points (net benefits) so that the customers tend to buy frequently in order to gain points. Trust is also a major factor for customers to decide whether to buy products from online stores or not also trust helps reduce uncertainty when the degree of familiarity between the customer and transaction security mechanism is insufficient. If customers have a high level of trust toward the website, it is more likely for them to have intention to purchase so it's important for the ecommerce website to make the customers get trust on them.
- The customers are more likely to purchase on the same websites if that website offers them a wide variety of products in several category and giving relevant information about the products. Having multiple product lines may allow to grow the ecommerce business and finding accurate and up-to-date information of the product must be stated clearly in the website so that the customers can buy the products without any confusion.
- In this digital and competitive world, everyone wants to save money, the ecommerce company need to know that the best way to sell online is to make the consumer feel that he is saving money doing so. And not just feel, online shopping should result in a lot of saving for the consumer. This saving would automatically get converted into trust and brand equity for the seller. To do this the online companies should offer the best deals and bargains to the consumer through social platforms. If the retailers give some discounted prices, then the customers can make money savings and they tend to purchase in the same websites regularly. Convenience is the important thing for ecommerce and most of the customers agreed with it.

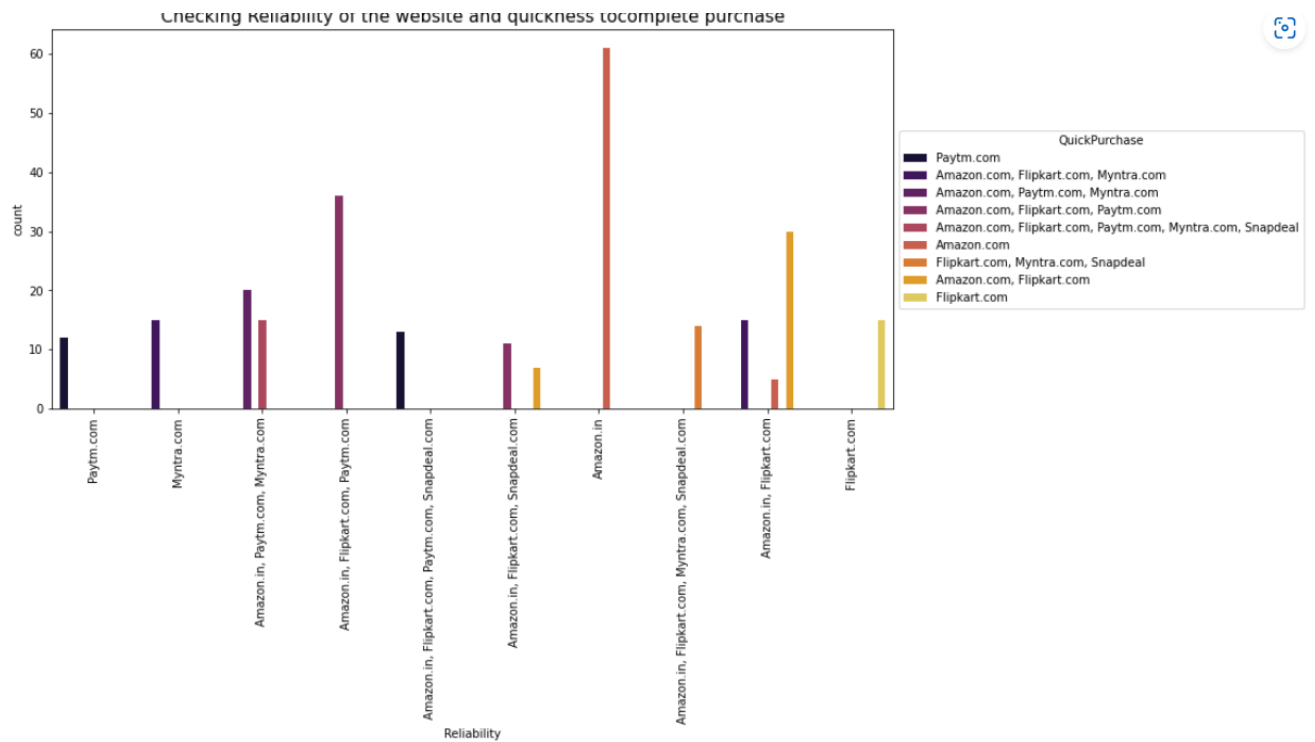
- The customers agreed that shopping on the website gives them the sense of adventure. That gives positive activity to experience an enjoyment. They also believe that shopping on preferred e-commerce site enhances the social status of the customers. Many customers think they are adventuring while shopping online as they search for low cost and high discount products to buy and prefer the same to the others. People agreed that they felt gratified while shopping on their favourite online store. This is because the e-tailer companies can successfully make up for a mistake or a dissatisfied customer is to be equally expedient in addressing the customer's needs.
- Also, most of the customers agreed that shopping on online website helps them fulfil their certain roles. Fulfilment refers to activities that ensure customers receive what they ordered, including the time of delivery, order accuracy, and delivery condition, also the customers cannot see the product directly before they purchase it. Companies must ensure delivery timeliness, order accuracy, and delivery conditions to provide superior service quality for customers. The companies must understand that the customer satisfaction is an indication of the customer's belief of the probability of a service leading to a positive feeling. If the companies give positive vibration to the customers by giving chance to fulfil their roles, then they shop more on that particular website

The customers should be satisfied with their product they shopped from the online store only then they agreed to feel worthy for the money they spent. The companies should display the quality information about the products so that the customers being able to purchase their product and thinks that it worth for money and this comes under utilitarian value

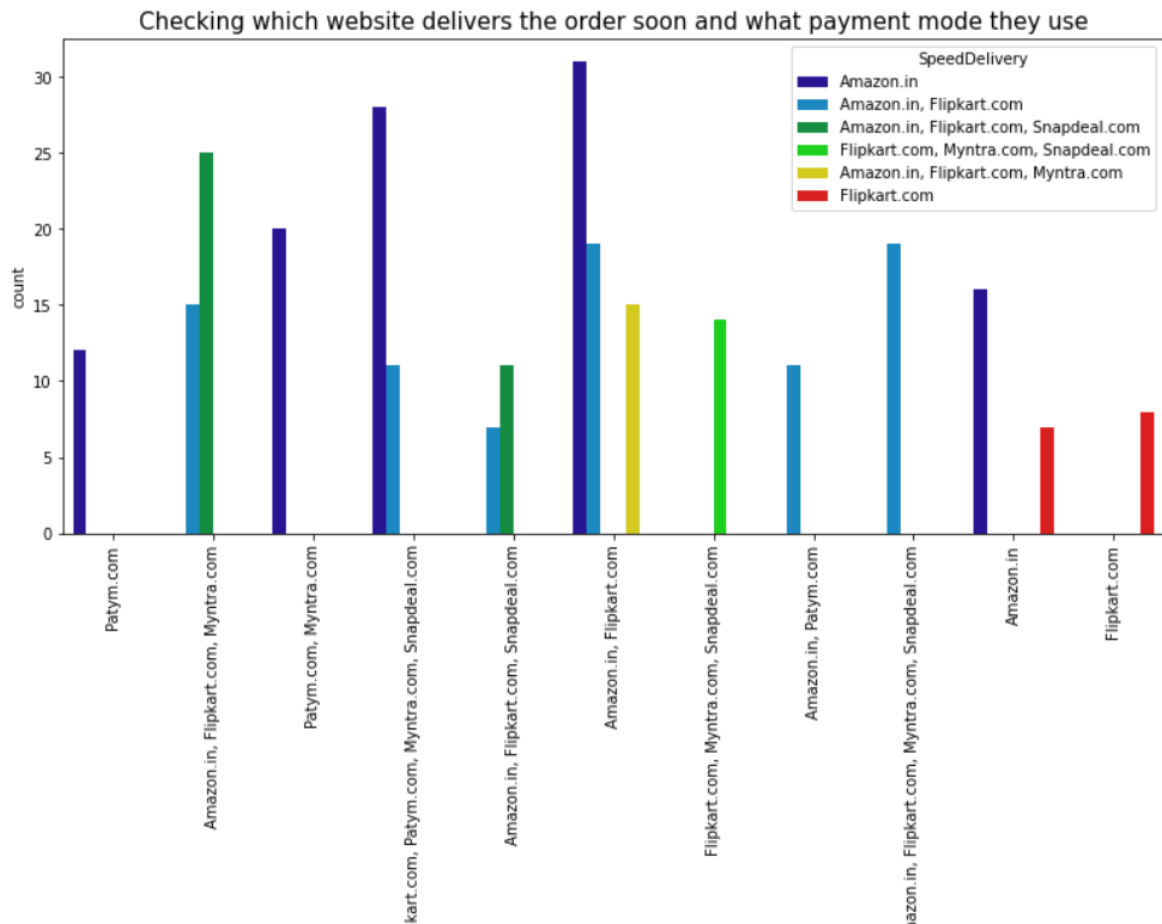
Many of websites selling products but among them Amazon.in, Flipkart.com, Paytm.com, Myntra.com, Snapdeal.com are easy to use and shop. These websites are widely used as they provide lowcost products, valuable discounts and may have varieties of similar products with different brand. Amazon and Flipkart have high visual appealing web-page layout compared to others that means these websites provides some colourful graphics on the homepage. People find the website attractive, there are higher chances that they will stay a little longer in that website, also these websites provide wild variety of products in an attractive manner which makes the customers to buy the product.



The common problem faced by the customers is server problem. Also, only few websites provide the relevant information about the products. These things may lead the customers to have bad impression on these websites. From the plot we can visualize that the Amazon and flip kart websites gives complete and relevant information and these websites have no issue with the server and most of the customer satisfied with the web speed of both amazon and flipkart.



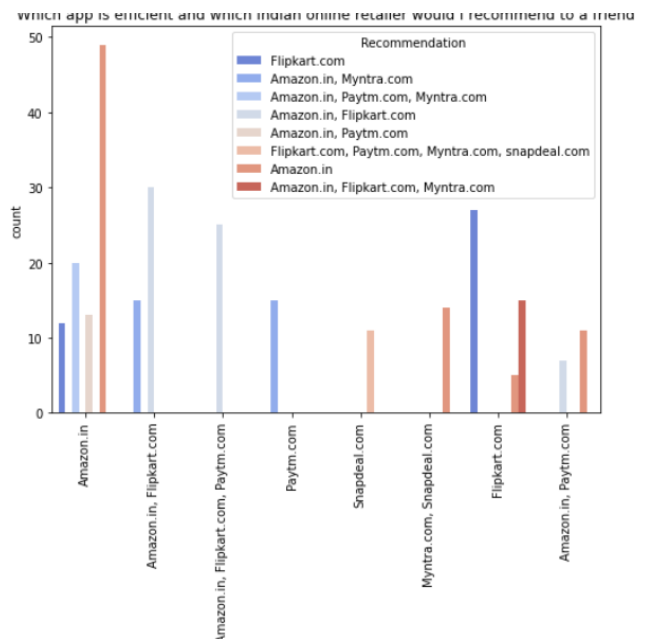
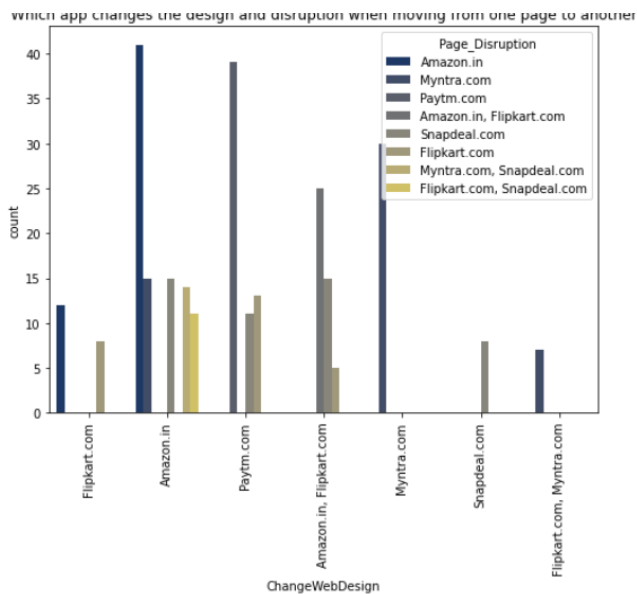
The consumers determine the shop's reliability based on the information that the shop and certain sites offer customers the opportunity to purchase items that are used which means they are likely to be the most reliable. Some of the customers completes their purchase very quickly due to the discount, less price, free delivery charges etc provided by the ecommerce websites. From the plot we can notice amazon site is more reliable and most of the customers complete their purchase on amazon very quickly.



Different types of payment methods help the customers to pay the invoice easily using their choice of payment and if the websites have the speedy delivery methods without delivery charge, then the customers like to buy the products in those websites.

Here amazon and flip kart have several payment options and amazon indeed has speedy order delivery compared to other websites.

- Compared to other websites When there is promotion and sales, Myntra takes time to load the page and it has late declaration of price in these days.
- Myntra declares the late price in order to clear the sales and they fix the price by comparing with other websites and they end up sales by providing benefits to the customers. In this time most of the customers tries to shop in this website so it takes long loading time.



Amazon frequently change their application designs in order to attract the customers and satisfies the customers' needs and they tend to make customers by updating everyday as per the trend. But the disadvantages of this website are when moving from one page to other it slows down and sometimes it may shutdown. Amazon is the website which is more efficient as before and I suggest Amazon.com and Flipkart as a best Indian online retailer store for purchasing all types of products, as they provide enormous amounts of benefits

Interpretation of the Results:

The results that were interpreted from the visualization are as follows:

From the survey we found that the customers agreed with certain things like ecommerce websites have empathy towards them, content must be easy to read and understand, similar products should be highlighted for product comparison, payment convenience, trustworthy and they felt gratified while shopping etc.

The respondents were asked to give ratings and feedback regarding certain statements that may be used to describe their ideal online store. We have found answers from customers like which websites among listed sites they are familiar with, they find easy to use, reliable, secured, about their delivery, change in web design, etc.

From the visualization we have found Amazon.in was the most used and favourite websites for the customers and Flip Kart was the second favourite webapp while snapdeal.com and Paytm.com were the least used websites by the customers.

CONCLUSION

Key Findings and Conclusions of the Study:

Findings:

- The project here investigated gives the details of ecommerce quality in online business to understand the most important dimensions of E-retail factor for customer activation and retention.
- This project aimed to enhance understanding of how ecommerce websites affects the customer satisfaction, customer trust, and customer behavior, i.e., repurchase intention, customer loyalty, and site revisit.
- The dimensions like information about the products, convenient payment mode, Trust, Fulfilment, website design change, security/privacy and many others had a positive impact on the ecommerce websites for customers. Also, some of the dimensions like ease of navigation, loading and speed, late delivery etc did not have impact on the ecommerce websites.
- Thus, a company needs to pay attention to these dimensions more specifically and seek breakthroughs that can improve its performance and e-service quality.

Conclusion of the Study:

- The attempt of this study is to identify the significant factors that attracts people towards online shopping and in which e-tailer the customers likely to shop more.
- In this project, feature engineering is done by replacing the unwanted entries by suitable values, found no null values, and renamed the columns by giving new names. Visualized the data using count plot, factor plot, pie plot and distribution plot, also encoded the object data into numerical using label encoding method. Checked the statistical summary of the dataset and checked for skewness, outliers and correlation between the features.
- From the analysis it was found that consumers purchasing decisions were dependent on various factors. All these factors motivate consumers to purchase products through online. According to consumers' opinions, "time saving" is the most important motivating factor for online shopping.
- Again "information availability", "open 24/7", "huge range of products/ brands", "reasonable prices", "various offers for online products", "easy ordering system", and "shopping fun" are other motivating factors for online shopping respectively. Also, "online payment system", "personal privacy or security issues", "delaying of delivery" and "lacks of personal customer service" are the main inhibitions of online shopping to the respondents.
- After visualizing the data, I found Amazon is the best online store where the customers trust on buying products and it has positive impact on the customers. Also, amazon and flip kart have increased customers' expectations. So, they are the best online retailer who makes the loyal customers and satisfies the customers.
- It was also observed that online shopping is not trustworthy and reliable to some consumers due to only online payment system and personal privacy. In addition, online security is a major concern for the consumer particularly in terms of fraud, privacy and hacking. So, the organizers should make up their organization for better sales.

Outcomes of the study in respect of data science:

The Customer retention project analysis taught several things in respect of Data Science. I learnt that Data analysis is the complementary of Data Science, without Data analysis Data Science & its models are not possible. The fundamentals of any dataset is very important to know before working on any projects of any datasets, like the data structure, data shape, data types etc. sometimes we have to adjust, convert from one form to another, add, remove & replace these fundamentals as per the requirements & objectives of the projects. Statistical visualization is the very important factor in data analysis. Statistical visualization clears the pictures of data and it conveys the story to us what data set wants to tell us. The power of visualization techniques are such that while using visualization we automatically use to get idea what we need more to clean the data pre-process the data & get ready the data for its final objectives.

- Customer satisfaction and customer trust appeared as the outcomes of overall e-retail factor. The results of the analysis showed that e-retail factor had a positive impact on customer satisfaction. The majority of research done about e-retail factor states that customer satisfaction is the main determinant impacting on e-retail factor. It supports the idea that there is a significant relationship between e-retail factor and customer satisfaction. E-retail factor also had a positive impact on customer trust. The better the e-retail factor of a company, the higher the customer trust. Providing good service quality enhances customer satisfaction and customer trust.
- From the above analysis we found that the main reasons or factors which attract consumers to do shopping online and then main reasons or obstacles which discourage consumers from shopping online. Therefore, from the analysis, it is found that most of the respondents use internet daily but most of the respondents do not use internet daily to buy products. Nearly half of the total respondents' opinions were that they would only use the internet to buy products when the need arises to do so.

Limitations of this work and Scope for Future Work:

Limitations:

- The limitation to the analysis is that there are more female customers who shop more on e-tailer websites compared to male customers, this is due to the minimum data. Since the data is very less so it's bit difficult to come to the conclusion on the retention rate.
- There was no dependent variable in the dataset. If the dataset contains target variable, then it gives good visualization and relation between the feature and target and the model prediction is also possible of the target variable present.

FUTURISTIC SCOPE:

Retaining customers costs less than acquiring them, and both add to your company's bottom line. So before you go all-in on tactics designed to get new prospects into your sales pipeline, consider using one of these research-backed customer retention strategies to grow your revenue by keeping the customers you already have.

Stand for something

Very few customers feel they have relationships with the brands they purchase from and use. Most people prefer products and companies that resemble them in some way. This cognitive bias is called [implicit egotism](#) and is an important thing to keep in mind.

Customers are more likely to ignore you if your company doesn't stand for anything. If you want loyal customers, you need to create real connections with them by letting them know what values you share.

What does your company stand for? If you define your values and highlight them as part of your brand, it will be easier to retain the customers who share those values.

Collect feedback with customer surveys

The best way to find out what customers think about your business is to ask them. Using [customer surveys](#) to collect feedback and diagnose potential dissatisfaction is a great starting point to understand what needs to be fixed in your overall online experience.

Capture your product's momentum

When exciting improvements are being made to your product, everyone in the company feels the momentum. But do your customers feel the same way? They won't unless you take the time to share your work.

Create excitement with current customers by showing them what your latest features will help them accomplish.

Don't just sell — educate

The last thing you want to do is leave customers to fend for themselves after they've signed up. It's crucial to offer resources that make it easy for new customers to learn how to use your product.

There are a lot of different ways to train new customers on how to use your product:

- Offer in-product onboarding with tips and tutorials designed to help new customers get started.
- Send a series of lifecycle emails designed to guide new customers through the process of learning how to use your product.
- Provide [one-on-one training sessions](#) with customer support, sales, or an onboarding specialist.
- Create an [online academy of training resources](#) for new customers who prefer self-service training.
- Build a [community of product experts](#) that new and long-time customers alike can turn to when they have questions.

Communicate with your customers

Constant communication with customers via their preferred channel is the key to online customer retention. Today, there are [3.9 billion email users](#) worldwide, and even though social media is very popular, [email is still customers' preferred communication tool](#).

Regardless of where you communicate with customers, it's important to be consistent and to leverage personalization whenever possible for spot-on relevancy.

Provide exceptional customer service

Many companies assume exceptional customer service can only be achieved by [going above-and-beyond](#) — that loyalty is built on showy gestures.

Delight isn't the foundation of a customer service strategy; it's a second-order effect. First, focus on consistently meeting expectations and avoiding unpleasant surprises. Then go the extra mile. Here are a few more tips.

- Provide support on the right channel(s). It's important to make sure you're providing support on the channels that make the most sense for your business and your customers. Hosting companies, for example, know that [live chat](#) is critical when their customers' sites go down; other companies may have customers who prefer using [self-service](#), or even phone support.
- Make customer support a communal effort. Countless case studies have made one thing clear when it comes to creating an efficient support system: you need to keep everybody in the loop.

Accept that speed is secondary to quality

When it comes to highly rated customer service, quality and completeness [matter more than speed](#).

Telling your team to spend more time with customers might seem counterintuitive, but numerous behavioral psychology studies have shown that everyone views their service experience as more positive when they don't feel rushed or ignored.

Whether you're responding to support requests or delivering new features, speed is only delightful if you're delivering exactly what your customers need. You'll do more damage than good by rushing and delivering something that creates more problems than it solves.

12. Use subscriptions to keep customers coming back

Another customer retention strategy is using a subscription model. According to McKinsey, "[15 percent of online shoppers](#) have signed up for one or more subscriptions to receive products on a recurring basis."

To get ecommerce customers on board with the idea of a subscription, consider offering something special and exclusive or a product that they'll constantly use and replenish.

Reward your loyal advocates

When your customers go out of their way to recommend your product or service to others, let them know that you see and appreciate it! If you spot someone recommending your business on social media, for example, reply to say thanks. It shows you're paying attention and that their testimony means something to you.

Another way to recognize your brand advocates is with a referral program.

Retaining customers is a balancing act

There are many customer retention strategies, but there are no shortcuts. You can't hack a personal relationship, so why should we assume business relationships are any different?

The bottom line is that the strategies above should hopefully give you some fresh ideas for approaching retention, but they're not a cure-all. Your product and service will do most of the heavy lifting in keeping customers loyal, and there are no shortcuts for that.

