



CONSUMER GOODS



Ad- hoc Insights



Overview



- ▶ **Company Overview**
- ▶ **Problem Statement**
- ▶ **Data Model**
- ▶ **Ad - hoc Request Q & S**
- ▶ **Recommendations**



Company overview



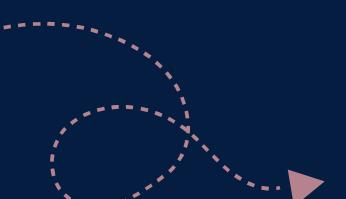
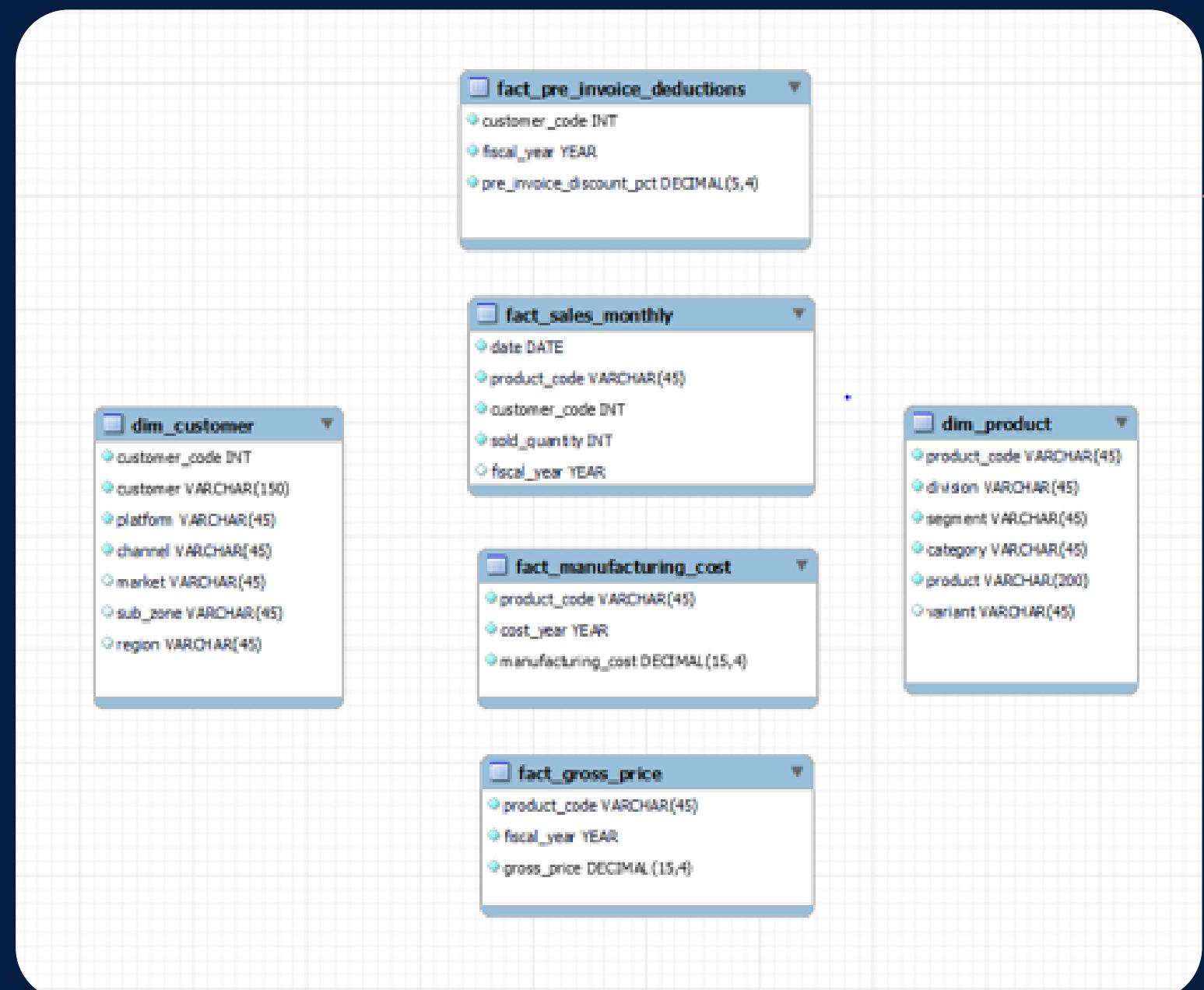
AtliQ Hardwares (imaginary company) is one of the leading computer hardware producers in India and well expanded in other countries too.



Problem statement

- 
- Management noticed a lack of insights for quick, smart data-informed decisions.
 - Need to enhance data analytics capabilities to improve decision-making processes
 - Tony Sharma, the data analytics director, seeks candidates with strong tech and soft skills
 - To evaluate these skills, Tony decided to conduct a SQL challenge

Data model & Ad - hoc Request



Codebasics SQL Challenge

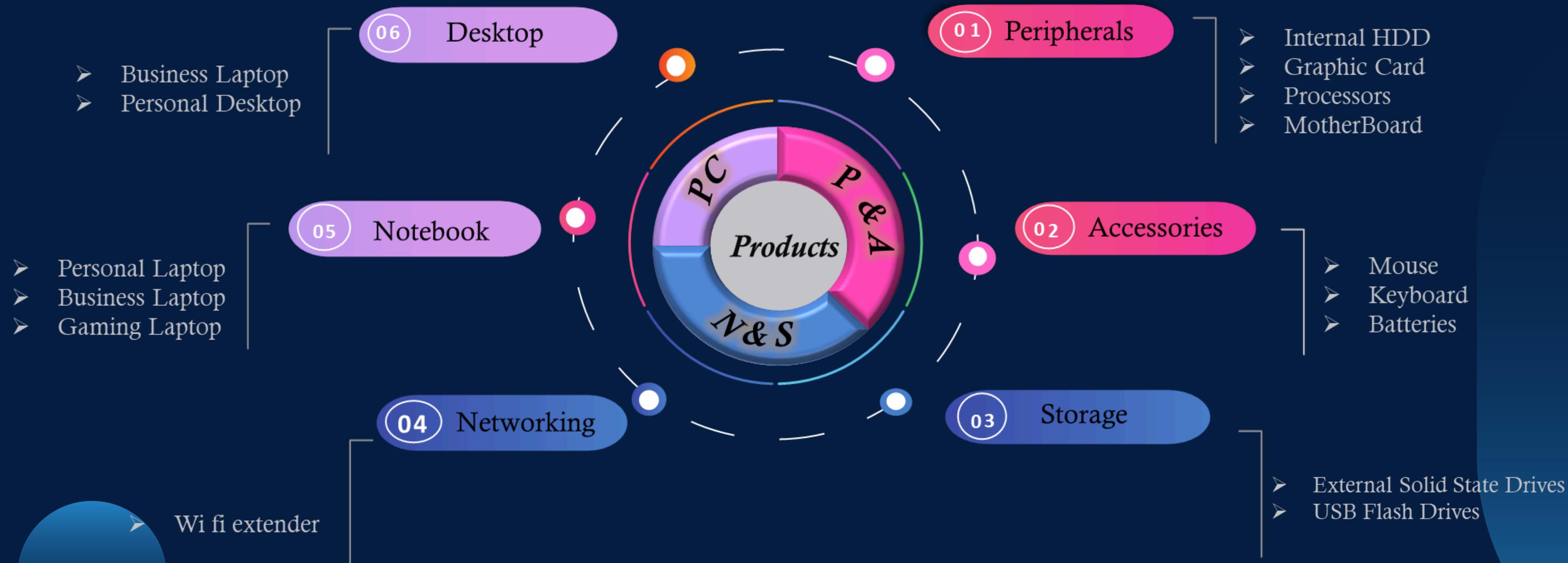
Requests:

- Provide the list of markets in which customer "Atiq 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 "Atiq 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

codebasics.io



Product view



01

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

CONVERSTION OF OUTPUT TO VISUAL

	market
▶	India
	Indonesia
	Japan
	Philiphines
	South Korea
	Australia
	Newzealand
	Bangladesh



Insights

AtliQ Exclusive operates in 8 countries within the APAC region, demonstrating a significant regional market presence.

02

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

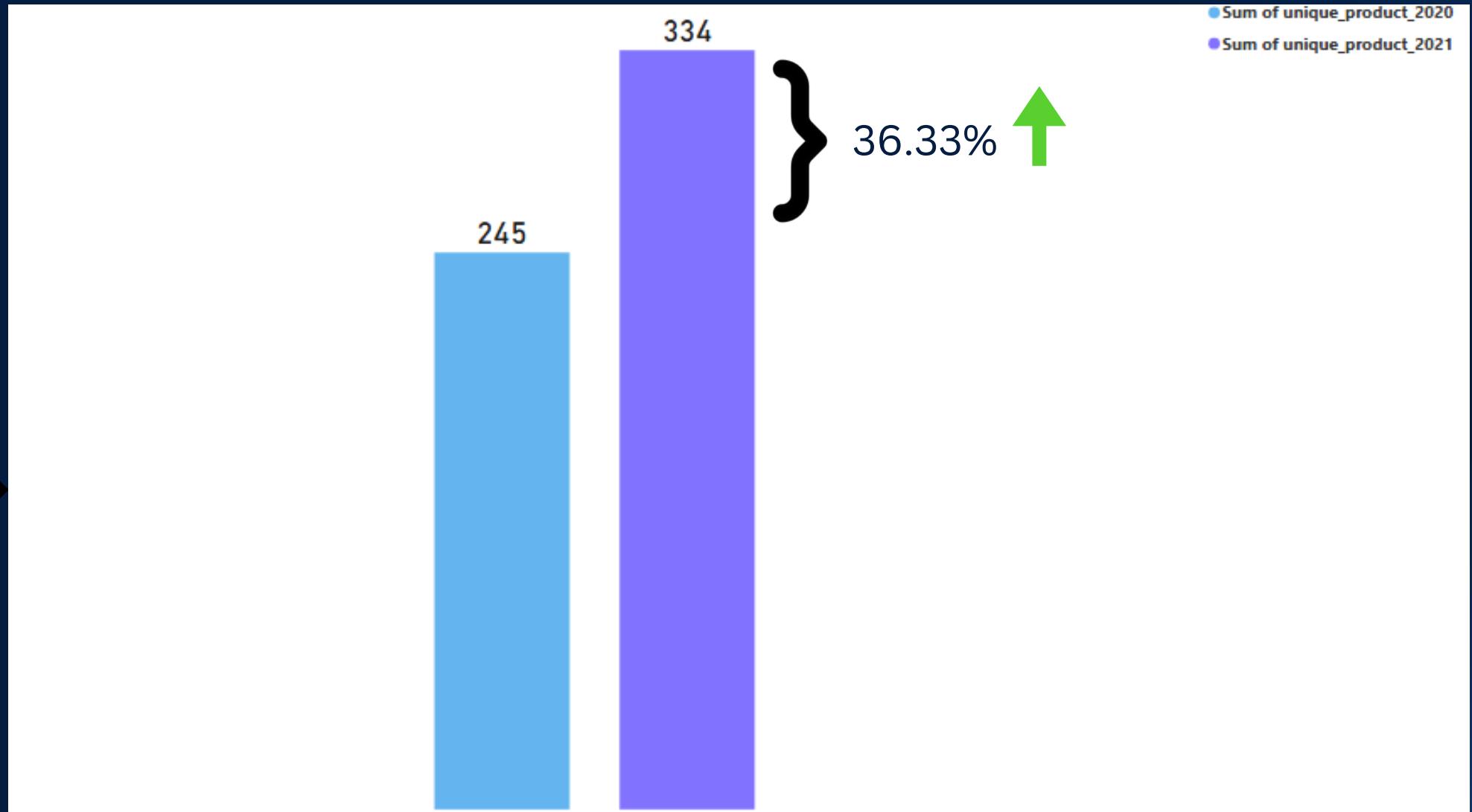
.

Input

```
with cte1 as (  
    SELECT count(distinct(product_code)) as unique_product_2020  
    FROM fact_sales_monthly  
    where fiscal_year=2020),  
    cte2 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,  
    (unique_product_2021 - unique_product_2020)*100/unique_product_2020 as percentage_chg  
from cte1  
cross join cte2
```

CONVERSTION OF OUTPUT TO VISUAL

	unique_product_2020	unique_product_2021	percentage_chg
▶	245	334	36.3265



Insights

The number of unique products grew from 245 in 2020 to 334 in 2021, marking a 36.33% increase. This significant increase highlights the company's commitment to innovation and meeting diverse customer needs.

03

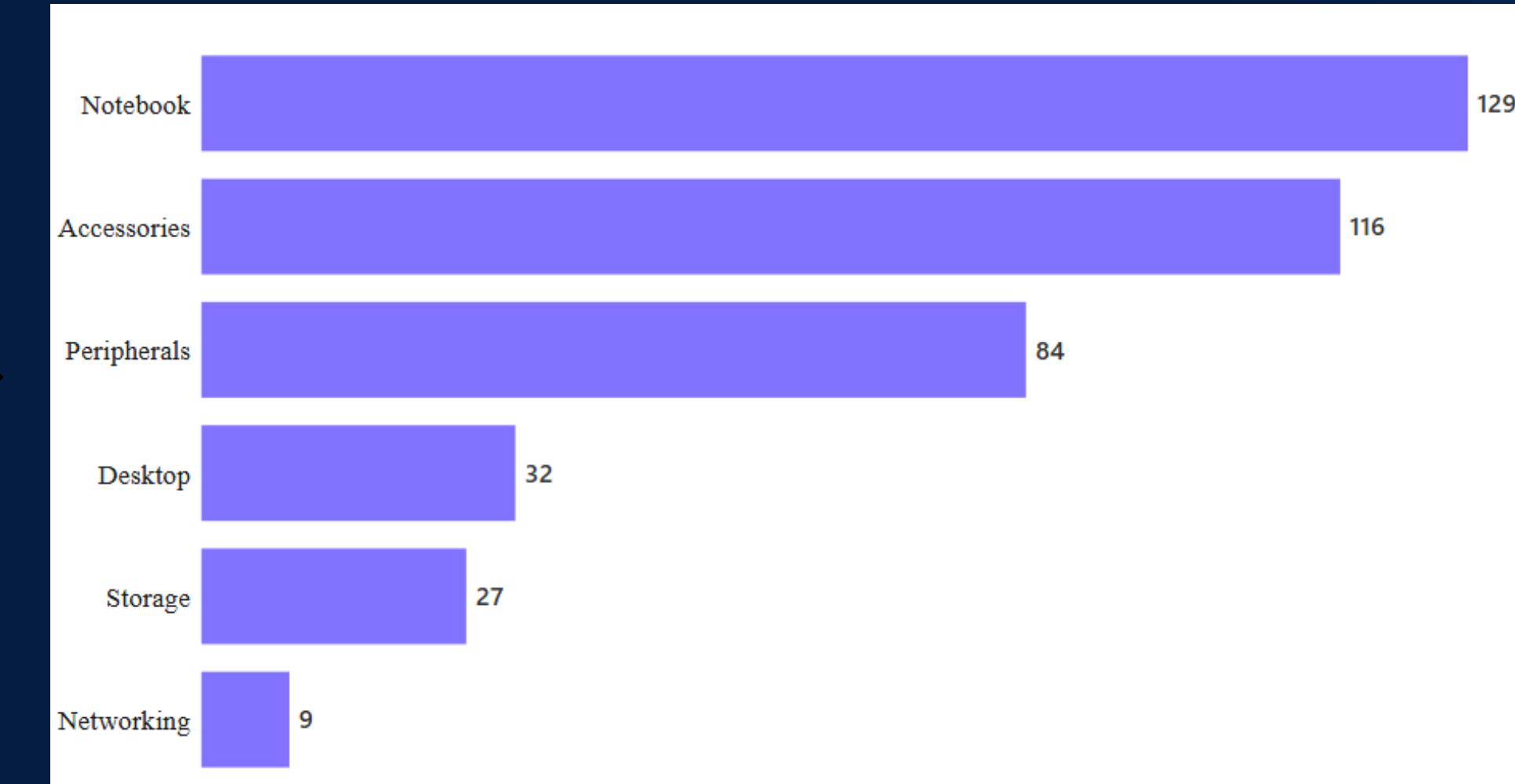
Provide a report with all the unique product counts for each segment and sort them in descending order of product counts. The final output contains 2 fields, `segment`, `product_count`.

Input

```
Select segment,  
    count(distinct(product_code)) as unique_product_count  
from dim_product  
group by segment  
order by unique_product_count desc
```

CONVERSTION OF OUTPUT TO VISUAL

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



Insights

AtliQ shines in Notebooks, Accessories, and Peripherals segment, accounting for a whopping 82.87% of product variety.

Desktops, Storage, and Networking currently hold a minor share (17.13%) of AtliQ's product portfolio.

In Desktops, Storage, and Networking segment AtliQ should focus on products that align with current customer trends and industry demands

04

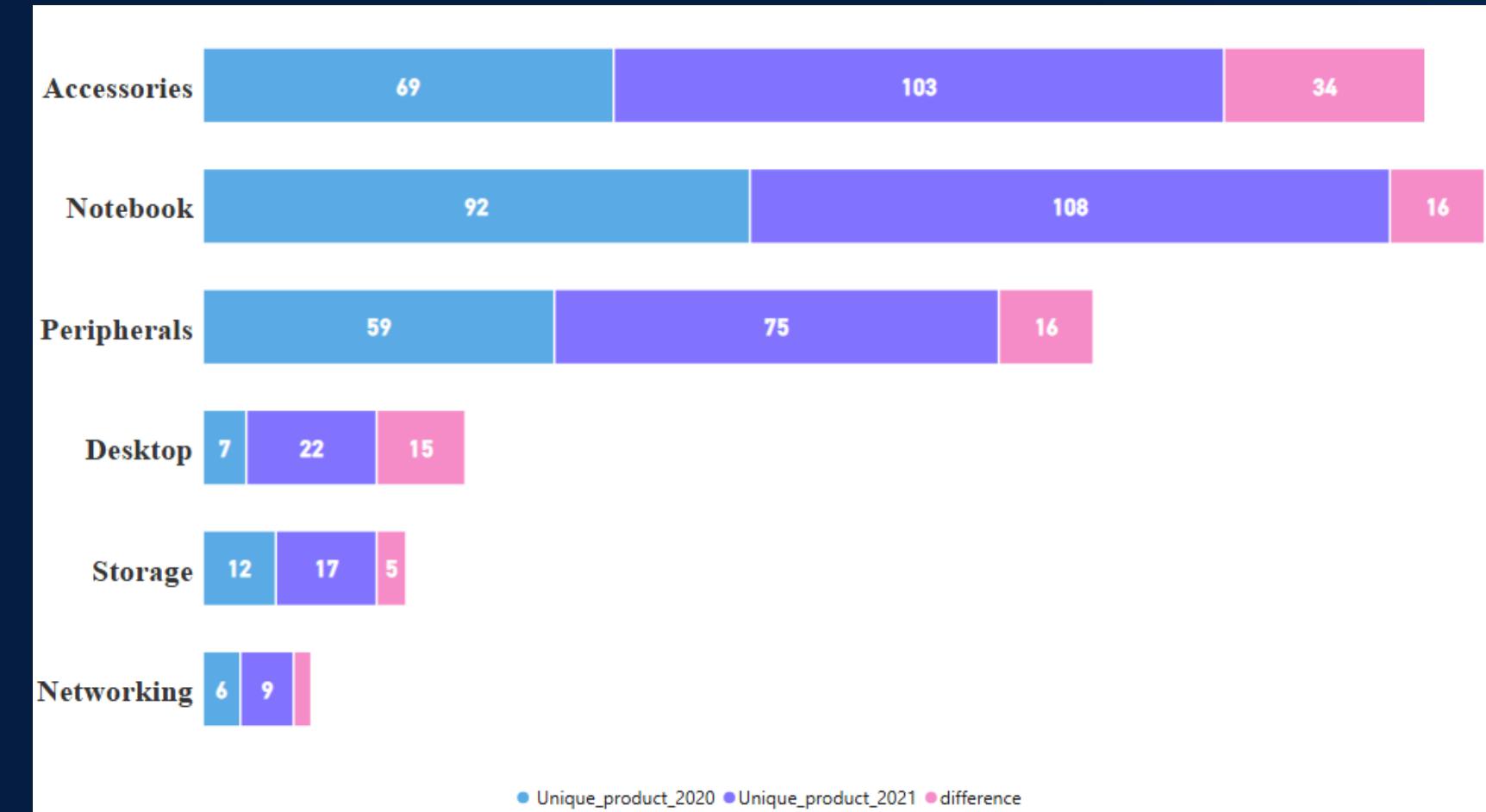
Which segment had the most increase in unique products in 2021 vs 2020? The final output contains these fields, segment, product_count_2020, product_count_2021, difference.

Input

```
with unique_product 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  
    p.product_code = s.product_code  
group by p.segment  
)  
select *,  
(product_count_2021 - product_count_2020) as difference  
from unique_product  
order by difference desc;
```

CONVERSTION OF OUTPUT TO VISUAL

	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 have the most increased products from 2020 to 2021, with an increase of 34 new products. Desktop products production increased drastically by approximately 214% from 2020 to 2021. Storage and Networking segments are producing the least new products from 2020 to 2021.

05

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

Input

```
select
m.product_code,
p.product,
round(m.manufacturing_cost,2) as manufacturing_cost
from fact_manufacturing_cost m
join dim_product p
on p.product_code = m.product_code
where
m.manufacturing_cost = (select min(manufacturing_cost)from fact_manufacturing_cost)
or
m.manufacturing_cost = (select max(manufacturing_cost)from fact_manufacturing_cost)
order by m.manufacturing_cost desc;
```

CONVERSTION OF OUTPUT TO VISUAL

	product_code	product	manufacturing_cost
▶	A6120110206	AQ HOME Allin1 Gen 2	240.54
	A2118150101	AQ Master wired x1 Ms	0.89



Personal Desktop
(A6120110206)

AQ Home Allin 1 Gen2

Highest Manf cost product



Mouse
(A2118150101)

AQ Master wired x1 Ms

Lowest Manf cost product

06

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 .

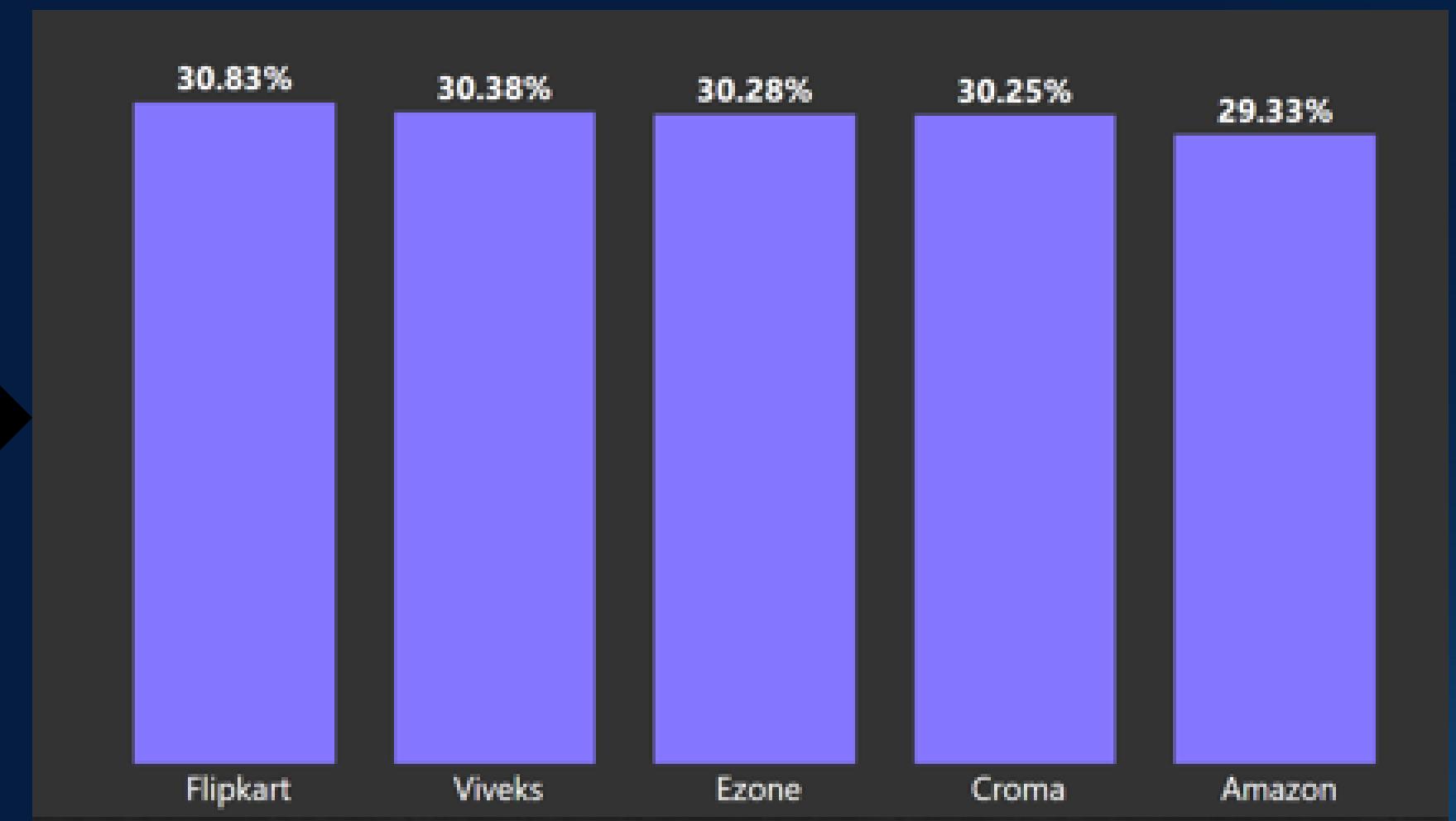
Input

```
with top5Customer as  
  (select * from fact_pre_invoice_deductions  
   join dim_customer c using(customer_code)  
   where fiscal_year=2021 and c.market='India')
```

```
select  
  customer_code,  
  customer,  
  concat(round(avg(pre_invoice_discount_pct)*100,2) ,"%")as avg_disct_pct  
from top5Customer  
group by customer_code, customer  
order by avg_disct_pct desc limit 5;
```

CONVERSTION OF OUTPUT TO VISUAL

	customer_code	customer	avg_disc_pct
▶	70002017	Atliq Exclusive	7.03%
	90002009	Flipkart	30.83%
	90002006	Viveks	30.38%
	90002003	Ezone	30.28%
	90002002	Croma	30.25%



Insights

Flipkart leads the list with the highest average discount percentage at 30.83%.

AtliQ has provided relatively uniform discount percentages to its top 5 customers, with a narrow range of discounts from 29.33% to 30.83%.

07

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.

Input

```
select
monthname(S.date) as month,
s.fiscal_year as year,
round(sum(gp.gross_price * S.sold_quantity/1000000),2) as gross_sale
from fact_sales_monthly S
join fact_gross_price gp on S.product_code=gp.product_code
join dim_customer C on C.customer_code = S.customer_code
where customer="Atliq Exclusive"
group by month,year
order by year;
```


08

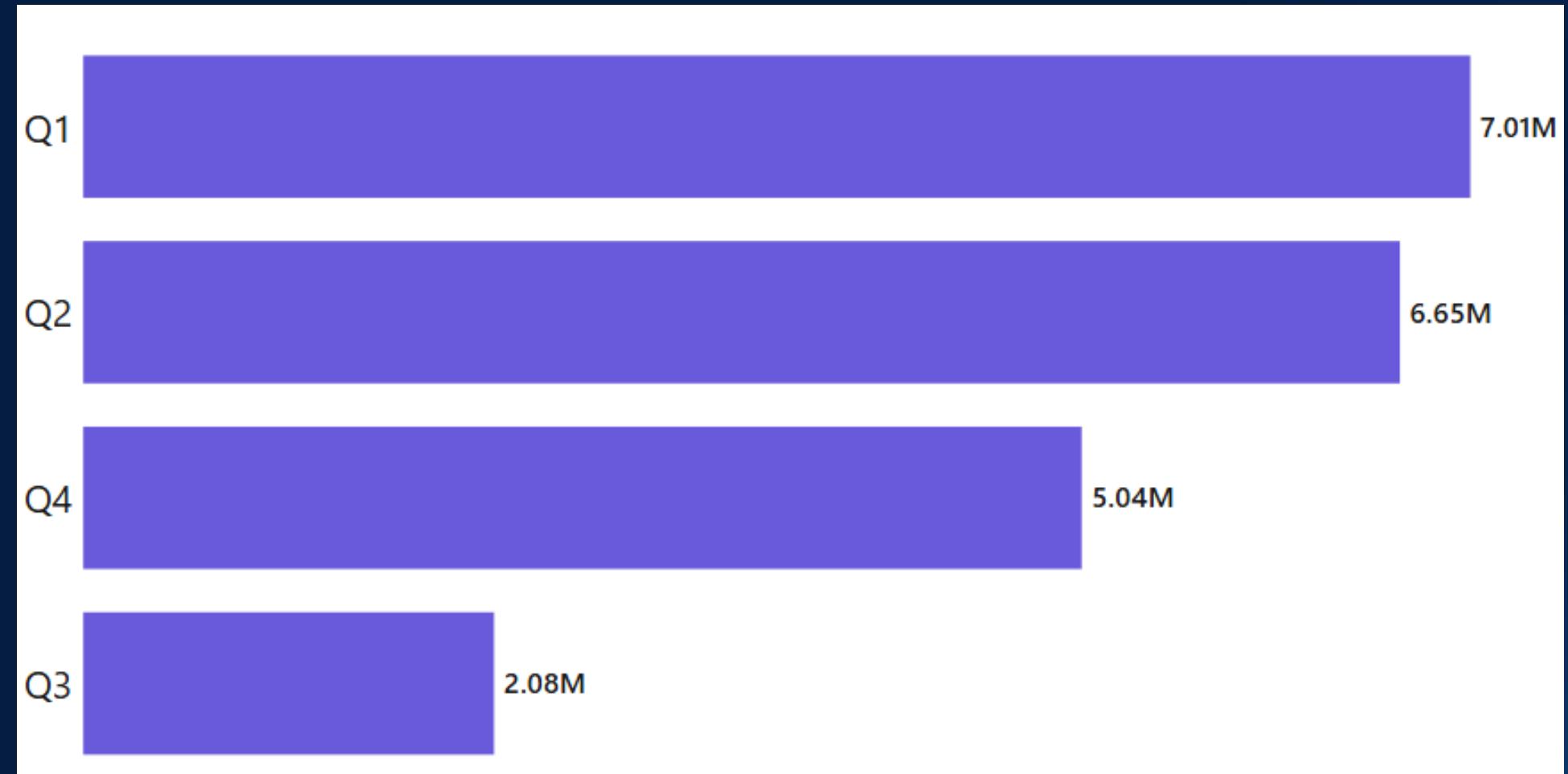
In which quarter of 2020, got the maximum total_sold_quantity? The final output contains these fields sorted by the total_sold_quantity, Quarter, total_sold_quantity.

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

CONVERSTION OF OUTPUT TO VISUAL

quarters	total_sold_Qty
Q1	7005619
Q2	6649642
Q4	5042541
Q3	2075087



Insights

- Q1 (2020) saw the highest sales volume, reaching around 7 million units, indicating strong performance early in the year.
- * AtliQ experienced a significant decline in sales during Q3 (March, April, May), possibly due to the COVID-19 pandemic, reflecting challenging market conditions and shifting consumer behavior

09

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.

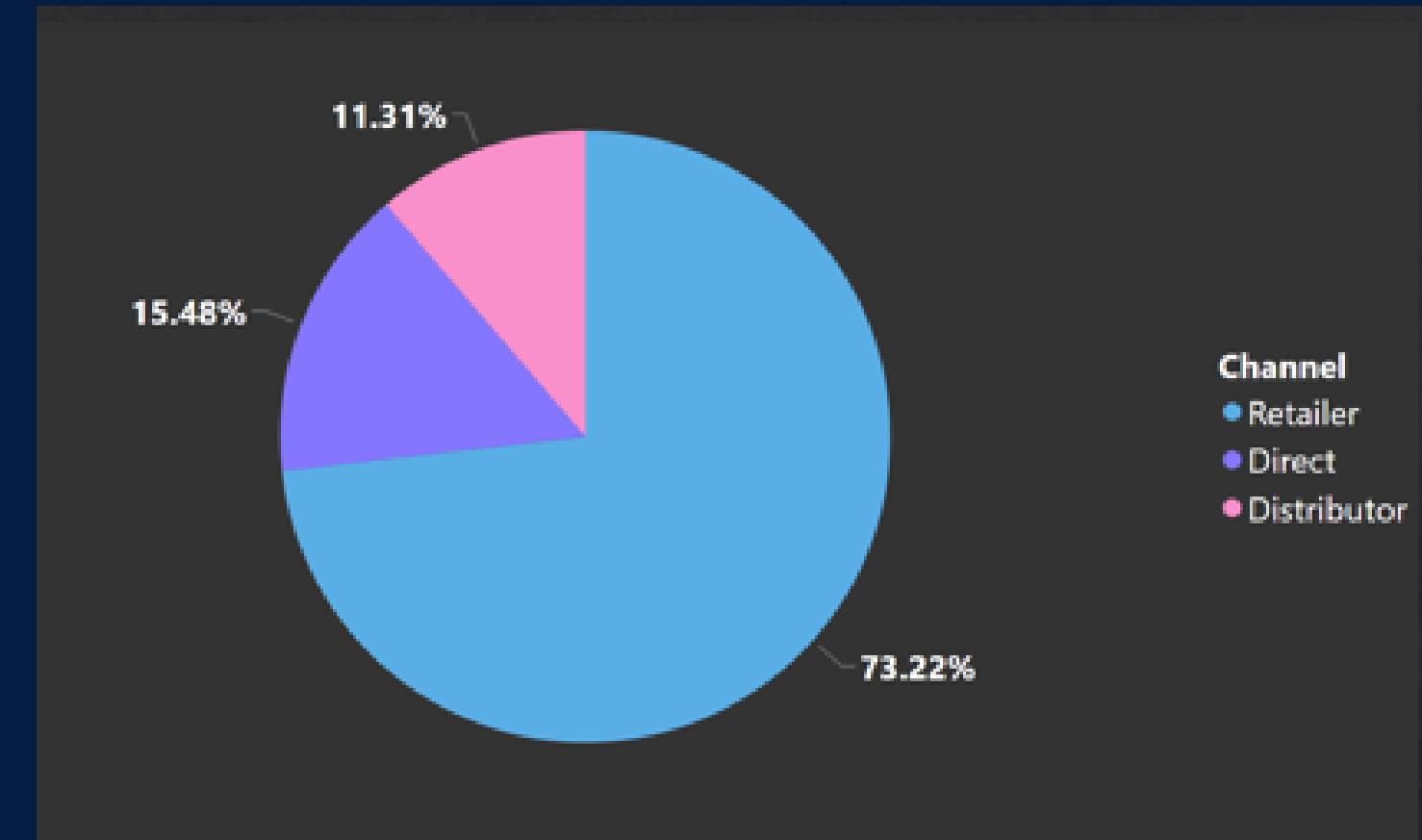
Input

```
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 *,
    round(gross_sales_mln*100 / (select sum(gross_sales_mln) from cte1),2) as pct_contribution
from cte1
order by pct_contribution desc;
```

CONVERSTION OF OUTPUT TO VISUAL

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



Insights

The majority of AtliQ's sales come from retailers, accounting for a substantial 73.22% of the total gross sales. Direct and distributor channel together contributes only 26.79% of the total sales

10

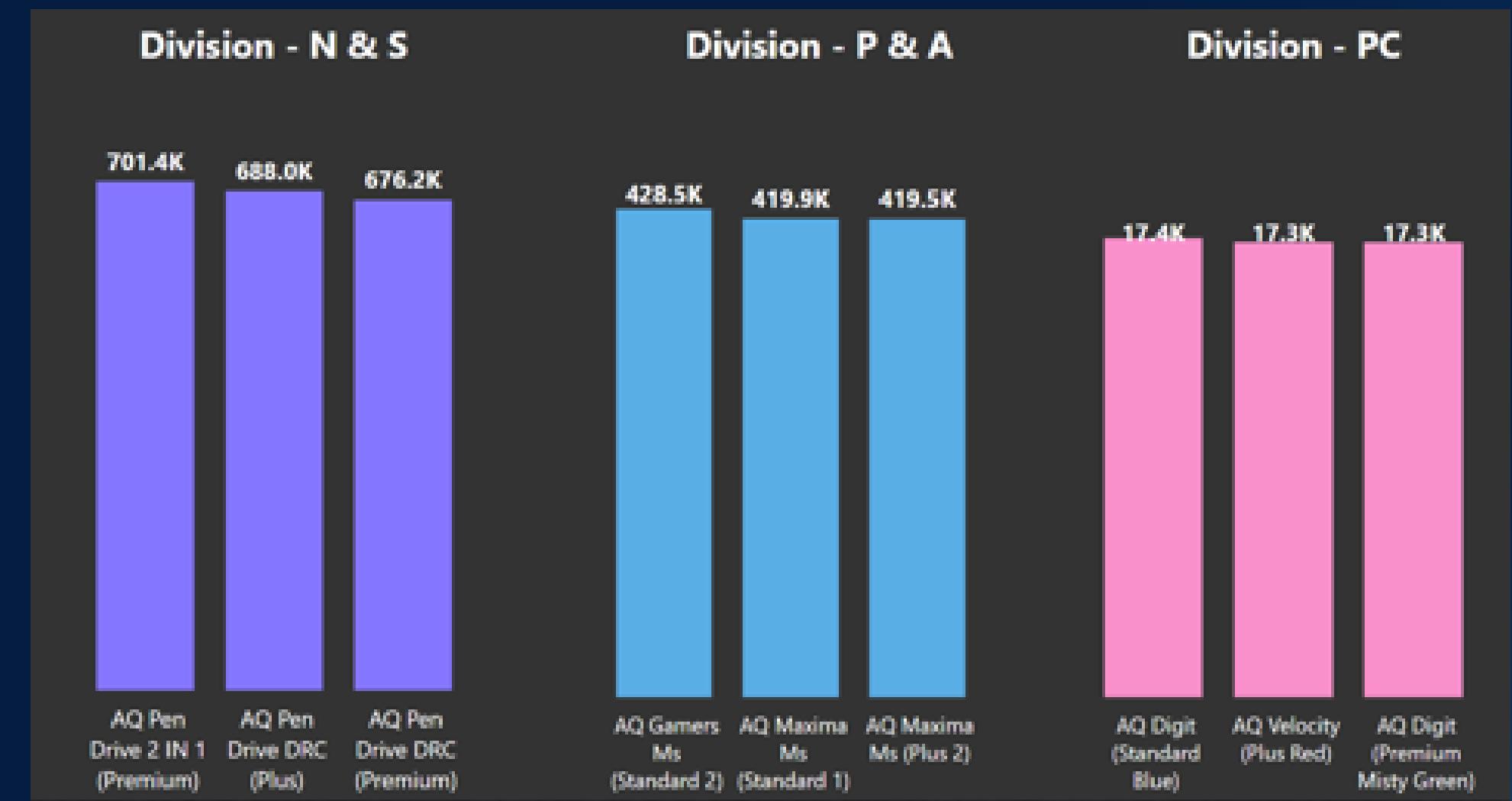
Get the Top 3 products in each division that have a high total_sold_quantity in the fiscal_year 2021?
The final output contains these fields, division product_code product total_sold_quantity rank_order.

Input

```
with rank_as(  
    select  
        prd.division as division,  
        sm.product_code as product_code,  
        prd.product as product,  
        sum(sold_quantity) as total_sold_quantity,  
        dense_rank() over(partition by prd.division order by sum(sold_quantity) desc) as rank_order  
    from fact_sales_monthly sm  
    join dim_product prd  
    on prd.product_code = sm.product_code  
    where sm.fiscal_year = 2021  
    group by division, product_code, product  
)  
select division, product_code, product, total_sold_quantity, rank_order  
from rank_  
where rank_order <= 3;
```

CONVERSTION OF OUTPUT TO VISUAL

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



Insights

- In the N & S division, pen drives dominate the top three spots, showcasing their popularity and high sales performance.
- The P & A division's top three products are exclusively mouse, reflecting a clear demand for these devices.
- * The PC division's bestsellers are all personal laptops

THANK YOU

