



Atliq Hardwares

Consumer Goods Ad-Hoc Insight

PRESENTED BY

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**Codebasics
Challenge #4**

**SQL
Challenge**

About Myself



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Introduction and Company's Background

Introduction

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

Problem

The management noticed that they do not get enough insights to make quick and smart data-informed decisions.

Solution

The Company decided to expand its data analytics team by adding several junior data analysts. Tony Sharma, their data analytics director, decided to conduct a SQL challenge to hire junior data analysts.

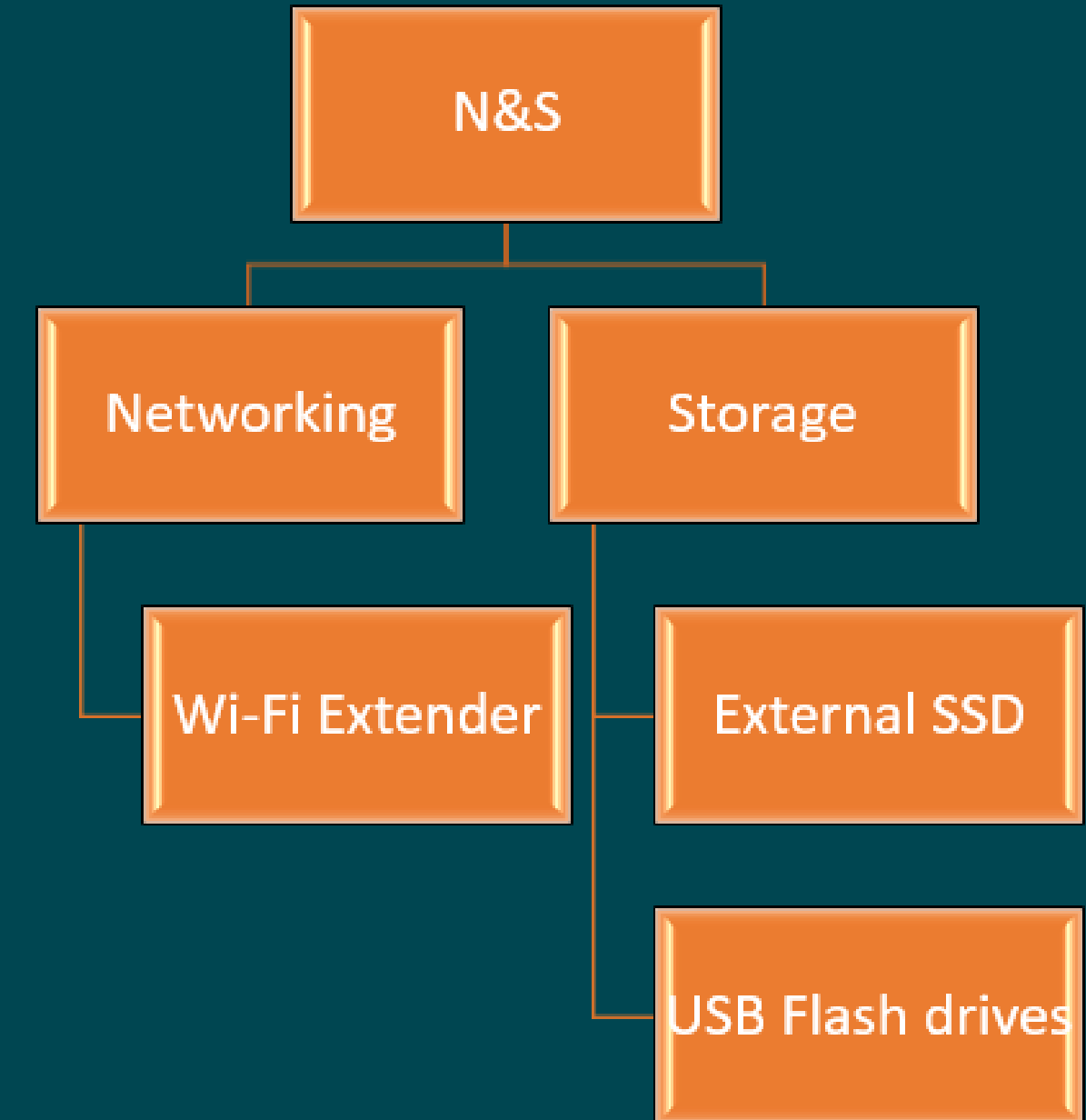
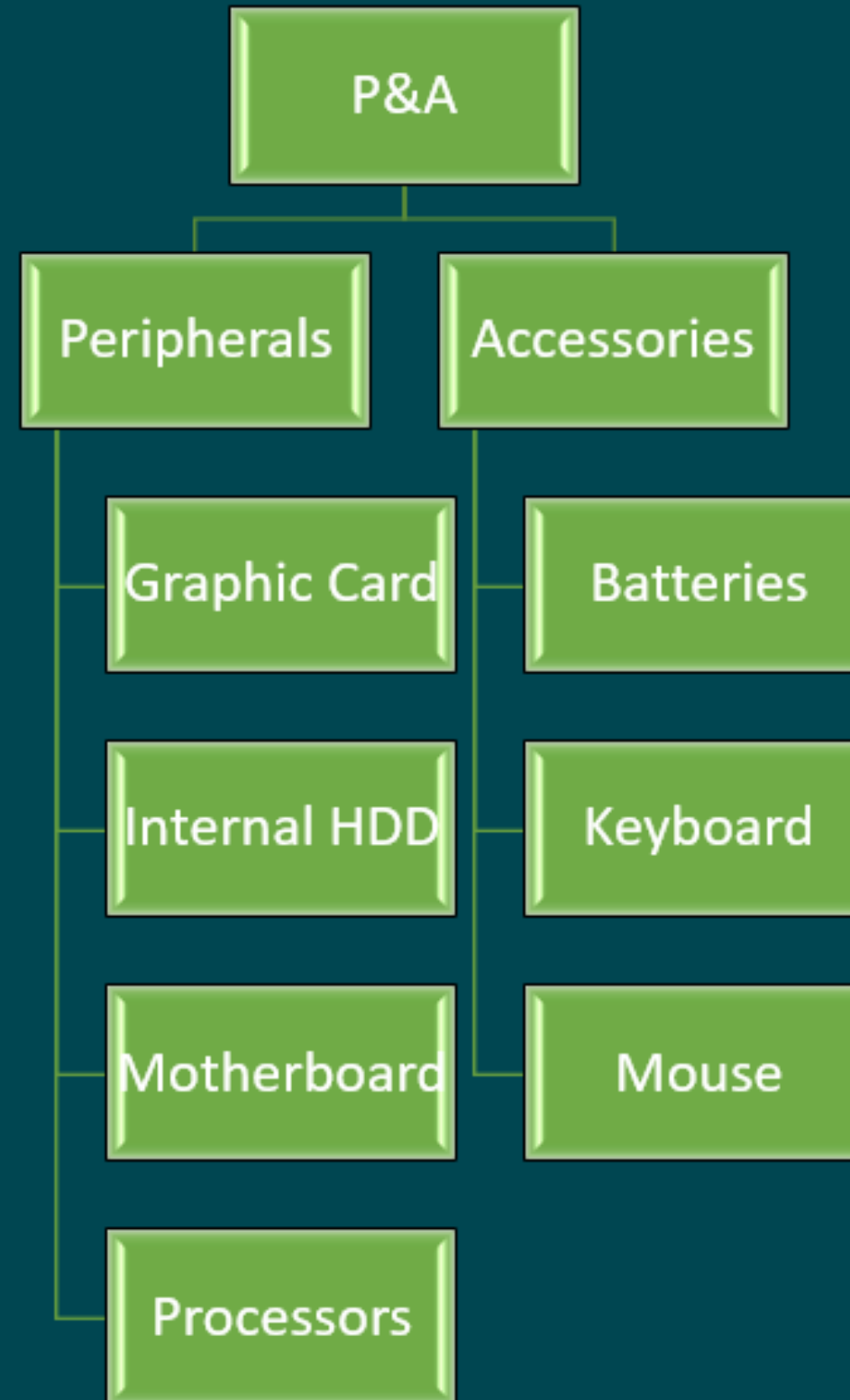
Task

- There are 10 ad hoc requests for which the business needs insights.
- Our Task is to write SQL queries to answer these requests.
- Convert it to visualization and present it to Top-Level Management.

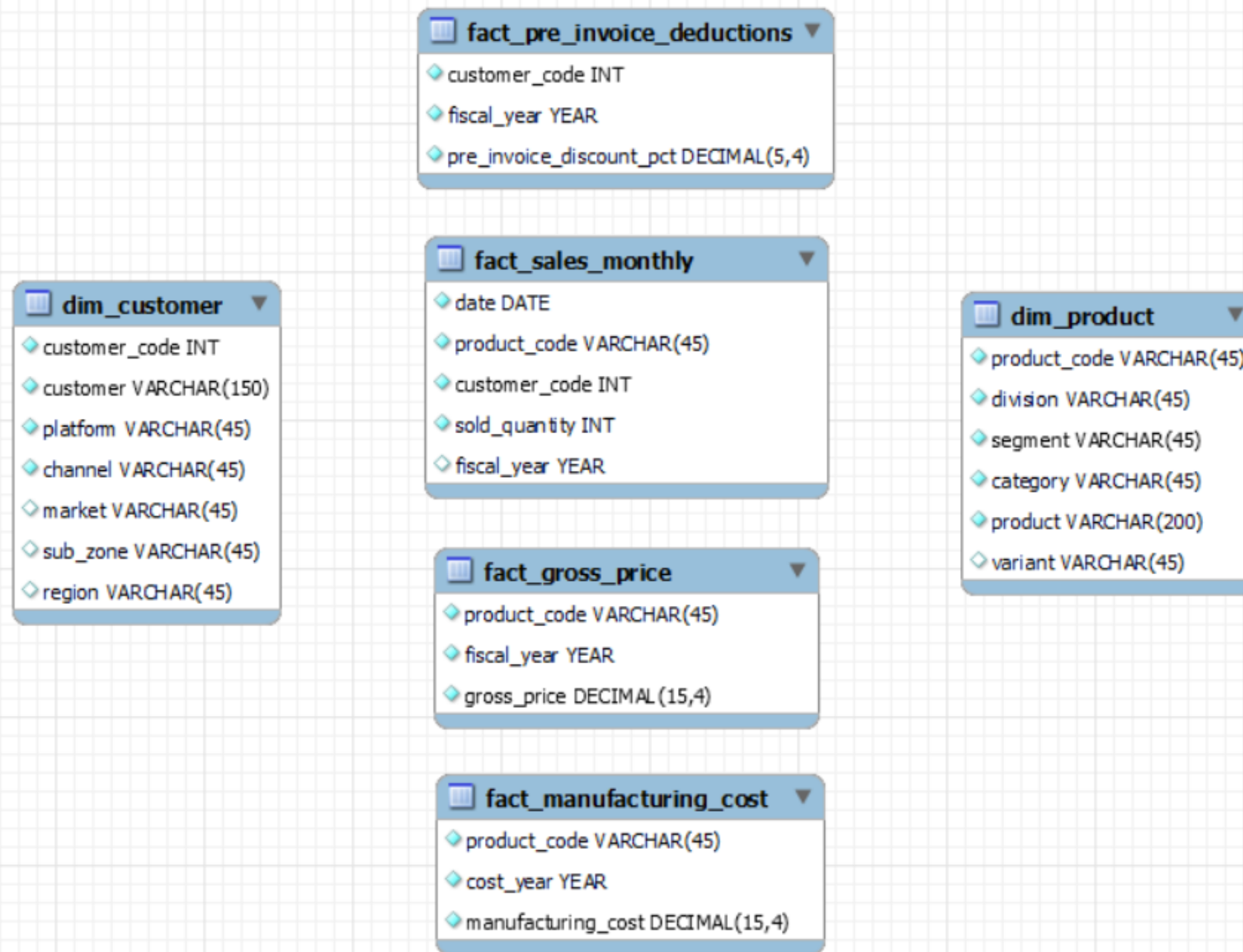
Atliq's Markets



Atliq's Products



Database Schema

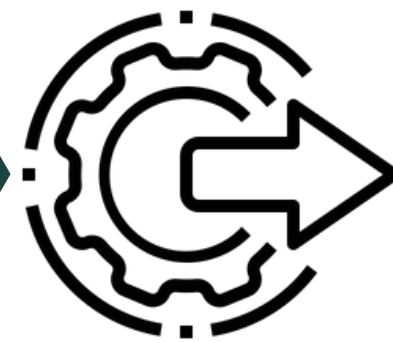


1. **dim_customer**: contains customer-related data
2. **dim_product**: contains product-related data
3. **fact_gross_price**: contains gross price information for each product
4. **fact_manufacturing_cost**: contains the cost incurred in the production of each product
5. **fact_pre_invoice_deductions**: contains pre-invoice deductions information for each product
6. **fact_sales_monthly**: contains monthly sales data for each product.

Note: Sales data available are only for the Fiscal years 2020 and 2021. Atliq Fiscal year starts in September.

Request: 1

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



Output

	market
▶	Australia
	Bangladesh
	India
	Indonesia
	Japan
	Newzealand
	Philiphines
	South Korea

Query



Request: 1

```
SELECT  
    DISTINCT market  
FROM dim_customer  
WHERE customer="Atliq Exclusive" AND region='APAC'  
ORDER BY market;
```

Insights



Out of **27 Markets**, **Atliq Exclusive** has established its presence in **8 major market** in **APAC** region.

● Australia ● Bangladesh ● India ● Indonesia ● Japan ● Newzealand ● Philiphines ● South Korea



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

Output



	unique_products_2020	unique_products_2021	percentage_chg
▶	245	334	36.33

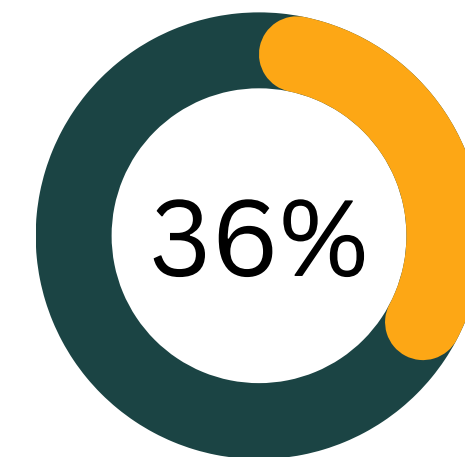
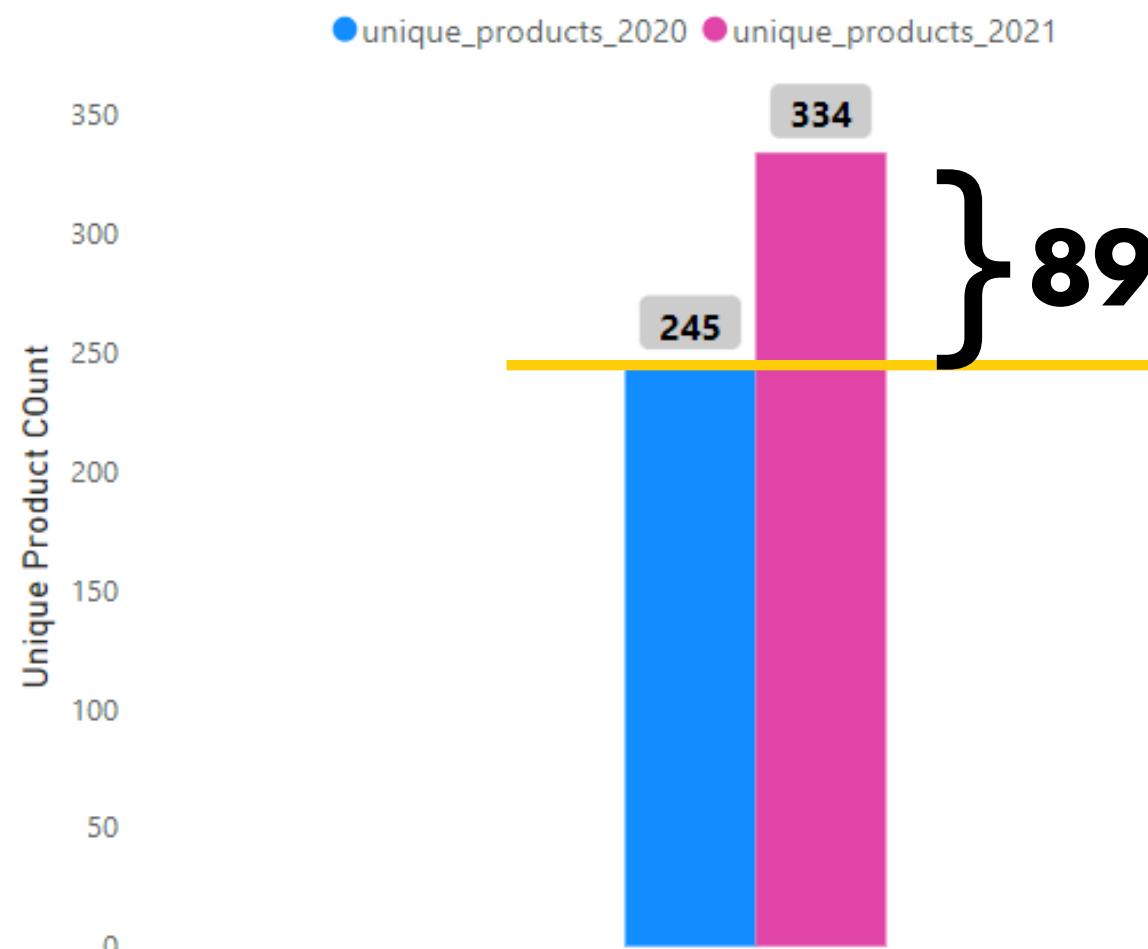
Query



```
Request: 2

with table_20 as(
    select
        count(distinct(product_code)) as prd
    from fact_sales_monthly
    where fiscal_year=2020
),
table_21 as(
    select
        count(distinct(product_code)) as prd
    from fact_sales_monthly
    where fiscal_year=2021
)
select
    a.prđ as unique_products_2020,
    b.prđ as unique_products_2021,
    round(((b.prđ-a.prđ)/a.prđ)*100,2) as percentage_chg
from table_20 as a
cross join table_21 as b ;
```

Insights



Atliq produced **89 unique products** in FY 2021, representing a **36% increase** from FY 2020, indicating the company's strong commitment to innovation and bringing new products to the market.

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 these fields,

segment
product_count

Output



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

Query



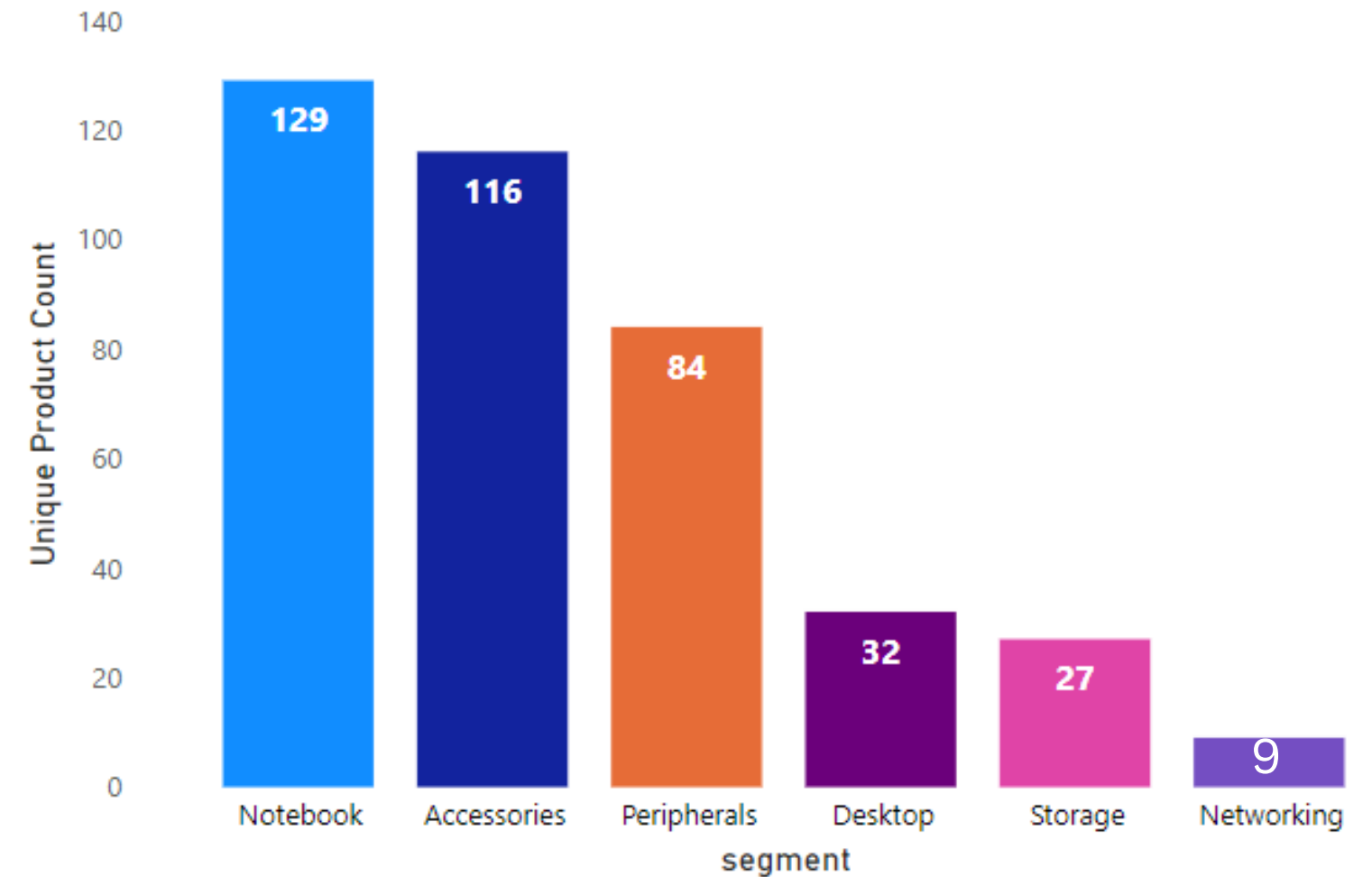
Request: 3

```
select
    segment,
    count(distinct(product_code)) as product_count
from dim_product
group by segment
order by product_count desc;
```

Insights



Unique Product Count by segment



Among Atliq's **six product segments**, **Notebook** segment had the most unique products, while **Networking, Desktop, and Storage** had the least. To improve its product portfolio, Atliq should focus on creating more unique products in these segments.

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

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

Query

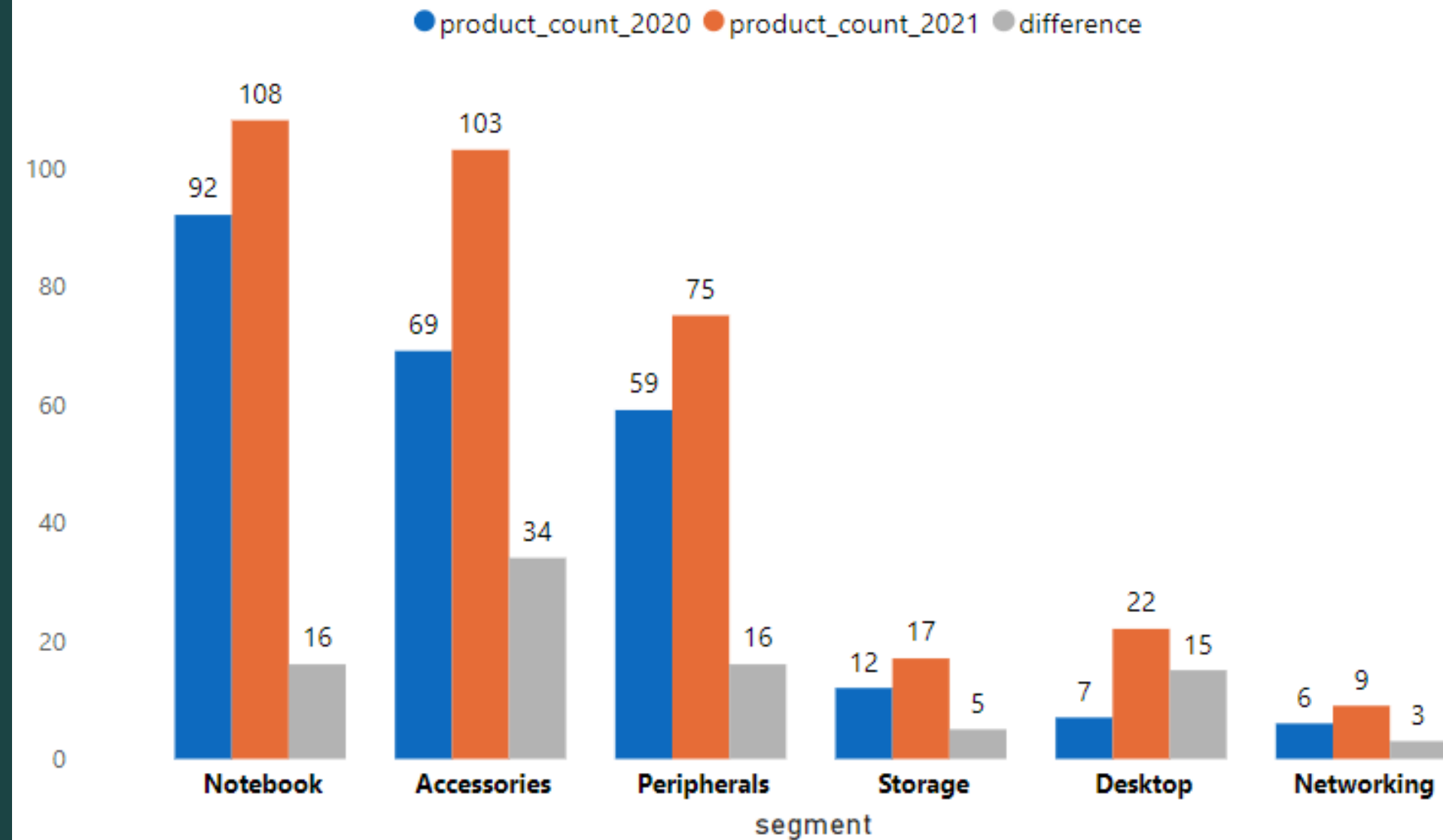


Insights



```
Request: 4

with table_20 as (
    select
        d.segment, f.fiscal_year,
        count(distinct(d.product_code)) as product_count
    from dim_product d
    join fact_sales_monthly f using(product_code)
    where f.fiscal_year=2020
    group by d.segment
),
table_21 as(
    select
        d.segment, f.fiscal_year,
        count(distinct(d.product_code)) as product_count
    from dim_product d
    join fact_sales_monthly f using(product_code)
    where f.fiscal_year=2021
    group by d.segment
)
select
    a.segment, a.product_count as product_count_2020,
    b.product_count as product_count_2021,
    b.product_count-a.product_count as difference
from table_20 as a
join table_21 b on a.segment =b.segment
order by difference desc;
```



We can see that **Accessories segment** has the most increase in unique products with a difference of **34** followed by Notebook and Peripherals.



Request: 5

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

The final output contains these fields,

product_code

product

manufacturing_cost

Output



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

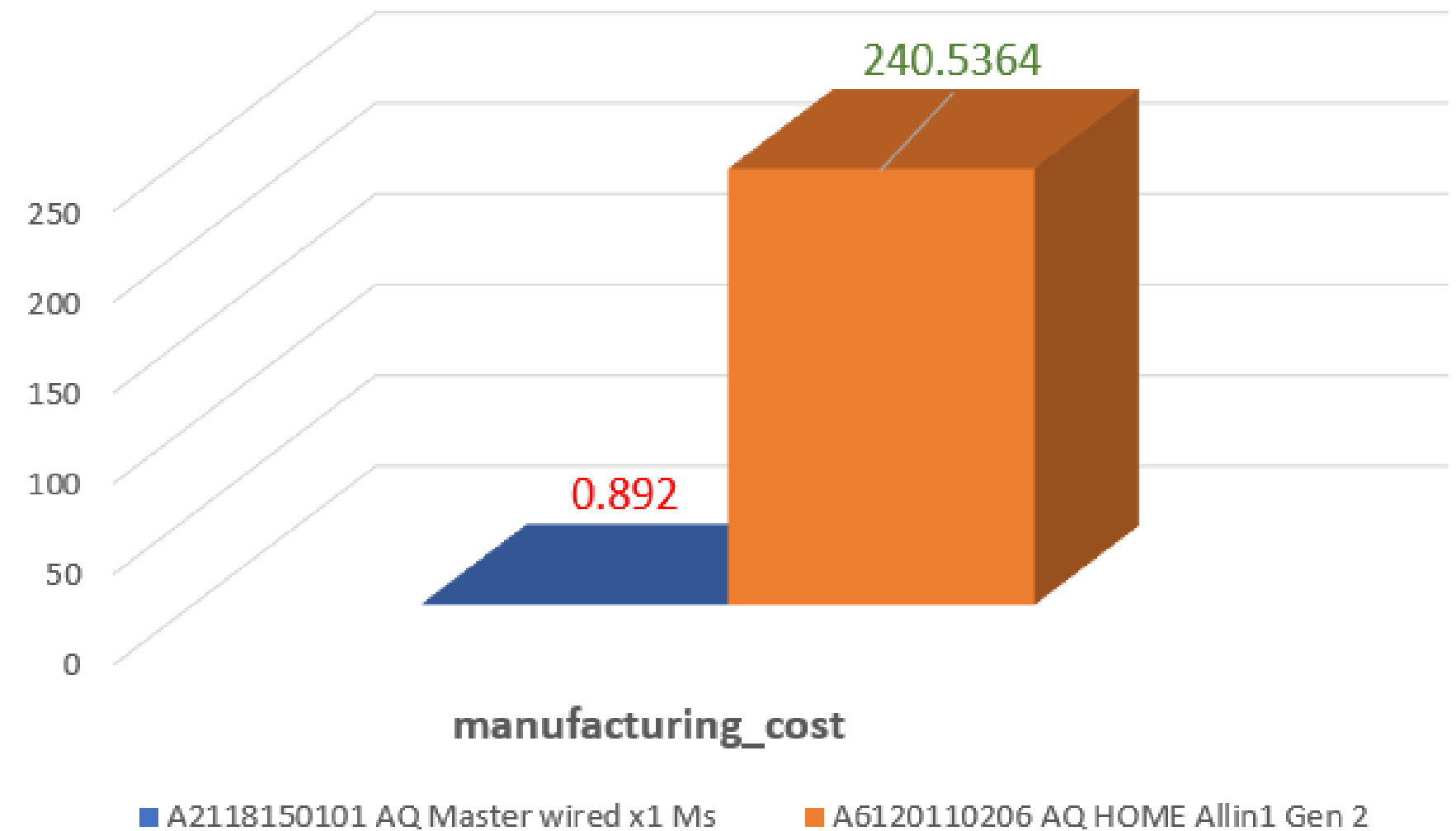


Request: 5

```
select
    p.product_code,
    p.product,
    f.manufacturing_cost
from dim_product p
join fact_manufacturing_cost f
on p.product_code=f.product_code
where f.manufacturing_cost in
    (( select min(manufacturing_cost) from fact_manufacturing_cost),
    ( select max(manufacturing_cost) from fact_manufacturing_cost));
```



Lowest and Highest Manufacturing Cost



- AQ HOME Allin1 Gen 2



- AQ Master wired x1 Ms

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,

customer_code
customer
average_discount_percentage

Output



	customer_code	customer	average_discount_percentage
▶	90002009	Flipkart	0.3083
	90002006	Viveks	0.3038
	90002003	Ezone	0.3028
	90002002	Croma	0.3025
	90002016	Amazon	0.2933

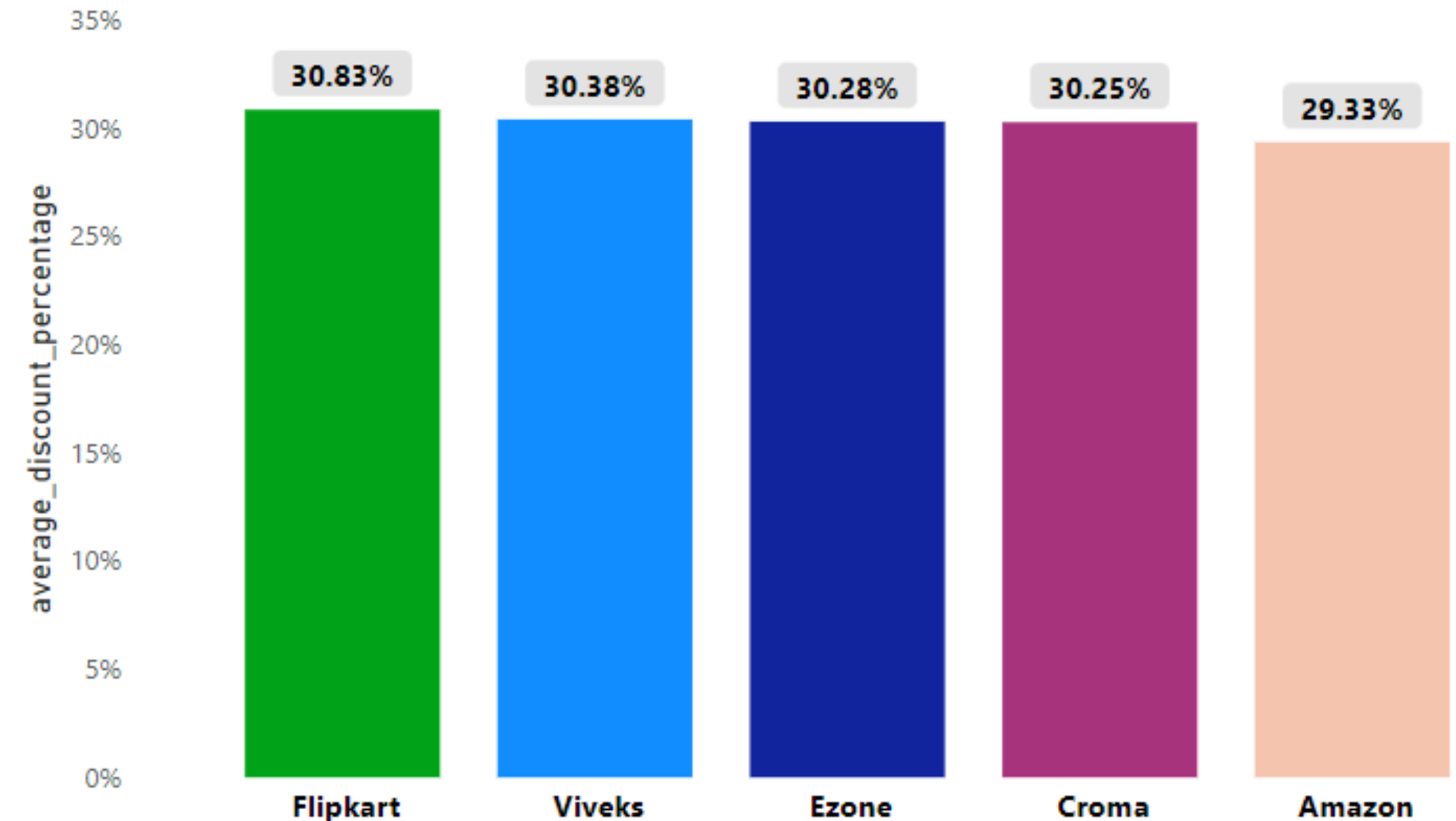


Request:6

```
select
  f.customer_code,
  d.customer,
  round(avg(f.pre_invoice_discount_pct),4) as average_discount_percentage
from fact_pre_invoice_deductions f
join dim_customer d using(customer_code)
where d.market='India' and f.fiscal_year=2021
group by d.customer_code
order by average_discount_percentage desc
limit 5;
```



Top 5 Customer By average_discount_percentage



Among Indian retailers in FY 2021, **Flipkart** had the highest average pre-invoice discount percentage of **30.83%**, followed by Viveks, Ezone, Croma, and Amazon.

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 output contains these fields,

Month

Year

Gross sales Amount



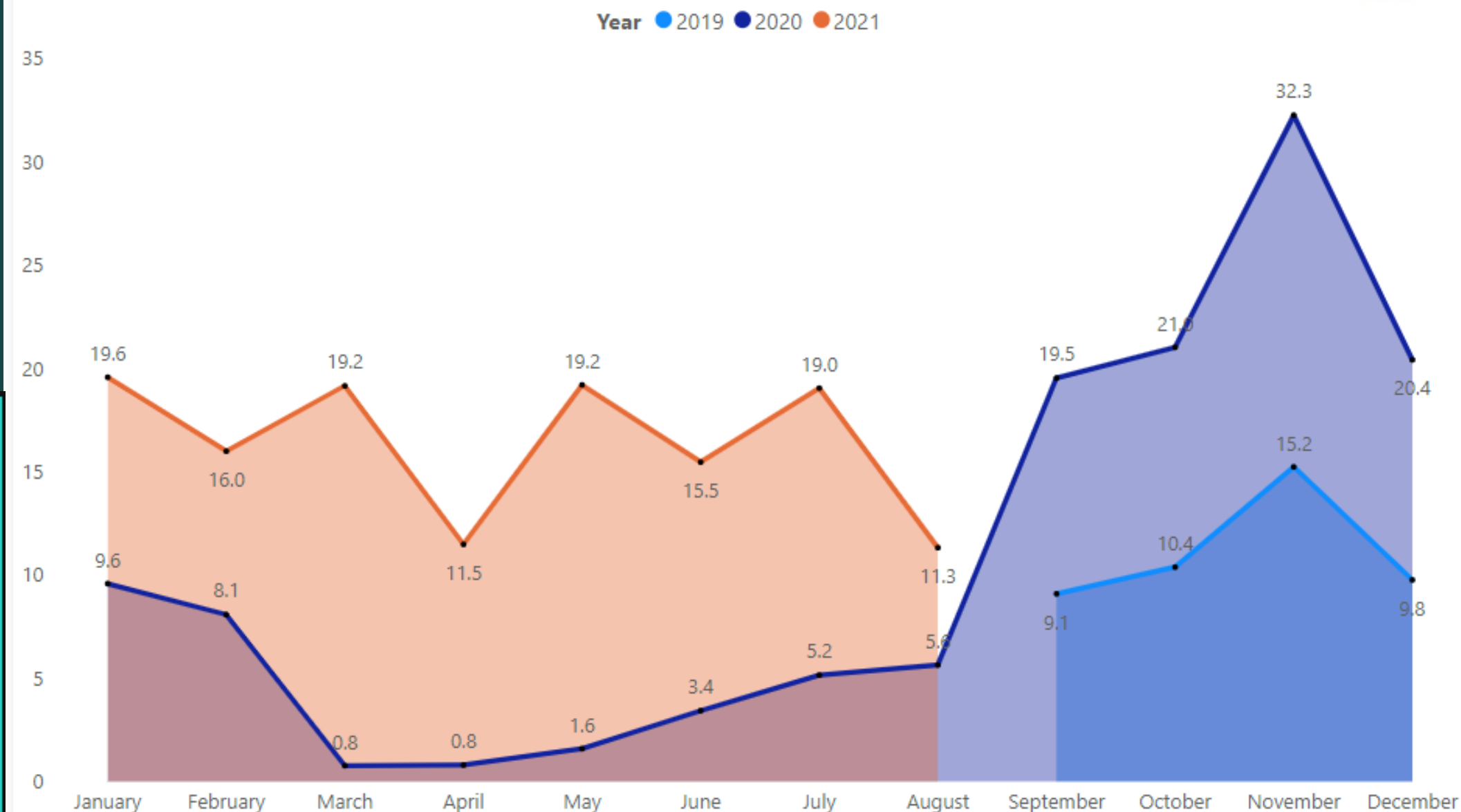
	Month	Year	Gross_sales_Amount
▶	September	2019	9.09m
	October	2019	10.38m
	November	2019	15.23m
	December	2019	9.76m
	January	2020	9.58m
	February	2020	8.08m
	March	2020	0.77m
	April	2020	0.80m
	May	2020	1.59m
	June	2020	3.43m
	July	2020	5.15m
	August	2020	5.64m
	September	2020	19.53m
	October	2020	21.02m
	November	2020	32.25m
	December	2020	20.41m
	January	2021	19.57m
	February	2021	15.99m
	March	2021	19.15m
	April	2021	11.48m
	May	2021	19.20m
	June	2021	15.46m
	July	2021	19.04m
	August	2021	11.32m



```

select
    MONTHNAME(s.date) as Month,
    year(s.date) as Year,
    concat(round(sum(g.gross_price*s.sold_quantity/1000000),2),'m') Gross_sales_Amount
from fact_sales_monthly s
join fact_gross_price g using(product_code)
where s.customer_code in
    (select customer_code from dim_customer where customer='Atliq Exclusive')
group by s.date
order by year;
    
```

Request: 7



Atliq Exclusive achieved its **highest** gross sales amount of **32.25M** in **November 2020** and its **lowest** of **0.77M** in **March 2020**. Sales decreased between March to August due to **COVID-19**, but they began to increase after August, culminating in the highest gross sales amount in November.

Request: 8

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

The final output contains these fields,

Quarter
total_sold_quantity

Output

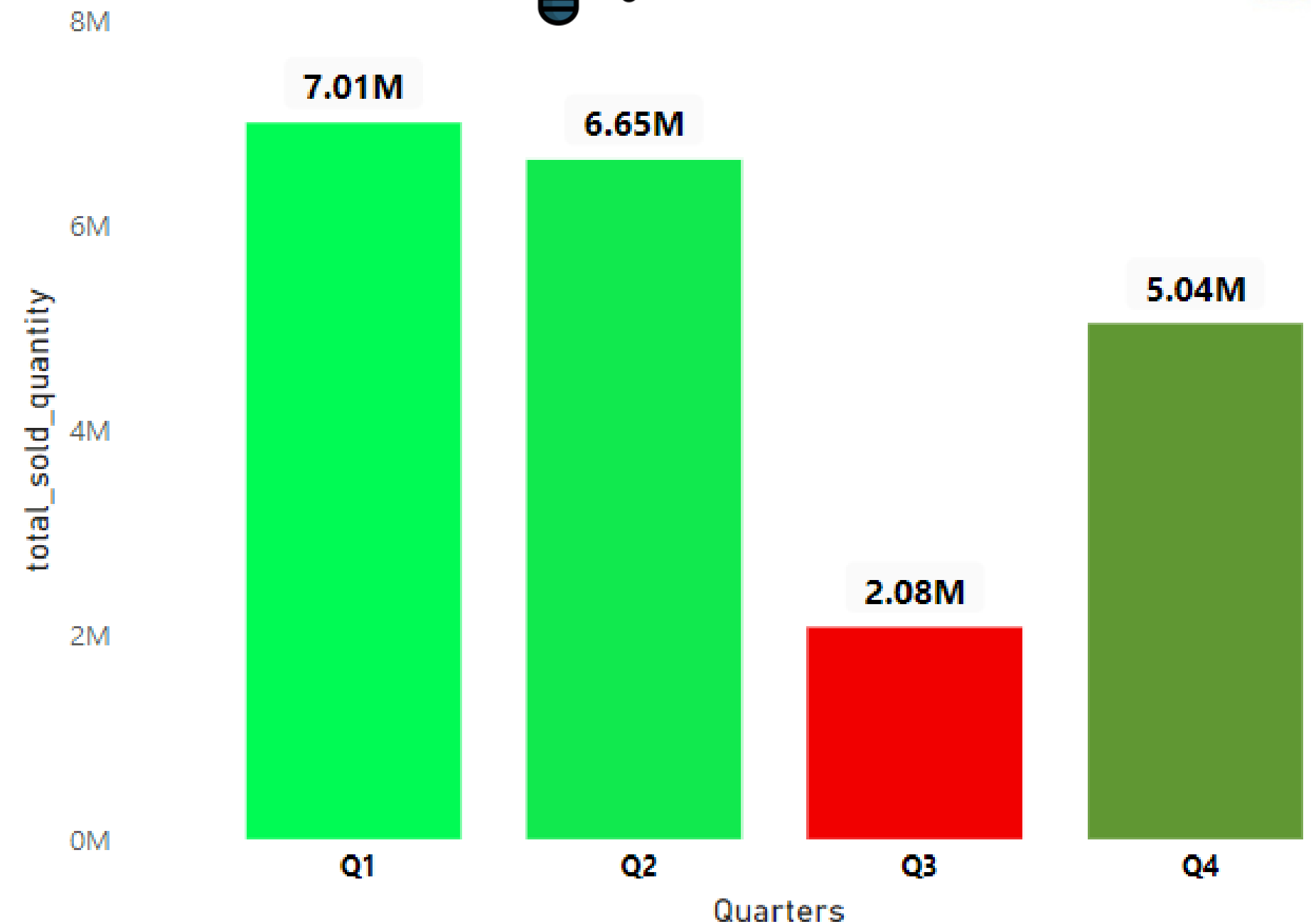


	Quarters	total_sold_quantity
▶	Q1	7.01m
	Q2	6.65m
	Q4	5.04m
	Q3	2.08m



```
Request: 8

with fiscal_table as(
  Select
    date_add(date, INTERVAL 4 MONTH) as fiscal_date,date,
    fiscal_year, sold_quantity
  from fact_sales_monthly
  where fiscal_year=2020
)
select
  concat('Q',ceil(month(fiscal_date)/3)) as Quarters,
  concat(round((sum(sold_quantity)/1000000),2),'m') as total_sold_quantity
from fiscal_table
group by Quarters
order by total_sold_quantity desc;
```



In 2020, **Quarter 1** had the maximum quantity sold of **7.01M**, while **Quarter 3** had the lowest at **2.08M**, largely due to the impact of **COVID-19**. Sales began to decrease in Quarter 3 (March to May) but began to recover in the fourth quarter.

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

Output



	channel	gross_sales_mln	percentage
▶	Retailer	1924.17	73.22
	Direct	406.69	15.47
	Distributor	297.18	11.31



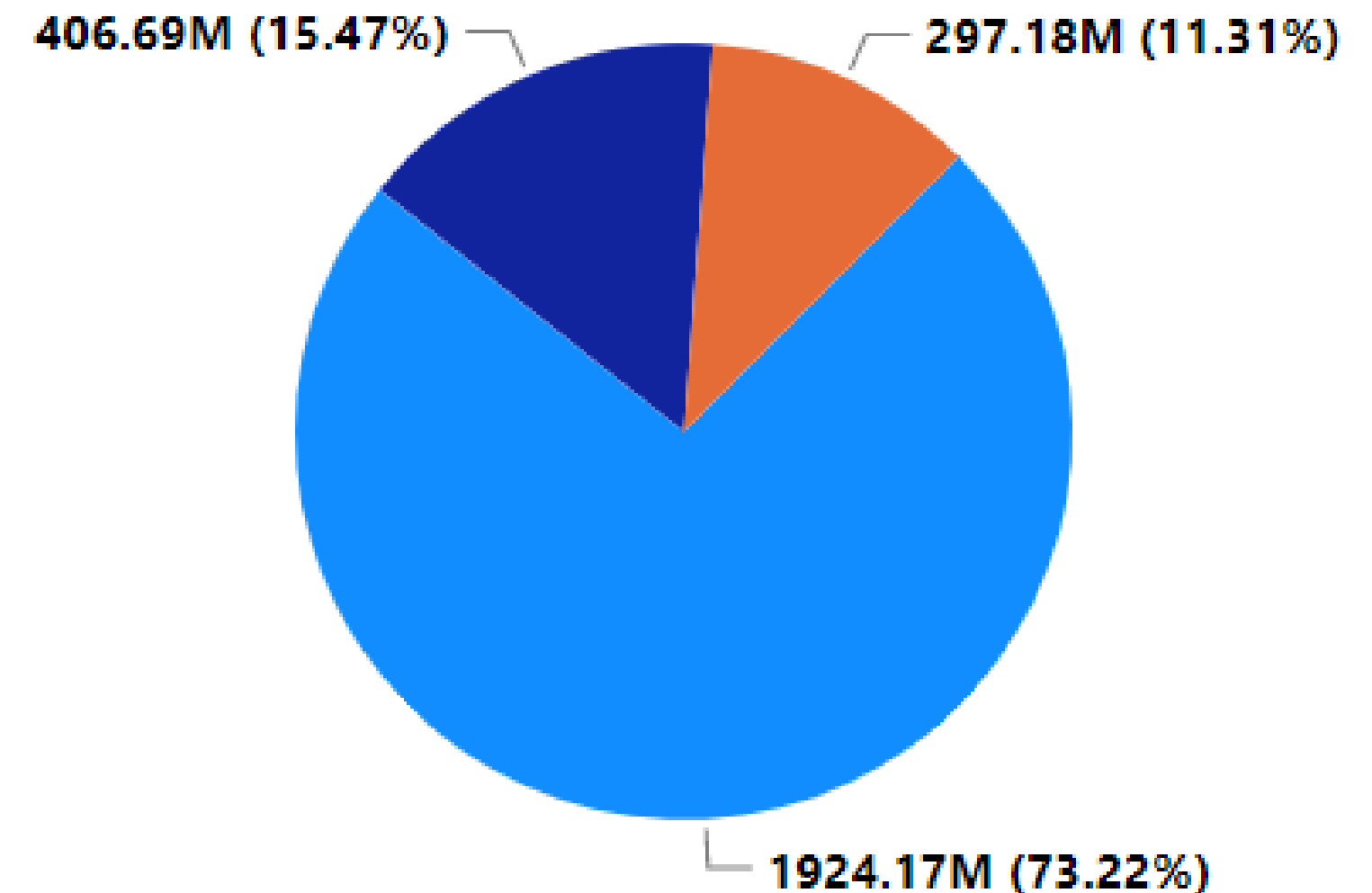
Request: 9

```
with max_gs as(  
    select  
        c.channel as channel,  
        sum(g.gross_price*s.sold_quantity)/1000000 as max_GS  
    from fact_sales_monthly s  
    join fact_gross_price g using(product_code)  
    join dim_customer c using(customer_code)  
    where s.fiscal_year=2021  
    group by c.channel  
    order by max_GS desc  
)  
,  
total_gs as (  
    select  
        sum(g.gross_price*s.sold_quantity)/1000000 as total_gs  
    from fact_sales_monthly s  
    join fact_gross_price g using(product_code)  
    join dim_customer c using(customer_code)  
    where s.fiscal_year=2021  
)  
select  
    a.channel, round(a.max_GS,2) as gross_sales_mln,  
    round((a.max_GS/b.total_gs)*100,2) as percentage  
from max_gs as a  
cross join total_gs as b;
```



Gross Sales Contribution

● Retailer ● Direct ● Distributor



In FY 2021, **retailers** were the primary sales channel, accounting for **73.22% of total sales**, while Direct and Distributor sales represented only a small percentage.

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

Output



	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

Query



Request: 10

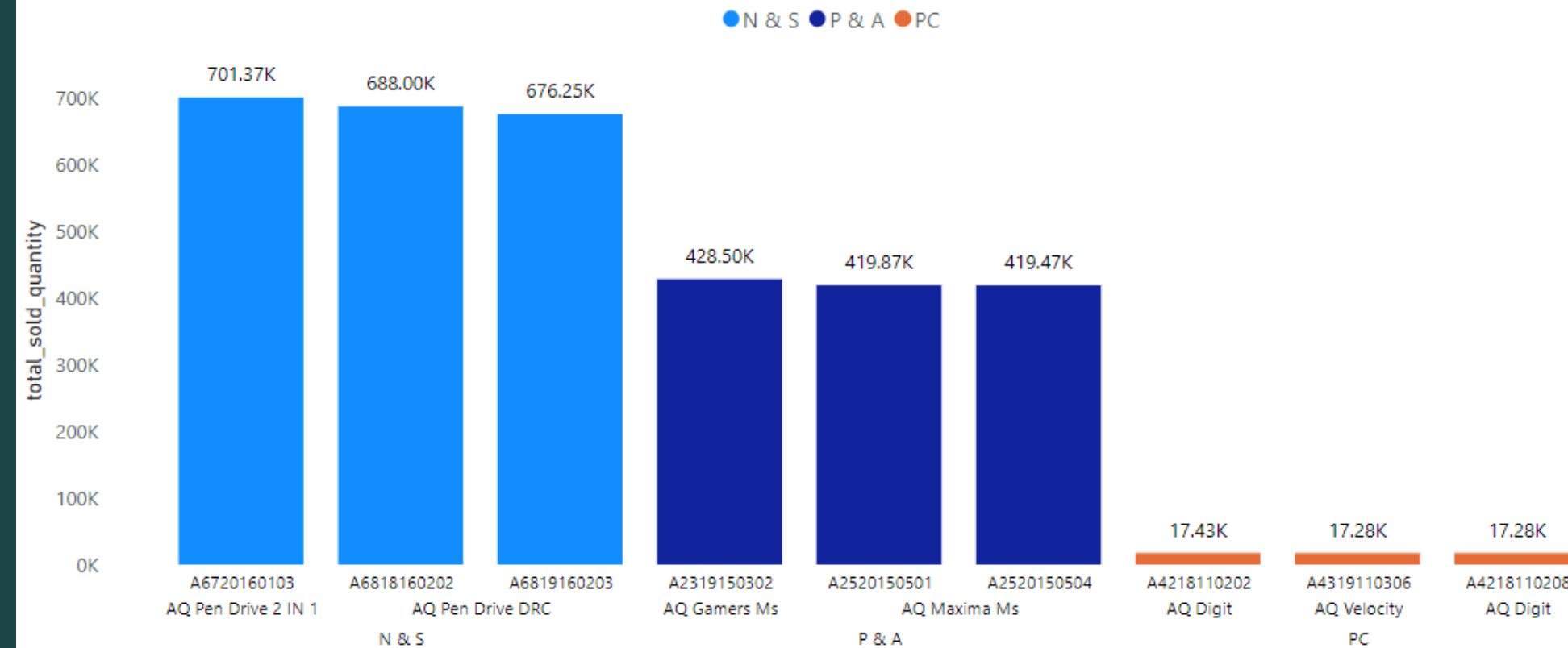
```

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
on
    p.product_code=s.product_code
where s.fiscal_year=2021
group by 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
order by division, rank_order;
    
```

Insights



Top 3 Product in each division by Total_sold_qty



AQ Pen Drive 2 IN 1, AQ Gamers Ms, and AQ Digit are the top-selling products in the N&S, P&A, and PC divisions, respectively, based on total quantity sold. However, the PC division's sales are lower compared to N&S and P&A.



THANK
YOU

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