Ad_Hoc Insights

Consumer Goods

AtliQ Hardware

Gowhar Ahmad Dar

AGENDA

1. Background/Context
2. Getting familiar with Atliq’s Business – Their Markets and Product lines
3. Getting familiar with the input data and Tools
4. Ad-hoc requests along with the queried results, visualizations and Insights

BACKGROUND/CONTEXT

Our Company
Atliq Hardwares (imaginary company) – One of the leading computer hardware producers in India.

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

Problem
There are 10 ad-hoc requests for which the company needs insights.

Approach
Run a SQL query to answer these requests. Convert it into visualizations and present the Insights to the top-level management.

Getting familiar with Atliq's Business –Their Markets and Product lines

Company Details

AtliQ Hardware is a computer hardware and accessory manufacturer.

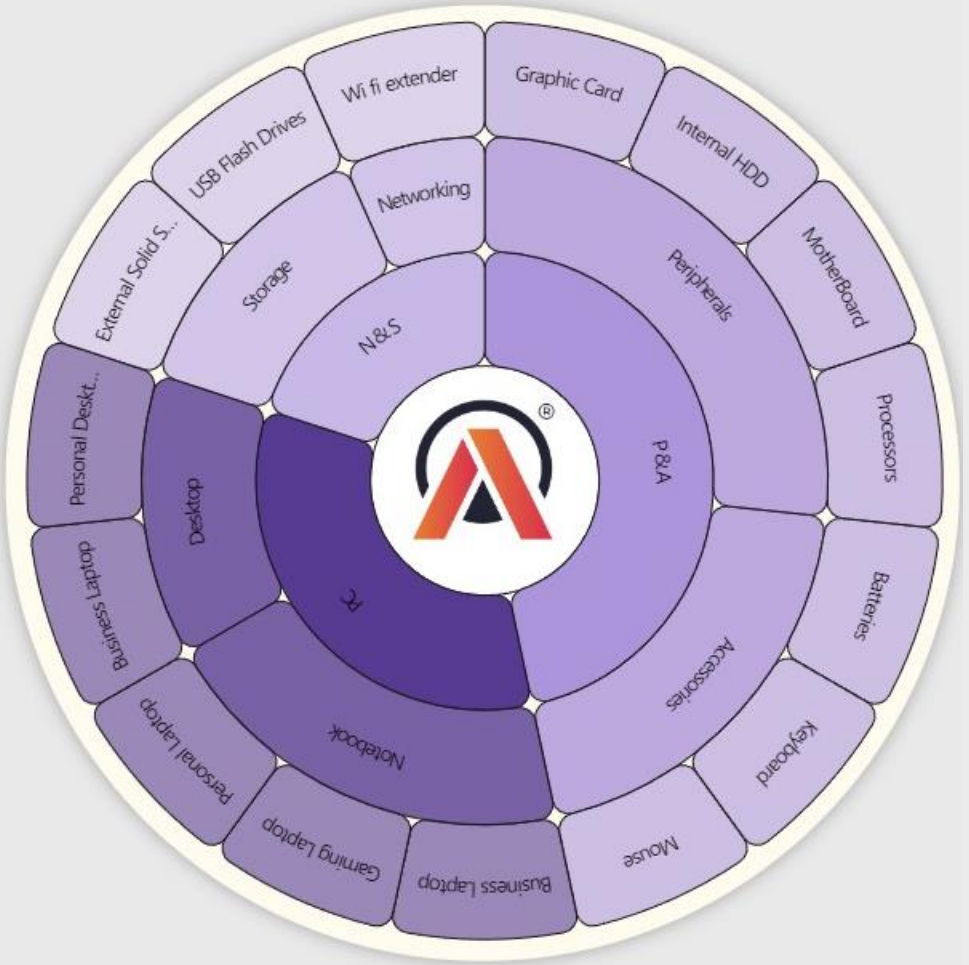
FISCAL YEAR

SEPTEMBER 2019 – AUGUST 2020

FY 2020

SEPTEMBER 2020 – AUGUST 2021

FY 2021



Outer Circle: Category

Outer Circle: Category

Inner Circle: Division

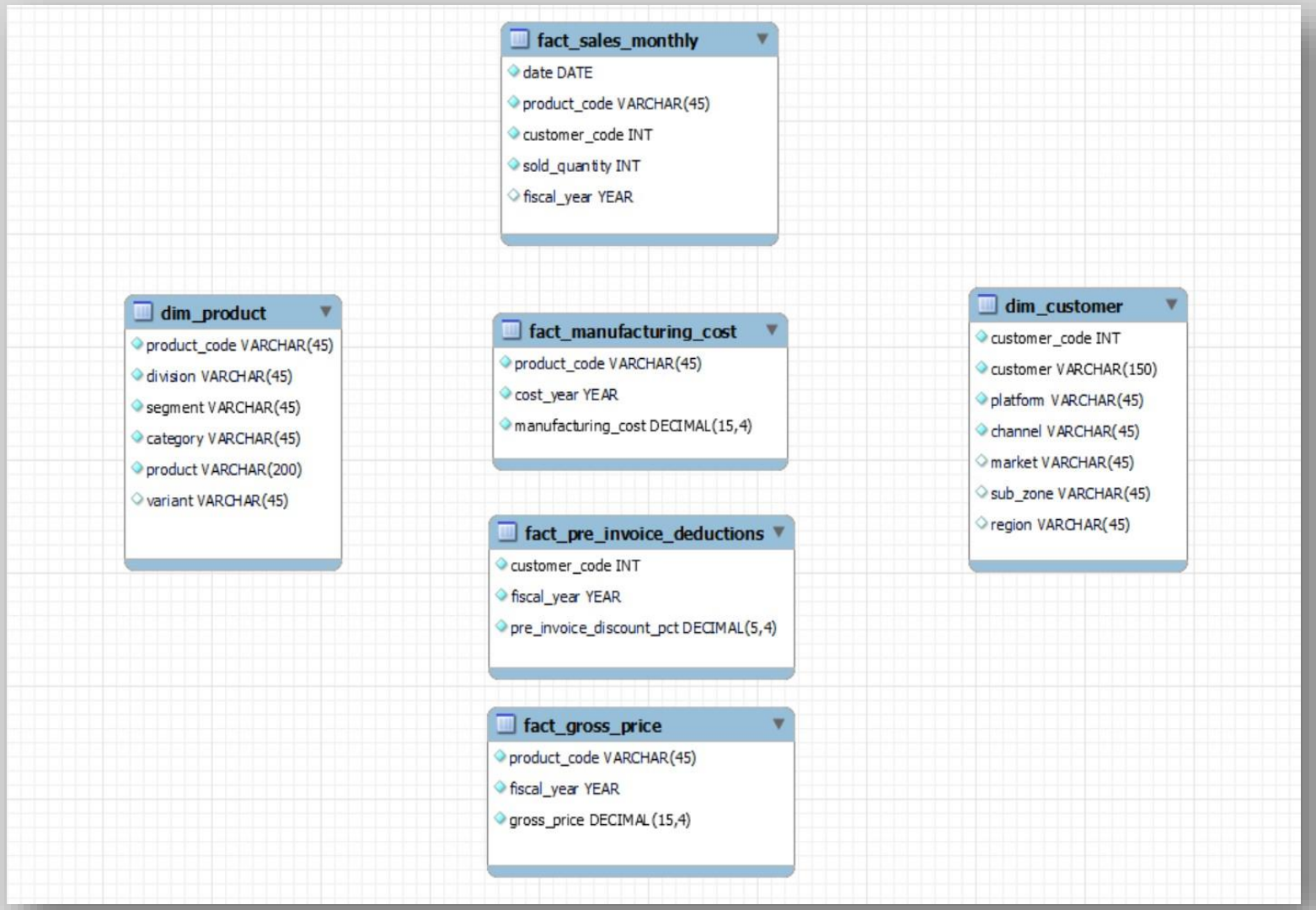
"DSC"

Getting familiar with the input data and Tools

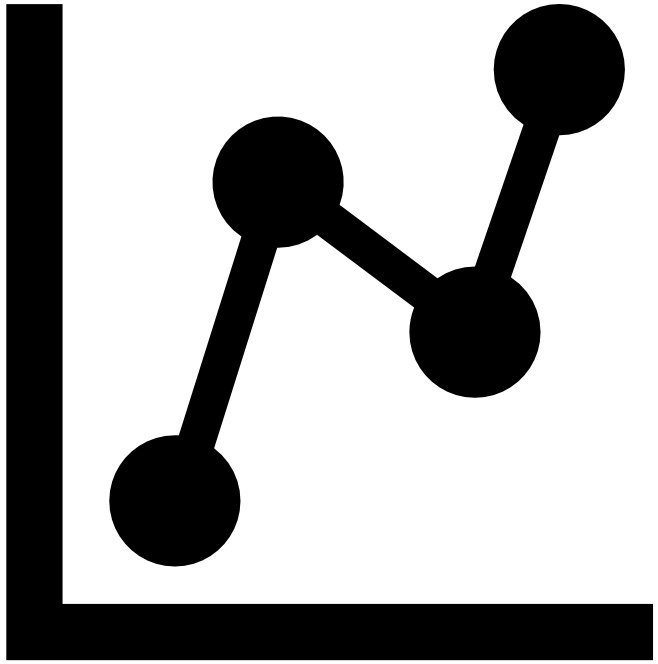
- Input data consists of sales data for FY 2020 and FY 2021, along with different other dimension tables like customer details, product details, etc.
- For Analysis and Visualization

MySQL

Power BI



Ad-hoc requests, queried results, Insights and visualization



REQUEST 1:

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

Query & Output

```
1  /*1. Provide the list of markets in which customer "Atliq Exclusive" operates its
2  business in the APAC region.*/
3
4  SELECT market FROM dim_customer
5  WHERE customer = 'Atliq Exclusive' AND region = 'APAC'
6  GROUP BY market
7  ORDER BY market ;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

market
Australia
Bangladesh
India
Indonesia
Japan
Newzealand
Philiphines
South Korea

Insights

In the APAC region, our Exclusive store has established its presence in 8 major markets.

REQUEST 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

Query & Output

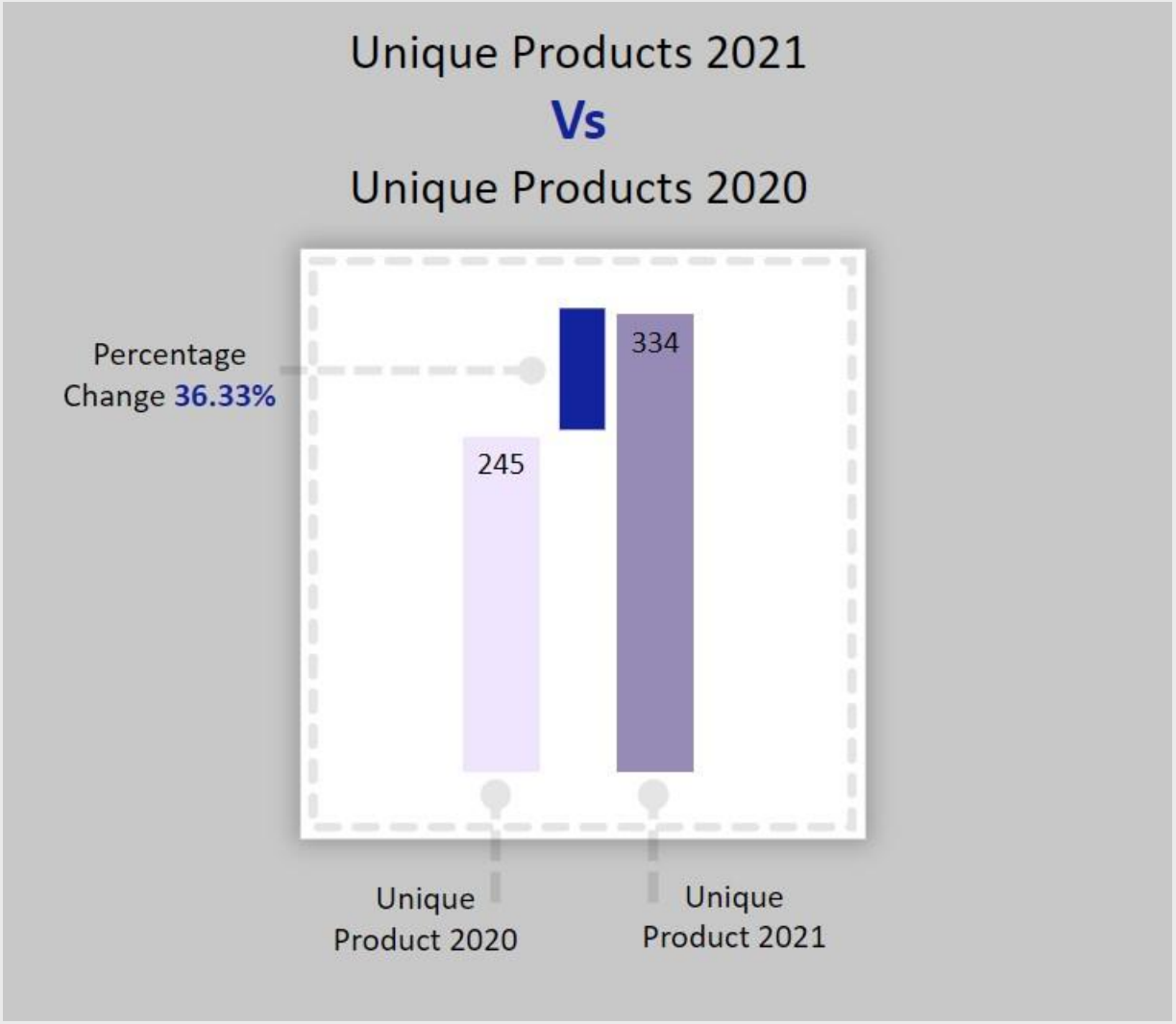
```
1  /*2. What is the percentage of unique product increase in 2021 vs. 2020? The
2  final output contains these fields,
3  unique_products_2020
4  unique_products_2021
5  percentage_chg*/
6
7  SELECT X.A AS unique_product_2020, Y.B AS unique_products_2021, ROUND((B-A)*100/A, 2) AS percentage_chg
8  FROM
9      (
10     (SELECT COUNT(DISTINCT(product_code)) AS A FROM fact_sales_monthly
11     WHERE fiscal_year = 2020) X,
12     (SELECT COUNT(DISTINCT(product_code)) AS B FROM fact_sales_monthly
13     WHERE fiscal_year = 2021) Y
14     )
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

unique_product_2020	unique_products_2021	percentage_chg
245	334	36.33

Insights

It’s a good sign that we are continuously innovating and introducing new products to the market. **In FY 2020, we had a total of 245 products**, but **in FY 2021, our count increased by 36% to 334 products.**



REQUEST 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 & Output

```
1  /*3. Provide a report with all the unique product counts for each segment and
2  sort them in descending order of product counts. The final output contains
3  2 fields,
4  segment
5  product_count*/
6
7  SELECT segment, COUNT(DISTINCT(product_code)) AS product_count FROM dim_product
8  GROUP BY segment
9  ORDER BY product_count DESC ;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

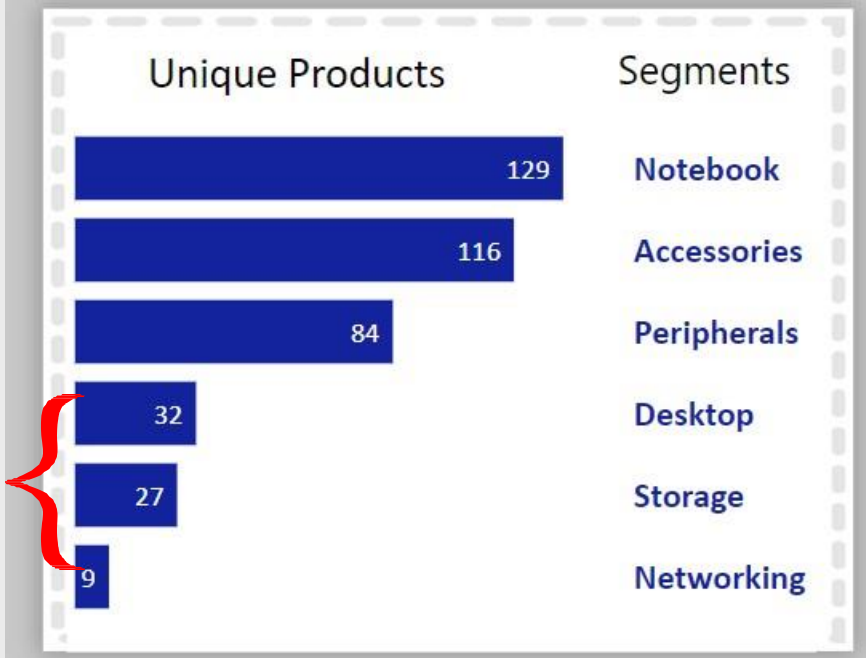
segment	product_count
Notebook	129
Accessories	116
Peripherals	84
Desktop	32
Storage	27
Networking	9

Insights

Segments: notebooks, accessories, and peripherals are showing significant manufacturing growth as compared to desktops, storage, and networking.

Notebooks, accessories, and peripherals constitute **83%** of the total manufactured product.

Unique **product counts** for each **segment**



Alarming

Segment	AVG MC	AVG GS	Gross Margin
Storage	$897.70	$2,986.82	69.94%
Peripherals	$540.92	$1,814.41	70.19%
Notebook	$674.68	$2,255.44	70.09%
Networking	$1,473.32	$4,953.04	70.25%
Desktop	$767.44	$2,553.72	69.95%
Accessories	$543.74	$1,816.42	70.07%

REQUEST 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 & Output

```
/*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 AS A , COUNT(DISTINCT(FS.product_code)) AS B
    FROM dim_product P, fact_sales_monthly FS
    WHERE P.product_code = FS.product_code
    GROUP BY FS.fiscal_year, P.segment
    HAVING FS.fiscal_year = "2020"),
CTE2 AS
    (
    SELECT P.segment AS C , COUNT(DISTINCT(FS.product_code)) AS D
    FROM dim_product P, fact_sales_monthly FS
    WHERE P.product_code = FS.product_code
    GROUP BY FS.fiscal_year, P.segment
    HAVING FS.fiscal_year = "2021"
    )

SELECT CTE1.A AS segment, CTE1.B AS product_count_2020, CTE2.D AS product_count_2021, (CTE2.D-CTE1.B) AS difference
FROM CTE1, CTE2
WHERE CTE1.A = CTE2.C ;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

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

Insights

Accessories had the largest increase in production.

Storage and networking are experiencing slower production growth than other segments.

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

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 ▲

REQUEST 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 & Output

```
1  /*5. Get the products that have the highest and lowest manufacturing costs.
2  The final output should contain these fields,
3  product_code
4  product
5  manufacturing_cost*/
6
7  SELECT F.product_code, P.product, F.manufacturing_cost
8  FROM fact_manufacturing_cost F JOIN dim_product P
9  ON F.product_code = P.product_code
10 WHERE manufacturing_cost
11 IN (
12     SELECT MAX(manufacturing_cost) FROM fact_manufacturing_cost
13     UNION
14     SELECT MIN(manufacturing_cost) FROM fact_manufacturing_cost
15     )
16 ORDER BY manufacturing_cost DESC ;
17
```

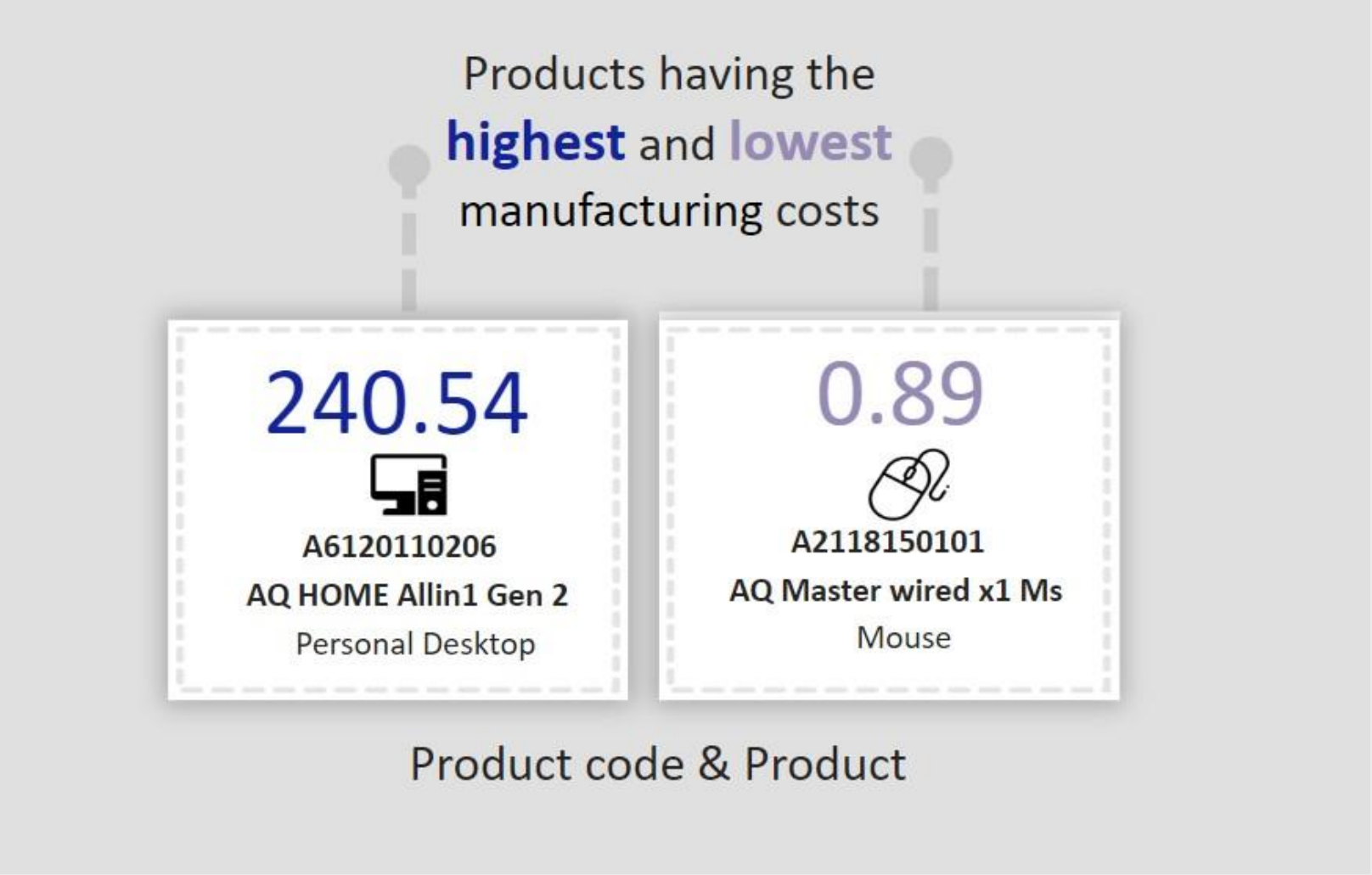
Result Grid | Filter Rows: | Export: | Wrap Cell Content:

product_code	product	manufacturing_cost
A6121110208	AQ HOME Allin1 Gen 2	263.4207
A2118150101	AQ Master wired x1 Ms	0.8654

Insights

Mouse: **AQ Master wired x1 Ms (Variant: Standard 1)** has the lowest manufacturing cost.

Personal Desktop: **AQ Home Allin1 Gen2 (Variant: Plus 3)** has the highest manufacturing cost.



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. The final output contains these fields:

customer_code
customer
average_discount_percentage

Query & Output

```sql
/*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*/

WITH TBL1 AS
(SELECT customer_code AS A, AVG(pre_invoice_discount_pct) AS B FROM fact_pre_invoice_deductions
WHERE fiscal_year = '2021'
GROUP BY customer_code),
     TBL2 AS
(SELECT customer_code AS C, customer AS D FROM dim_customer
WHERE market = 'India')

SELECT TBL2.C AS customer_code, TBL2.D AS customer, ROUND (TBL1.B, 4) AS average_discount_percentage
FROM TBL1 JOIN TBL2
ON TBL1.A = TBL2.C
ORDER BY average_discount_percentage DESC
LIMIT 5
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

customer_code	customer	average_discount_percentage
90002009	Flipkart	0.3083
90002006	Viveks	0.3038
90002003	Ezone	0.3028
90002002	Croma	0.3025
90002016	Amazon	0.2933

Insights

In 2021, **we offered nearly equal pre-invoice discount percentages** to each of **our top 5 customers,** given that **Flipkart** is the most discounted customer in the Indian market, which equals **30.83%.**

REQUEST 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

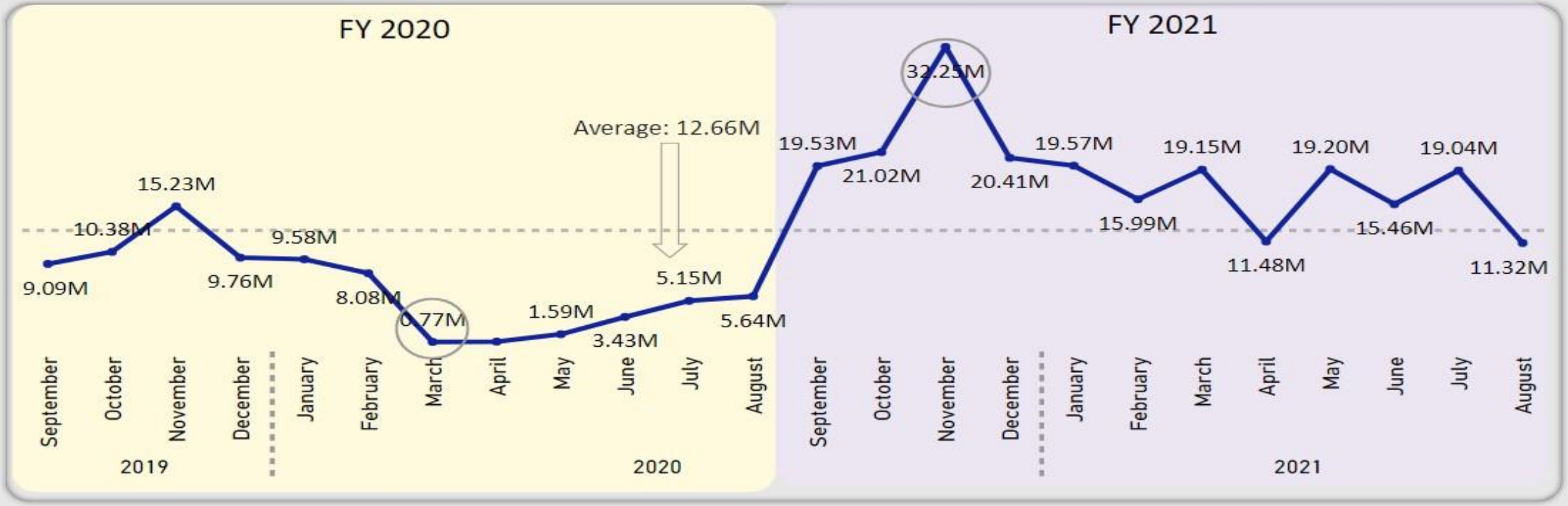
Query & Output

```
1  /*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
2  high-performing months and take strategic decisions.The final report contains these columns: Month , Year , Gross sales Amount*/
3  SELECT CONCAT(MONTHNAME(FS.date), ' (', YEAR(FS.date), ')') AS 'Month', FS.fiscal_year,
4         ROUND(SUM(G.gross_price*FS.sold_quantity), 2) AS Gross_sales_Amount
5  FROM fact_sales_monthly FS JOIN dim_customer C ON FS.customer_code = C.customer_code
6                             JOIN fact_gross_price G ON FS.product_code = G.product_code
7  WHERE C.customer = 'Atliq Exclusive'
8  GROUP BY  Month, FS.fiscal_year
9  ORDER BY FS.fiscal_year ;
```

months	year	gross_sales
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

Insights

For Atliq Exclusive, **November 2020** marked the **highest sales,** and **March 2020** marked the **lowest gross sales**. It's very evident that the **lower sales between March and August** are because of **COVID-19**. However, it's a very good sign that the **sales increased quickly after August** and reached the highest level since the last two years in November.



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

REQUEST 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 & Output

```sql
/*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 date BETWEEN '2019-09-01' AND '2019-11-01' then 1
    WHEN date BETWEEN '2019-12-01' AND '2020-02-01' then 2
    WHEN date BETWEEN '2020-03-01' AND '2020-05-01' then 3
    WHEN date BETWEEN '2020-06-01' AND '2020-08-01' then 4
    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
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Quarters	total_sold_quantity
1	7005619
2	6649642
4	5042541
3	2075087

Insights

This again complements the previous insight. That is the effect of COVID-19 on our sales. **The sold quantity decreased in quarter 3 of FY 2020, which was actually March, April, and May when COVID-19 was at its peak.**

But we started recovering very early despite the continuance of the pandemic. This **early recovery during quarter 4 is probably because of the increased need for hardware like desktops and notebooks as majority of the students began or continued to do their coursework online during this time**, and there was a huge demand for computer accessories during this period.

REQUEST 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 & Output

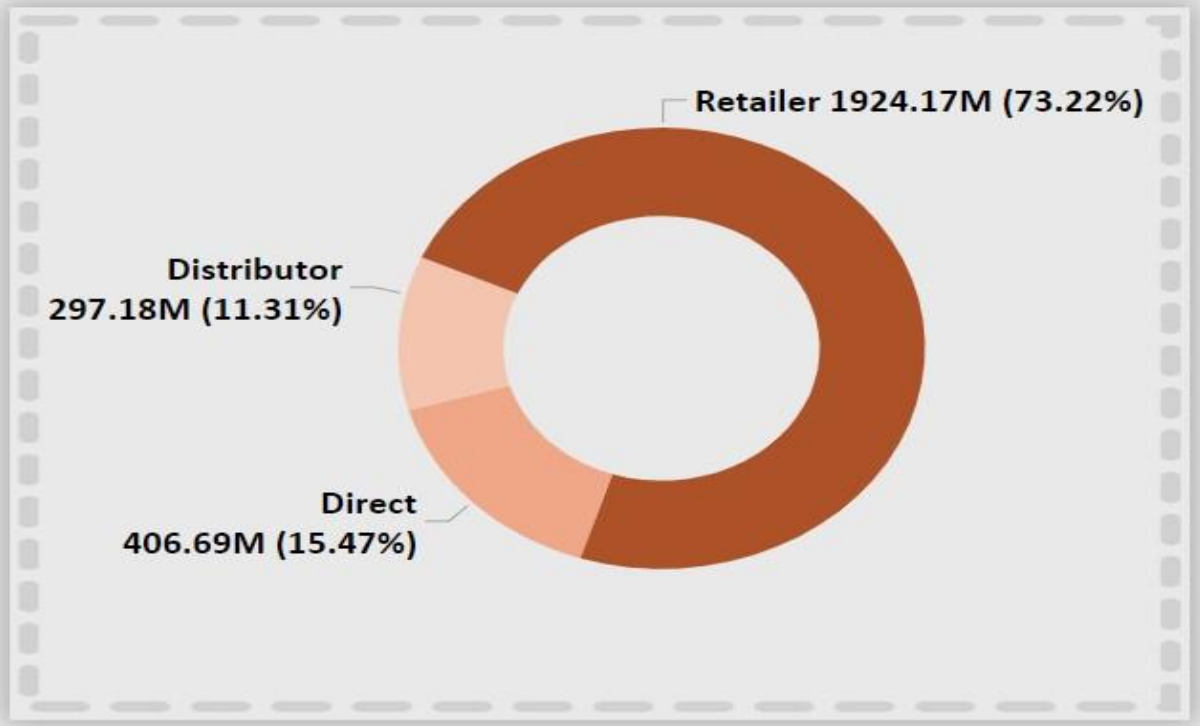
```sql
/*9. Which channel helped to bring more gross sales in the fiscal year 2021 and the percentage of contribution? The final output contains these fields,
channel
gross_sales_mln
percentage*/

WITH Output AS
(
SELECT C.channel,
       ROUND(SUM(G.gross_price*FS.sold_quantity/1000000), 2) AS Gross_sales_mln
FROM fact_sales_monthly FS JOIN dim_customer C ON FS.customer_code = C.customer_code
                           JOIN fact_gross_price G ON FS.product_code = G.product_code
WHERE FS.fiscal_year = 2021
GROUP BY channel)
SELECT channel, CONCAT(Gross_sales_mln,' M') AS Gross_sales_mln , CONCAT(ROUND(Gross_sales_mln*100/total , 2), ' %') AS percentage
FROM
(
(SELECT SUM(Gross_sales_mln) AS total FROM Output) A,
(SELECT * FROM Output) B
)
ORDER BY percentage DESC
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

channel	Gross_sales_mln	percentage
Retailer	3708.46 M	73.21 %
Direct	784.14 M	15.48 %
Distributor	572.86 M	11.31 %

Gross sales and contribution percentages by **Channels** for **FY 2021**



Insights

The majority of our sales took place **via retailers**, which is **73.22%** of the total sales. Only a very small percentage of our sales happened through direct and distributor channels.

REQUEST 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

```sql
/*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, divisio ,product_code , product , total_sold_quantity , rank_order*/
WITH Output1 AS
(SELECT P.division, FS.product_code, P.product, SUM(FS.sold_quantity) AS Total_sold_quantity
FROM dim_product P JOIN fact_sales_monthly FS
ON P.product_code = FS.product_code
WHERE FS.fiscal_year = 2021
GROUP BY  FS.product_code, division, P.product),
Output2 AS
(SELECT division, product_code, product, Total_sold_quantity,
        RANK() OVER(PARTITION BY division ORDER BY Total_sold_quantity DESC) AS 'Rank_Order'
FROM Output1)
 SELECT Output1.division, Output1.product_code, Output1.product, Output2.Total_sold_quantity, Output2.Rank_Order
 FROM Output1 JOIN Output2
 ON Output1.product_code = Output2.product_code
WHERE Output2.Rank_Order IN (1,2,3)
```

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

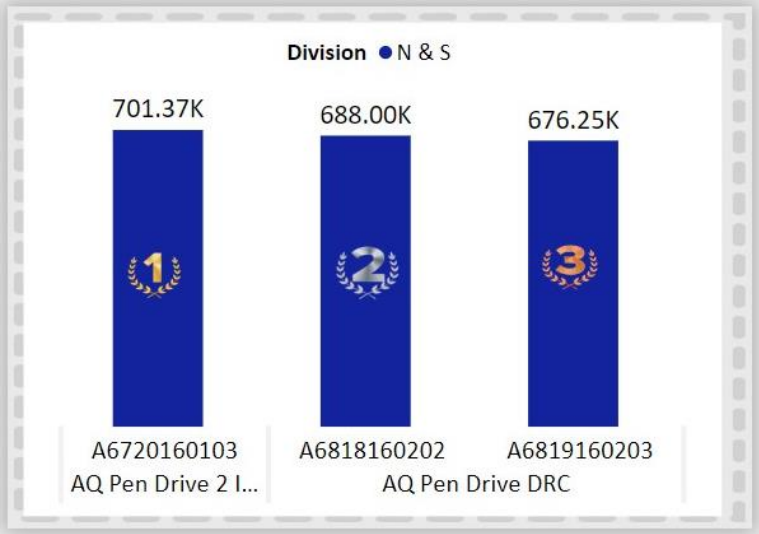
Insights

The top 3 selling products in N&S were **pen drives,** which were around **7 lakh in quantity.**

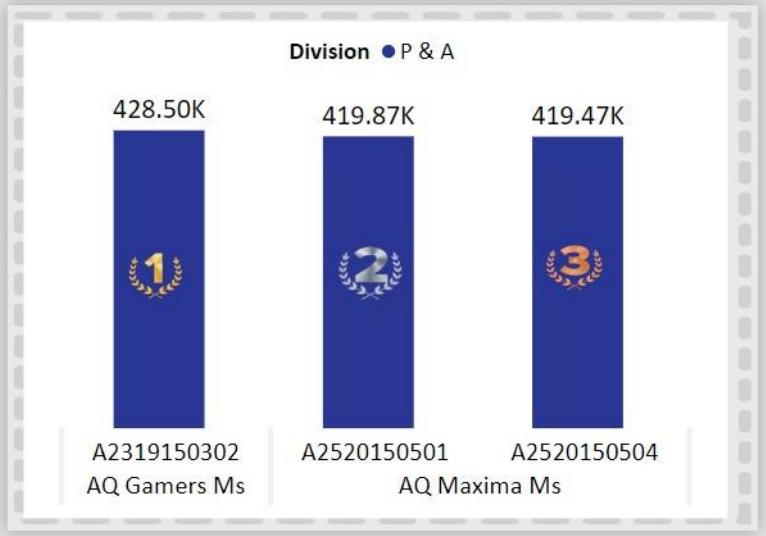
The top 3 selling products in P&A were **mouse,** which were around **4 lakh in quantity.**

The top 3 selling products in PC were **personal laptops,** which were around **17000 in quantity.**

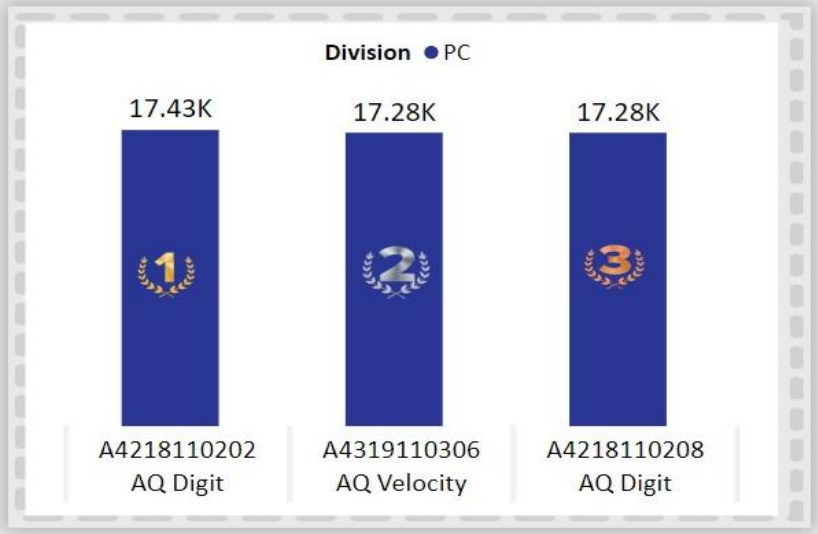
Top 3 highest-selling products by **Division** for **FY 2021**

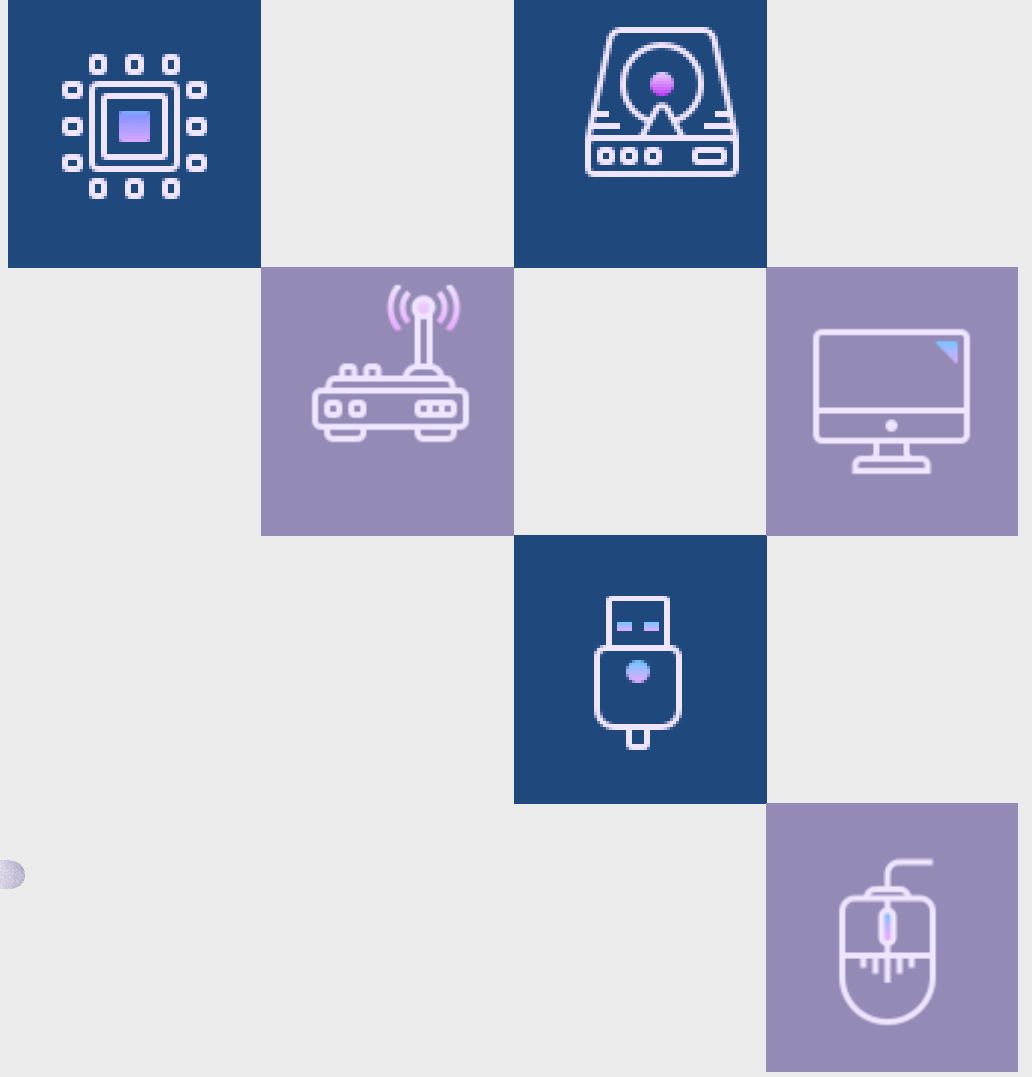


Top 3 highest-selling products by **Division** for **FY 2021**



Top 3 highest-selling products by **Division** for **FY 2021**





END

THANK YOU!

AtliQ Hardware