

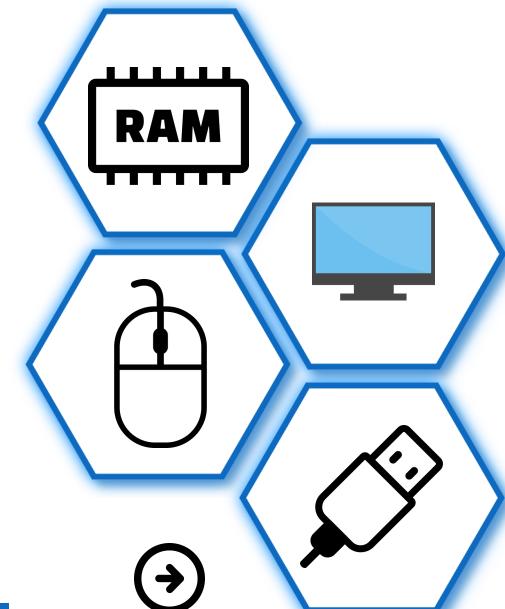
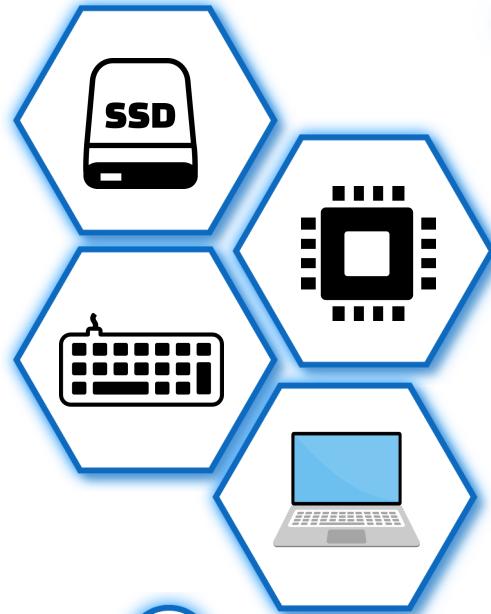
Ad_Hoc Insights

Consumer Goods



Tools Used:

CREATED BY
SHASHANK KUMAR YADAV



Objectives

AtliqHardware, a prominent computer hardware manufacturer based in India, holds a substantial market presence in various nations.

Despite this, the management acknowledges a lack of adequate insights for making timely, informed decisions.

To address this gap, there is a plan to enhance the data analytics capabilities by augmenting the team with junior data analysts.

In evaluating potential candidates, **Tony Sharma**, the Director of Data Analytics, intends to conduct a SQL challenge to assess both technical proficiency and soft skills.

The company is currently focusing on fulfilling 10 ad hoc requests to gain valuable insights.

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 customer = 'Atliq Exclusive' AND region = 'APAC';
```

Query Output:

market

Australia

Bangladesh

India

Indonesia

Japan

New zealand

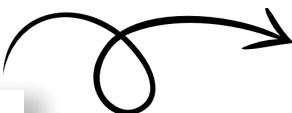
Philiphines

South Korea



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

market
Australia
Bangladesh
India
Indonesia
Japan
New zealand
Philiphines
South Korea



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

Query Output:

unique_products_2020	unique_products_2021	percentage_change
245	334	36.33

Query:

```
SELECT
    unique_products_2020,
    unique_products_2021,
    ((unique_products_2021 - unique_products_2020) / NULLIF(unique_products_2020, 0)) * 100 AS
percentage_change
FROM (
    SELECT
        COUNT(DISTINCT CASE WHEN fiscal_year = '2020' THEN PRODUCT_CODE END) AS
unique_products_2020,
        COUNT(DISTINCT CASE WHEN fiscal_year = '2021' THEN PRODUCT_CODE END) AS
unique_products_2021
    FROM
        fact_sales_monthly
    WHERE
        fiscal_year IN ('2020', '2021')
) AS subquery;
```



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

unique_products_2020	unique_products_2021	percentage_change
245	334	36.33

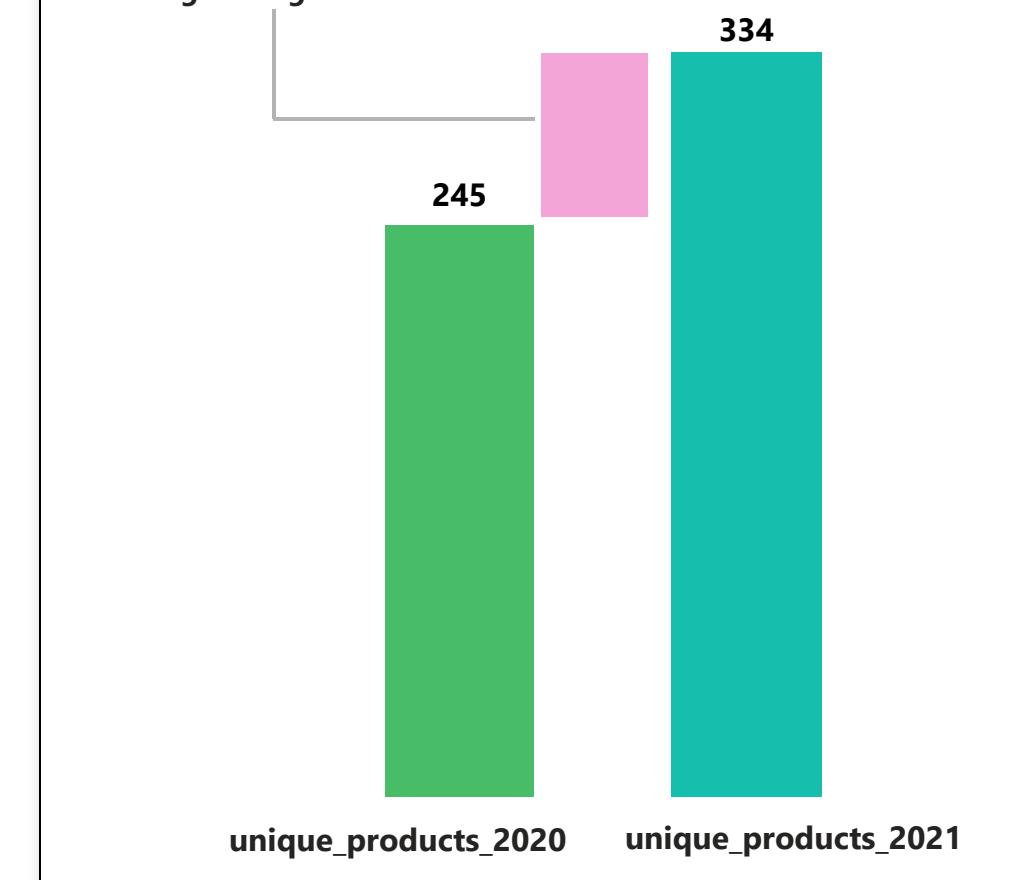


Unique Products 2021

Vs

Unique Products 2020

Percentage change 36.33%



Insight:

Both the demand and production experienced a simultaneous **increase**.

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

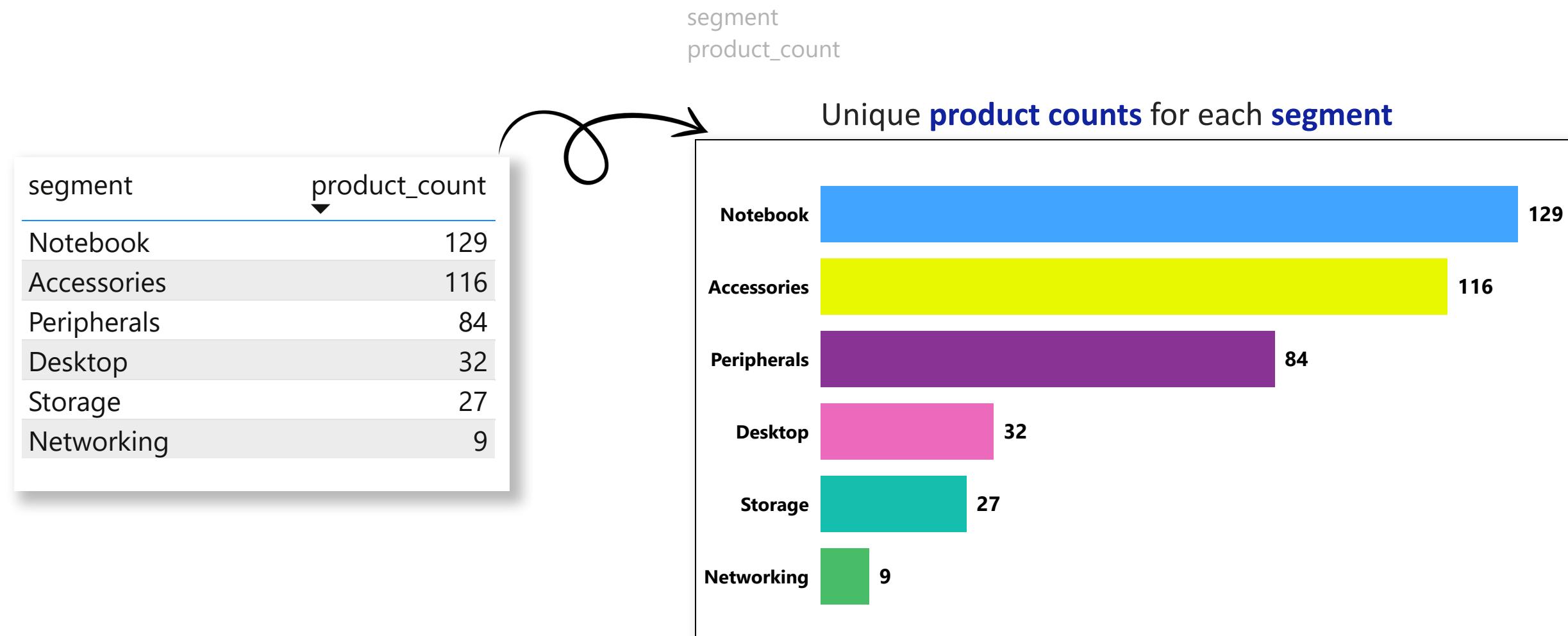
Query:

```
SELECT  
  
    segment,  
    COUNT(DISTINCT product_code) AS product_count  
FROM  
    dim_product  
GROUP BY  
    segment  
ORDER BY  
    product_count DESC;
```

Query Output:

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

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,



Insights:

Manufacturing growth is notably pronounced in the segments of notebooks, accessories, and peripherals, in contrast to the comparatively lower expansion observed in desktops, storage, and networking.

Notebooks, accessories, and peripherals collectively account for 83% of the total manufactured products.

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

Query:

```
SELECT
    p.segment,
    COUNT(DISTINCT CASE WHEN s.fiscal_year = '2020' THEN s.product_code END) AS
product_count_2020,
    COUNT(DISTINCT CASE WHEN s.fiscal_year = '2021' THEN s.product_code END) AS
product_count_2021,
    COUNT(DISTINCT CASE WHEN s.fiscal_year = '2021' THEN s.product_code END)
    - COUNT(DISTINCT CASE WHEN s.fiscal_year = '2020' THEN s.product_code END)
AS difference
FROM
    fact_sales_monthly s
JOIN
    dim_product p ON s.product_code = p.product_code
WHERE
    s.fiscal_year IN ('2020', '2021')
GROUP BY
    p.segment
ORDER BY
    difference DESC;
```

Query Output:

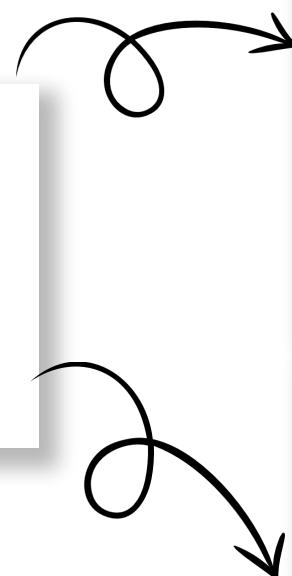
segment	product_count_2020	product_count_2021	difference
Accessories	69	103	34
Desktop	7	22	15
Networking	6	9	3
Notebook	92	108	16
Peripherals	59	75	16
Storage	12	17	5



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
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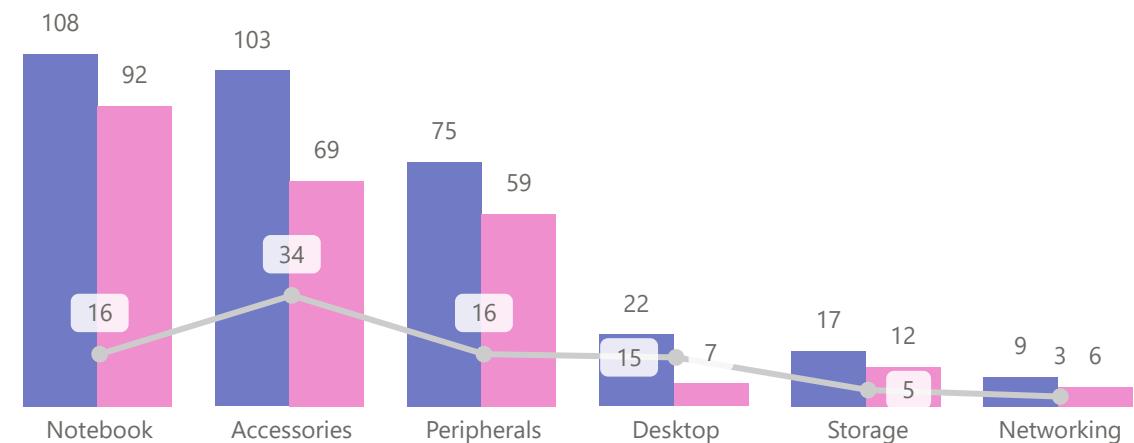
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Accessories	69	103	34
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Peripherals	59	75	16
Storage	12	17	5



Unique product difference per **segment** from 2020 to 2021

segment	product_count_2020	product_count_2021	difference
Accessories	69	103	34 ↑
Desktop	7	22	15 ↑
Networking	6	9	3 ↑
Notebook	92	108	16 ↑
Peripherals	59	75	16 ↑
Storage	12	17	5 ↑

● product_count_2021 ● product_count_2020 ● difference



Insights:

The production of accessories witnessed the most substantial increase, surpassing growth rates in other segments. Meanwhile, storage and networking are undergoing slower production expansion compared to their counterparts in different segments.

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

product_code
product
manufacturing_cost

Query:

```
(SELECT
    p.product_code, p.product,s.manufacturing_cost
FROM
    fact_manufacturing_cost s
JOIN
    dim_product p ON s.product_code = p.product_code
ORDER BY
    s.manufacturing_cost ASC
LIMIT 1) -- Bottom 5 manufacturing costs
```

UNION ALL

```
(SELECT
    p.product_code, p.product,s.manufacturing_cost
FROM
    fact_manufacturing_cost s
JOIN
    dim_product p ON s.product_code = p.product_code
ORDER BY
    s.manufacturing_cost DESC
LIMIT 1) -- Top 5 manufacturing costs
```

Query Output:

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

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

product_code
product
manufacturing_cost

Highest Manufacturing Cost Product		
product_code	product	manufacturing_cost
A2118150101	AQ HOME Allin1 Gen 2	\$241.43
A6120110206	AQ Master wired x1 Ms	\$0.89

Lowest Manufacturing Cost Product		
product_code	product	manufacturing_cost
A6120110206	AQ Master wired x1 Ms	\$0.89

Insights:

The AQ Master wired x1 Ms (Variant: Standard1) mouse has the most economical manufacturing cost, while the AQ Home Allin1 Gen2 (Variant: Plus3) personal desktop incurs the highest 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

Query:

```
Select
    p.customer_code,
    p.customer,
    s.pre_invoice_discount_pct
FROM
    fact_pre_invoice_deductions s
join
    dim_customer p ON s.customer_code = p.customer_code
where p.market = 'india'
order by
    s.pre_invoice_discount_pct desc
limit 5;
```

Query Output:

customer_code	customer	pre_invoice_discount_pct
90002016	Amazon	29.3300%
90002002	Croma	30.2500%
90002003	Ezone	30.2800%
90002009	Flipkart	30.8300%
90002006	Viveks	30.3800%

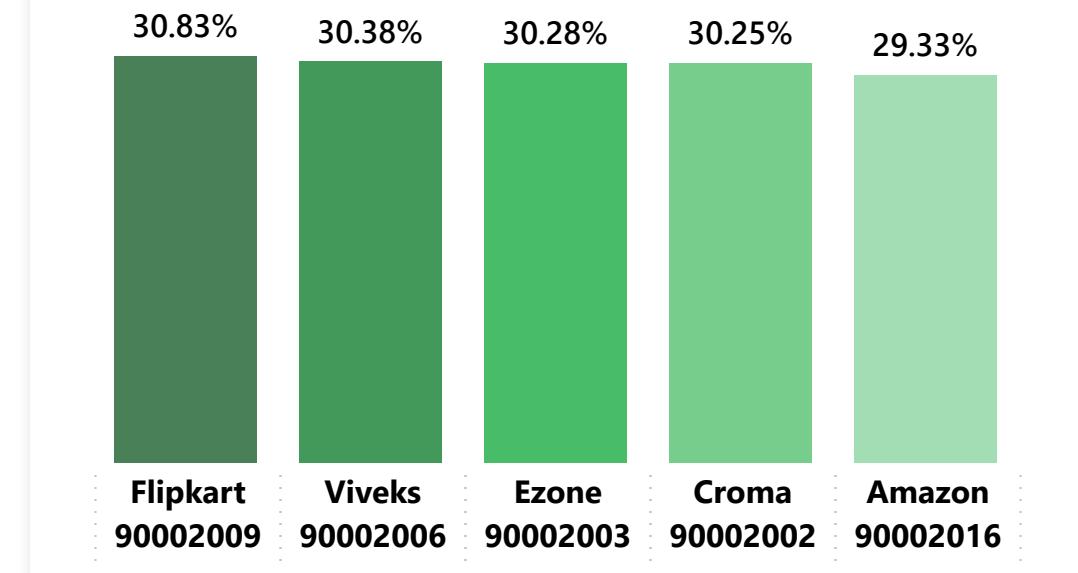
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customer_code
customer
average_discount_percentage

customer_code	customer	pre_invoice_discount_pct
90002016	Amazon	0.29
90002002	Croma	0.30
90002003	Ezone	0.30
90002009	Flipkart	0.31
90002006	Viveks	0.30



Top 5 Indian customers with highest average discount percentage for FY 2021



Insights:

The largest average pre-invoice discount was given to **Flipkart**.

The least average pre-invoice discount was given to **Amazon**.

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:

Query:

```

SELECT
    MONTHNAME(fs.date) AS Month, EXTRACT(YEAR FROM fs.date) as year,
    fs.fiscal_year,
    SUM(fp.gross_price * fs.sold_quantity) AS GrossSalesAmount
FROM
    fact_sales_monthly fs
JOIN
    dim_customer dc ON fs.customer_code = dc.customer_code
JOIN
    fact_gross_price fp ON fs.product_code = fp.product_code
WHERE
    dc.customer = 'Atliq Exclusive'
GROUP BY
    Month,
    year,
    fs.fiscal_year
ORDER BY
    fiscal_year asc ;

```

Query Output:

Month	Year	fiscal_year	Gross_Sales_Amount
September	2019	2020	9,092,670.34
October	2019	2020	10,378,637.60
November	2019	2020	15,231,894.97
December	2019	2020	9,755,795.06
January	2020	2020	9,584,951.94
February	2020	2020	8,083,995.55
March	2020	2020	766,976.45
April	2020	2020	800,071.95
May	2020	2020	1,586,964.48
June	2020	2020	3,429,736.57
July	2020	2020	5,151,815.40
August	2020	2020	5,638,281.83
September	2020	2021	19,530,271.30
October	2020	2021	21,016,218.21
November	2020	2021	32,247,289.79
December	2020	2021	20,409,063.18
January	2021	2021	19,570,701.71
February	2021	2021	15,986,603.89
March	2021	2021	19,149,624.92
April	2021	2021	11,483,530.30
May	2021	2021	19,204,309.41
June	2021	2021	15,457,579.66
July	2021	2021	19,044,968.82
August	2021	2021	11,324,548.34



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:

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<hr/>			
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FY 2020

79.5 M

FY 2021

224.4 M

Month

Year

Gross sales Amount

FISCAL YEAR

SEPTEMBER 2019 - AUGUST 2020

FY 2020

SEPTEMBER 2020 - AUGUST 2021

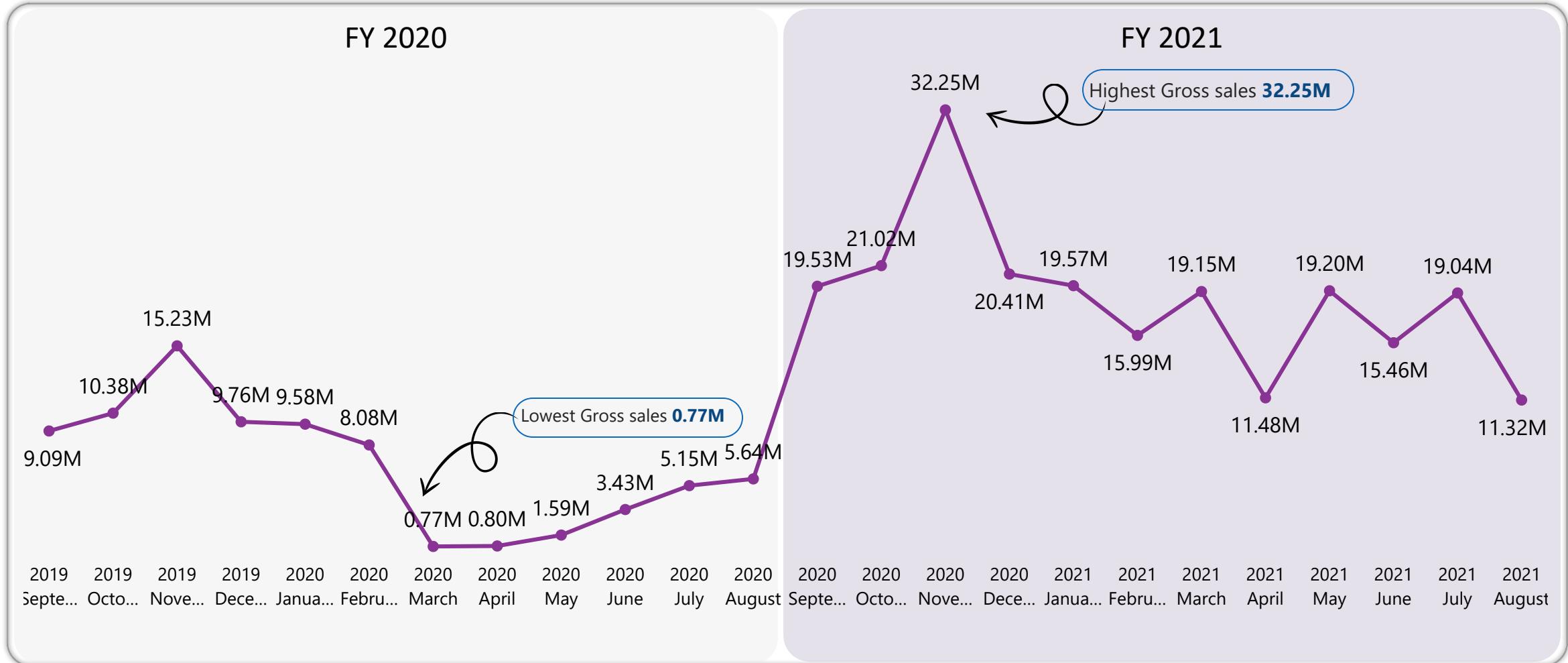
FY 2021

Insights:

March 2020 records the lowest gross sales total for both fiscal years, while November 2020 marks the peak in gross sales for both periods. A significant 73.8% of the total gross sales figure is attributed to FY2021.



Gross sales amount report for **Atliq Exclusive** by month



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

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 quarters,
SUM(sold_quantity) as total_sold_quantity
from fact_sales_monthly
where fiscal_year = '2020'
GROUP by quarters
order by total_sold_quantity desc;
```

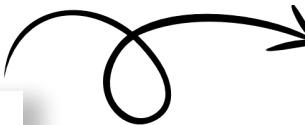
Query Output:

quarters	total_sold_quantity
Q1	7005619
Q2	6649642
Q3	2075087
Q4	5042541

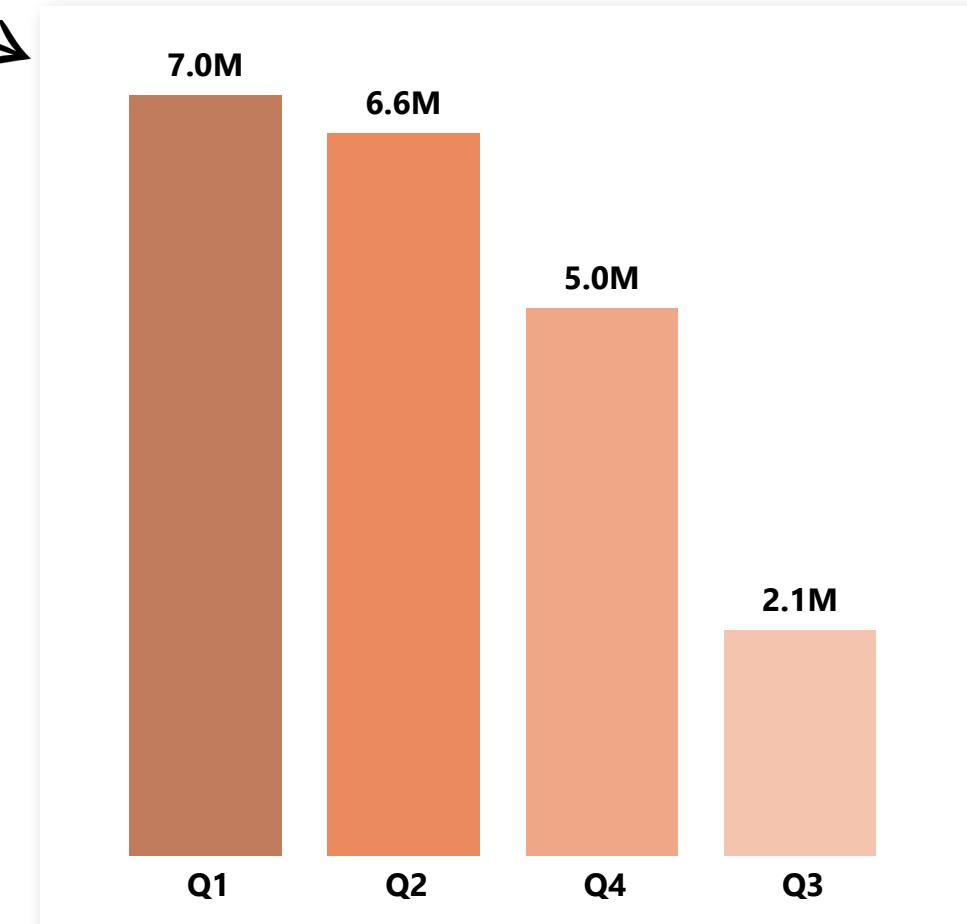
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Quarter
total_sold_quantity

quarters	total_sold_quantity
Q1	7005619
Q2	6649642
Q3	2075087
Q4	5042541



Total sold quantity in **FY 2020** by **Quarter**



Insights:

Quarter 1 of FY2020 witnessed the highest overall units sold, whereas **Quarter 3** had the fewest.

Approximately 34% of the total sold quantity for FY2020 is attributed to **Quarter 1**.

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

Query:

```
SELECT
    dc.channel,
    SUM(fp.gross_price * fs.sold_quantity) AS gross_sales_mln,
    RANK() OVER (ORDER BY SUM(fp.gross_price * fs.sold_quantity) DESC) AS sales_rank
FROM
    fact_sales_monthly fs
JOIN
    dim_customer dc ON fs.customer_code = dc.customer_code
JOIN
    fact_gross_price fp ON fs.product_code = fp.product_code AND fs.fiscal_year = fp.fiscal_year
WHERE
    fs.fiscal_year = '2021'
GROUP BY
    dc.channel)
SELECT
    channel,
    CONCAT('$', gross_sales_mln) AS gross_sales_mln,
    CONCAT(ROUND((gross_sales_mln / SUM(gross_sales_mln) OVER () * 100,2), '%')AS percentage
FROM
    ChannelGrossSales;
```

Query Output:

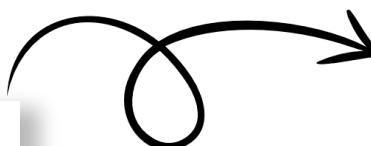
channel	gross_sales_mln	percentage
Direct	\$257.53M	15.47%
Distributor	\$188.03M	11.30%
Retailer	\$1,219.08M	73.23%



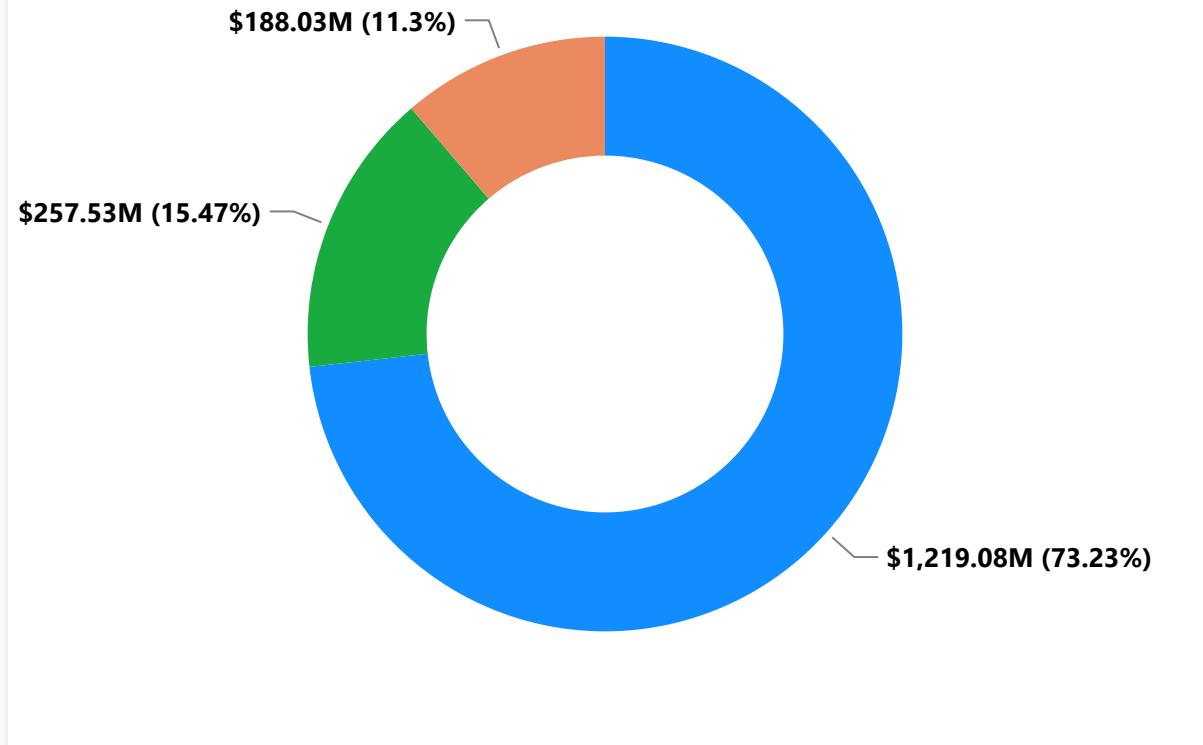
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percentage

channel	gross_sales_mln	percentage
Direct	\$257.53M	15.47%
Distributor	\$188.03M	11.30%
Retailer	\$1,219.08M	73.23%



Gross sales and contribution percentages by
Channels for FY 2021



Insights:

The "**Retailer**" channel played a pivotal role in achieving the company's maximum sales, contributing **73.22%** to the overall sales. In contrast, the "**Distributor**" channel made the smallest contribution, accounting for only **11.31%** of the total 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

Query:

```
WITH TopProducts AS (
  SELECT
    dp.division, fs.product_code, dp.product,
    SUM(fs.sold_quantity) AS total_sold_quantity,
    RANK() OVER (PARTITION BY dp.division
      ORDER BY SUM(fs.sold_quantity) DESC) AS rank_order
  FROM
    fact_sales_monthly fs
  JOIN
    dim_product dp ON fs.product_code = dp.product_code
  WHERE
    fs.fiscal_year = '2021'
  GROUP BY
    dp.division, fs.product_code, dp.product)
SELECT
  division,
  product_code, product, total_sold_quantity, rank_order
FROM
  TopProducts
WHERE
  rank_order <= 3;
```

Query Output:

division	product_code	product	rank_order	total_sold_quantity
N & S	A6720160103	AQ Pen Drive 2 IN 1	1	701373
N & S	A6818160202	AQ Pen Drive DRC	2	688003
N & S	A6819160203	AQ Pen Drive DRC	3	676245
P & A	A2319150302	AQ Gamers Ms	1	428498
P & A	A2520150501	AQ Maxima Ms	2	419865
P & A	A2520150504	AQ Maxima Ms	3	419471
PC	A4218110202	AQ Digit	1	17434
PC	A4218110208	AQ Digit	3	17275
PC	A4319110306	AQ Velocity	2	17280

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

Query Output:

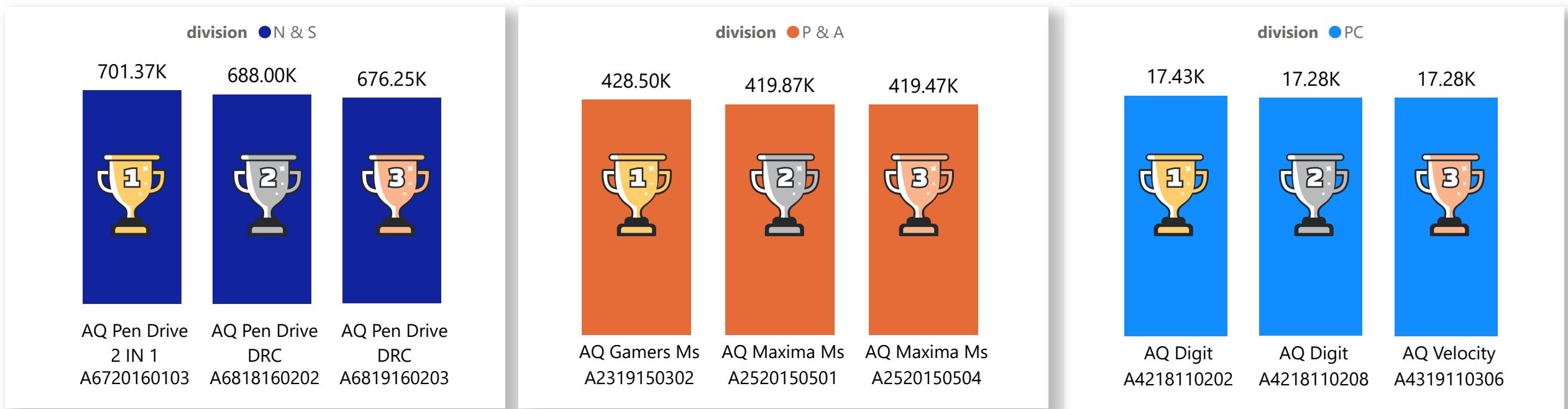
division	product_code	product	rank_order	total_sold_quantity
N & S	A6720160103	AQ Pen Drive 2 IN 1	1	701373
N & S	A6818160202	AQ Pen Drive DRC	2	688003
N & S	A6819160203	AQ Pen Drive DRC	3	676245
P & A	A2319150302	AQ Gamers Ms	1	428498
P & A	A2520150501	AQ Maxima Ms	2	419865
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PC	A4218110202	AQ Digit	1	17434
PC	A4218110208	AQ Digit	3	17275
PC	A4319110306	AQ Velocity	2	17280

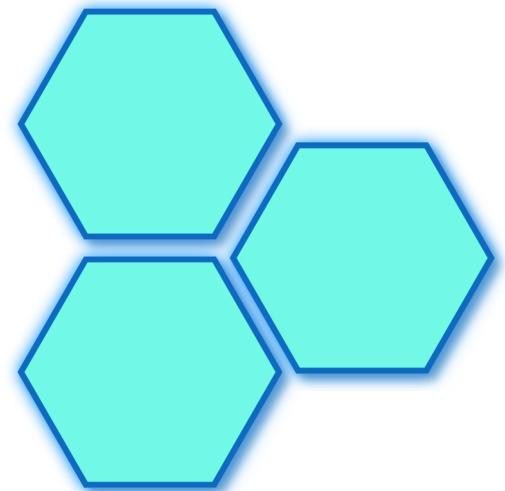
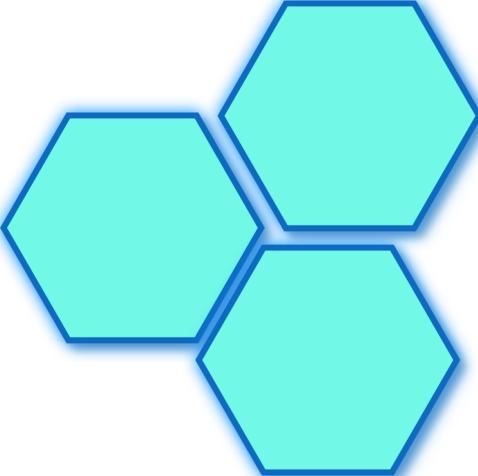
Insights:

Every division has a product with **different variants** that appears **twice** in the top three products by division list



Top 3 highest-selling products by Division for FY 2021





Thank You

