Project – Altisque Grand

<u>Problem Statement</u>:

Atlisque Grande is a hardware manufacturing company that supplies hardware peripherals to different clients such as surge stores, Nomad strores, Excel strores etc.

The sales for this company is seeing an overall decline and the sales director (Ishwaq Fernandez) wants to get a gauge of what areas are responsible for this de-escalation. His need is to understand what's happening without going through regional managers that give him a rosier picture of the situation.

He needs simple questions to be answered in a straightforward and a visually explanatory manner, based on initial discussions.

- Revenue breakdown by cities
- Revenue breakdown by years and months
- Top 5 customers by revenue and sales quantity
- Top 5 products by revenue
- Year-to date revenue

<u>Aim & Project Planning</u>:

1. <u>Purpose:</u>
   - To unlock the sales insights that are not visible for the sales team to take relevant business decisions and to automate the process to reduce the time for data gathering.

2. <u>Stakeholders</u>:
   - Sales Team, IT team, Data Analysis Team

3. <u>End-Result:</u>
   - To produce an automated Dashboard that provides quick and latest sales insights to support data driven decision making.

4. <u>Success Criteria</u>:
   - Dashboard should uncover sales orders insights with the latest available data.
   - Sales team takes better decisions and helps make 10% cost savings of the total expenditure.
   - Sales Analyst stop Data Gathering manually to save 20% of working time.

Aims' grid:

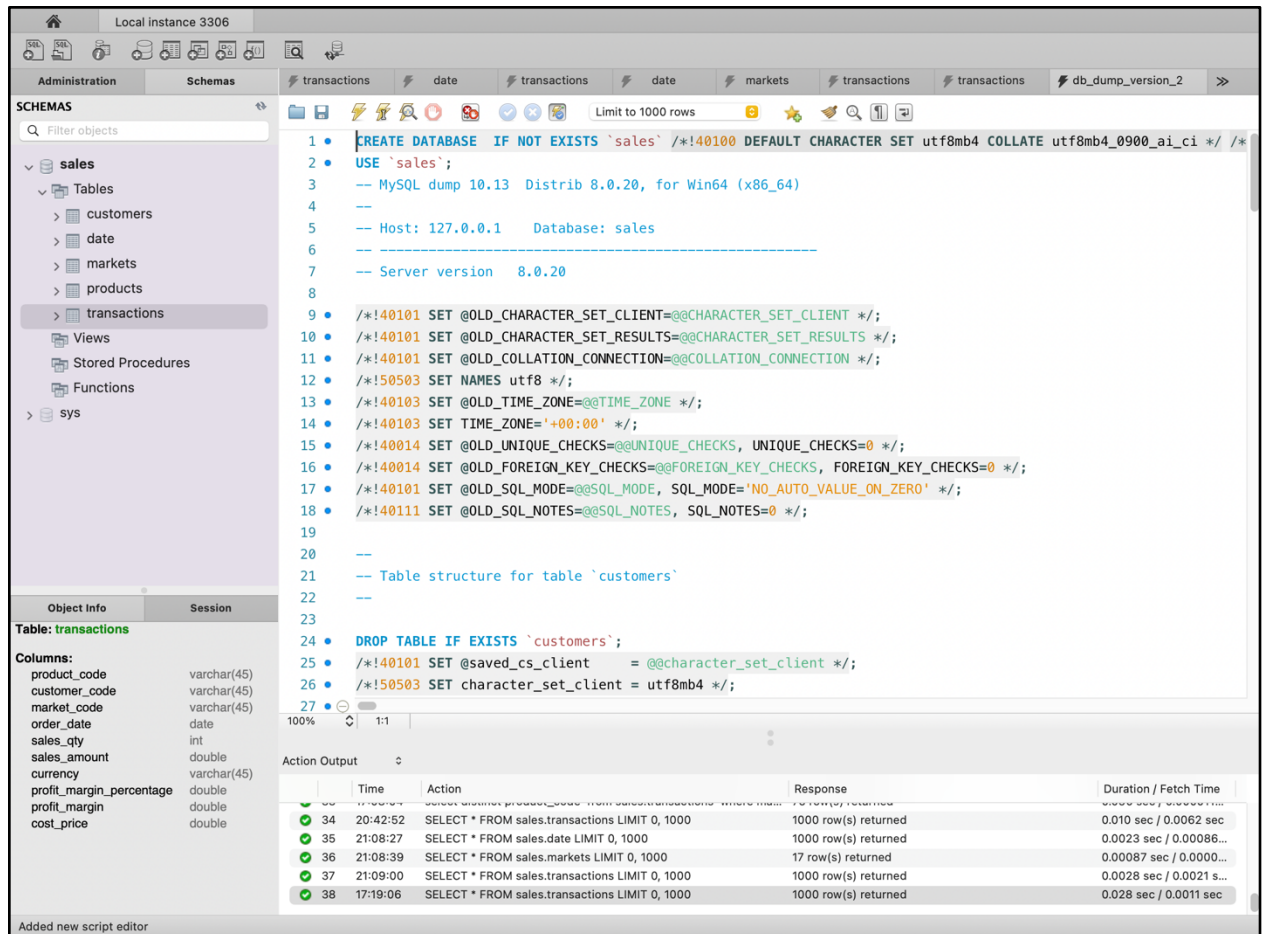|	
Purpose	Stakeholders
End Results	Success Criteria
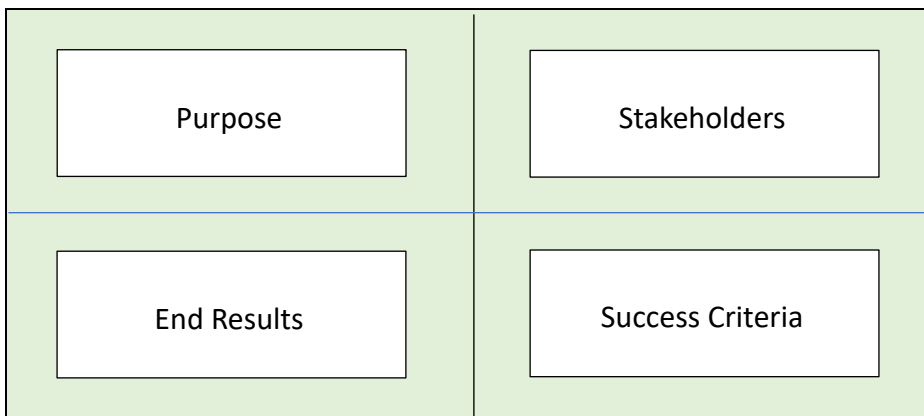
Project Workflow:

Access the MySQL database designed by the sales and IT team, connect it to Tableau and perform an ETL process and perform analysis.
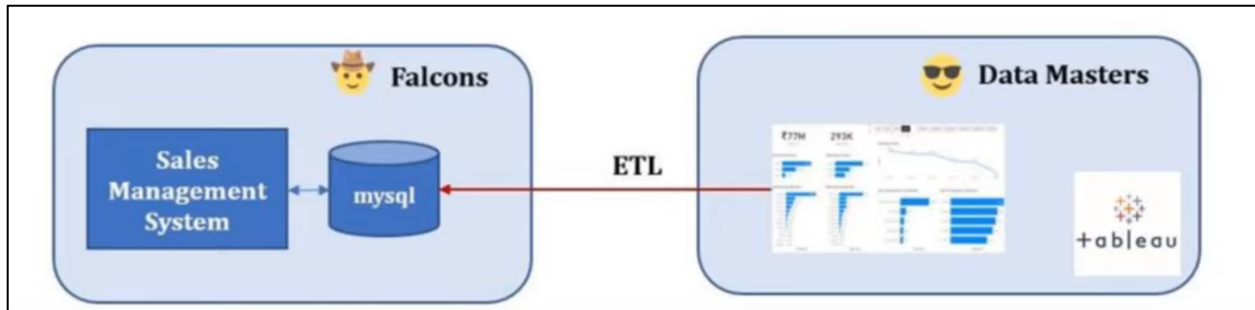
Data Analysis using SQL:

Install and setup MySQL and SQL workbench:

Here we have created a schema called sales and within that we have created sub tables customers, date, markets, products, transactions.

Once these tables have been set up, we can start running basic queries to perform data analysis.

1. <u>Show all customer records:</u>

   SELECT * FROM customers;

2. <u>Show total number of customers:</u>

   SELECT count(*) FROM customers;

3. <u>Show transactions for Chennai market (market code for chennai is Mark001:</u>

   SELECT * FROM transactions where market_code='Mark001';

4. <u>Show distrinct product codes that were sold in Chennai:</u>

SELECT distinct product_code FROM transactions where market_code='Mark001';

5. <u>Show transactions where currency is US dollars:</u>

SELECT * from transactions where currency="USD"

6. <u>Show transactions in 2020 join by date table:</u>

SELECT transactions.*, date.* FROM transactions INNER JOIN date ON transactions.order_date=date.date where date.year=2020;

7. <u>Show total revenue in year 2020:</u>

SELECT SUM(transactions.sales_amount) FROM transactions INNER JOIN date ON transactions.order_date=date.date where date.year=2020 and transactions.currency="INR\r" or transactions.currency="USD\r";

8. <u>Show total revenue in year 2020, January Month:</u>

SELECT SUM(transactions.sales_amount) FROM transactions INNER JOIN date ON transactions.order_date=date.date where date.year=2020 and and date.month_name="January" and (transactions.currency="INR\r" or transactions.currency="USD\r");

9. <u>Show total revenue in year 2020 in Chennai:</u>

SELECT SUM(transactions.sales_amount) FROM transactions INNER JOIN date ON transactions.order_date=date.date where date.year=2020 and transactions.market_code="Mark001";

```sql
1   SELECT transactions.*, date.*
2   FROM transactions INNER JOIN date ON transactions.order_date=date.date where date.year=2020;
```

100% ◇ 1:2

Result Grid ▦ ↻ Filter Rows: 🔍 Search   Export: 🗐 Fetch rows: 🗐   ⬚   Result Grid

product_co...	customer_code	market_code	order_date	sales_qty	sales_amount	currency	profit_margin_percentage	profit_margin	cost_price	date
Prod279	Cus020	Mark011	2020-01-02	1	102	INR	0.14	14.28	87.72	2020-01-0
Prod279	Cus020	Mark011	2020-01-08	1	102	INR	0.34	34.68	67.32	2020-01-0
Prod279	Cus020	Mark011	2020-01-09	1	102	INR	-0.16	-16.32	118.32	2020-01-0
Prod279	Cus020	Mark011	2020-01-10	1	102	INR	0.02	2.04	99.96	2020-01-1
Prod279	Cus020	Mark011	2020-01-20	1	102	INR	-0.1	-10.2	112.2	2020-01-2
Prod278	Cus020	Mark011	2020-01-03	1	102	INR	-0.05	-5.1	107.1	2020-01-0
Prod294	Cus020	Mark011	2020-01-08	1	102	INR	0.32	32.64	69.36	2020-01-0
Prod294	Cus020	Mark011	2020-01-17	1	102	INR	0.17	17.34	84.66	2020-01-1
Prod131	Cus020	Mark011	2020-01-15	1	102	INR	-0.29	-29.58	131.58	2020-01-1
Prod290	Cus020	Mark011	2020-01-15	1	102	INR	0.17	17.34	84.66	2020-01-1
Prod292	Cus020	Mark011	2020-01-15	1	102	INR	-0.19	-19.38	121.38	2020-01-1
Prod056	Cus020	Mark011	2020-01-16	1	102	INR	0.17	17.34	84.66	2020-01-1
Prod295	Cus020	Mark011	2020-01-17	1	102	INR	-0.13	-13.26	115.26	2020-01-1

Result 3   ⓘ Read Only

ction Output ◇

	Time	Action	Response	Duration / Fetch Time
	21:00:27	SELECT * FROM sales.date LIMIT 0, 1000	1000 row(s) returned	0.0025 sec / 0.00088...
✅ 36	21:08:39	SELECT * FROM sales.markets LIMIT 0, 1000	17 row(s) returned	0.00087 sec / 0.0000...
✅ 37	21:09:00	SELECT * FROM sales.transactions LIMIT 0, 1000	1000 row(s) returned	0.0028 sec / 0.0021 s...
✅ 38	17:19:06	SELECT * FROM sales.transactions LIMIT 0, 1000	1000 row(s) returned	0.028 sec / 0.0011 sec
✅ 39	15:00:54	SELECT SUM(transactions.sales_amount) FROM transactions IN...	1 row(s) returned	0.134 sec / 0.00032...
✅ 40	15:01:19	SELECT transactions.*, date.* FROM transactions INNER JOIN da...	1000 row(s) returned	0.0071 sec / 0.016 sec

<u>By observing the results of these queries:</u>

1. We have **filtered** out any locations that were in the USA as the company's business in the past decade has mostly been in India.

2. We have also **normalized** the transaction amounts from USD to INR for convenience of calculation in revenue analysis.

3. We have dropped any columns that show negative sales figures as it is impossible to sell anything in negative values.

4. We have **dropped null or duplicate values** as well.

Connecting Tableau to SQL & designing the schema diagram:

Use the MSQL connector to connect to your localhost instance and establish a new connection with your MySQL database, this will import the existing schema we have defined.

- Here, 'transactions' is the **fact table,** and the rest of the tables are **dimension tables**.
- Tableau is smart enough to identify predefined relations between tables as coded in SQL.
- If connection is not identified, we will need to specify columns that have a relationship in tableau.

<u>Revenue analysis Dashboard</u>:

Each of these widgets were first designed individually in sheets and then compiled and formatted together in a dashboard to give and good view of the revenue collection for a few years,

This dashboard is *interactive* and can give **a breakdown by year or month or area or customer**.
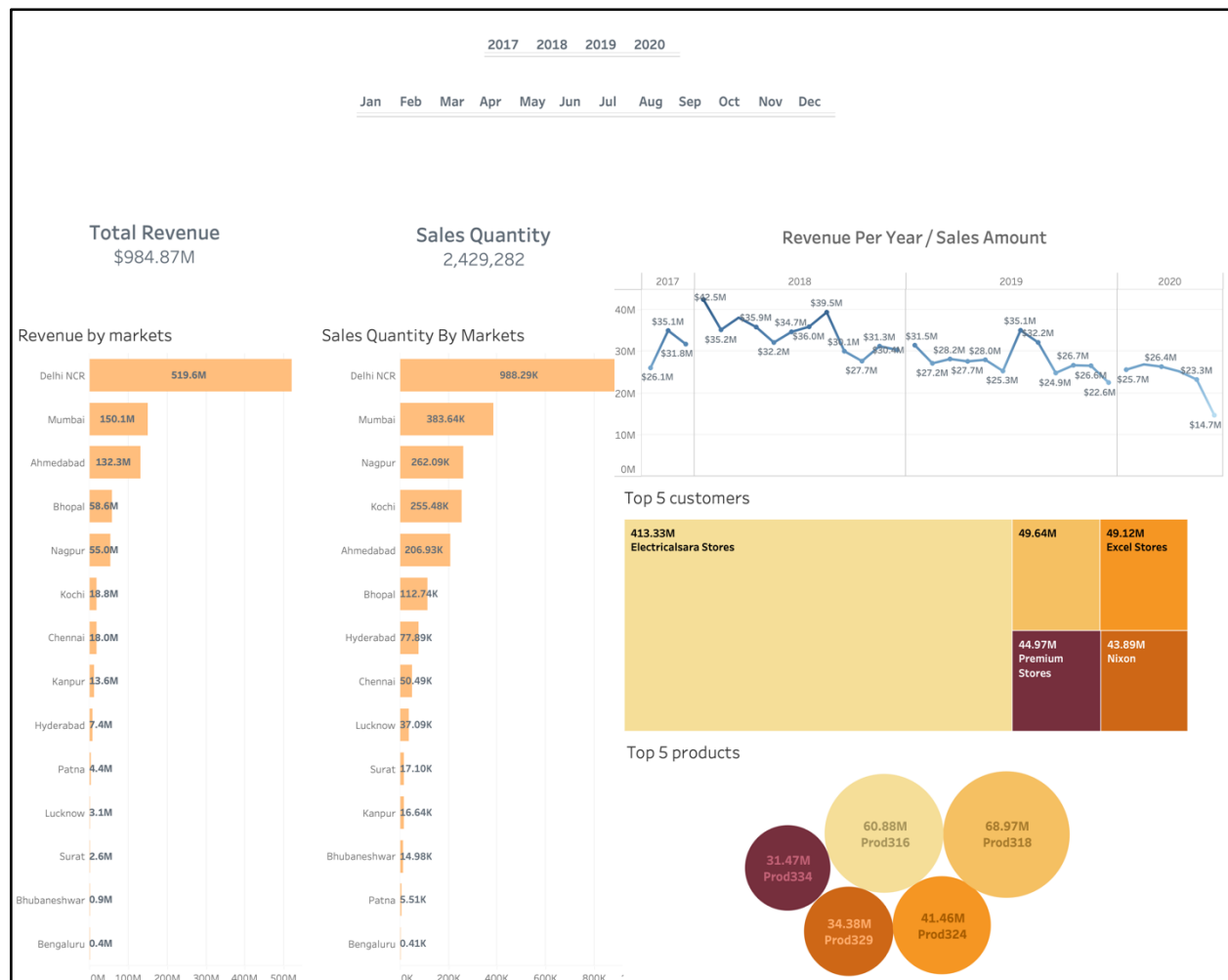
<u>Feedback collection</u>:

- Based on the interaction we had with stakeholders, we have revised the functionality of the dashboard keeping in mind the following factors:

1. The use of contextual filters to show top 5 customers in all locations despite low number of sales or having no sales in the past year.

2. Providing an opinion on how to boost declining sales,
3. Could be due to:
    a. Product quality
    b. Lack of promotions
    c. Lack of Discounts
    d. Ineffective communication between managers and suppliers.

4. Inclusion of Product costs and profit and profit margins as well
5. Market segment breakdown.

(We have only provided revenue analysis, but a business needs to see the profit and loss metrics to drive effective business decisions.)

Deliverables:

1. Breakdown of sales for 'brick and mortar' and 'e-commerce' customers
2. Top 5 customers with highest orders
3. Zone wise profit statistics, to gauge performance and afflict hiring and staffing decisions.

Profit analysis Dashboard:

2017 2018 2019 2020

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Total Revenue
$984.87M

Company Profit
24.66M

Profit Trends

Revenue by markets

Market	Amount
Delhi NCR	519.6M
Mumbai	150.1M
Ahmedabad	132.3M
Bhopal	58.6M
Nagpur	55.0M
Kochi	18.8M
Chennai	18.0M
Kanpur	13.6M
Hyderabad	7.4M
Patna	4.4M
Lucknow	3.1M
Surat	2.6M
Bhubaneshwar	0.9M
Bengaluru	0.4M

0M 100M 200M 300M 400M 500M

Normalized amount

Profit margin by Markets

Market	Profit margin %
Surat	4.86%
Patna	4.12%
Bhubaneshwar	3.98%
Bhopal	3.90%
Kochi	3.74%
Mumbai	3.25%
Nagpur	2.57%
Delhi NCR	2.30%
Ahmedabad	2.15%
Chennai	1.67%
Lucknow	1.01%
Hyderabad	0.63%
Kanpur	-0.49%
Bengaluru	-20.78%

-0.20 -0.15 -0.10 -0.05 0.00 0.05

Profit margin %

Profit Trends (chart): 2.98%, 2.70%, 0.90%, 2.31%, 3.18%, 4.23%, 2.86%, 2.63%, 2.72%, 1.84%, 0.96% across 2017 Q4 to 2020 Q2. Bars: 99M, 116M, 103M, 106M, 89M, 87M, 81M, 92M, 76M, ..., 63M. Y-axis Normalized amount 0M–100M; right axis Profit margin % 0.00–0.04

Profit Per Customer

Custmer Name	Sales amount	Total Profit	Profit margin %
Acclaimed Stores	21,196,727	321,095	1.51%
All-Out	6,068,432	154,730	2.55%
Atlas Stores	16,666,713	295,896	1.78%
Control	31,771,997	825,928	2.60%
Electricalsara Stores	413,333,588	9,307,899	2.25%
Electricalsbea Stores	336,367	2,748	0.82%
Electricalslance Stores	1,868,461	-37,487	-2.01%
Electricalslytical	49,644,189	1,688,260	3.40%
Electricalsocity	17,489,935	724,632	4.14%
Electricalsopedia Stores	10,281,203	329,932	3.21%
Electricalsquipo Stores	1,330,361	87,623	6.59%
Elite	4,837,239	212,317	4.39%

Market Breakdown

E-Commerce 24.40%

Brick & Mortar 75.60%

- Now, we observe that in the year of 2020 the highest sales by markets belongs to Delhi but, the highest profit the company earned that year was from Bhubaneshwar.

- Clearly, the sales managers need to be interrogated based on these statistics.
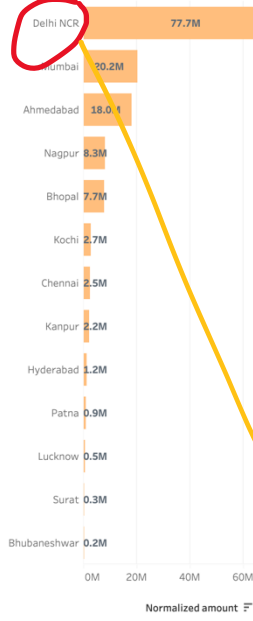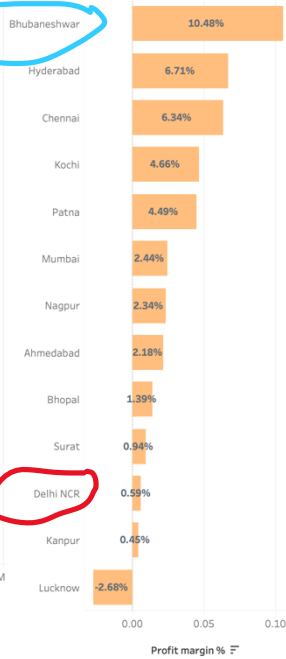
Jan Feb Mar Apr May Jun
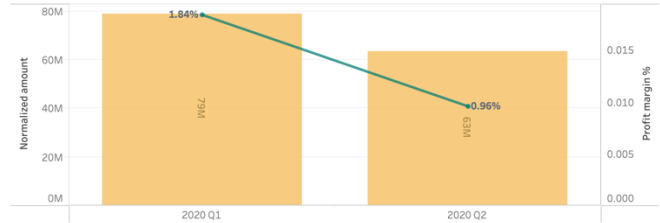
Total Revenue
$142.22M

Company Profit
2.06M

Profit Trends

Revenue by markets

Delhi NCR	77.7M
Mumbai	30.2M
Ahmedabad	18.0M
Nagpur	8.3M
Bhopal	7.7M
Kochi	2.7M
Chennai	2.5M
Kanpur	2.2M
Hyderabad	1.2M
Patna	0.9M
Lucknow	0.5M
Surat	0.3M
Bhubaneshwar	0.2M

Normalized amount

Profit margin by Markets

Bhubaneshwar	10.48%
Hyderabad	6.71%
Chennai	6.34%
Kochi	4.66%
Patna	4.49%
Mumbai	2.44%
Nagpur	2.34%
Ahmedabad	2.18%
Bhopal	1.39%
Surat	0.94%
Delhi NCR	0.59%
Kanpur	0.45%
Lucknow	-2.68%

Profit margin %

Normalized amount — 80M, 60M, 40M, 20M, 0M

Profit margin % — 0.015, 0.010, 0.005, 0.000

1.84% 0.96%

79M 63M

2020 Q1 2020 Q2

Profit Per Customer

Custmer Name	Sales amount	Total Profit	Profit margin %
Acclaimed Stores	3,116,384	125,982	4.04%
All-Out	713,953	32,355	4.53%
Atlas Stores	2,189,613	43,338	1.98%
Control	4,182,662	51,854	1.24%
Electricalsara Stores	65,641,977	245,577	0.37%
Electricalsbea Stores	50,940	7,962	15.63%
Electricalslance Stores	142,742	5,052	3.54%
Electricalslytical	5,537,904	27,001	0.49%
Electricalsocity	2,520,938	67,869	2.69%
Electricalsopedia Stores	995,764	58,942	5.92%
Electricalsquipo Stores	86,908	-9,989	-11.49%
Elite	1,247,785	65,809	5.27%

Market Breakdown

E-Commerce
20.45%

Brick & Mortar
79.55%