



CONSUMER GOODS AD-HOC INSIGHTS

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INTRODUCTION

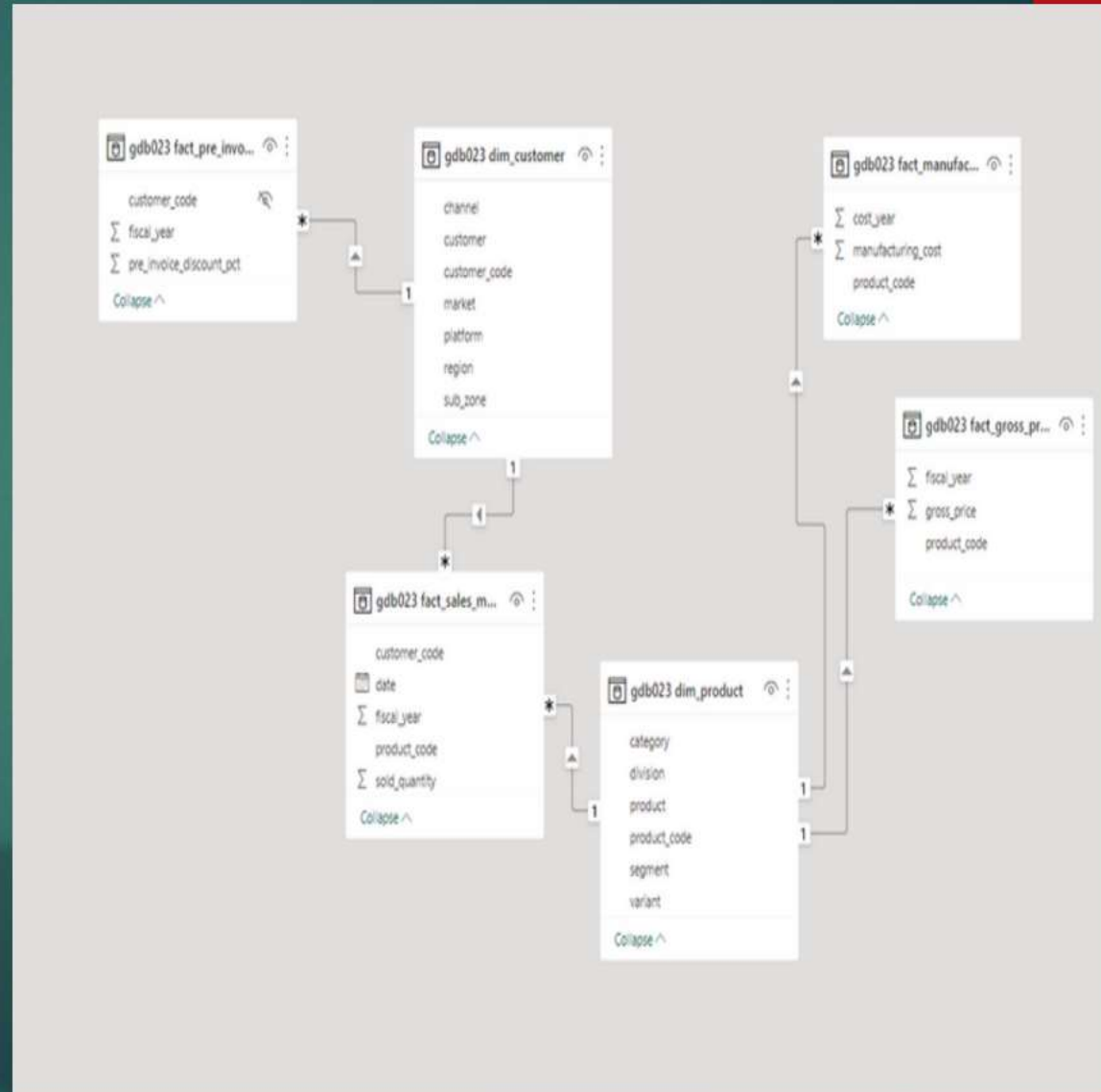
Atliq Hardware is one of the leading computer hardware producers in India and well expanded in other countries too. Atliq Hardware has 74 customers, in 27 countries worldwide. Along with Asia Pacific (APAC) region, they also operate in Europe (EU), North America (NA) and Latin America (LATAM). Atliq Hardware has 3 main division of products – Peripherals and Accessories (P & A), Network and Storage (N & S), and Personal Computer (PC).

AGENDA

- ❖ The management of Atliq Hardware informed the data analytics team to generate some insights regarding customer behaviors to make some data-driven decisions.
- ❖ Atliq Hardware wants to do ad-hoc analysis therefore analytical team assigned us a task to generate a report by running 10 ad-hoc requests.
- ❖ We ran 10 ad-hoc requests using SQL to present meaningful insights to our stakeholders which will help our company to make data-driven decisions for their business's growth.

DATA UNDERSTANDING

- **Dim_customer:** Data related to customers
- **Dim_product:** Data related to products.
- **Fact_gross_price:** Gross price of each product.
- **Fact_manufacturing_cost:** Manufacturing cost of each product during production.
- **Fact_pre_invoice_deduction:** Pre invoice deduction of each product.
- **Fact_sales_monthly:** This table contains monthly sales of each product



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

Req 1

Input Query

```
• SELECT
    market
FROM
    dim_customer
WHERE
    customer = 'Atliq Exclusive'
    AND region = 'APAC';
```

Output Table

	market
▶	India
	Indonesia
	Japan
	Philippines
	South Korea
	Australia
	Newzealand
	Bangladesh

REQUEST 2: What is the percentage of unique product increase in 2021 vs. 2020 . The final output contains these fields: Unique_products_2020, Unique_products_2021,percentage_change

Req 2

Input Query

```
With unique_products as(
SELECT
COUNT(DISTINCT CASE WHEN fiscal_year = 2020 THEN product_code END) AS unique_product_2020,
COUNT(DISTINCT CASE WHEN fiscal_year = 2021 THEN product_code END) AS unique_product_2021
FROM
fact_sales_monthly)

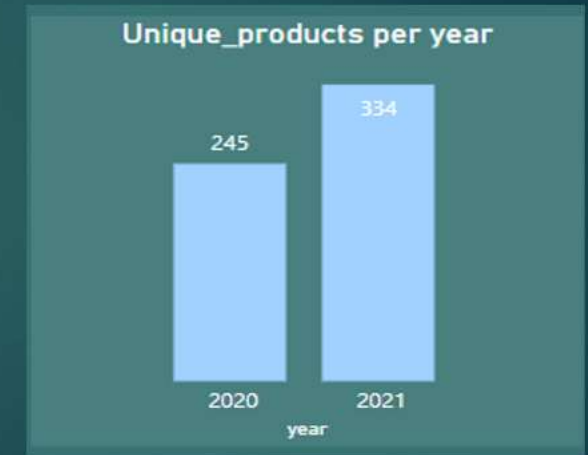
select *,
(unique_product_2021-unique_product_2020)*100/unique_product_2020 as percentage_change
from unique_products;
```

Output Table

	unique_product_2020	unique_product_2021	percentage_change
▶	245	334	36.3265

➤ Insights

- ❖ The table shows that there were 245 unique products in 2020, and this number increased to 334 unique products in 2021
- ❖ This means that the number of unique products in this category increased by **36.32%** from 2020 to 2021.
- ❖ This is a significant increase, indicating growth in the category over the past year.
- ❖ Hence more importance should be given to produce more innovative products so as to improve the sales



REQUEST 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 product_count

Req 3

Input Query

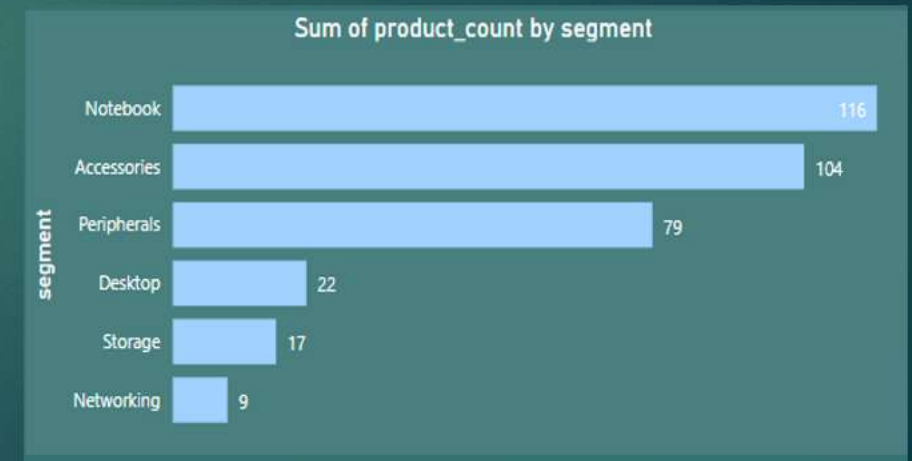
```
• SELECT segment,
      count(distinct(p.product_code)) as product_count
from
      fact_sales_monthly s
join
      dim_product p
on
      s.product_code=p.product_code
group by segment
order by product_count desc;
```

Output Table

	segment	product_count
▶	Notebook	116
	Accessories	104
	Peripherals	79
	Desktop	22
	Storage	17
	Networking	9

➤ Insights

- ❖ The segment consist of 6 divisions
- ❖ Out of these 6 segments **notebook** has the maximum number of unique products with 116 products followed by accessories with 104 products
- ❖ It is clear that unique products from networking segment is comparatively low therefore Atliq Hardware should prioritize in the production of products under networking segment



REQUEST 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

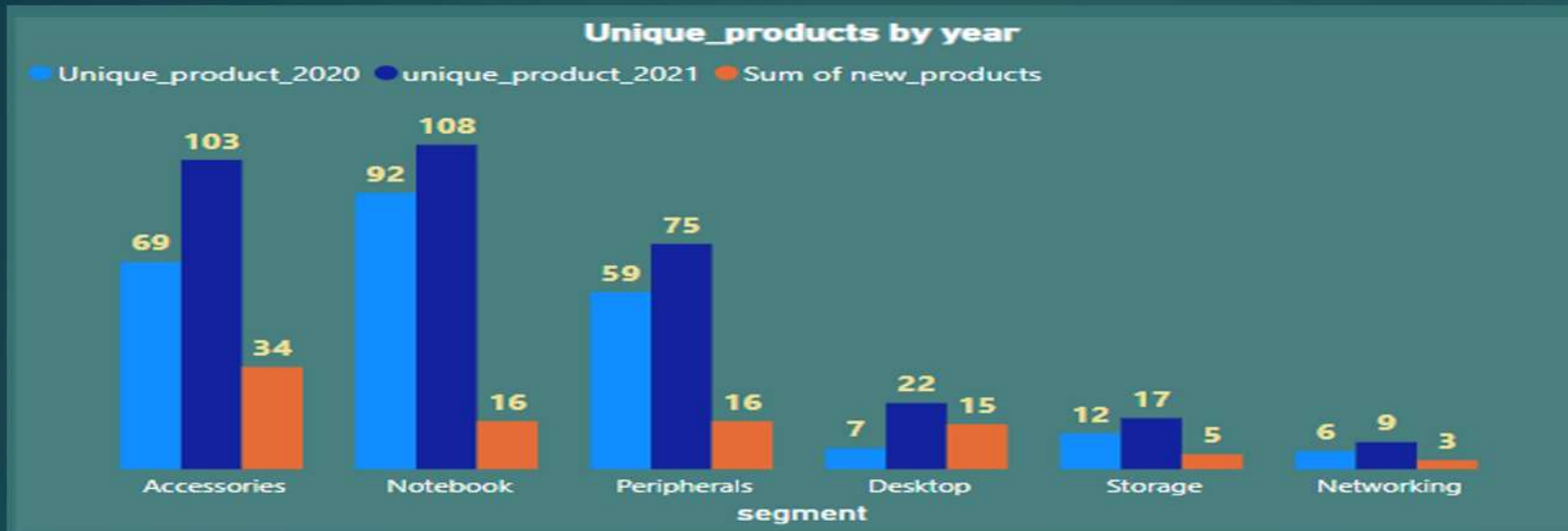
Req 4

Input Query

```
with unique_product as (  
  SELECT segment,  
    count(distinct case when fiscal_year=2020 then p.product_code end) as Unique_product_2020,  
    count(distinct case when fiscal_year=2021 then p.product_code end) as unique_product_2021  
  from fact_sales_monthly s  
  join dim_product p  
  on  
    s.product_code=p.product_code  
  group by segment)  
select *,  
  (unique_product_2021 - unique_product_2020) as new_products  
from unique_product  
order by new_products desc;
```

Output Table

	segment	Unique_product_2020	unique_product_2021	new_products
▶	Accessories	69	103	34
	Notebook	92	108	16
	Peripherals	59	75	16
	Desktop	7	22	15
	Storage	12	17	5



➤ Insights

- ❖ Accessories produced 34 new products when compared to 2020 this is the highest value of new products produced by a particular segment
- ❖ When looking on the percentage increase Desktop has the highest percentage increase which is about **214.28%** increase which implies a positive growth and also denotes the potential increase of products under desktop segment in the upcoming fiscal year
- ❖ Notebook has the lowest percentage increase that is **17.39%**

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

Req 5

Input Query

```
• select product, fm.*
  from fact_manufacturing_cost fm
 join dim_product p
 on
   fm.product_code=p.product_code
 where
   manufacturing_cost = (select max(manufacturing_cost) as max_cost
 from fact_manufacturing_cost)
 union all
 select product, fm.*
  from fact_manufacturing_cost fm
 join dim_product p
 on
   fm.product_code=p.product_code
 where
   manufacturing_cost = (select min(manufacturing_cost) as max_cost
 from fact_manufacturing_cost);
```

Output Table

	product	product_code	cost_year	manufacturing_cost
▶	AQ HOME Allin1 Gen 2	A6120110206	2021	240.5364
	AQ Master wired x1 Ms	A2118150101	2020	0.8920

➤ Insights

- ❖ Maximum cost is \$240.5 and Minimum manufacturing cost \$0.892

REQUEST 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

Req 6

Input Query

```
• select c.customer_code,  
        c.customer,  
        round(avg(pre_invoice_discount_pct*100),2) as avg_discount  
from dim_customer c  
join fact_pre_invoice_deductions fp  
on  
    c.customer_code=fp.customer_code  
where market="india" and  
        fiscal_year=2021  
group by customer_code
```

Output Table

	customer_code	customer	avg_discount
▶	90002009	Flipkart	30.83
	90002006	Viveks	30.38
	90002003	Ezone	30.28
	90002002	Croma	30.25
	90002016	Amazon	29.33

➤ Insights

- ❖ The average pre invoice discount percentage for top 5 customer for fiscal year 2021 is about 30.21%

REQUEST 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

Req 7

Output Table

Input Query

```
select monthname(s.date) as month,s.fiscal_year,
round(sum(sold_quantity*gross_price)/1000000,2) as gross_sales_amount_mln
from fact_sales_monthly s
join fact_gross_price g
on
    s.product_code=g.product_code and
    s.fiscal_year=g.fiscal_year
join dim_customer c
on
    s.customer_code=c.customer_code
where customer = "Atliq Exclusive"
group by 1,2
order by month(1),(2) ;
```

month	fiscal_year	gross_sales_amount_mln
September	2020	4.50
October	2020	5.14
November	2020	7.52
December	2020	4.83
January	2020	4.74
February	2020	4.00
March	2020	0.38
April	2020	0.40
May	2020	0.78
June	2020	1.70
July	2020	2.55
August	2020	2.79
September	2021	12.35
October	2021	13.22
November	2021	20.46
December	2021	12.94
January	2021	12.40
February	2021	10.13
March	2021	12.14
April	2021	7.31
May	2021	12.15
June	2021	9.82
July	2021	12.09
August	2021	7.18



➤ Insights

- ❖ We can clearly see a boom in gross sales in fiscal year 2021 as compared to 2020
- ❖ In both the year
 - 1) Max Sales occurs in month of **November**
 - 2) Min sales occurs in month of **March**
- ❖ The trend shows that there is a significant increase in gross sales in the beginning of fiscal year (Sep, Oct, Nov)
- ❖ From March - May the gross sales is low compared to other years and they belong to quarter 3 of Atliq's fiscal year

REQUEST 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

Req 8

Input Query

```
select
  case
    when month(date) in (9,10,11) then "Q1"
    when month(date) in (12,1,2) then "Q2"
    when month(date) in (3,4,5) then "Q3"
    else "Q4"
  end as quarter,
  sum(sold_quantity) as qty
from
  fact_sales_monthly
where
  fiscal_year=2020
group by 1
order by 2 DESC;
```

Output Table

	quarter	qty
▶	Q1	7005619
	Q2	6649642
	Q4	5042541
	Q3	2075087

➤ Insights

- ❖ Maximum amount of quantity is sold in **quarter 1** followed by quarter 2
- ❖ **Quarter 3** shows a sudden drop in quantity sold



REQUEST 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

Req 9

Input Query

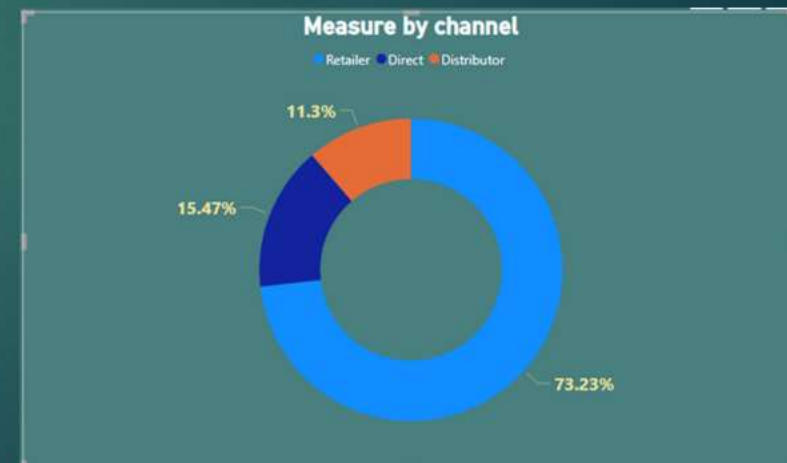
```
with sales_amount as (  
  select channel,  
  round(sum(sold_quantity*gross_price)/1000000,2) as gross_sales_in_mln  
  from fact_sales_monthly s  
  join dim_customer c  
  on  
    s.customer_code=c.customer_code  
  join fact_gross_price p  
  on  
    s.product_code=p.product_code and  
    s.fiscal_year=p.fiscal_year  
  where p.fiscal_year=2021  
  group by channel)  
select*,  
round((gross_sales_in_mln*100)/sum(gross_sales_in_mln) over(),2)  
as percentage_contribution  
from sales_amount
```

Output Table

	channel	gross_sales_in_mln	percentage_contribution
▶	Retailer	1219.08	73.23
	Direct	257.53	15.47
	Distributor	188.03	11.30

➤ Insights

- ❖ Majority of Atliq Hardware's gross sales comes from **Retailers** as they contribute about **73.23%** of Atliq's total gross sales
- ❖ Maintaining a good connection with retailers can boost gross sales.
- ❖ Providing discounts to retailers can help to improve the relation and hence improve the sales



REQUEST 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

Req 10

Input Query

```
with sold_qty as (select p.division,p.product_code,p.product,
sum(sold_quantity) as total_qty from dim_product p
join fact_sales_monthly s
on p.product_code=s.product_code
where s.fiscal_year=2021
group by 1,2,3),
rankr as (
select *,
dense_rank()over(partition by division order by total_qty desc) as rank_order from sold_qty)
select
division,product_code,product,total_qty,rank_order
from rankr
where rank_order<=3
order by division ;
```

Output Table

	division	product_code	product	total_qty	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

➤ Top products under each division

- ❑ Network and Storage (N & S) – **AQ Pen Drive 2 IN 1**
- ❑ Peripherals and Accessories (P & A) – **AQ Gamer**
- ❑ Ms Personal Computer (PC) – **AQ Digit**

