CONSUMER AD-HOC INSIGHTS For AtliQ Hardware

SQL + Power BI Project Presented by: Ritik Mishra

About the Company

AtliQ Hardwares is a prominent Indian computer hardware brand with a global footprint. Known for its innovation and product quality, AtliQ offers a wide range of devices, including personal computers, keyboards, mice, and printers. As the company grows internationally, it continues to bring advanced technology into homes and businesses worldwide.

Business Challenge

- The AtliQ management team currently lacks the ability to quickly make data-driven decisions due to insufficient insights from available data.

- To solve this challenge and grow the analytics capability, AtliQ Hardwares is seeking to recruit junior data analysts with both strong technical and communication skills.

- A structured SQL challenge has been rolled out to evaluate candidates on:

    - Problem-solving with SQL

    -Business understanding

    -Clarity in presenting actionable insights

- Hiring decisions will be influenced by performance in this challenge.

Objective of the Analysis

- Deliver clear and accurate insights for 10 key business questions.

- Support top-level management with data-driven decision-making.

- Utilize SQL to analyze company data and uncover meaningful patterns.

-Address ad hoc analytical requests from the leadership team.

- Present insights in a concise, easy-to-understand, and actionable format.

Ad-Hoc Requests & Tools

For Ad-Hoc Queries

For Visualization

Ad-Hoc Request

Codebasics SQL Challenge

Requests:

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

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

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

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

5. Get the products that have the highest and lowest manufacturing costs. The final output should contain these fields,
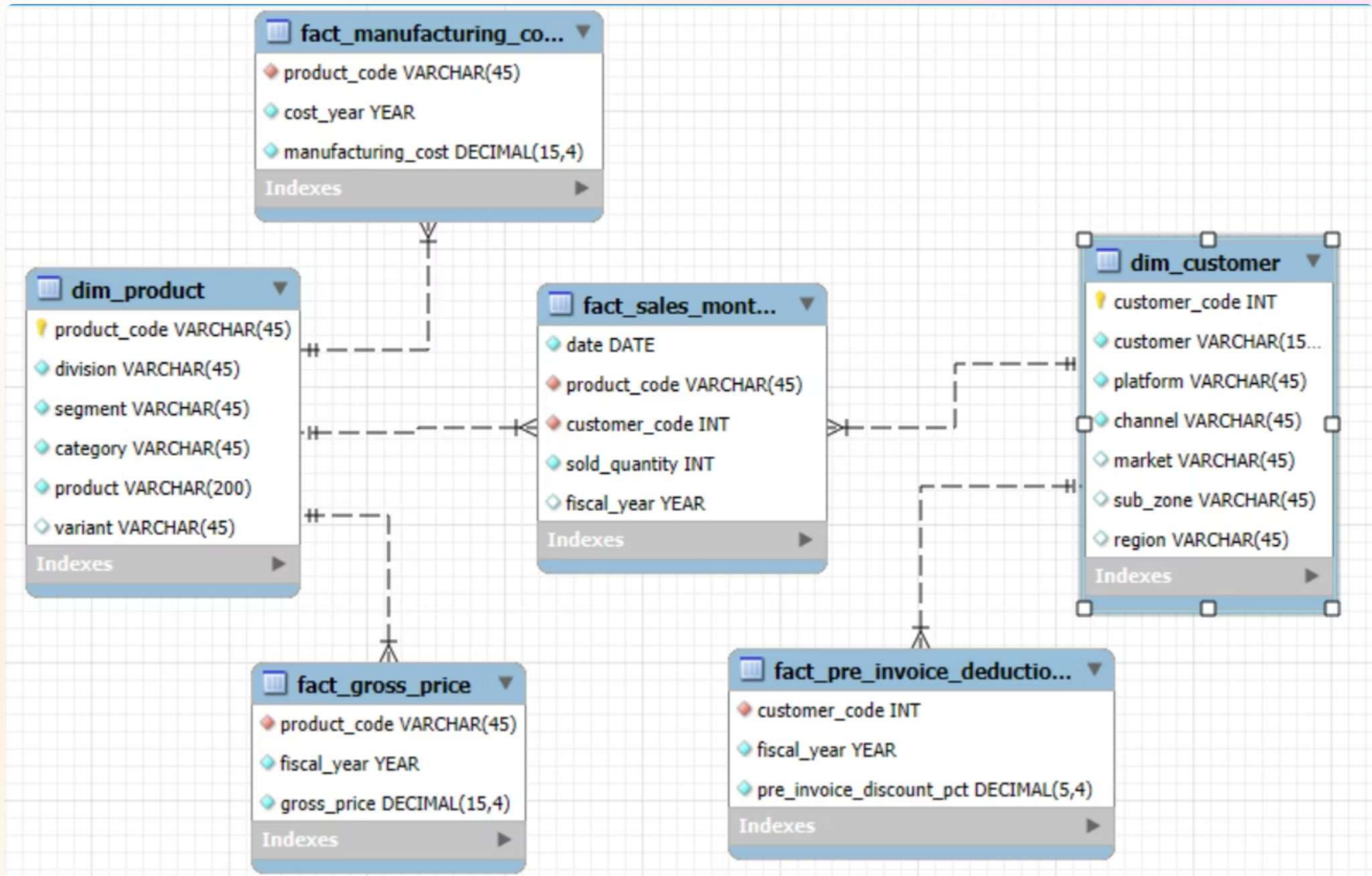   - product_code
   - product
   - manufacturing_cost

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

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

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

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

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

Data Model

fact_manufacturing_co...
- product_code VARCHAR(45)
- cost_year YEAR
- manufacturing_cost DECIMAL(15,4)
- Indexes

dim_product
- product_code VARCHAR(45)
- division VARCHAR(45)
- segment VARCHAR(45)
- category VARCHAR(45)
- product VARCHAR(200)
- variant VARCHAR(45)
- Indexes

fact_sales_mont...
- date DATE
- product_code VARCHAR(45)
- customer_code INT
- sold_quantity INT
- fiscal_year YEAR
- Indexes

dim_customer
- customer_code INT
- customer VARCHAR(15...
- platform VARCHAR(45)
- channel VARCHAR(45)
- market VARCHAR(45)
- sub_zone VARCHAR(45)
- region VARCHAR(45)
- Indexes

fact_gross_price
- product_code VARCHAR(45)
- fiscal_year YEAR
- gross_price DECIMAL(15,4)
- Indexes

fact_pre_invoice_deductio...
- customer_code INT
- fiscal_year YEAR
- pre_invoice_discount_pct DECIMAL(5,4)
- Indexes

Q1: Provide list of markets in which customer "Atliq Exclusive" operates its business in the APAC region.

```
Select
    Distinct Market
From dim_customer
    where customer = "Atliq Exclusive"
And region = "APAC"
```
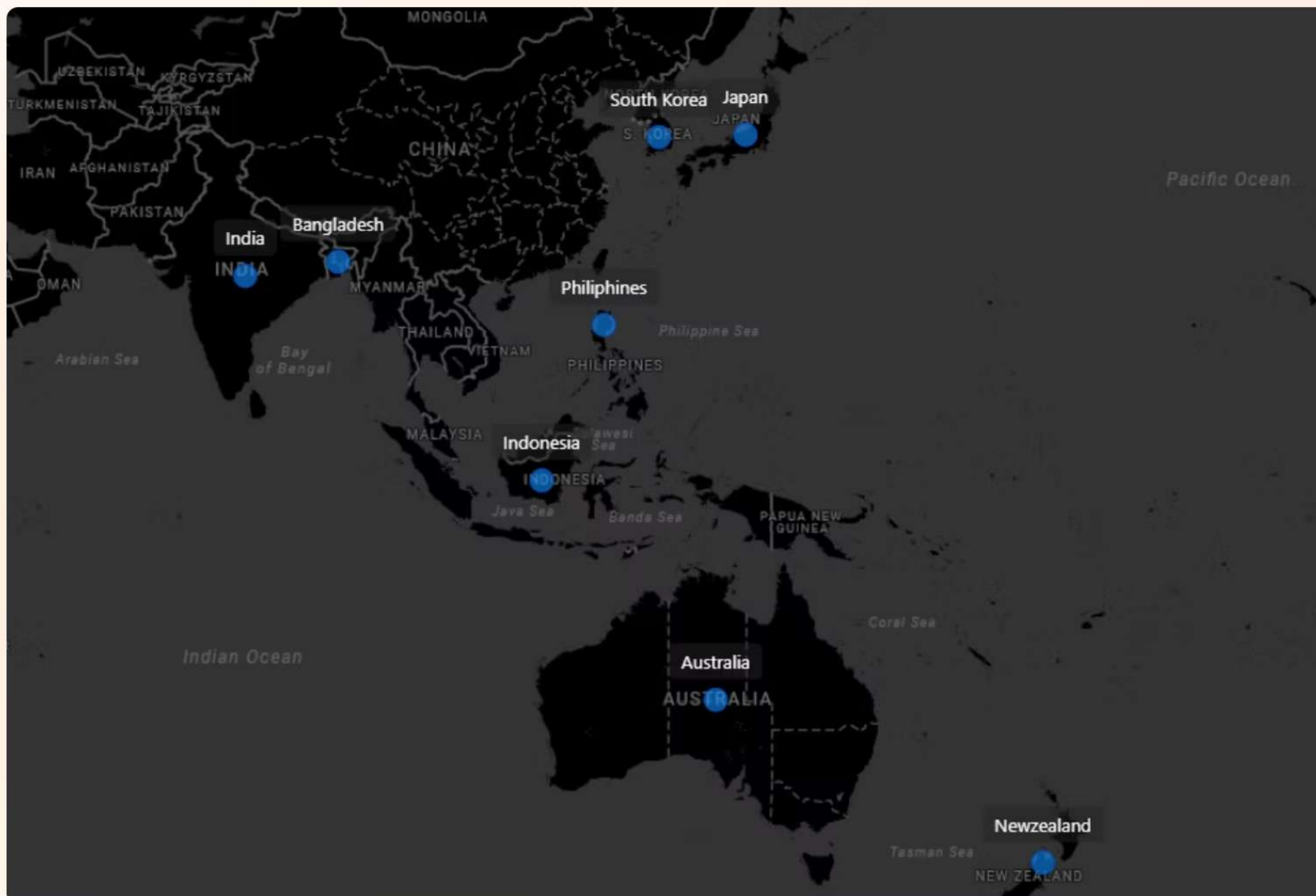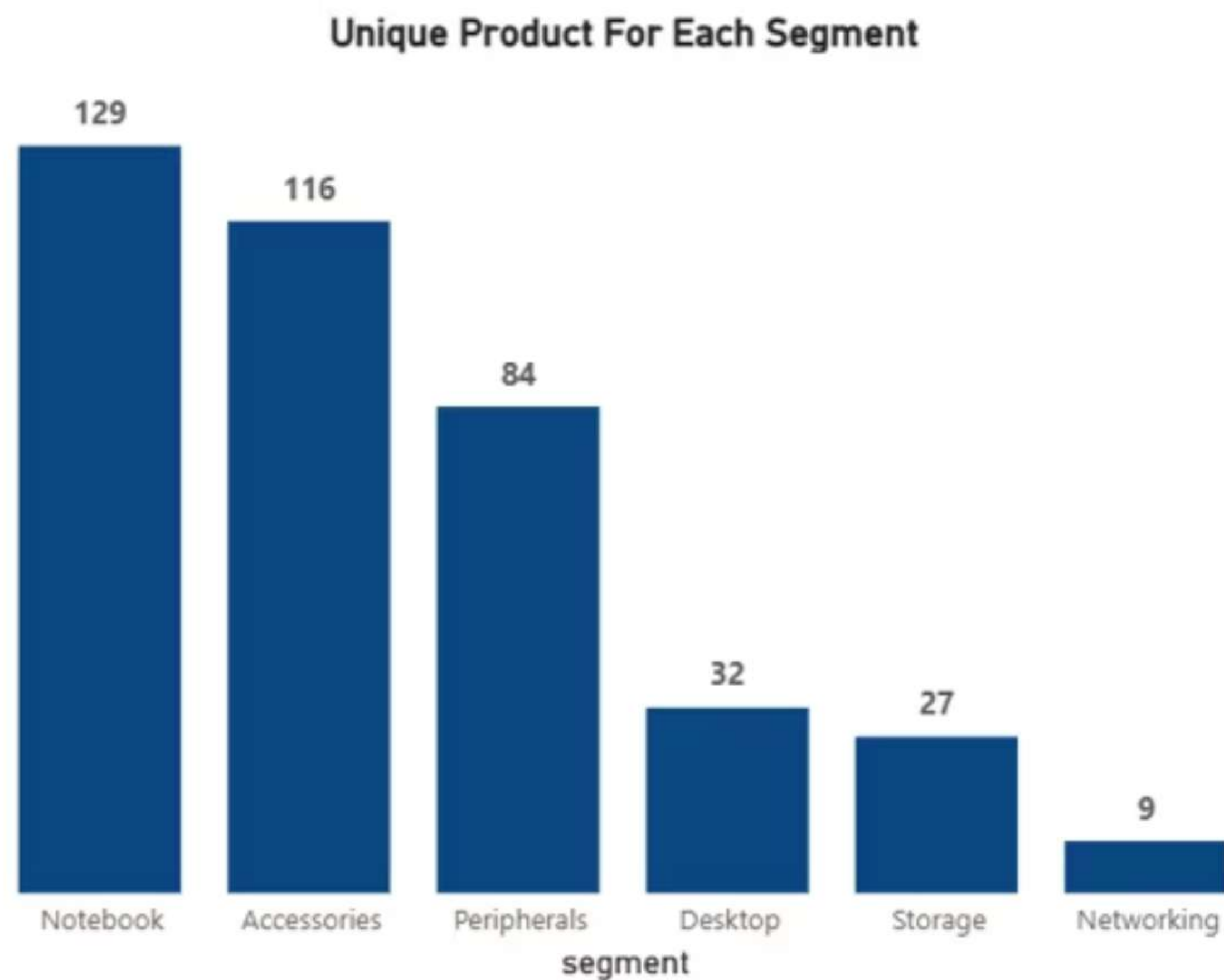
Q2: What is the percentage of unique product increase in 2021 vs. 2020? The final output contains these fields: unique_products_2020, unique_products_2021, percentage_chg.

```sql
With unique_prod_20 as (
  select count(distinct product_code) as unique_products_20
  from  fact_sales_monthly
  where fiscal_year = 2020),

unique_prod_21  as (
  select count(distinct product_code) as unique_products_21
  from  fact_sales_monthly
  where  fiscal_year = 2021)

select unique_products_20,
       unique_products_21,
       Round((a.unique_products_21 - b.unique_products_20)*100/b.unique_products_20,2) as Percentage_chg
from   unique_prod_21 a,
       unique_prod_20 b
```


36.33 %
Percentage change

334

245

● unique products 20 ● unique products 21
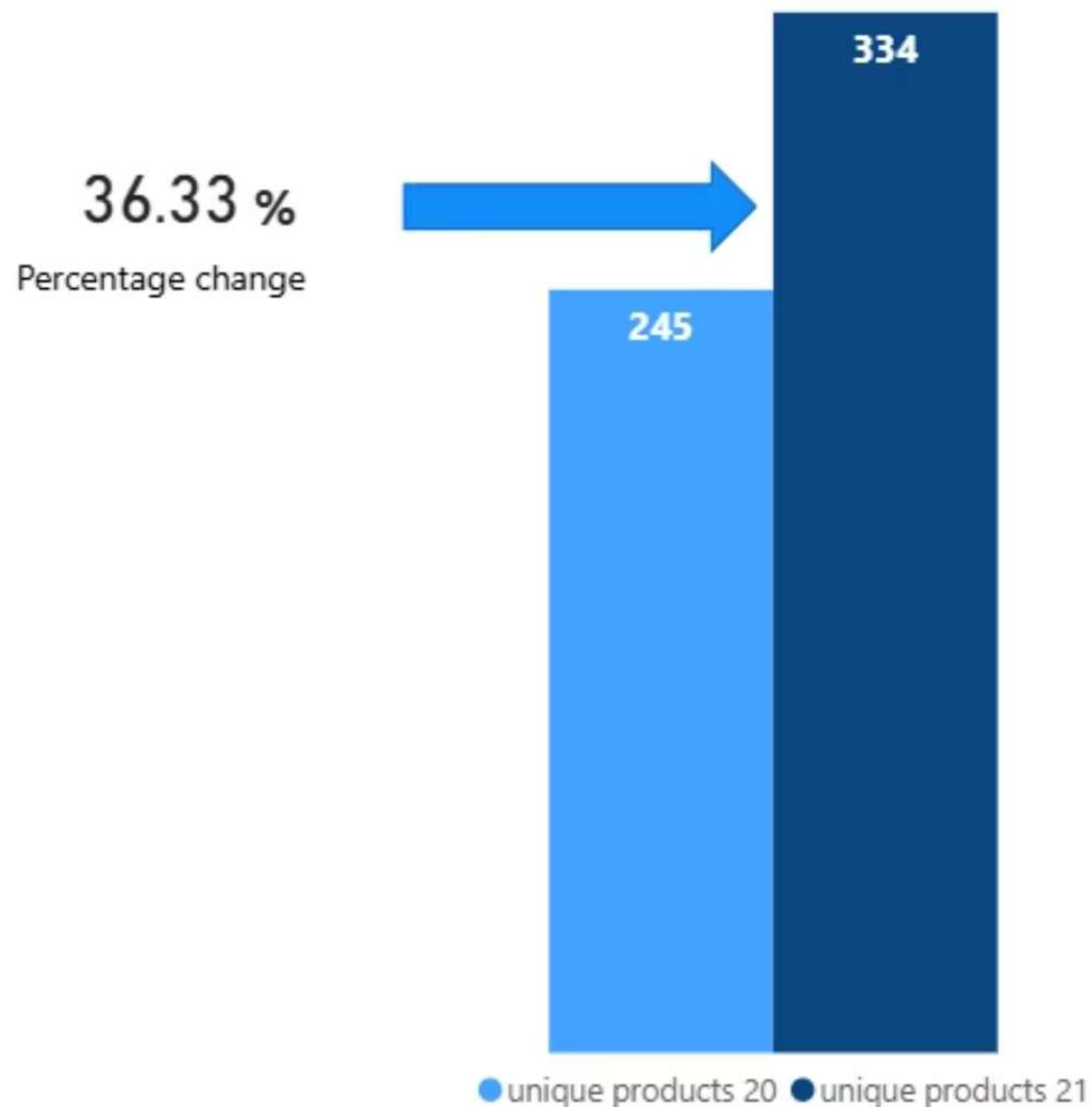
Q3: Provide a report with all the unique product counts for each segment and sort them in descending order of product counts. The final output contains 2 fields: segment, product_count.
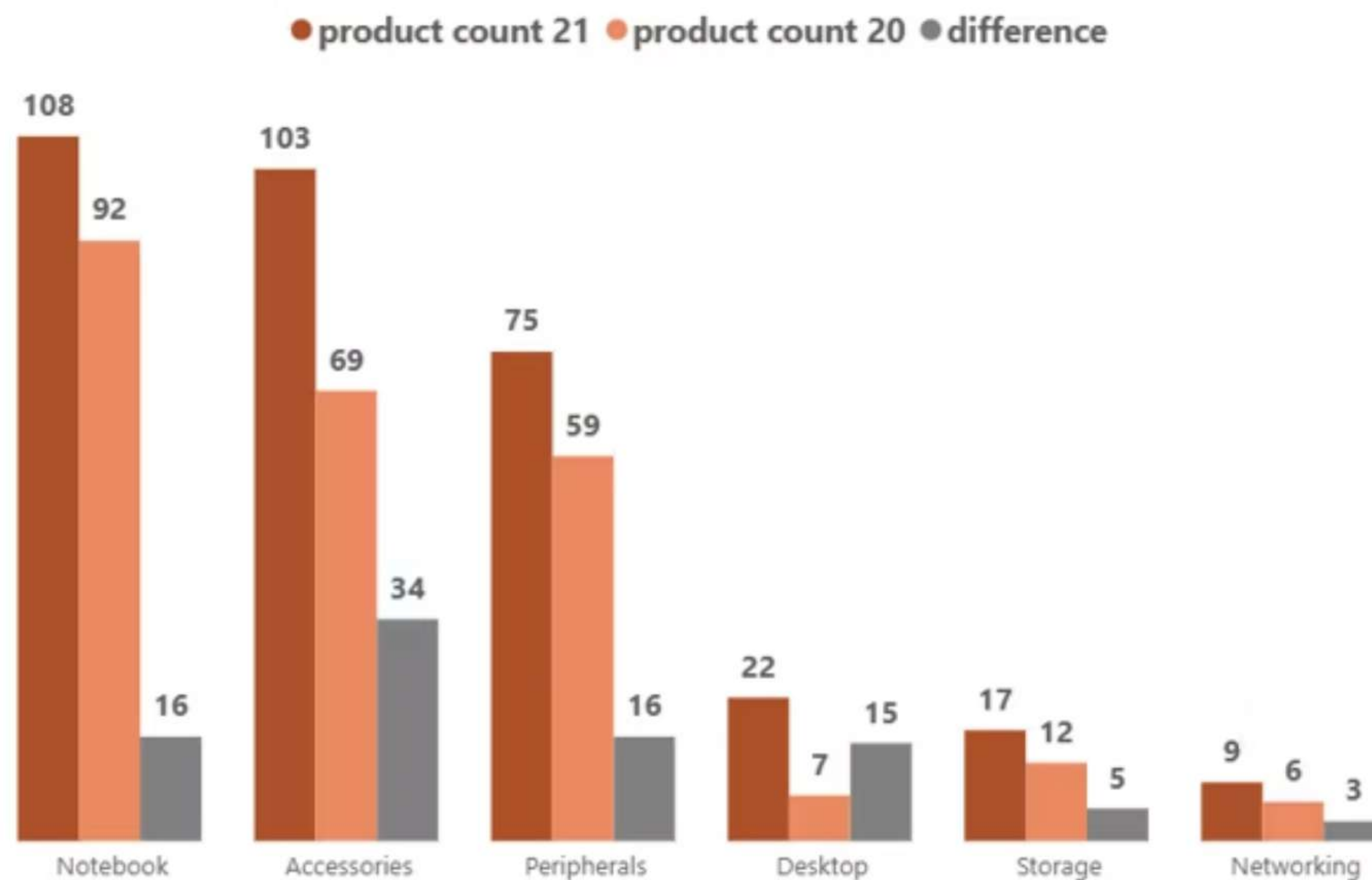
```sql
select segment, count(distinct product_code) as product_count
from dim_product
group by segment
order by product_count desc
```

Unique Product For Each Segment

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

segment

Q4: 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.

```sql
with cte1 as (select p.segment , count(distinct p.product_code) as product_count_20
from dim_product p join fact_sales_monthly s
using(product_code)
where s.fiscal_year = 2020
group by segment),
cte2 as (select p.segment , count(distinct p.product_code) as product_count_21
from dim_product p join fact_sales_monthly s
Using(product_code)
where fiscal_year = 2021
group by segment)

select segment,a.product_count_20, b.product_count_21, (product_count_21 - product_count_20) as differnce
from cte1 a join cte2 b
Using(segment)
order by differnce desc
```


● product count 21 ● product count 20 ● difference

	Notebook	Accessories	Peripherals	Desktop	Storage	Networking
product count 21	108	103	75	22	17	9
product count 20	92	69	59	7	12	6
difference	16	34	16	15	5	3

Q5: Get the products that have the highest and lowest manufacturing costs. The final output should contain these fields: product_code, product, manufacturing_cost.

```sql
select p.product, m.product_code, m.manufacturing_cost
from dim_product p
join fact_manufacturing_cost m
using(product_code)
where manufacturing_cost in (select max(manufacturing_cost) from fact_manufacturing_cost
                            union
                            select min(manufacturing_cost) from fact_manufacturing_cost)
order by manufacturing_cost desc
```

Highest Manufacturing Cost

$240.54
AQ HOME Allin1 Gen 2
A6120110206

Personal Desktop

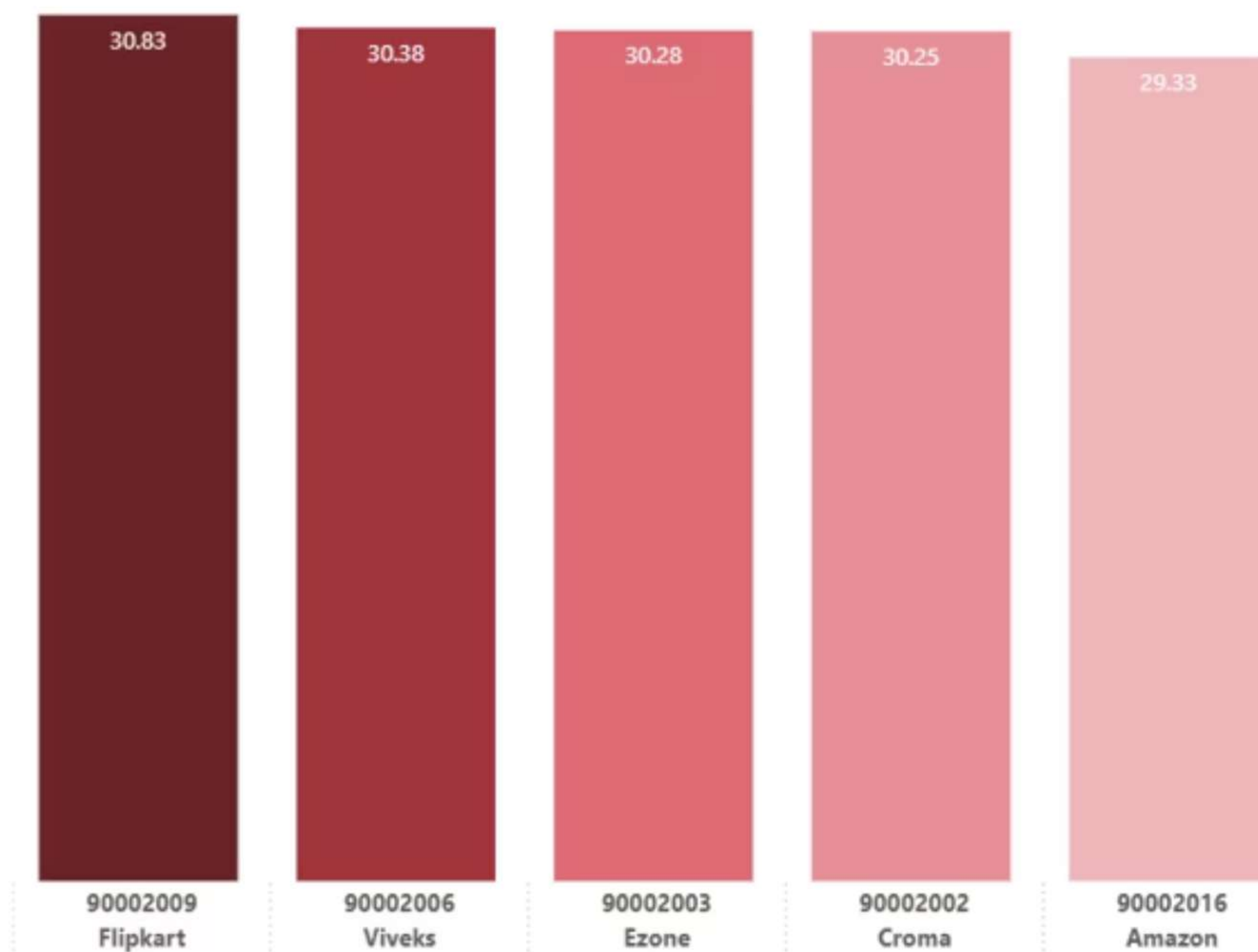**Lowest Manufacturing Cost**

$0.89
AQ Master wired x1 Ms
A2118150101

Mouse

Q6: 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.

```sql
select c.customer_code, c.customer,
round(avg(pre_invoice_discount_pct),2) as avg_discount_pct
from dim_customer c
join fact_pre_invoice_deductions p
using(customer_code)
where c.market = "India" and fiscal_year = 2021
group by c.customer,c.customer_code
order by avg_discount_pct desc
limit 5
```

30.83	30.38	30.28	30.25	29.33
90002009 Flipkart	90002006 Viveks	90002003 Ezone	90002002 Croma	90002016 Amazon

Q7: Get the complete report of the Gross sales amount for the customer "Atliq Exclusive" for each month. The final report contains these columns: Month, Year, Gross sales Amount.

```sql
select
monthname(s.date) as month,
s.fiscal_year,
round(sum(g.gross_price * s.sold_quantity)/1000000,2) as gross_sales_amount
from dim_customer c
join fact_sales_monthly s
using(customer_code)
join fact_gross_price g
using (product_code)
where customer = "Atliq Exclusive"
group by month, s.fiscal_year
order by s.fiscal_year
```

Monthly Gross Sales (in miliion) For FY 2020 & 2021

Fiscal year ● 2020 ● 2021

Month	2020	2021
September	$9.09	$19.53
October	$10.3	$21.02
November	$15.2	$32.25
December	$9.76	$20.41
January	$9.58	$19.57
February	$8.0	$15.99
March	$0.77	$19.15
April	$0.8	$11.48
May	$1.59	$19.2
June	$3.43	$15.46
July	$5.15	$19.04
August	$5.64	$11.32

Average Gross Sales $12.7M

Q8: 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.
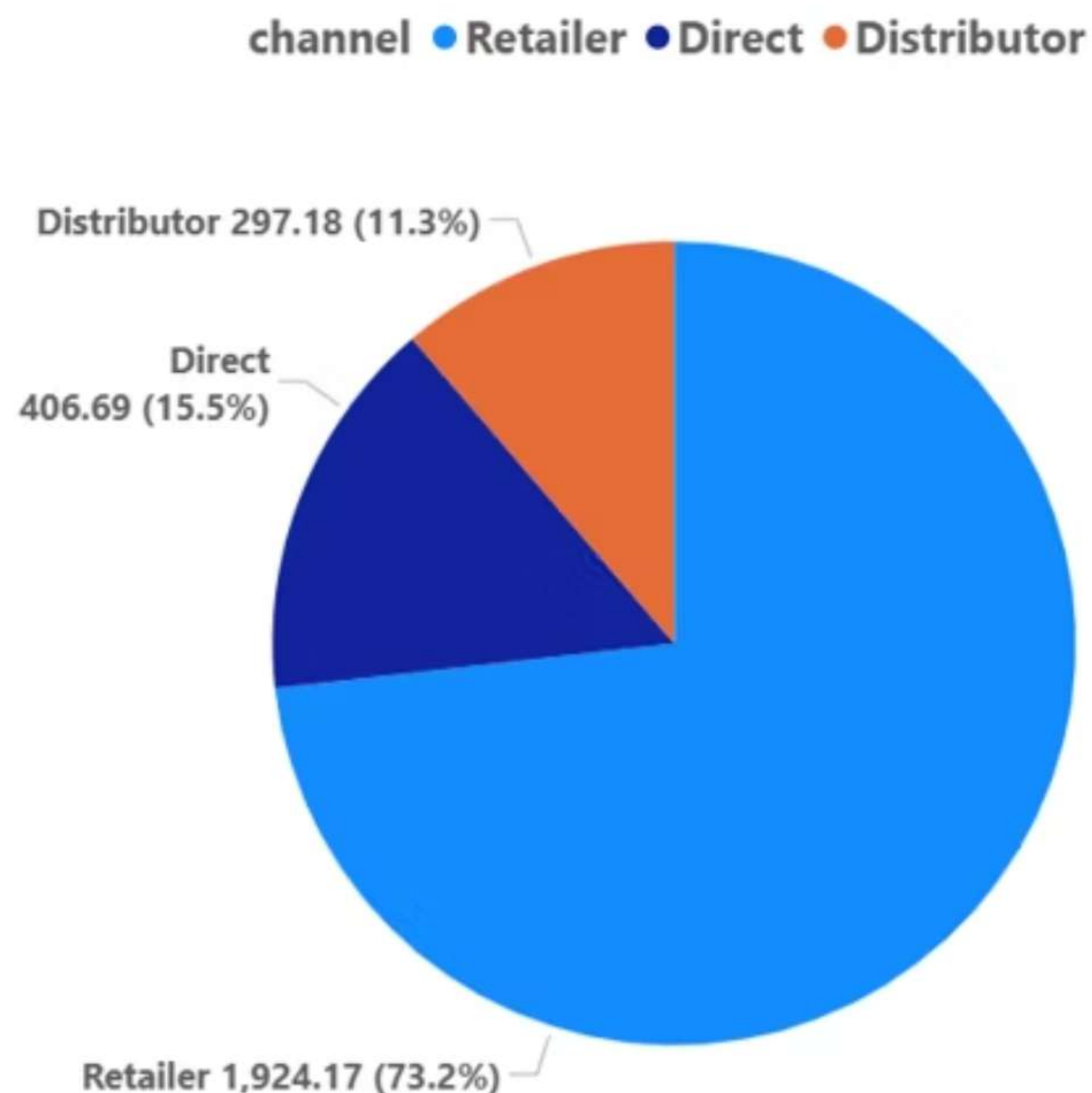
```
with cte as (
    select month(date_add(date, interval 4 month))  as month_num ,
    s.sold_quantity
    from
    fact_sales_monthly s
    where fiscal_year = 2020)
    select concat("Q",ceiling(month_num/3)) as Quarter,
    sum(sold_quantity) as Sold_Quantity
    from cte
    group by quarter
    order by quarter
```

Quarter ● Q1 ● Q2 ● Q4 ● Q3

2.08M (9.99%)

7.01M (33.72%)

5.04M (24.27%)

6.65M (32.01%)
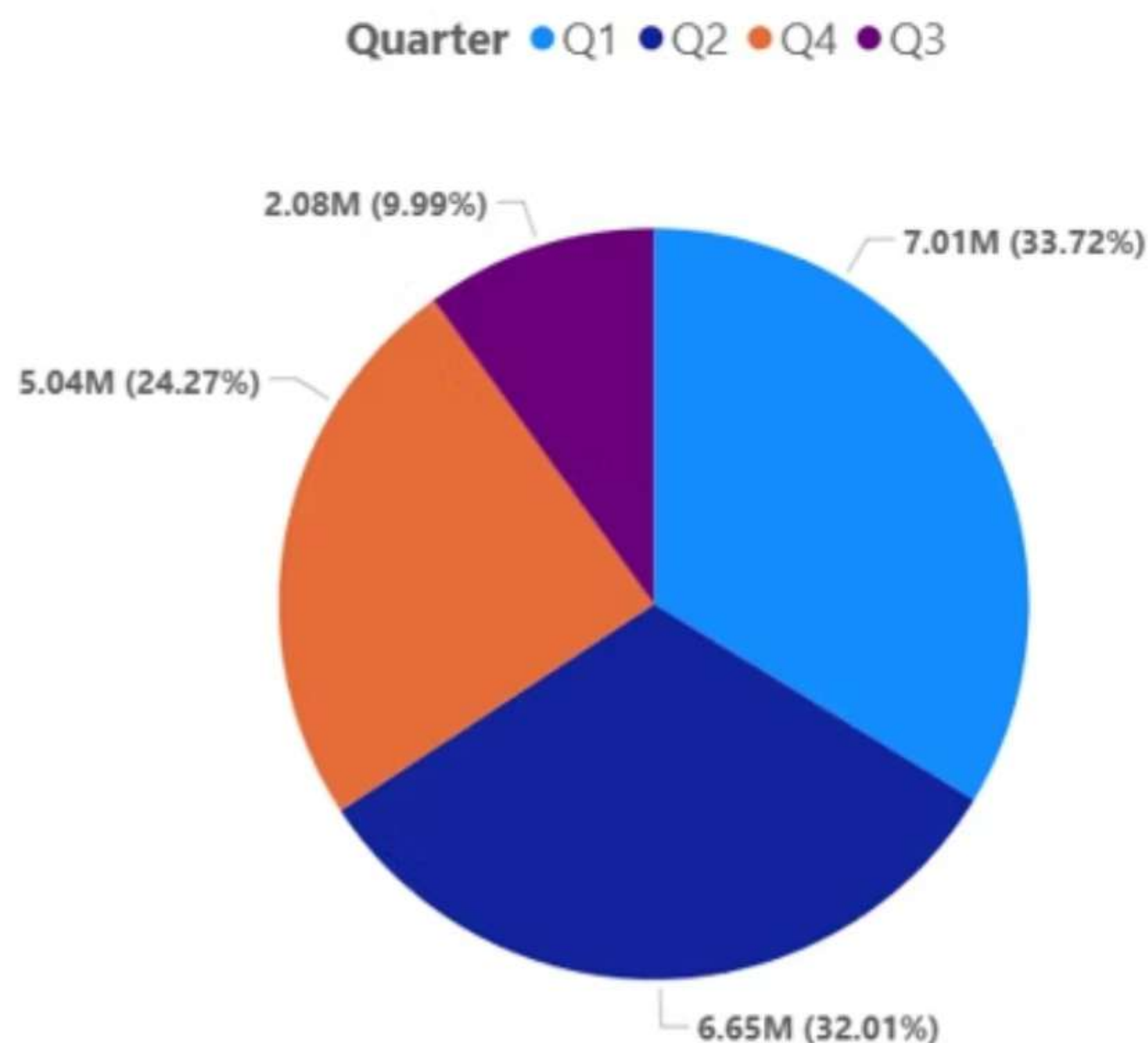
Q9: Which channel helped to bring more gross sales in the fiscal year 2021 and the percentage of contribution? The final output contains these fields: channel, gross_sales_mln, percentage.

```sql
with cte as (select channel ,
                round(sum(sold_quantity* gross_price)/1000000,2) as gross_sales_mln
                from dim_customer c
                join fact_sales_monthly s
                using(customer_code)
                join fact_gross_price g
                on g.product_code =s.product_code
                where s.fiscal_year =2021
                group by channel)
    select *,
    concat(round(gross_sales_mln * 100/sum(gross_sales_mln) over(),2),"%") as percentage_contribution
    from cte
    order by percentage_contribution desc
```
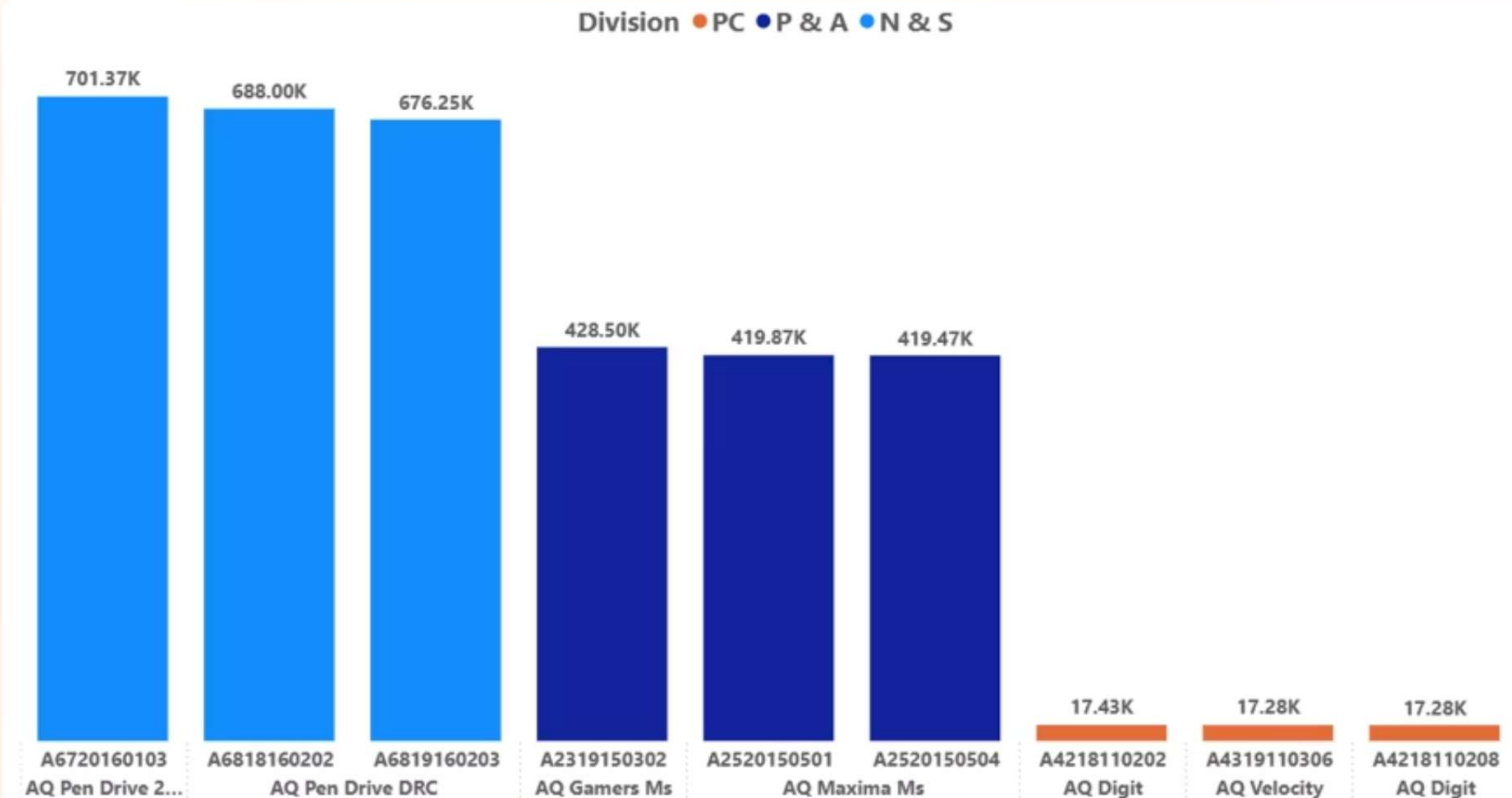
channel ● Retailer ● Direct ● Distributor

Distributor 297.18 (11.3%)

Direct
406.69 (15.5%)

Retailer 1,924.17 (73.2%)

Q10: 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.

```sql
with cte1 as( select p.division, p.product_code, p.product,
                sum(s.sold_quantity) as total_sold_quantity
            from dim_product p
            join fact_sales_monthly s
            using(product_code)
            where fiscal_year = 2021
            group by p.division,p.product,p.product_code),

    cte2 as(select *, rank() over(partition by division order by total_sold_quantity desc)
            as rank_order from cte1)
            select * from cte2 where rank_order <= 3
```

Division ● PC ● P & A ● N & S

Product code	Product	Value
A6720160103	AQ Pen Drive 2...	701.37K
A6818160202	AQ Pen Drive DRC	688.00K
A6819160203	AQ Pen Drive DRC	676.25K
A2319150302	AQ Gamers Ms	428.50K
A2520150501	AQ Maxima Ms	419.87K
A2520150504	AQ Maxima Ms	419.47K
A4218110202	AQ Digit	17.43K
A4319110306	AQ Velocity	17.28K
A4218110208	AQ Digit	17.28K

🔧 Recommendations for AtliQ Hardware

1. Localize Sales & Marketing Customize sales and marketing strategies for each country to better align with local customer needs. This will boost market presence and emulate the successful practices of top competitors.

2. Stay Ahead with Trend-Based Products Regularly update product offerings based on evolving customer trends to ensure AtliQ stays relevant and competitive in a dynamic market.

3. Expand Core Product Segments Grow the product lineup—particularly in networking, storage, and desktop solutions—to address underserved markets and capture untapped demand.

4. Optimize Costs & Reward Loyalty Streamline manufacturing costs and introduce structured discounts for long-term contracts. This will enhance profit margins and improve customer retention.

5. Leverage Regional Insights & Partnerships Analyze regional sales patterns to develop targeted strategies. Strengthen distributor relationships using CRM tools and profit-sharing models to drive steady and sustainable growth.

THANK YOU