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Sales Insights

An end to end project using MySQL and Tableau

1. Business Question

AtliQ Hardware is a company that specialize in manufacturing computer hardware and peripheral devices. It supplies computers, networking equipments, and other peripheral devices to various clients such as Suger Store, Nomad Stores, Excel Stores, and Electricalsara Stores. The company has branches located in different states of India including Rajasthan, Uttar Pradesh, and Gujarat. Although their business operations are currently limited to India only, their head office is in Delhi. Bhavin Patel serves as the sales director of the company, is responsible for managing the business operations from the head office.

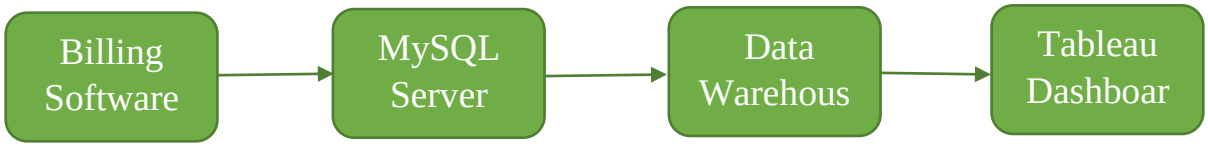
The business is experiencing a decline in sales, and Bhavin is struggling to identify the actual reason for this decline. When he tries to discuss the issue with his regional or state managers, they provide excuses or present a rosy picture that may not reflect reality. As the sales director, Bhavin is unsure about what is happening at the ground level. When he asks for reports, he receives large Excel files that are difficult to consume. He wants to enquire who are the top 5 customers, which regions are experiencing decline in sales, and what his aggregate revenue was in the last year. With this information, Bhavin can make informed business decisions.

This is where my role comes into the picture. I work as a data analyst at AtliQ Hardware, and Bhavin called me to explain the situation and ask for my assistance. After reviewing the business model, concept, Excel files, and data pipeline, I informed Bhavin that as a data analyst, I could provide him with a dynamic, fully functional Tableau dashboard that would be connected to our data warehouse. The dashboard would be able to answer all of his questions with just a single click and I could also send him monthly reports with the same information.

2. Getting Data

The data is generated by a billing software that is used daily and is saved on a MySQL server. However, to use this data in Tableau, we need to make a copy of it in a data warehouse. This is because fetching data directly from the MySQL server can hinder business activities due to heavy traffic. Therefore, we retrieve the data from the data warehouse instead of the MySQL server.

Data Pipeline



To achieve this, we need to establish two secure connections. The first connection is from the MySQL server to the data warehouse, and the second is from the data warehouse to Tableau. After establishing the connections, we perform some ETL (Extract, Transform, Load) processes in Tableau to eliminate any anomalies in the data.

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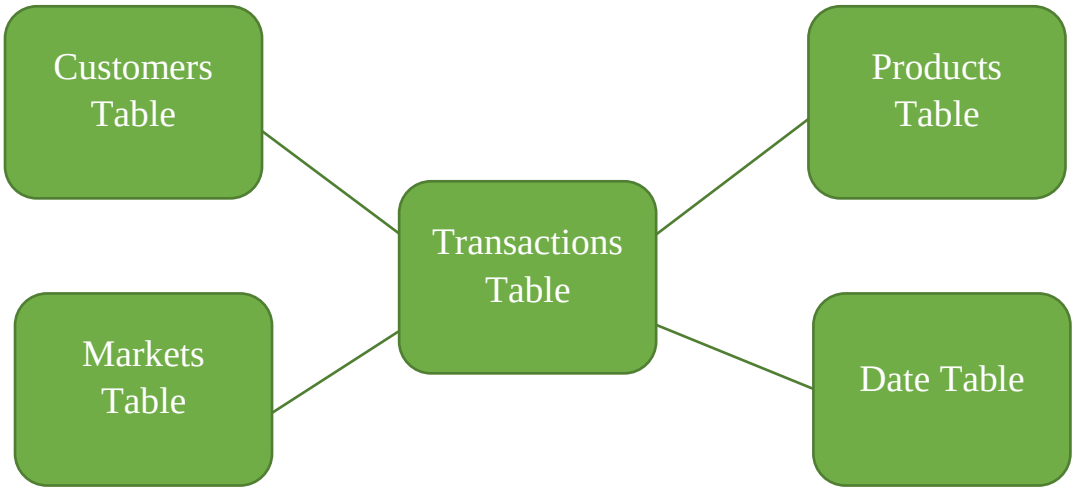
3. About Data

The data is in the form of four tables: Customers, Date, Markets, Products, and Transactions. This is similar to a star schema, where the Transactions table is the central table and the others are its dimensions, as shown in the figure.



And here is how same relations looks like in Tableau:

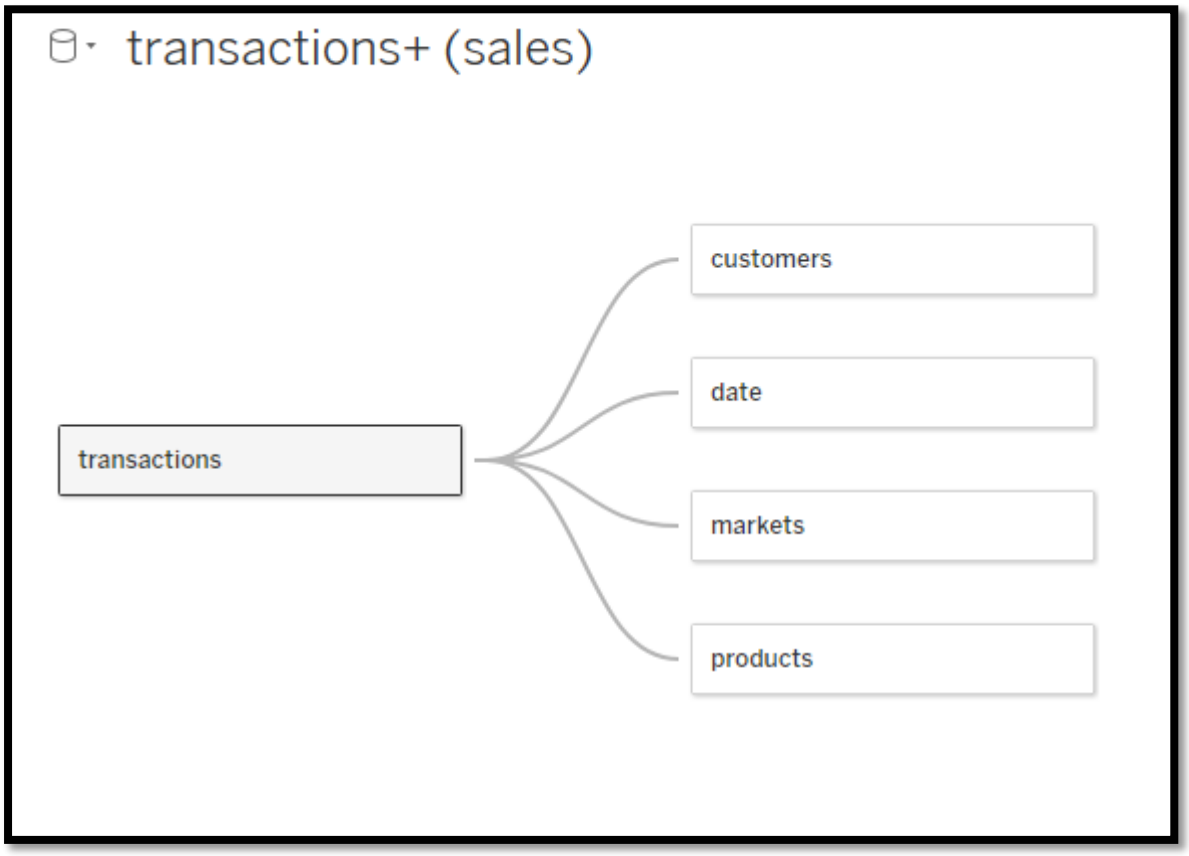


Table information

Transaction Table #Rows=150283 #columns=7

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Product_code: (string) unique code for each product (Referenced from Products table)

Customer_code: (string) unique code for each customer (Referenced from customers table)

Market_code: (string) unique code for each market (Referenced from markets table)

Order_date: (date) Date of the order (Referenced from dates table)

Saltes_qty: (int) quantity of the order

Sales_amount: (int) value of the order

Currency: (string) currency used in transection

Customers Table #Rows=38 #columns=3

Customer_code: (string) unique code for each customer (Referenced in Transaction table)

Customer_name: (string) name of customer

Customer_type: (string) type of customer

Markets Table #Rows=38 #columns=3

Markets_code: (string) unique code for each market (Referenced in Transaction table)

Markets_name: (string) name of market

Zone: (string) zone of market

Products Table #Rows=279 #columns=2

Product_code: (string) unique code for each product (Referenced in Transaction table)

Product_type: (string) type of product

Dates Table #Rows=1126 #columns=5

Date: (date) date of transection (Referenced from Transaction table)

Cy_date: (date) month start date of transaction (Cycle date)

Year: (int) year start date of transaction

Month_name: (string) month of transaction

Date_yy_mmm: (string) date & month of transaction

4. Data Preparation (ETL)

Although AtliQ Hardware's business operations are only in India, I noticed some entries in the Excel files that were from New York. These could be due to the company having done business in New York in the past, but for now, these entries are anomalies. Furthermore, while examining the currency column,

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I found that for a few bills, the transaction currency was listed as USD instead of INR. In such cases, the transaction amount needs to be normalized using currency conversion. Therefore, there are some ETL processes that we need to perform before proceeding further.

So I added to calculated fields in the Tableau as follow:

1. Dropped out the markets where market name is “New York”
2. Normalized Amount = IF [Currency] == "USD"

   THEN [Sales Amount]*90

   ELSE [Sales Amount] END

5. Deliverables

A fully functional dashboard which 7 widgets as follow

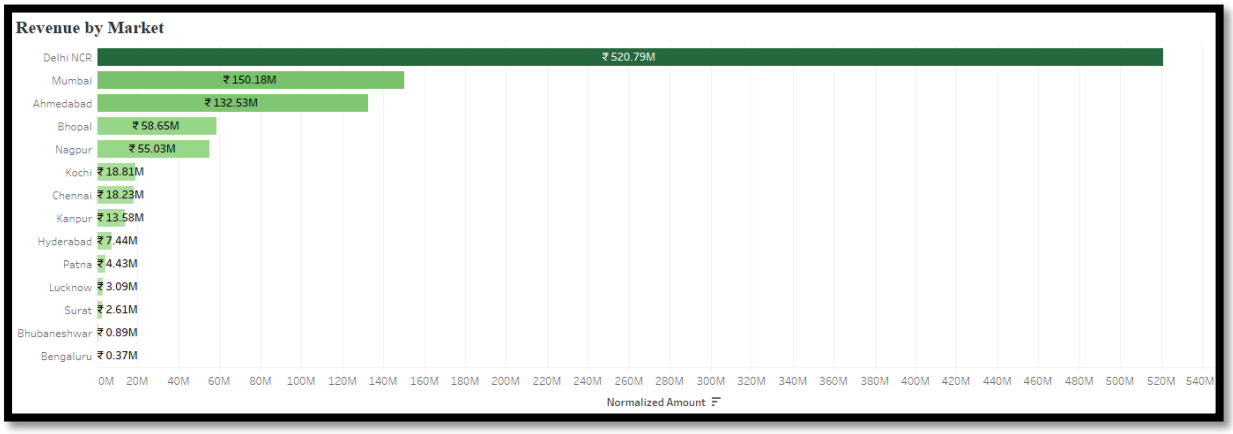
1. Total Revenue
2. Revenue by Market
3. Top 5 Customers
4. Top 5 Products
5. Total Quantity
6. Quantity by Market
7. Monthly Revenue Trend

6. Analysis

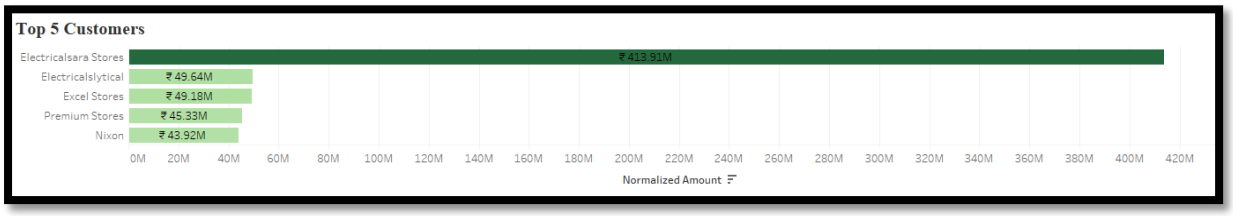
I began constructing sheets one at a time to deliver the following objectives and the results.

1. Total Revenue

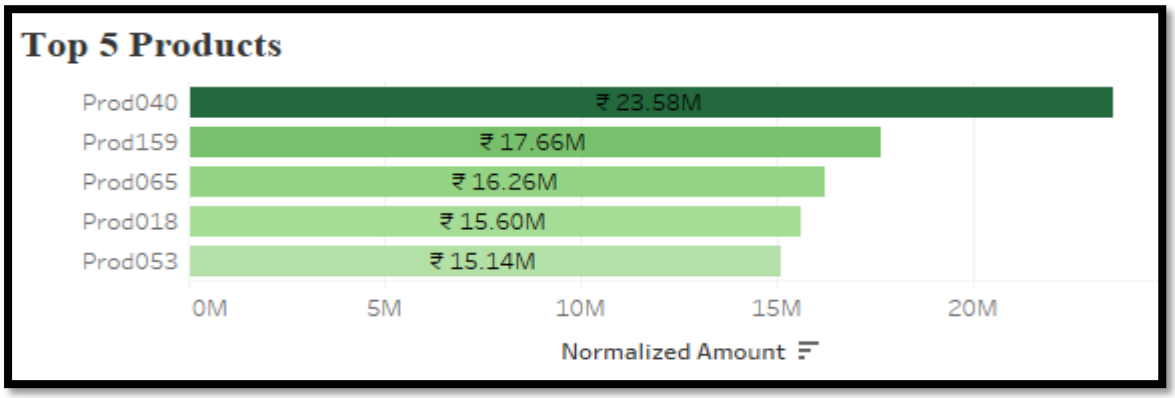
2. Revenue by Market



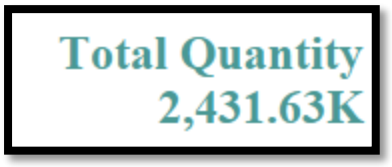
3. Top 5 Customers



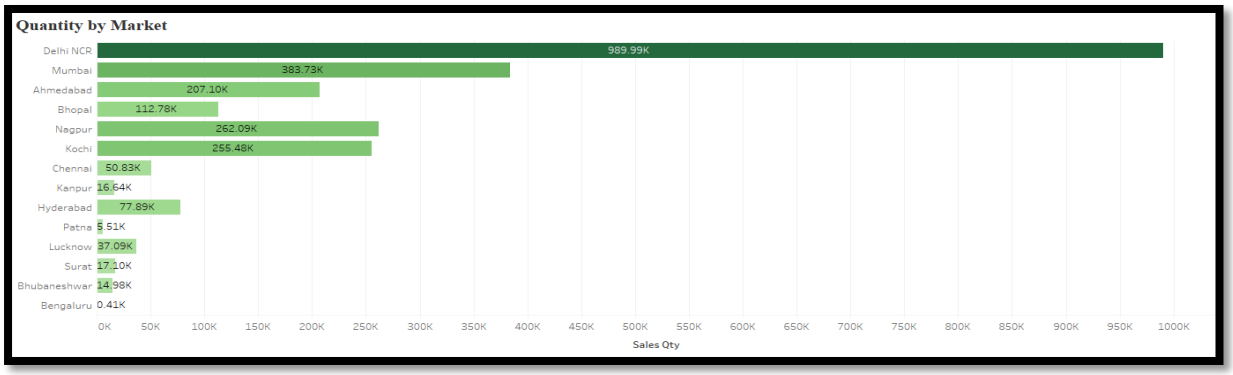
4. Top 5 Products



5. Total Quantity



6. Quantity by Market



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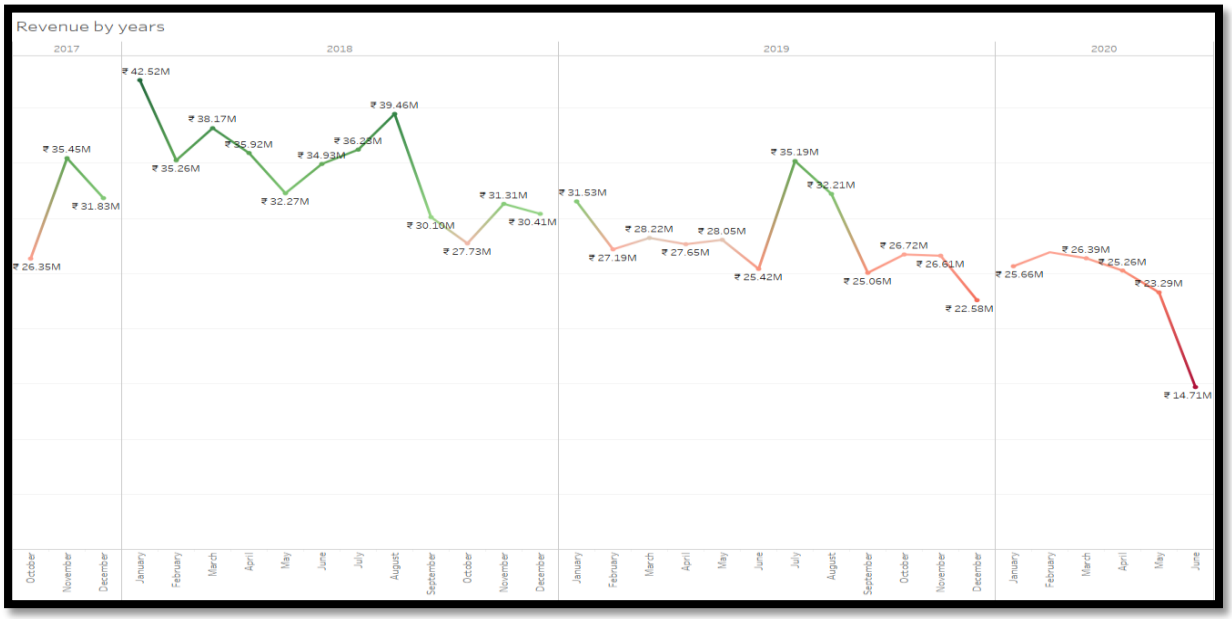
7. Monthly Revenue Trend



Finally, I finished every task that was assigned to me, and now I will develop a dashboard and send it together with this document to Bhavin. After he looks over the dashboard, we will briefly discuss it to clarify all the parameters and conclusions.

7. Few functionalities of dashboard

Dashboard for FY 2017

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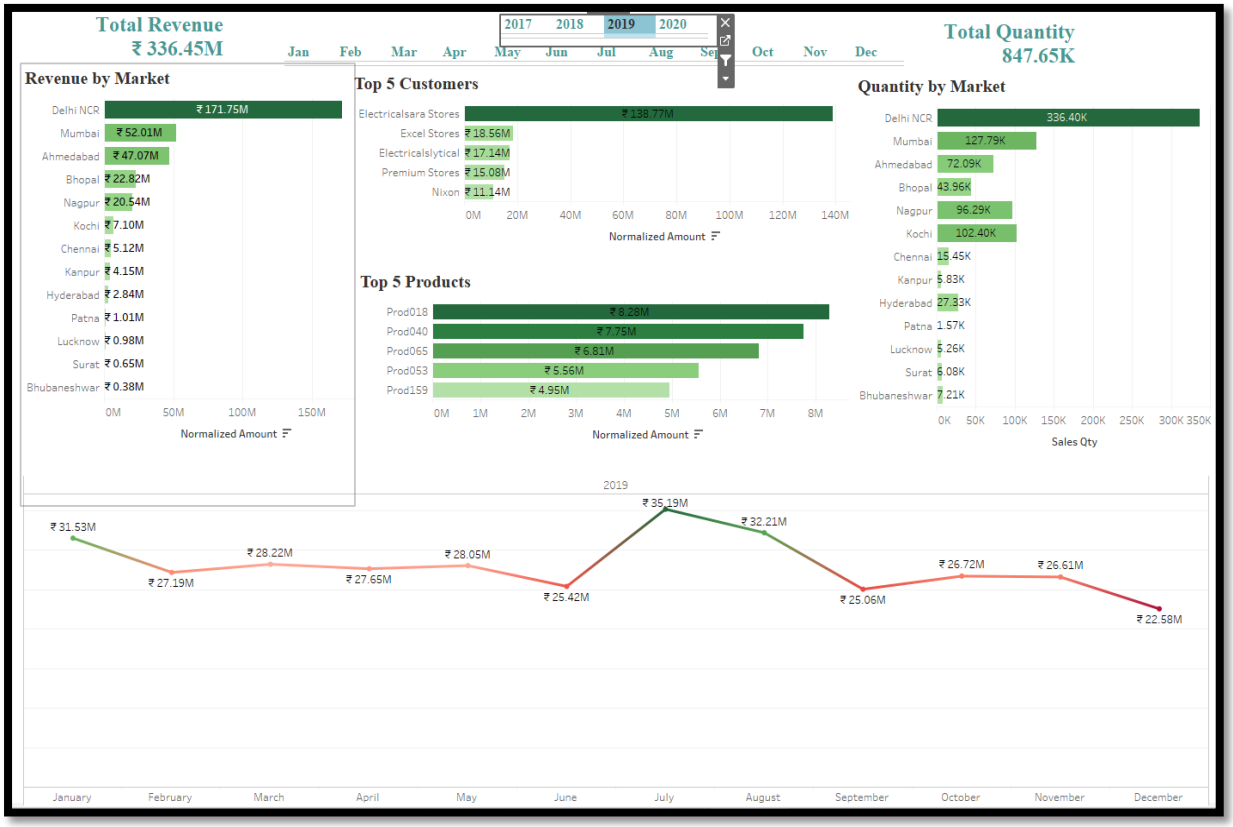
Dashboard for FY 2018

Dashboard for FY 2019



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Dashboard for FY 2020

8. Important links

Git repository: https://github.com/Harish-or-Peter/Salaes-insights.git

Demonstration of dashboard video: https://bit.ly/3uW3zzJ

Resources at drive: https://bit.ly/3fl3qmp

--The End--