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:

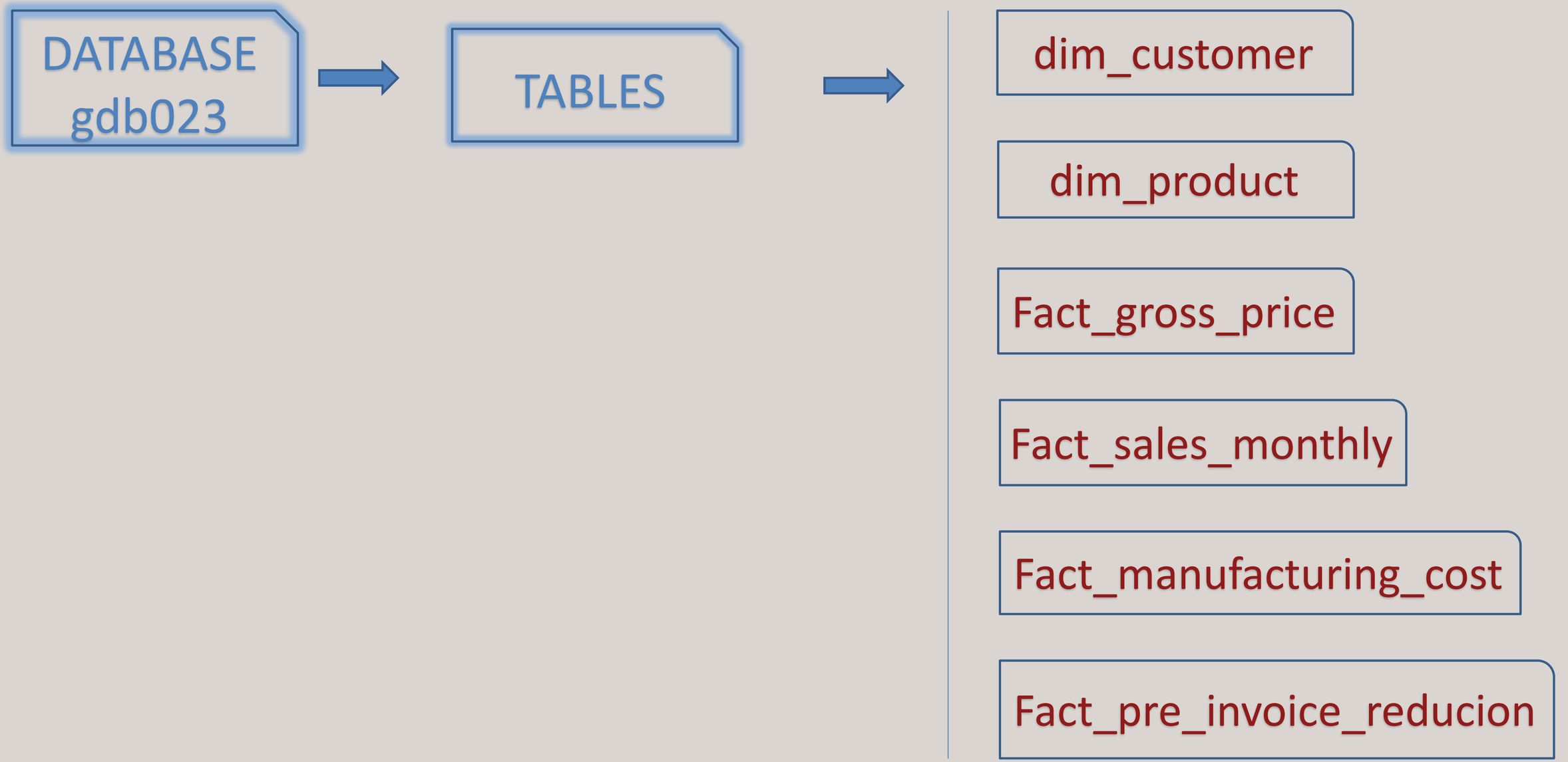
- The management identified a need for more actionable insights to support swift and informed decisions. Tony Sharma, Director of Data Analytics, aimed to hire skilled junior analysts through a SQL challenge addressing 10 specific business queries

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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