SQL - Finance and Supply Chain Analytics of AtliQ Hardwares

About AtliQ Hardwares and Problem Statement

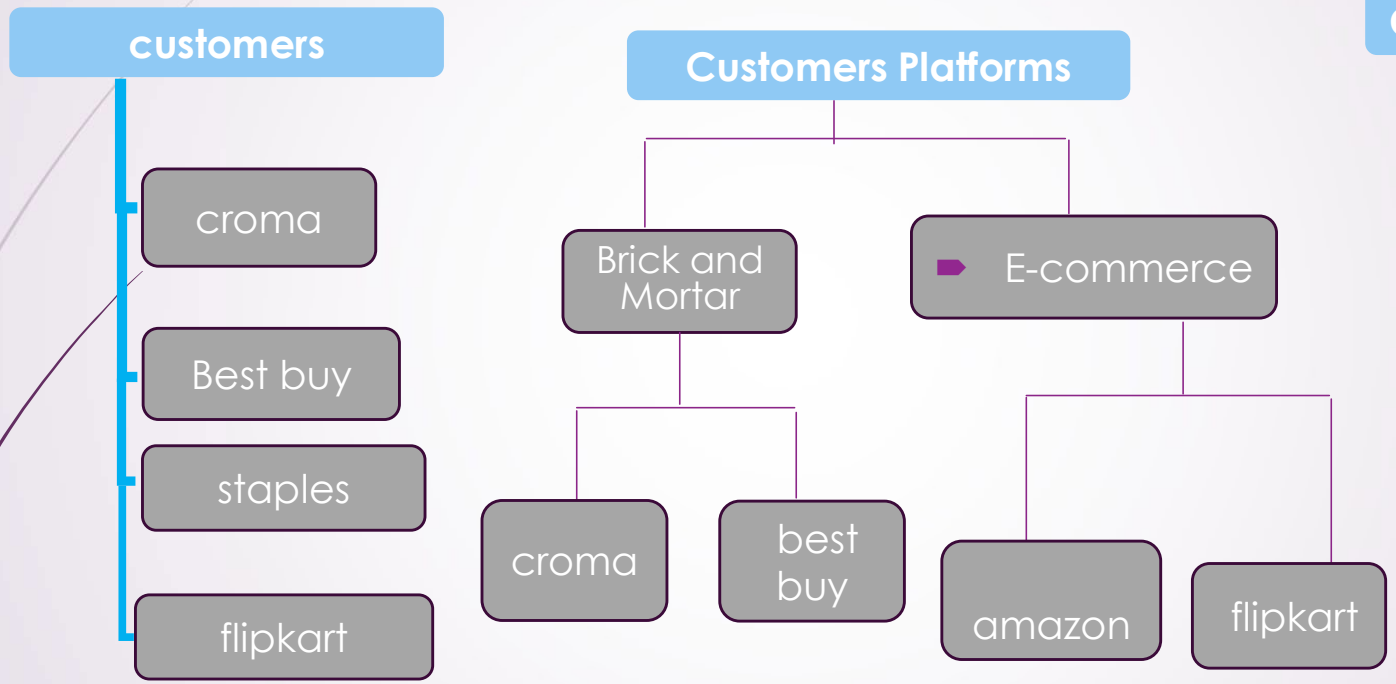
- AtliQ Hardwares, a leading hardware company specializing in PCs, printers, mice, and computers with a global reach.

- The expanding size of Excel files has led to performance problems, resulting in unresponsiveness and inefficiency. AtliQ Hardware has launched a project to tackle this issue by assembling a team of data analysts. They will utilize MySQL as their database management system to extract meaningful insights from the data. These insights will empower the company to enhance decision-making and optimize operations, ultimately boosting overall performance.

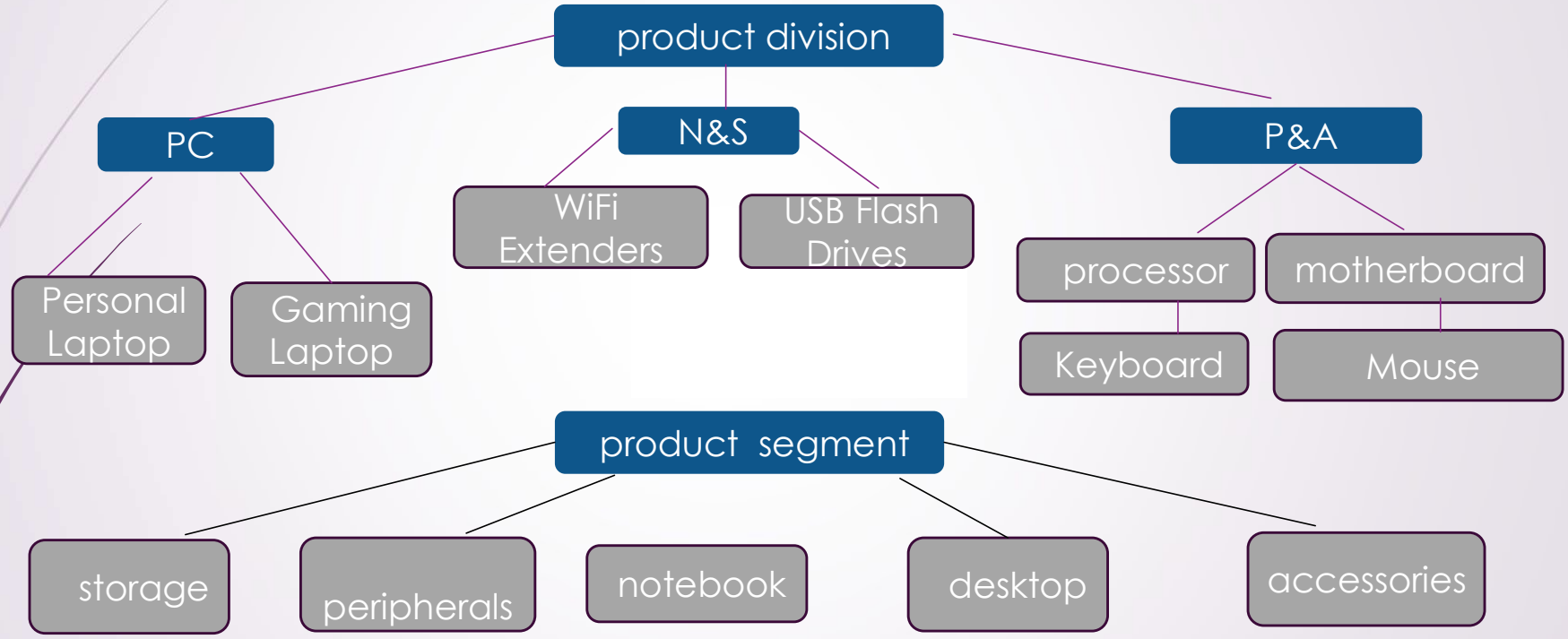
Project Overview

- This project is designed to analyze and extract valuable insights from the provided database. The database contains information about sales, products, customers, and regions for Atliq Hardware. I aim to address specific questions related to sales reports, market analysis, customer behavior, and supply chain forecasting.

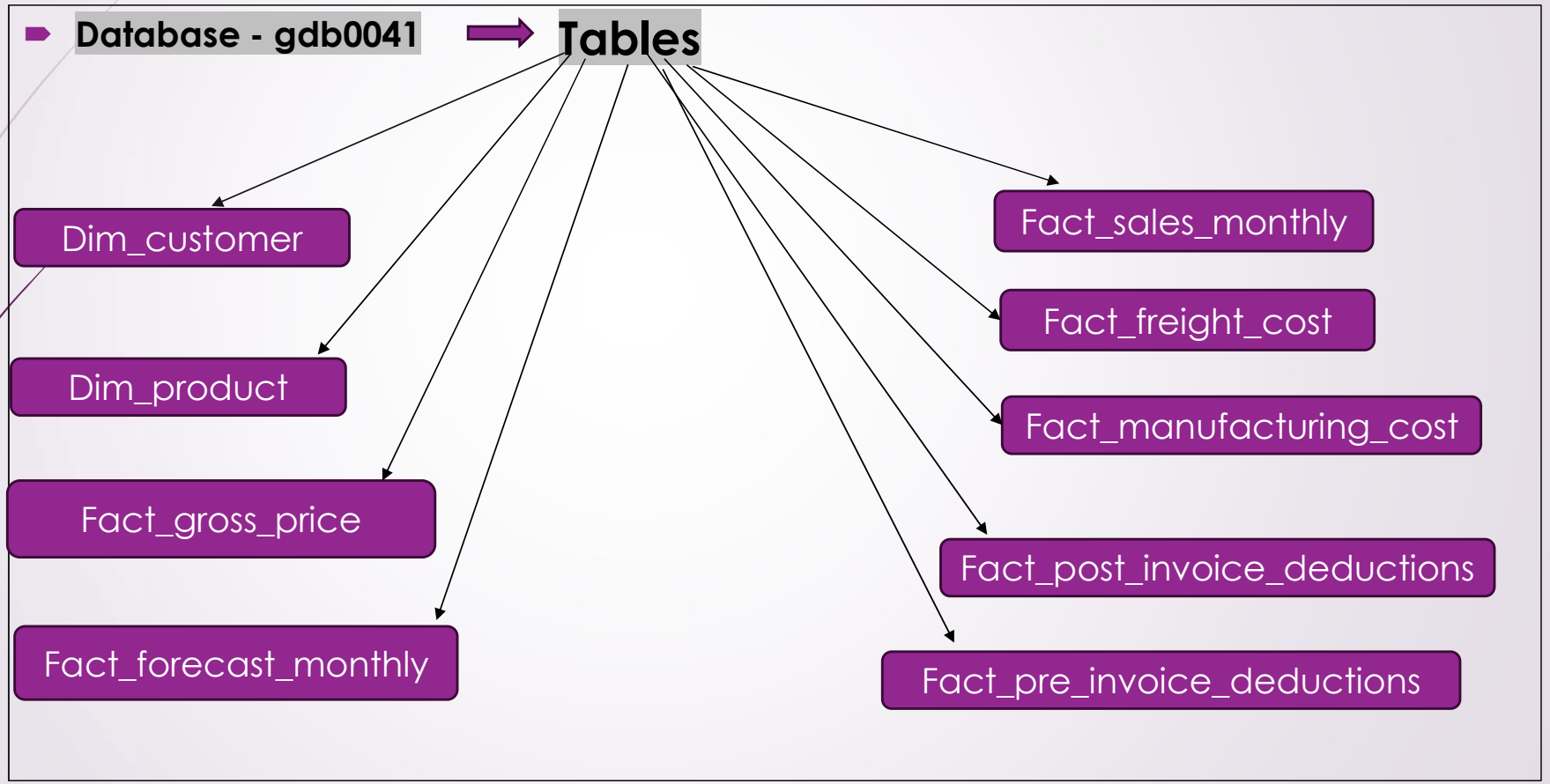
AtliQ Hardwares-Business Model



AtliQ Hardwares-Business Model



Data Sets


Database - gdb0041
Tables
Dim_customer
Dim_product
Fact_gross_price
Fact_forecast_monthly
Fact_sales_monthly
Fact_freight_cost
Fact_manufacturing_cost
Fact_post_invoice_deductions
Fact_pre_invoice_deductions

Croma India Product Wise Sales Report for Fiscal Year -2021

SQL-Query

```sql
SELECT monthname(s.date) as month,p.product,p.variant,s.sold_quantity,
round(g.gross_price,2) as gross_price,
round(s.sold_quantity * g.gross_price,2) as gross_price_total
FROM fact_sales_monthly s
join dim_product p
using (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 asc
limit 1000000;
```

Output-Sheet

month	product	variant	sold_quantity	gross_price	gross_price_total
September	AQ Dracula HDD – 3.5 Inch SATA 6 Gb/s 5400 R...	Standard	202	19.06	3849.57
September	AQ Dracula HDD – 3.5 Inch SATA 6 Gb/s 5400 R...	Plus	162	21.46	3475.95
September	AQ Dracula HDD – 3.5 Inch SATA 6 Gb/s 5400 R...	Premium	193	21.78	4203.44
September	AQ Dracula HDD – 3.5 Inch SATA 6 Gb/s 5400 R...	Premium Plus	146	22.97	3354.04
September	AQ WereWolf NAS Internal Hard Drive HDD – 8....	Standard	149	23.70	3531.11
September	AQ WereWolf NAS Internal Hard Drive HDD – 8....	Plus	107	24.73	2646.24
September	AQ WereWolf NAS Internal Hard Drive HDD – 8....	Premium	123	23.62	2904.69
September	AQ Zion Saga	Standard	146	23.72	3463.46
September	AQ Zion Saga	Plus	236	27.10	6396.24
September	AQ Zion Saga	Premium	137	28.01	3836.81
September	AQ Mforce Gen X	Standard 3	23	19.52	449.04
September	AQ Mforce Gen X	Plus 1	82	19.92	1633.76
September	AQ Mforce Gen X	Plus 2	86	20.08	1726.59
September	AQ Mforce Gen X	Plus 3	48	19.94	956.95
September	AQ Mforce Gen Y	Standard 1	138	22.40	3090.98
September	AQ Mforce Gen Y	Standard 2	72	24.93	1794.95
September	AQ Mforce Gen Y	Standard 3	38	26.59	1010.31
September	AQ Mforce Gen Y	Plus 1	149	26.11	3890.11
September	AQ Mforce Gen Y	Plus 2	29	29.70	861.32
September	AQ Mforce Gen Y	Plus 3	28	31.24	874.83
September	AQ Mforce Gen Y	Premium 1	171	32.44	5547.70
September	AQ Mforce Gen Y	Premium 2	118	30.58	3608.63
September	AQ Mforce Gen Z	Standard 1	51	30.47	1553.95
September	AQ Mforce Gen Z	Standard 2	191	34.10	6512.58

Gross Monthly Total Sales Report For Croma

SQL-Query

```
SELECT monthname(s.date) as month,
round(sum(s.sold_quantity * g.gross_price),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 date asc;
```

Output-Sheet

month	gross_price_total
September	122407.56
October	162687.57
December	245673.80
January	127574.74
February	144799.52
April	130643.90
May	139165.10
June	125735.38
August	125409.88
September	343337.17
October	440562.08
December	653944.75
January	359025.02
February	356607.17
April	379549.69
May	340152.23
June	343792.04
August	338108.88
September	808250.44
October	1092622.20
December	1488174.02
January	812929.75
February	862762.77
April	130520.92

Yearly Gross Sales Report for Croma India

SQL-Query

```sql
select g.fiscal_year,
round(sum(s.sold_quantity * g.gross_price)/1000000,2) as "gross_price_total(in mln)"
from fact_sales_monthly s
join fact_gross_price g
on s.product_code = g.product_code
and get_fiscal_year(s.date) = g.fiscal_year
where customer_code = 90002002
group by g.fiscal_year;
```

Output-Sheet

fiscal_year	gross_price_total(in mln)
2018	1.32
2019	3.56
2020	6.50
2021	23.22
2022	44.64

Top Market and Customers for a Financial Year ”2021”

Customers

SQL-Query

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

Output-Sheet

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

Top Market and Customers for a Financial Year"2021"

Market

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;
```

Output-Sheet

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

Net Sales % Share by Customers

SQL-Query

```sql
with cte as(
SELECT c.customer,
    round(sum(net_sales)/1000000,2) as net_sales_mln
    FROM gdb0041.net_sales s
    join dim_customer c
    using (customer_code)
    where s.fiscal_year = 2021
    group by customer
    order by net_sales_mln desc
)
select *,
round(net_sales_mln*100/sum(net_sales_mln) over(),2) as net_sales_perc
from cte
order by net_sales_perc desc
limit 10;
```

Output-Sheet

customer	net_sales_mln	net_sales_perc
Amazon	109.03	13.23
Atliq Exclusive	79.92	9.70
Atliq e Store	70.31	8.53
Sage	27.07	3.29
Flipkart	25.25	3.06
Leader	24.52	2.98
Neptune	21.01	2.55
Ebay	19.88	2.41
Electricalsocity	16.25	1.97
Synthetic	16.10	1.95

Net Sales % Share by Region –"APAC"

SQL-Query

```sql
with cte as(select customer,
sum(net_sales) as net_sales
from net_sales s
join dim_customer c
using (customer_code)
where s.fiscal_year = 2021 and region = "APAC"
group by customer
order by net_sales desc
)
select customer,round(net_sales*100/sum(net_sales) over(),2) as net_sales_perc
from cte
limit 10;
```

Output-Sheet

customer	net_sales_perc
Amazon	12.99
Atliq Exclusive	11.67
Atliq e Store	8.36
Leader	5.55
Sage	5.17
Neptune	4.75
Electricalsocity	3.68
Propel	3.20
Synthetic	3.20
Flipkart	2.93

Top 2 Markets in Every Region by their Gross Sales Amount

SQL-Query

```
with cte1 as(
SELECT c.region , c.market,
sum(g.gross_price_total) as gross_sales_total
FROM gdb0041.`gross sales` g
join dim_customer c
using (customer_code)
group by 1,2
),
cte2 as(
select *, dense_rank() over(partition by region
order by gross_sales_total desc) as rnk
from cte1
)
select * from cte2
where rnk <= 2
;
```

Output-Sheet

region	market	gross_sales_total	rnk
APAC	India	1600385171.57	1
APAC	South Korea	489801582.42	2
EU	United Kingdom	266584122.34	1
EU	France	223223400.31	2
LATAM	Brazil	10108873.70	1
LATAM	Mexico	8765894.17	2
NA	USA	906908680.70	1
NA	Canada	304977062.38	2

Supply Chain – Forecast Quantity

SQL-Query

```sql
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;
```

Output-Sheet

customer_code	total_sold_qty	total_forecast_qty	net_err	net_err_pct	abs_err	abs_err_pct
90013120	109547	133532	23985	17.9620	70467	52.7716
70010048	119439	142010	22571	15.8940	75711	53.3139
90023027	236189	279962	43773	15.6353	149303	53.3297
90023026	228988	273492	44504	16.2725	146948	53.7303
90017051	86823	118067	31244	26.4629	63568	53.8406
90017058	86860	110195	23335	21.1761	59473	53.9707
90023028	239081	283323	44242	15.6154	153058	54.0224
90023024	246397	287233	40836	14.2170	155610	54.1755
90013124	110898	136116	25218	18.5268	73826	54.2376
90015146	147152	210507	63355	30.0964	114189	54.2448
90017054	84371	114698	30327	26.4407	62483	54.4761
70027208	33713	47321	13608	28.7568	25784	54.4874

Conclusion

- Net sales of Amazon is highest with 109.03M in fiscal year 2021 followed by AtliQ Exclusive with 79.92M
- Market in India generated maximum net sales with 210.67M in fiscal year 2021 followed by USA with 132.05M
- 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.
- In APAC, region India ranks 1 in terms of total gross sales.

Thank You