



Consumer Goods Ad_Hoc
Insights

Agenda

1 About Atliq Hardware

2 Getting familiar with Atliq's Business
and Product line

3 Getting familiar with Input Data

4 Ad-hoc requests with queried results,
visualization and insights

About Us:



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



Context

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 SQL query to answer ad-hoc requests. Convert the results into visualization and present the insights to top-level management

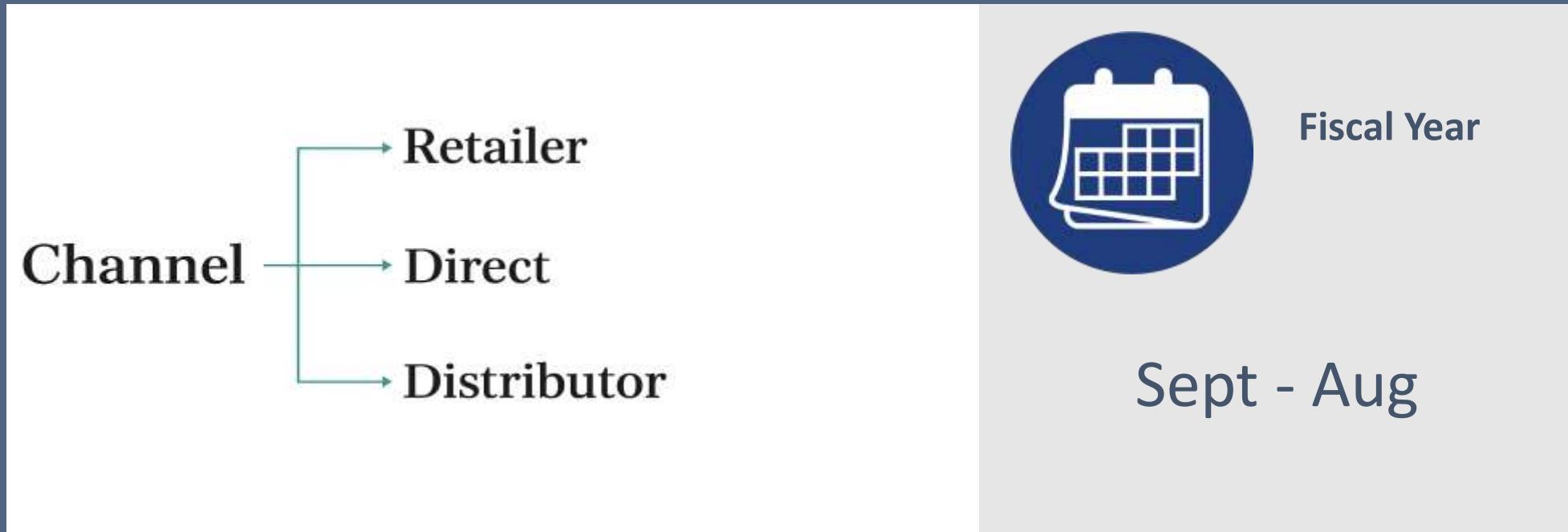
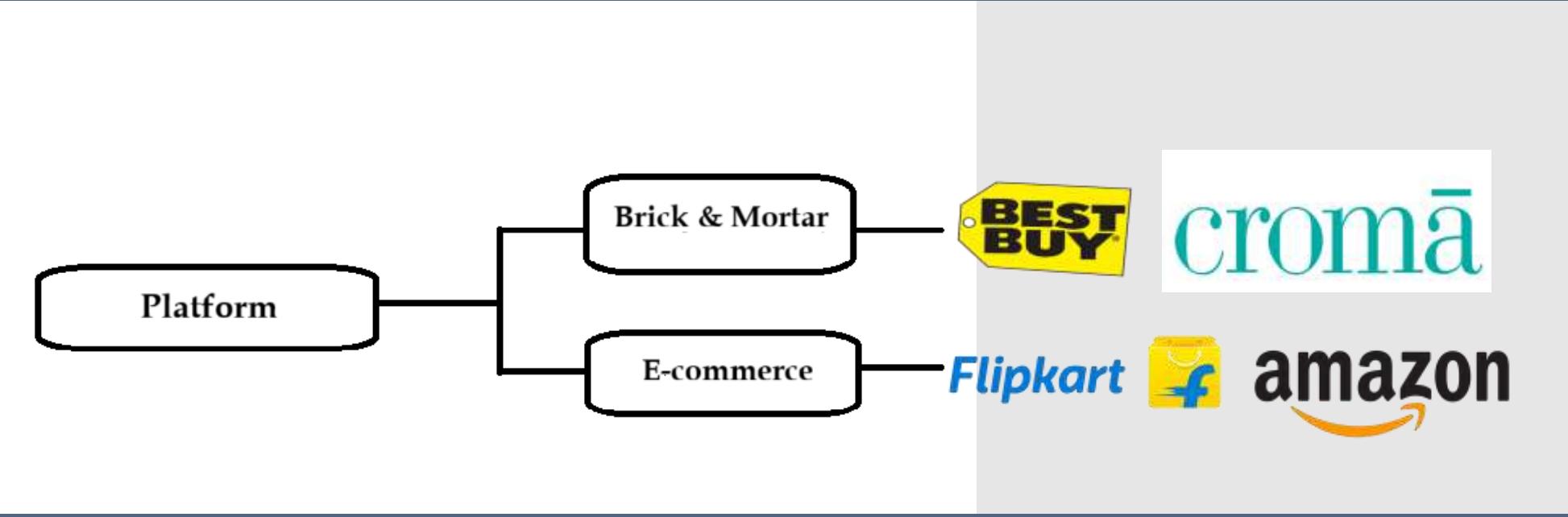


Market

There are 27 markets(countries) where Atliq Hardware operates spread across different regions like APAC, NA, LATAM, EU.

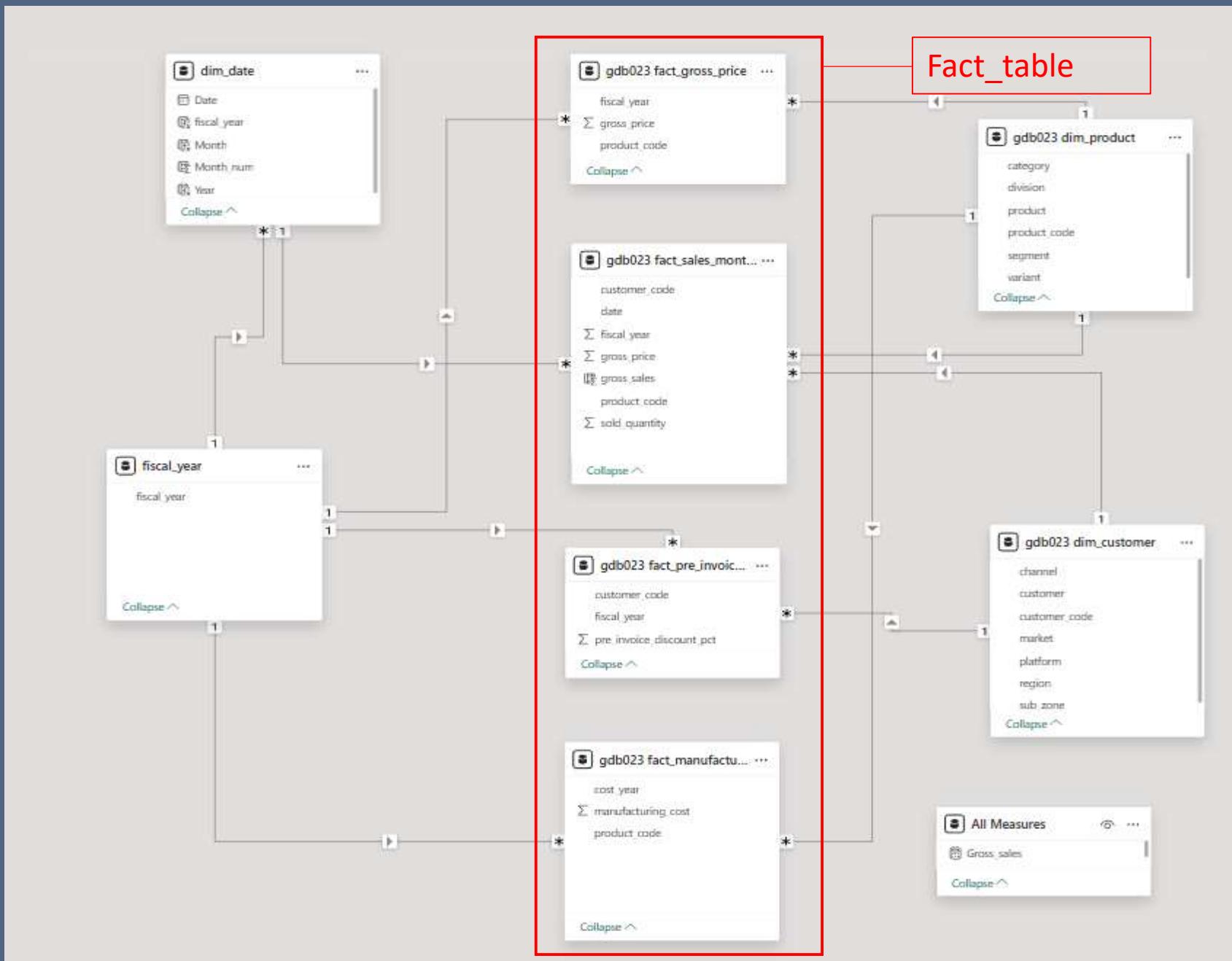
Atliq's Market







Data Model – Exploring the Input Data



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.

Atliq's market APAC region

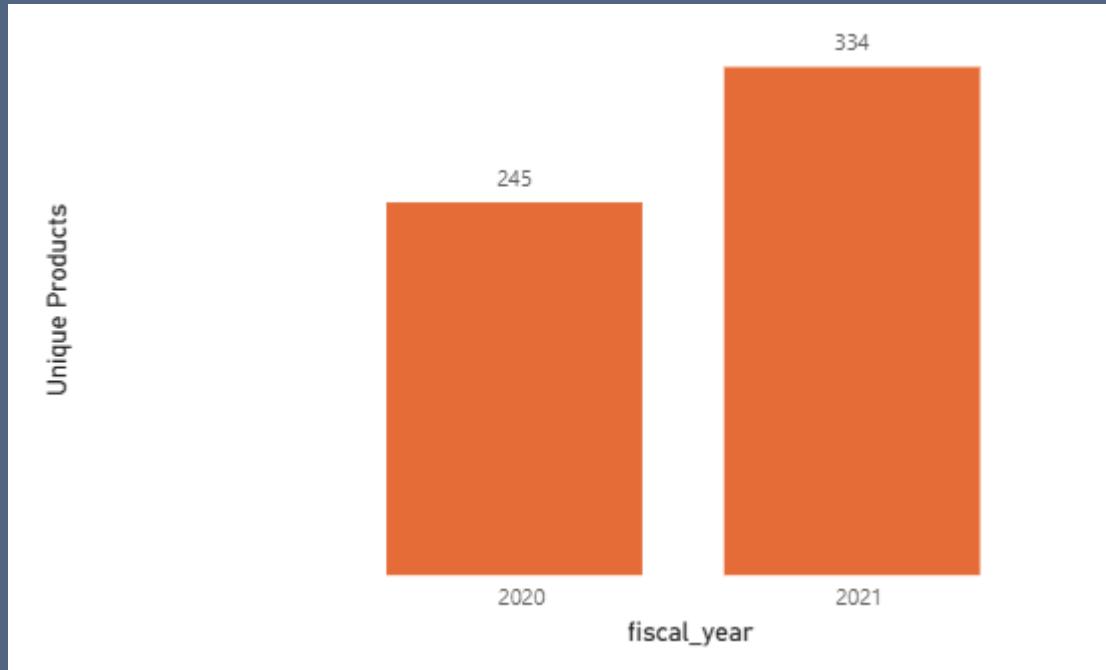


market	customer	region
India	Atliq Exclusive	APAC
Indonesia	Atliq Exclusive	APAC
Japan	Atliq Exclusive	APAC
Philippines	Atliq Exclusive	APAC
South Korea	Atliq Exclusive	APAC
Australia	Atliq Exclusive	APAC
New Zealand	Atliq Exclusive	APAC
Bangladesh	Atliq Exclusive	APAC

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

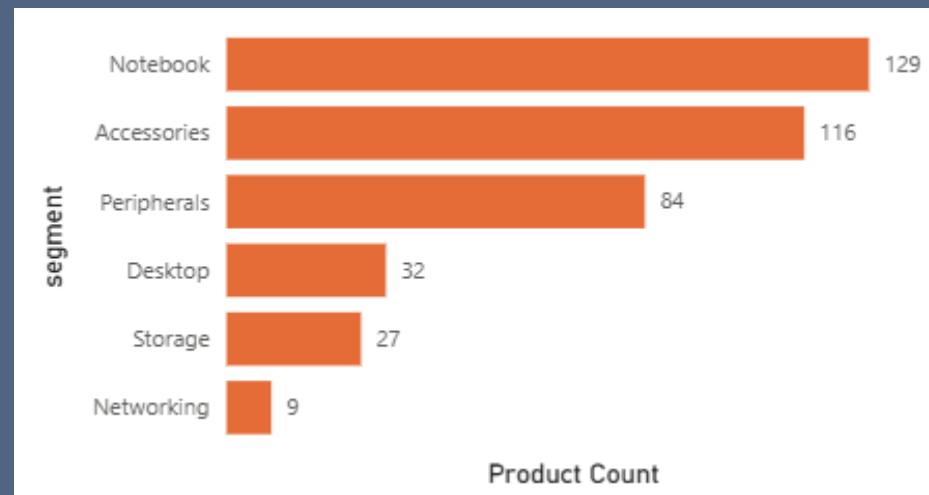


unique_products_2020	unique_products_2021	percentage_chg
245	334	36.33

Number of unique products sold by Atliq Hardware in FY2021 increased by 36.33% compared to FY2020.

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,

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



segment
product_count

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

- Number of manufactured Unique products by Atliq Hardware is 397.
- 83% of those products comprises of Notebook, Accessories, and Peripherals.

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

```
WITH cte1 AS(
    SELECT p.segment,
        COUNT(DISTINCT p.product_code) AS product_count_2020
    FROM dim_product p
    JOIN fact_sales_monthly f
    ON p.product_code = f.product_code
    WHERE f.fiscal_year = 2020
    GROUP BY p.segment),
cte2 AS(
    SELECT p.segment,
        COUNT(DISTINCT p.product_code) AS product_count_2021
    FROM dim_product p
    JOIN fact_sales_monthly f
    ON p.product_code = f.product_code
    WHERE f.fiscal_year = 2021
    GROUP BY p.segment)
SELECT cte1.segment,
    cte1.product_count_2020,
    cte2.product_count_2021,
    (cte2.product_count_2021 - cte1.product_count_2020) AS difference
FROM cte1 JOIN cte2
ON cte1.segment = cte2.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

segment	Unique Products 2020	Unique Products 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

- Total manufactured unique products - 397
- Total unique products in demand – 334
- This means that more than 60 products are not in demand.

Although we can see that every segment has more products in demand in 2021 than in 2020, the Storage and Networking segment has not performed well. They have fewer unique products in demand.

I have run the following SQL query to find those products that need emphasis on marketing and branding for sale.

```
WITH temp_1 AS (
    SELECT DISTINCT p.segment,
        p.product_code,
        p.product
    FROM dim_product p),
temp_2 AS (
    SELECT DISTINCT p.segment,
        p.product_code,
        p.product
    FROM dim_product p
    JOIN fact_sales_monthly f
    ON p.product_code = f.product_code
    WHERE f.fiscal_year = 2021)
SELECT t1.segment,
    t1.product_code,
    t1.product
FROM temp_1 AS t1
LEFT JOIN temp_2 AS t2
ON t1.product_code = t2.product_code
WHERE t2.product_code IS NULL;
```

- I am attaching an Excel file to this post that contains the list of unique products with zero sales.
 - You will find the Excel file in my GitHub repository as well.
-
- Package Deal
 - Gift vouchers
 - Extended warranty of 6 months

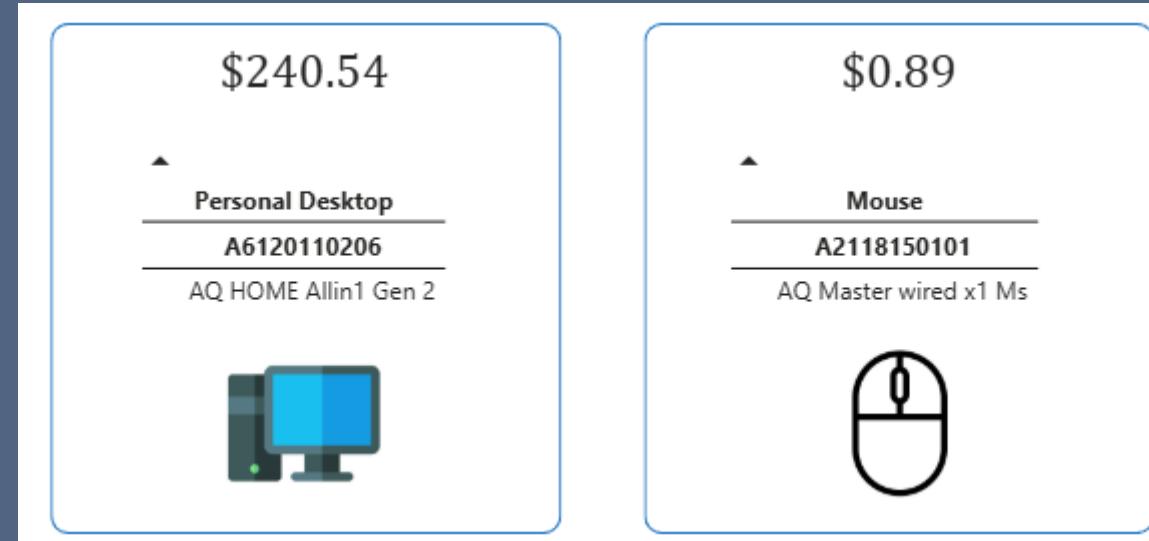
Request 5. Get the products that have the highest and lowest manufacturing costs.

The final output should contain these fields,

product_code
product
manufacturing_cost

```
SELECT DISTINCT
    p.product_code,
    p.product,
    m.manufacturing_cost
FROM dim_product p
INNER JOIN fact_manufacturing_cost m
ON p.product_code = m.product_code
INNER JOIN fact_sales_monthly f
ON p.product_code = f.product_code
AND m.cost_year = f.fiscal_year
WHERE m.manufacturing_cost IN
    ((SELECT MAX(manufacturing_cost)
      FROM fact_manufacturing_cost),
     (SELECT MIN(manufacturing_cost)
      FROM fact_manufacturing_cost))
ORDER BY manufacturing_cost DESC;
```

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



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,

```
SELECT pre.customer_code, c.customer, pre.fiscal_year,  
       ROUND(ROUND(AVG(pre.pre_invoice_discount_pct),4)*100,2)  
             AS average_discount_percentage  
FROM fact_pre_invoice_deductions pre  
INNER JOIN dim_customer c  
ON c.customer_code = pre.customer_code  
WHERE pre.fiscal_year = 2021 AND c.market = "India"  
GROUP BY pre.customer_code  
ORDER BY average_discount_percentage DESC  
LIMIT 5;
```

customer_code	customer	fiscal_year	average_discount_percentage
90002009	Flipkart	2021	30.83
90002006	Viveks	2021	30.38
90002003	Ezone	2021	30.28
90002002	Croma	2021	30.25
90002016	Amazon	2021	29.33

customer_code
customer
average_discount_percentage



Among the customers in India, Flipkart got the highest pre_invoice_discount of nearly 31% and Vijay Sales got the fifth highest pre_invoice_discount of 27.5% in FY2021.

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

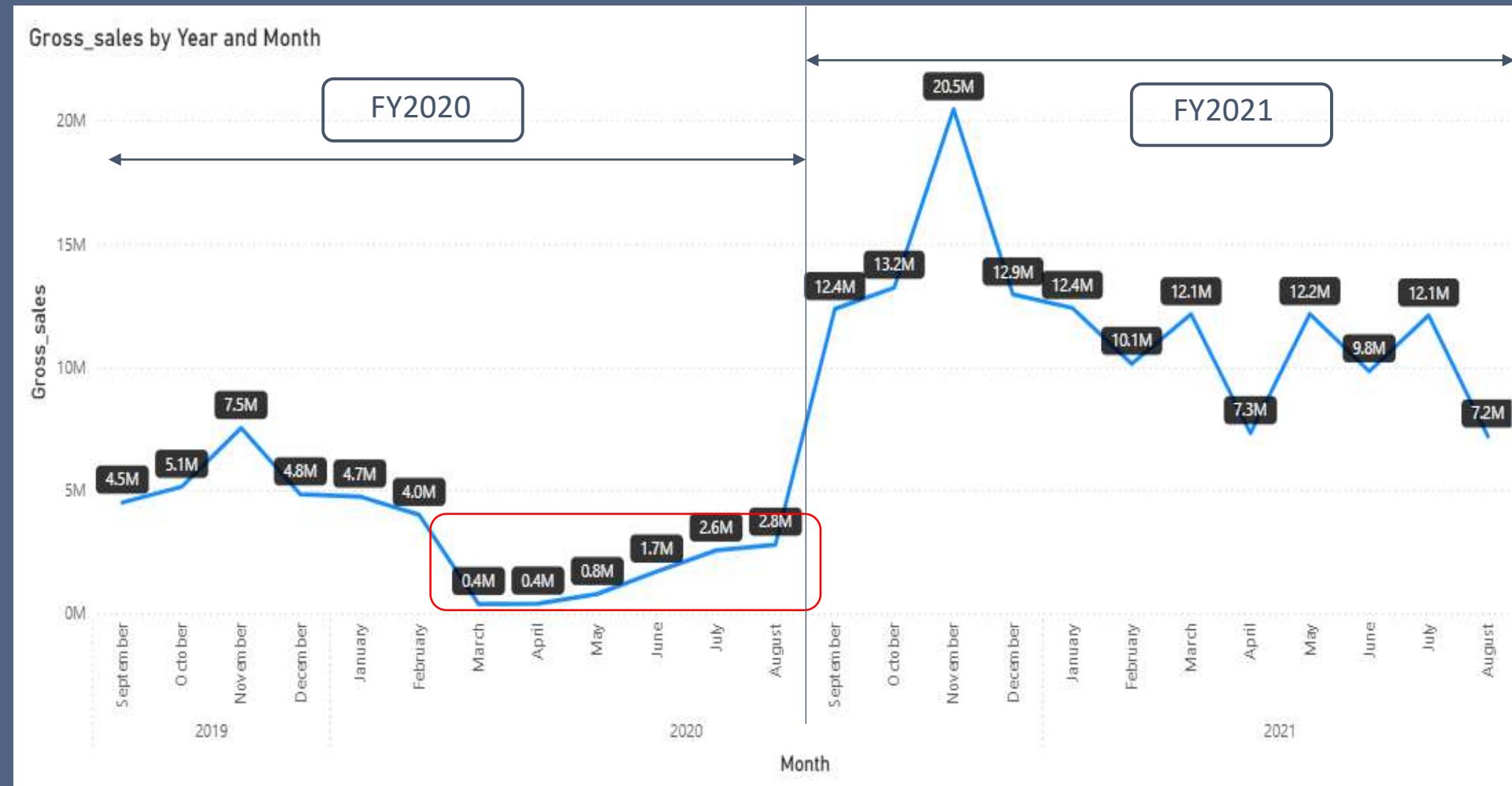
Year
Gross sales Amount

```
WITH cte AS(
SELECT c.customer,
       MONTH(f.date) AS month_number,
       MONTHNAME(f.date) AS Month,
       YEAR(f.date) AS Year,
       f.fiscal_year,
       (f.sold_quantity*g.gross_price) AS `Gross sales Amount`
FROM fact_sales_monthly f
JOIN dim_customer c
ON f.customer_code = c.customer_code
JOIN fact_gross_price g
ON f.product_code = g.product_code
AND f.fiscal_year = g.fiscal_year
WHERE c.customer = "Atliq Exclusive")

SELECT customer, Month, Year, fiscal_year,
       CONCAT("$ ",ROUND(SUM(`Gross Sales Amount`)/1000000,2),"M")
       AS `Gross Sales Amount`
FROM cte GROUP BY Month, fiscal_year;
```

customer	Month	Year	fiscal_year	Gross Sales Amount
Atliq Exclusive	September	2019	2020	\$ 4.50M
Atliq Exclusive	October	2019	2020	\$ 5.14M
Atliq Exclusive	November	2019	2020	\$ 7.52M
Atliq Exclusive	December	2019	2020	\$ 4.83M
Atliq Exclusive	January	2020	2020	\$ 4.74M
Atliq Exclusive	February	2020	2020	\$ 4.00M
Atliq Exclusive	March	2020	2020	\$ 0.38M
Atliq Exclusive	April	2020	2020	\$ 0.40M
Atliq Exclusive	May	2020	2020	\$ 0.78M
Atliq Exclusive	June	2020	2020	\$ 1.70M
Atliq Exclusive	July	2020	2020	\$ 2.55M
Atliq Exclusive	August	2020	2020	\$ 2.79M
Atliq Exclusive	September	2020	2021	\$ 12.35M
Atliq Exclusive	October	2020	2021	\$ 13.22M
Atliq Exclusive	November	2020	2021	\$ 20.46M
Atliq Exclusive	December	2020	2021	\$ 12.94M
Atliq Exclusive	January	2021	2021	\$ 12.40M
Atliq Exclusive	February	2021	2021	\$ 10.13M
Atliq Exclusive	March	2021	2021	\$ 12.14M
Atliq Exclusive	April	2021	2021	\$ 7.31M
Atliq Exclusive	May	2021	2021	\$ 12.15M
Atliq Exclusive	June	2021	2021	\$ 9.82M
Atliq Exclusive	July	2021	2021	\$ 12.09M
Atliq Exclusive	August	2021	2021	\$ 7.18M

Month	Year	Gross_sales_mln
September	2019	4.50
October	2019	5.14
November	2019	7.52
December	2019	4.83
January	2020	4.74
February	2020	4.00
March	2020	0.38
April	2020	0.40
May	2020	0.78
June	2020	1.70
July	2020	2.55
August	2020	2.79
September	2020	12.35
October	2020	13.22
November	2020	20.46
December	2020	12.94
January	2021	12.40
February	2021	10.13
March	2021	12.14
April	2021	7.31
May	2021	12.15
June	2021	9.82
July	2021	12.09
August	2021	7.18
Total		181.53

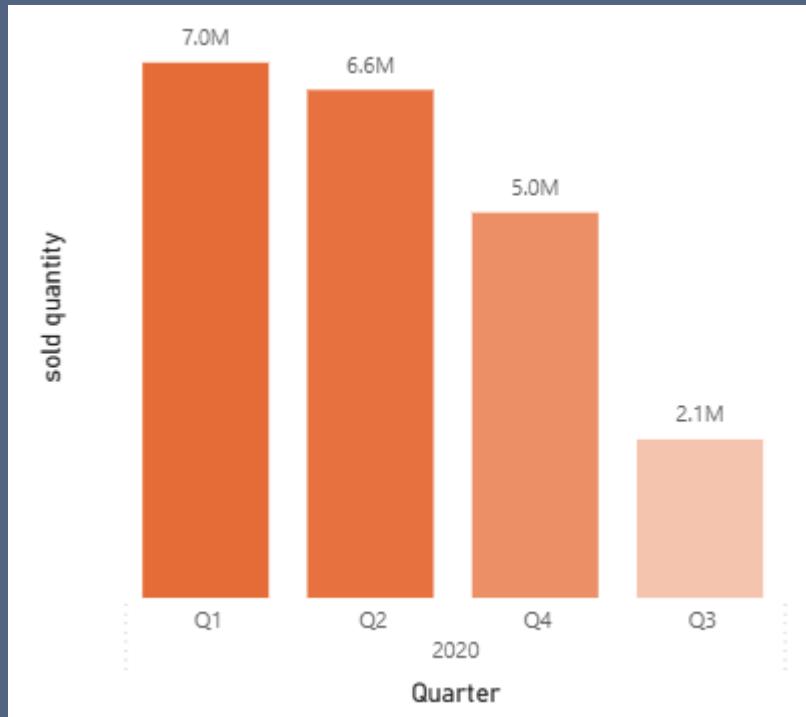


Although sales dropped in FY2020 between March,2020 and August,2020, it recovered starting September 2020 (FY2021). The reason for the drop is COVID-19. Atliq Exclusive's sales in FY2021 broke the records of FY2020 with November month showing us the highest gross sales of \$20.5M.

Request 8. In which quarter of 2020, got the maximum total_sold_quantity?

fiscal_year	Quarter	total_sold_quantity
2020	Q1	7005619
2020	Q2	6649642
2020	Q3	2075087
2020	Q4	5042541

fiscal_year	Quarter	Month	total_sold_quantity
2020	Q1	September	1764002
2020	Q1	October	2190792
2020	Q1	November	3050825
2020	Q2	December	3184205
2020	Q2	January	1762652
2020	Q2	February	1702785
2020	Q3	March	238961
2020	Q3	April	819956
2020	Q3	May	1016170
2020	Q4	June	1559773
2020	Q4	July	1692575
2020	Q4	August	1790193



Total sold quantity in FY2020 is 20.7M.

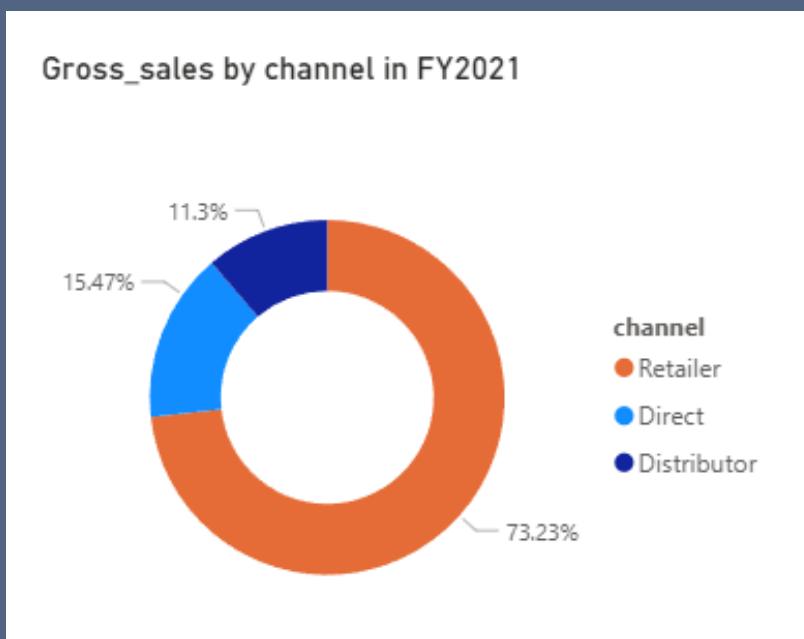
Number of products sold has dropped to 2.1M in Q3 from 6.6M in Q2 due to start of COVID-19 in early 2020. It has improved in Q4 to 5M due to increased demand of computer hardware as classes started to happen online.

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

channel	fiscal_year	Gross sales Amount	percentage
Retailer	2021	\$ 1219.08M	73.23
Direct	2021	\$ 257.53M	15.47
Distributor	2021	\$ 188.03M	11.30

Retailer channel brought more than 70% gross sales in FY2021 to Atliq Hardware Business.



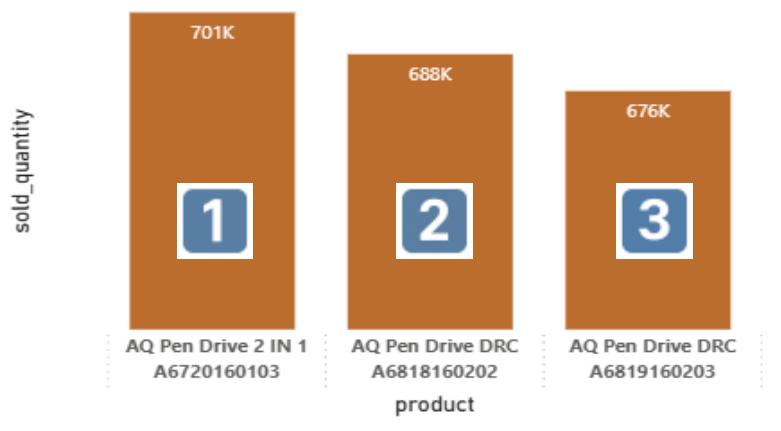
Request 10. Get the Top 3 products in each division that have a high total_sold_quantity in the fiscal_year 2021? The final output contains these fields,

division
product_code
product
total_sold_quantity
rank_order

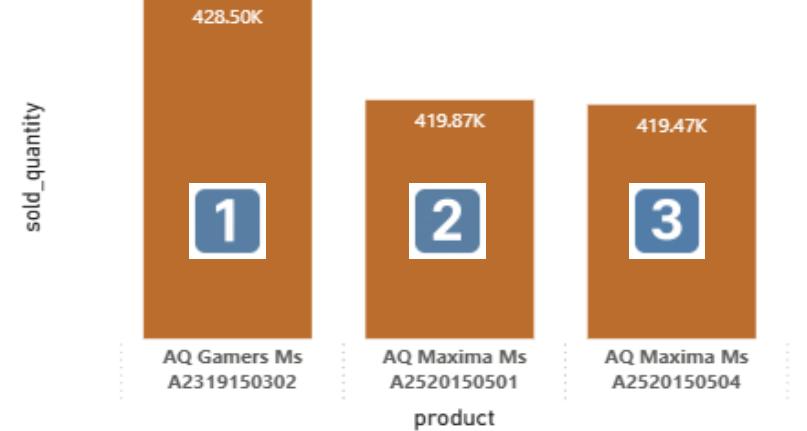
division	product_code	product	total_sold_quantity	rank_order
N & S	A6720160103	AQ Pen Drive 2 IN 1	701373	1
N & S	A6818160202	AQ Pen Drive DRC	688003	2
N & S	A6819160203	AQ Pen Drive DRC	676245	3
P & A	A2319150302	AQ Gamers Ms	428498	1
P & A	A2520150501	AQ Maxima Ms	419865	2
P & A	A2520150504	AQ Maxima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

```
WITH cte AS(
    SELECT p.division,
           p.product_code,
           p.product,
           SUM(fs.sold_quantity) AS total_sold_quantity,
           DENSE_RANK() OVER(PARTITION BY division ORDER BY SUM(fs.sold_quantity) DESC)
           AS rank_order
      FROM dim_product p
     LEFT JOIN fact_sales_monthly fs
       ON p.product_code = fs.product_code
      WHERE fs.fiscal_year = 2021
     GROUP BY p.division,
              p.product_code)
SELECT * FROM cte
WHERE rank_order<=3;
```

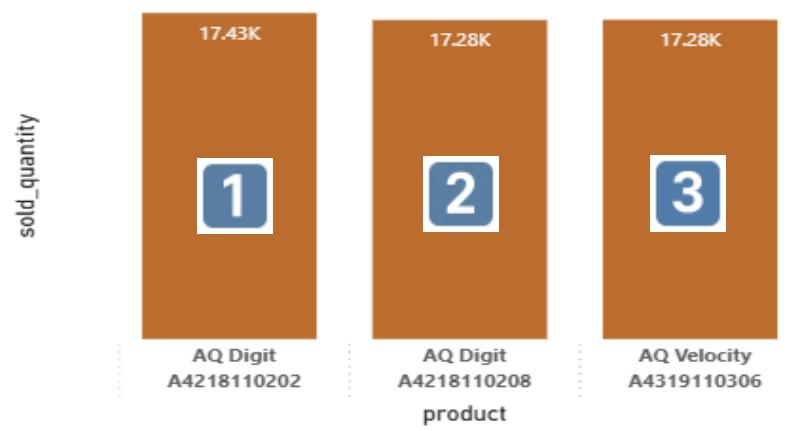
Top 3 products in N & S division by sold quantity



Top 3 products in P & A division by sold quantity



Top 3 products in PC division by sold quantity



Thank You

