## Sales Insights Data Analysis Project

**Date:** 15.12.2024

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## Introduction

**Project Objective:** The primary goal of this project is to assist AtliQ Hardware in gaining a deeper understanding of its sales performance and supporting decision-making processes. Through an analysis of the available data, critical insights such as sales trends, regional performance disparities, and customer behaviors are uncovered.

Using prepared visualizations and summary reports, the project aims to empower decision-makers with accurate and reliable data to make strategic choices. Specific objectives include identifying underperforming sales regions, creating campaigns to enhance customer loyalty, and optimizing business processes. Ultimately, the insights gained will provide direct support to decision-makers such as Bhavin Patel and strengthen AtliQ Hardware's market competitiveness by boosting sales.

**Problem Statement:** AtliQ Hardware is a company supplying computer hardware and peripherals to clients across India. One of its key customers is Excel Stores, a retail chain with operations throughout the country. AtliQ Hardware operates via its headquarters in Delhi and regional offices across various parts of India.

Bhavin Patel, the company’s Sales Director, faces significant challenges in managing sales in a dynamic and growing market. One major issue is the lack of actionable and transparent sales insights. Bhavin currently relies on verbal updates from Regional Managers responsible for operations in North, South, and Central India. However, these discussions are often subjective, and managers tend to portray a more positive picture than the reality. This prevents Bhavin from obtaining an accurate overview of the company’s performance.

When Bhavin requests data, he is presented with numerous Excel files containing raw data. While these files include essential information, they lack the clarity and simplicity required for informed decision-making. The overwhelming volume of data leaves Bhavin frustrated, making it difficult to pinpoint critical areas needing attention.

Bhavin desires a clear and concise overview of the business. A reliable visualization tool, such as a Power BI/Qlik Sense dashboard, can present key metrics like revenue trends, customer insights, and regional performance in an easily digestible format. Such a solution would enable Bhavin to make data-driven decisions without relying on subjective verbal reports or sifting through numerous spreadsheets.

By implementing this solution, Bhavin can focus on identifying underperforming sales regions and deploying targeted promotions or customer engagement strategies. Automated email summaries generated monthly from the dashboard will ensure Bhavin stays updated, enhance transparency, and facilitate proactive decision-making.

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## Data Description

The data analyzed in this project represents a comprehensive dataset that highlights AtliQ Hardware's sales performance. It includes records sourced from the company's operational systems and sales data from large clients like Excel Stores. Additionally, it encompasses customer details maintained by regional offices, order details, and monthly/quarterly financial reports. As such, the data reflects the diverse operations of various departments (marketing, sales, customer service, etc.) and multiple geographic regions (North, South, and Central India).

The project's goal is to derive meaningful insights from this data to aid managers in making sound and timely decisions. Both high-level metrics (e.g., total sales volume, revenue trends, regional breakdowns) and detailed analyses (e.g., product-specific sales figures, customer behaviors, order channels) are targeted. The dataset is expected to guide time-series analyses, sales trend identification, and improvement opportunities in business processes.

**Data Sources and Characteristics**

**Operational Database (MySQL):**

- **Source & Content:** Includes AtliQ Hardware's transactional data such as sales orders, invoice details, and inventory movements.
- **Update Frequency:** Data is logged in real-time after each transaction (e.g., new orders, cancellations, inventory changes).
- **Characteristics:** Based on a relational model, the tables feature numerical fields (e.g., quantities, prices), text fields (e.g., customer/product descriptions), and date-time fields.

**Excel Files:**

- **Source & Content:** Regional managers' regular reports and sales data from Excel Stores in Excel format. Includes monthly revenue summaries, customer lists, and product performance data.
- **Update Frequency:** Updated monthly or quarterly; occasionally weekly for campaign analyses.
- **Characteristics:** May contain inconsistencies or missing fields, necessitating ETL (Extract, Transform, Load) processes for cleaning and standardization.

**External Data Sources (if applicable):**

- **Source & Content:** Public economic indicators or sector-specific data providers for monitoring market trends. May also include unstructured data such as customer satisfaction surveys or social media feedback.
- **Update Frequency:** Varies based on source; typically monthly or quarterly.
- **Characteristics:** External data may vary in format and quality, requiring integration and transformation for consistency with internal datasets.

**Visualization Tools (Power BI/Qlik Sense):**

- **Purpose & Content:** Used to visualize MySQL and Excel data. Interactive dashboards present user-friendly charts, tables, and key metrics.
- **Characteristics:** Supports automated data refreshes, data integration from multiple sources, and interactive reporting, enabling decision-makers to derive insights in real-time or on a scheduled basis.

The primary challenge lies in unifying data from varied formats and update frequencies into a cohesive framework. Data cleaning and transformation steps are prioritized to create an accurate and consistent structure, enabling decision-makers like Bhavin Patel to track regional and overall sales performance seamlessly through a single dashboard.

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## Methodology and Tools

**Methodology:** The project employs the AIMS Grid methodology, a project management framework comprising four components:

1. **Aim:** Reveal previously hidden sales insights for decision-making and reduce manual data collection time through automation.
2. **Stakeholders:** Sales Director, Marketing Team, Customer Service Team, Data & Analytics Team, IT.
3. **Outcome:** Develop automated dashboards providing up-to-date sales insights to support data-driven decisions.
4. **Success Criteria:**
    - Creation of dashboards revealing sales order insights using the latest data.
    - Improvement in decision-making capabilities of the sales team.
    - Demonstration of a 10% cost-saving in overall spending.
    - Reduction of manual data collection by 20%, freeing analysts' time for value-added activities.

**Data Preparation Steps:**

1. Data Analysis Using SQL.
2. Data Cleaning & ETL.
3. Dashboard Development.
4. Stakeholder Feedback.
5. Publishing.
6. Revisions Based on Feedback.

**Tools Used:**

- MySQL
- Power BI/Qlik Sense
- Excel

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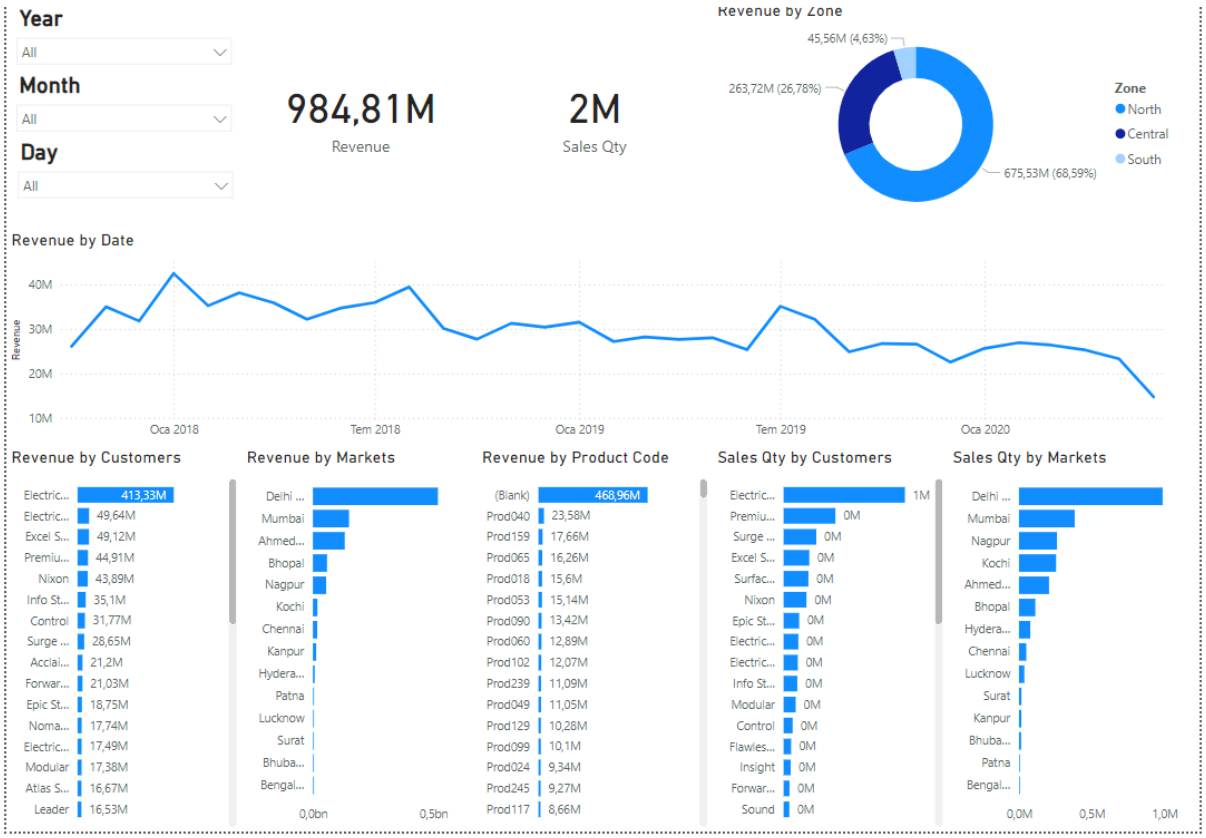
## Analysis and Findings

**Model Performance Results:** The data model was constructed using the star schema methodology, ensuring optimal performance and scalability.

**Business Value Insights:** The data analysis yielded key insights, which were presented to stakeholders via an interactive dashboard. The initial version of the report allowed decision-makers to identify revenue trends, underperforming regions, and customer behavior patterns. Stakeholder feedback guided necessary revisions to the dashboard, further enhancing its utility.

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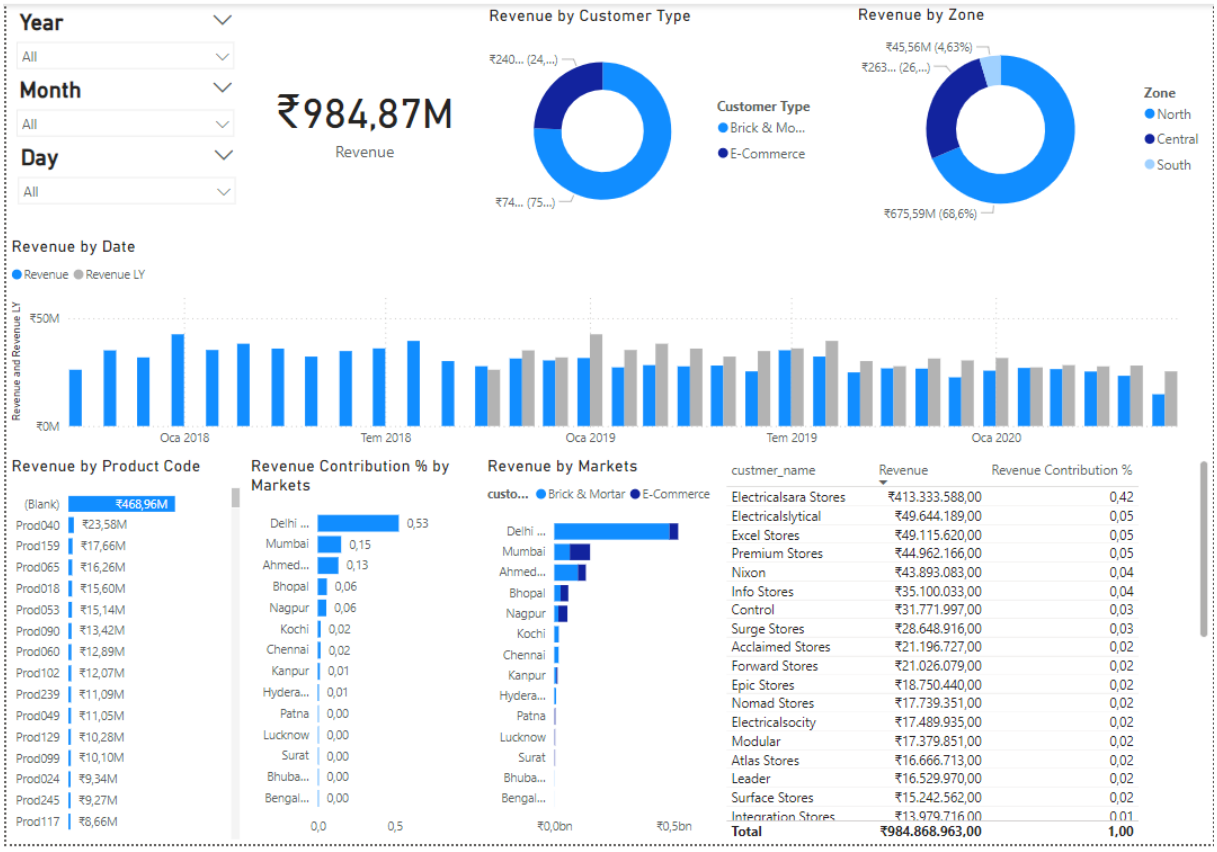
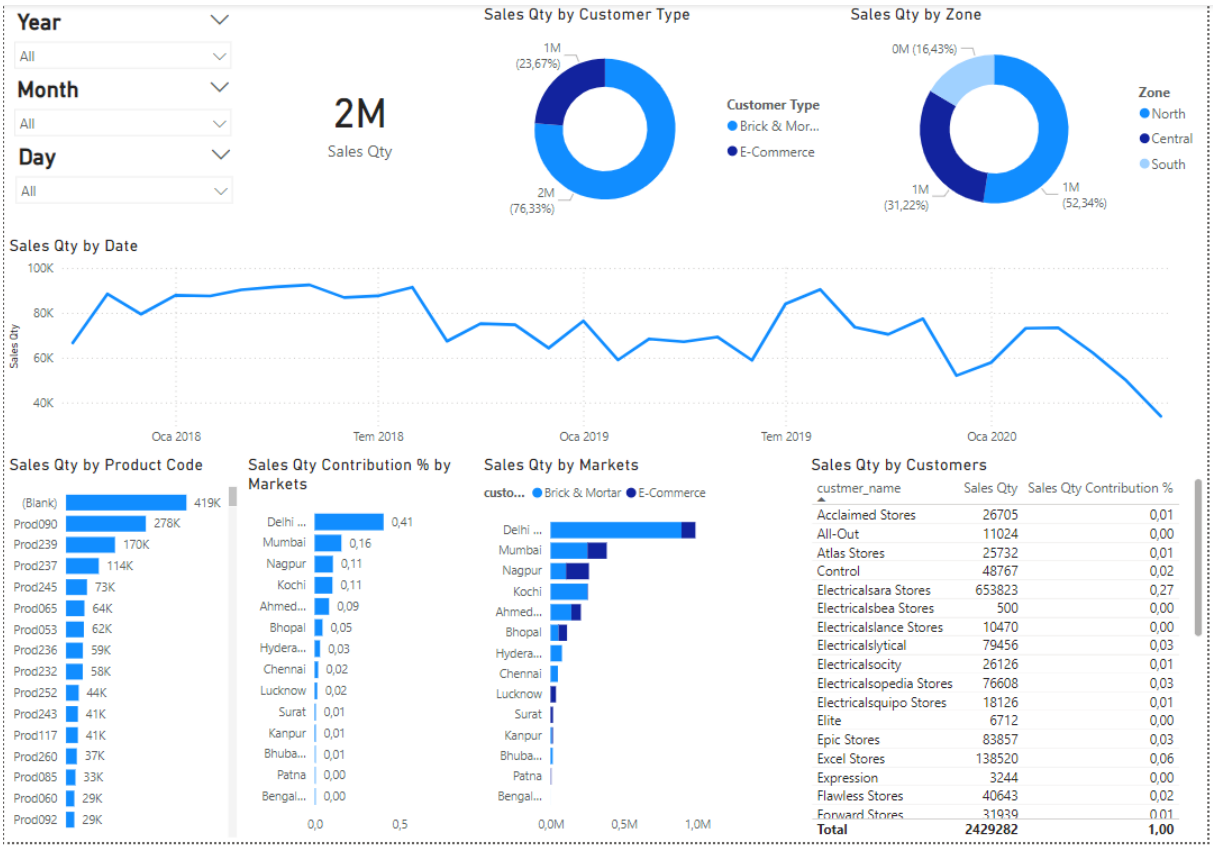
## Conclusion and Recommendations

**Recommendations for Business Decisions:** Based on stakeholder feedback, the report was revised to ensure it provided actionable insights. The updated version focused on key metrics that directly addressed business needs.


Year
All
Month
All
Day
All
₹984,87M
Revenue
Revenue by Customer Type
₹240... (24,...)
₹74... (75...)
Customer Type
Brick & Mo...
E-Commerce
Revenue by Zone
₹45,56M (4,63%)
₹263... (26,...)
₹675,59M (68,6%)
Zone
North
Central
South
Revenue by Date
Revenue
Revenue LY
Revenue and Revenue LY
₹50M
₹0M
Oca 2018
Tem 2018
Oca 2019
Tem 2019
Oca 2020
Revenue by Product Code
(Blank) ₹468,96M
Prod040 ₹23,58M
Prod159 ₹17,66M
Prod065 ₹16,26M
Prod018 ₹15,60M
Prod053 ₹15,14M
Prod090 ₹13,42M
Prod060 ₹12,89M
Prod102 ₹12,07M
Prod239 ₹11,09M
Prod049 ₹11,05M
Prod129 ₹10,28M
Prod099 ₹10,10M
Prod024 ₹9,34M
Prod245 ₹9,27M
Prod117 ₹8,66M
Revenue Contribution % by Markets
Delhi ... 0,53
Mumbai 0,15
Ahmed... 0,13
Bhopal 0,06
Nagpur 0,06
Kochi 0,02
Chennai 0,02
Kanpur 0,01
Hydera... 0,01
Patna 0,00
Lucknow 0,00
Surat 0,00
Bhuba... 0,00
Bengal... 0,00
0,0
0,5
Revenue by Markets
custo... Brick & Mortar E-Commerce
Delhi ...
Mumbai
Ahmed...
Bhopal
Nagpur
Kochi
Chennai
Kanpur
Hydera...
Patna
Lucknow
Surat
Bhuba...
Bengal...
₹0,0bn
₹0,5bn
custmer_name | Revenue | Revenue Contribution %
Electricalsara Stores | ₹413.333.588,00 | 0,42
Electricalslytical | ₹49.644.189,00 | 0,05
Excel Stores | ₹49.115.620,00 | 0,05
Premium Stores | ₹44.962.166,00 | 0,05
Nixon | ₹43.893.083,00 | 0,04
Info Stores | ₹35.100.033,00 | 0,04
Control | ₹31.771.997,00 | 0,03
Surge Stores | ₹28.648.916,00 | 0,03
Acclaimed Stores | ₹21.196.727,00 | 0,02
Forward Stores | ₹21.026.079,00 | 0,02
Epic Stores | ₹18.750.440,00 | 0,02
Nomad Stores | ₹17.739.351,00 | 0,02
Electricalsocity | ₹17.489.935,00 | 0,02
Modular | ₹17.379.851,00 | 0,02
Atlas Stores | ₹16.666.713,00 | 0,02
Leader | ₹16.529.970,00 | 0,02
Surface Stores | ₹15.242.562,00 | 0,02
Integration Stores | ₹13.979.716,00 | 0,01
Total | ₹984.868.963,00 | 1,00


Year
All
Month
All
Day
All
2M
Sales Qty
Sales Qty by Customer Type
1M (23,67%)
2M (76,33%)
Customer Type
Brick & Mor...
E-Commerce
Sales Qty by Zone
0M (16,43%)
1M (31,22%)
1M (52,34%)
Zone
North
Central
South
Sales Qty by Date
Sales Qty
100K
80K
60K
40K
Oca 2018
Tem 2018
Oca 2019
Tem 2019
Oca 2020
Sales Qty by Product Code
(Blank) 419K
Prod090 278K
Prod239 170K
Prod237 114K
Prod245 73K
Prod065 64K
Prod053 62K
Prod236 59K
Prod232 58K
Prod252 44K
Prod243 41K
Prod117 41K
Prod260 37K
Prod085 33K
Prod060 29K
Prod092 29K
Sales Qty Contribution % by Markets
Delhi ... 0,41
Mumbai 0,16
Nagpur 0,11
Kochi 0,11
Ahmed... 0,09
Bhopal 0,05
Hydera... 0,03
Chennai 0,02
Lucknow 0,02
Surat 0,01
Kanpur 0,01
Bhuba... 0,01
Patna 0,00
Bengal... 0,00
0,0
0,5
Sales Qty by Markets
custo... Brick & Mortar E-Commerce
Delhi ...
Mumbai
Nagpur
Kochi
Ahmed...
Bhopal
Hydera...
Chennai
Lucknow
Surat
Kanpur
Bhuba...
Patna
Bengal...
0,0M
0,5M
1,0M
Sales Qty by Customers
custmer_name | Sales Qty | Sales Qty Contribution %
Acclaimed Stores | 26705 | 0,01
All-Out | 11024 | 0,00
Atlas Stores | 25732 | 0,01
Control | 48767 | 0,02
Electricalsara Stores | 653823 | 0,27
Electricalsbea Stores | 500 | 0,00
Electricalslance Stores | 10470 | 0,00
Electricalslytical | 79456 | 0,03
Electricalsocity | 26126 | 0,01
Electricalsopedia Stores | 76608 | 0,03
Electricalsquipo Stores | 18126 | 0,01
Elite | 6712 | 0,00
Epic Stores | 83857 | 0,03
Excel Stores | 138520 | 0,06
Expression | 3244 | 0,00
Flawless Stores | 40643 | 0,02
Forward Stores | 31939 | 0,01
Total | 2429282 | 1,00

**Next Steps:** Evaluate the individual impact of the revised report on stakeholders' decision-making processes. Assess whether the insights facilitated improvements in their respective domains and identify areas for further enhancement.

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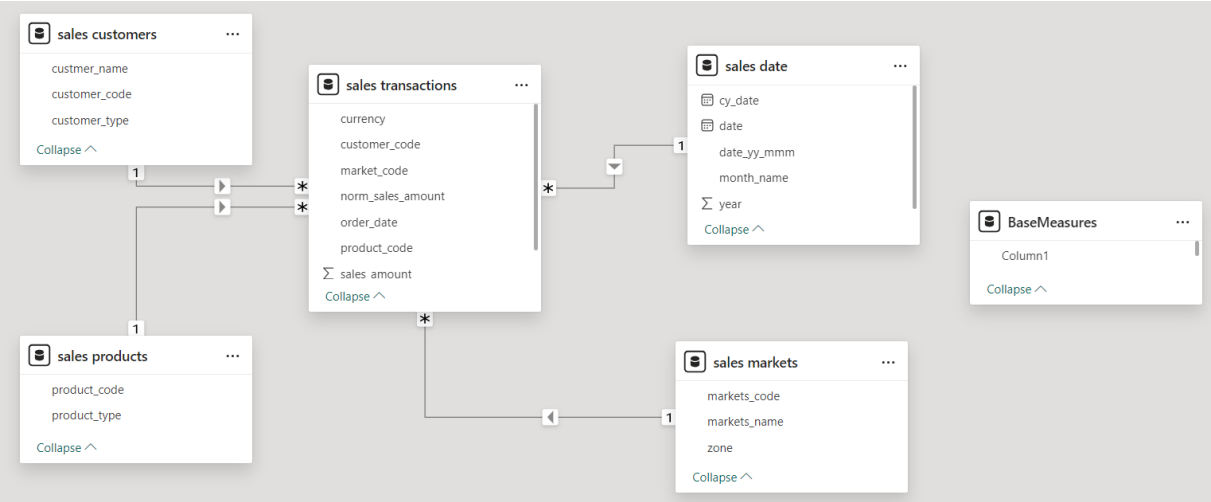
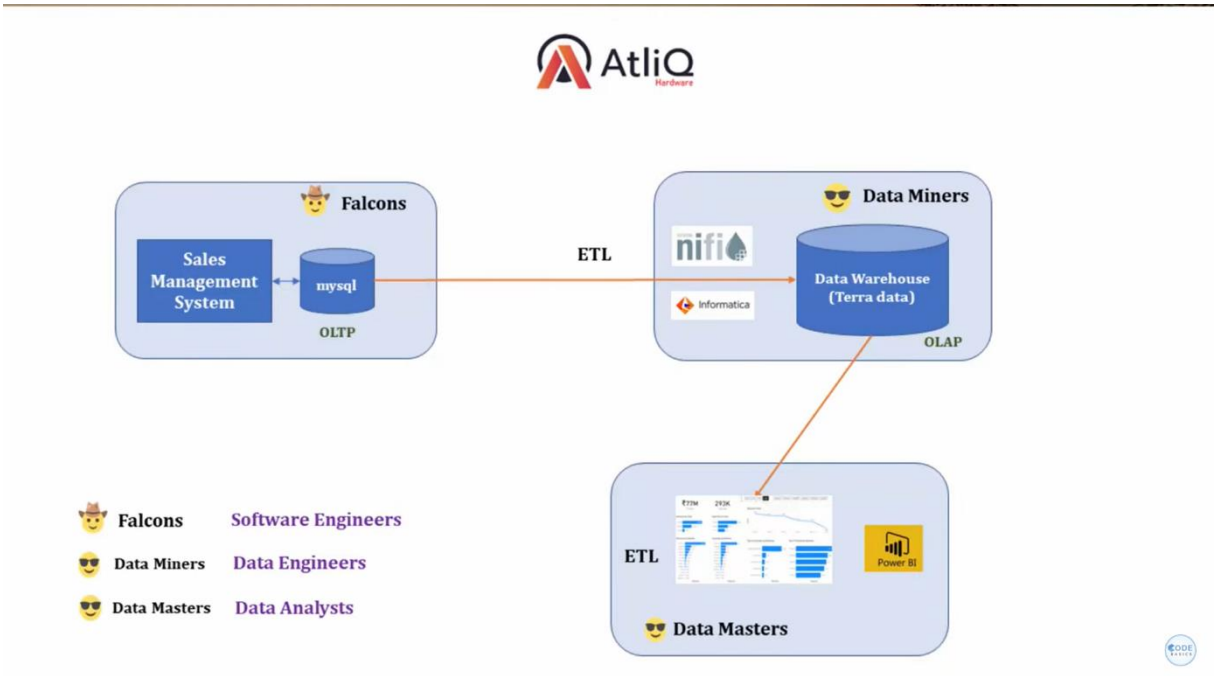
# Appendices

## 1. Data Model:




## 2. Simulated Organization Model:



## References


1. Project development video series: YouTube Playlist
2. Source files used in the video: CodeBasics Resource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