

# Ad-Hoc Insights

## Consumer Goods

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SQL Project Challenge





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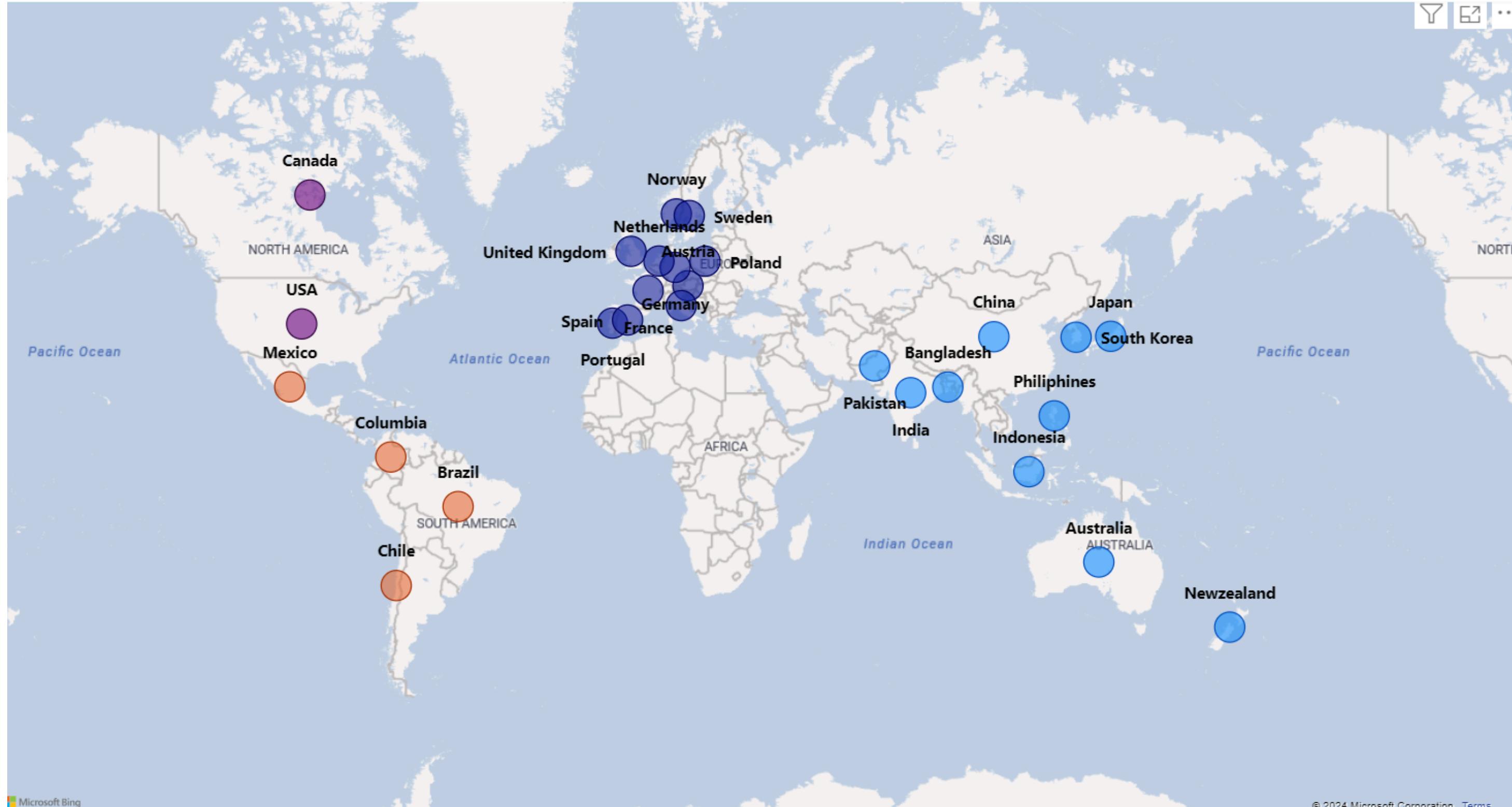


# Company Overview

- Atliq Hardware (Imaginary company) is one of India's leading computer hardware and accessory manufacturers, with a strong presence in international markets.
- AtliQ Hardware operates across major global markets, including APAC, EU, LATAM, and NA. Its strong international presence supports diversified customer reach and business growth.

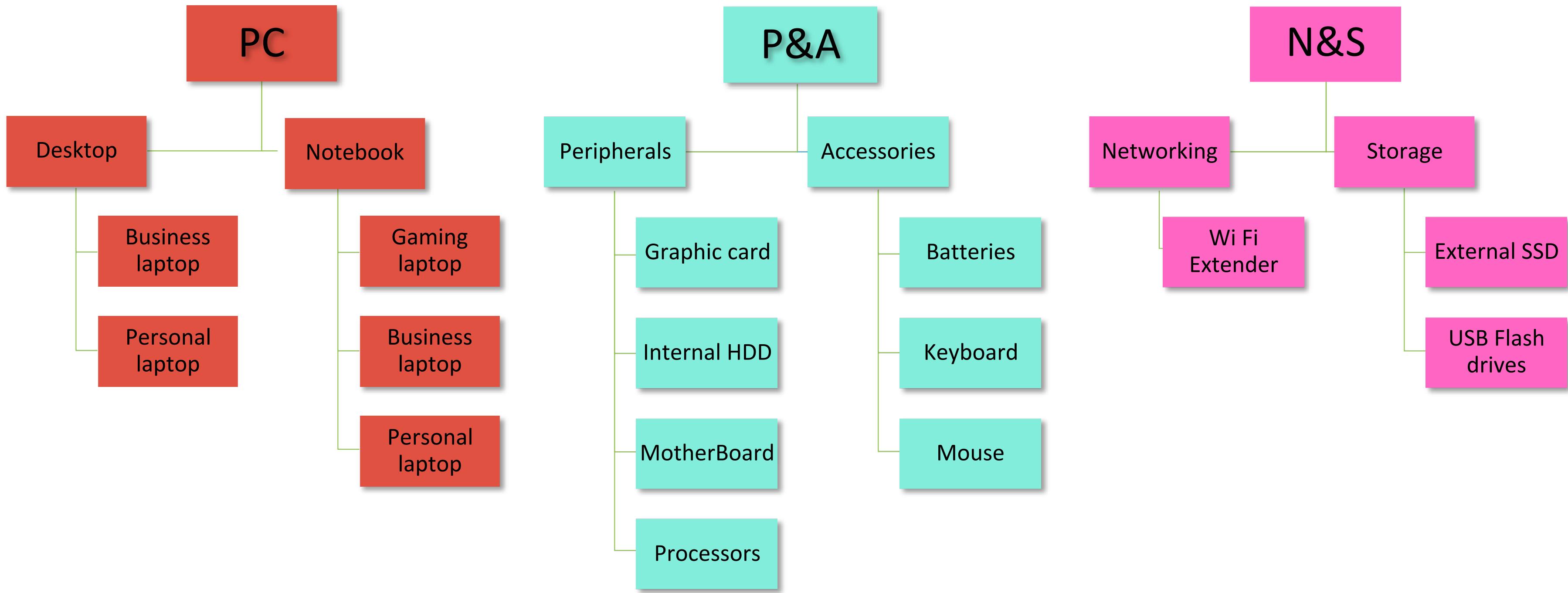


# Markets





# Product lines



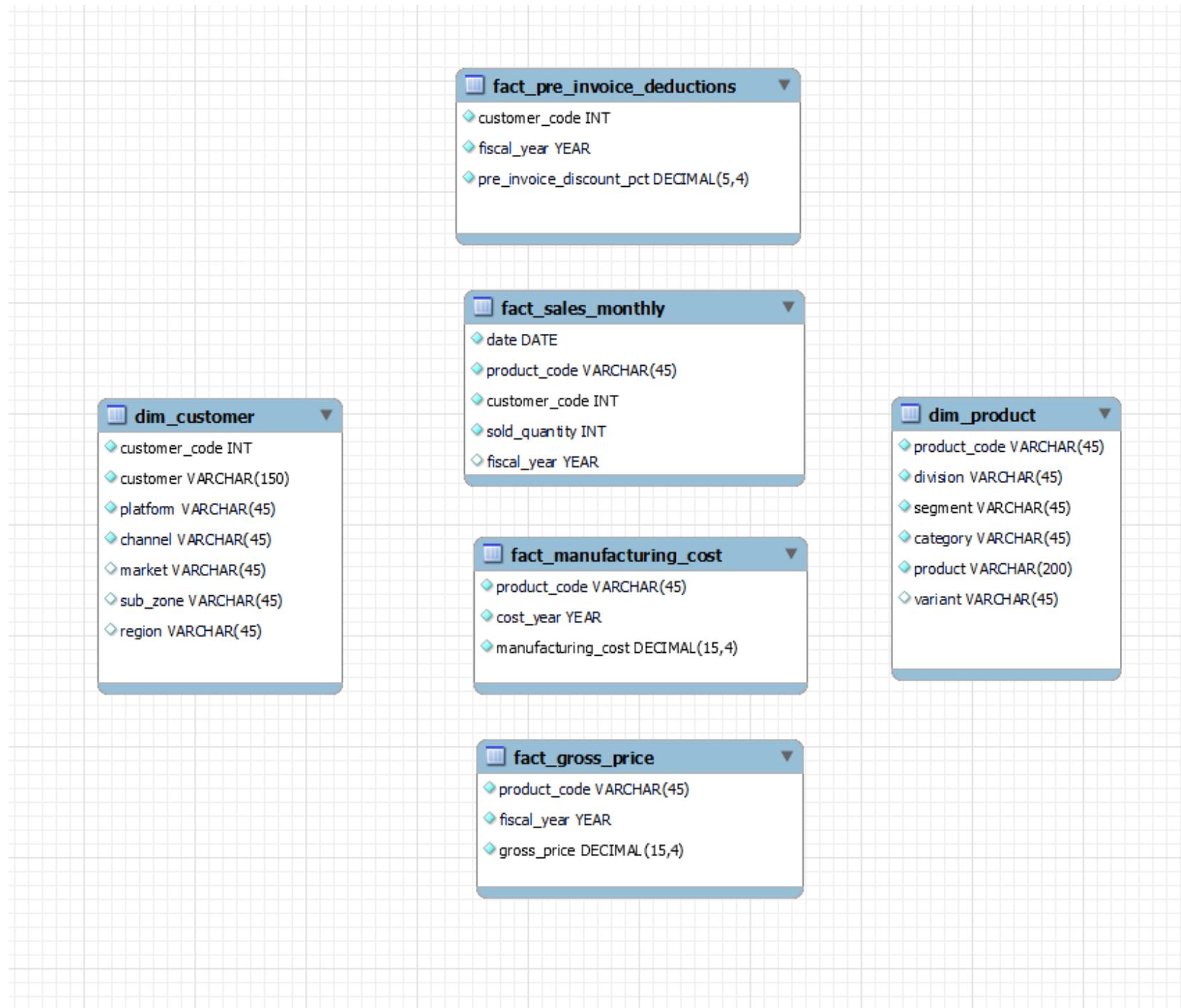


# Problem Statement

- The management did note that they do not have sufficient insights to make prompt, wise, and data-informed judgments.
- Plan to expand the data analytics team by adding junior data analysts.
- To assess candidates, Data analytics director, Tony Sharma plans to conduct a SQL challenge to evaluate both tech and soft skills.
- The company seeks insights for 10 ad hoc requests.



# Dataset



## Codebasics SQL Challenge

### Requests:

- Provide the list of markets in which customer "Atliq Exclusive" operates its business in the APAC region.
- 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
- 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
- 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
- Get the products that have the highest and lowest manufacturing costs. The final output should contain these fields,
  - product\_code
  - product
  - manufacturing\_cost
- 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
- 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
- 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
- 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
- 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

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# Ad-hoc requests , output and insights

**Request 1 :**

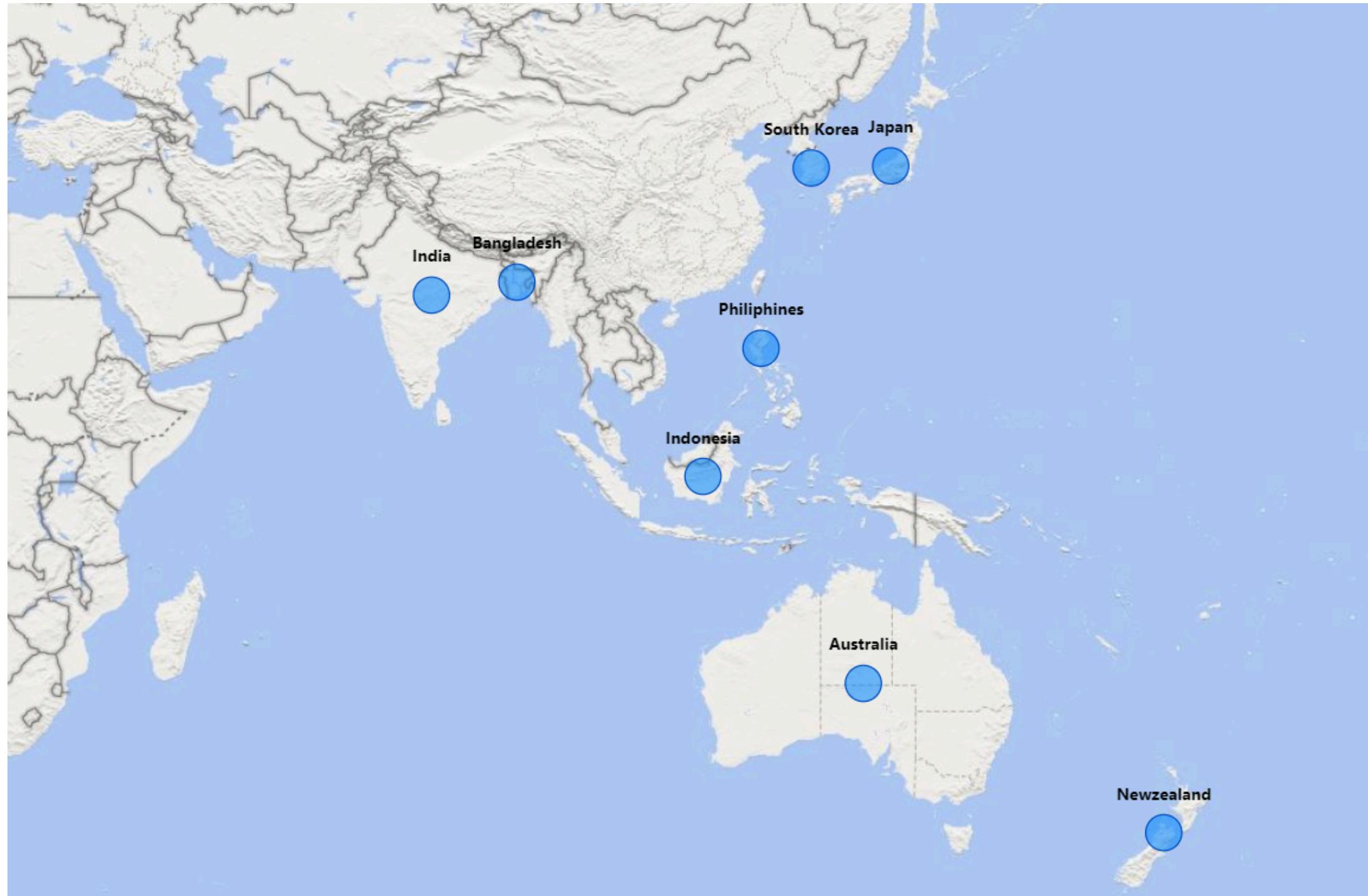
Provide the list of markets in which customer "AtliQ Exclusive" operates its business in the APAC region.

**Input :**

```
select
    distinct market
from dim_customer
where customer = "AtliQ exclusive"
and
region = "APAC"
;
```

# Output :

market
▶ India
Indonesia
Japan
Philippines
South Korea
Australia
Newzealand
Bangladesh



# Insight :

- AtliQ Exclusive operates in eight countries within the APAC region, demonstrating a significant regional market presence.

## Request 2 :

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

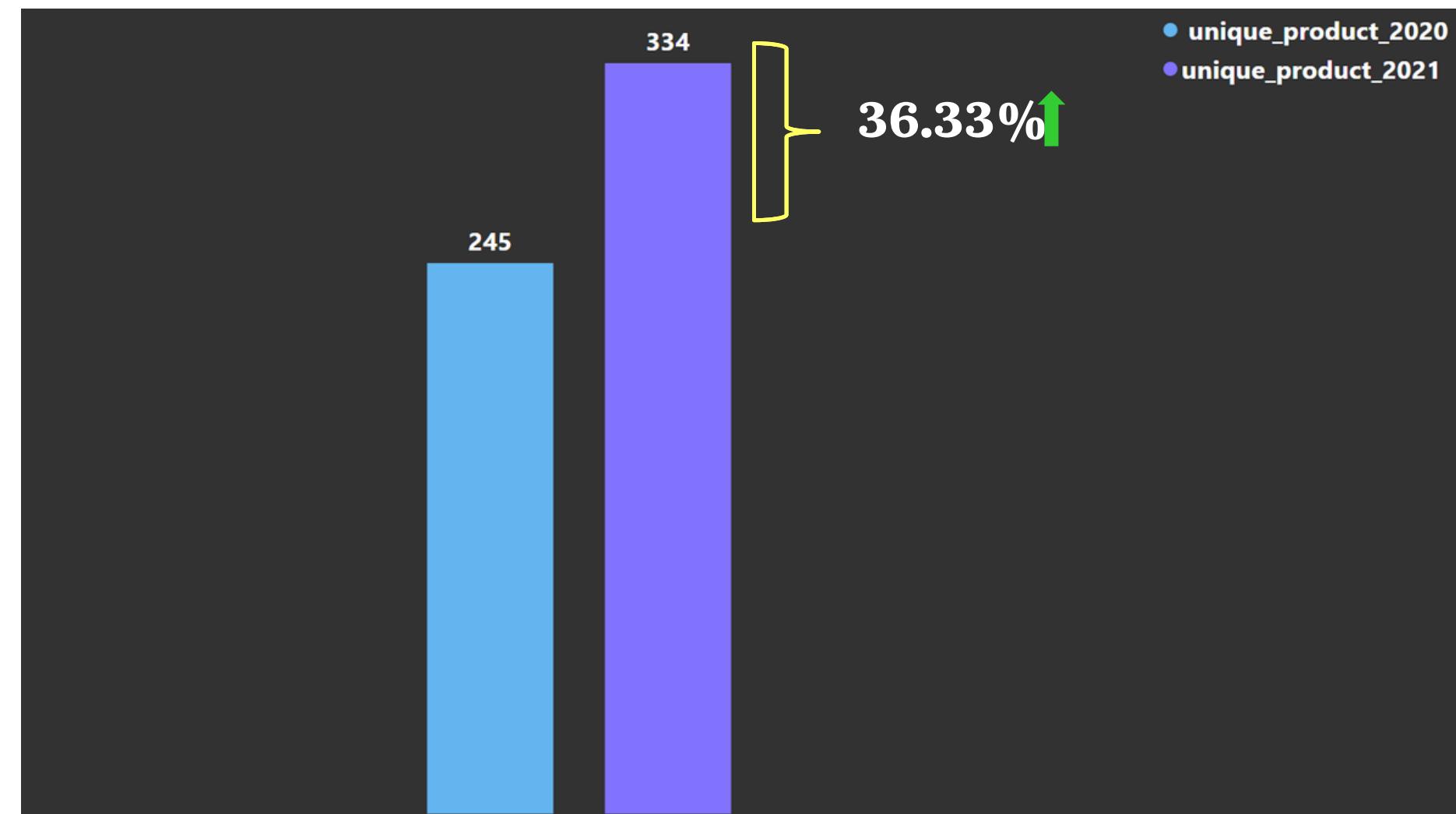
### Input :

```
with cte1 as (
    select count(distinct p.product_code) as unique_product_2020
  from fact_sales_monthly m
  join dim_product p
    on p.product_code=m.product_code
   where m.fiscal_year=2020),

cte2 as (
    select count(distinct p.product_code) as unique_product_2021
  from fact_sales_monthly m
  join dim_product p
    on p.product_code=m.product_code
   where m.fiscal_year=2021)
select unique_product_2020,unique_product_2021,
       round(((unique_product_2021-unique_product_2020)
              *100/unique_product_2020),2) as percentage_chg
  from cte1
  join cte2
```

# Output :

unique_product_2020	unique_products_2021	percentage_chg
245	334	36.33



# Insights :

- The number of unique products increased from 245 in 2020 to 334 in 2021, representing a 36.33% growth.
- This significant growth highlights the company's commitment to innovation and its focus on meeting diverse customer needs.

## Request 3 :

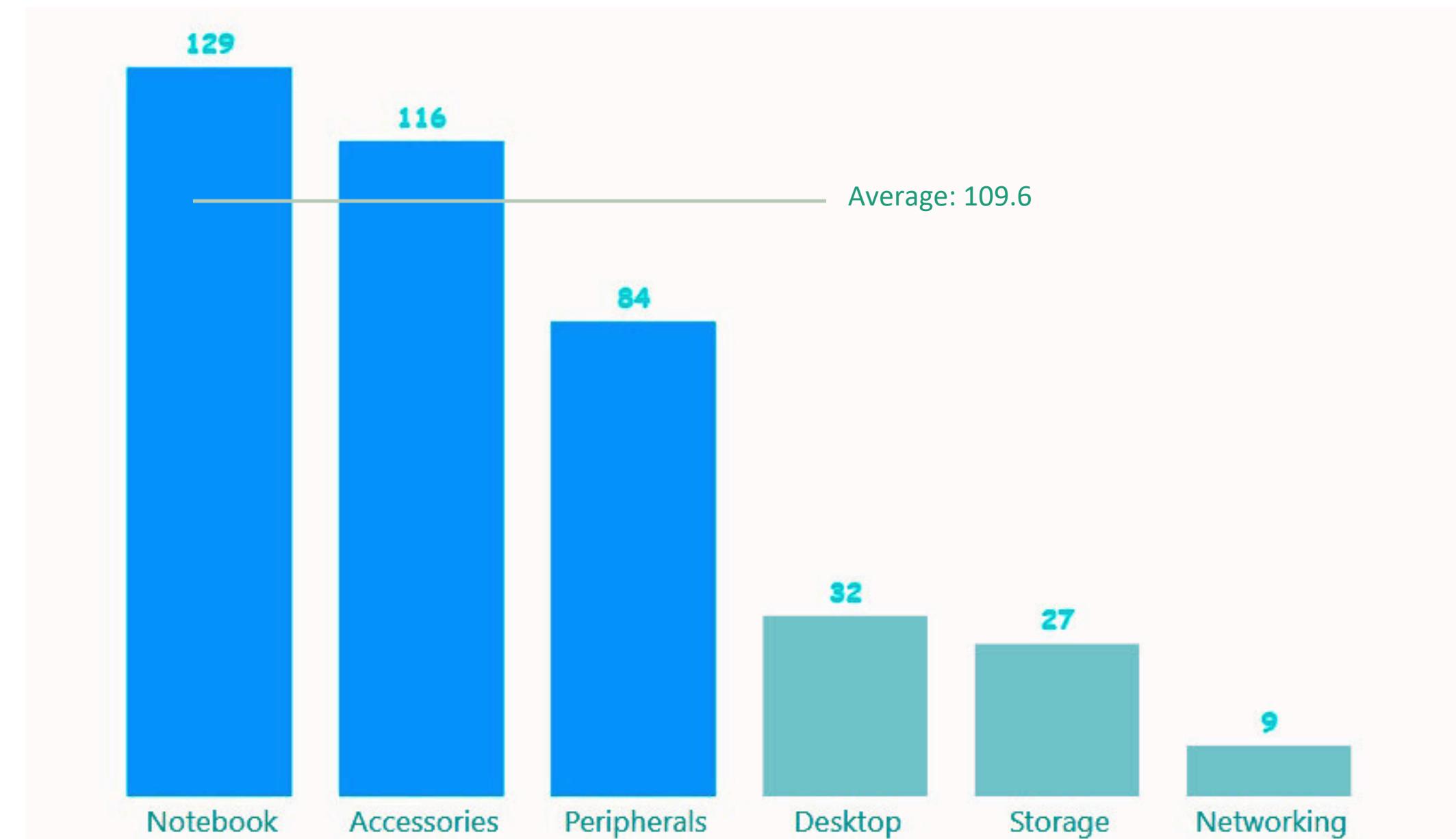
Provide a report with all the unique product counts for each segment and sort them in descending order of product counts.

## Input :

```
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



# Insights :

- AtliQ excels in Notebooks, Accessories, and Peripherals, contributing 82.87% of the total product variety.
- Desktops, Storage, and Networking hold a minor 17.13% share, indicating limited diversification.
- Focusing on trending products in these underrepresented segments can drive portfolio balance and growth.

## Request 4 :

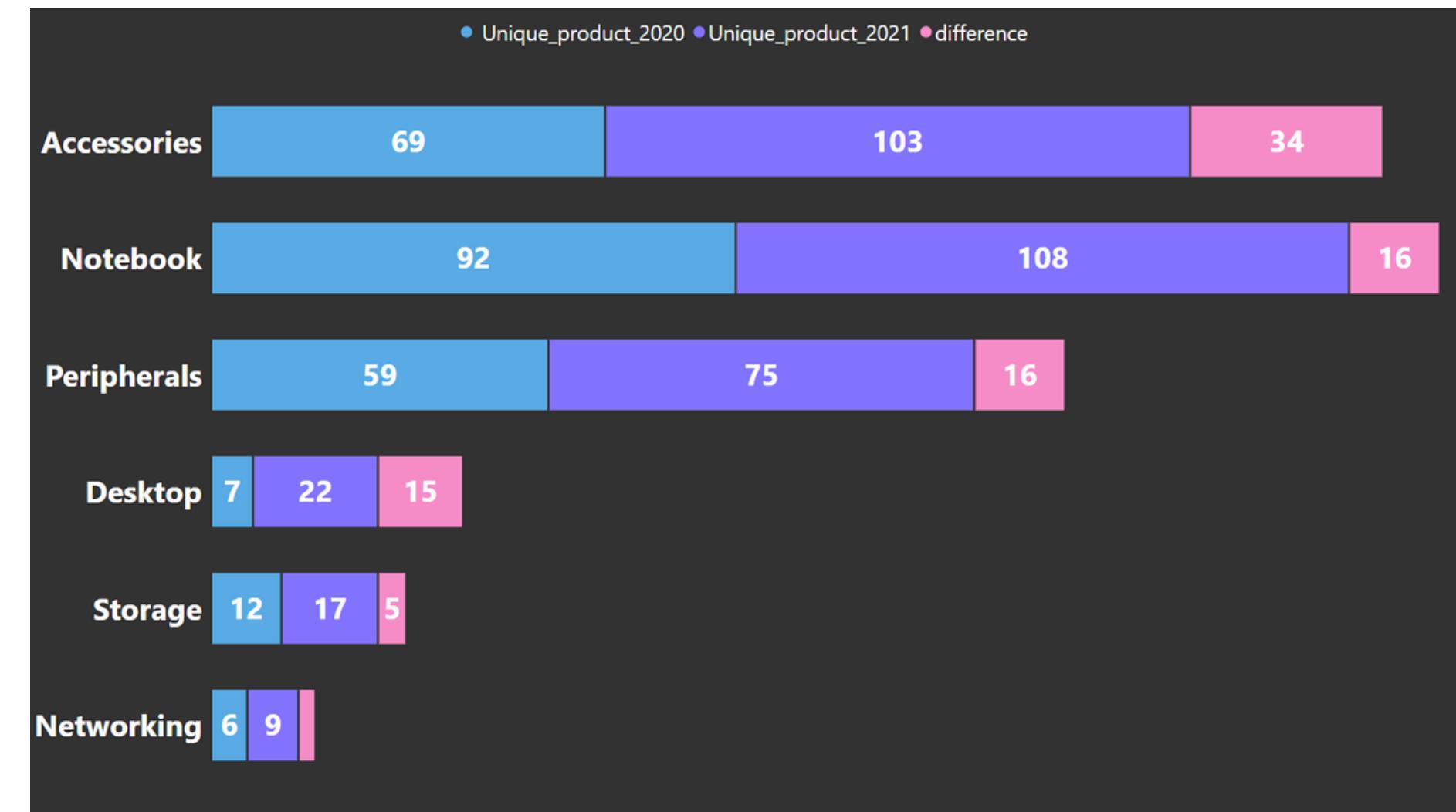
Follow-up: Which segment had the most increase in unique products in 2021 vs 2020?

### Input :

```
with unique_products as(
    select
        p.segment,
        count(distinct(case when fiscal_year = 2020 then s.product_code end)) as product_count_2020,
        count(distinct(case when fiscal_year = 2021 then s.Product_code end)) as product_count_2021
    from fact_sales_monthly s
    join dim_product p
        on s.product_code = p.product_code
    group by p.segment
)
select
    *,
    product_count_2021-product_count_2020 as difference
from unique_products
order by difference desc
;
```

# 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 the highest growth, adding 34 new products from 2020 to 2021.
- Storage and Networking segments recorded the lowest growth in new product additions.

## Request 5 :

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

## Input :

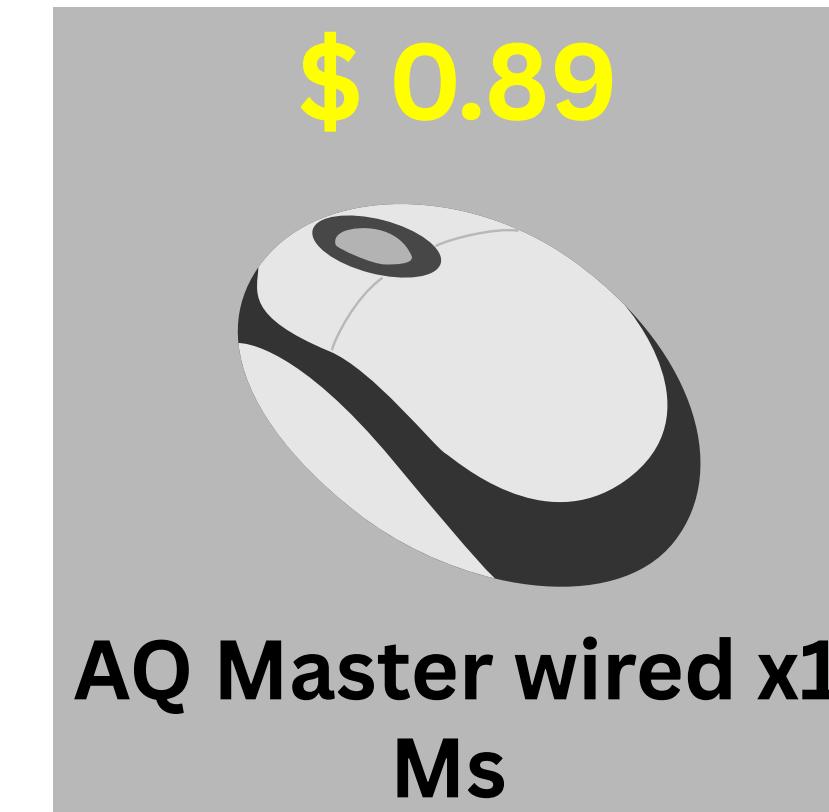
```
(select
    p.product_code,
    p.product,
    m.manufacturing_cost
from dim_product p
join fact_manufacturing_cost m
    on p.product_code = m.product_code
order by m.manufacturing_cost desc
limit 1)
```

union

```
(select
    p.product_code,
    p.product,
    m.manufacturing_cost
from dim_product p
join fact_manufacturing_cost m
    on p.product_code = m.product_code
order by m.manufacturing_cost asc
limit 1)
;
```

## Output :

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



## Insights :

- The lowest manufacturing cost is observed for the Mouse – AQ Master Wired X1 MS (variant: Standard1).
- The highest manufacturing cost is recorded for the Personal Desktop – AQ Home Allin1 Gen2 (variant: Plus3).

## Request 6 :

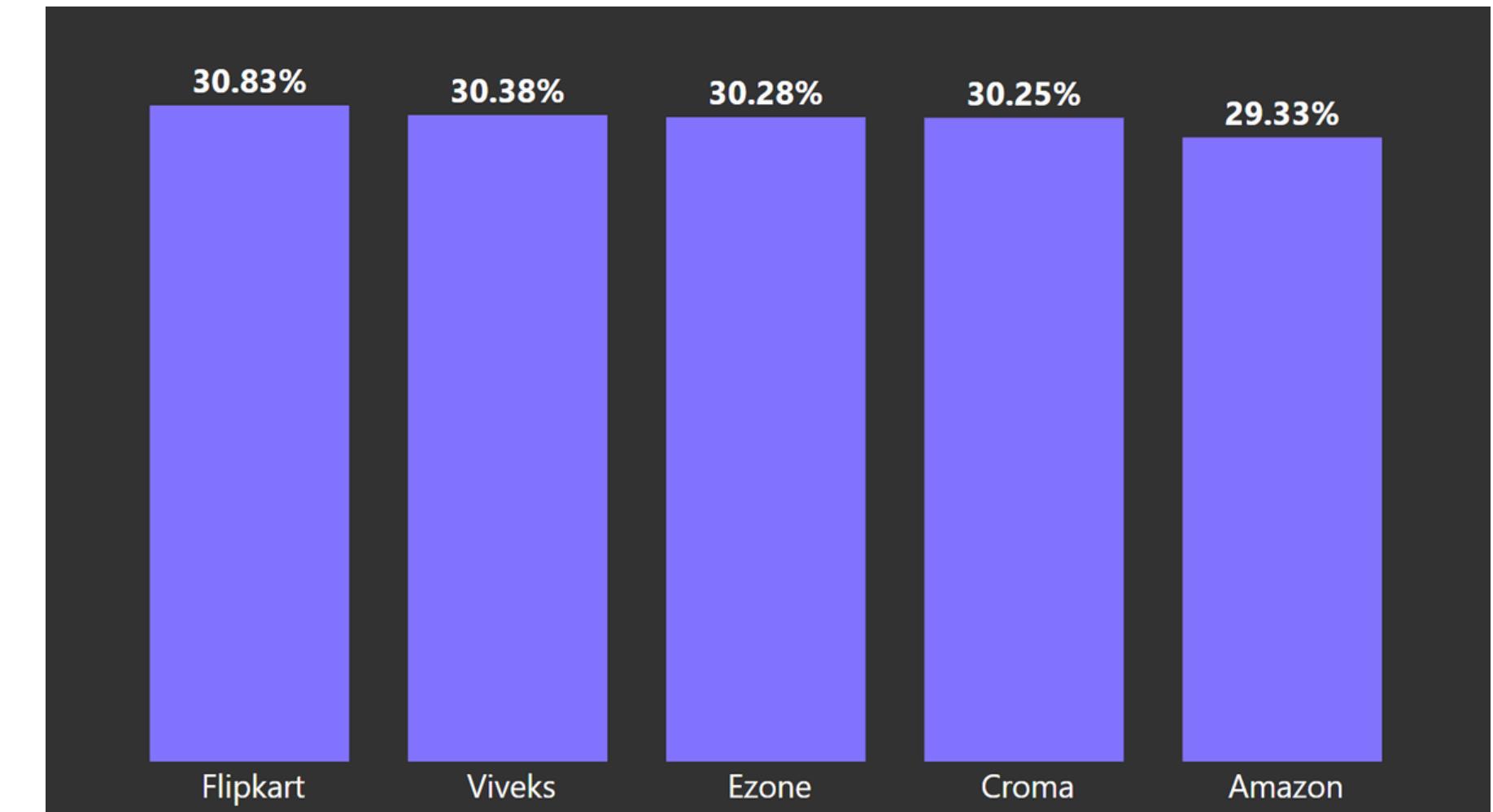
Generate a report which contains the top 5 customers who received an average high pre\_invoice\_discount\_pct for the fiscal year 2021 and in the Indian market.

## Input :

```
select
    c.customer,c.customer_code,
    round(avg(pd.pre_invoice_discount_pct),4) as avg_discount_pct
from fact_pre_invoice_deductions pd
join dim_customer c
    on c.customer_code=pd.customer_code
where c.market="india"
    and
    pd.fiscal_year=2021
group by c.customer_code,c.customer
order by avg_discount_pct desc
limit 5
```

# Output :

	customer_code	customer	avg_discount_pct
▶	90002009	Flipkart	30.83%
	90002006	Viveks	30.38%
	90002003	Ezone	30.28%
	90002002	Croma	30.25%
	90002016	Amazon	29.33%



# Insights :

- Flipkart leads the list with the highest average discount percentage at 30.83%.
- AtliQ maintains a consistent discount strategy for its top 5 customers, ranging between 29.33% and 30.83%.

## Request 7 :

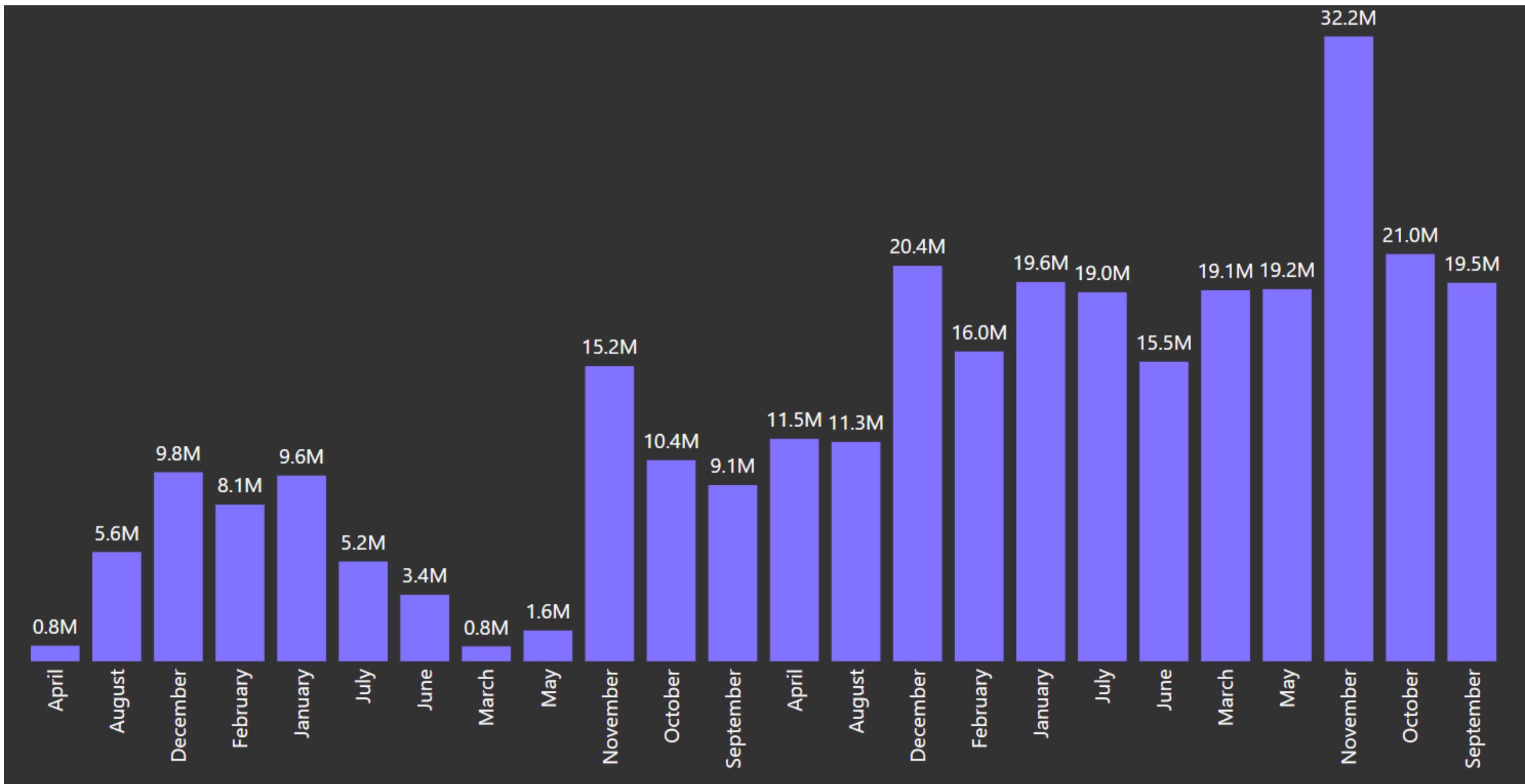
Get the complete report of the Gross sales amount for the customer “AtliQ Exclusive” for each month. This analysis helps to get an idea of low and high-performing months and take strategic decisions.

### Input :

```
Select  
    monthname(s.date) as Month ,  
    s.fiscal_year as Year,  
    sum(sold_quantity*gross_price) as  
        Gross_sales  
from fact_sales_monthly s  
join fact_gross_price g  
    on s.product_code = g.product_code  
join dim_customer c  
    on s.customer_code = c.customer_code  
where customer = "AtliQ Exclusive"  
group by month,year  
order by year asc  
;
```

# Output :

Month	Year	Gross_sales
September	2020	9092670.3392
October	2020	10378637.5961
November	2020	15231894.9669
December	2020	9755795.0577
January	2020	9584951.9393
February	2020	8083995.5479
March	2020	766976.4531
April	2020	800071.9543
May	2020	1586964.4768
June	2020	3429736.5712
July	2020	5151815.4020
August	2020	5638281.8287
September	2021	19530271.3028
October	2021	21016218.2095
November	2021	32247289.7946
December	2021	20409063.1769
January	2021	19570701.7102
February	2021	15986603.8883
March	2021	19149624.9239
April	2021	11483530.3032
May	2021	19204309.4095
June	2021	15457579.6626
July	2021	19044968.8164
August	2021	11324548.3409



# Insights :

- Sales were lowest in March–May 2020 due to the COVID-19 pandemic, with recovery beginning after June and peaking at around 15.23M in November.
- In 2021, sales showed significant growth compared to 2020, with the lowest sales in August at 11.32M and the highest in November, reaching 32.25M.

## Request 8 :

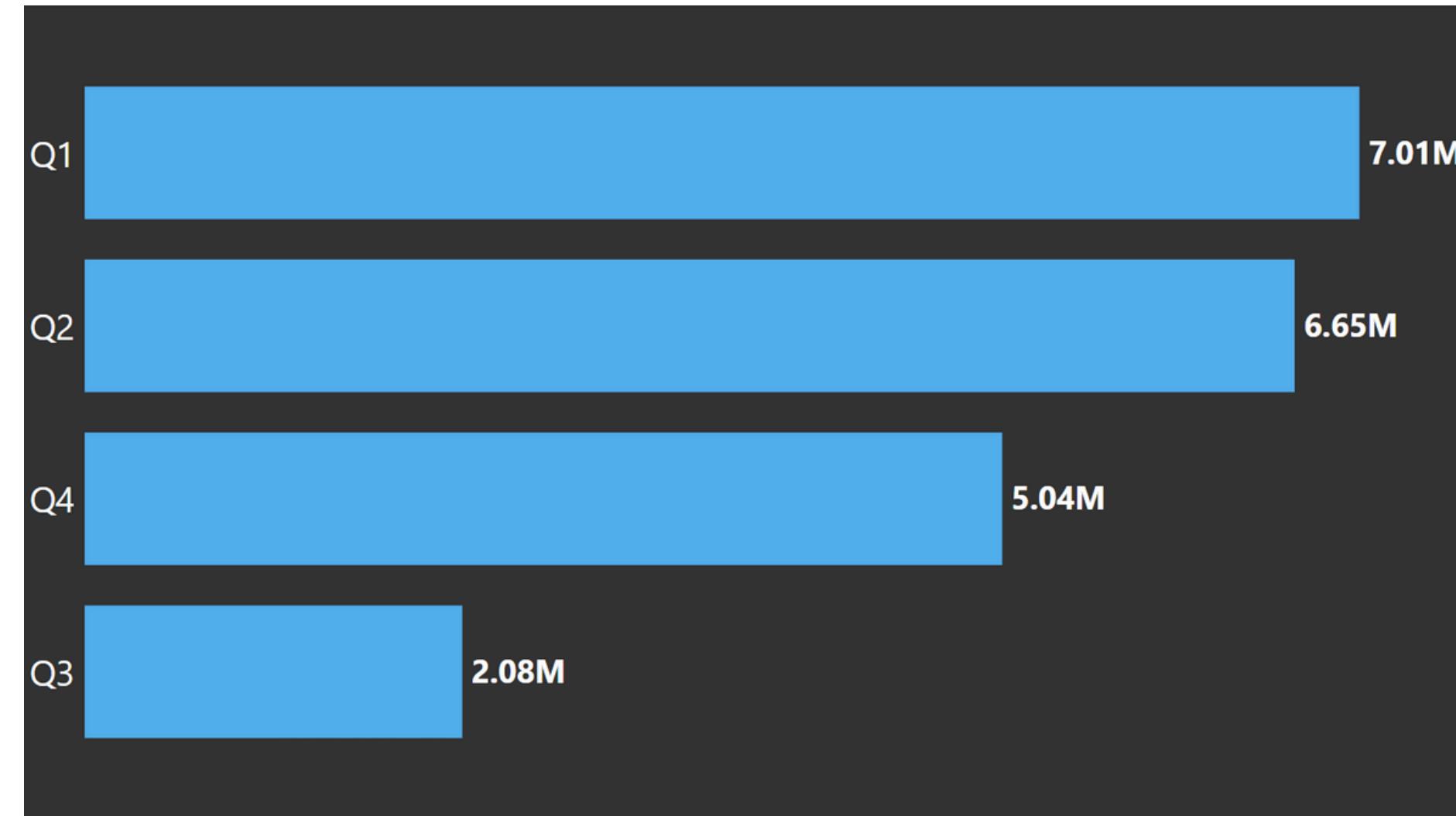
In which quarter of 2020, got the maximum total\_sold\_quantity? The final output contains these fields sorted by the total\_sold\_quantity, Quarter, total\_sold\_quantity.

## Input :

```
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,
    sum(sold_quantity) as total_sold_qty
from fact_sales_monthly
where fiscal_year = 2020
group by Quarter
order by total_sold_qty desc
;
```

# Output :

Quarter	total_sold_qty
Q1	7005619
Q2	6649642
Q4	5042541
Q3	2075087



# Insights :

- Q1 of FY2020 recorded the highest sales volume, contributing approximately 34% of the total sold quantity (~7 million units), indicating strong early-year performance. December had the highest monthly sales, while March recorded the lowest.
- Sales declined significantly in Q3 (March, April, May), likely due to the COVID-19 pandemic, reflecting challenging market conditions and changing consumer behavior.

## Request 9 :

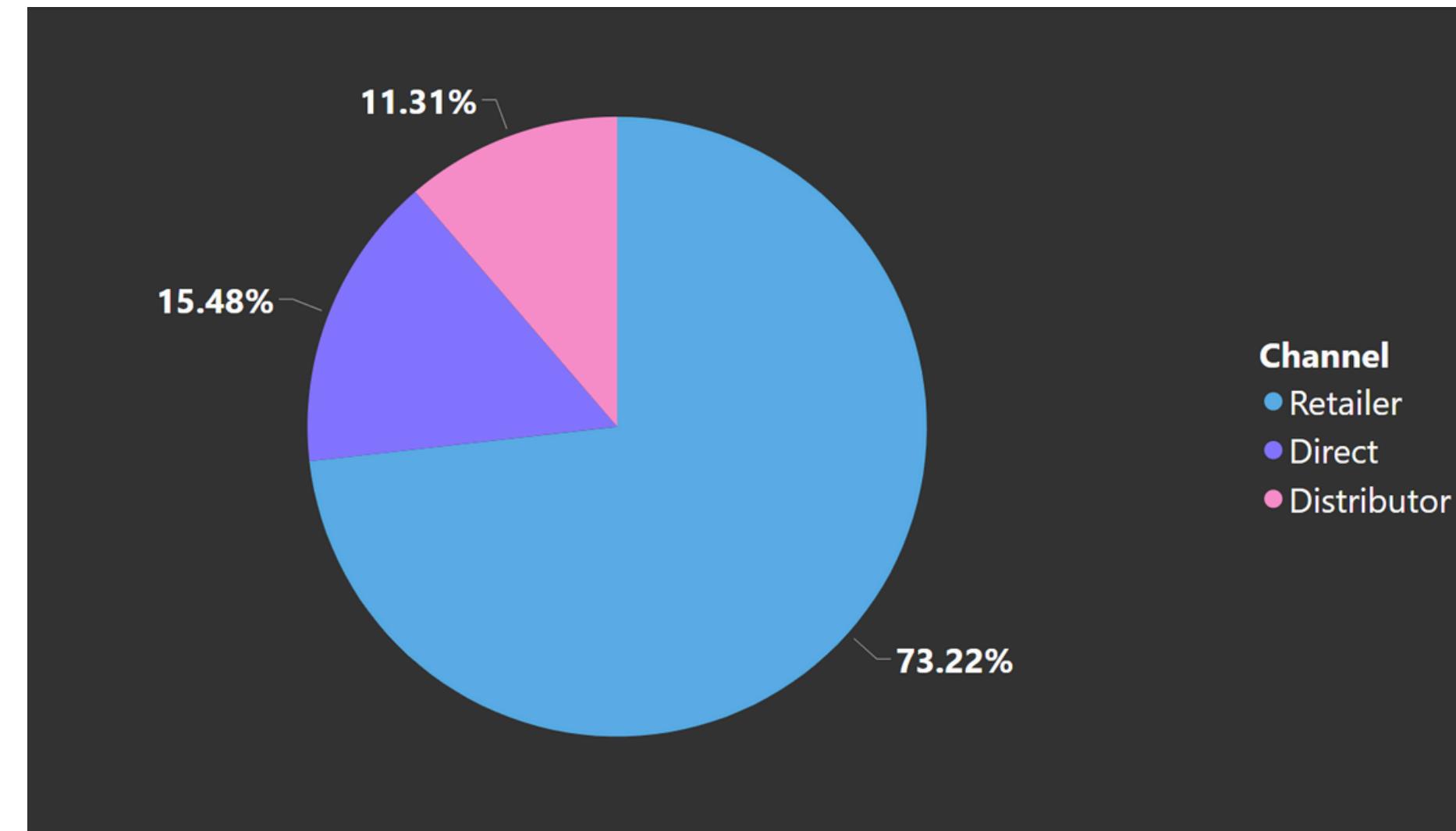
Which channel helped to bring more gross sales in the fiscal year 2021 and the percentage of contribution?

### Input :

```
with cte1 as (
    select
        c.channel,
        round(sum((s.sold_quantity*g.gross_price)/1000000),2) as
        gross_sales_mln
        from dim_customer c
        join fact_sales_monthly s
            on c.customer_code = s.customer_code
        join fact_gross_price g
            on s.product_code = g.product_code
        where s.fiscal_year = 2021
        group by c.channel
)
select
    *,
    concat(round(gross_sales_mln*100/ (select sum(gross_sales_mln) from
    cte1),2)," %") as pct_contribution
from cte1
order by pct_contribution desc
;
```

# Output :

channel	gross_sales_mln	pct_contribution
Retailer	1924.17	73.22 %
Direct	406.69	15.48 %
Distributor	297.18	11.31 %



# Insights :

- Retailers drive the majority of AtliQ's sales, contributing 73.22% of total gross sales.
- Direct and distributor channels combined account for only 26.79% of total sales.

## Request 10 :

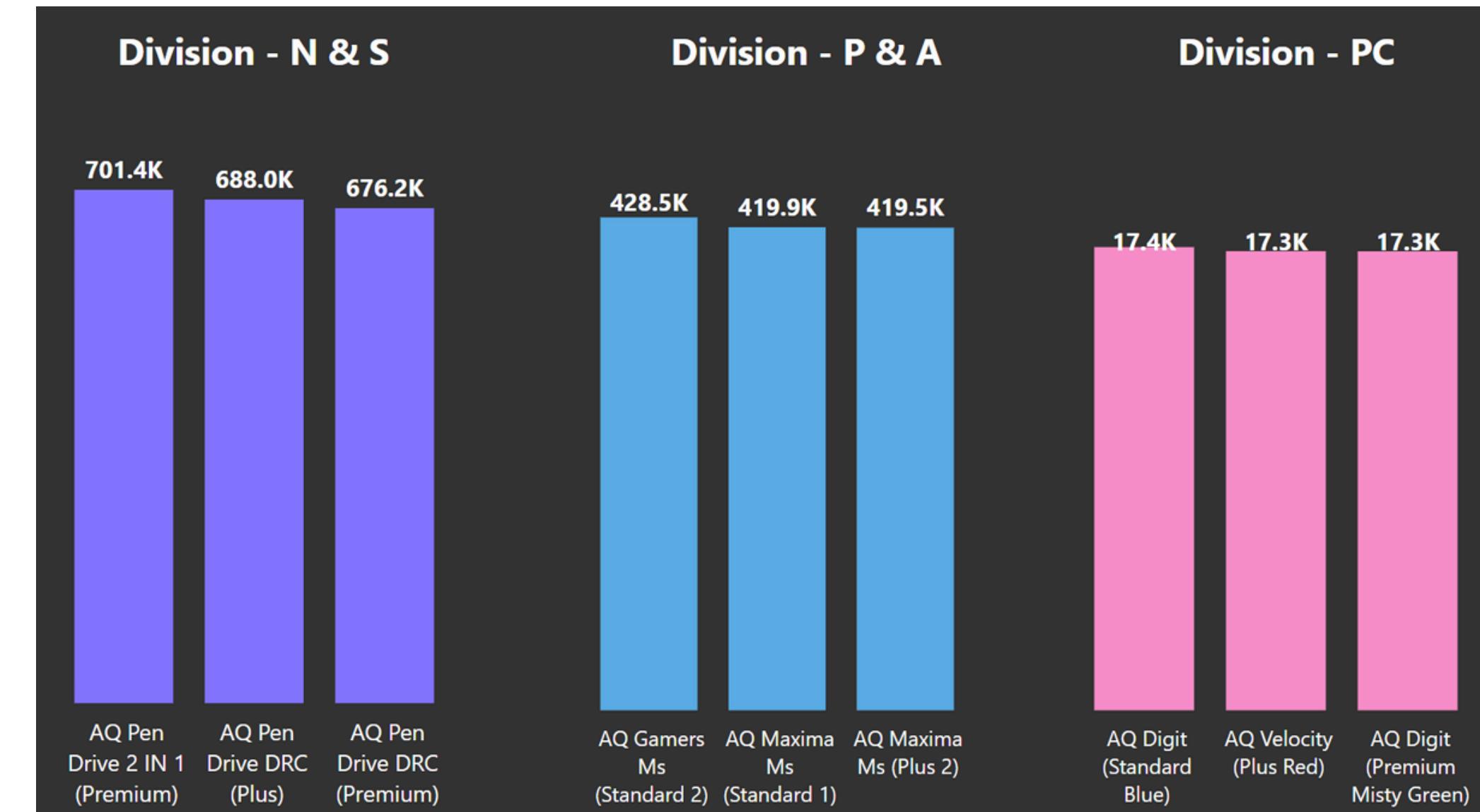
Get the Top 3 products in each division that have a high total\_sold\_quantity in the fiscal\_year 2021?

### Input:

```
with ctel as(
    select
        p.division,
        s.product_code,
        concat(p.product, " (", p.variant, ")") as product,
        sum(s.sold_quantity) as total_sold_qty,
        rank() over(partition by p.division order by sum(s.sold_quantity)
desc) as rank_order
    from dim_product p
    join fact_sales_monthly s
        on p.product_code = s.product_code
    where fiscal_year = 2021
    group by p.division,s.product_code,p.product
)
select
    *
from ctel
where rank_order <= 3
;
```

# Output :

division	product_code	product	total_sold_qty	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 :

- In the Networking & Storage (N&S) division, pen drives dominate the top three spots, with around 7 lakh units sold, highlighting their strong demand and sales performance.
- In the Peripherals & Accessories (P&A) division, the top three products are exclusively mice, recording sales of approximately 4 lakh units, indicating high consumer preference for these devices.
- In the PC division, personal laptops lead the sales charts, with the top three products collectively selling around 17,000 units, reflecting steady demand in this segment.

**THANK YOU!**