AtliQ Hardware Ad-Hoc Insights

CONSUMER GOODS

About AtliQ Hardwares

- Leading computer hardware producer in India, expanded globally.
- Management requires **faster, smarter data-informed decisions**.

Business Need

- Limited insights currently available.
- Data Analytics Director (Tony Sharma) initiated a **SQL Challenge** to assess junior analysts.

Task Performed

- Reviewed **10 ad-hoc business requests** from management.
- Designed and executed **SQL queries** to answer these requests.
- Analyzed query outputs and derived **actionable insights**.

Approach / Methodology

STEP 1
Reviewed 10 ad-hoc requests from management.

STEP 2
Designed SQL queries to answer each request.

STEP 3
Translated query outputs into visuals and insights.

1. Markets of AtliQ Exclusive (APAC)

SQL QUERY

OUTPUT

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

market
▶ Australia
Bangladesh
India
Indonesia
Japan
Newzealand
Philiphines
South Korea

Output to Visual

Insights-:

- AtliQ Exclusive operates in multiple APAC markets, strengthening regional presence.

- Supports better planning for sales, logistics, and marketing focus.

2. % Growth in Unique Products (2020 vs 2021)

SQL QUERY

```sql
WITH yearly_counts AS (
    SELECT fiscal_year, COUNT(DISTINCT product_code) AS unique_products
    FROM fact_sales_monthly
    GROUP BY fiscal_year
),
counts_2020 AS (
    SELECT unique_products AS unique_products_2020
    FROM yearly_counts WHERE fiscal_year=2020
),
counts_2021 AS (
    SELECT unique_products AS unique_products_2021
    FROM yearly_counts WHERE fiscal_year=2021
)
SELECT
    c20.unique_products_2020,
    c21.unique_products_2021,
    ROUND(((c21.unique_products_2021 - c20.unique_products_2020) / c20.unique_products_2020) * 100, 2)
    AS percentage_chg
FROM
    counts_2020 c20,
    counts_2021 c21;
```

OUTPUT

unique_products_2020	unique_products_2021	percentage_chg
245	334	36.33

Output to Visual

unique_products_2020	unique_products_2021	percentage_chg
245	334	36.33

| 245 | 334 | 36.3% ▲ |
| Unique Products 2020 | Unique Products 2021 | Percentage Change |

Insights-:

- Unique products grew **+36.3%** in FY2021 vs FY2020.

- Reflects successful expansion into new products/categories.

3. Product Counts by Segment
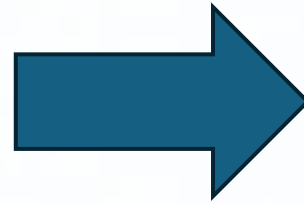
SQL QUERY

```sql
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

Output to Visual

segment	product_count
Notebook	129
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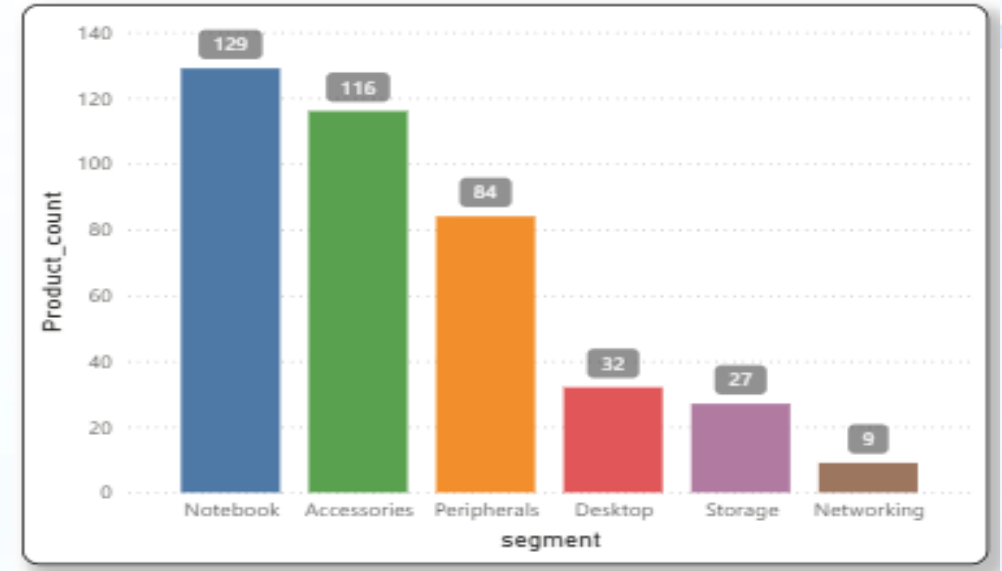
Insights-:

- Notebooks, Accessories & Peripherals = **83% of portfolio.**

- Highlights strong specialization in these core segments.

# 4. Segment-wise Product Growth (2020 vs 2021)

SQL QUERY

```sql
WITH all_segments AS (
    SELECT DISTINCT segment
    FROM dim_product
),
products_2020 AS (
    SELECT dp.segment, COUNT(DISTINCT fsm.product_code) AS product_count_2020
    FROM fact_sales_monthly fsm
    JOIN dim_product dp ON fsm.product_code = dp.product_code
    WHERE fsm.fiscal_year = 2020
    GROUP BY dp.segment
),
products_2021 AS (
    SELECT dp.segment, COUNT(DISTINCT fsm.product_code) AS product_count_2021
    FROM fact_sales_monthly fsm
    JOIN dim_product dp ON fsm.product_code = dp.product_code
    WHERE fsm.fiscal_year = 2021
    GROUP BY dp.segment
)
SELECT als.segment, p20.product_count_2020 AS product_count_2020, p21.product_count_2021 AS product_count_2021,
    (p21.product_count_2021 - p20.product_count_2020) AS difference
FROM all_segments als
LEFT JOIN products_2020 p20 ON als.segment = p20.segment
LEFT JOIN products_2021 p21 ON als.segment = p21.segment
ORDER BY difference DESC;
```

OUTPUT

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

Output to Visual

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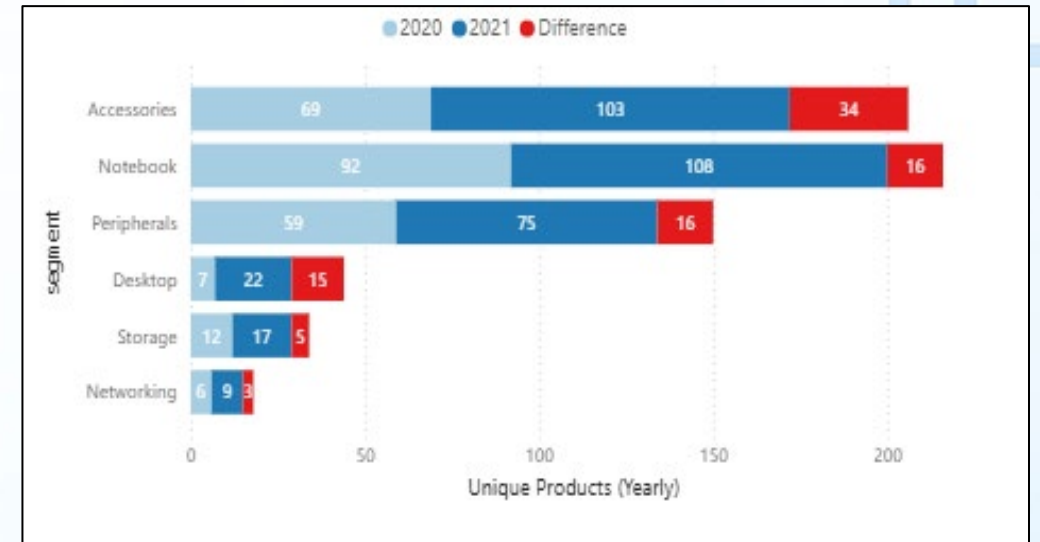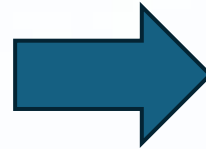
Insights-:

- **Accessories (+34)** saw the highest product growth.

- Other growth: Peripherals (+16), Notebook (+16), Desktop (+15).

5. Highest & Lowest Manufacturing Cost Products

SQL QUERY

```sql
SELECT
    dp.product_code,
    dp.product,
    fmc.manufacturing_cost
FROM dim_product dp
JOIN
    fact_manufacturing_cost fmc ON dp.product_code = fmc.product_code
WHERE fmc.manufacturing_cost = (SELECT MAX(manufacturing_cost) FROM fact_manufacturing_cost)
UNION ALL
SELECT
    dp.product_code,
    dp.product,
    fmc.manufacturing_cost
FROM dim_product dp
JOIN
    fact_manufacturing_cost fmc ON dp.product_code = fmc.product_code
WHERE fmc.manufacturing_cost = (SELECT MIN(manufacturing_cost) FROM fact_manufacturing_cost);
```

OUTPUT

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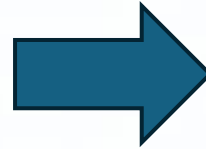
Output to Visual

Insights-:

- Highest cost: **AQ HOME Allin1 Gen 2 ($240.54).**
- Lowest cost: **AQ Master Wired x1 Ms ($0.89).**

6. Top 5 Customers by Avg. Discount (India, FY2021)
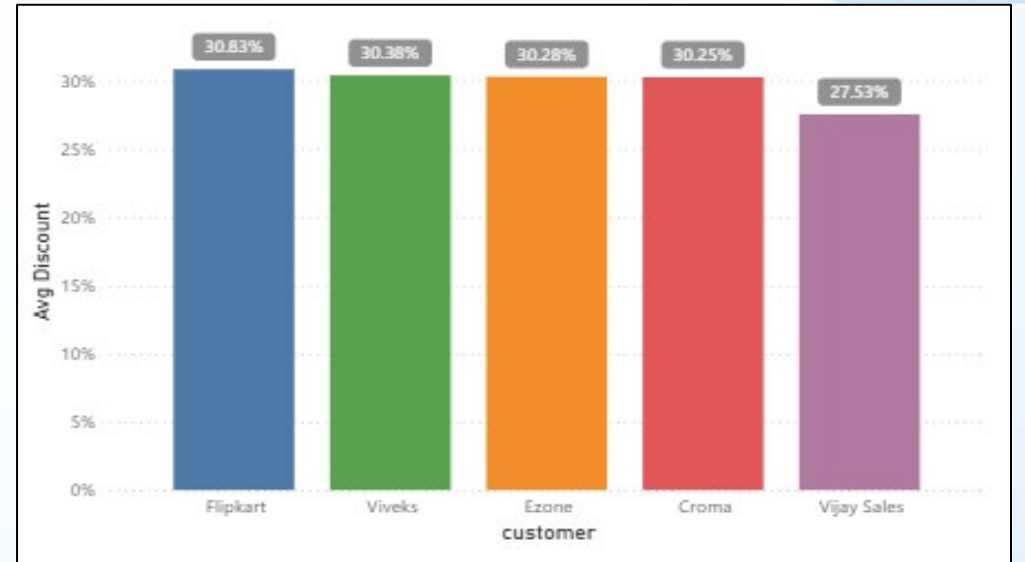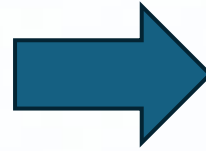
SQL QUERY

```sql
SELECT
    dc.customer_code,
    dc.customer,
    ROUND(AVG(fpid.pre_invoice_discount_pct) * 100, 2) AS average_discount_percentage
FROM
    dim_customer dc
JOIN
    fact_pre_invoice_deductions fpid
    ON dc.customer_code = fpid.customer_code
WHERE
    fpid.fiscal_year = 2021
    AND dc.market = 'India'
GROUP BY
    dc.customer_code,
    dc.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

Output to Visual

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-:

- Flipkart received the highest discount: **30.8%.**

- Top 5 customers all averaged ~30% discounts.

# 7. Monthly Gross Sales of AtliQ Exclusive

SQL QUERY

```sql
SELECT
    MONTHNAME(fsm.date) AS Month,
    YEAR(fsm.date) AS Year,
    ROUND(SUM(fsm.sold_quantity * fgp.gross_price) / 1000000, 2) AS `Gross sales Amount (mln)`
FROM
    dim_customer dc
JOIN
    fact_sales_monthly fsm
    ON dc.customer_code = fsm.customer_code
JOIN
    fact_gross_price fgp
    ON fsm.product_code = fgp.product_code
    AND fsm.fiscal_year = fgp.fiscal_year
WHERE
    dc.customer = 'Atliq Exclusive'
GROUP BY
    YEAR(fsm.date),
    MONTHNAME(fsm.date)
ORDER BY
    YEAR(fsm.date),
    MONTHNAME(fsm.date);
```

OUTPUT

Month	Year	Gross sales Amount (mln)
December	2019	4.83
November	2019	7.52
October	2019	5.14
September	2019	4.50
April	2020	0.40
August	2020	2.79
December	2020	12.94
February	2020	4.00
January	2020	4.74
July	2020	2.55
June	2020	1.70
March	2020	0.38
May	2020	0.78

Output to Visual
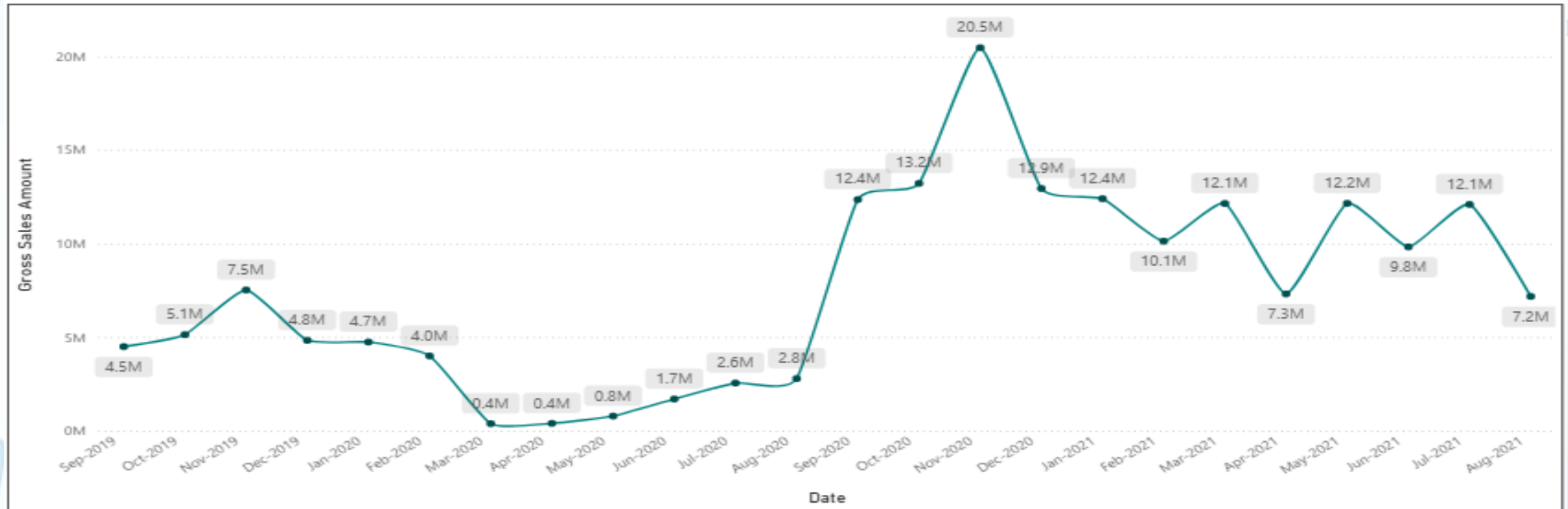
Insights-:

- Sales dipped in Mar–Apr 2020, then recovered strongly.

- Peak: **Nov 2020 > ₹20M** gross sales.

8. Best Quarter by Sales Quantity (2020)
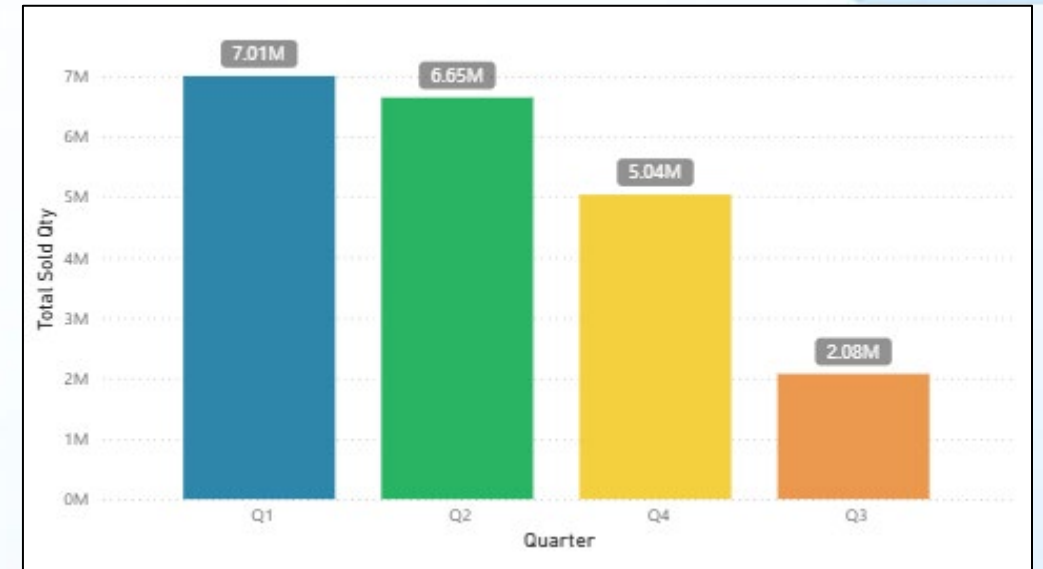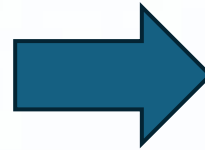
SQL QUERY

OUTPUT

```sql
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`,
    FORMAT(SUM(sold_quantity) / 1000000.0, 2) AS `total_sold_quantity (mln)`
FROM
    fact_sales_monthly
WHERE
    fiscal_year = 2020
GROUP BY
    `Quarter`
ORDER BY
    `total_sold_quantity (mln)` DESC;
```

Quarter	total_sold_quantity (mln)
Q1	7.01
Q2	6.65
Q4	5.04
Q3	2.08

Output to Visual

Quarter	total_sold_quantity (mln)
▶ Q1	7.01
Q2	6.65
Q4	5.04
Q3	2.08

Insights-:

- Strongest quarters: **Q1 (7.01M)** and **Q2 (6.65M)**.

- Weakest: **Q3 (2.08M)** showing sharp drop.

9. Gross Sales by Channel (FY2021)

SQL QUERY

```sql
WITH ChannelGrossSales AS (
    SELECT c.channel, SUM(s.sold_quantity * gp.gross_price) AS total_gross_sales_for_channel
    FROM fact_sales_monthly s
    JOIN dim_customer c ON s.customer_code = c.customer_code
    JOIN fact_gross_price gp ON
        s.product_code = gp.product_code AND
        s.fiscal_year = gp.fiscal_year
    WHERE s.fiscal_year = 2021
    GROUP BY c.channel
)
SELECT
    channel,
    FORMAT(total_gross_sales_for_channel / 1000000, 2) AS gross_sales_mln,
    FORMAT((total_gross_sales_for_channel / SUM(total_gross_sales_for_channel) OVER()) * 100, 2) AS percentage
FROM
    ChannelGrossSales
ORDER BY
    total_gross_sales_for_channel DESC;
```
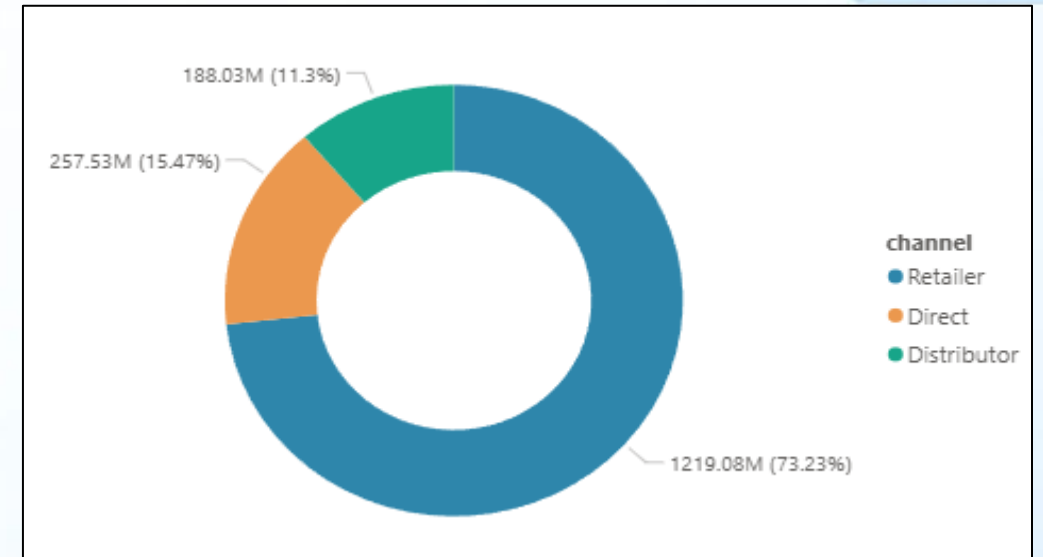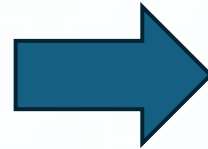
OUTPUT

channel	gross_sales_mln	percentage
Retailer	1,219.08	73.23
Direct	257.53	15.47
Distributor	188.03	11.30

Output to Visual

Insights-:

- **Retailers drove 73.2%** of sales ($1,219M).

- Direct (15.5%) and Distributors (11.3%) lagged behind.

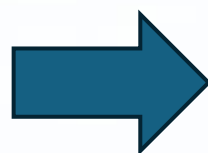# 10. Top 3 Products per Division (FY2021)

SQL QUERY

```sql
WITH ProductSales AS (
    SELECT dp.division, dp.product_code, dp.product, SUM(fsm.sold_quantity) AS total_sold_quantity
    FROM fact_sales_monthly fsm
    JOIN dim_product dp ON fsm.product_code = dp.product_code
    WHERE fsm.fiscal_year = 2021
    GROUP BY dp.division, dp.product_code, dp.product
),
RankedProductSales AS (
    SELECT division, product_code, product, total_sold_quantity,
        DENSE_RANK() OVER (PARTITION BY division ORDER BY total_sold_quantity DESC) AS rank_order
    FROM ProductSales
)
SELECT division, product_code, product, total_sold_quantity, rank_order
FROM
    RankedProductSales
WHERE
    rank_order <= 3
ORDER BY
    division,
    rank_order;
```

OUTPUT

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

Output to Visual

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

Division	Product Code	Product	Total Sold Quantity	Rank
N & S	A6720160103	AQ Pen Drive 2 IN 1	701.37K	1
N & S	A6818160202	AQ Pen Drive DRC	688.00K	2
N & S	A6819160203	AQ Pen Drive DRC	676.25K	3
P & A	A2319150302	AQ Gamers Ms	428.50K	1
P & A	A2520150501	AQ Maxima Ms	419.87K	2
P & A	A2520150504	AQ Maxima Ms	419.47K	3
PC	A4218110202	AQ Digit	17.43K	1
PC	A4218110208	AQ Digit	17.28K	3
PC	A4319110306	AQ Velocity	17.28K	2

Insights-:

- 'N & S' and 'P & A' led by **AQ Pen Drive** and **AQ Gamers/Maxima Ms.**
- PC division leaders: **AQ Digit** and **AQ Velocity** (smaller scale).

Executive Summary – Key Takeaways

- 📈 **+36.3% growth** in unique products (2021 vs 2020), showing strong product expansion.

- 🖥 **Notebooks, Accessories & Peripherals** = **83%** of portfolio, highlighting core focus areas.

- 🛒 **Retailer channel dominates with 73% of gross sales** in FY2021 → dependency risk.

- 💰 **High-cost product (AQ HOME Allin1) vs low-cost product (AQ Master Wired)** reveal opportunities for margin optimization.

- ⭐ **Top 3 products per division (FY2021)** highlight sales leaders → key for inventory & marketing strategy.