**Financial Analytics Report**

**AtliQ Technologies**

**Objective**: To understand the company’s performance over the FY 2019-23 and develop profitability and pricing strategies.

**Domain**: Finance| Supply chain

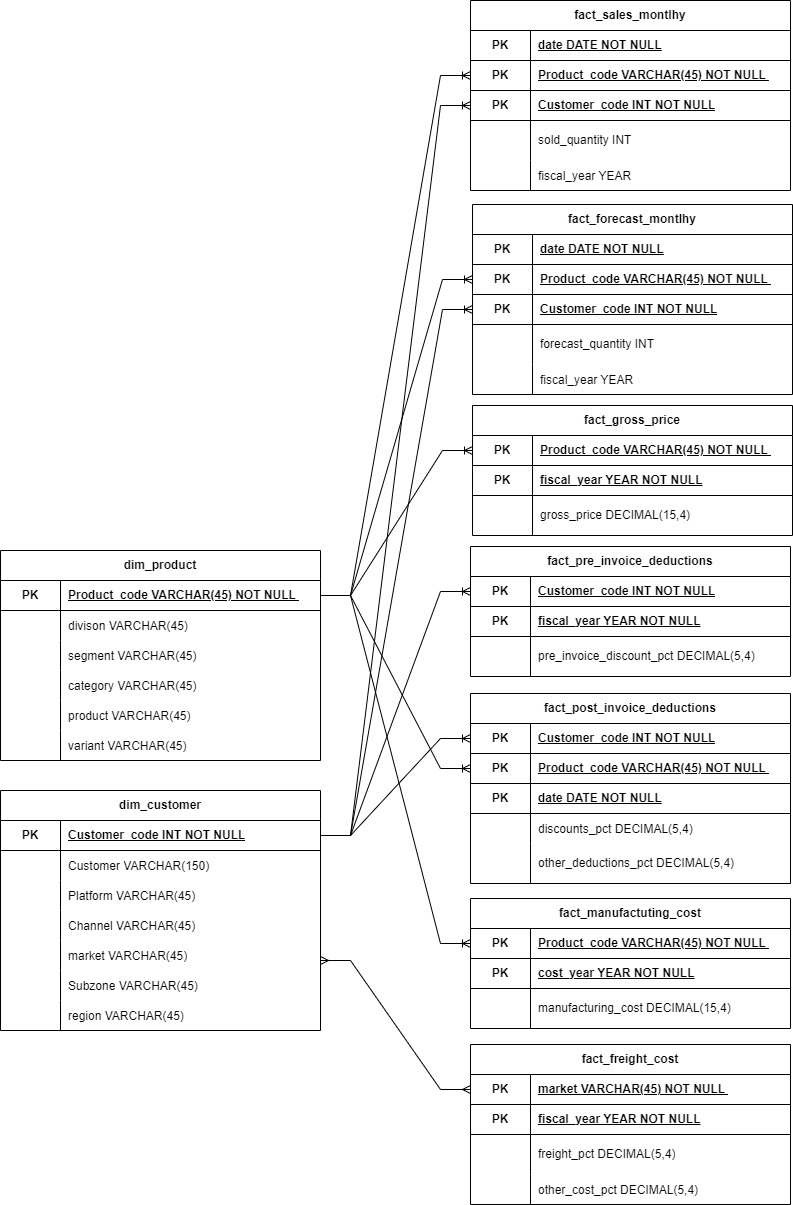
**Tools used**: SQL | MYSQL

1. **Introduction:**

This report aims to provide useful insights related to customer and market performance, top product in terms of quantity sold, revenue and gross margin on yearly basis for AtliQ hardware during FY 2019-23. The report also be used to draw data informed conclusions in setting financial and sales targets. This report can also be used for fact checking and decision-making during business reviews.

1. **Dataset Overview:**

The dataset provided by the data owners/stakeholders at Atliq Hardware is presented in the form of star schema in the next figure. The stakeholders have also requested useful insights in terms of top customers, products, market and regions over fiscal year.



1. **Basic SQL Analysis**

**Step 1 – Importing the data to MYSQL**

* Importing SQL database to MYSQL and getting familiar with dataset tables
* Transform data
* Assigning appropriate data types
* Checking unique values and treating duplicate values
* Checking and treating null values and errors
* Trimming spaces

**Step 2-** Understanding the data

* Seeking relationship between data tables
* Identifying primary keys in the dimension tables and foreign keys in the fact tables
* Identify relevant data required to prepare report
* Identify any new column requirements

**Step 3-** Creating a fiscal\_year generated column in fact\_sales\_monthly

**Step 4-** Creating user empathetic reports.

1. **Problem Statement and report generation**
2. Create a product wise sales report (aggregated in a monthly basis at the product level) for Croma India for fiscal year 2021 to track individual product sales and run product analytics on it. The report should have the following columns
   * Month
   * Product name and variant
   * Sold Quantity
   * Gross price per item
   * Gross price total

**SQL Query-**

**By basic query we have identify the customer code for croma India that is 90002002**

select

gp.date, gp.fiscal\_year,gp.product\_code, gp.product,

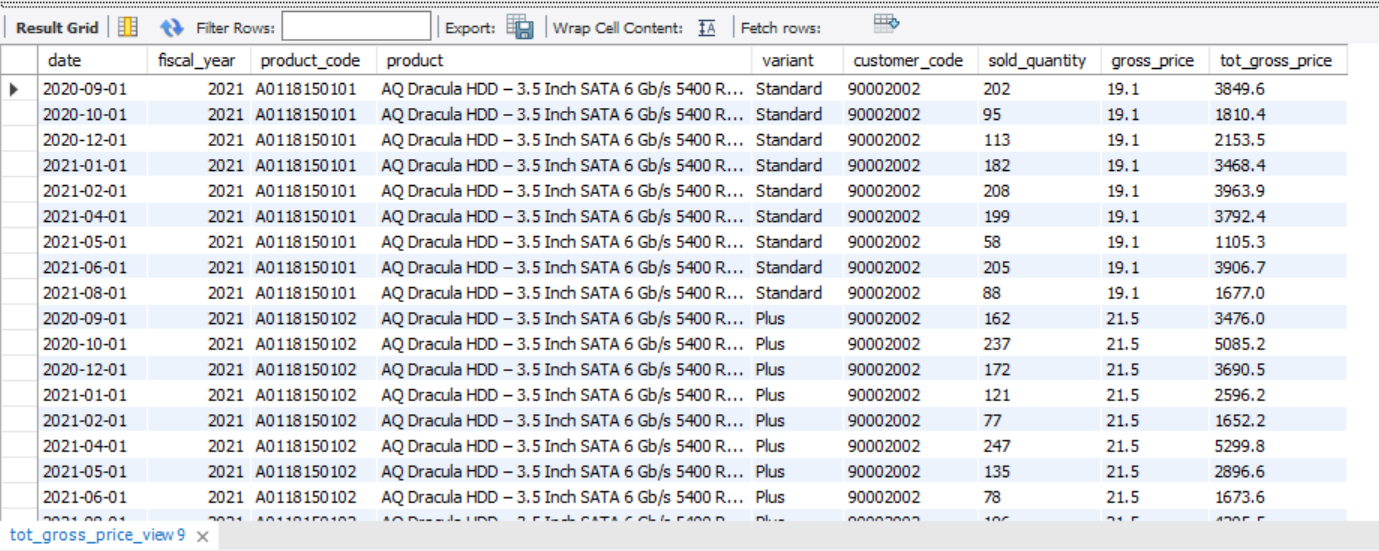
gp.variant, gp.customer\_code, gp.sold\_quantity,

gp.gross\_price,gp.tot\_gross\_price

from tot\_gross\_price\_view gp

where customer\_code= 90002002 and fiscal\_year=2021

**Execution**



1. Create a stored procedure to determine the market badge based in the following logic. If total sold quantity > 5M that market is considered GOLD else it is SILVER
   * Input- Market and fiscal year
   * Output – Market badge

**SQL Query**

CREATE DEFINER=`root`@`localhost` PROCEDURE `market\_badge`(

in\_market varchar(45),

in\_fiscal\_year int

)

BEGIN

-- Set default market to be India if not provided

IF in\_market = "" THEN

SET in\_market = "India";

END IF;

(select

gp.market, sum(gp.sold\_quantity) as qty\_sold,

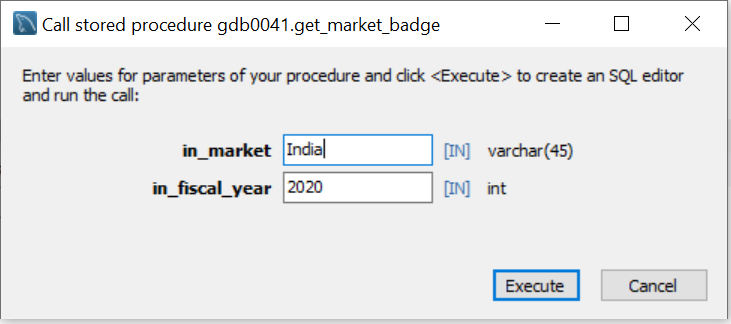
if(sum(gp.sold\_quantity) > 5000000, "Gold", "silver") as market\_badge

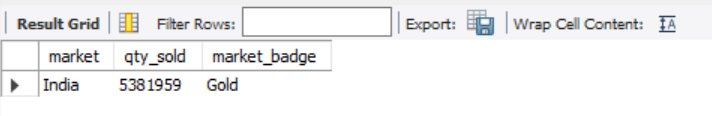
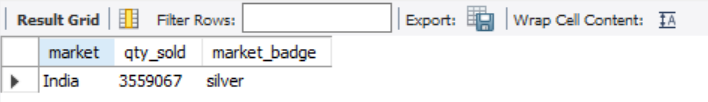
from tot\_gross\_price\_view gp

where fiscal\_year = in\_fiscal\_year and gp.market= in\_market

group by gp.market);

END

  **Execution**



1. Create a report using stored procedure for top markets, products and customers by net sales for a given financial year to analyse the financial performance and take any appropriate actions to address any potential issues.

**SQL Query – Top Customer by net\_sales**

CREATE DEFINER=`root`@`localhost` PROCEDURE `top\_n\_customer\_by\_net\_sales`(

in\_fiscal\_year int,

in\_top\_n int

)

BEGIN

select

customer,

in\_fiscal\_year,

Round(sum(net\_sales\_amount)/1000000,2) as tot\_net\_sales\_mln

from net\_sales\_view

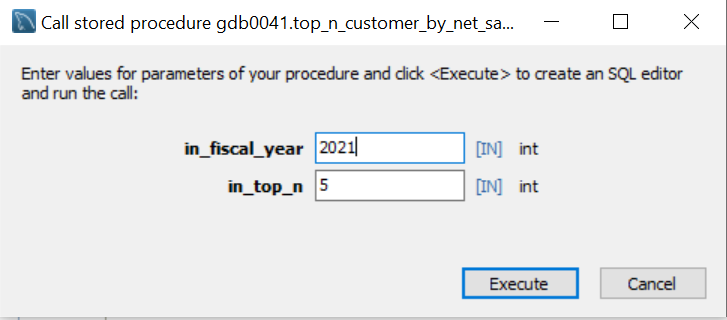
where fiscal\_year= in\_fiscal\_year

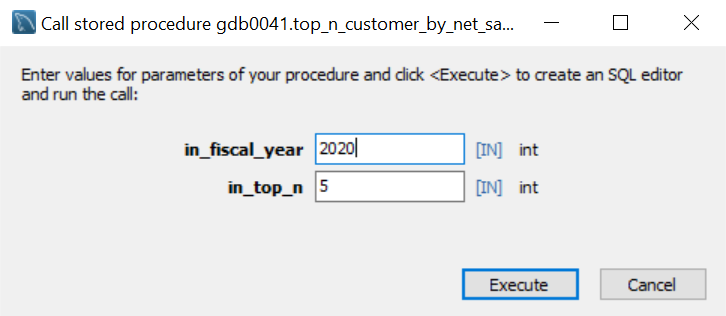
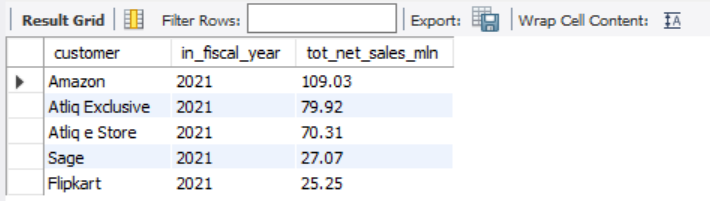
group by customer

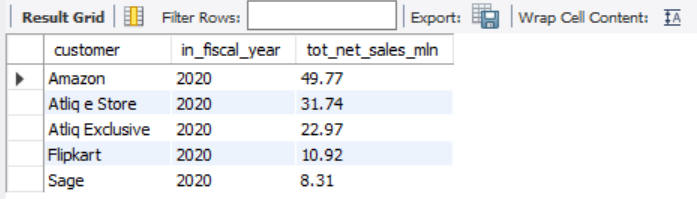
order by tot\_net\_sales\_mln desc

limit in\_top\_n;

END

**Execution – Top 5 Customer by net\_sales in FY 2021**





**SQL Query – Top Market by net\_sales**

CREATE DEFINER=`root`@`localhost` PROCEDURE `top\_n\_market\_by\_net\_sales`(

in\_fiscal\_year int,

in\_top\_n int

)

BEGIN

select

market,

in\_fiscal\_year,

Round(sum(net\_sales\_amount)/1000000,1) as tot\_net\_sales\_mln

from net\_sales\_view ns

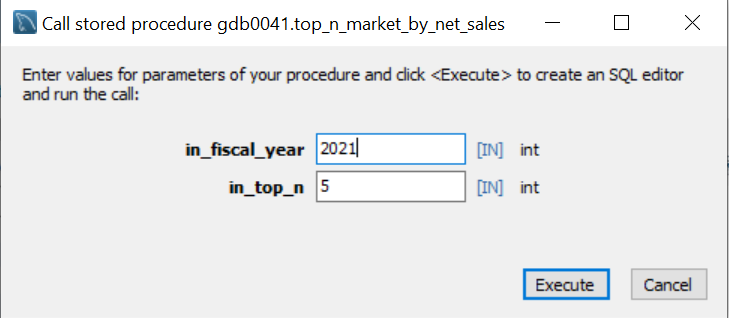
where fiscal\_year= in\_fiscal\_year

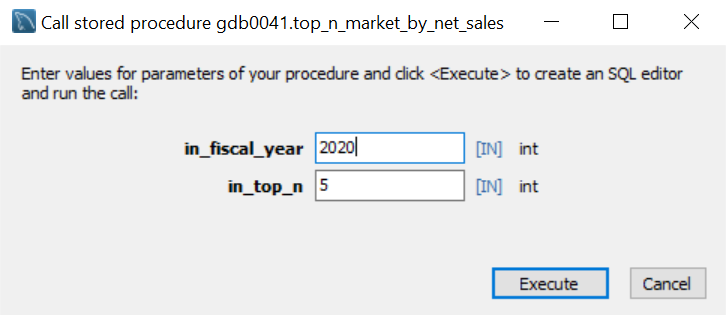
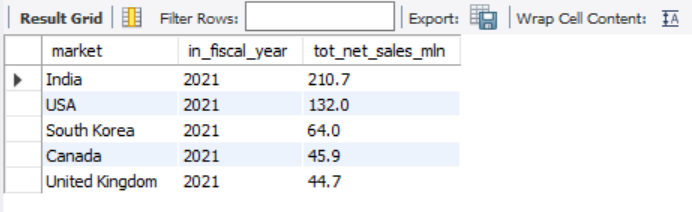
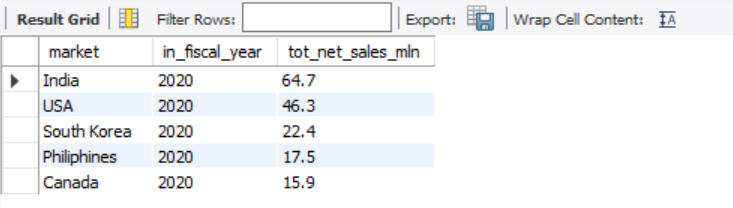
group by market

order by tot\_net\_sales\_mln desc

limit in\_top\_n;

END

**Execution – Top 5 market by net\_sales in FY 2021**



**SQL Query – Top Product for each division by quantity sold**

CREATE DEFINER=`root`@`localhost` PROCEDURE `top\_n\_product\_by\_divison\_for\_qty\_sold`(

in\_top\_n int,

in\_fiscal\_year int

)

BEGIN

with cte1 as

(

select

p.division,

p.product,

sum(s.sold\_quantity) as sold\_qty,

dense\_rank() over(partition by division order by sum(s.sold\_quantity) desc) as dn\_rnk

from fact\_sales\_monthly s

join dim\_product p using (product\_code)

where fiscal\_year=in\_fiscal\_year

group by p.product,p.division

)

select

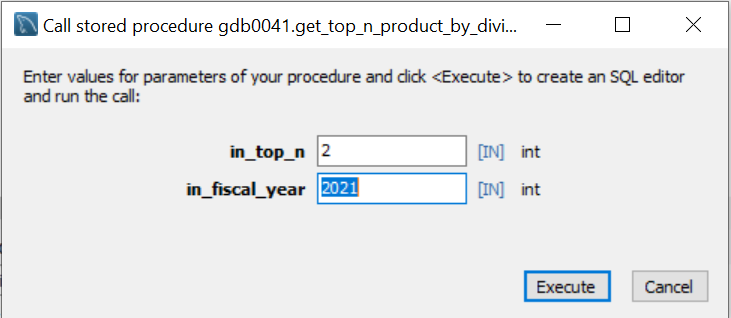
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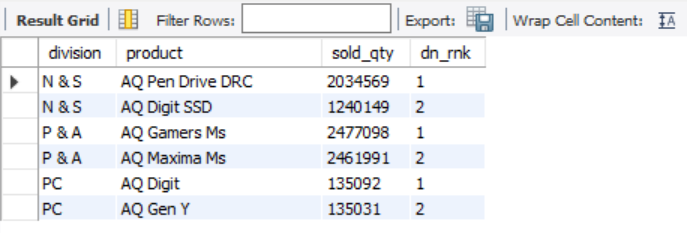
from cte1

where dn\_rnk<=in\_top\_n;

END

**Execution – Top 2 Product for each division for quantity sold in FY 2021**





1. Create an aggregate forecast accuracy report for all customer for a given fiscal year to track the forecast accuracy and take appropriate action to reduce the excess inventory and opportunity cost. The report should have the following columns
   * Customer code, Name, market
   * Total sold Quantity
   * Total forecast Quantity
   * Net Error
   * Absolute Error
   * Forecast Accuracy %

**SQL Query – Forecast Accuracy report-** This would require making a temporary table fact\_act\_est by joining fact\_sales\_monthly and fact\_forecast\_monthly table.

DROP TEMPORARY TABLE IF EXISTS forecast\_err\_table;

CREATE TEMPORARY TABLE forecast\_err\_table AS

SELECT

customer\_code,

SUM(sold\_quantity) AS tot\_sold\_qty,

SUM(forecast\_quantity) AS tot\_forecast\_qty,

SUM(forecast\_quantity - sold\_quantity) AS net\_error,

SUM(forecast\_quantity - sold\_quantity) \* 100 /sum(forecast\_quantity) AS net\_error\_pct,

SUM(ABS(forecast\_quantity - sold\_quantity)) AS abs\_error,

SUM(ABS(forecast\_quantity - sold\_quantity)) \* 100 / Sum(forecast\_quantity) AS abs\_error\_pct

FROM

fact\_act\_est

WHERE

fiscal\_year = 2021

GROUP BY

customer\_code;

select e.\*, c.customer, c.market,

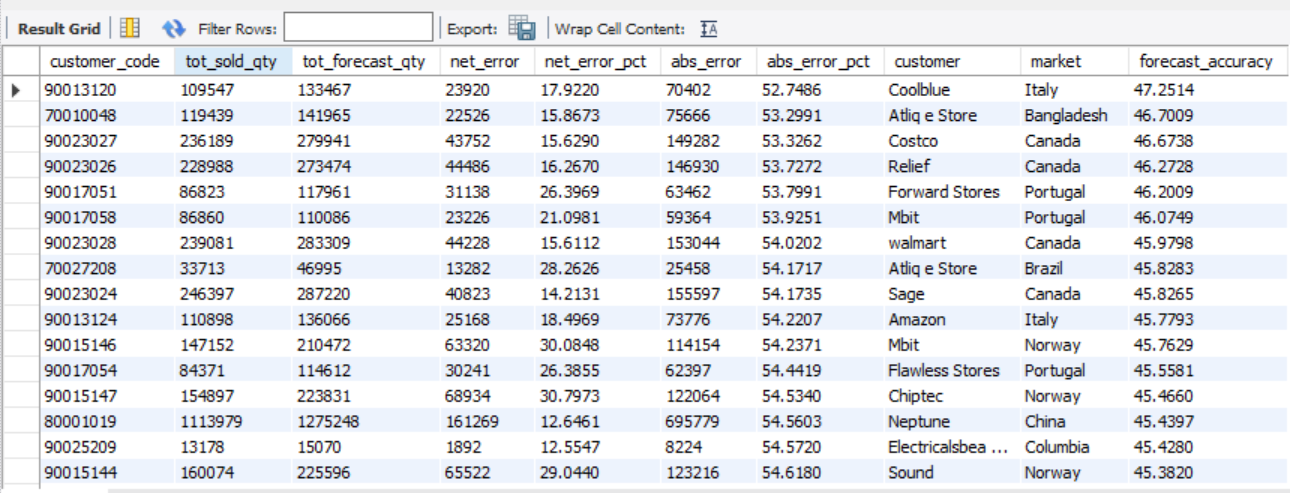
If(abs\_error\_pct>100,0,(100-abs\_error\_pct)) as forecast\_accuracy

from forecast\_err\_table e

join dim\_customer c using (customer\_code)

order by forecast\_accuracy desc;

**Execution**



1. **Results and Conclusions**

**Note:** Refer to the excel file/ PDF reports for more information

- India has entered from silver market badge in 2019 to gold market badge in 2020 and maintained its badge consistently since then.

- Top and Bottom customer/market by net sales provides useful insights to the sales and marketing team to develop customer/market based strategies either to promote sales or might suspend operations in worst performing markets.

- Top and bottom products by quantity sold gives targeted product each division. Product based strategies to promote worst performing products could help grow net sales.

- Forecast accuracy report for all customer tracks the forecast accuracy and promote appropriate actions to reduce the excess inventory and opportunity cost and thus increasing revenue.