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About Company

- **AtliQ Hardware: Leading computer hardware producer in India**

- **Global Presence: Expanded to multiple countries**

Company Market & Data

- **Market presence in APAC, EMEA, and Americas**

- **Data-driven decision-making for market strategies**

Company Problem

- Insight Deficiency: Management lacks sufficient insights for quick, smart data-informed decisions

Company Decision/Challenge

- Tony Sharma: Data analytics director seeks to hire a skilled analyst
- Skills Assessment: Conducted an SQL challenge to evaluate tech and soft skills

Project Overview

- Task: Resolve 10 ad-hoc requests using SQL and present insights creatively
- Goal: Provide actionable insights for top-level management

Ad-hoc Request, Query & Output

- Overview of the 10 ad-hoc business requests
- Method: SQL queries to generate insights

SQL Techniques Utilized

- Joins, Subqueries, CTEs, Case, Window Functions
- Achieved 96% completion rate with an average turnaround of 2 days per request
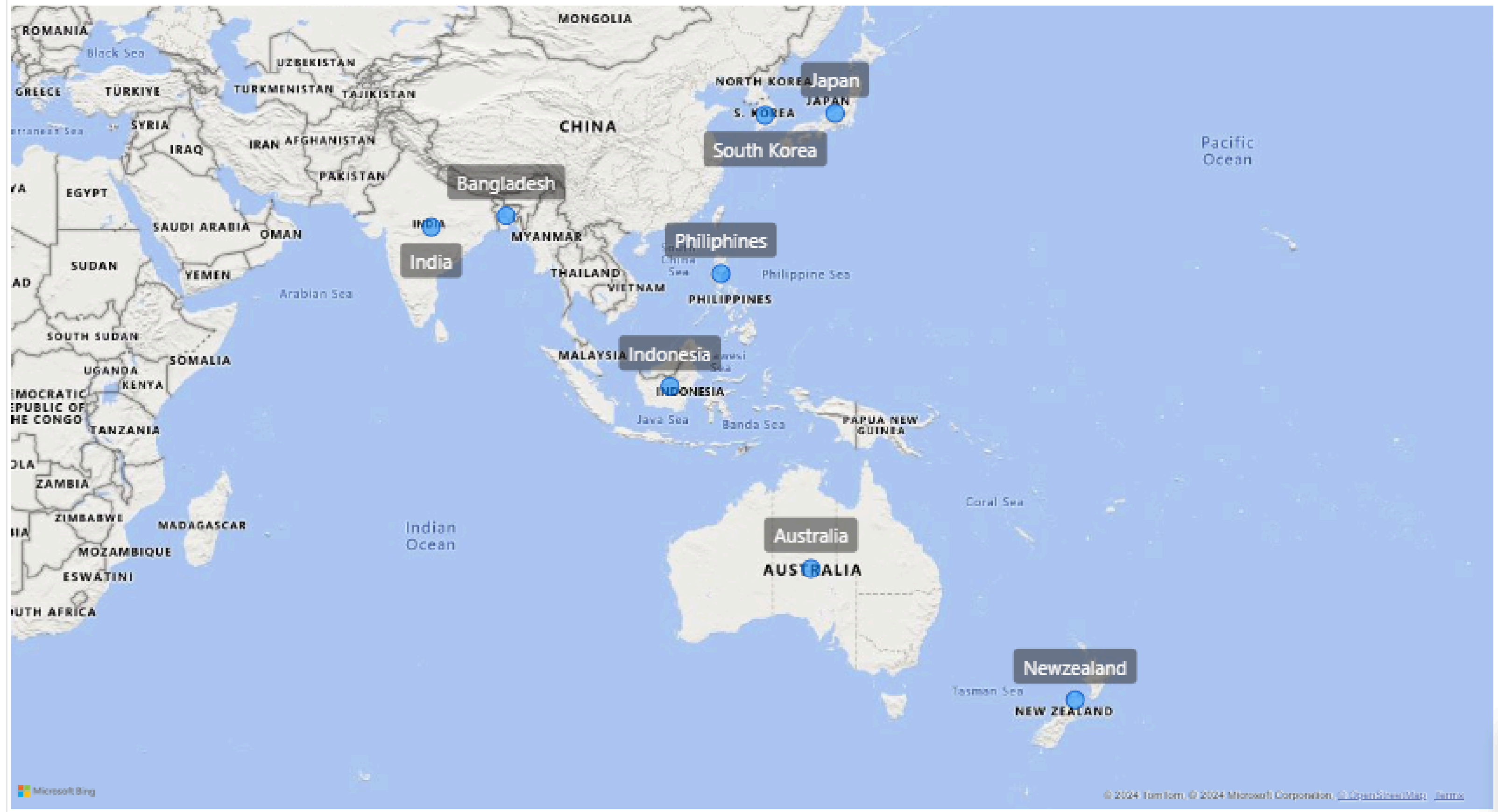
1. Provide the list of markets in which customer "AtliQ Exclusive" operates its business in the APAC region.

```sql
SELECT
    market
FROM
    dim_customer
WHERE
    region = 'APAC'
        AND customer = 'Atliq Exclusive';
```

| market |
| --- |
| India |
| Indonesia |
| Japan |
| Philiphines |
| South Korea |
| Australia |
| Newzealand |
| Bangladesh |
| India |

2. What is the percentage of unique product increase in 2021 vs. 2020?

```sql
WITH table1 AS (
    SELECT COUNT( DISTINCT product_code) AS unique_product_2020
    FROM fact_sales_monthly
    WHERE fiscal_year = 2020
    ),
table2 AS (
SELECT COUNT(DISTINCT product_code) AS unique_product_2021
 FROM fact_sales_monthly
 WHERE fiscal_year = 2021
 )
SELECT unique_product_2020, unique_product_2021,
ROUND(((unique_product_2021 - unique_product_2020)/ unique_product_2020)*100,2) AS percentage_change
FROM table1, table2;
```

| unique_product_2020	unique_product_2021	percentage_change
245	334	36.33
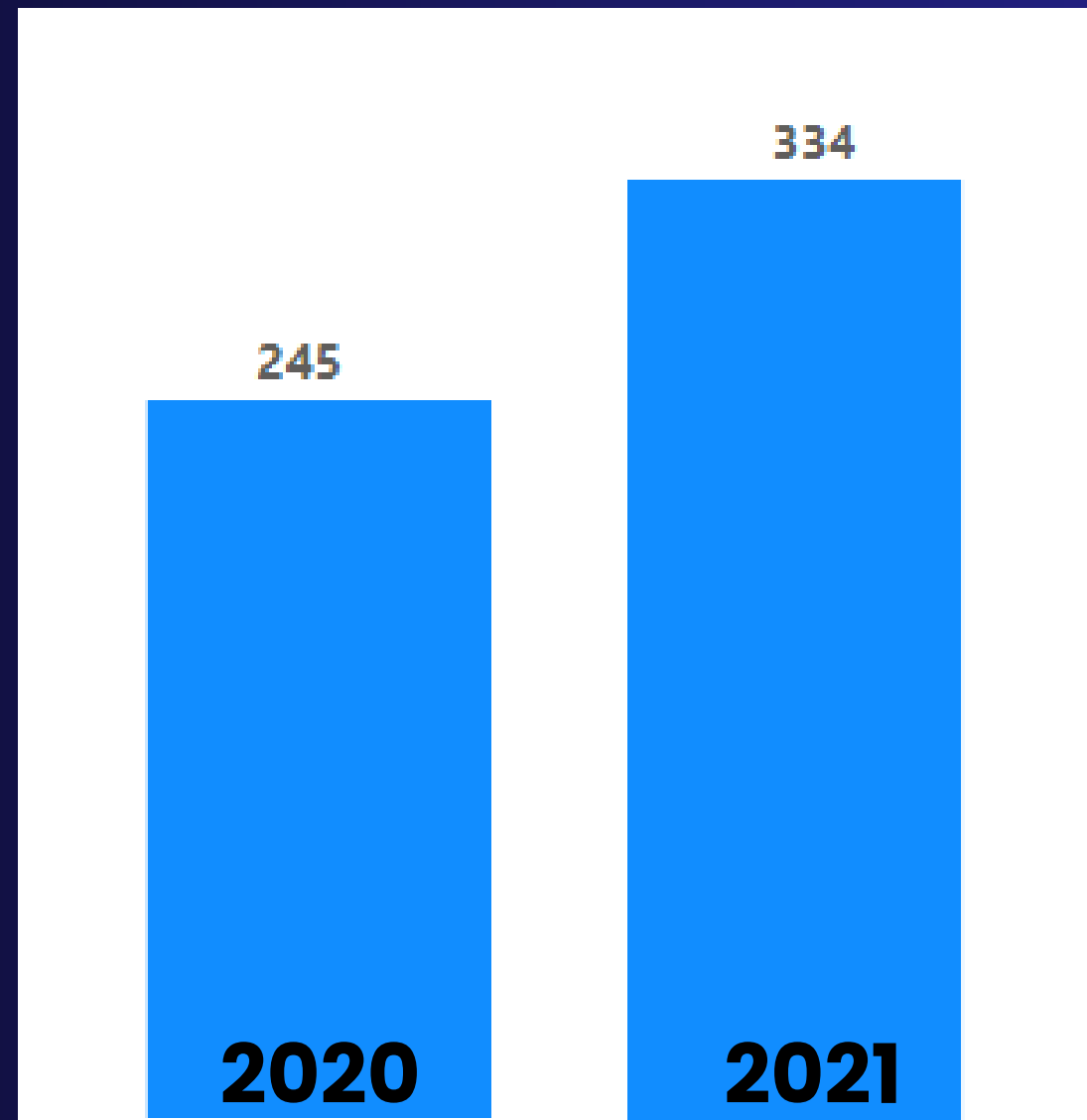
- The Product increase in 2021 is 36.33%.
- Continuously Innovating with introducing new Product

3. Provide a report with all the unique product counts for each segment and sort them in descending order of product counts.

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

segment	unique_product_count
Notebook	129
Accessories	116
Peripherals	84
Desktop	32
Storage	27
Networking	9
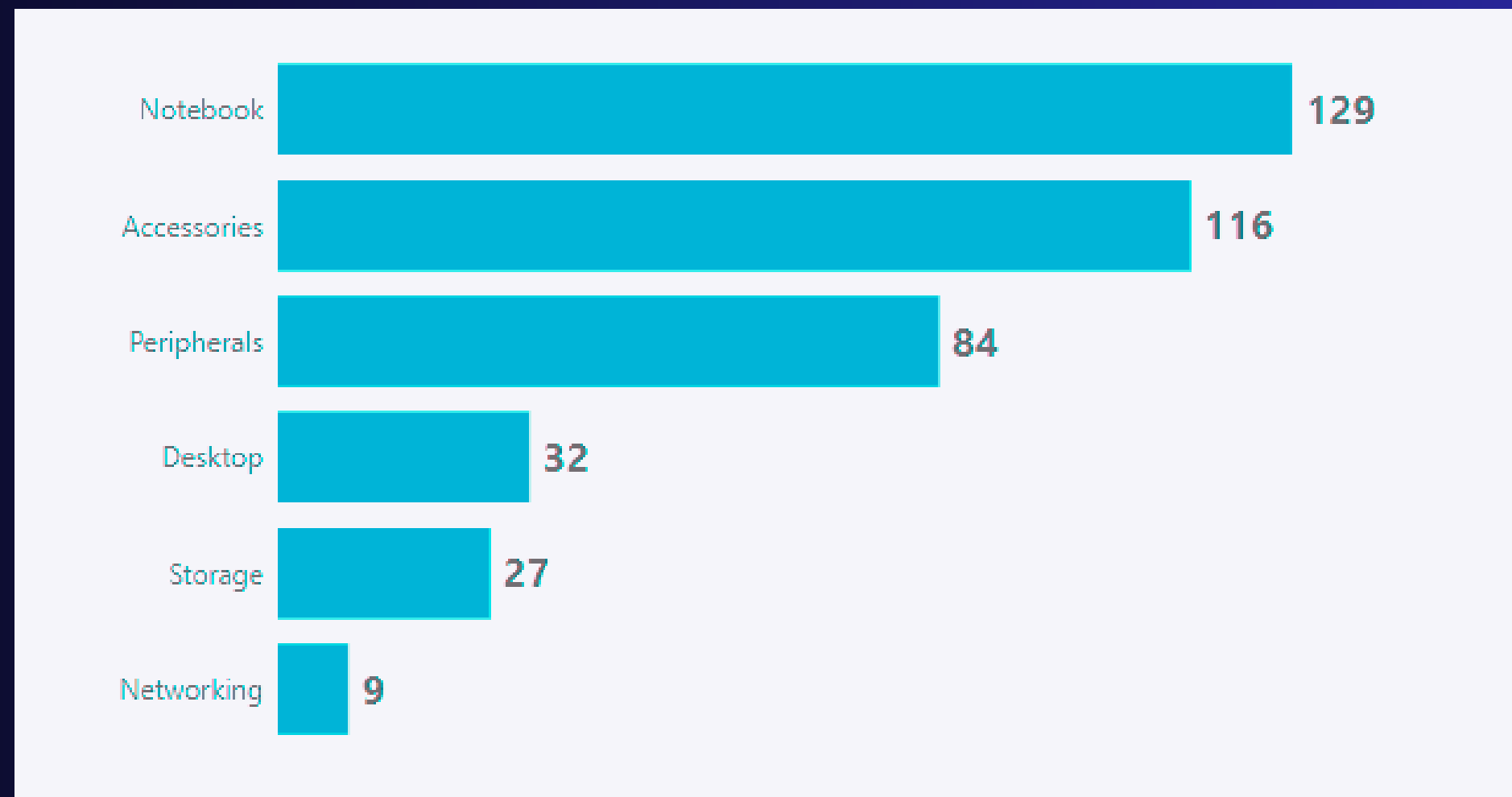
- Notebook, Accessories & Peripherals contribute around 83%
- Some new product should be introduced in Networking.

4. Follow-up: Which segment had the most increase in unique products in 2021 vs 2020?

```sql
WITH temp_table AS (
    SELECT p.segment, s.fiscal_year, COUNT(DISTINCT s.product_code) AS product_count
    FROM fact_sales_monthly s
    JOIN dim_product p
    ON s.product_code = p.product_code
    GROUP BY p.segment, s.fiscal_year
    )

SELECT up_2020.segment,
up_2020.product_count AS product_count_2020,
up_2021.product_count AS product_count_2021,
(up_2021.product_count - up_2020.product_count) AS difference
FROM temp_table AS up_2020
JOIN temp_table AS up_2021
ON up_2020.segment = up_2021.segment
AND up_2020.fiscal_year = 2020
AND up_2021.fiscal_year = 2021
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	product2020	product2021	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**

- Accessories has 34 the Highest increase in production
- Storage and Networking producing lowest

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

```sql
SELECT p.product_code, p.product AS product_name,
m.manufacturing_cost  AS MIN_and_MAX_manufacturing_cost
FROM dim_product p
JOIN fact_manufacturing_cost m
ON p.product_code = m.product_code
WHERE
m.manufacturing_cost = (
SELECT MAX(manufacturing_cost) FROM fact_manufacturing_cost
)
OR
m.manufacturing_cost = (
SELECT MIN(manufacturing_cost) FROM fact_manufacturing_cost
)
```

$241.43

AQ HOME Allin1 Gen 2

$0.89

AQ Master wired x1 Ms
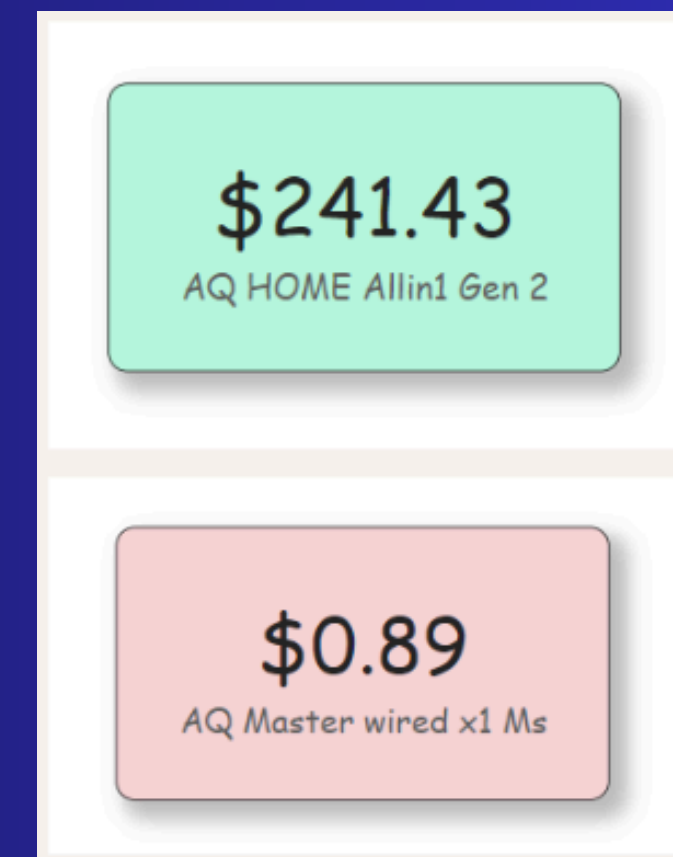
product_code	product_name	MIN_and_MAX_manufacturing_cost
A2118150101	AQ Master wired x1 Ms	0.8920
A6120110206	AQ HOME Allin1 Gen 2	240.5364

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.

```sql
SELECT c.customer_code, c.customer AS customer_name,

ROUND(AVG(d.pre_invoice_discount_pct)*100,2) AS average_discount_percentage

FROM dim_customer c

JOIN fact_pre_invoice_deductions d

ON c.customer_code = d.customer_code

WHERE market = 'India' AND fiscal_year = 2021

GROUP BY c.customer_code,c.customer

ORDER BY average_discount_percentage DESC

LIMIT 5;
```

| customer_code	customer_name	average_discount_percentage
90002009	Flipkart	30.83
90002006	Viveks	30.38
90002003	Ezone	30.28
90002002	Croma	30.25
90002016	Amazon	29.33
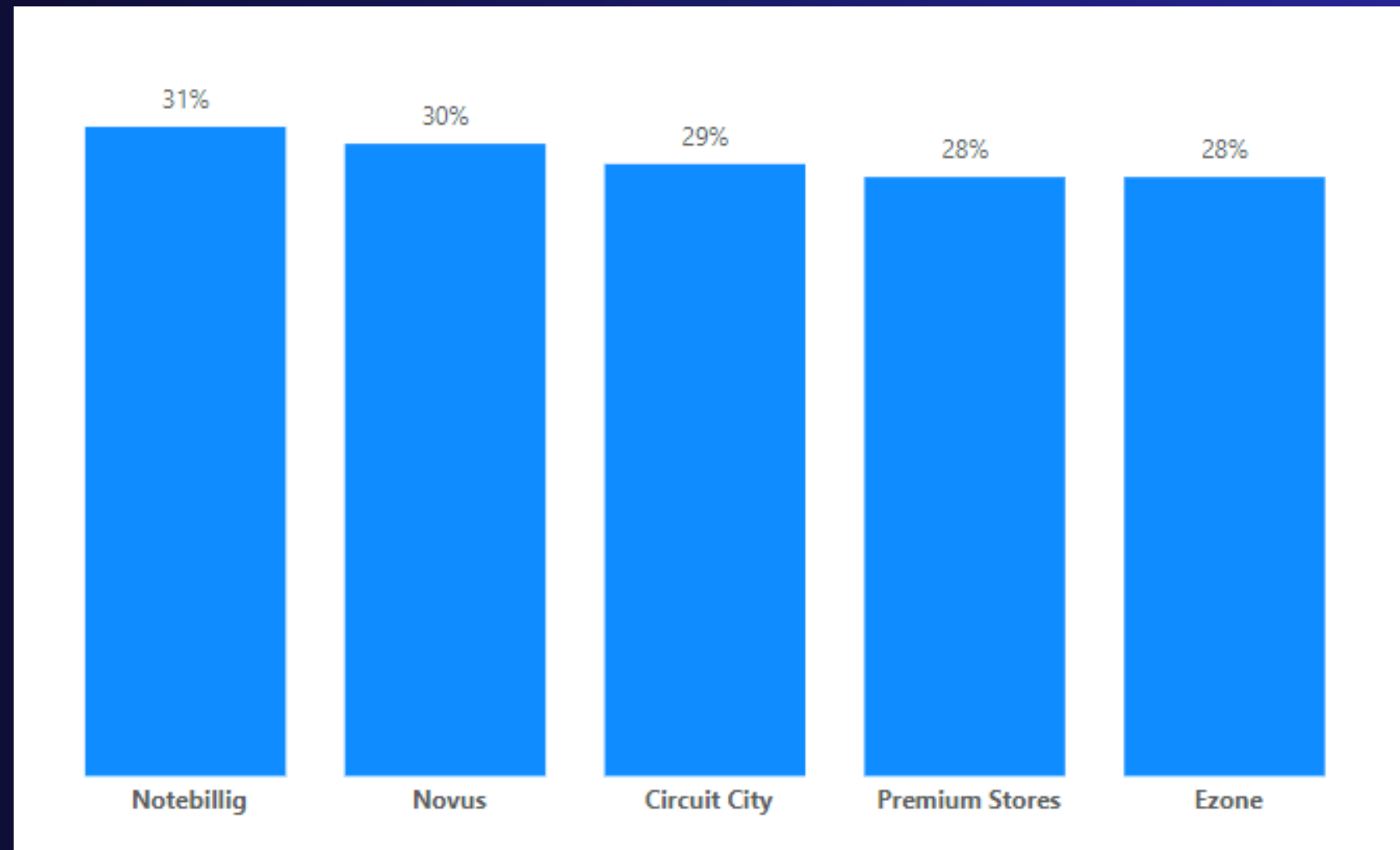
- In 2021 the average pre invoice discount given by top 5 customer is almost similar however Flipkart gave the highest avg discount i.e. 30.83 %

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.

```sql
SELECT MONTH(s.date) AS months,

YEAR(s.date) AS years,

SUM(s.sold_quantity * p.gross_price) AS gross_sales

FROM dim_customer AS c

JOIN fact_sales_monthly AS s

ON c.customer_code = s.customer_code

JOIN fact_gross_price AS p

ON s.product_code = p.product_code

WHERE c.customer = 'Atliq Exclusive'

GROUP BY months, years

ORDER BY years, months
```

| months	years	gross_sales
9	2019	9092670.3392
10	2019	10378637.5961
11	2019	15231894.9669
12	2019	9755795.0577
1	2020	9584951.9393
2	2020	8083995.5479
3	2020	766976.4531
4	2020	800071.9543
5	2020	1586964.4768
6	2020	3429736.5712
7	2020	5151815.4020
8	2020	5638281.8287
9	2020	19530271.3028
10	2020	21016218.2095
11	2020	32247289.7946
12	2020	20409063.1769
1	2021	19570701.7102
2	2021	15986603.8883
3	2021	19149624.9239
4	2021	11483530.3032
5	2021	19204309.4095
6	2021	15457579.6626
7	2021	19044968.8164
8	2021	11324548.3409

Gross Sales Amount
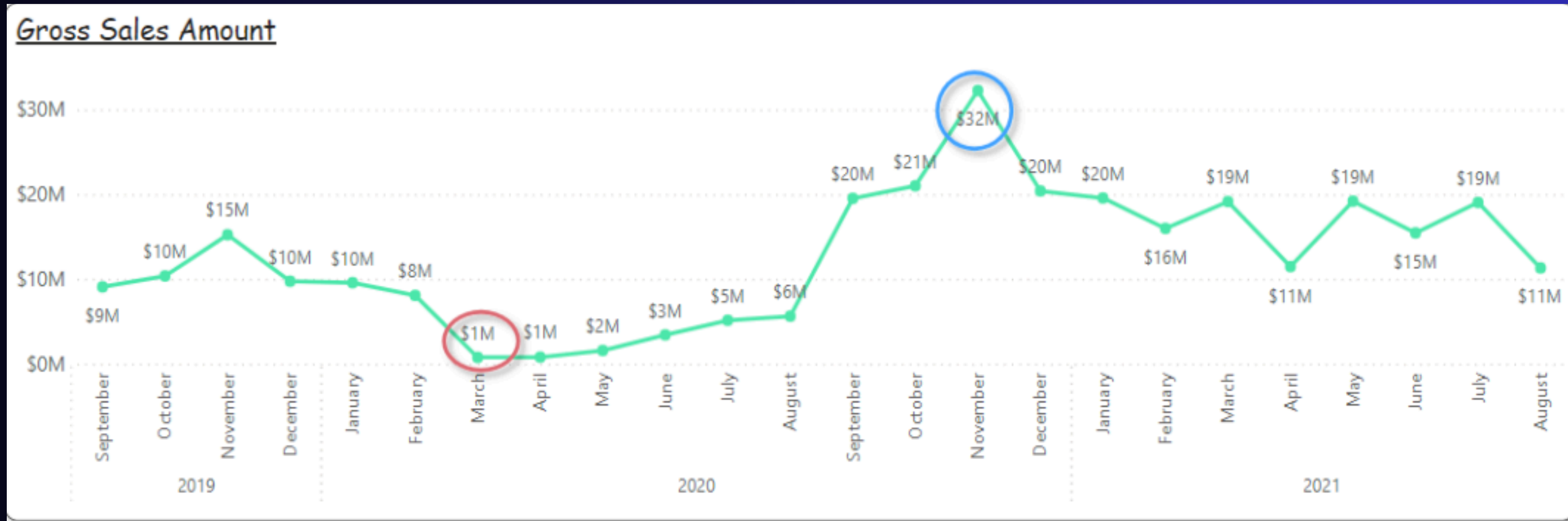
- Lowest Sales – March 2020 [Covid & Global Chip Shortage]
- Highest Sales – November 2020 [Festive Season]

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

```sql
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;
```

quarters	total_sold_quantity
1	7005619
2	6649642
4	5042541
3	2075087

Total Quantity Sold in Million - Quarterly (2020)
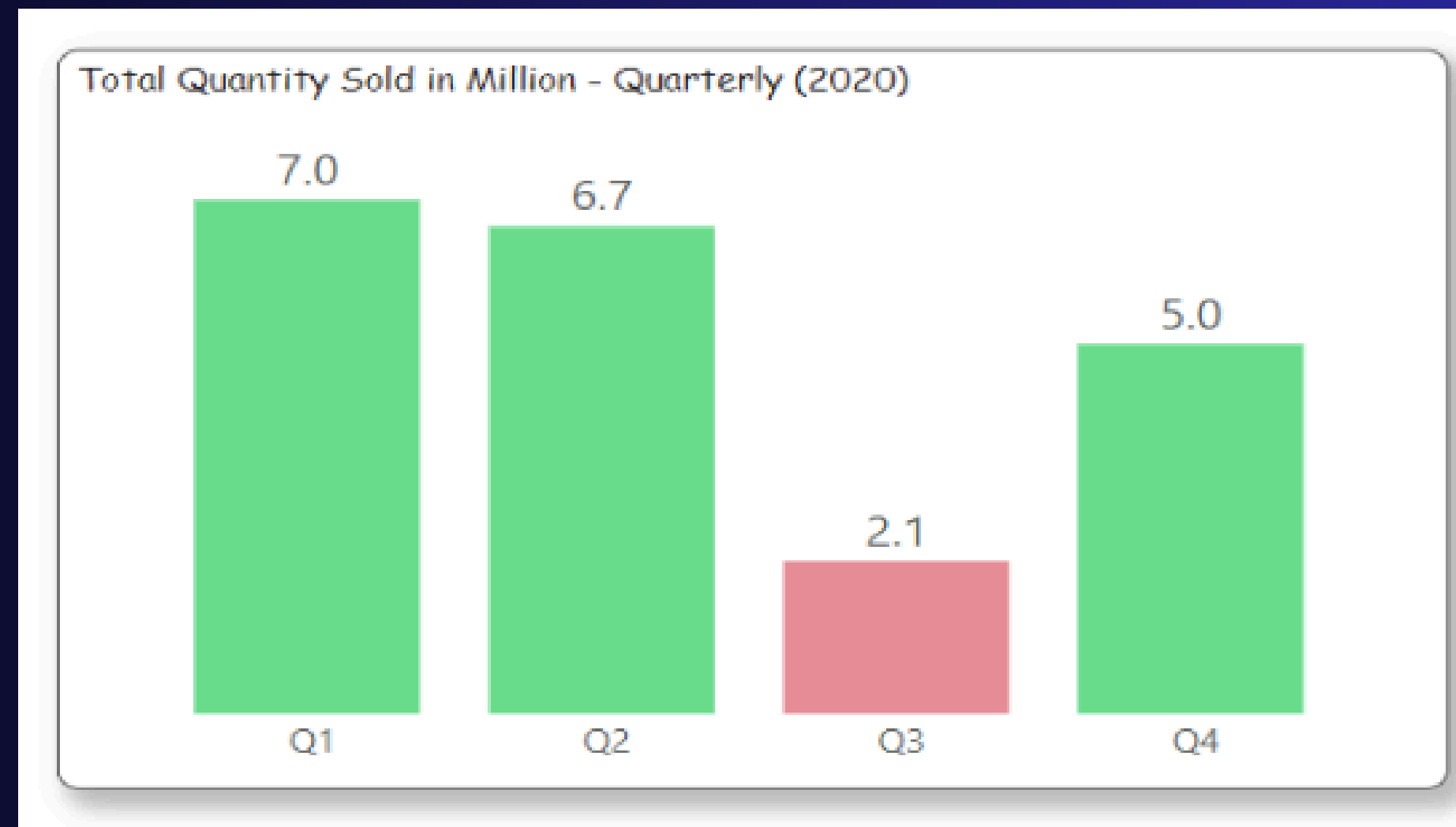
- In Quarter 1 sold maximum quantity i.e. 7 M where as Quarter 3 significantly decreased to 2.1 M, the reason behind is the Covid-Lockdown in the month of March, April & May.

9. Which channel helped to bring more gross sales in the fiscal year 2021 and the percentage of contribution?

```sql
WITH total_gross_sales AS (
    SELECT SUM(s.sold_quantity*p.gross_price) AS total_sales
    FROM fact_sales_monthly s
    JOIN fact_gross_price p
    ON s.product_code = p.product_code
    AND s.fiscal_year = p.fiscal_year
    WHERE s.fiscal_year = 2021
    )

SELECT
    c.channel,
    SUM(s.sold_quantity * p.gross_price) AS gross_sales_mln,
    ROUND((SUM(s.sold_quantity * p.gross_price)/t.total_sales)*100,2) AS percentage
FROM dim_customer c
JOIN fact_sales_monthly s
ON c.customer_code = s.customer_code
JOIN fact_gross_price p
ON s.product_code = p.product_code
AND s.fiscal_year = p.fiscal_year
JOIN total_gross_sales t
WHERE s.fiscal_year = 2021
GROUP BY channel, t.total_sales
ORDER BY percentage DESC
```

channel	gross_sales_mln	percentage
Retailer	1219081639.9472	73.23
Direct	257532002.6536	15.47
Distributor	188025630.9348	11.30

Gross Sales By Channel

$238M (16%) $169M (11%)

$1,114M (73%)

- Retailer
- Direct
- Distributor
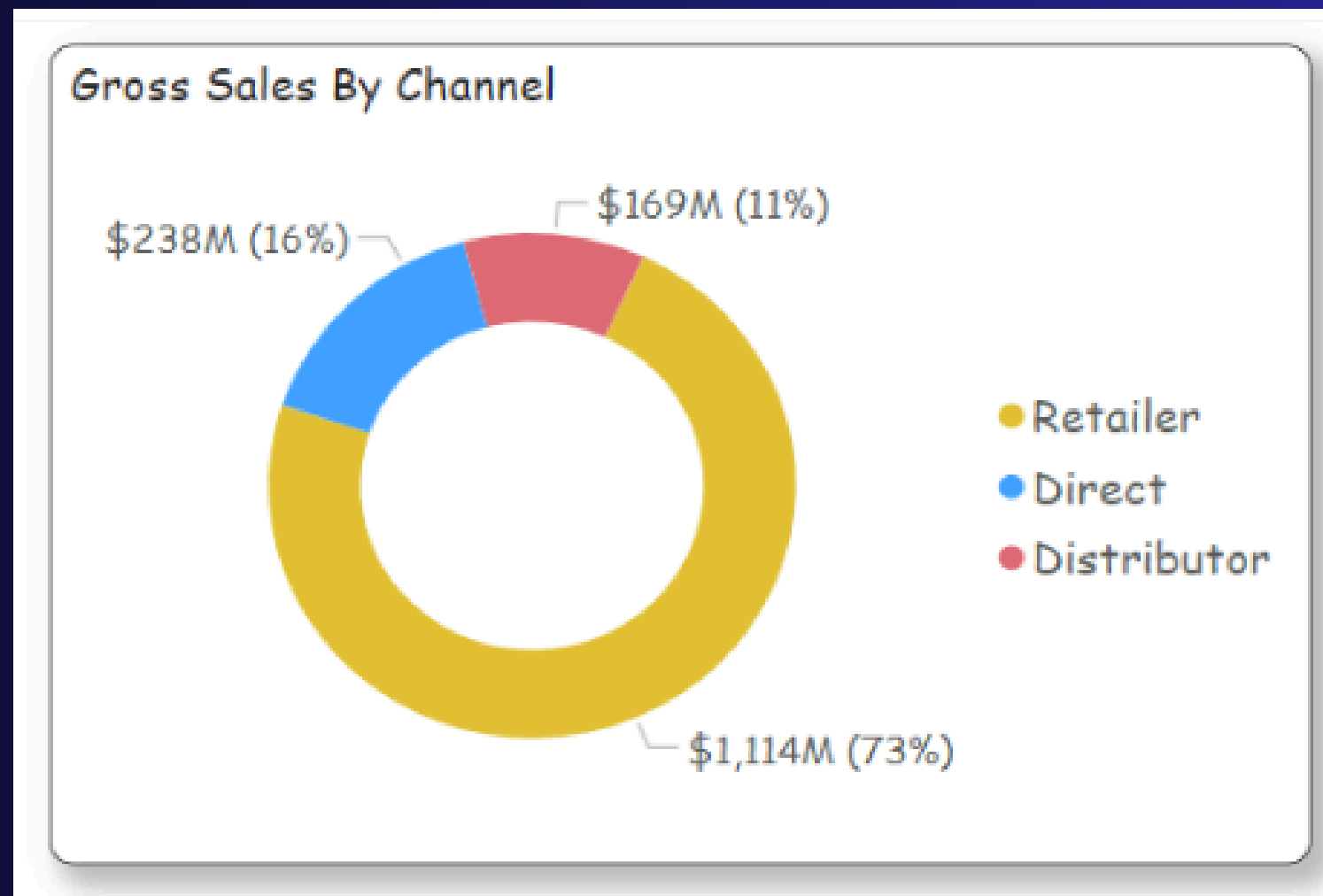
- The Retailers contribute to the major portion of the sales that is 73% where as Direct and Distributer combined sales is 27%

10. Get the Top 3 products in each division that have a high total_sold_quantity in the fiscal_year 2021?

```sql
WITH ranked_products AS (
    SELECT p.division, s.product_code, p.product, SUM(s.sold_quantity) AS total_sold_quantity,
    ROW_NUMBER() OVER(PARTITION BY division ORDER BY SUM(s.sold_quantity) DESC) AS rank_order
    FROM fact_sales_monthly s
    JOIN dim_product 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_quantity,
    rank_order
FROM ranked_products
WHERE rank_order <= 3
```

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
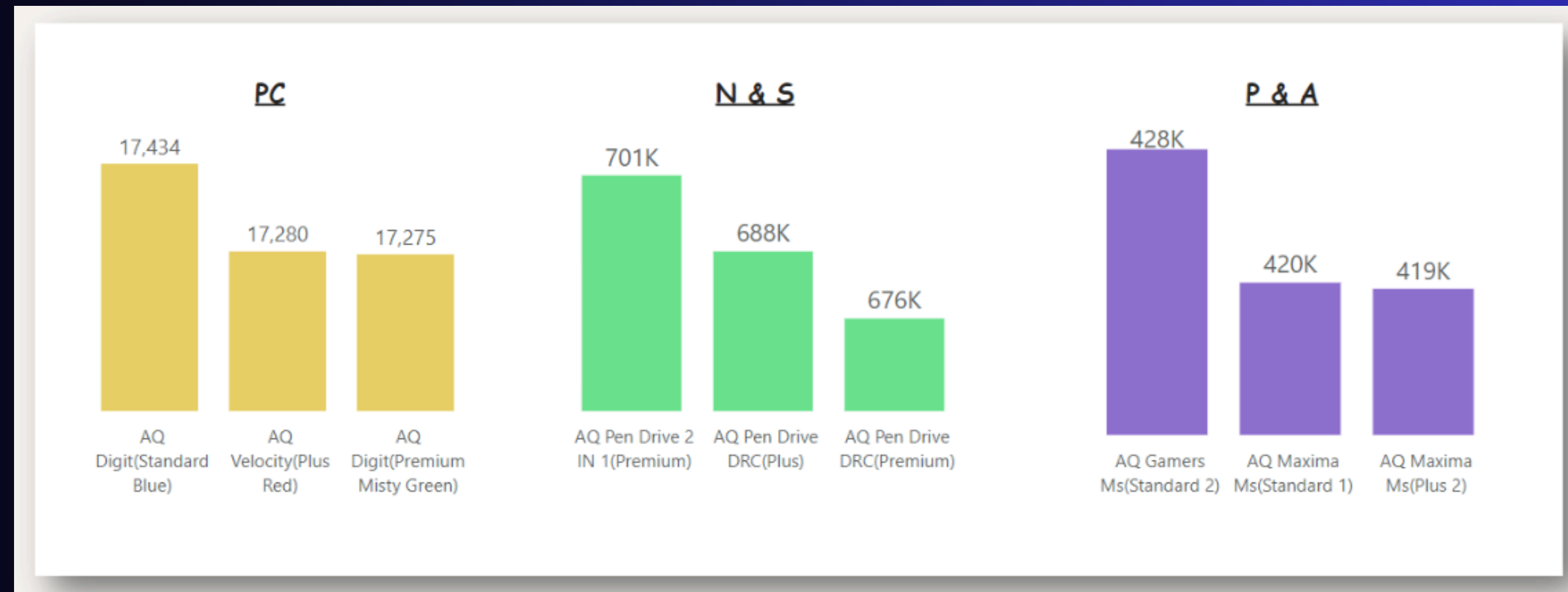
- Top 3 products from each division having the highest total sold quantity in the fiscal year 2021