Marketing Insights

For

E-Commerce Company

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Business Context:

One of the leading E-Commerce Company would like to get marketing insights from the data to define marketing strategies going forward. Also, expecting to build an analytical dashboard to monitor various KPI's & business metrics.

Available Data:

Transaction data has been provided for the period of 1st Jan 2019 to 31st Dec 2019. The below data sets have been provided.

Online_Sales.csv: This file contains actual orders data (point of Sales data) at transaction level with below variables.
CustomerID: Customer unique ID
Transaction_ID: Transaction Unique ID
Transaction_Date: Date of Transaction
Product_SKU: SKU ID – Unique Id for product
Product_Description: Product Description
Product_Category: Product Category
Quantity: Number of items ordered
Avg_Price: Price per one quantity
Delivery_Charges: Charges for delivery
Coupon_Status: Any discount coupon applied

Customers_Data.csv: This file contains customer's demographics.
CustomerID: Customer Unique ID
Gender: Gender of customer
Location: Location of Customer
Tenure_Months: Tenure in Months

Discount_Coupon.csv: Discount coupons have been given for different categories in different months
Month: Discount coupon applied in that month
Product_Category: Product category
Coupon_Code: Coupon Code for given Category and given month
Discount_pct: Discount Percentage for given coupon

Marketing_Spend.csv: Marketing spend on both offline & online channels on day wise.
Date: Date
Offline_Spend: Marketing spend on offline channels like TV, Radio, NewsPapers, Hordings etc…

Online_Spend: Marketing spend on online channels like Google keywords, facebook etc..

Tax_Amount.csv: GST Details for given category
Product_Category: Product Category
GST: Percentage of GST

Key Definitions:
Invoice Value: Invoice Value =((Quantity*Avg_price)*(1-Dicount_pct)*(1+GST))+Delivery_Charges
Average order value = Revenue / Transaction per customer

Profit Margin Profit margin is the commonly used profitability ratio. It represents how much percentage of total sales has earned as the gain.

Purchase Frequency is the average number of purchases made by a customer over a defined period of time (typically one month or one year). It is the sum of total number transactions divided by total number customers.

Repeat rate shows you the percentage of your current customer base that has come back to shop again.

Churn Rate is the annual percentage rate at which customers stop subscribing.

Customer lifetime value, lifetime customer value, or life-time value is a prediction of the net profit/revenue attributed to the entire future relationship with a customer.

Business Objective:

The e-commerce company is expecting below analysis using the data

1. Calculate Invoice amount or sale_amount or revenue for each transaction and item level
    - Invoice Value = ((Quantity*Avg_price)*(1-Dicount_pct)*(1+GST)) + Delivery_Charges
2. Perform Detailed exploratory analysis
    - Understanding how many customers acquired every month
    - Understand the retention of customers on month on month basis
    - How the revenues from existing/new customers on month on month basis
    - How the discounts playing role in the revenues?
    - Analyse KPI's like Revenue, number of orders, average order value, number of customers (existing/new), quantity, by category, by month, by week, by day etc…
    - Understand the trends/seasonality of sales by category, location, month etc…
    - How number order varies and sales with different days?
    - Calculate the Revenue, Marketing spend, percentage of marketing spend out of revenue, Tax, percentage of delivery charges by month.
    - How marketing spend is impacting on revenue?

- Which product was appeared in the transactions?
- Which product was purchased mostly based on the quantity?

3. Performing Customer Segmentation
    - Heuristic (Value based, RFM) – Divide the customers into Premium, Gold, Silver, Standard customers and define strategy on the same.
    - Scientific (Using K-Means) & Understand the profiles. Define strategy for each segment.
4. Predicting Customer Lifetime Value (Low Value/Medium Value/High Value)
    - First define dependent variable with categories low value, medium value, high value using customer revenue.
    - Then perform Classification model
5. Cross-Selling (Which products are selling together)
    - You can perform exploratory analysis & market basket analysis to understand which of items can be bundled together.
6. Predicting Next Purchase Day(How soon each customer can visit the store (0-30 days, 30-60 days, 60-90 days, 90+ days)
    - For this, we need create dependent variable at customer level (average days per one transaction for only repeat customers and divide into groups 0-30 days, 30-60 days, 60-90 days and 90+ days) then build classification model to predict next purchase of given customer.
7. Perform cohort analysis by defining below cohorts
    - Customers who started in each month and understand their behaviour
    - Which Month cohort has maximum retention?

Other inputs related to Analysis for additional reference:

1. Why do we need customer Segmentation?

As every customer is unique and can be targeted in different ways. The Customer segmentation plays an important role in this case. The segmentation helps to understand profiles of customers and can be helpful in defining cross sell/upsell/activation/acquisition strategies.

2. What is RFM Segmentation?

RFM Segmentation is an acronym of recency, frequency and monetary based segmentation.

Recency is about when the last order of a customer. It means the number of days since a customer made the last purchase. If it's a case for a website or an app, this could be interpreted as the last visit day or the last login time.

Frequency is about the number of purchases in a given period. It could be 3 months, 6 months or 1 year. So we can understand this value as for how often or how many customers used the product of a company. The bigger the value is, the more engaged the customers are.

Alternatively

We can define, average duration between two transactions

Monetary is the total amount of money a customer spent in that given period. Therefore big spenders will be differentiated with other customers such as MVP or VIP.

3. What is LTV and How to define it?

In the current world, almost every retailer promotes its subscription and this is further used to understand the customer lifetime. Retailer can manage these customers in better manner if they know which customer is high life time value.

Customer lifetime value (LTV) can also be defined as the monetary value of a customer relationship, based on the present value of the projected future cash flows from the customer relationship. Customer lifetime value is an important concept in that it encourages firms to shift their focus from quarterly profits to the long-term health of their customer relationships. Customer lifetime value is an important metric because it represents an upper limit on spending to acquire new customers. For this reason it is an important element in calculating payback of advertising spent in marketing mix modelling.

4. Why do need to predict Customer Lifetime Value?

The **LTV** is an important building block in campaign design and marketing mix management. Although targeting models can help to identify the right customers to be targeted, LTV analysis can help to quantify the expected outcome of targeting in terms of revenues and profits. The LTV is also important because other major metrics and decision thresholds can be derived from it.

For example, the LTV is naturally an upper limit on the spending to acquire a customer, and the sum of the LTVs for all of the customers of a brand, known as the customer equity, is a major metric for business valuations. Similarly to many other problems of marketing analytics and algorithmic marketing, LTV modelling can be approached from descriptive, predictive, and prescriptive perspectives.

5. How Next Purchase Day helps to Retailers?

Our objective is to analyse when our customer will purchase products in the future so for such customers we can build strategy and can come up with strategies and marketing campaigns accordingly.

a. Group-1: Customers who will purchase in more than 60 days
b. Group-2: Customers who will purchase in 30-60 days
c. Group-3: Customers who will purchase in 0-30 days

6. What is Cohort Analysis? How it will be helpful?

A cohort is a group of users who share a common characteristic that is identified in this report by an Analytics dimension.

For example, all users with the same Acquisition Date belong to the same cohort.

The Cohort Analysis report lets you isolate and analyze cohort behaviour.

Cohort analysis in e-commerce means to monitor your customers' behaviour based on common traits they share – the first product they bought, when they became customers, etc. - - to find patterns and tailor marketing activities for the group.