

CONSUMER GOODS AD-HOC INSIGHTS

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INTRODUCTION

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

TASK

The management of Atliq Hardware noticed that they do not get enough insights to make quick and smart data-informed decisions.

Atliqo Hardware wants to expand their data analytics team by adding several junior data analysts.

They wants to ran a SQL query to answer some requests.

Hence, we decided to conduct a SQL challenge and perform 10 ad-hoc analysis for finding more insights through data.

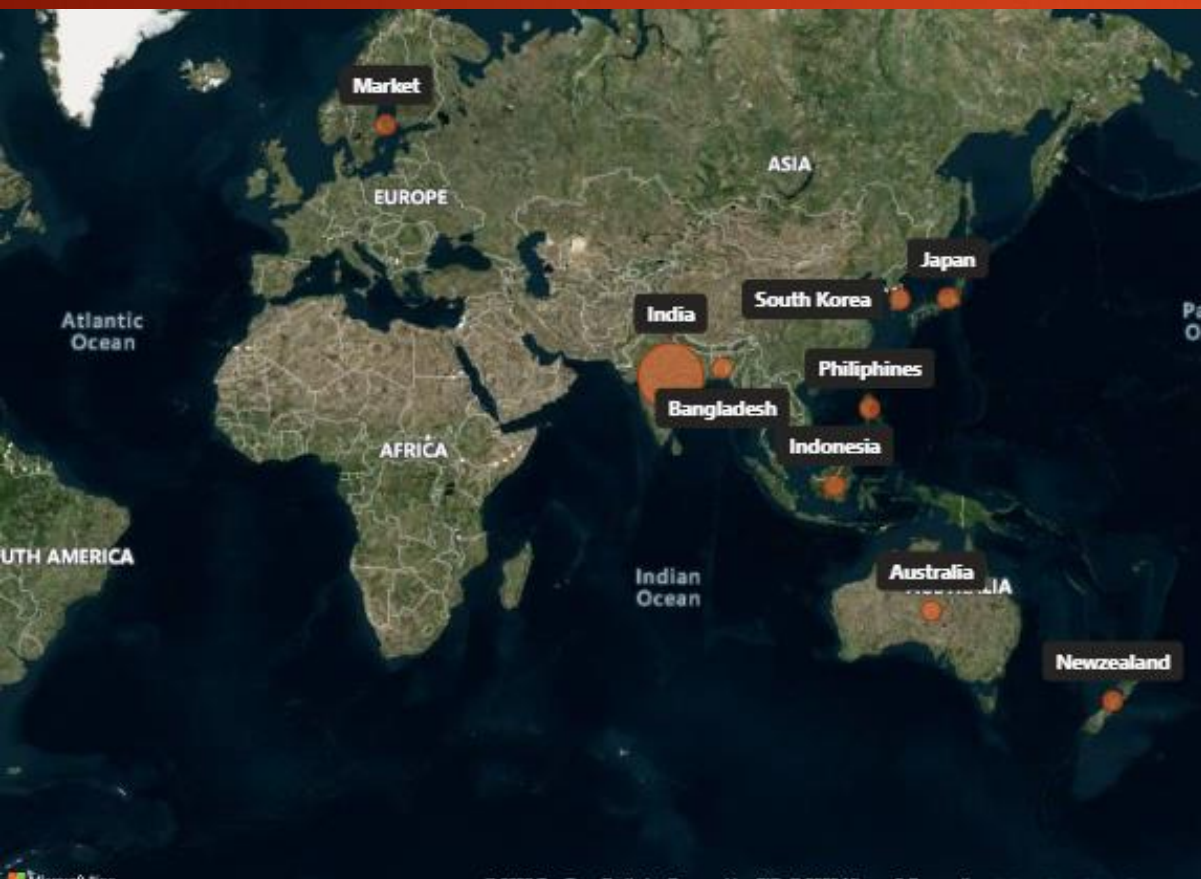
1. Provide the list of markets in which customer "Atliq Exclusive" operates its business in the APAC region.

INPUT QUERY

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

OUTPUT TABLE

Market
India
Indonesia
Japan
Philippines
South Korea
Australia
Newzealand
Bangladesh



- Atliq Exclusive has established its presence in 8 major market in APAC region out of 27 markets.

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 percent_chg

INPUT QUERY

```
WITH unique_products_2020 AS
(SELECT count(distinct(product_code)) AS unique_products_2020
FROM fact_sales_monthly WHERE fiscal_year=2020),

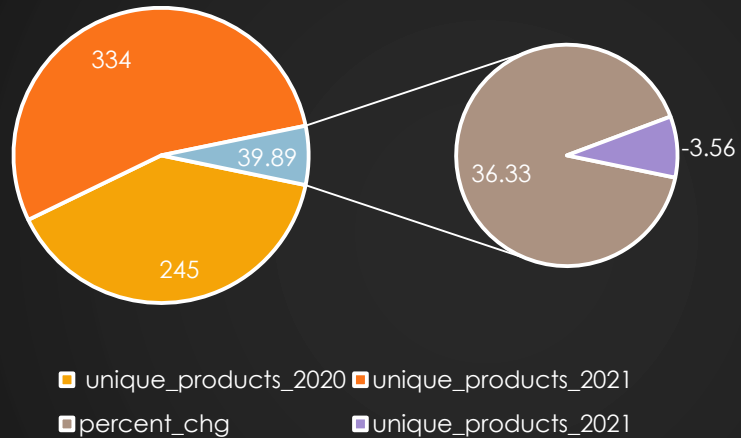
unique_products_2021 AS (SELECT count(distinct(product_code)) AS unique_products_2021
FROM fact_sales_monthly WHERE fiscal_year=2021)

SELECT unique_products_2020,
       unique_products_2021,
       round((((unique_products_2021-unique_products_2020)/unique_products_2020)*100),2) AS percent_chg
FROM unique_products_2020
JOIN unique_products_2021;
```

OUTPUT TABLE

unique_products_2020	unique_products_2021	percent_chg
245	334	36.33

Year wise Unique product %



- Chart shows that 2020 contains 245 unique products
- While 2021 contains 334 types of unique products
- The unique product count percent increased by 36.33 % by 2020 to 2021
- Here we can say that company need to focus on new product innovation

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

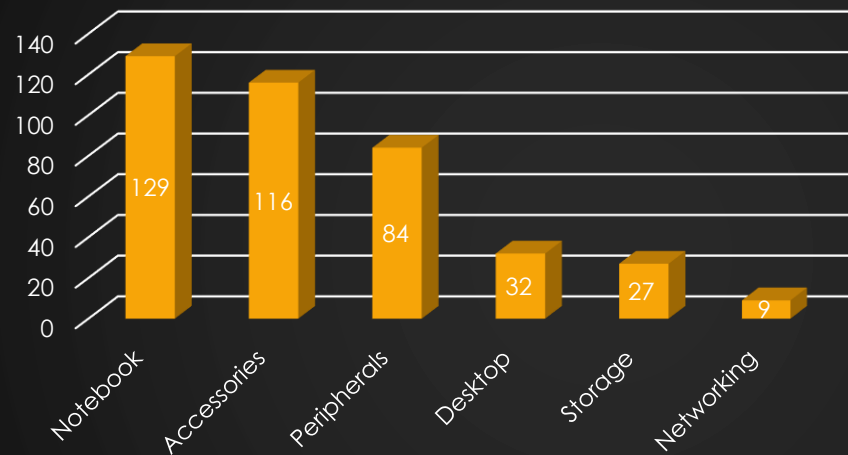
INPUT QUERY

```
SELECT SEGMENT, COUNT(DISTINCT(PRODUCT_CODE)) AS PRODUCT_COUNT  
FROM DIM_PRODUCT  
GROUP BY SEGMENT  
ORDER BY PRODUCT_COUNT DESC;
```

OUTPUT TABLE

SEGMENT	PRODUCT_COUNT
Notebook	129
Accessories	116
Peripherals	84
Desktop	32
Storage	27
Networking	9

PRODUCT_COUNT



- There are 6 segments are present
- The unique product count of “**notebook**” segment is about 129 is the maximum between all segments.
- While “**Desktop**”, “**Storage**”, “**Networking**” has less unique product count so company needs do more production over there.

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

INPUT QUERY

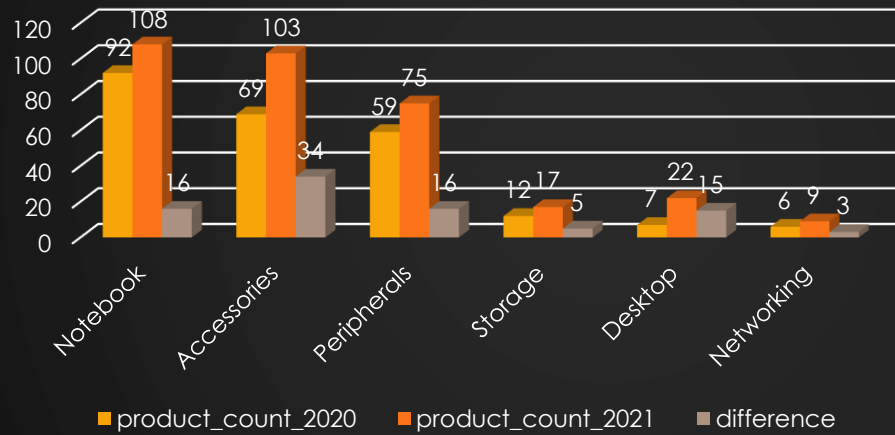
```
WITH unique_2020 AS
(SELECT p.segment, COUNT(DISTINCT(p.product_code)) AS product_count_2020
FROM dim_product AS p INNER JOIN fact_sales_monthly AS s
ON p.product_code=s.product_code
WHERE s.fiscal_year=2020
GROUP BY p.segment
ORDER BY product_count_2020 DESC
),

unique_2021 AS(SELECT p.segment, COUNT(DISTINCT(p.product_code)) AS product_count_2021
FROM dim_product AS p INNER JOIN fact_sales_monthly AS s
ON p.product_code=s.product_code
WHERE s.fiscal_year=2021
GROUP BY p.segment
ORDER BY product_count_2021 DESC)
SELECT a.segment, a.product_count_2020, b.product_count_2021, (b.product_count_2021-a.product_count_2020) AS difference
FROM unique_2020 a JOIN unique_2021 b
ON a.segment = b.segment;
```

OUTPUT TABLE

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

Unique Product by Year



- Accessories produced 34 new products when compared to 2020 this is the highest value of new product produced by a segment
- Notebook has lowest percentage increase

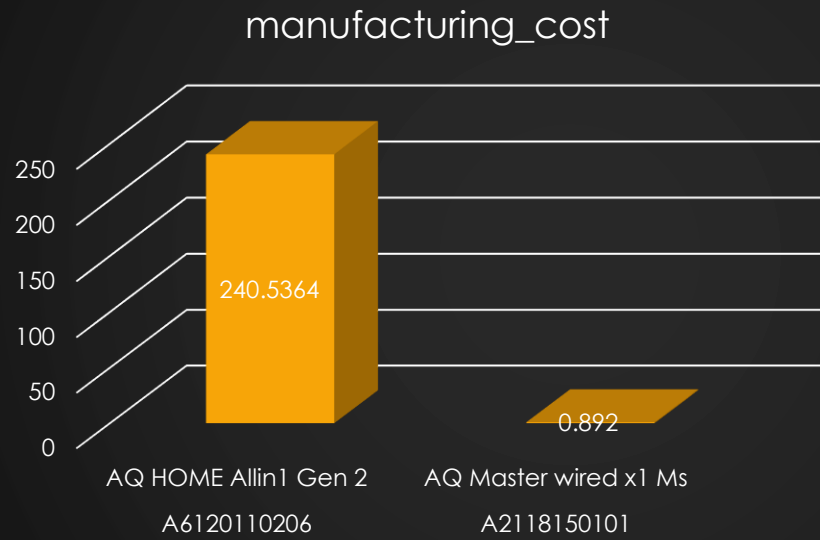
5. Get the products that have the highest and lowest manufacturing costs. The final output should contain these fields, product_code, product, manufacturing_cost

INPUT QUERY

```
SELECT p.product_code, p.product, m.manufacturing_cost
FROM fact_manufacturing_cost AS m INNER JOIN dim_product AS p
ON m.product_code = p.product_code
WHERE m.manufacturing_cost = (SELECT MAX(manufacturing_cost) FROM fact_manufacturing_cost)
UNION
SELECT p.product_code, p.product, m.manufacturing_cost
FROM fact_manufacturing_cost AS m INNER JOIN dim_product AS p
ON m.product_code = p.product_code
WHERE m.manufacturing_cost = (SELECT MIN(manufacturing_cost) FROM fact_manufacturing_cost);
```

OUTPUT TABLE

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



- Maximum cost is \$240.5 and minimum cost is \$ 0.89

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

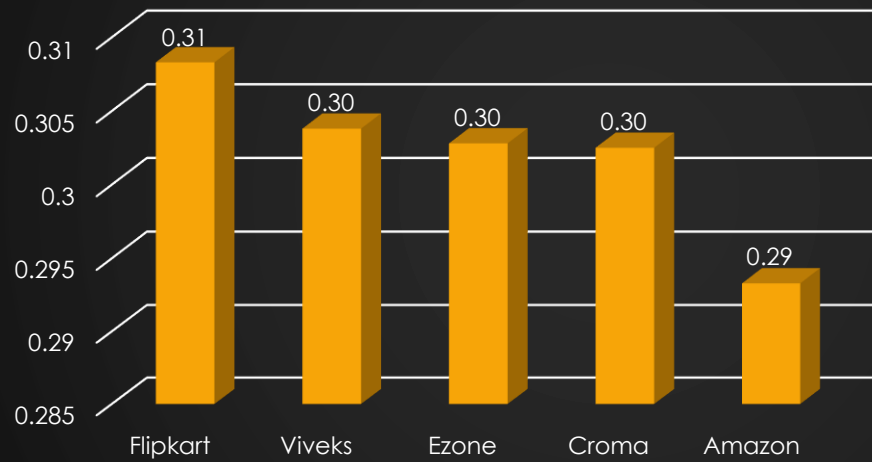
INPUT QUERY

```
SELECT D.CUSTOMER ,F.CUSTOMER_CODE,F.pre_invoice_discount_pct
FROM fact_pre_invoice_deductions AS F INNER JOIN DIM_CUSTOMER AS D
ON F.CUSTOMER_CODE =D.CUSTOMER_CODE
WHERE pre_invoice_discount_pct>(SELECT AVG(pre_invoice_discount_pct) FROM fact_pre_invoice_deductions)
AND FISCAL_YEAR='2021'AND MARKET= 'INDIA'
ORDER BY pre_invoice_discount_pct DESC
LIMIT 5;
```

OUTPUT TABLE

CUSTOMER	CUSTOMER_CODE	pre_invoice_discount_pct
Flipkart	90002009	0.3083
Viveks	90002006	0.3038
Ezone	90002003	0.3028
Croma	90002002	0.3025
Amazon	90002016	0.2933

pre_invoice_discount_pct



- The average pre invoice discount pct for top 5 customers for fiscal year 2021 is about 30.21%
- Flipcart has highest pre invoice discount pct is about 30.83%

7. Get the complete report of the Gross sales amount for the customer “AtliqExclusive” 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

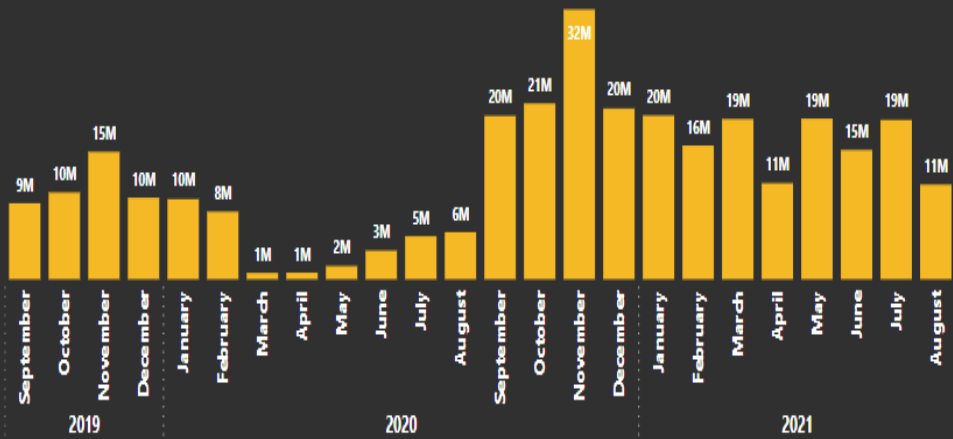
INPUT QUERY

```
SELECT MONTH(s.date) AS month,  
YEAR(s.date) AS year,  
SUM(ROUND((s.sold_quantity*g.gross_price),2)) AS gross_sales_amount  
FROM fact_sales_monthly AS s INNER JOIN fact_gross_price AS g  
ON s.product_code=g.product_code  
INNER JOIN dim_customer AS c  
ON s.customer_code=c.customer_code  
WHERE c.customer = 'atliq exclusive'  
GROUP BY month, year  
ORDER BY year;
```

OUTPUT TABLE

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

Sum of gross_sales_amount by Year and Month



- Atliq Exclusive achieved its highest gross sales amount of 32.25M in November 2020 and its lowest of 0.77M in March 2020.
- Sales decreased between March to August but they began to increase after August.

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

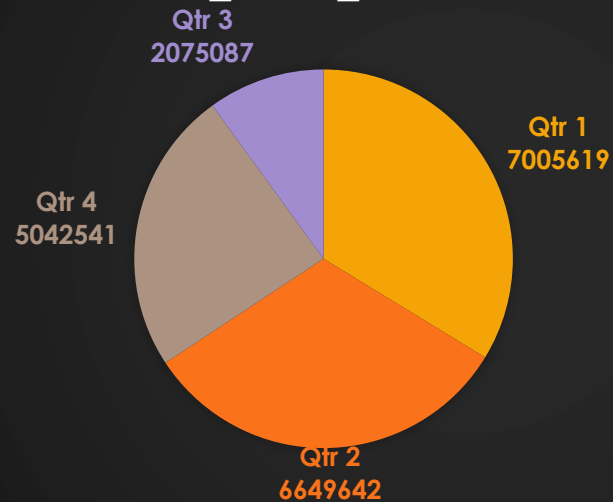
INPUT QUERY

```
SELECT
CASE
    WHEN MONTH(date) IN (9, 10, 11) THEN 'Qtr 1'
    WHEN MONTH(date) IN (12, 1, 2) THEN 'Qtr 2'
    WHEN MONTH(date) IN (3, 4, 5) THEN 'Qtr 3'
    WHEN MONTH(date) IN (6, 7, 8) THEN 'Qtr 4'
    END AS Quarter,
SUM(sold_quantity) AS total_sold_quantity
FROM fact_sales_monthly
WHERE fiscal_year = 2020
GROUP BY Quarter
ORDER BY total_sold_quantity DESC;
```

OUTPUT TABLE

Quarter	total_sold_quantity
Qtr 1	7005619
Qtr 2	6649642
Qtr 4	5042541
Qtr 3	2075087

TOTAL_SOLD_QUANTITY



- In 2020, Quarter 1 had the maximum quantity sold of 7.01M, while Quarter 3 had the lowest at 2.08M,
- Sales began to decrease in Quarter 3 (March to May) but began to recover in the fourth quarter.

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

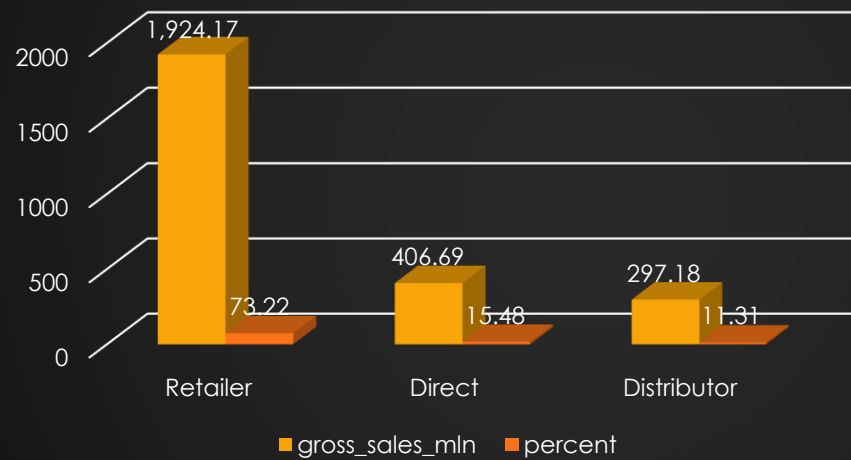
INPUT QUERY

```
WITH gross_sales_cte AS
(
    SELECT c.channel,
    ROUND(SUM((s.sold_quantity * g.gross_price)/1000000),2) AS gross_sales_mln
    FROM fact_sales_monthly AS s
    INNER JOIN fact_gross_price AS g
    ON s.product_code = g.product_code
    INNER JOIN dim_customer AS c
    ON s.customer_code = c.customer_code
    WHERE s.fiscal_year = 2021
    GROUP BY c.channel
    ORDER BY gross_sales_mln DESC
)
SELECT *, gross_sales_mln*100/SUM(gross_sales_mln) over()AS percent
FROM gross_sales_cte;
```

OUTPUT TABLE

channel	gross_sales_mln	percent
Retailer	1924.17	73.216922
Direct	406.69	15.475031
Distributor	297.18	11.308047

CONTRIBUTION



- In FY 2021, retailers were the primary sales channel, accounting for 73.22% of total sales.
- while Direct and Distributor sales represented only a small percentage.

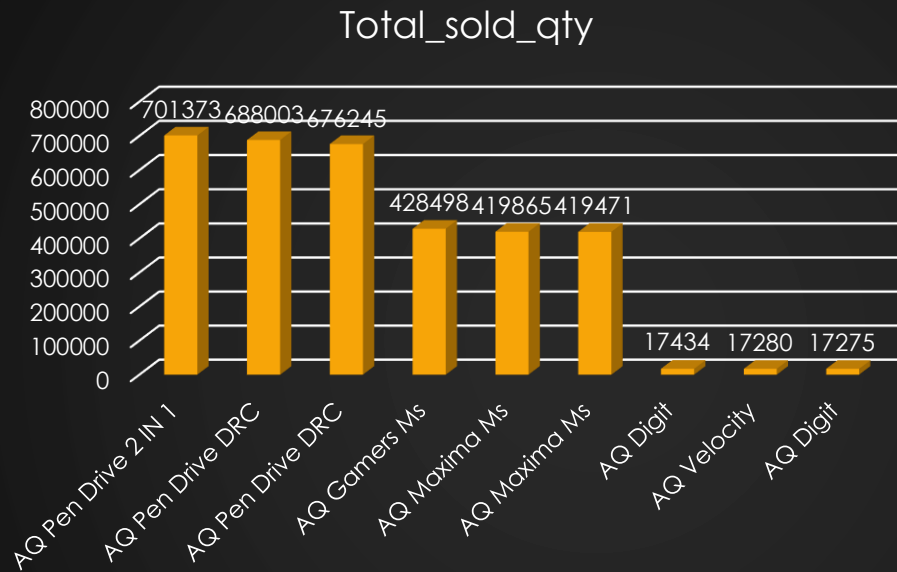
10. Get the Top 3 products in each division that have a high total_sold_quantity in the fiscal_year 2021? The final output contains these fields, division product_code

INPUT QUERY

```
WITH division_sales_cte AS
(
    SELECT p.division, s.product_code, p.product, SUM(s.sold_quantity) AS 'total_sold_qty',
    row_number() OVER (PARTITION BY p.division ORDER BY sum(s.sold_quantity) DESC) AS rank_order
    FROM fact_sales_monthly AS s
    INNER JOIN dim_product AS p
    ON s.product_code = p.product_code
    WHERE s.fiscal_year = 2021
    GROUP BY p.division, s.product_code, p.product
)
SELECT division, product_code, product, total_sold_qty, rank_order
FROM division_sales_cte
WHERE rank_order <= 3;
```

OUTPUT TABLE

division	product_code	product	total_sold_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



- AQ Pen Drive 2 IN 1, AQ Gamers Ms, and AQ Digit are the top-selling products in the N&S, P&A, and PC divisions, respectively based on total quantity sold
- .However, the PC division's sales are lower compared to N&S and P&A

Thank you