Data Analytics Project using SQL

Consumer Goods
AD _ HOC INSIGHTS FOR ATLIQ HARDWARE

Agenda

- About Company
- Data
- 10 ad hoc requests received from the company and generated outputs and insight

About Company

Atliq Hardware's is one of the leading computer hardware producers in India and well expanded in other countries too.

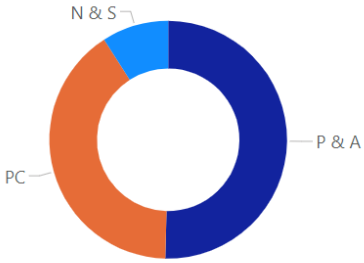
However, the management noticed that they do not get enough insights to make quick and smart data-informed decisions.

Plan to expand their data analytics team by adding junior data analysts.

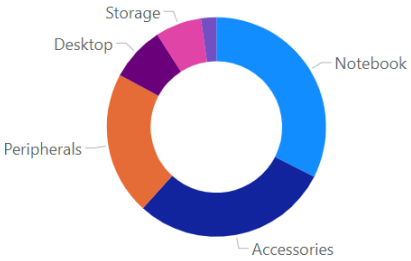
To assess candidates, Tony Sharma, data analytics director wants to conduct SQL challenge to evaluate tech and soft skills.

Company Details:

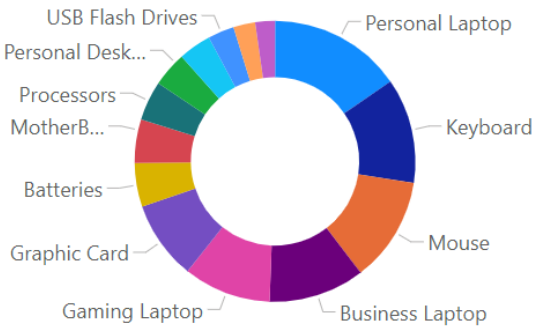
Divisions:



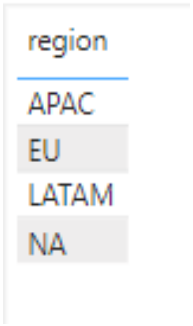
Segments:



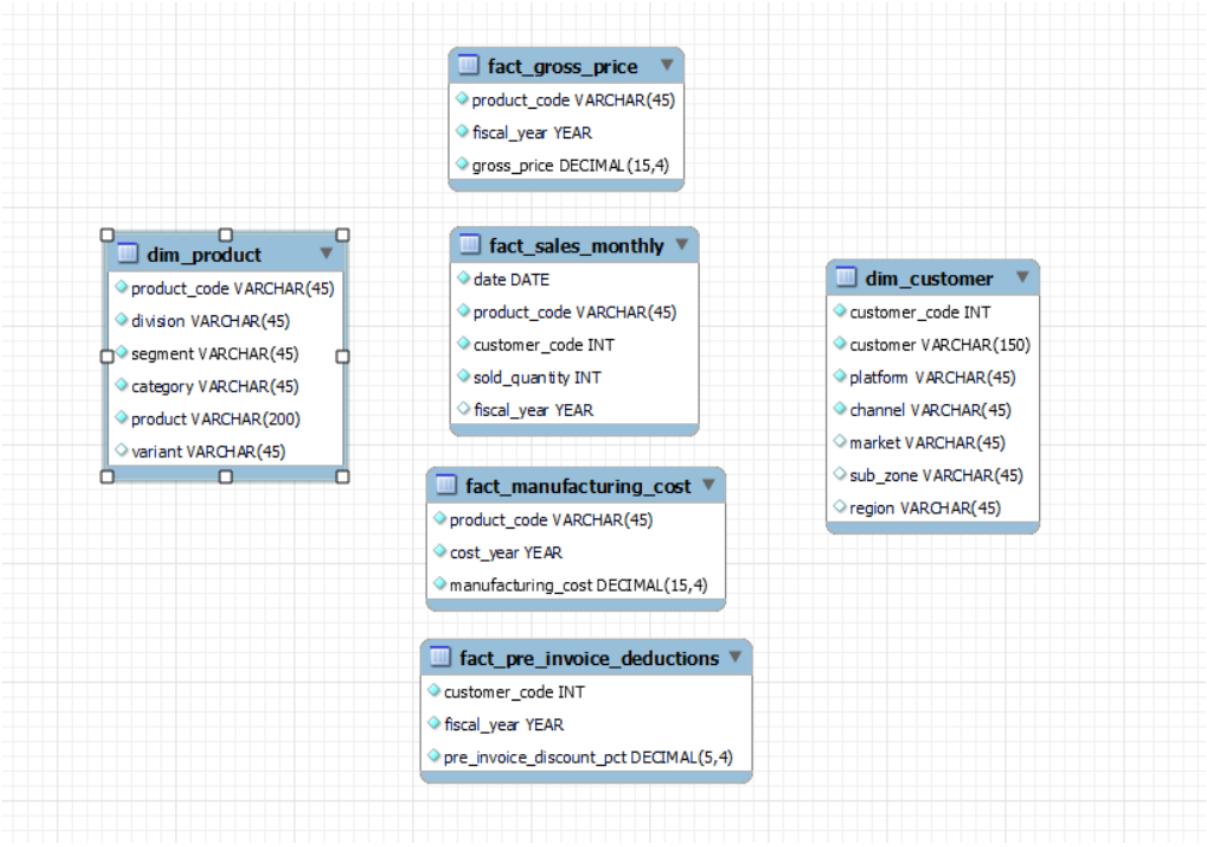
Categories:



Regions:



Tables:

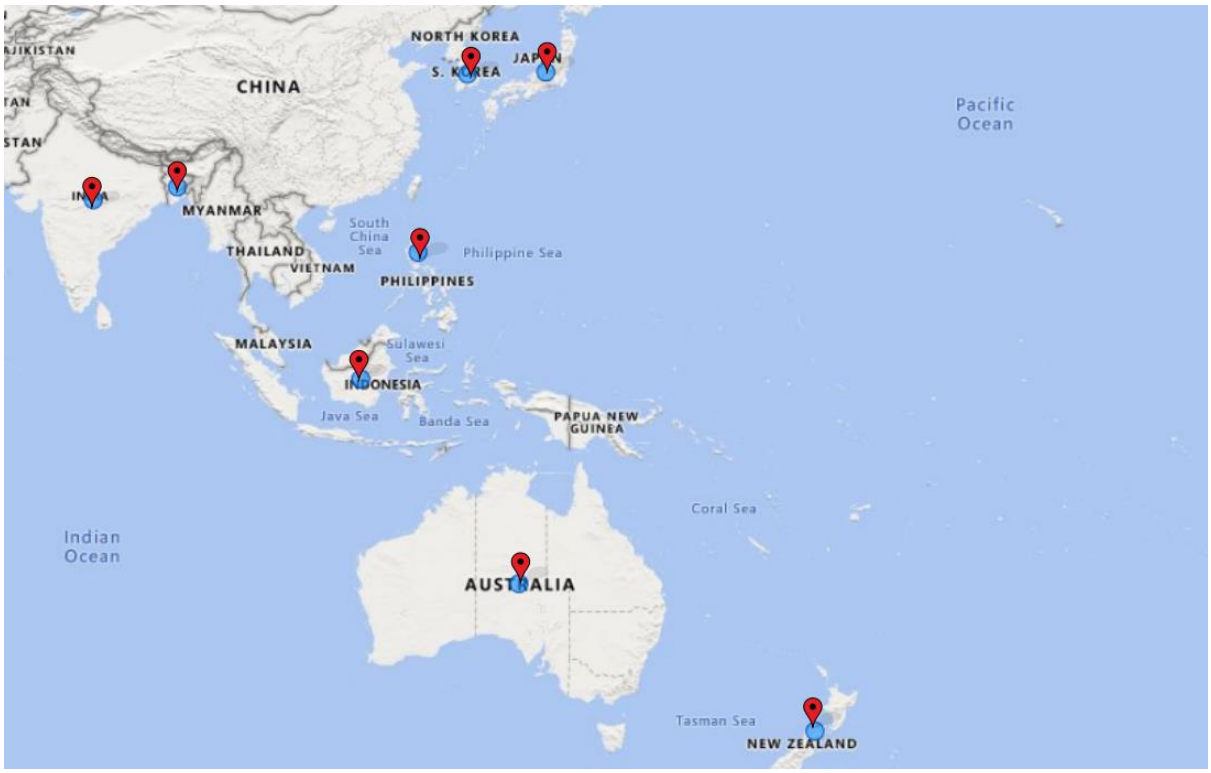


Requests:

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

Query: Select distinct(market) from dim_customer where region = "APAC" and customer = "Atliq Exclusive";

market
India
Indonesia
Japan
Philiphines
South Korea
Australia
Newzealand
Bangladesh



Insights: In APAC region, Atliq Exclusive customer operates in 8 major countries they are India, Indonesia, Japan, Philiphines, South Korea, Australia, Newzealand and Bangladesh

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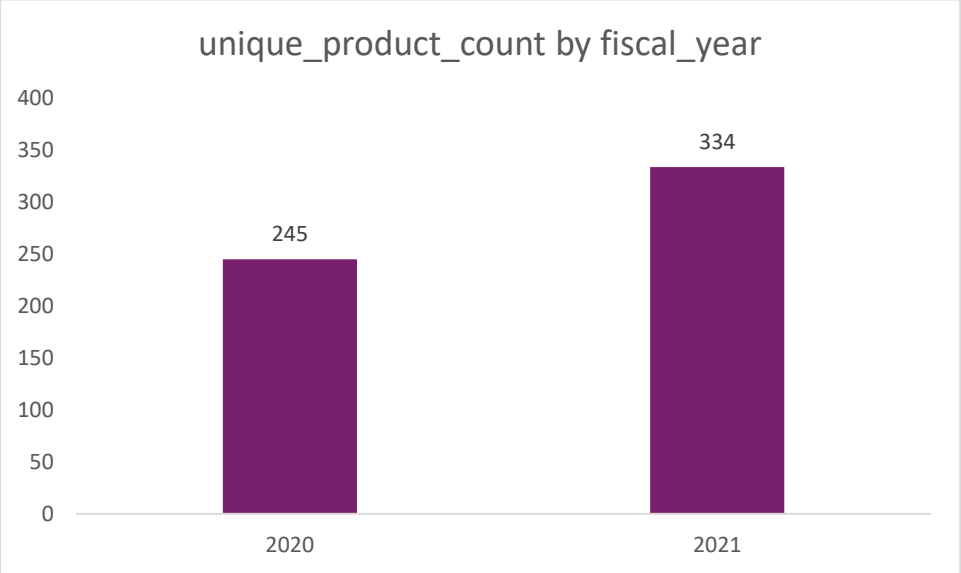
2. What is the percentage of unique product increase in 2021 vs. 2020? The final output contains these fields, unique_products_2020 unique_products_2021 percentage_chg

```
WITH unique_products AS (
   SELECT
      (SELECT COUNT (DISTINCT product_code) FROM fact_gross_price WHERE fiscal_year = 2020) AS
unique_products_2020,
      (SELECT COUNT (DISTINCT product_code) FROM fact_gross_price WHERE fiscal_year = 2021) AS
unique_products_2021
)
SELECT
   unique_products_2020,
   unique_products_2021,
   concat (ROUND (((unique_products_2021 - unique_products_2020) / unique_products_2020) *
100, 2), " %") AS percentage_chg
FROM
   unique_products;
```

unique_products_2020	unique_products_2021	percentage_chg
245	334	36.33 %



Insights: with 36.33% increase in unique product, company is meeting strong position in market by addressing changing needs of the customer.

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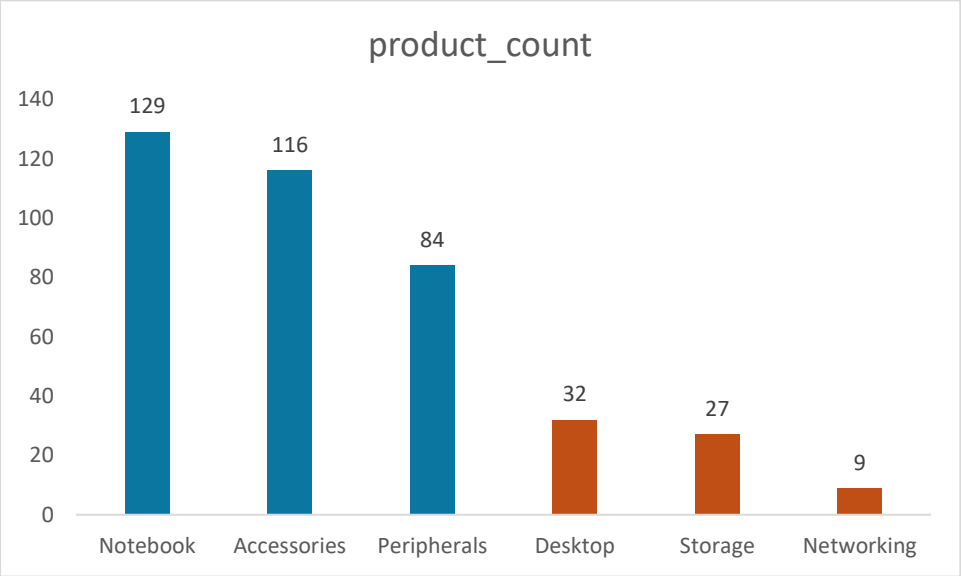
3. Provide a report with all the unique product counts for each segment and sort them in descending order of product counts. The final output contains 2 fields, segment product_count

SELECT segment, count (DISTINCT (product_code)) as product_count FROM dim_product group by segment order by product_count desc;

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



Insights: Segments such as notebooks, accessories, and peripherals are showing significant manufacturing growth as compared to desktops, storage, and networking this could be due to greater demand or innovation in notebooks, accessories, and peripheral and less with others.

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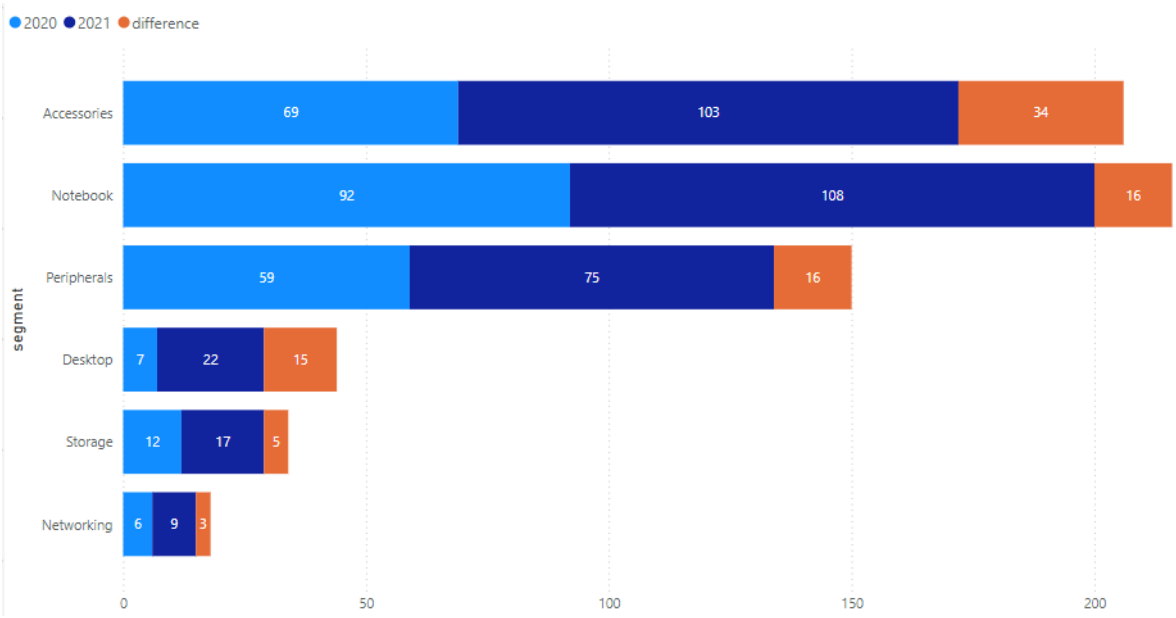
4. Follow-up: Which segment had the most increase in unique products in 2021 vs 2020? The final output contains these fields, segment product_count_2020 product_count_2021 difference

```
with cte1 as (
   select p.segment, count(DISTINCT(f.product_code)) as product_count_2020, f.fiscal_year from
fact_gross_price f
   , dim_product p where f.product_code = p.product_code
   group by f.fiscal_year, p.segment having f.fiscal_year = 2020 ),

   cte2 as (
   select p.segment, count(DISTINCT(f.product_code)) as product_count_2021, f.fiscal_year from
fact_gross_price f
   , dim_product p where f.product_code = p.product_code
   group by f.fiscal_year, p.segment having f.fiscal_year = 2021 )
```

select cte1.segment, product_count_2020, product_count_2021, (product_count_2021 - product_count_2020)
as difference from cte1, cte2 where cte1.segment = cte2.segment order by difference desc;

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: Company has introduced 34 new unique products in Accessories category while storage and networking category has lowest production growth.

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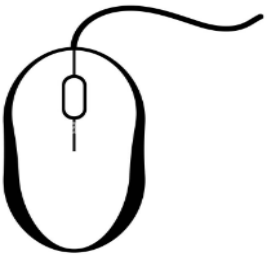
5. Get the products that have the highest and lowest manufacturing costs. The final output should contain these fields, product_code product manufacturing_cost codebasics.io

```
select p.product_code, p.product, concat("$ ",round(f.manufacturing_cost,2)) as
manufacturing_cost
 from fact_manufacturing_cost f join dim_product p
   using (product_code)
where manufacturing_cost in (
   (Select max(manufacturing_cost) from fact_manufacturing_cost),
   (Select min(manufacturing_cost) from fact_manufacturing_cost))
 Order by manufacturing_cost desc;
```

product_code	product	manufacturing_cost
A6120110206	AQ HOME Allin1 Gen 2	$ 240.54
A2118150101	AQ Master wired x1 Ms	$ 0.89

$240.54
A6120110206
Personal Desktop



$0.89
A2118150101
Mouse

Insights: Among our products, Personal Desktop with product code: A6120110206 is having highest manufacturing cost: - 240.54 dollars, whereas Mouse with product code: A2118150101 is having the lowest production cost.

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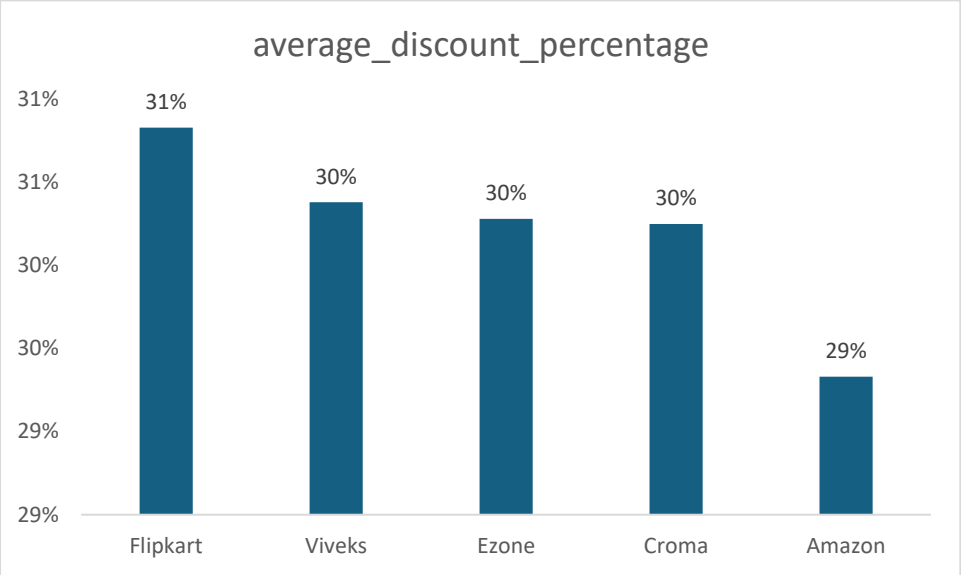
6. Generate a report which contains the top 5 customers who received an average high pre_invoice_discount_pct for the fiscal year 2021 and in the Indian market. The final output contains these fields, customer_code customer average_discount_percentage

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

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:

Top 5 customers have average of 30.21% discount percentage.

Flipkart has received the highest pre invoice discount percent i.e., 30.83%.

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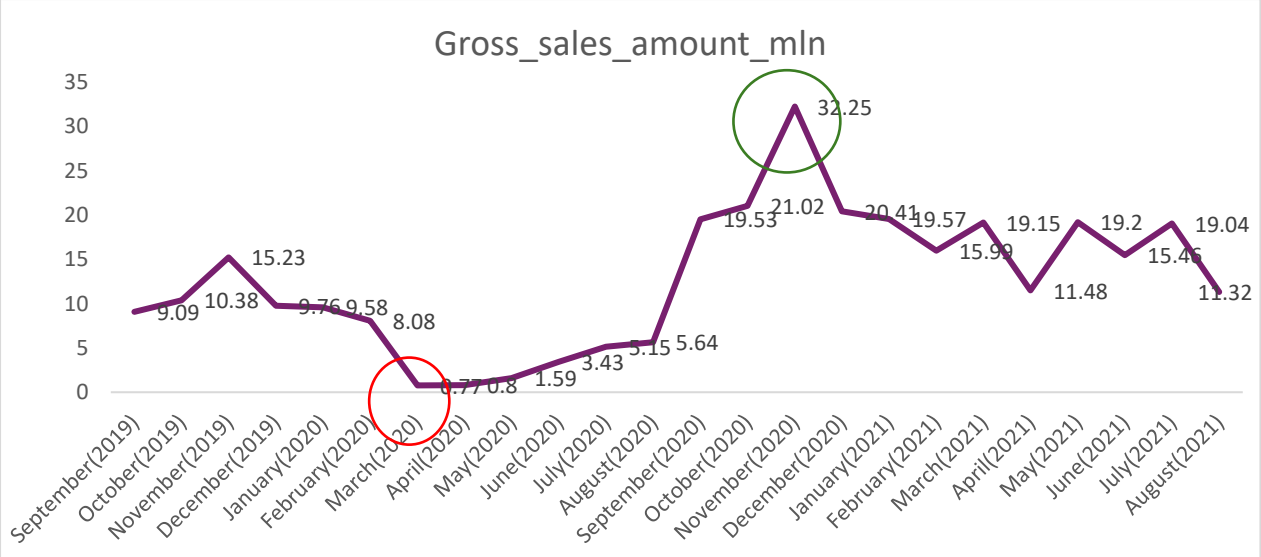
7. Get the complete report of the Gross sales amount for the customer “Atliq Exclusive” for each month. This analysis helps to get an idea of low and high-performing months and take strategic decisions. The final report contains these columns: Month Year Gross sales Amount

```
select concat (MONTHNAME (date), "(", year(date), ")") as month, year(date) as calendar_year,
 round (sum (gross_price * sold_quantity)/1000000,2) as Gross_sales_amount_mln
 from
 fact_gross_price gp join fact_sales_monthly fs
 on
 gp.product_code = fs.product_code
 join dim_customer dc on
 dc.customer_code = fs.customer_code
 where customer = "Atliq Exclusive" group by month, fs.fiscal_year order by fs.fiscal_year;
```

month	calendar_year	Gross_sales_amount_mln
September(2019)	2019	9.09
October(2019)	2019	10.38
November(2019)	2019	15.23
December(2019)	2019	9.76
January(2020)	2020	9.58
February(2020)	2020	8.08
March(2020)	2020	0.77
April(2020)	2020	0.80
May(2020)	2020	1.59
June(2020)	2020	3.43
July(2020)	2020	5.15
August(2020)	2020	5.64
September(2020)	2020	19.53
October(2020)	2020	21.02
November(2020)	2020	32.25
December(2020)	2020	20.41
January(2021)	2021	19.57
February(2021)	2021	15.99
March(2021)	2021	19.15
April(2021)	2021	11.48
May(2021)	2021	19.20
June(2021)	2021	15.46
July(2021)	2021	19.04
August(2021)	2021	11.32



Insights:

- For Atliq Exclusive Store maximum sales were recorded in November- 2020 and lowest sales recorded in March-2020.
- Low sales from March to August because of COVID when stores were shut.
- Sales started improving from September-2020 onwards due to ease in lockdown restrictions and also due to festival season in India.

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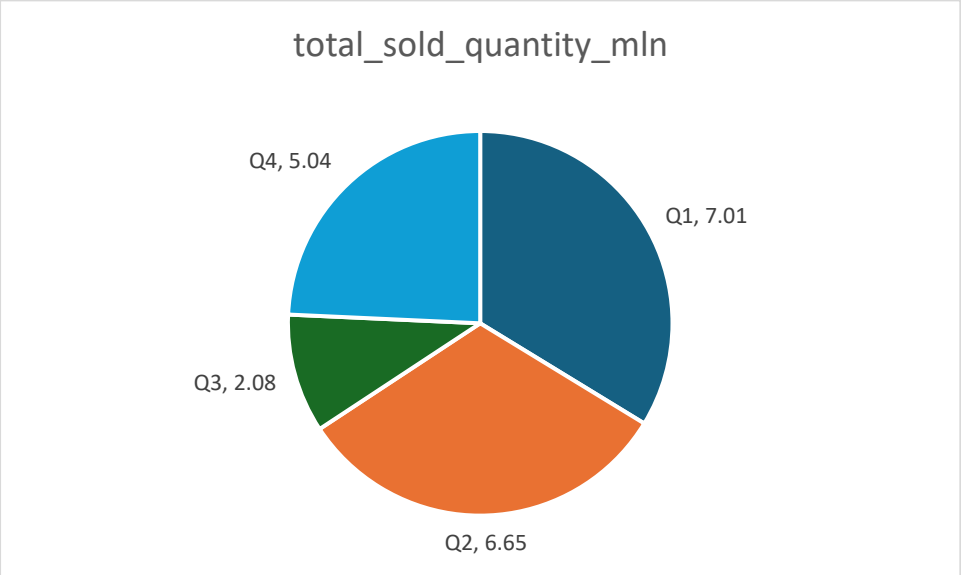
8. In which quarter of 2020, got the maximum total_sold_quantity? The final output contains these fields sorted by the total_sold_quantity, Quarter total_sold_quantity

```
SELECT
 case
 when MONTH (date) IN (9,10,11) then "Q1"
 when MONTH (date) IN (12,1,2) then "Q2"
 when MONTH (date) IN (3,4,5) then "Q3"
 else "Q4"
 end as fiscal_quarter,
 sum(sold_quantity)/1000000 as total_sold_quantity_mln
 from fact_sales_monthly
 where fiscal_year = 2020
 group by fiscal_quarter
 order by total_sold_quantity_mln desc;
```

fiscal_quarter	total_sold_quantity_mln
Q1	7.0056
Q2	6.6496
Q4	5.0425
Q3	2.0751



Insights:
Total sold quantity in Q3(March, April, and May) of fiscal year 2020 was less due to COVID. Sales increased in Q4 with increased in demand of computers, notebooks and accessories for online classes.

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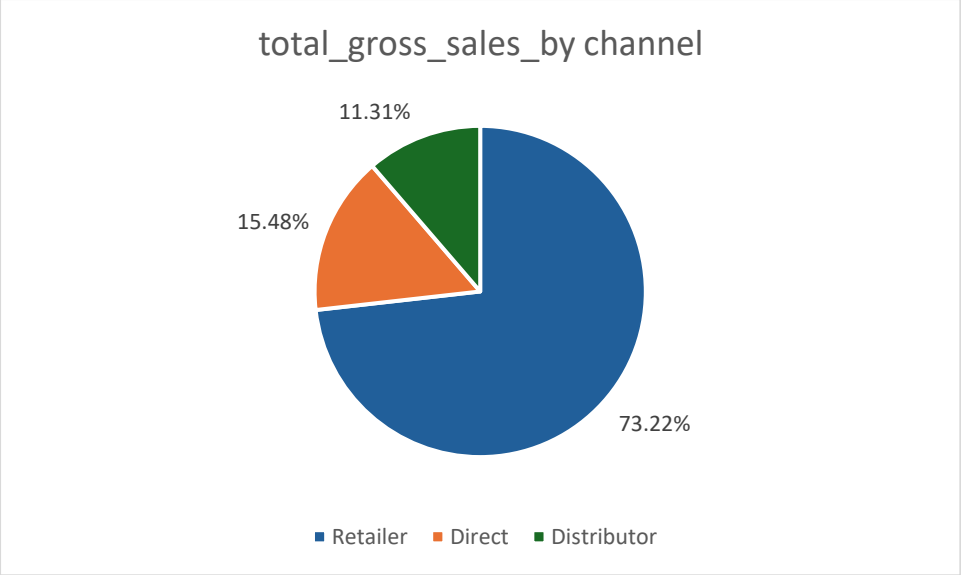
9. Which channel helped to bring more gross sales in the fiscal year 2021 and the percentage of contribution? The final output contains these fields, channel gross_sales_mln percentage

```
with output as (
SELECT dc.channel, round(sum((gp.gross_price * fs.sold_quantity)/1000000),2) as gross_sales_mln
FROM fact_gross_price gp join fact_sales_monthly fs on
gp.product_code = fs.product_code
join dim_customer dc on
fs.customer_code = dc.customer_code
where fs.fiscal_year = 2021
group by channel)

select channel, gross_sales_mln as gross_sales_mln,
concat(round(gross_sales_mln *100 / sum(gross_sales_mln) over(),2),"%") as percentage
from output order by percentage desc;
```

channel	gross_sales_mln	percentage
Retailer	1924.17	73.22%
Direct	406.69	15.48%
Distributor	297.18	11.31%



Insights: Retailer channel brought most sales to the company with 73.22% contribution while Distributor contributes sales of 11.31% of total.

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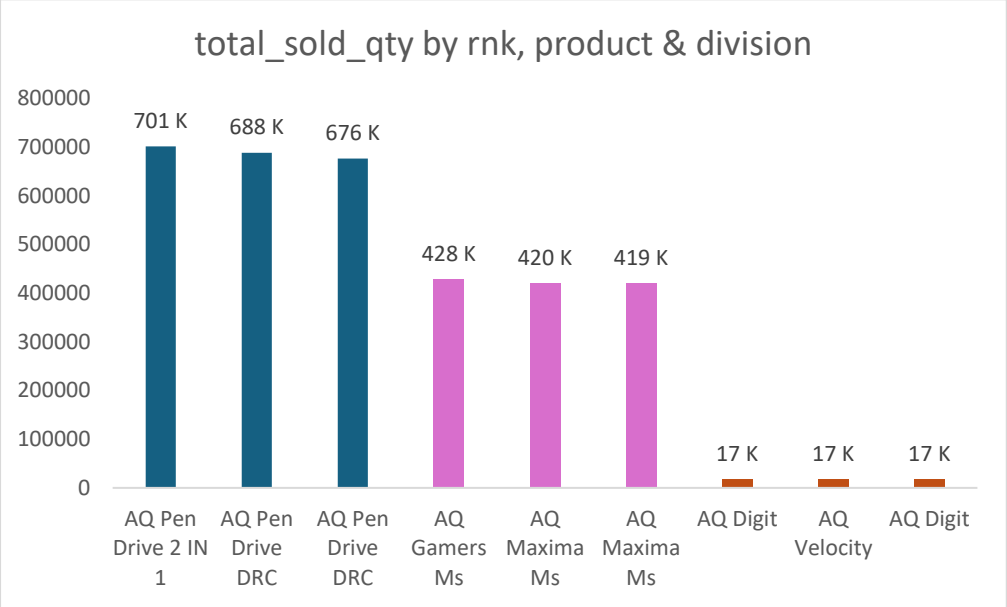
10. Get the Top 3 products in each division that have a high total_sold_quantity in the fiscal_year 2021? The final output contains these fields, division product_code codebasics.io product total_sold_quantity rank_order

```
with cte1 as (
SELECT division, pp.product_code , product, sum(sold_quantity) as total_sold_quantity
FROM dim_product pp join fact_sales_monthly fs on
 pp.product_code = fs.product_code where
 fiscal_year = 2021 group by fs.product_code order by total_sold_quantity desc),
 cte2 as
 (select *,
          rank () over (partition by division order by total_sold_quantity desc) as rank_order
          from cte1)
 select * from cte2 where rank_order<=3;
```

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 most popular products in N&S were pen drives, with about 700,000 sold. In P&A, the top products were mice, with around 400,000 sold. For PC, the top products were personal laptops, and about 17,000 of them were sold