E-Commerce Data and Customer Retention Analysis with SQL

An e-commerce organization demands some analysis of sales and delivery processes. Thus, the organization hopes to be able to predict more easily the opportunities and threats for the future.

Acording to this scenario, You are asked to make the following analyzes consistant with following the instructions given.

Introduction

- You can benefit from the Entity Relationship Diagram (ERD) given to you during your work.
- You have to create a database and import into the given csv files. (https://www.youtube.com/watch?v=14FpoXKTEJw)
- During the import process, you will need to adjust the date columns. You need to carefully observe the data types and how they should be. In our database, a star model will be created by one fact table and four dimension tables.
- The data are not very clean and fully normalized. However, they don't prevent you from performing the given tasks. In some cases you may need to use the string, window, system or date functions.
- There may be some situations where you need to update the tables.
- Manually verify the accuracy of your analysis.

OPTIONAL: You can clean and normalize the data, change the data types of some columns, clear the id columns, and assign them as keys. Then you can create the data model.

Analyze the data by finding the answers to the questions below:

1. Using the columns of “market_fact”, “cust_dimen”, “orders_dimen”, “prod_dimen”, “shipping_dimen”, Create a new table, named as “combined_table”.
2. Find the top 3 customers who have the maximum count of orders.

3. Create a new column at combined_table as DaysTakenForDelivery that contains the date difference of Order_Date and Ship_Date.
4. Find the customer whose order took the maximum time to get delivered.
5. Count the total number of unique customers in January and how many of them came back every month over the entire year in 2011
6. Write a query to return for each user the time elapsed between the first purchasing and the third purchasing, in ascending order by Customer ID.
7. Write a query that returns customers who purchased both product 11 and product 14, as well as the ratio of these products to the total number of products purchased by the customer.

Customer Segmentation

Categorize customers based on their frequency of visits. The following steps will guide you.

1. Create a “view” that keeps visit logs of customers on a monthly basis. (For each log, three field is kept: Cust_id, Year, Month)
2. Create a “view” that keeps the number of monthly visits by users. (Show separately all months from the beginning business)
3. For each visit of customers, create the next month of the visit as a separate column.
4. Calculate the monthly time gap between two consecutive visits by each customer.
5. Categorise customers using average time gaps. Choose the most fitted labeling model for you.

   For example:

   - Labeled as *churn* if the customer hasn't made another purchase in the months since they made their first purchase.
   - Labeled as *regular* if the customer has made a purchase every month.

     Etc.

Month-Wise Retention Rate

Find month-by-month customer retention rate[i] since the start of the business.

There are many different variations in the calculation of Retention Rate. But we will try to calculate the month-wise retention rate in this project.

So, we will be interested in how many of the customers in the previous month could be retained in the next month.

Proceed step by step by creating “views”. You can use the view you got at the end of the Customer Segmentation section as a source.

1. Find the number of customers retained month-wise. (You can use time gaps)
2. Calculate the month-wise retention rate.

*Month-Wise Retention Rate = 1.0 * Number of Customers Retained in The Current Month / Total Number of Customers in the Current Month*

Good luck!

- [i]**Customer retention refers to the ability of a company or product to retain its customers over some specified period.**

  https://en.wikipedia.org/wiki/Customer_retention
  https://www.shopify.com/blog/customer-retention-strategies
  https://ecommercefastlane.com/importance-ecommerce-customer-retention-strategies-keep-customers-coming-back/