SQL PROJECT

ATLIQ
HARDWARES

FINANCE AND SUPPLY CHAIN ANALYTICS OF ATLIQ HARDWARES

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Introduction

AtliQ Hardware, a well-established organization with a significant global reach, focuses on the production of high-quality hardware products such as desktops, printers, computer accessories, and peripheral devices.

Business Challenge

The growing size of Excel files has led to performance challenges, resulting in inefficiencies and delays. To overcome this issue, AtliQ Hardware launched a dedicated initiative involving a team of data analysts. By utilizing MySQL as their database solution, the team seeks to uncover meaningful insights from the data. These insights will enable the company to optimize decision-making processes, enhance operational workflows, and achieve better overall performance.

Project Scope and Objectives

This project focuses on examining and extracting meaningful insights from the supplied database, which includes information on sales, products, customers, and regional operations for AtliQ Hardware. The goal is to respond to key questions related to sales performance, market trends, and supply chain predictions.

Database Structures

Tables

In SQL, tables are database objects designed to store data in an organized format. They are made up of rows and columns, where each column defines a specific attribute, and each row holds corresponding data values.

Views

In SQL, views are virtual tables created from the outcome of a SELECT query. They allow representation of specific data subsets or join results without modifying the underlying database schema.

Functions

SQL functions are reusable code blocks designed to perform specific operations on the database. They can take parameters, manipulate data, and produce a result. Examples include operations like mathematical calculations and date-related functions.

Stored Procedures

Stored Procedures in SQL are precompiled collections of one or more SQL statements saved within the database. They can be executed by calling their name and are ideal for encapsulating complex operations or automating repetitive tasks.

Product-Based Sales Analysis for Croma in 2021

SQL Query

```
SELECT
 s.date,s.product_code,
 p.product,p.variant,s.sold_quantity,g.gross_price,
 round(g.gross_price*s.sold_quantity,2) as gross_price_total
FROM fact_sales_monthly s
JOIN dim_product p
ON p.product_code=s.product_code
JOIN fact_gross_price g
ON
g.product_code=s.product_code and
g.fiscal_year=get_fiscal_year(s.date)
WHERE
     customer_code="90002002" and
     get_fiscal_year(date)=2021
ORDER BY date DESC
```

Result

2021-08-01	A7321160303	AQ Wi Power Dx3	Premium	158	42.8483	6770.03
2021-08-01	A7321160302	AQ Wi Power Dx3	Plus	193	43.9446	8481.31
2021-08-01	A7321160301	AQ Wi Power Dx3	Standard	459	40.7954	18725.09
2021-08-01	A7220160203	AQ Wi Power Dx2	Premium	586	37.4784	21962.34
2021-08-01	A7220160202	AQ Wi Power Dx2	Plus	264	35.2053	9294.20
2021-08-01	A7219160201	AQ Wi Power Dx2	Standard	531	32.9575	17500.43
2021-08-01	A7119160103	AQ Wi Power Dx1	Premium	137	28.7736	3941.98
2021-08-01	A7119160102	AQ Wi Power Dx1	Plus	454	29.9264	13586.59
2021-08-01	A7118160101	AQ Wi Power Dx1	Standard	251	29.6712	7447.47
2021-08-01	A6819160203	AQ Pen Drive DRC	Premium	436	5.0984	2222.90
2021-08-01	A6818160202	AQ Pen Drive DRC	Plus	1538	3.8531	5926.07
2021-08-01	A6818160201	AQ Pen Drive DRC	Standard	774	2.9990	2321.23
2021-08-01	A6720160103	AQ Pen Drive 2 IN 1	Premium	433	4.4411	1923.00
2021-08-01	A6620160501	AQ Clx3	Standard	339	22.8530	7747.17
2021-08-01	A6520160403	AQ Clx2	Premium	940	21.2830	20006.02
2021-08-01	A6520160402	AQ Clx2	Plus	110	20.1650	2218.15
2021-08-01	A6519160401	AQ Clx2	Standard	778	20.2889	15784.76
2021-08-01	A6419160303	AQ Clx1	Premium	772	19.3342	14926.00
2021-08-01	A6419160302	AQ Clx1	Plus	926	19.6723	18216.55
2021-08-01	A6419160301	AQ Clx1	Standard	572	17.8043	10184.06

Monthly Gross Revenue Insights for Croma

SQL Query

```
SELECT
s.date,
sum(round(g.gross_price*s.sold_quantity,2)) as gross_price_total
FROM fact_sales_monthly s
JOIN fact_gross_price g
ON
    g.product_code=s.product_code and
    g.fiscal_year=get_fiscal_year(s.date)
WHERE customer_code = 90002002
GROUP BY s.date
ORDER BY s.date ASC
```

Result

date	gross_price_total
2017-09-01	122407.57
2017-10-01	162687.56
2017-12-01	245673.84
2018-01-01	127574.73
2018-02-01	144799.54
2018-04-01	130643.92
2018-05-01	139165.06
2018-06-01	125735.36
2018-08-01	125409.90
2018-09-01	343337.14
2018-10-01	440562.10
2018-12-01	653944.72
2019-01-01	359025.06
2019-02-01	356607.19
2019-04-01	379549.74
2019-05-01	340152.29
2019-06-01	343792.08
2019-08-01	338108.87
2019-09-01	808250.42

Annual Sales Performance Overview for Croma in India

SQL Query

```
SELECT
get_fiscal_year(s.date) as Fiscal_year,
sum(round(g.gross_price*s.sold_quantity,2)) as gross_price_total
FROM fact_sales_monthly s
JOIN fact_gross_price g
ON
    g.product_code=s.product_code and
    g.fiscal_year=get_fiscal_year(s.date)
WHERE customer_code = 90002002
GROUP BY get_fiscal_year(s.date)
ORDER BY get_fiscal_year(s.date) ASC
```

Result

Fiscal_year	gross_price_total
2018	1324097.48
2019	3555079.19
2020	6502182.12
2021	23216512.73
2022	44638199.11

Top Markets and Key Customer Contributions in FY 2021

For Markets

SQL Query

```
SELECT
    market,
    round(sum(net_sales)/1000000,2) as net_sales_mln
    FROM gdb0041.net_sales
    where fiscal_year=2021
    group by market
    order by net_sales_mln desc
    limit 5
```

Result

market	net_sales_mln
India	210.67
USA	132.05
South Korea	64.01
Canada	45.89
United Kingdom	44.73

Top Markets and Key Customer Contributions in FY 2021

For Customers

SQL Query

```
SELECT
    c.customer,
    round(sum(net_sales)/1000000,2) as net_sales_mln
    FROM gdb0041.net_sales n
    JOIN dim_customer c
    ON n.customer_code=c.customer_code
    where fiscal_year=2021
    group by c.customer
    order by net_sales_mln desc
    limit 5
```

Result

customer	net_sales_mln
Amazon	109.03
Atliq Exclusive	79.92
Atliq e Store	70.31
Sage	27.07
Flipkart	25.25

Customer Contributions to Overall Market Share

SQL Query

```
with cte1 as (
        select
            customer,
            round(sum(net_sales)/1000000,2) as net_sales_mln
            from net_sales s
            join dim_customer c
            on s.customer_code=c.customer_code
            where s.fiscal_year=2021
            group by customer)
    select
            *,
            net_sales_mln*100/sum(net_sales_mln) over() as pct_net_sales
    from cte1
    order by net_sales_mln desc
```

Result

customer	net_sales_mln	pct_net_sales
Amazon	109.03	13.233402
Atliq Exclusive	79.92	9.700206
Atliq e Store	70.31	8.533803
Sage	27.07	3.285593
Flipkart	25.25	3.064692
Leader	24.52	2.976089
Neptune	21.01	2.550067
Ebay	19.88	2.412914
Electricalsocity	16.25	1.972327
Synthetic	16.10	1.954121
Electricalslytical	15.64	1.898289
Acclaimed Sto...	14.32	1.738075
Propel	14.14	1.716228
Novus	12.91	1.566938
Expression	12.90	1.565724
Reliance Digital	12.75	1.547518
walmart	12.63	1.532953
Costco	12.19	1.479548
Staples	11.49	1.394587
Girias	11.30	1.371526

Supply Chain Analytics

Conatins the report on Forecast accuracy for multiple customers for fiscal year 2021 where it includes the fields information like:

- Customer Name
- Market
- Total sold Quantity
- Total Forecast Quantity
- Net error
- Abs error
- Forecast accuracy

Supply Chain: Forecasting for various customers

SQL Query

```
with forecast_err_table as (
            select
                 s.customer_code as customer_code,
                 c.customer as customer_name,
                 c.market as market,
                 sum(s.sold_quantity) as total_sold_qty,
                 sum(s.forecast_quantity) as total_forecast_qty,
                 sum(s.forecast_quantity-s.sold_quantity) as net_error,
                 round(sum(s.forecast_quantity-s.sold_quantity)*100/sum(s.forecast_quantity),1) as net_error_pct,
                 sum(abs(s.forecast_quantity-s.sold_quantity)) as abs_error,
                 round(sum(abs(s.forecast_quantity-sold_quantity))*100/sum(s.forecast_quantity),2) as abs_error_pct
            from fact_act_est s
            join dim_customer c
            on s.customer_code = c.customer_code
            where s.fiscal_year=2021
            group by customer_code
    )
    select
            *,
            if (abs_error_pct > 100, 0, 100.0 - abs_error_pct) as forecast_accuracy
    from forecast_err_table
        order by forecast_accuracy desc;
```

Result

customer_code	customer_name	market	total_sold_qty	total_forecast_c	net_error	net_error_pct	abs_error	abs_error_	forecast_accuracy
90027207	Amazon	Brazil	32354	44608	11993	26.9	24599	55.14	44.86
90026205	Amazon	Mexico	35030	29882	-5110	-17.1	18510	61.94	38.06
90025209	Electricalsbea Stores	Columbia	13178	15428	2065	13.4	8051	52.18	47.82
90024184	Amazon	Chile	24121	21164	-2939	-13.9	12645	59.75	40.25
90024183	Electricalsbea Stores	Chile	22229	20670	-1583	-7.7	12399	59.99	40.01
90023030	Amazon	Canada	230055	260030	29968	11.5	146186	56.22	43.78
90023029	Staples	Canada	221909	268692	46767	17.4	151139	56.25	43.75
90023028	walmart	Canada	239081	283323	44233	15.6	153039	54.02	45.98
90023027	Costco	Canada	236189	279962	43760	15.6	149274	53.32	46.68
90023026	Relief	Canada	228988	273492	44495	16.3	146921	53.72	46.28
90023025	Premium Stores	Canada	220808	266351	45530	17.1	146208	54.89	45.11
90023024	Sage	Canada	246397	287233	40835	14.2	155585	54.17	45.83
90023023	Amazon	Canada	371184	441346	70162	15.9	248034	56.20	43.80
90023022	Nomad Stores	Canada	225182	264886	39702	15.0	145510	54.93	45.07
90022083	Ebay	USA	500727	431049	-69678	-16.2	271498	62.99	37.01
90022082	Amazon	USA	492326	413788	-78538	-19.0	263364	63.65	36.35
90022081	Amazon	USA	777382	641467	-135915	-21.2	419293	65.36	34.64
90022080	Staples	USA	513823	444777	-69046	-15.5	287308	64.60	35.40
90022079	walmart	USA	516429	436889	-79540	-18.2	285946	65.45	34.55
90022078	Costco	USA	490310	421956	-68354	-16.2	272046	64.47	35.53
90022077	Radio Shack	USA	467929	420833	-47096	-11.2	258990	61.54	38.46
90022076	Circuit City	USA	530884	446132	-84752	-19.0	289910	64.98	35.02
90022075	BestBuy	USA	505147	431868	-73279	-17.0	279385	64.69	35.31
90022074	Flipkart	USA	629907	525718	-104189	-19.8	350847	66.74	33.26

Conclusion

Finance & Supply chain Analytics

- Amazon generated 13.23% of total net sales among all customers in fiscal year 2021
- In APAC region, Amazon contributed maximum net sales % of 12.99 % among rest customers in 2021.
- Net sales of Amazon is highest with 109.03M in fiscal year 2021 followed by AtliQExclusive with 79.92M
- Coolblue has the highest Forecast accuracy in year 2021