



SQL- Finance and Supply Chain Analytics (AtliQ Hardware's)

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AtliQ Hardware: Data Challenges and Solutions

AtliQ Hardware is a global leader in hardware products, including PCs, printers, mice, and computers, serving customers worldwide.

However, as their data grew, relying on Excel caused major performance issues like slow processing and unresponsiveness. To solve this, AtliQ Hardware launched a project to modernize its data management system.

The company brought in a team of data analysts to transition from Excel to **MySQL**, a more powerful database solution. This change enables AtliQ to extract valuable insights from their data, improve decision-making, and streamline operations—setting the stage for better efficiency and growth.

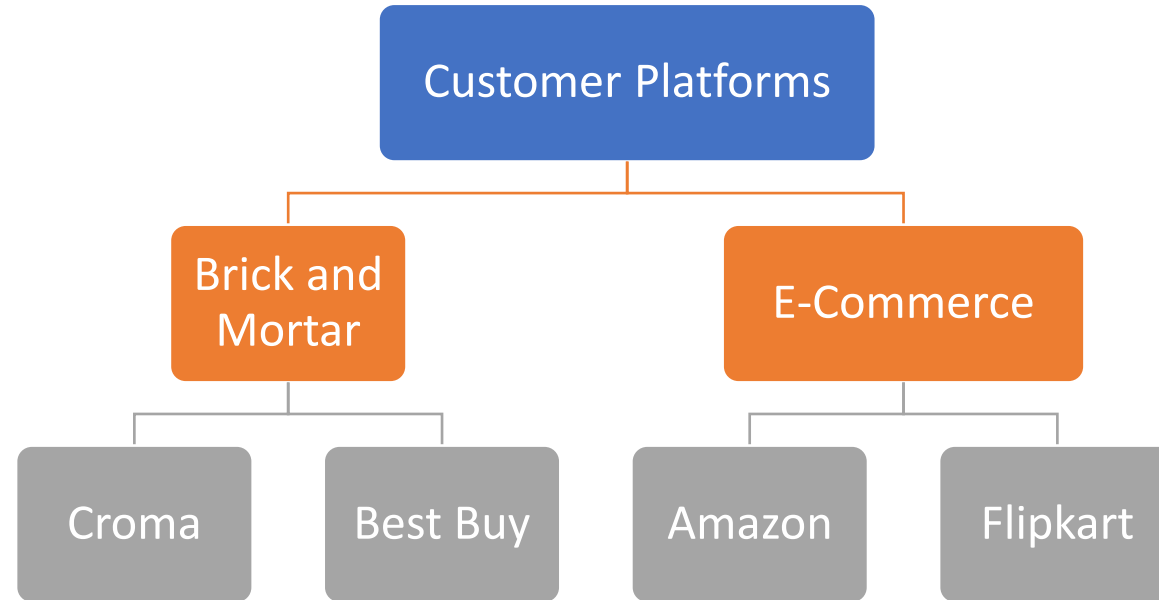


Project Overview

This project focuses on analyzing AtliQ Hardware's database to uncover valuable insights. The database includes details about sales, products, customers, and regions. The goal is to answer key questions about sales trends, market performance, customer behavior, and supply chain forecasts. By diving into this data, we aim to drive smarter decisions and optimize business operations.



AtliQ Hardware – Business Model

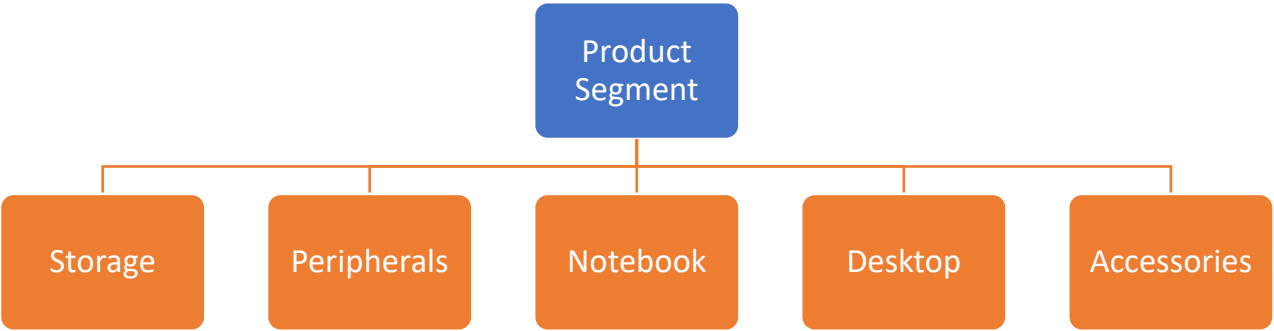
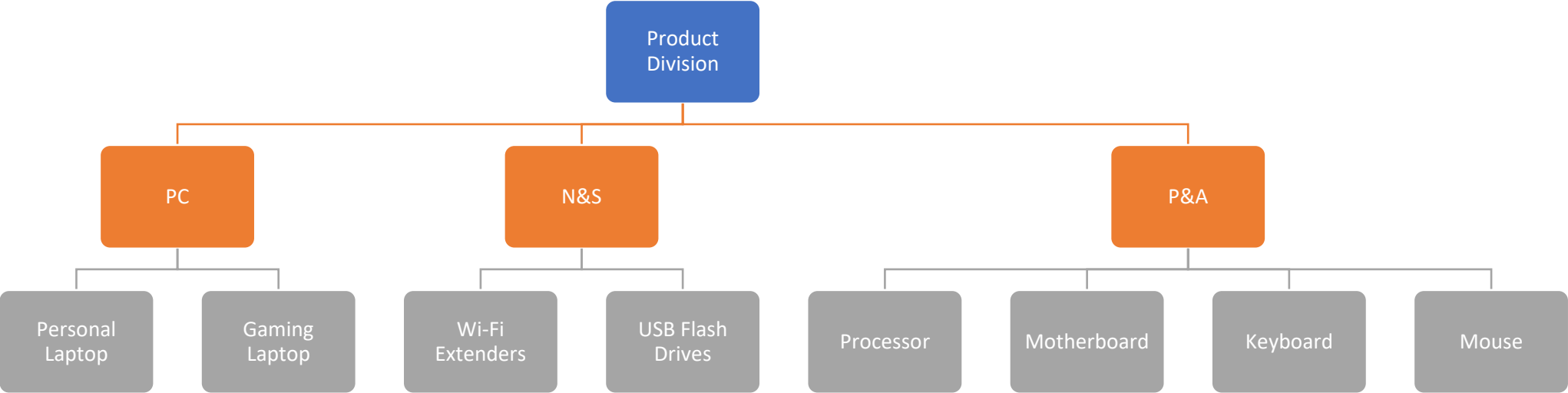


Customers Channels



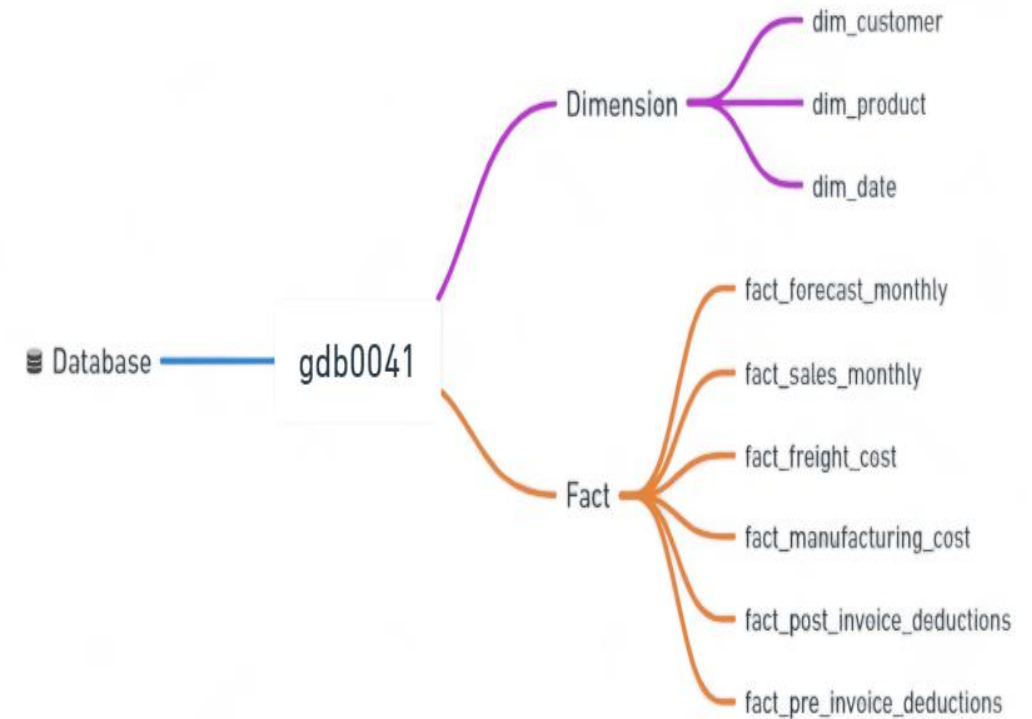
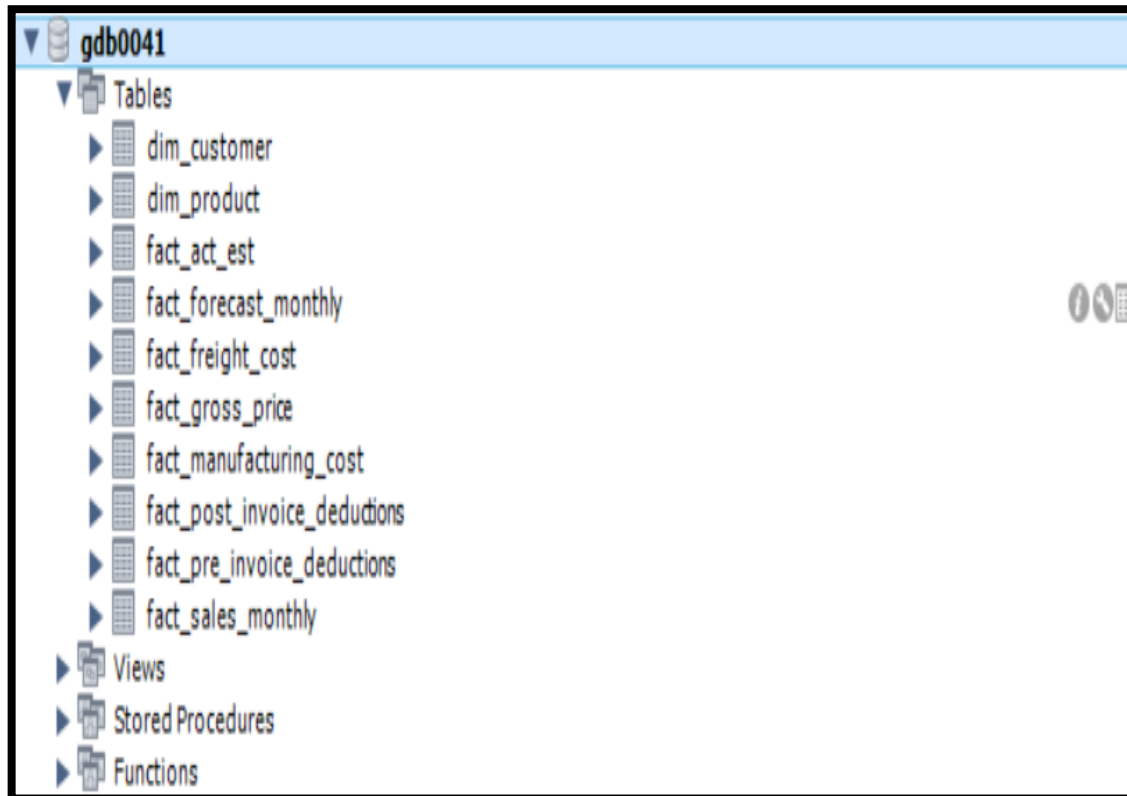


AtliQ Hardware – Business Model





Data Sets





Get all the sales transaction data from fact_sales_monthly table for that customer (croma: 90002002) in the fiscal_year 2021

```
SELECT * FROM fact_sales_monthly
WHERE
    customer_code=90002002 AND
    YEAR(DATE_ADD(date, INTERVAL 4 MONTH))=2021
ORDER BY date asc
LIMIT 100000;
```

	date	fiscal_year	product_code	customer_code	sold_quantity
	2020-09-01	2021	A0220150203	90002002	123
	2020-09-01	2021	A0320150301	90002002	146
	2020-09-01	2021	A0321150302	90002002	236
	2020-09-01	2021	A0321150303	90002002	137
	2020-09-01	2021	A0418150103	90002002	23
	2020-09-01	2021	A0418150104	90002002	82
	2020-09-01	2021	A0418150105	90002002	86
	2020-09-01	2021	A0418150106	90002002	48
	2020-09-01	2021	A0519150201	90002002	138
	2020-09-01	2021	A0519150202	90002002	72
	2020-09-01	2021	A0519150203	90002002	38
	2020-09-01	2021	A0519150204	90002002	149
	2020-09-01	2021	A0519150205	90002002	29

Create function for fiscal_year

```
CREATE DEFINER='root'@'localhost' FUNCTION `get_fiscal_year`(  
    calendar_date date  
) RETURNS int  
    DETERMINISTIC  
  
BEGIN  
    declare fiscal_year INT;  
    set fiscal_year=year(date_add(calendar_date, interval 4 month));  
    return fiscal_year;  
END
```




Croma India product wise sales report for fiscal year - 2021

```
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;
```

month	product	variant	sold_quantity	gross_price	gross_price_total
September	AQ Dracula HDD – 3.5 Inc...	Standard	202	19.06	3849.57
September	AQ Dracula HDD – 3.5 Inc...	Plus	162	21.46	3475.95
September	AQ Dracula HDD – 3.5 Inc...	Premium	193	21.78	4203.44
September	AQ Dracula HDD – 3.5 Inc...	Premium Plus	146	22.97	3354.04
September	AQ WereWolf NAS Interna...	Standard	149	23.70	3531.11
September	AQ WereWolf NAS Interna...	Plus	107	24.73	2646.24
September	AQ WereWolf NAS Interna...	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



Gross monthly total sales for Croma

```
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;
```

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



Generate monthly gross sales report for any customer using stored procedure

```
CREATE DEFINER=`root`@`localhost` PROCEDURE
`get_monthly_gross_reports_for_customer` (
  c_code INT
)
BEGIN
  select
    s.date,
    sum(round(g.gross_price*sold_quantity,2)) as monthly_sales
  from fact_sales_monthly s
  join fact_gross_price g
  on
    s.product_code=g.product_code and
    g.fiscal_year=get_fiscal_year(s.date)
  where
    customer_code=c_code
  group by s.date;
END
```

Call stored procedure gdb0041.get_monthly_gross_reports...

Enter values for parameters of your procedure and click <Execute> to create an SQL editor and run the call:

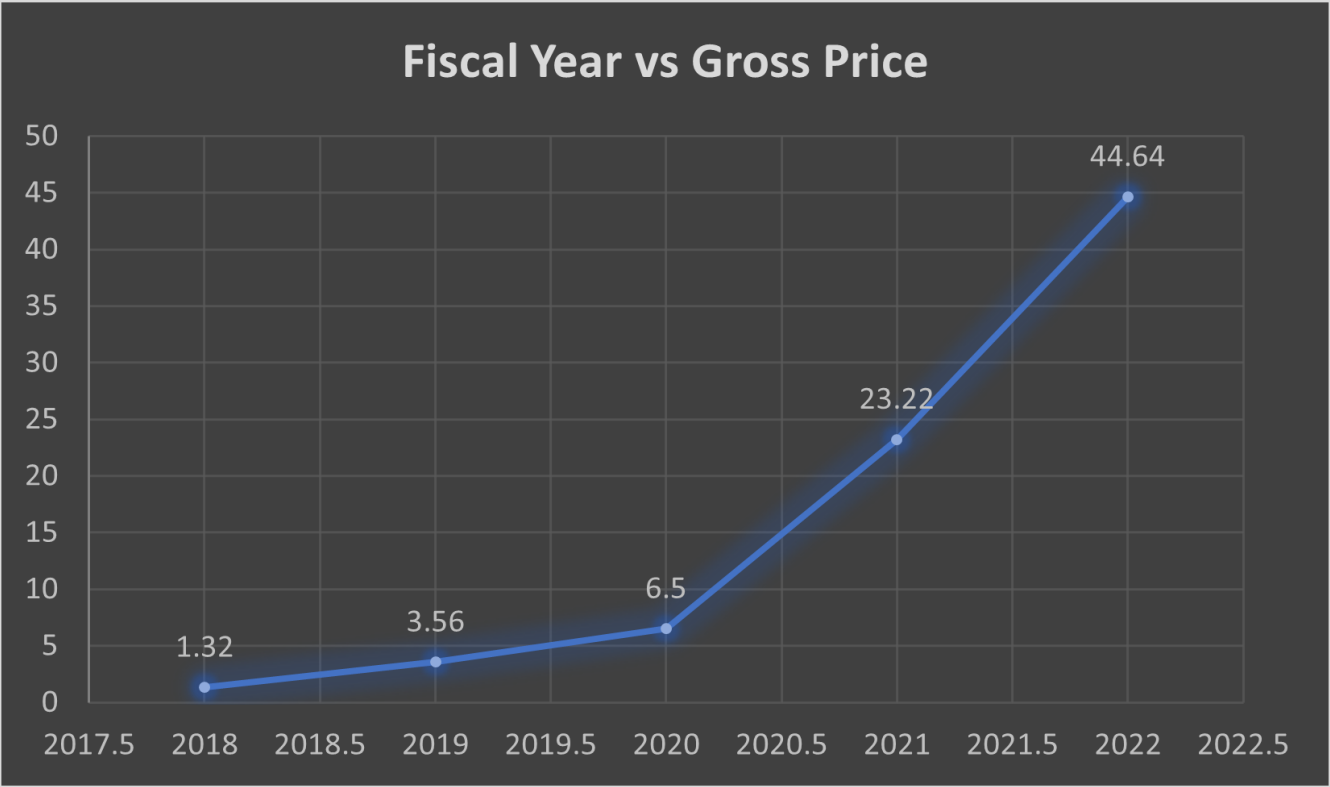
c_code [IN] INT



Yearly gross sales report for Croma India

```
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;
```

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

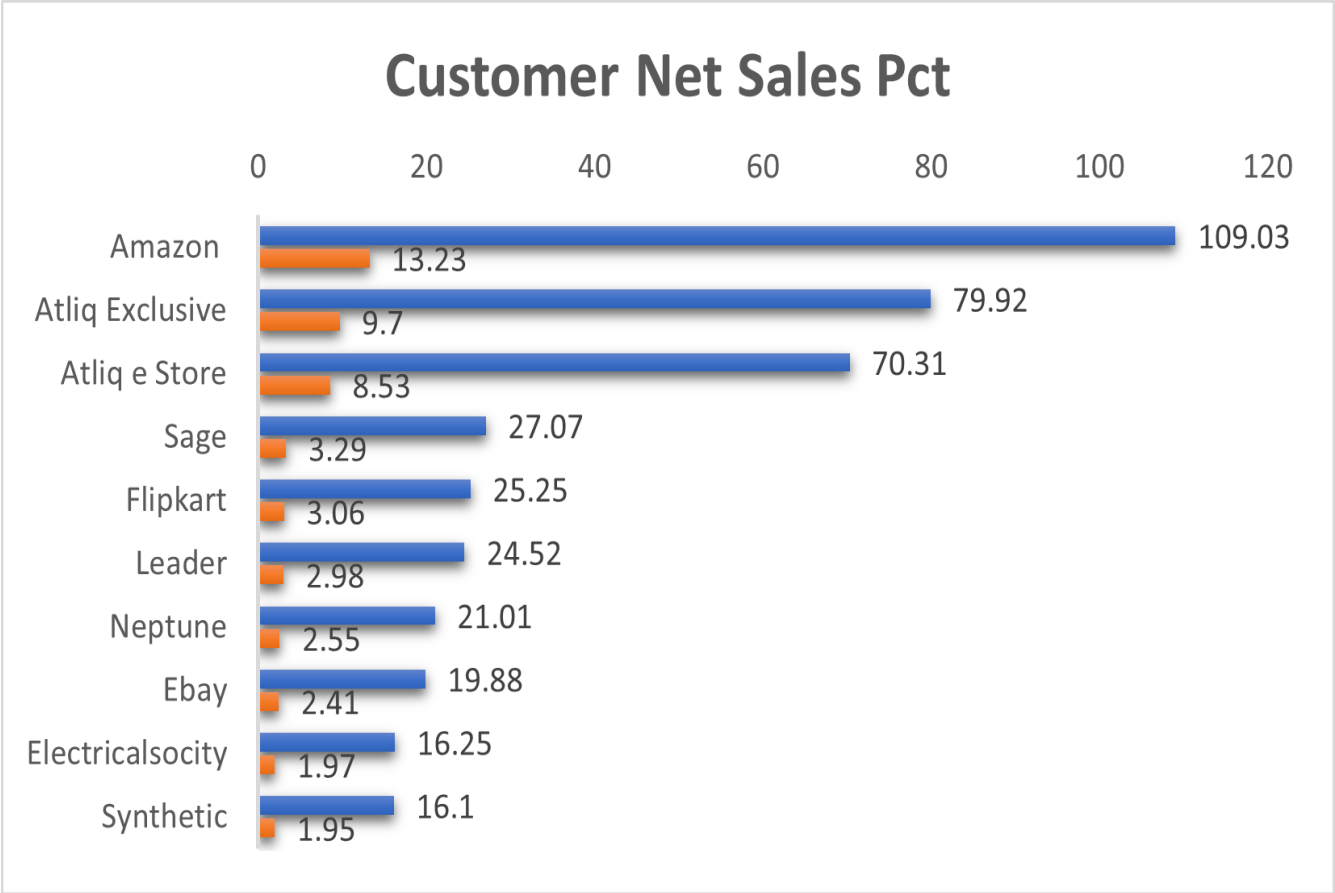




Top 5 Customers for a Financial Year 2021

```
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;
```

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

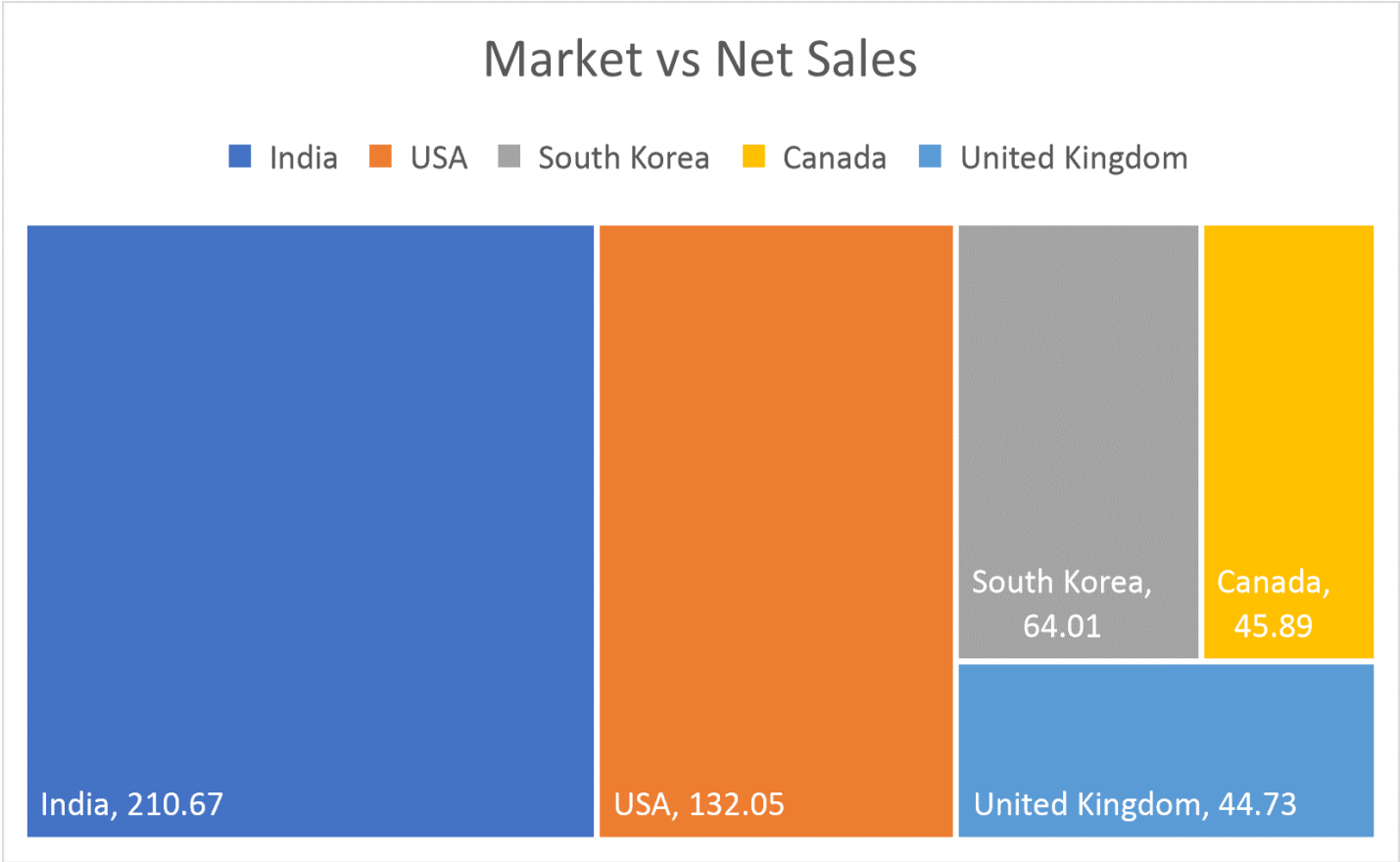




Top 5 Market for a Financial Year 2021

```
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;
```

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

```
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;
```

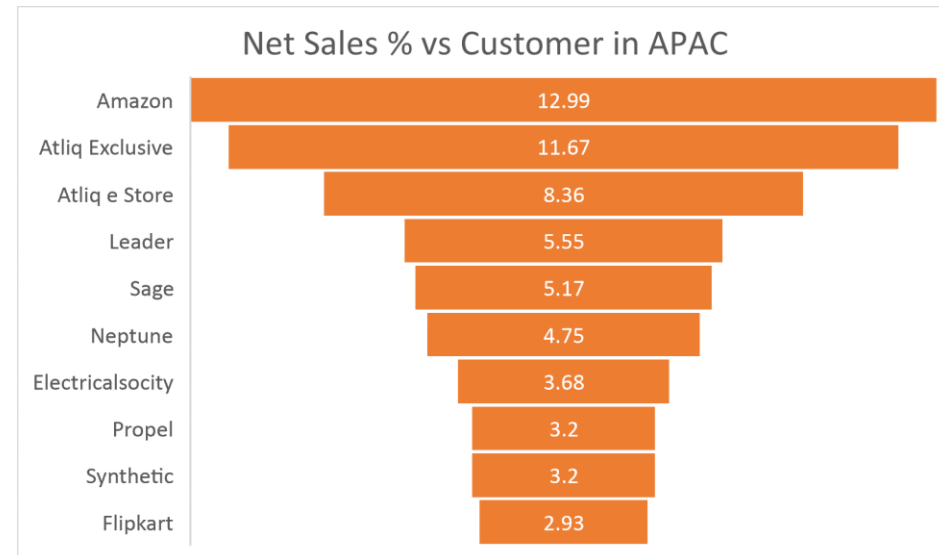
customer	net_sales_mln	net_sales_perc
Amazon	109.03	13.23
Atliq Exclusive	79.92	9.70
Atliq e Store	70.31	8.53
Sage	27.07	3.29
Flipkart	25.25	3.06
Leader	24.52	2.98
Neptune	21.01	2.55
Ebay	19.88	2.41
Electricalsociety	16.25	1.97
Synthetic	16.10	1.95



Net sales % share by Region - APAC

```
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;
```

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
Electricalsociety	3.68
Propel	3.20
Synthetic	3.20
Flipkart	2.93





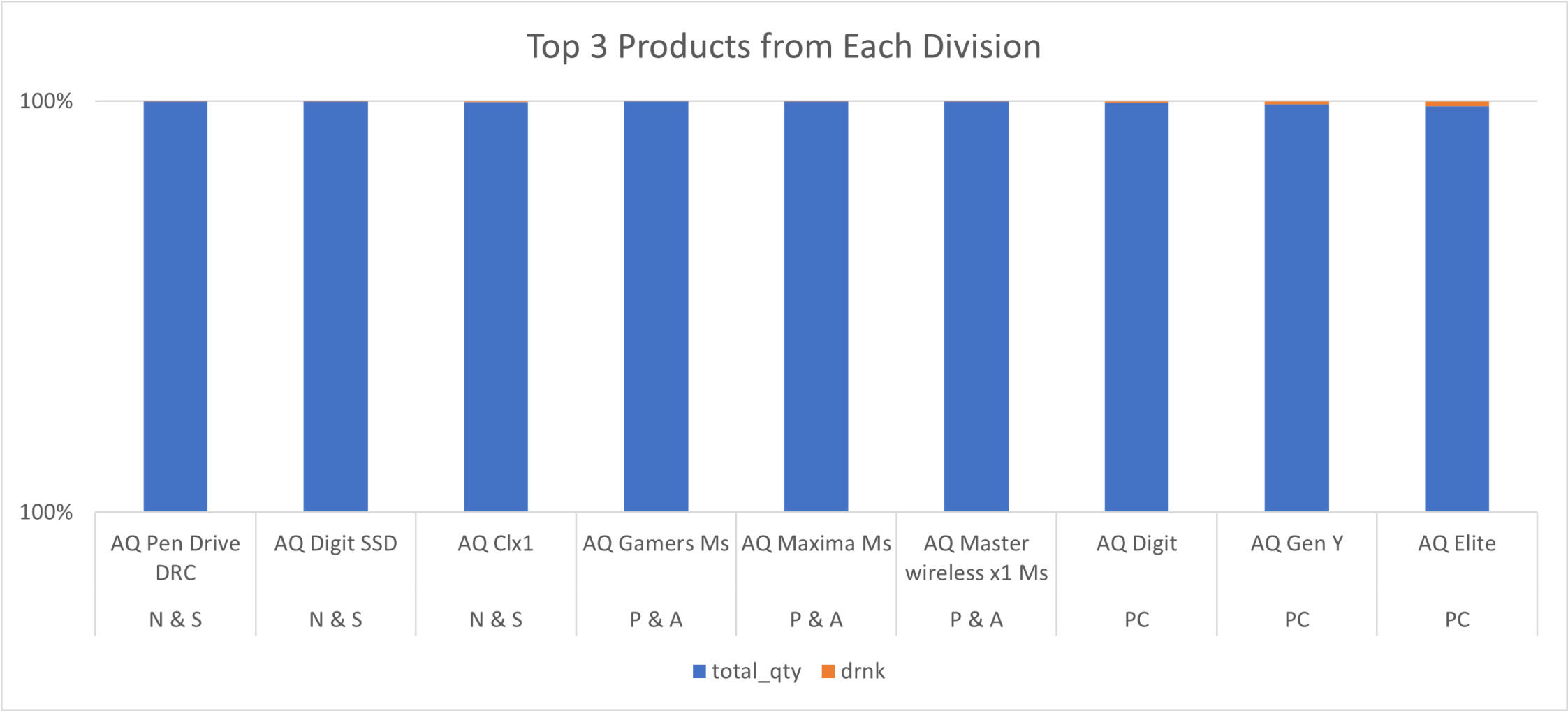
Top 3 products from each division by total quantity sold in a given year

```
with cte1 as
    (select
        p.division,
        p.product,
        sum(sold_quantity) as total_qty
    from fact_sales_monthly s
    join dim_product p
        on p.product_code=s.product_code
    where fiscal_year=2021
    group by p.product, p.division),
    cte2 as
    (select
        *,
        dense_rank() over (partition by division order by total_qty desc) as drnk
    from cte1)
select * from cte2 where drnk<=3
```

division	product	total_qty	drnk
N & S	AQ Pen Drive DRC	2034569	1
N & S	AQ Digit SSD	1240149	2
N & S	AQ Clx1	1238683	3
P & A	AQ Gamers Ms	2477098	1
P & A	AQ Maxima Ms	2461991	2
P & A	AQ Master wireless x1 Ms	2448784	3
PC	AQ Digit	135092	1
PC	AQ Gen Y	135031	2
PC	AQ Elite	134431	3



Top 3 products from each division by total quantity sold in a given year





Supply Chain – Forecast Quantity

```
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-s.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;
```

customer_code	customer_name	market	total_sold_qty	total_forecast_qty	net_error	net_error_pct	abs_error	abs_error_pct	forecast
90013120	Coolblue	Italy	109547	133532	23920	17.9	70402	52.72	47.28
70010048	Atliq e Store	Bangladesh	119439	142010	22526	15.9	75666	53.28	46.72
90025209	Electricalsbea Stores	Columbia	13178	15428	1892	12.3	8224	53.31	46.69
90023027	Costco	Canada	236189	279962	43752	15.6	149282	53.32	46.68
90023026	Relief	Canada	228988	273492	44486	16.3	146930	53.72	46.28
90017051	Forward Stores	Portugal	86823	118067	31138	26.4	63462	53.75	46.25
70027208	Atliq e Store	Brazil	33713	47321	13282	28.1	25458	53.80	46.20
90017058	Mbit	Portugal	86860	110195	23226	21.1	59364	53.87	46.13
90023028	walmart	Canada	239081	283323	44228	15.6	153044	54.02	45.98
90023024	Sage	Canada	246397	287233	40823	14.2	155597	54.17	45.83
90013124	Amazon	Italy	110898	136116	25168	18.5	73776	54.20	45.80
90015146	Mbit	Norway	147152	210507	63320	30.1	114154	54.23	45.77
90017054	Flawless Stores	Portugal	84371	114698	30241	26.4	62397	54.40	45.60



Thank You