



CodeBasics Resume Project Challenge #4

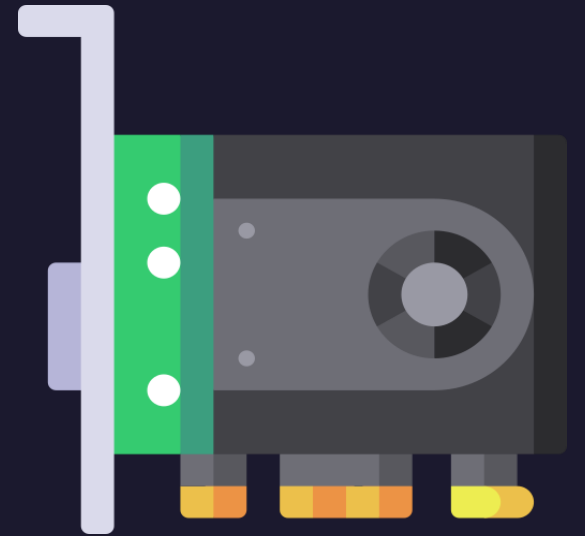
Providing Insights to Management in Consumer Goods Domain



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What is AtliQ Hardwares?

AtliQ Hardware (imaginary company) is one of the leading computer hardware producers in India and well expanded in other countries too.



Problem Statement

What is the problem?

The management in AtliQ Hardware 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.

And my goal is to complete the challenge by writing efficient SQL queries for given Ad-Hoc Requests, and get selected in the data analytics team!



Tools Used



Platforms

Brick & Mortar

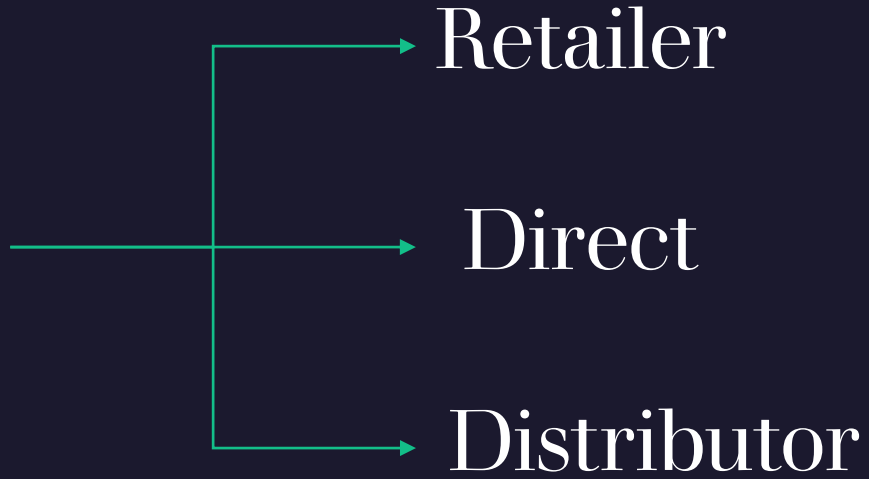
cromã



E-Commerce



Channel



Fiscal Year

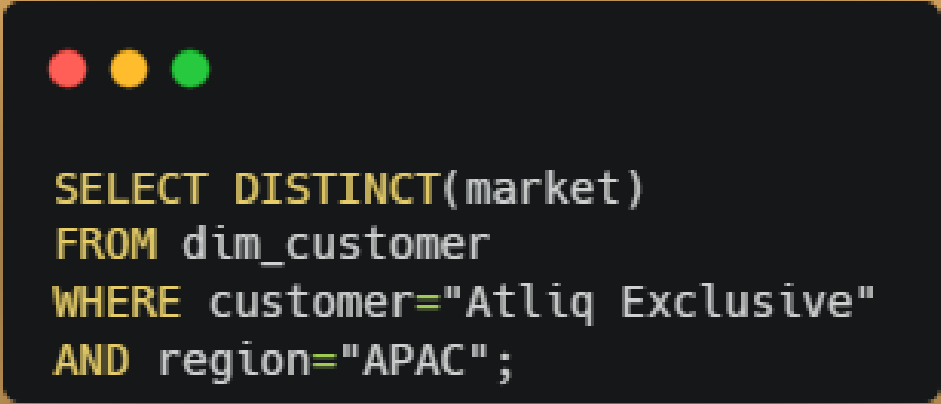
Sept - Aug

Regions



Request #1

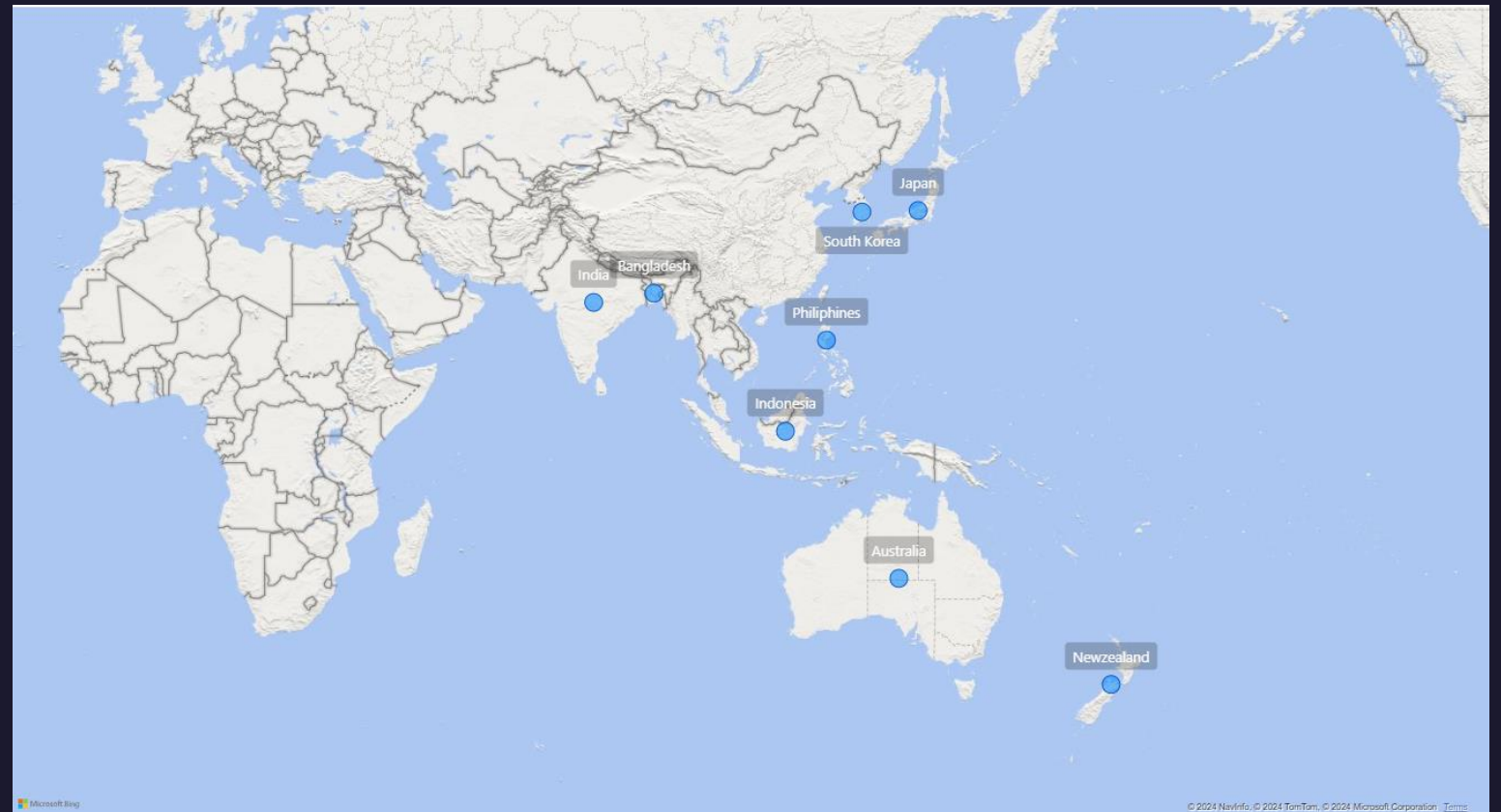
Provide the list of Markets in which customer “AtliQ Exclusive” operates its business in APAC region



```
SELECT DISTINCT(market)
FROM dim_customer
WHERE customer="Atliq Exclusive"
AND region="APAC";
```



	market
▶	India
	Indonesia
	Japan
	Philippines
	South Korea
	Australia
	Newzealand
	Bangladesh



Output

Visualization

Request #2

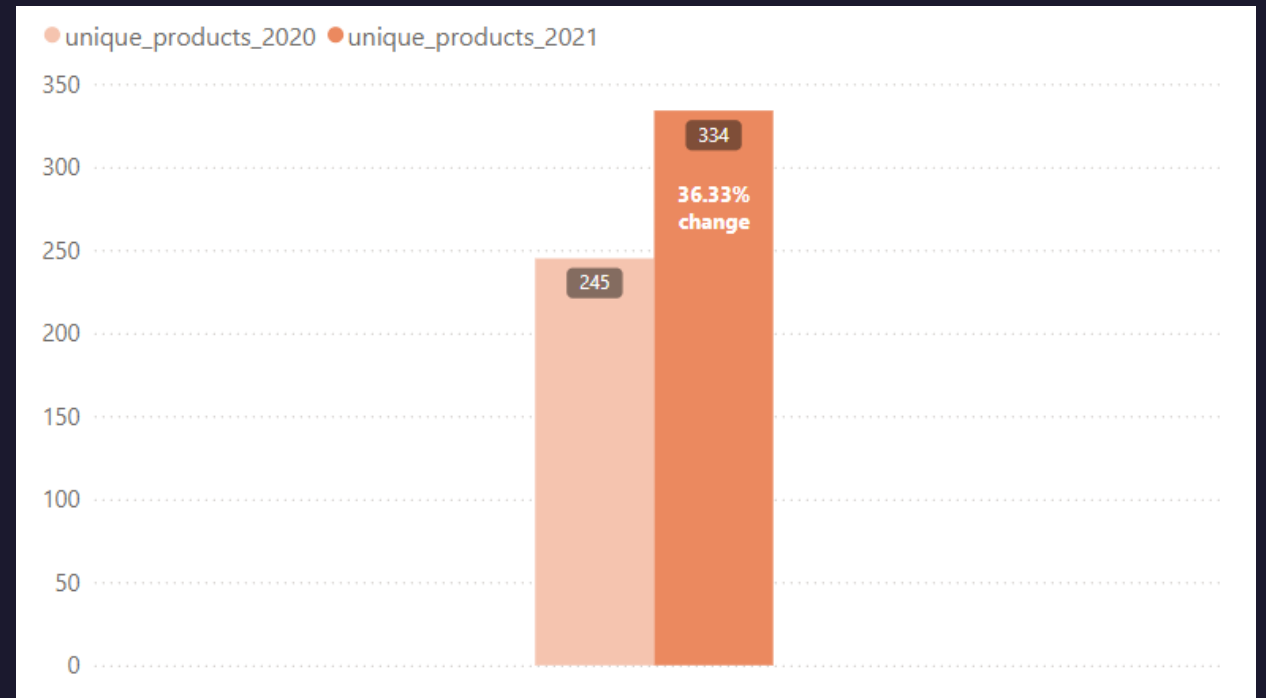
What is the percentage of unique product increase in 2021 v/s 2020?

```
with cte1 as(
  SELECT
    fiscal_year,
    COUNT(DISTINCT s.product_code) as unique_products_2020
  FROM fact_sales_monthly s
  JOIN dim_product p
  ON p.product_code = s.product_code
  WHERE fiscal_year= 2020
  GROUP BY fiscal_year
),
cte2 as(
  SELECT
    fiscal_year,
    COUNT(DISTINCT s.product_code) as unique_products_2021
  FROM fact_sales_monthly s
  JOIN dim_product p
  ON p.product_code = s.product_code
  WHERE fiscal_year= 2021
  GROUP BY fiscal_year
)
SELECT
  unique_products_2020,
  unique_products_2021,
  ROUND((unique_products_2021-unique_products_2020)/unique_products_2020*100, 2) as percentage_chg
FROM cte1
CROSS JOIN cte2;
```


	unique_products_2020	unique_products_2021	percentage_chg
►	245	334	36.33

Output

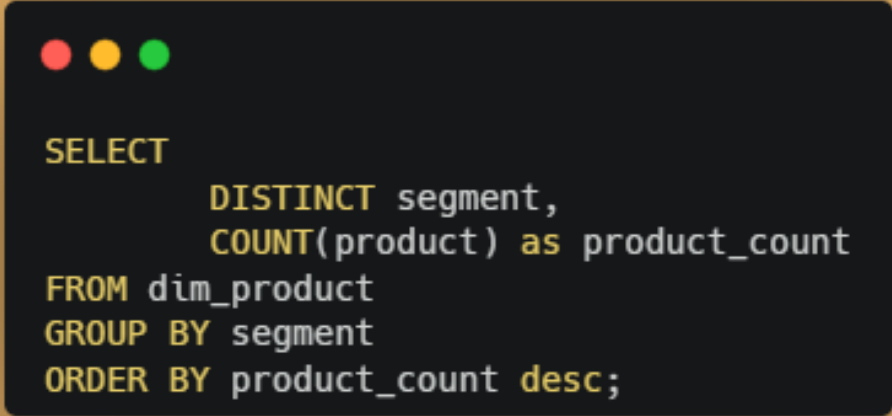
The company had more unique products
in 2021 than in 2020!



Visualization

Request #3

Provide a report with all the unique product counts for each segment and sort them in descending order of the product counts.

A terminal window with a black background and yellow text. It has three colored window control buttons (red, yellow, green) in the top left corner. The SQL query is displayed in a monospaced font.

```
SELECT
    DISTINCT segment,
    COUNT(product) 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

Output

Segment with most product count in 2 yrs:

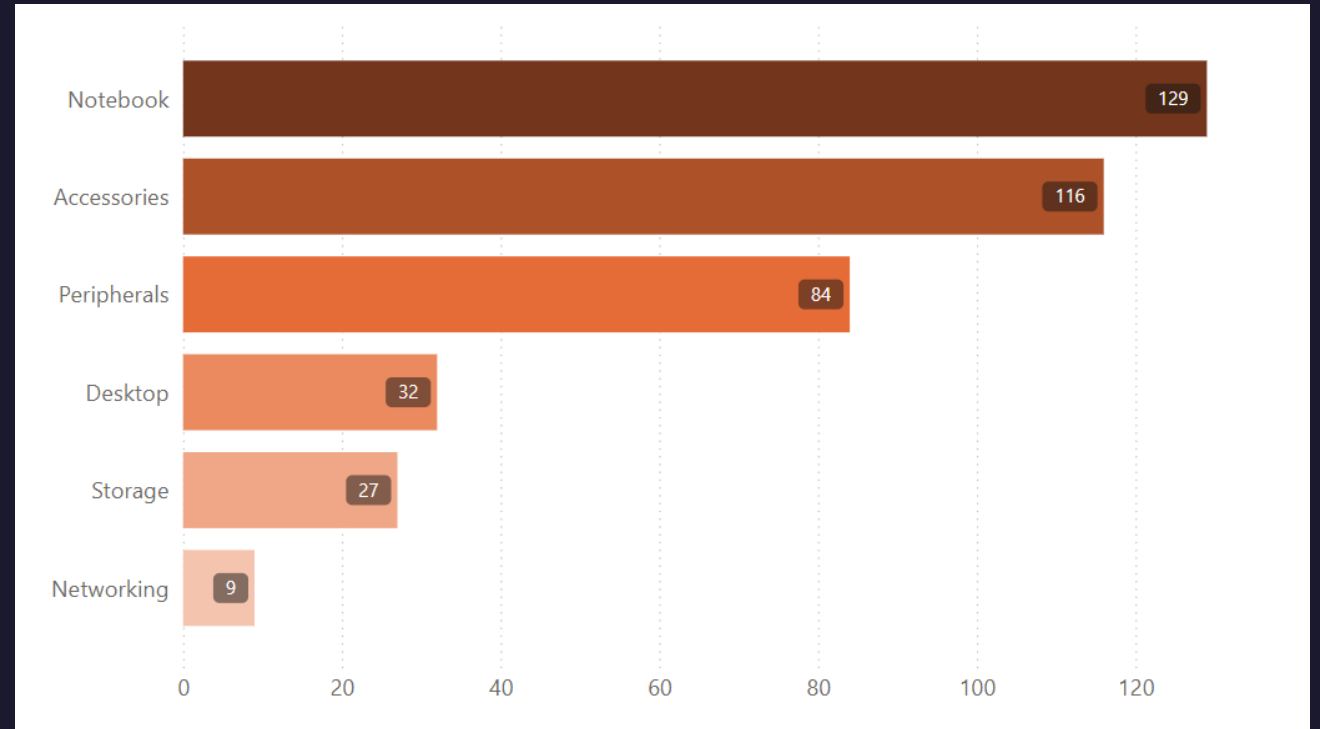
Notebooks (129)

Segment with least product count in 2 yrs:

Networking (9)

Segments with the least product count:

Desktop, **Storage** and **Networking**



Visualization

Notebooks, Accessories and Peripherals contribute to **83%** of the total Unique Product Count.

Request #4

Follow-up: which segment had the most increase in unique products in 2021 v/s 2020?

```
with ctel as (  
    SELECT  
        segment,  
        COUNT(DISTINCT s.product_code) as product_count_2020  
    FROM fact_sales_monthly s  
    JOIN dim_product p  
    ON p.product_code = s.product_code  
    WHERE fiscal_year= 2020  
    GROUP BY segment  
,  
cte2 as (  
    SELECT  
        segment,  
        COUNT(DISTINCT s.product_code) as product_count_2021  
    FROM fact_sales_monthly s  
    JOIN dim_product p  
    ON p.product_code = s.product_code  
    WHERE fiscal_year= 2021  
    GROUP BY segment  
)  
SELECT  
    *,  
    (product_count_2021-product_count_2020) as difference  
FROM ctel  
JOIN cte2  
USING (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

Output

Accessories had the largest increase in manufacturing

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	↑
Total	245	334	89	

Visualization

Accessories, **Notebook** and **Peripherals** had the most increase in unique product because of their higher manufacturing growth.



Request #5

Get the products that have the highest and lowest manufacturing costs

```
SELECT
    product_code,
    product,
    manufacturing_cost
FROM dim_product
JOIN fact_manufacturing_cost
USING (product_code)
WHERE manufacturing_cost= (
    SELECT MAX(manufacturing_cost) from fact_manufacturing_cost
)

UNION

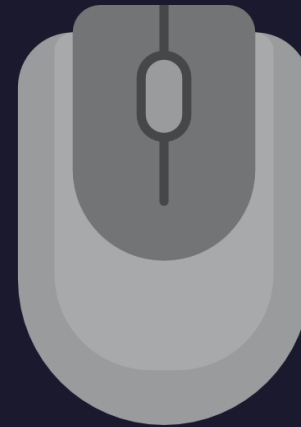
SELECT
    product_code,
    product,
    manufacturing_cost
FROM dim_product
JOIN fact_manufacturing_cost
USING (product_code)
WHERE manufacturing_cost= (
    SELECT MIN(manufacturing_cost) from fact_manufacturing_cost
);
```

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

Output



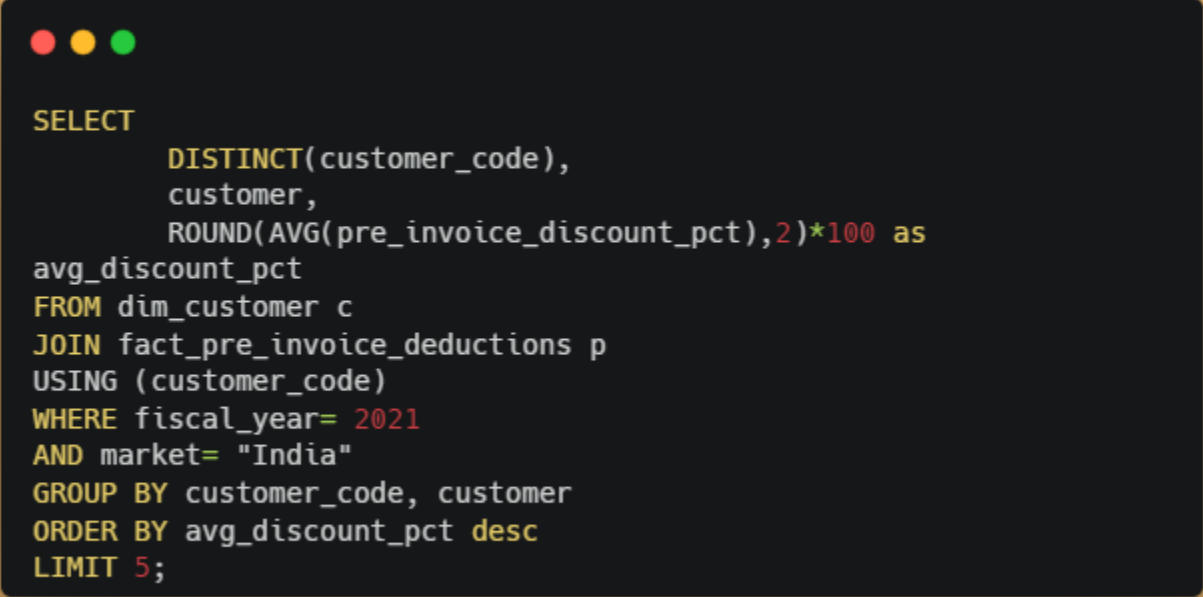
AQ Home Allin 1
Gen 2
(\$240.54)



AQ Master
wired x1 Ms
(\$0.89)

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

A terminal window with a dark background and three colored window control buttons (red, yellow, green) in the top-left corner. It contains a SQL query to find the top 5 customers by average pre-invoice discount percentage for the year 2021 in India.

```
SELECT
    DISTINCT(customer_code),
    customer,
    ROUND(AVG(pre_invoice_discount_pct),2)*100 as
avg_discount_pct
FROM dim_customer c
JOIN fact_pre_invoice_deductions p
USING (customer_code)
WHERE fiscal_year= 2021
AND market= "India"
GROUP BY customer_code, customer
ORDER BY avg_discount_pct desc
LIMIT 5;
```



customer_code	customer	avg_discount_pct
90002009	Flipkart	31.00
90002002	Croma	30.00
90002003	Ezone	30.00
90002006	Viveks	30.00
90002016	Amazon	29.00

Output



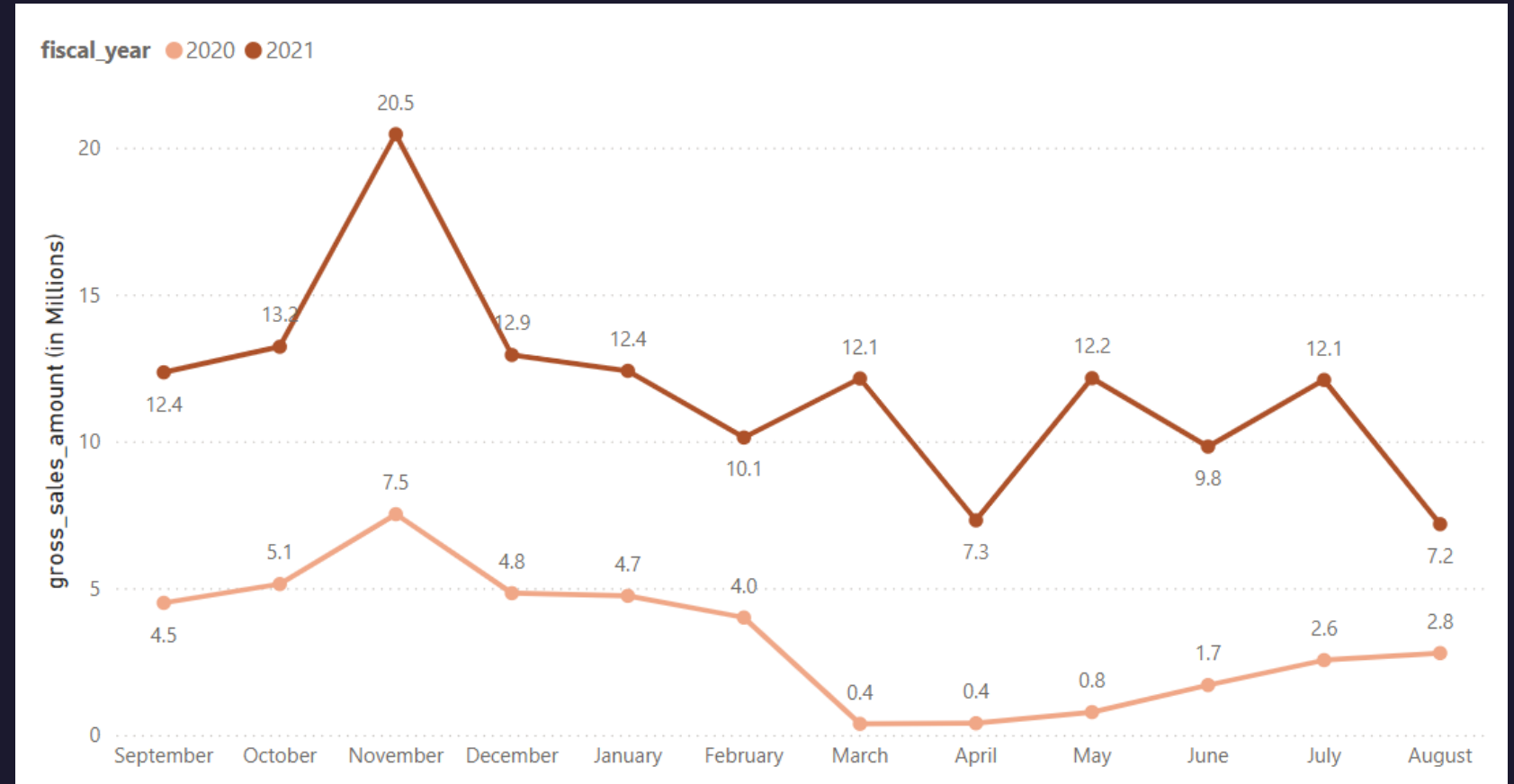
Request #7

Get the complete report of the gross sales amount for the customer “Atliq Exclusive” for each month.



```
SELECT
    MONTHNAME(s.date) as Month,
    s.fiscal_year,
    CONCAT(ROUND(SUM((g.gross_price*s.sold_quantity)/1000000),2),"M") as gross_sales_amount
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 Month, fiscal_year
ORDER BY fiscal_year;
```

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



Output

The sudden drop in gross sales amount in March FY 2020 (from \$4 Million to \$0.4 Million) was due to the start of the pandemic period of **COVID-19** virus. After that, we can see a gradual increase as the market were starting to open and gaining more sales.

Visualization

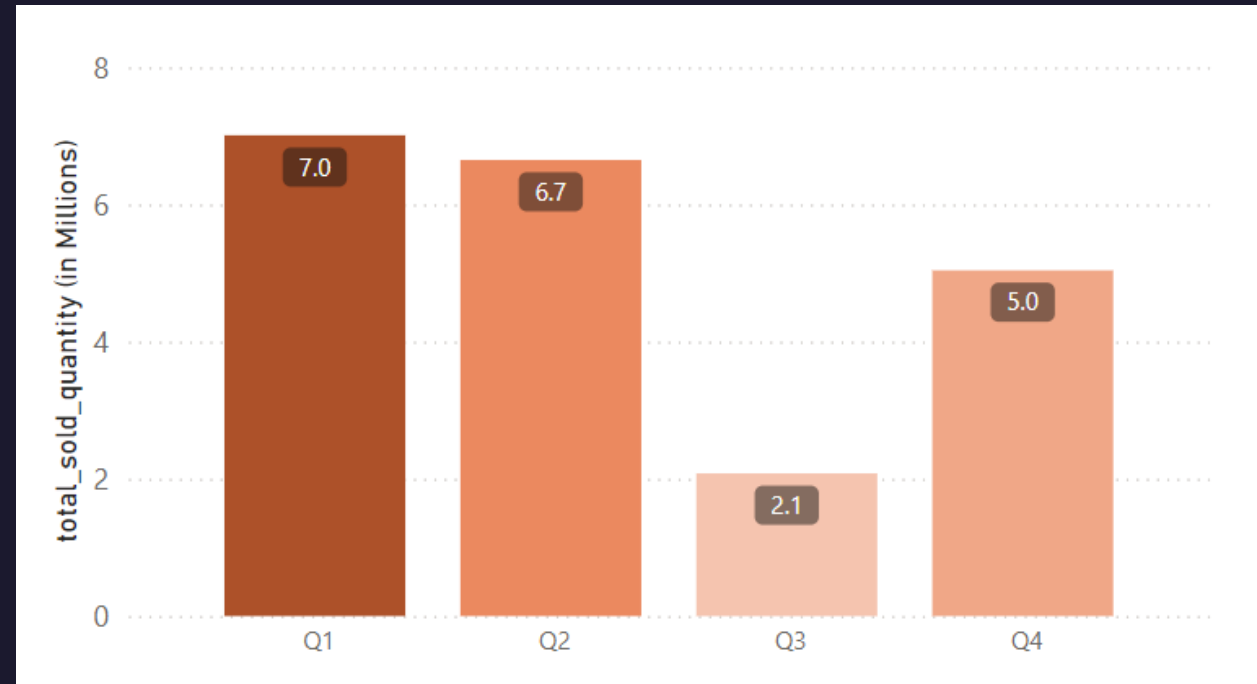
Request #8

In which quarter of 2020, we got the maximum total_sold_quantity?

```
with cte1 as (  
    SELECT  
        MONTH(date) as Month,  
        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,  
        sold_quantity  
    FROM fact_sales_monthly s  
    where fiscal_year= 2020  
)  
cte2 as (  
    SELECT  
        quarter,  
        ROUND(SUM(sold_quantity)/1000000,2) as total_sold_quantity  
    FROM cte1  
    GROUP BY quarter  
)  
  
SELECT * FROM cte2  
ORDER BY total_sold_quantity DESC;
```

	quarter	total_sold_quantity
▶	Q1	7.01
	Q2	6.65
	Q4	5.04
	Q3	2.08

Output



Visualization

Quarter 1 was the one with the highest total sold quantities(in millions) of products in 2020.

Sudden drop in Quarter 3 of 2020 because of the lower manufacturing growth due to COVID-19 pandemic. No consumers, No growth!

Request #9

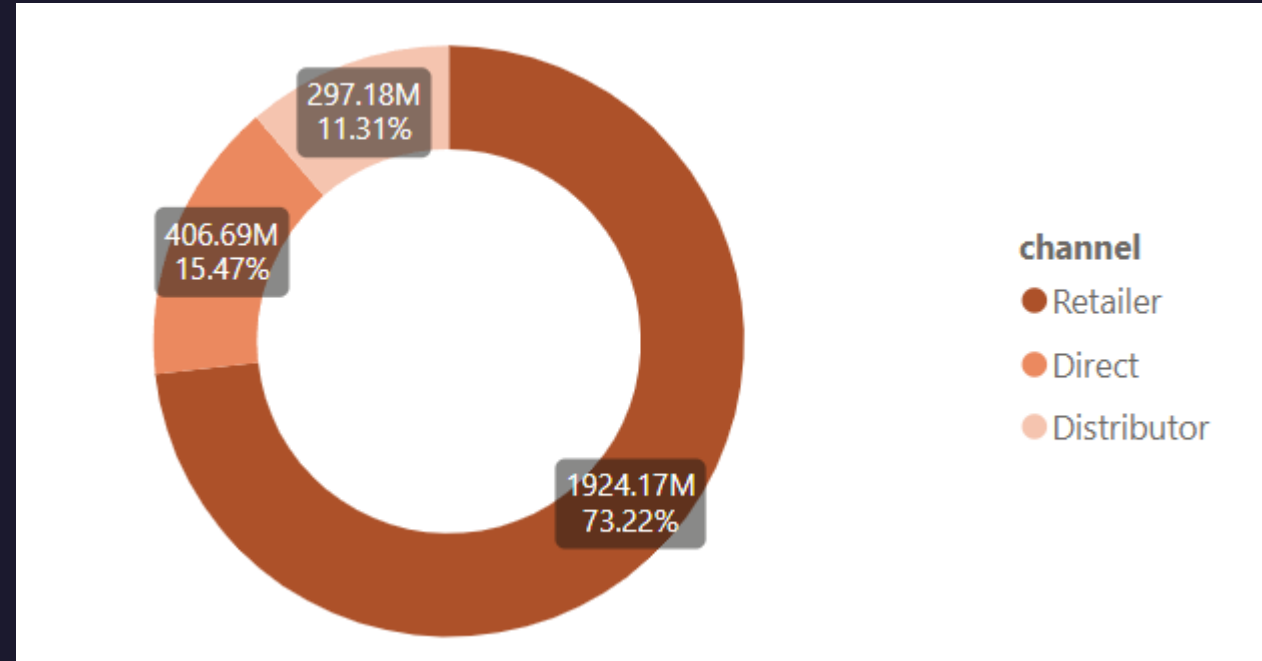
Which channel helped to bring the most gross sales in fiscal year 2021?

```
with cte1 as (  
  SELECT  
    c.channel,  
    SUM(g.gross_price * s.sold_quantity) as gross_sales_mln  
  FROM fact_sales_monthly s  
  JOIN fact_gross_price g  
  ON s.product_code = g.product_code  
  JOIN dim_customer c  
  ON s.customer_code = c.customer_code  
  WHERE s.fiscal_year= 2021  
  GROUP BY channel  
  ORDER BY gross_sales_mln DESC  
)  
SELECT  
  channel,  
  CONCAT(ROUND(gross_sales_mln/1000000,2),"M") as gross_sales_mln,  
  CONCAT(ROUND((gross_sales_mln/SUM(gross_sales_mln) OVER()) *100, 2), "%") as percentage  
FROM cte1;
```

	channel	gross_sales_mln	percentage
▶	Retailer	1924.17M	73.22%
	Direct	406.69M	15.47%
	Distributor	297.18M	11.31%

Output

Highest contribution by:
Retailers (73.22%)



Visualization

The reason could be that people go offline to their preferred retail store and buy the products, rather than going to Company's own store or any large distributor.

Request #10

Get the Top 3 products in each division that have a high total_sold_quantity in the fiscal year 2021

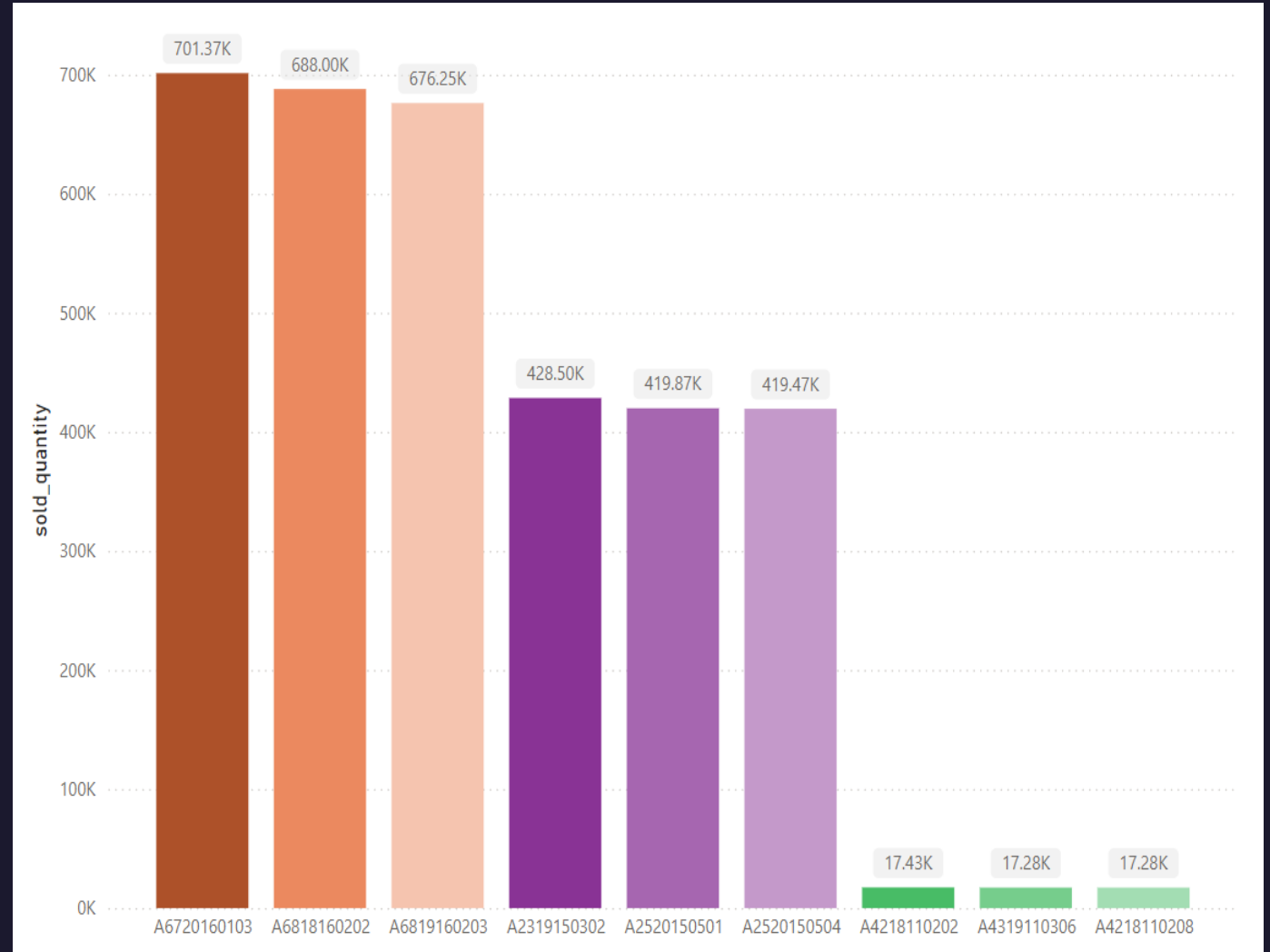
```
with ctel as (  
    SELECT  
        p.division,  
        p.product_code,  
        p.product,  
        SUM(s.sold_quantity) as sold_quantity,  
        RANK() OVER(PARTITION BY division ORDER BY SUM(s.sold_quantity) DESC) as rank_order  
    FROM fact_sales_monthly s  
    JOIN dim_product p  
    USING (product_code)  
    WHERE s.fiscal_year= 2021  
    GROUP BY p.division, p.product_code, p.product  
)  
  
SELECT *  
FROM ctel  
WHERE rank_order <=3  
ORDER BY division, rank_order;
```


	division	product_code	product	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

Output

Pen Drives, Mouse and Laptops are the Top 3 products in fiscal year 2021.

Pen Drives(N&S) are the top products in Top 3 products, for fiscal year 2021.



Visualization

A dark blue background featuring three 3D-rendered geometric shapes on the left side: a cone at the top, a small sphere in the middle, and a torus at the bottom. All shapes have a subtle gradient and soft shadows.

Thank you!