# CONSUMER GOODS

## Ad-hoc insights


Presented by Harini

## Overview:

- Atliq Hardwares, a leading computer hardware producer in India, seeks to improve its data analytics for better decision-making.

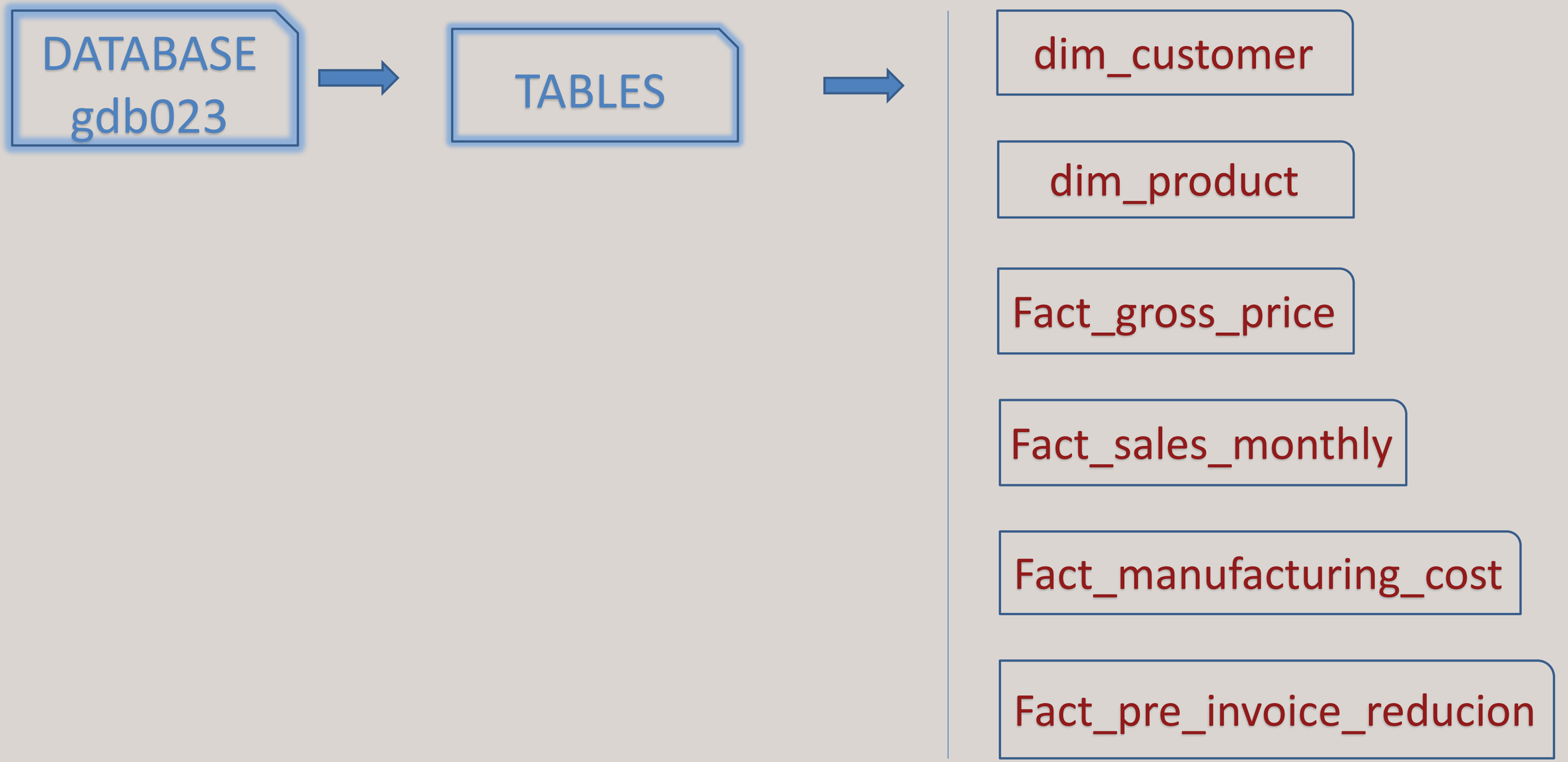
## Problem Statement:

- The management identified a need for more actionable insights to support swift and informed decisions. Tony Sharma, Director of Data Analytics, aimed to hire skilled junior analysts through a SQL challenge addressing 10 specific business queries

## Approach

- Reviewed the ‘ad-hoc-requests.pdf’ document containing 10 specific business queries requiring insights.
- Developed and executed SQL queries to extract relevant data and provide answers to each of the ad hoc requests.

# DATASET


DATABASE
gdb023
TABLES
dim_customer
dim_product
Fact_gross_price
Fact_sales_monthly
Fact_manufacturing_cost
Fact_pre_invoice_reducion

1. Provide the list of markets in which customer "Atliq Exclusive" operates its business in the APAC region.

```
select distinct market from dim_customer
where customer = "Atliq Exclusive"  and region = "APAC";
```

**Output:**

| market |
| --- |
| India |
| Indonesia |
| Japan |
| Philiphines |
| South Korea |
| Australia |
| Newzealand |
| Bangladesh |

## *Insights*

- In the Asia Pacific Region, “Atliq Exclusive” operates in 8 countries

2. What is the percentage of unique product increase in 2021 vs. 2020? The final output contains these fields,

```
SELECT X.A AS unique_product_2020, Y.B AS unique_products_2021, ROUND((B-A)*100/A, 2)
AS percentage_chg
FROM
     (
      (SELECT COUNT(DISTINCT(product_code)) AS A FROM fact_sales_monthly
      WHERE fiscal_year = 2020) X,
      (SELECT COUNT(DISTINCT(product_code)) AS B FROM fact_sales_monthly
      WHERE fiscal_year = 2021) Y  );
```

**Output:**

| unique_product_2020 | unique_products_2021 | percentage_chg |
|---|---|---|
| 245 | 334 | 36.33 |

## *Insights*

- There was a significant increase in unique products, with 334 in 2021 compared to 245 in 2020. marking a substantial growth rate of 36.33%

3. Provide a report with all the unique product counts for each segment and sort them in descending order of product counts. The final output contains 2 fields, segment and product_count

```sql
select segment , count(distinct product_code) as unique_counts
from dim_product
group by segment
order by unique_counts desc;
```

**Output**:

| segment | unique_counts |
|---|---|
| Notebook | 129 |
| Accessories | 116 |
| Peripherals | 84 |
| Desktop | 32 |
| Storage | 27 |
| Networking | 9 |

## *Insights*

- The **"Notebook"** segment has the highest product count, with 129 products.
- The **"Networking"** segment has the smallest product count with only 9 products.

4. Which segment had the most increase in unique products in 2021 vs 2020? The final output contains these fields, segment, product_count_2020, product_count_2021 difference

```
with x as ( select p.segment,
count(distinct s.product_code) as product_count_2020 from dim_product p
 join fact_sales_monthly s on p.product_code = s.product_code where s.fiscal_year=2020
group by p.segment) ,
 y as ( select p.segment,
 count(distinct s.product_code) as product_count_2021 from dim_product p
 join fact_sales_monthly s on p.product_code = s.product_code where s.fiscal_year=2021
 group by p.segment)
 select x.segment , product_count_2020 ,product_count_2021,abs(x.product_count_2020-
y.product_count_2021) as difference
 from x join y on x.segment=y.segment
 order by difference desc;
```

## Output:

| segment | product_count_2020 | product_count_2021 | difference |
|---|---|---|---|
| Accessories | 69 | 103 | 34 |
| Notebook | 92 | 108 | 16 |
| Peripherals | 59 | 75 | 16 |
| Desktop | 7 | 22 | 15 |
| Storage | 12 | 17 | 5 |
| Networking | 6 | 9 | 3 |

## *Insights*

- The **Accessories** segment has introduced 34 new unique products in the year 2021.

5. Get the products that have the highest and lowest manufacturing costs. The final output should contain these fields: product_code, product, manufacturing_cos

```
SELECT F.product_code, P.product, F.manufacturing_cost
FROM fact_manufacturing_cost F JOIN dim_product P
ON F.product_code = P.product_code
WHERE manufacturing_cost
IN (
    SELECT MAX(manufacturing_cost) FROM fact_manufacturing_cost
    UNION
    SELECT MIN(manufacturing_cost) FROM fact_manufacturing_cost
    )
ORDER BY manufacturing_cost DESC ;
```

**Output**:

| product_code | product | manufacturing_cost |
|---|---|---|
| A6120110206 | AQ HOME Allin1 Gen 2 | 240.5364 |
| A2118150101 | AQ Master wired x1 Ms | 0.8920 |

## *Insights*

- The product **"AQ HOME All in 1 Gen 2"** has the *highest* manufacturing cost.
- The product **"AQ Master Wired x1 MS"** has the *lowest* manufacturing cost.

6. Generate a report which contains the top 5 customers who received an average high pre_invoice_discount_pct for the fiscal year 2021 and in the Indian market. The final output contains these fields: customer_code, customer, average_discount_percentage.

```sql
select f.customer_code, c.customer, round(avg(pre_invoice_discount_pct)*100,2) as avg_discount_per
from  dim_customer c
join fact_pre_invoice_deductions f using ( customer_code)
where f.fiscal_year = "2021" and c.market = "India"
group by f.customer_code, c.customer
order by avg(pre_invoice_discount_pct) desc
limit 5;
```

**Output**:

| customer_code | customer | avg_discount_per |
|---|---|---|
| 90002009 | Flipkart | 30.83 |
| 90002006 | Viveks | 30.38 |
| 90002003 | Ezone | 30.28 |
| 90002002 | Croma | 30.25 |
| 90002016 | Amazon | 29.33 |

## *Insights*

- **Flipkart** has the highest average discount percentage of 30.83 %.
- **Amazon** with the lowest average discount percentage of 29.33 %.

7. Get the complete report of the Gross sales amount for the customer “Atliq Exclusive” for each month. This analysis helps to get an idea of low and high-performing months and take strategic decisions. The final report contains these columns: Month, Year, Gross sales Amount.

```
select  monthname(s.date) as month, s.fiscal_year as year,
round(sum(g.gross_price * s.sold_quantity),2) as gross_sales_amt
from fact_gross_price g
join fact_sales_monthly s using(product_code)
join dim_customer  c  using(customer_code)
where c.customer = "Atliq Exclusive"
group by monthname(s.date), s.fiscal_year  ;
```

**Output**:

| month | year | gross_sales_amt |
|---|---|---|
| September | 2020 | 9092670.34 |
| November | 2020 | 15231894.97 |
| December | 2020 | 9755795.06 |
| January | 2020 | 9584951.94 |
| March | 2020 | 766976.45 |
| April | 2020 | 800071.95 |
| May | 2020 | 1586964.48 |
| July | 2020 | 5151815.40 |
| August | 2020 | 5638281.83 |
| September | 2021 | 19530271.30 |
| November | 2021 | 32247289.79 |
| December | 2021 | 20409063.18 |
| January | 2021 | 19570701.71 |
| March | 2021 | 19149624.92 |
| April | 2021 | 11483530.30 |
| May | 2021 | 19204309.41 |
| July | 2021 | 19044968.82 |

## *Insights*

- The lowest Gross sales total for both fiscal years is in March(2020).
- The highest Gross sales total for both fiscal years is in November (2020)

8. In which quarter of 2020, got the maximum total_sold_quantity? The final output contains these fields sorted by the total_sold_quantity, Quarter total_sold_quantity

```
select
case
when month(date) in (9,10,11) then "Q1"
when month(date) in (12,01,02) then "Q2"
when month(date) in (03,04,05) then "Q3"
else "Q4"
end as Quarters ,
sum(sold_quantity) as total_quantity_sold
from fact_sales_monthly
where fiscal_year = 2020
group by Quarters
order by  total_quantity_sold desc;
```

**Output**:

| Quarters | total_quantity_sold |
|---|---|
| Q1 | 7005619 |
| Q2 | 6649642 |
| Q4 | 5042541 |
| Q3 | 2075087 |

## *Insights*

- The highest total sold quantity is in **Q1** with 7,005,619 units.

9. Which channel helped to bring more gross sales in the fiscal year 2021 and the percentage of contribution? The final output contains these fields: channel, gross_sales_mln, percentage.

```
with x as (select c.channel,
round(sum(g.gross_price*s.sold_quantity)/100000,2) as gross_sales_mln
from fact_sales_monthly s
join dim_customer c using(customer_code)
join fact_gross_price g using(product_code)
where s.fiscal_year=2021
group by c.channel)
select channel, gross_sales_mln,
round((gross_sales_mln/(select sum(gross_sales_mln) from x))*100,2)
 as pct from x
order by gross_sales_mln desc;
```

**Output**:

| channel | gross_sales_mln | pct |
|---|---|---|
| Retailer | 19241.70 | 73.22 |
| Direct | 4066.87 | 15.47 |
| Distributor | 2971.76 | 11.31 |

## *Insights*

- The **"Retailer"** channel has contributed the highest of about 73.22% of gross sales.

10. Get the Top 3 products in each division that have a high total_sold_quantity in the fiscal_year 2021? The final output contains these fields: division, product_code, product, total_sold_quantity, rank_order

```
WITH x AS
(
SELECT P.division, S.product_code, P.product, SUM(S.sold_quantity) AS Total_sold_quantity,
RANK() OVER(PARTITION BY P.division ORDER BY SUM(S.sold_quantity) DESC) AS 'Rank_Order'
FROM dim_product P JOIN fact_sales_monthly S
ON P.product_code = S.product_code
WHERE S.fiscal_year = 2021
GROUP BY P.division, S.product_code, P.product)
 SELECT * FROM x
WHERE Rank_Order IN (1,2,3) ORDER BY division, Rank_Order;
```

**Output**:

| division | product_code | product | Total_sold_quantity | Rank_Order |
|---|---|---|---|---|
| N & S | A6720160103 | AQ Pen Drive 2 IN 1 | 701373 | 1 |
| N & S | A6818160202 | AQ Pen Drive DRC | 688003 | 2 |
| N & S | A6819160203 | AQ Pen Drive DRC | 676245 | 3 |
| P & A | A2319150302 | AQ Gamers Ms | 428498 | 1 |
| P & A | A2520150501 | AQ Maxima Ms | 419865 | 2 |
| P & A | A2520150504 | AQ Maxima Ms | 419471 | 3 |
| PC | A4218110202 | AQ Digit | 17434 | 1 |
| PC | A4319110306 | AQ Velocity | 17280 | 2 |
| PC | A4218110208 | AQ Digit | 17275 | 3 |

## *Insights*

- The top 3 selling products in N&S were pen drives, which were around 7 lakh in quantity.
- The top 3 selling products in P&A were mouse, which were around 4 lakh in quantity.
- The top 3 selling products in PC were personal laptops, which were around 17000 in quantity

RESUME PROJECT
CHANLLENGE # 4

# THANK YOU

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