**Sales Insights Data Analysis Project**

**Atliq Hardware**

Project Documentation

**Problem Statement**

Atliq Hardware is company that manufactures Computer Hardware and peripherals. They supply the hardwares to stores such as Surge Store, Nomad Store, Excel Store, Electricalsara stores and have offices across India. Sales director of Atliq hardware wants to understand the sales as the sales are declining, so have asked regional managers to provide insights from respective regions north, south, east, west, and central of India. The Director is trying to understand why the sales are declining, so that they take effective measures like discount offers, and engage with customers in better way. Now, atliq sales director has started planning on the Data analysis project.

**AIMS Grid for Data Analysis Project**

**Purpose:** To unlock sales insight that are not visible before the sales team for decision support and automate them to reduced manual time spent in data gathering.

**Stakeholders:** Sales Director, Marketing Team, Customer Service Team, Data & Analytics Team, IT

**End Result:** An automated dashboard providing quick & latest sales insights in order to support data driven decision making.

**Success criteria:** Dashboard(s) uncovering sales order insights with latest data available. Sales team able to take better decisions and prove 10% cost savings of total spend. Sales Analysts stop data gathering manually in order to save 20% of their business time and reinvest it in value added activity.

**Import the Data**

Imported the Data from SQL dump file to SQL server database.

A screenshot of a computer

Description automatically generated

**Data Analysis Discovery phase (SQL)**

Imported the data into MYSQL database and ran queries to understand the data. Following are the SQL queries to perform ad hoc analysis.

* **Transcations in year 2020**

select \* from transactions t join sales.date d on t.order\_date = d.date where year = 2020;

* **Total Revenue in year 2020**

select sum(sales\_amount) from transactions t join sales.date d on t.order\_date = d.date where year = 2020;

* **Total Revenue in year 2020 and Chennai**

select sum(sales\_amount) from transactions t join sales.date d on t.order\_date = d.date where year = 2020 and market\_code = 'Mark001';

* **Distinct Products sold in Chennai**

select distinct product\_code from transactions where market\_code = "Mark001";

* **Check sales amount less than 0**

select \* from transactions where sales\_amount <=0;

* **Check sum of sales in 2020**

select sum(sales\_amount) from transactions where year(order\_date)=2020;

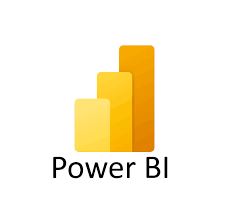
* **Total Revenue in year 2020 in Mumbai**

select sum(transactions.sales\_amount) FROM transactions INNER JOIN date ON transactions.order\_date=date.date where date.year=2020 and transactions.market\_code="Mark002";

* **Total revenue in year 2019, January Month,**

select sum(transactions.sales\_amount) FROM transactions INNER JOIN date ON transactions.order\_date=date.date where date.year=2020 and date.month\_name="January" and transactions.currency="INR\r" or transactions.currency="USD\r");

**ETL and Data Cleaning (Power BI)**



* Removed unnecessary data sales\_markets table pertaining to states outside India as it only works in India.
* Removed the transactions with sales\_amount less than or equal to 0 as it does not make sense.
* Created conditional columns to convert some of the transaction amounts to USD.
* Removed Duplicate values in sales transactions table.
* After performing the transformations, loaded the data in semantic model.

**Data Modelling**

It is always best practice to perform data modelling as per the star schema as the data can be easily sliced according to dimensions based on fact table. You don not have to write complex joins, which fastens the performance of reporting. In this project, I have modelled the data as per star schema. Sales transactions is the fact table as it has the lowest granularity of data. The other four tables sales customers, sales products, sales markets, sales date are dimension tables as they contain categories.

A screenshot of a computer screen

Description automatically generated

**Dashboard Development**

**Sales Insights**

* Purpose: To highlight overall sales insights over markets, customers, and product with respect to date.
* Plotted two measures Total sales and Total Quantity sold to get a holistic idea on how much Total Revenue is generated and Total Quantity Sold.
* Build clustered bar charts:
  + Revenue by City to get an insight into how much revenue is generated in each city.
  + Total Quantity Sold by City to get an insight into how much quantity is sold in each city.
  + Top 5 Customers by Revenue using TOP N advance filter.
  + Top 5 Products by Revenue by using TOP N advance filter.
* Build a line chart to see revenue trend over the months across years.
* Added Slicers to filter over years and month of different years.
  + Year
  + Month

**Profit Analysis**

* Purpose: To highlight profit insights over markets and customers with metrics such as Revenue contribution %, Profit Contribution %, Profit Margin %
* Plotted three measures Revenue, Total Quantity, Total Profit to get a holistic idea on how much Total profit is to Total Revenue.
* Build clustered bar charts:
  + Revenue contribution by market to analyze how much % of revenue is generated by each market out of Total Revenue generated.
  + Profit contribution by market to analyze how much % of profit is generated by each market out of Total profit generated.
  + Profit Margin by market to analyze profit margin % of each market.
* Build a line chart to see revenue trend over the months across years.
* Added Slicers to filter over years and month of different years.
  + Year
  + Month

**Performance Insights**

* Purpose: To measure the performance of profits in different markets and per customer with respect to targets. Setting target helps assess the performance of markets with respect to profit margin %. Markets performing below target will be highlighted in red.
* Plotted three measures Revenue, Total Quantity, Total Profit to get a holistic idea on how much Total profit is to Total Revenue.
* Build clustered bar charts:
  + Revenue contribution by market to analyze how much revenue is generated this year compared to last year with clustered bars and line highlights profit margin %.
* Table shows Revenue, Revenue contribution%, Profit Margin contribution%, Profit Margin%,
  + Profit Margin by market to analyze profit margin % of each market.
* Added Slicers to filter over years and months of different years.
  + Year
  + Month

**DAX (Data Analysis Expressions)**

**Key Measures:**

Revenue = SUM('sales transactions'[sales\_amount])

Total Qty sold = SUM('sales transactions'[sales\_qty])

Total Cost = SUM('sales transactions'[cost\_price])

Total Profit = SUM('sales transactions'[norm sales amount])

Average Profit Margin Percentage = AVERAGE('sales transactions'[profit\_margin\_percentage])

Profit Margin % = DIVIDE([Total Profit],[Revenue],0)

Profit Margin Contribution % = DIVIDE([Total Profit],CALCULATE([Total Profit],ALL('sales customers'),ALL('sales products'),ALL('sales markets')))

Sales Contribution % = DIVIDE([Revenue],CALCULATE([Revenue],ALL('sales customers'),ALL('sales products'),ALL('sales markets')))

Target Difference = [Profit Margin %] - [Profit Target Value]

Revenue LY = CALCULATE([Revenue],SAMEPERIODLASTYEAR('sales date'[date]))

**Insights and Actions**

Insights

* Mumbai is performing well in terms of profit as it contributes most in profit shares i.e. 23.89 % with 14.19 % of revenue share.
* Electricalsara stores, Nixon and electricalsytical are the best profit contributing customers as their profit margin contribution is 37.75%, 7.24%, 6.85% respectively.
* Electricalslance is the worst profit contributing customer as their profit margin contribution % is -0.15 % and Profit margin is -2.01%, which decreases our profit.
* With 1% profit margin % target, Hyderabad(0.63%), Kanpur(-0.49%), and Bengaluru(-20.78%) are not well performing markets.

Actions

* We can implement sales strategies that are applied in Mumbai to other Markets.
* We can provide discounts to most profit contributing customers.
* Analyze what is happening wrong with epic stores and strategize accordingly.
* Classify the customers according to range of profit contribution and profit margin.