Consumer goods Ad_Hoc Insights

Agenda

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About Company

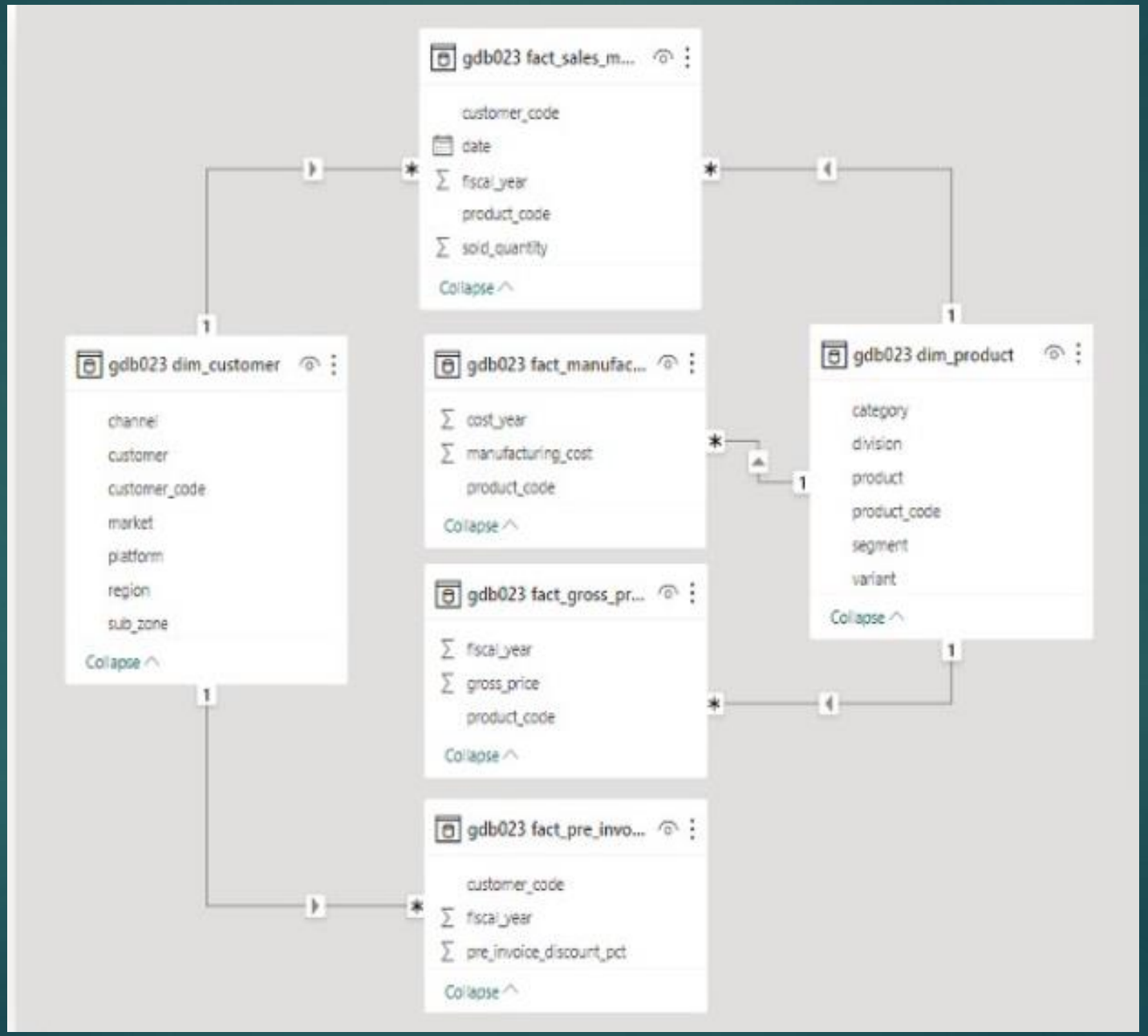
Atliq Hardwares (imaginary company) is one of India's leading computer hardware producers and well expanded in other countries.

However, the management noticed that they do not get enough insights to make quick and smart data-informed decisions. They want to expand their data analytics team by adding several junior data analysts. Tony Sharma, their data analytics director wanted to hire someone who is good at both tech and soft skills. Hence, he decided to conduct a SQL challenge which will help him understand both the skills.

Purpose

The purpose of this analysis is to provide actionable insights into various aspects of Atliq Hardwares' business operations. By analyzing data related to customer behavior, product performance, market trends, and sales channels, we aim to equip the management with the information needed to make informed, data-driven decisions. This analysis addresses specific ad-hoc requests from the business, focusing on critical areas that impact strategic planning and operational efficiency.

Data model


gdb023 fact_sales_m...
customer_code
date
fiscal_year
product_code
sold_quantity
Collapse
gdb023 dim_customer
channel
customer
customer_code
market
platform
region
sub_zone
Collapse
gdb023 fact_manufac...
cost_year
manufacturing_cost
product_code
Collapse
gdb023 dim_product
category
division
product
product_code
segment
variant
Collapse
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fiscal_year
gross_price
product_code
Collapse
gdb023 fact_pre_invo...
customer_code
fiscal_year
pre_invoice_discount_pct
Collapse
1
*

Queation1.
Provide the list of markets in which customer "Atliq Exclusive" operates its business in the APAC region.

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

Output

market
Australia
Bangladesh
India
Indonesia
Japan
Newzealand
Philiphines
South Korea

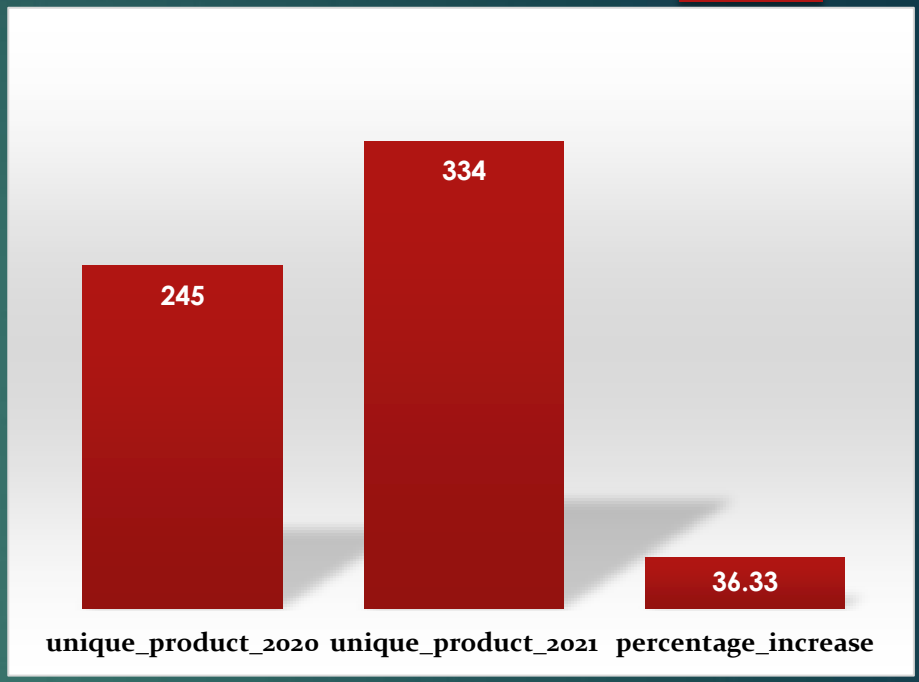
Question2.
What is the percentage of unique product increase in 2021 vs. 2020? The final output contains these fields:
unique_products_2020, unique_products_2021, percentage_chg

```sql
with cte 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 *,
    round((unique_product_2021 - unique_product_2020 )/unique_product_2020 *100,2) as percentage_increase
from cte;
```

Output

	unique_product_2020	unique_product_2021	percentage_increase
▶	245	334	36.33



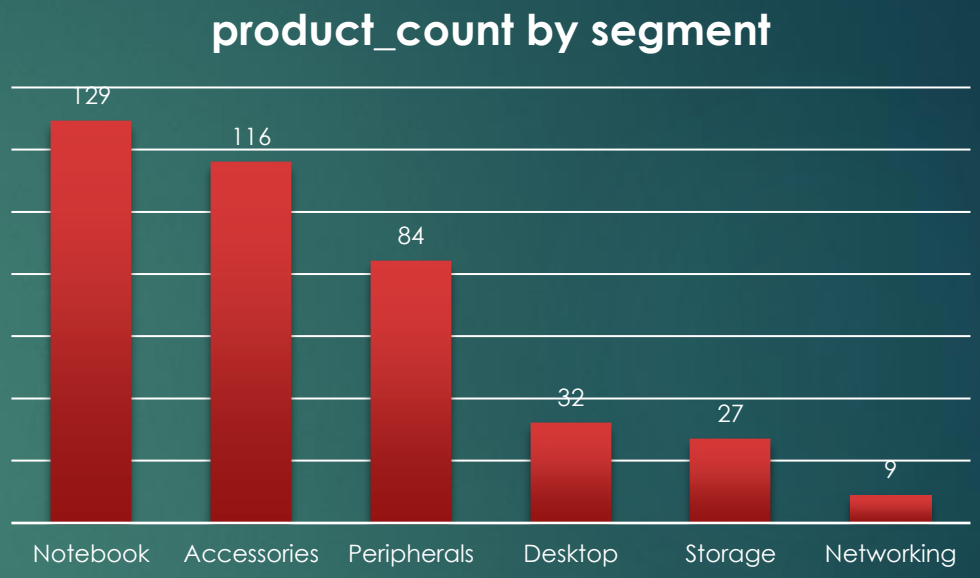
Insights:
There was a significant increase in unique products from 2020-2021.
The no. of unique products grew from 245 in 2020 to 334 in 2021, representing a 36% increase.

Queation3.
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

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

Output

segment	product_count
Notebook	129
Accessories	116
Peripherals	84
Desktop	32
Storage	27
Networking	9



Insights:
The Segment with the highest number of unique products is ‘Notebook’ followed by ‘Accessories’ and ‘peripherals’.

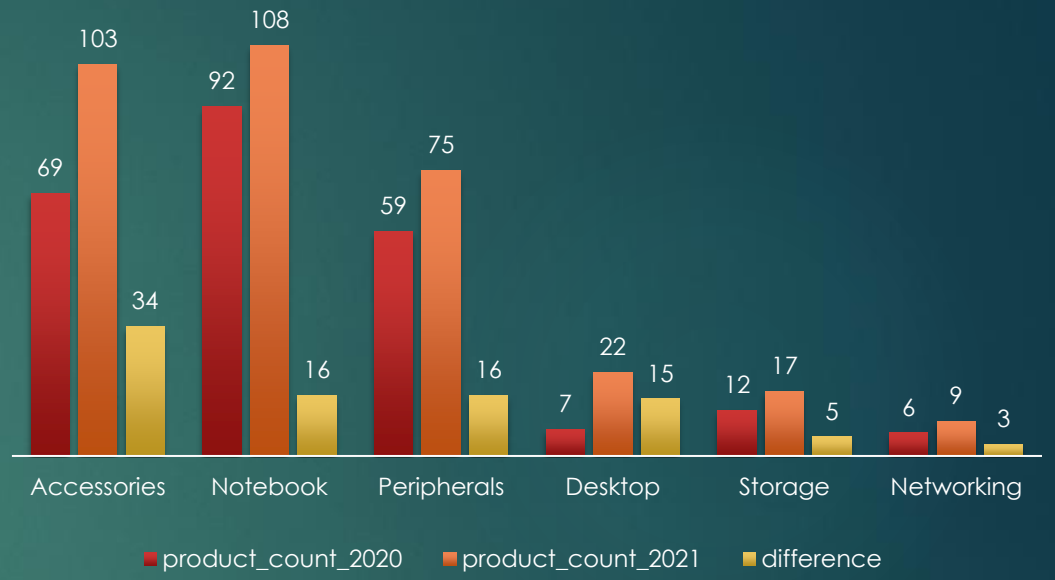
Question4.
Follow-up: Which segment had the most increase in unique products in 2021 vs 2020? The final output contains these fields: segment, product_count_2020, product_count_2021, difference

```sql
with cte as(
select segment,
    count(distinct case when fiscal_year=2020 then prd.product_code end) as product_count_2020,
    count(distinct case when fiscal_year=2021 then prd.product_code end) as product_count_2021
from dim_product prd
join fact_gross_price price
on
    prd.product_code=price.product_code
group by segment )

select *, (product_count_2021-product_count_2020) as difference
from cte  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:

‘Accessories’ has most significant increase in unique products from 2020-2021, with an increase of ‘34’ products.

‘Notebook’ and ‘peripherals’ also show notable growth, indicating successful product development in these areas.

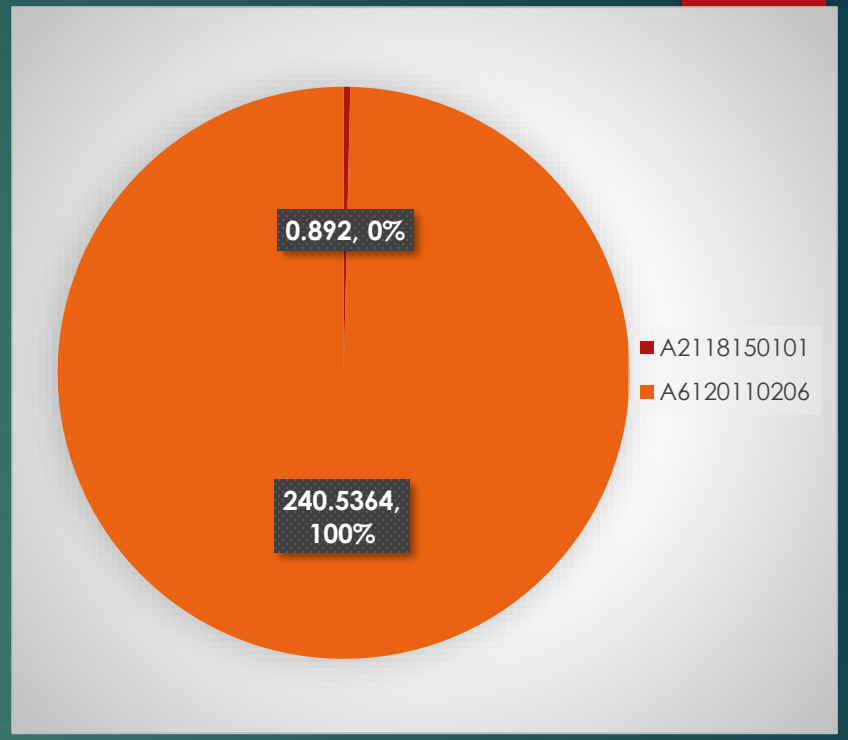
‘Storage’ and ‘Networking’ has very less increase in unique products.

Queston5.
Get the products that have the highest and lowest manufacturing costs. The final output should contain these fields: product_code, product, manufacturing_cost

```sql
select prd.product_code,
    product,
    manufacturing_cost
from dim_product prd
join fact_manufacturing_cost cost
on
    prd.product_code=cost.product_code
group by prd.product_code, product, manufacturing_cost
having manufacturing_cost=(select min(manufacturing_cost) from fact_manufacturing_cost)
or manufacturing_cost=(select max(manufacturing_cost) from fact_manufacturing_cost);
```

Output

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



Insights:

-The product with the highest manufacturing cost is ‘AQ HOME Allin1 Gen 2 ‘ which costs ‘240.5364 ‘ rupees.

-The product with the lowest manufacturing cost is ‘AQ Master wired x1 Ms ‘ which cost ‘0.892 ‘ rupees.

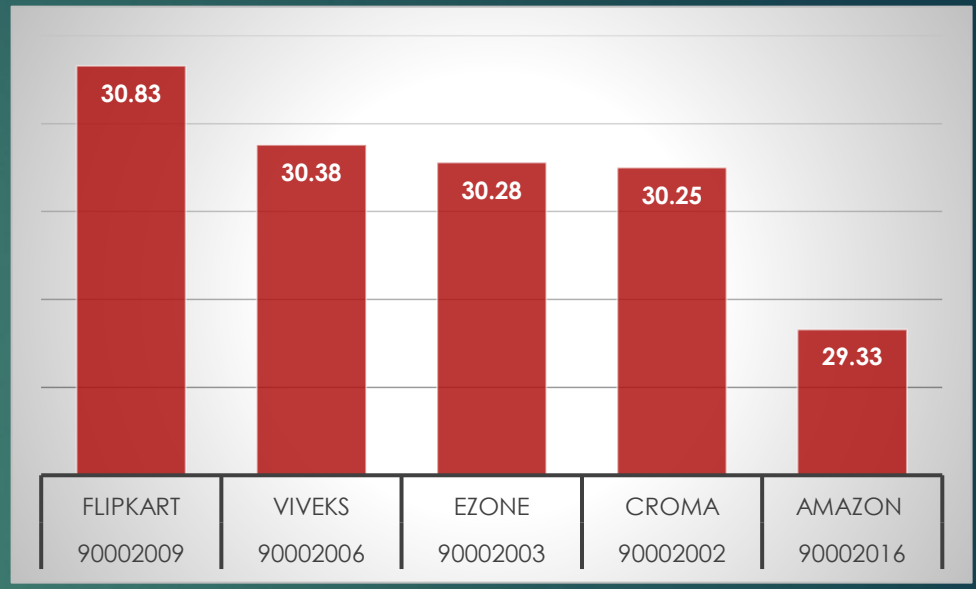
-Understanding these costs helps in pricing strategy and cost management.

Question6.
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  cust.customer_code,
        customer ,
        round(avg(pre_invoice_discount_pct)*100,2) as average_discount_percentage
from dim_customer cust
join fact_pre_invoice_deductions discount
on
        cust.customer_code=discount.customer_code
where market="India" and fiscal_year=2021
group by cust.customer_code, customer
order by average_discount_percentage desc limit 5;
```

Output

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



Insights:

-In top 5 ,the top customer receiving the highest average discount is ‘Flipkart’ with ’30%’.

-The discounts provided to these top customers indicate strategic relationships and volume based pricing strategies.

Question7.
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  month(date) as Months,
        year(date) as years,
        round(sum(sold_quantity*gross_price),2) as Gross_sales_amount
from fact_sales_monthly sale
join dim_customer cust
on
        cust.customer_code=sale.customer_code
join fact_gross_price price
on
        price.product_code=sale.product_code and price.fiscal_year=sale.fiscal_year
where customer="Atliq Exclusive"
group by years, Months
order by years, Months;
```

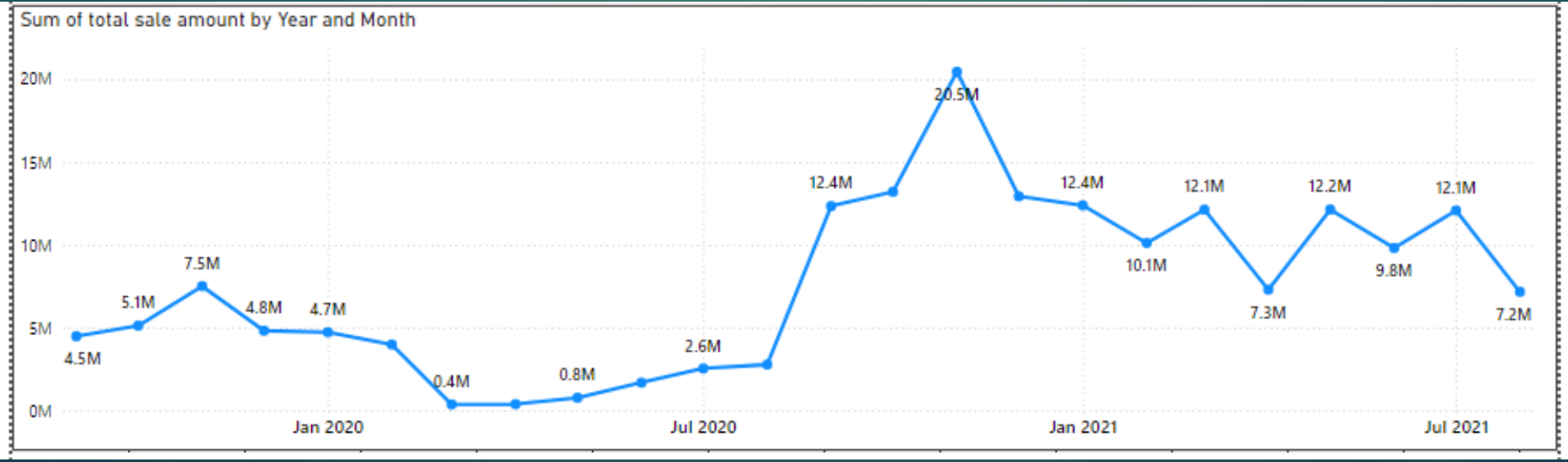
Output

Months	years	Gross_sales_amount
9	2019	4496259.67
10	2019	5135902.35
11	2019	7522892.56
12	2019	4830404.73
1	2020	4740600.16
2	2020	3996227.77
3	2020	378770.97
4	2020	395035.35
5	2020	783813.42
6	2020	1695216.60
7	2020	2551159.16
8	2020	2786648.26
9	2020	12353509.79
10	2020	13218636.20
11	2020	20464999.10
12	2020	12944659.65
1	2021	12399392.98
2	2021	10129735.57
3	2021	12144061.25

Insights:

-The highest gross sales for “Atliq exclusive” were in “November 2020”.

-The lowest sales were in “March 2020”.



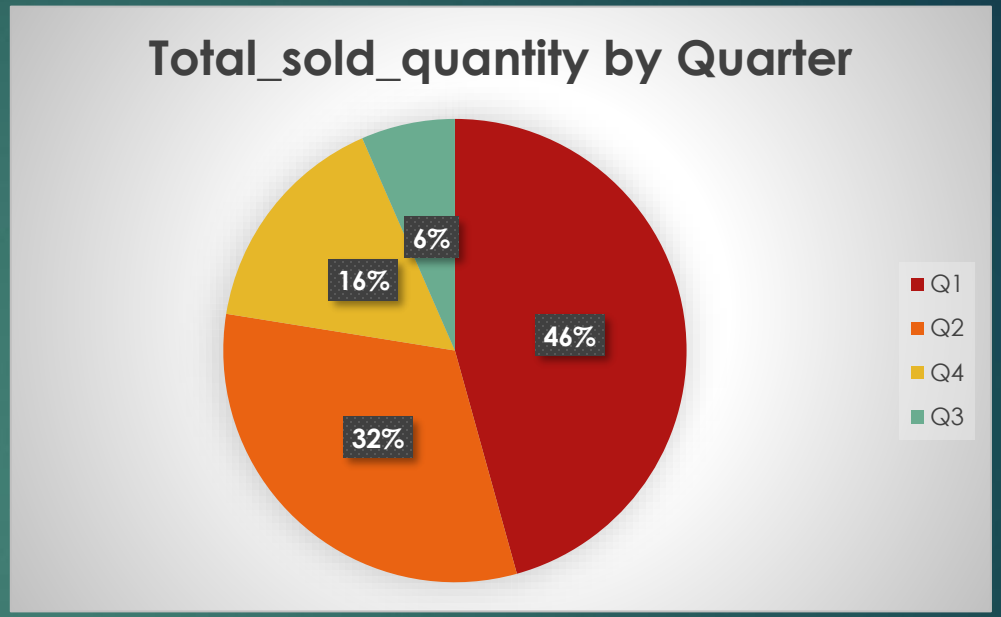
Question8.
In which quarter of 2020, got the maximum total_sold_quantity? The final output contains these fields sorted by the total_sold_quantity, Quarter,
total_sold_quantity

```
with cte as
(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'
           when month(date) in (6,7,8) then 'Q4'    end as Quarter
from fact_sales_monthly
where year(date)=2020)

select  Quarter,
        sum(sold_quantity) as total_sold_quantity
from cte
group by Quarter
order by total_sold_quantity desc;
```

Output

	Quarter	total_sold_quantity
▶	Q1	14476194
	Q2	10091151
	Q4	5042541
	Q3	2075087



Insights:

Quarter with maximum total sold quantity was “Q1” i.e sep-nov with 14 million units sold.

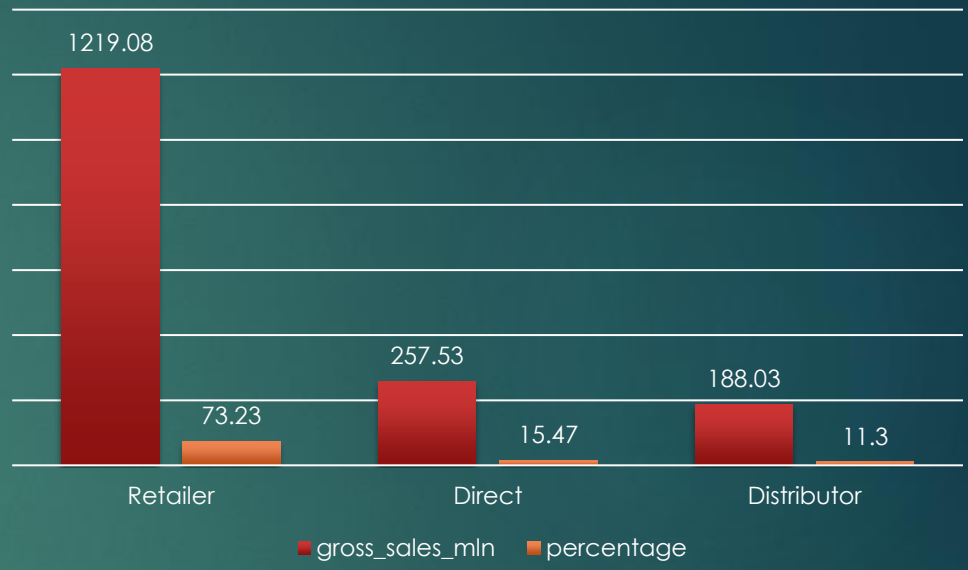
Question9.
Which channel helped to bring more gross sales in the fiscal year 2021 and the percentage of contribution? The final output contains these fields: channel gross_sales_mln, percentage

```sql
with cte as(
select channel,
    sales.fiscal_year,
    sold_quantity,
    gross_price,
    sold_quantity*gross_price as gross_sales
from dim_customer cust
join fact_sales_monthly sales
on
    cust.customer_code=sales.customer_code
join fact_gross_price price
on
    price.product_code=sales.product_code and price.fiscal_year=sales.fiscal_year
where sales.fiscal_year=2021)

select  channel,
        round(sum(gross_sales)/1000000,2) as gross_sales_mln,
        (round(sum(gross_sales)/(select sum(gross_sales) from cte)*100,2)) as percentage
from cte group by channel
order by gross_sales_mln desc;
```

Output

	channel	gross_sales_mln	percentage
▶	Retailer	1219.08	73.23
	Direct	257.53	15.47
	Distributor	188.03	11.30



Insights:

-The sales channel that contributed the most to gross sales in 2021 was ‘Retailer’ with ‘1219’ millions, representing ‘74%’ of total sales.

-This data highlights the effectiveness of the channel and its importance to the overall sales strategy.

Question10.
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

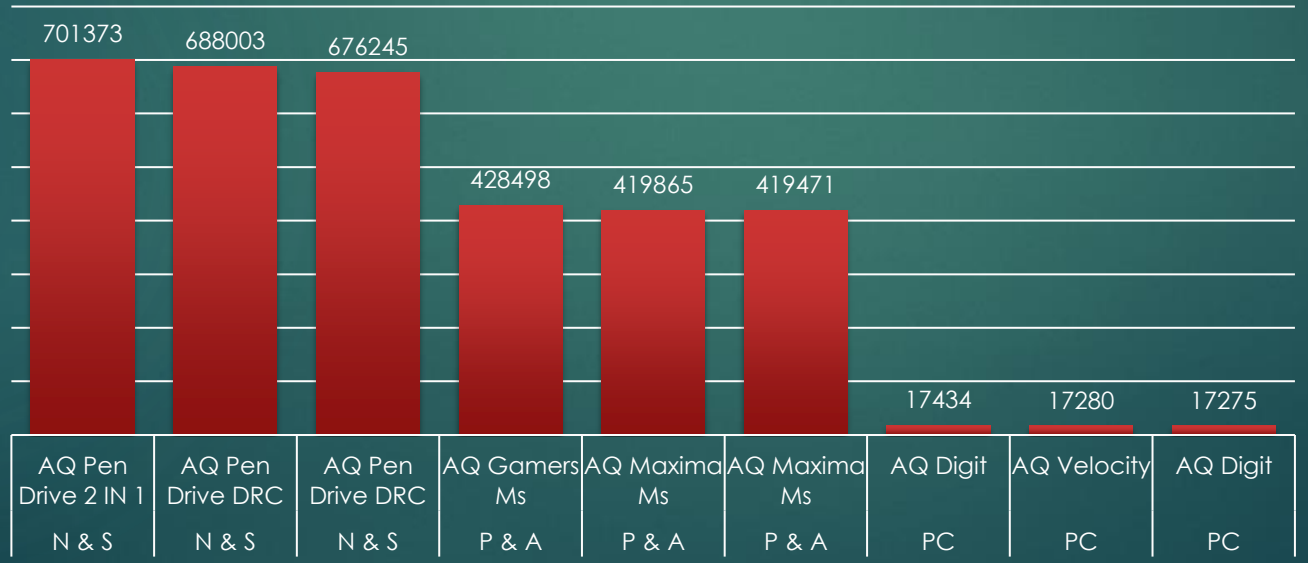
```sql
with cte as(
select  prd.division,
        prd.product_code,
        prd.product ,
        sum(sales.sold_quantity) as total_sold_quantity
from dim_product prd
join fact_sales_monthly sales
on
        prd.product_code=sales.product_code where sales.fiscal_year=2021
group by prd.division,prd.product_code,prd.product ),

cte2 as(
select *,
    dense_rank() over(partition by division order by total_sold_quantity desc) as Top_3_rank
from cte )

select * from cte2 where Top_3_rank<=3;
```

Output

division	product_code	product	total_sold_quantity	Top_3_rank
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



Thank you