Ad-Hoc Analysis

BY - Aditya Mohapatra

Topics Covered

Introduction :

- **Atliq Hardwares** is a top computer hardware producer in India, with a global presence.
- Management identified a **lack of quick, data-informed insights** for smart decision-making.
- To address this, the company aims to grow its **data analytics** team by hiring junior analysts.
- Tony Sharma, the Data Analytics Director, seeks candidates with **strong technical (SQL) and soft skills.**
- A SQL challenge was designed to evaluate candidates' **technical proficiency and communication skills** through real business requests.
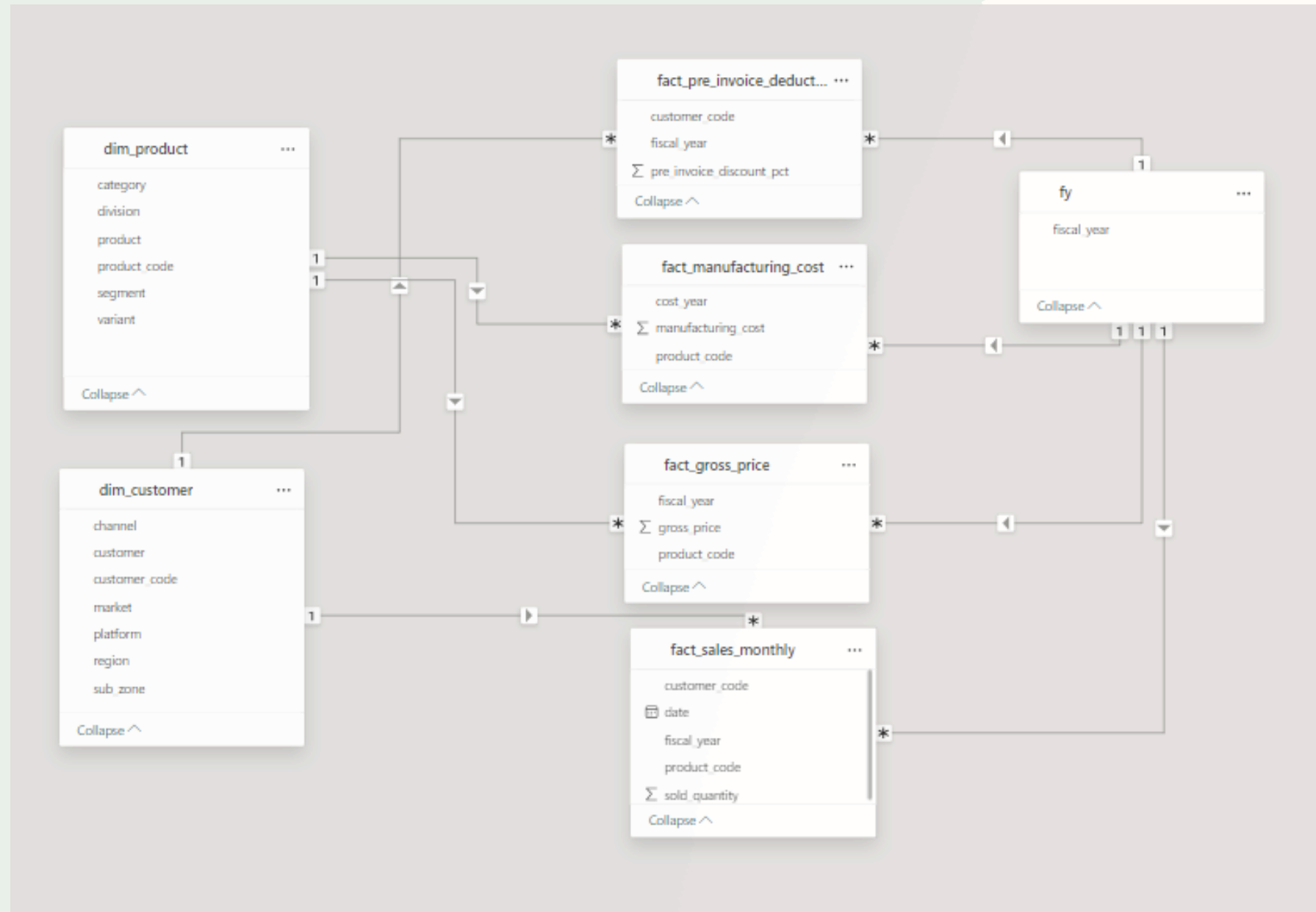
Objectives of the Project :

- Solve 10 **ad-hoc** business requests for Atliq Hardwares using **SQL**.

- Provide actionable **insights** for top management decision-making.

- Demonstrate **technical and analytical** skills.

- Deliver a creative and concise **presentation** with strong communication.

AtliQ's Product Lines :

Categories

Segments
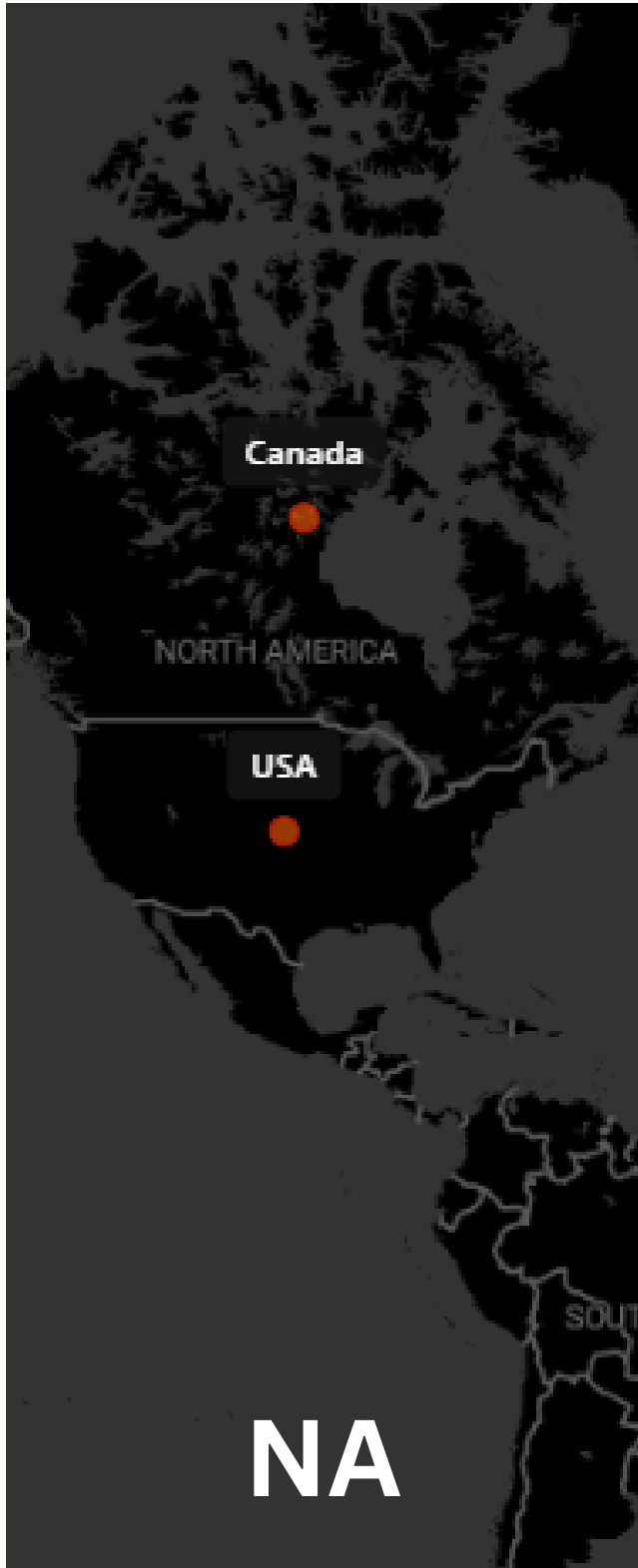
Divisions
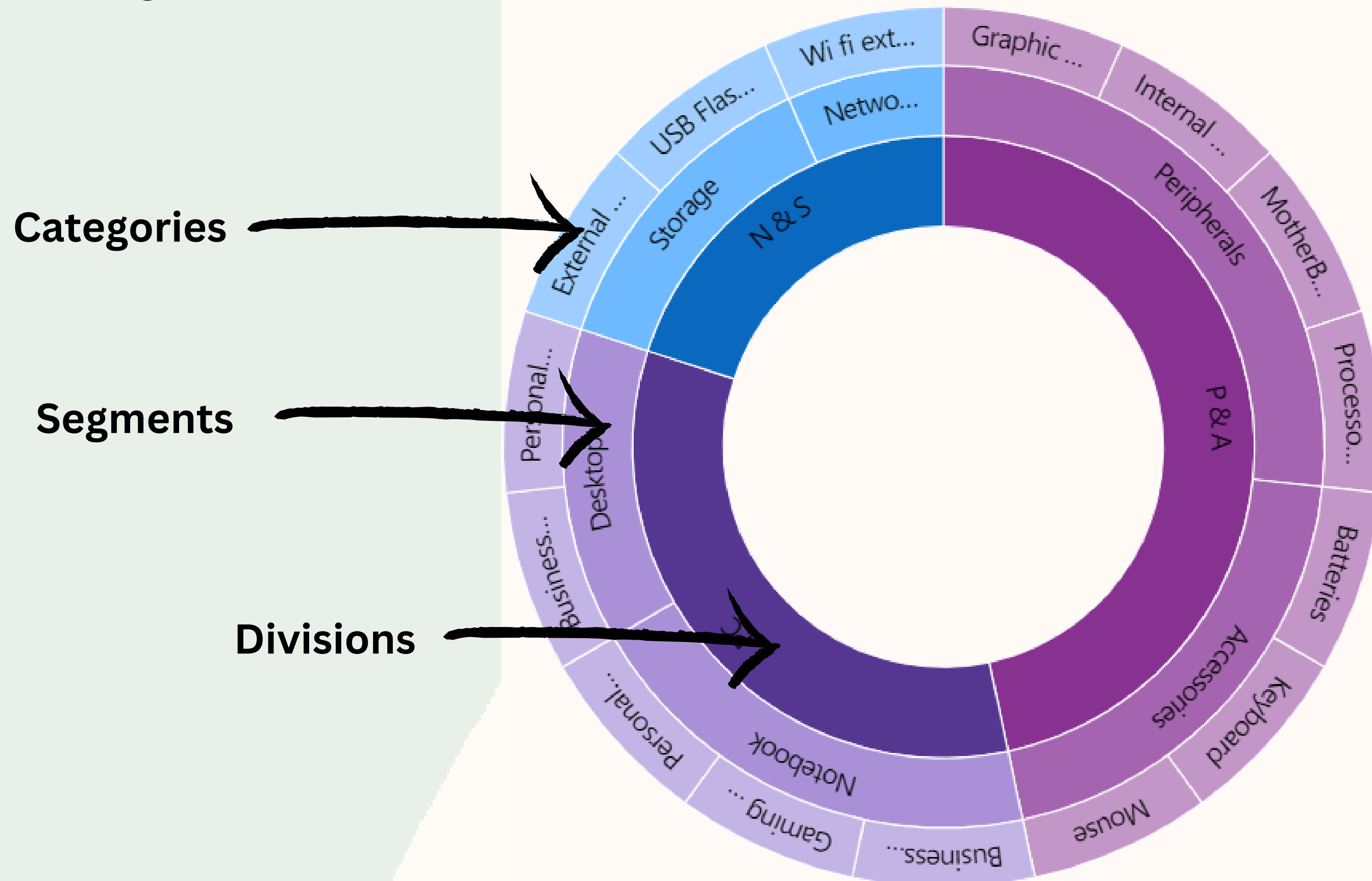
Database Schema :

Tools Used :

- **MySQL**

- **PowerBI**

AtliQ's Market Spread :

EU

LATAM

NA

APAC

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

Query output :

	market
▶	India
	Indonesia
	Japan
	Philiphines
	South Korea
	Australia
	Newzealand

Insights :

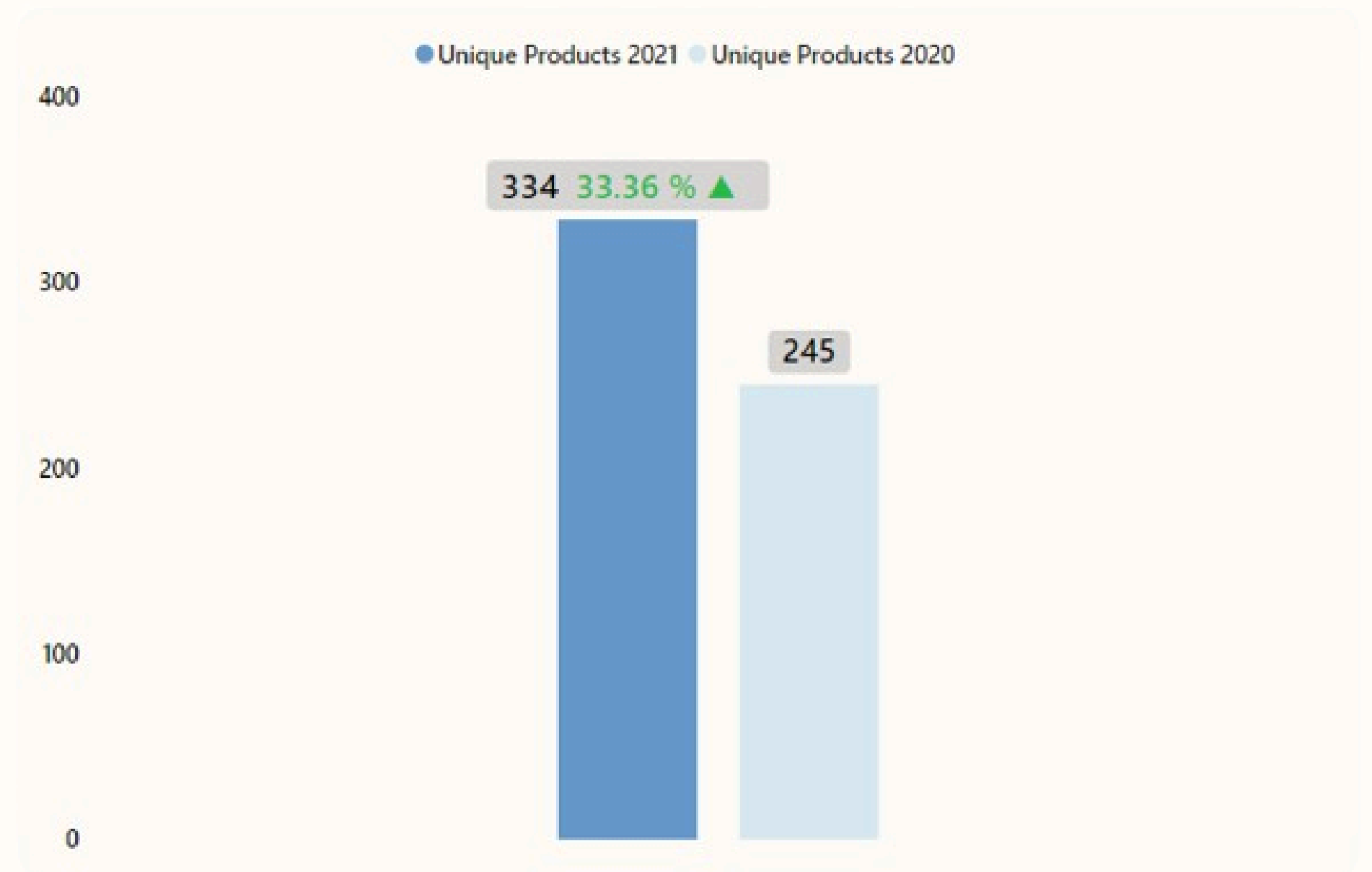AtliQ Hardware has its presence in **8** countries in the Asia - Pacific region.

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

Query output :

	unique_products_2020	unique_products_2021	percentage_chg
▶	245	334	36.3265

Insights :

The unique product lines increased by **33.36%** from **2020 to 2021**, indicating significant growth and diversification.

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

Query output :

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

Insights :

This analysis shows a focus on **notebooks, accessories** and **peripherals** with **83 %** of the total product lines and limited presence in **desktops**,**storage** and **networking**.

Notebook - 129

Accessories - 116

Peripherals - 84

Desktop - 32

Storage - 27
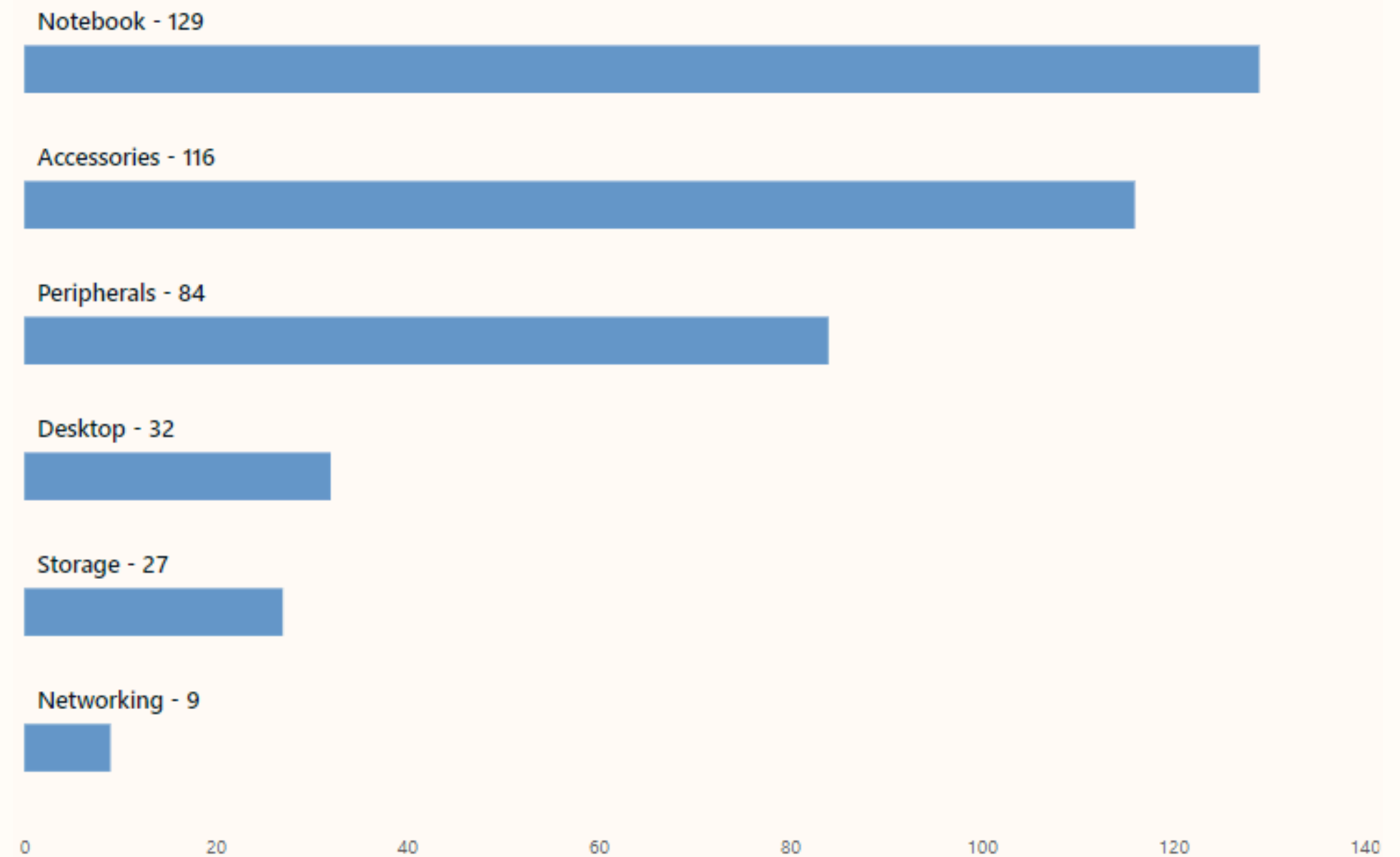
Networking - 9

Which segment had the most increase in unique products in 2021 vs 2020?

Query output :

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

Insights :

- Accessories saw an increase of **49.28%** and highest increase **34** in product count, rising from 69 in 2020 to 103 in 2021.
- Desktop product count experienced a significant surge of **214.29%**, growing from 7 in 2020 to 22 in 2021.
- Notebook products had a modest increase of **17.39%**, going from 92 in 2020 to 108 in 2021.
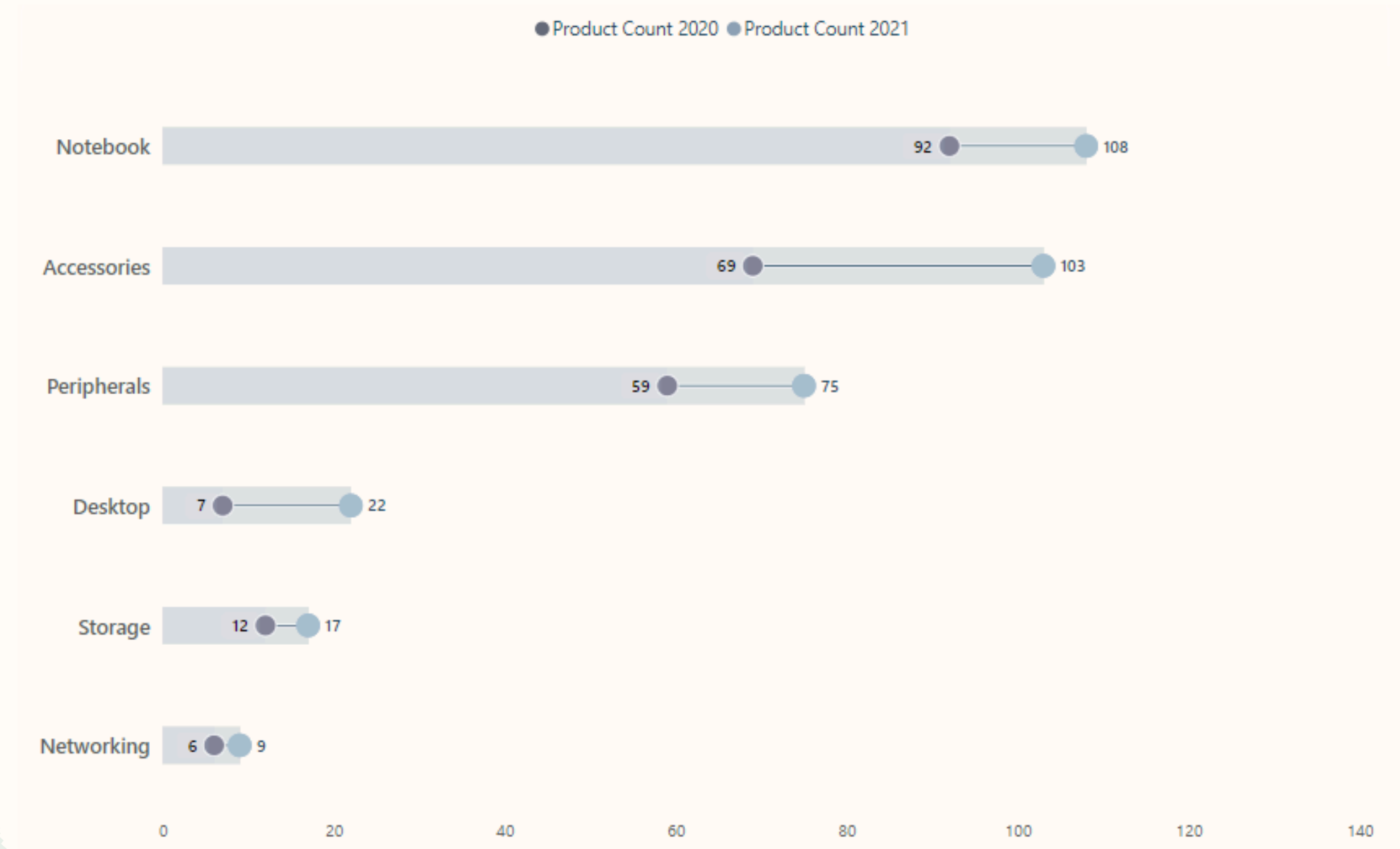
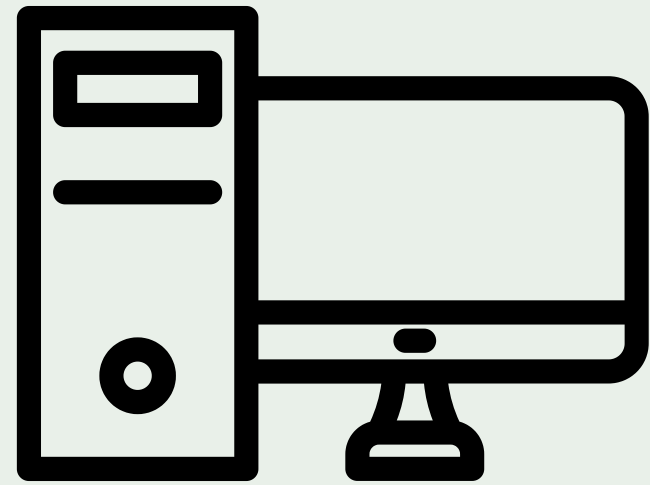# Get the products that have the highest and lowest manufacturing costs.

Query output :

product_code	Product	manufacturing_cost
A6120110206	AQ HOME Allin1 Gen 2(Plus 3)	240.5364
A2118150101	AQ Master wired x1 Ms(Standard 1)	0.8920

Insights :

Highest Manufacturing Cost:
AQ HOME Allin1 Gen 2 (Plus 3) – **$240.54**
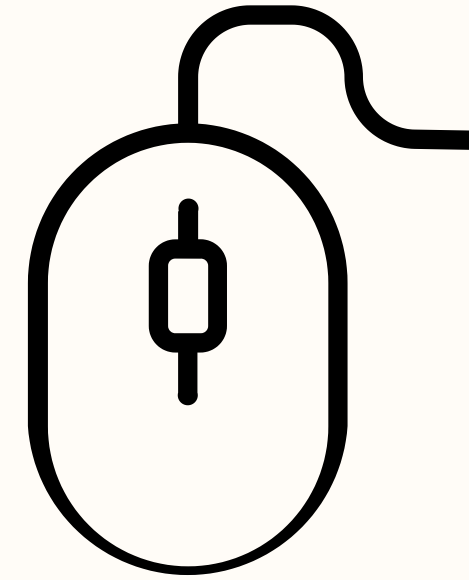
Lowest Manufacturing Cost:
AQ Master wired x1 Ms (Standard 1) – **$0.89**

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.

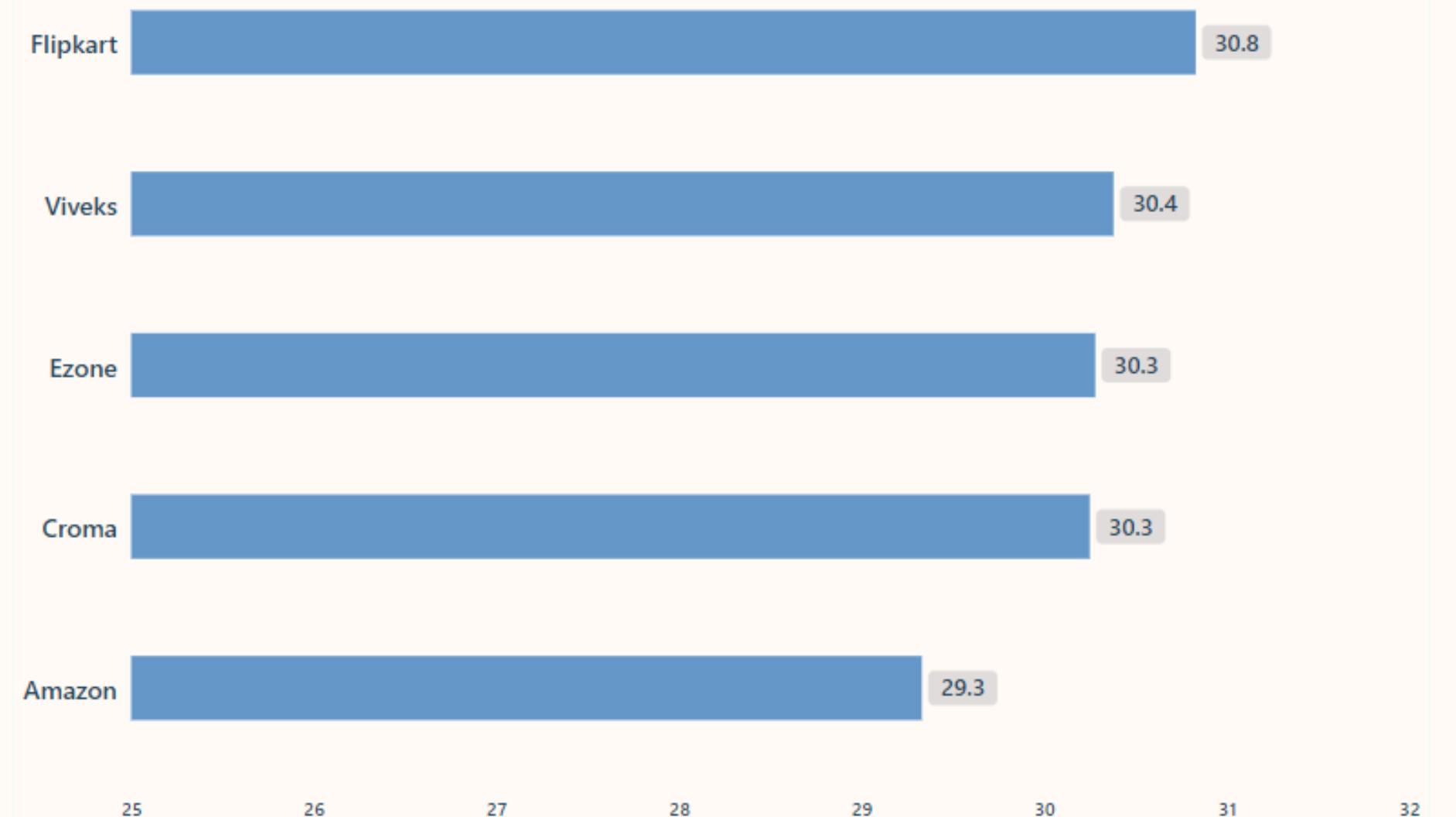**Query output :**

customer_code	customer	average_discount_percentage
90002009	Flipkart	30.8300
90002006	Viveks	30.3800
90002003	Ezone	30.2800
90002002	Croma	30.2500
90002016	Amazon	29.3300

Insights :

- The data indicates that Flipkart is the customer receiving the highest discount in the Indian market **30.83 %**, which might suggest a strong negotiation power or volume of purchases.
- The close percentages among the top four customers (ranging from **30.3% to 30.8%**) show a competitive discounting environment in the Indian market.

**Highest pre-invoice Discount percent by Customers in Indian market**

Customer	Discount
Flipkart	30.8
Viveks	30.4
Ezone	30.3
Croma	30.3
Amazon	29.3

Get the complete report of the Gross sales amount for the customer "Atliq Exclusive" for each month .

Query output :

month	Year	fiscal_year	gross_sales
September	2019	2020	4.496 M
October	2019	2020	5.136 M
November	2019	2020	7.523 M
December	2019	2020	4.830 M
January	2020	2020	4.741 M
February	2020	2020	3.996 M
March	2020	2020	0.379 M
April	2020	2020	0.395 M
May	2020	2020	0.784 M
June	2020	2020	1.695 M
July	2020	2020	2.551 M
August	2020	2020	2.787 M
September	2020	2021	12.354 M
October	2020	2021	13.219 M
November	2020	2021	20.465 M
December	2020	2021	12.945 M
January	2021	2021	12.399 M
February	2021	2021	10.130 M
March	2021	2021	12.144 M
April	2021	2021	7.312 M
May	2021	2021	12.150 M
June	2021	2021	9.825 M
July	2021	2021	12.092 M
August	2021	2021	7.179 M

Insights :

Gross sales by Month
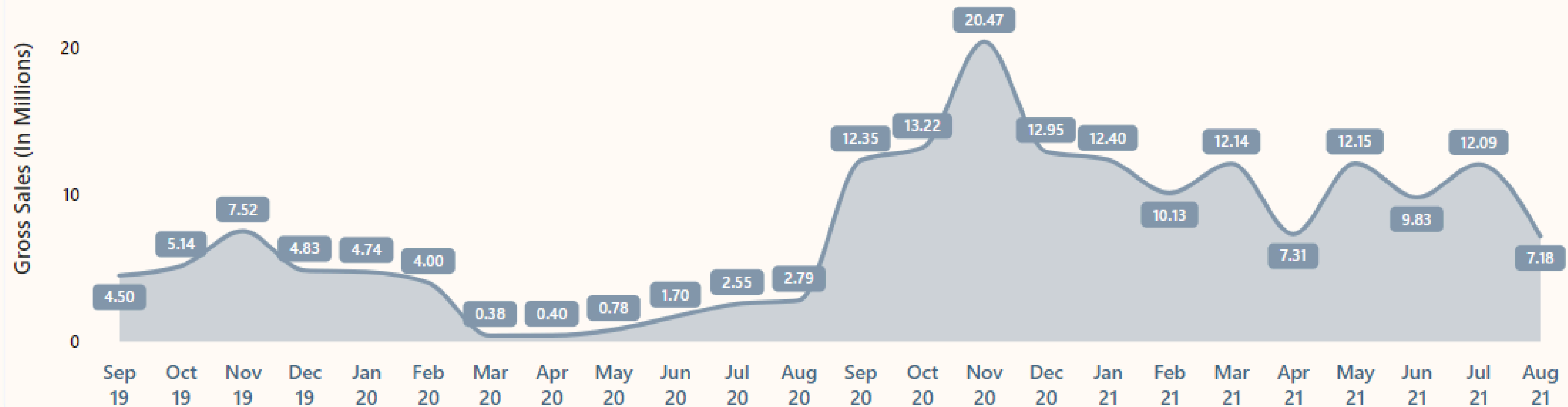
- Revenue increased by **299.87%** from 2020 to 2021
- Gross sales in 2021 saw a significant increase from 2020, with November rising from 7.523 M to 20.465 M **(172.91%).**
- Sales in March 2021 surged to 12.144 M from just 0.379 M in March 2020, a **3,105.80%** increase.
- The dip in March ,April,May 2020 is due to the Global Pandemic **COVID-19.**

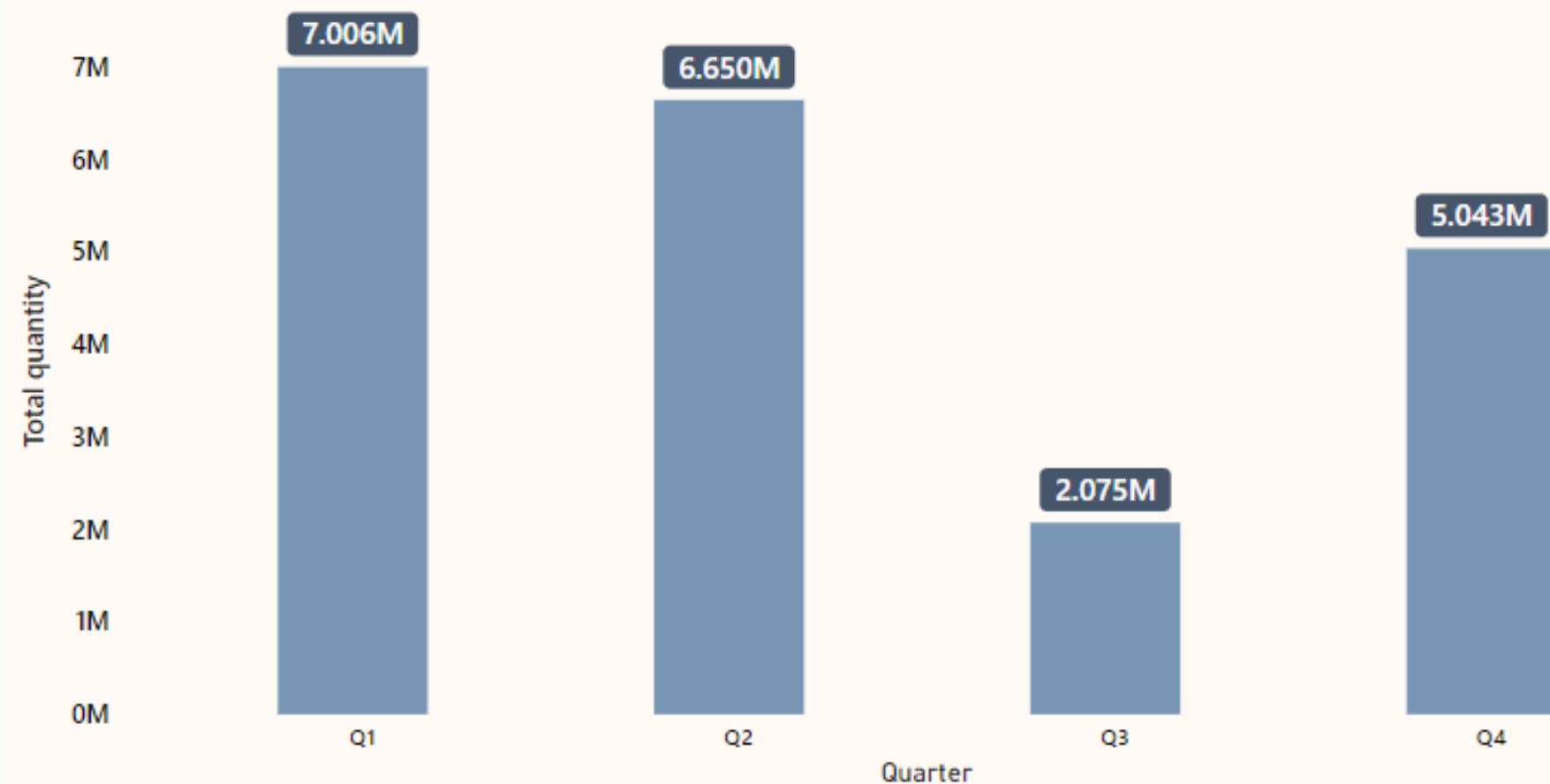# In which quarter of 2020, got the maximum total_sold_quantity?

Query output :

Quarter	Total_Quantity
Q1	7005619
Q2	6649642
Q3	2075087
Q4	5042541

Insights :

- **Q1** leads with the highest sales **7.006M** total quantity sold.
- **Q3** experiences a substantial drop in sales by approximately **68.8%** from Q2.
- **Q4** sees a notable rebound, increasing sales by around **143.4%** from Q3.
- Overall, the year 2020 shows resilience despite the **Q3** dip, with **Q1** and **Q2** contributing significantly to a strong annual performance.

Total Quantity Quarter-wise

Quarter	Total quantity
Q1	7.006M
Q2	6.650M
Q3	2.075M
Q4	5.043M

In which quarter of 2020, got the maximum total_sold_quantity?

Query output :

channel	gross_sales_mln	percentage
Direct	257.53	15.47
Retailer	1219.08	73.23
Distributor	188.03	11.30

Insights :

- **Retailer Channel** leads with the highest sales, contributing **73.23%** of the total, indicating it is the primary driver of revenue.
- **Direct Channel** accounts for **15.47%** of sales, showing a significant, though smaller, role compared to retailers.
- **Distributor Channel** contributes **11.30%** to sales, suggesting it plays a more limited role in overall revenue generation.

Channel-wise Contribution for FY -2021

188.03 (11.3%)

257.53 (15.47%)

1219.08 (73.23%)

- Retailer
- Direct
- Distributor
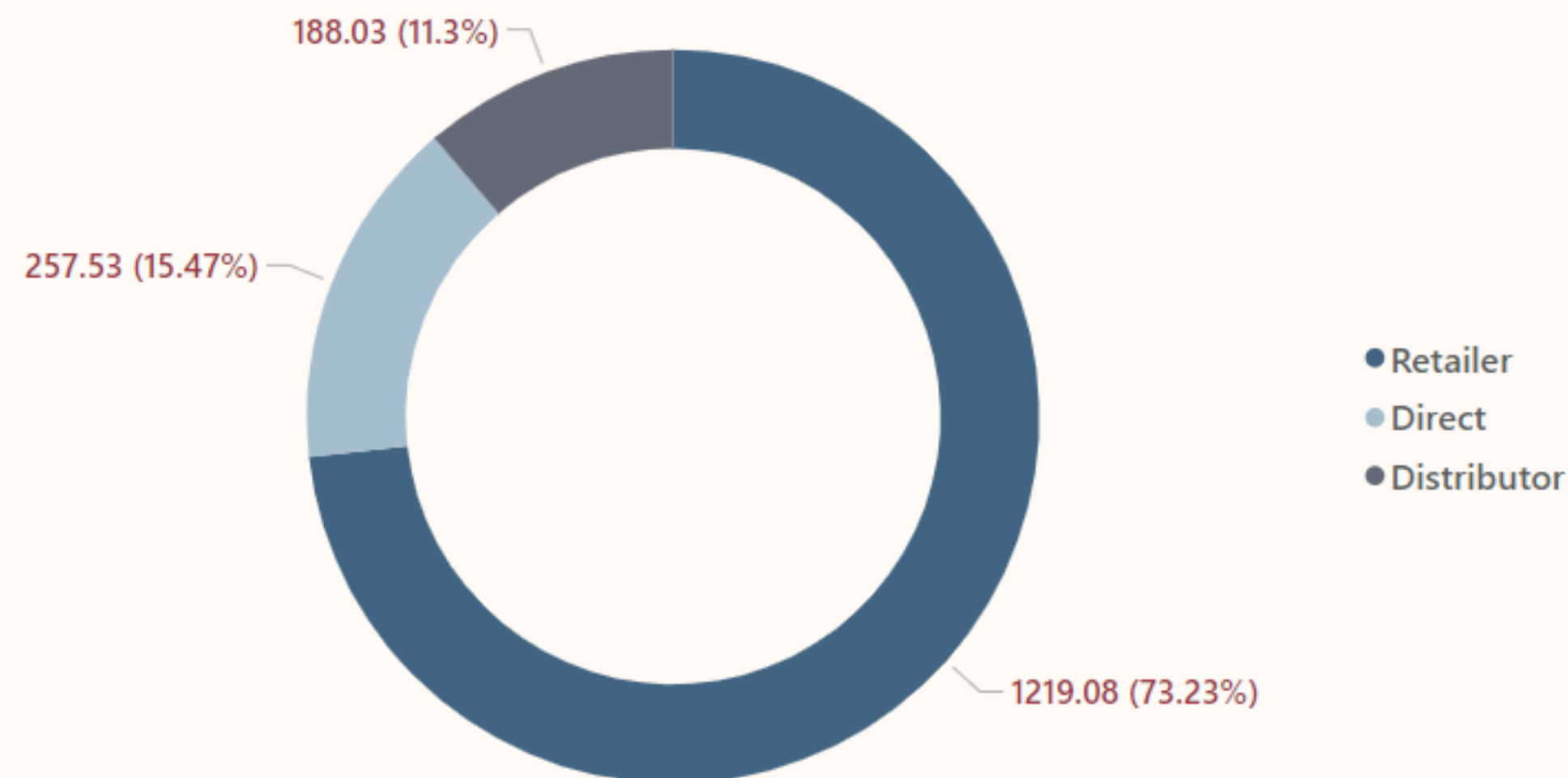
In which quarter of 2020, got the maximum total_sold_quantity?

Query output :

	division	product_code	Product	total_sold_quantity	rnk
▶	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 :

- AQ Pen Drive 2 IN 1(**Variant :Premium**) is the top performer overall, with the highest total sold quantity of **701,373** units, reflecting strong demand in the "N & S" division.
- AQ Gamers Ms(**Variant:Standard 2**) leads in the "P & A" division with **428,498** units sold, suggesting its popularity and effectiveness in that market segment.
- **PC division** products have significantly lower sales volumes compared to other divisions.

Top 3 Products by N & S

AQ Pen Drive 2 IN 1(Premium) | 701373

AQ Pen Drive DRC(Plus) | 688003

AQ Pen Drive DRC(Premium) | 676245

Top 3 Products by PC

AQ Digit(Standard Blue) | 17434

AQ Velocity(Plus Red) | 17280

AQ Digit(Premium Misty Green) | 17275

Top 3 Products by P & A

AQ Gamers Ms(Standard 2) | 428498

AQ Maxima Ms(Plus 2) | 419471

AQ Maxima Ms(Standard 1) | 419865

Thank You !