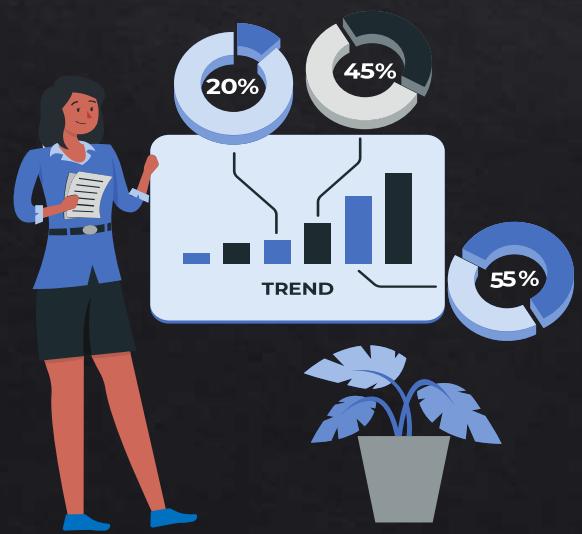




# Ad-Hoc Insights

## Consumer Goods



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# Content



1. Company Overview

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2. Problem Statement

---

3. Dataset and Model

---

4. Ad-hoc Requests, Outputs and Insights

---

5. Recommendations

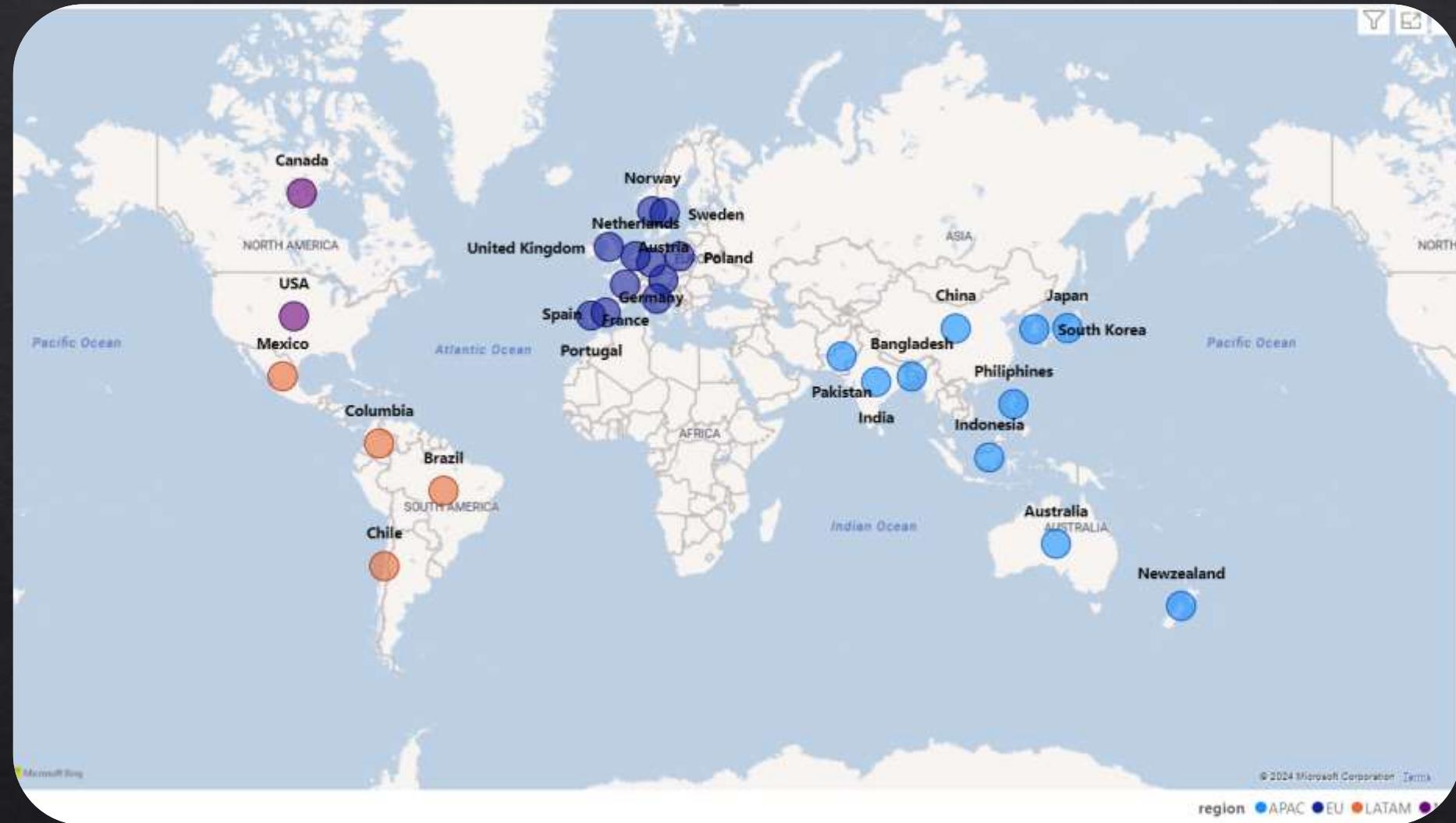


# Company Overview

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

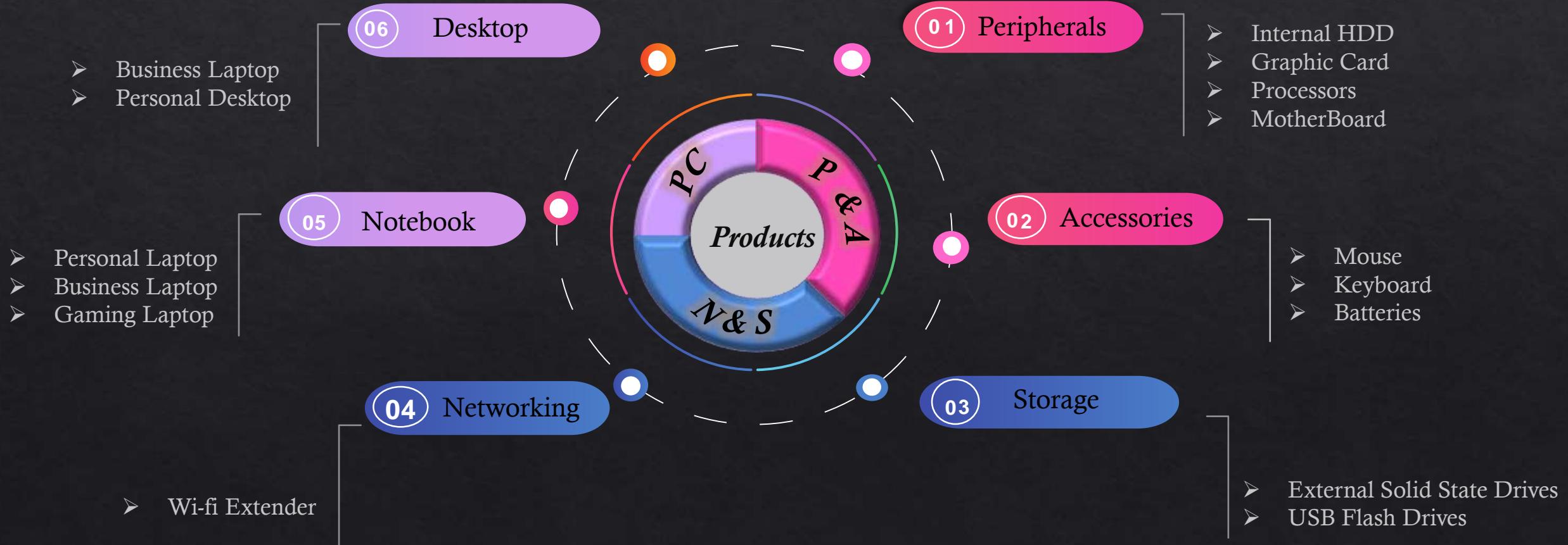


# Markets





# Product Line





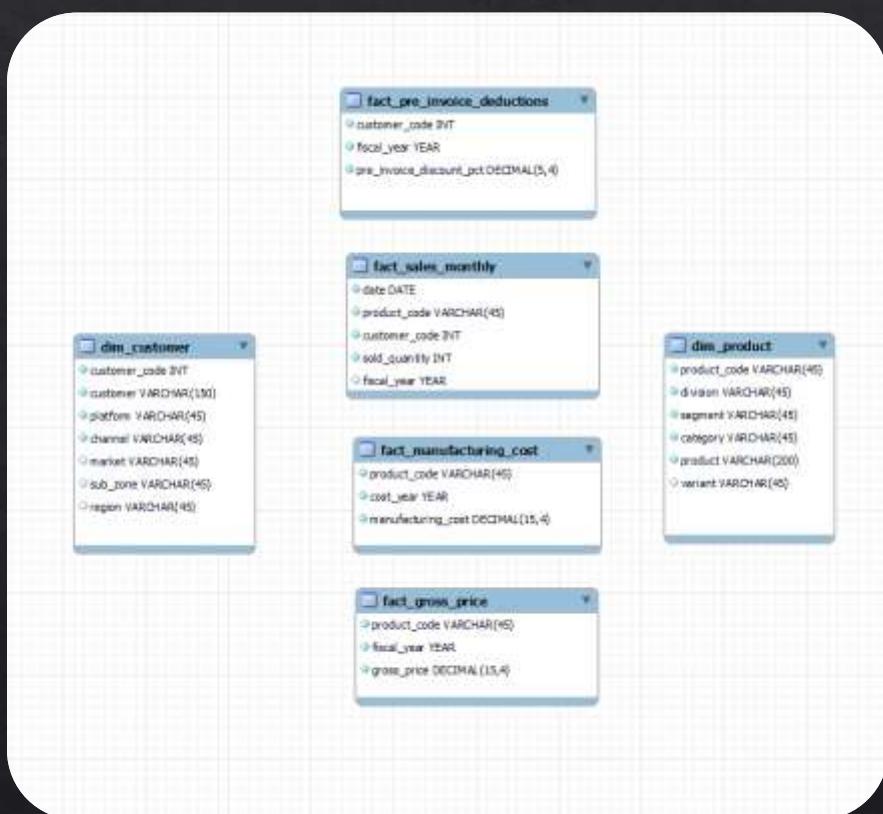
# Problem Statement



- Management noticed a lack of insights for quick, smart data-informed decisions.
- Decision made to expand the data analytics team with several junior data analysts.
- 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.



# Dataset



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\_change
- 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

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 "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
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

codebasics.io

# Ad-hoc Requests, Output and Insights

Requests 1.

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

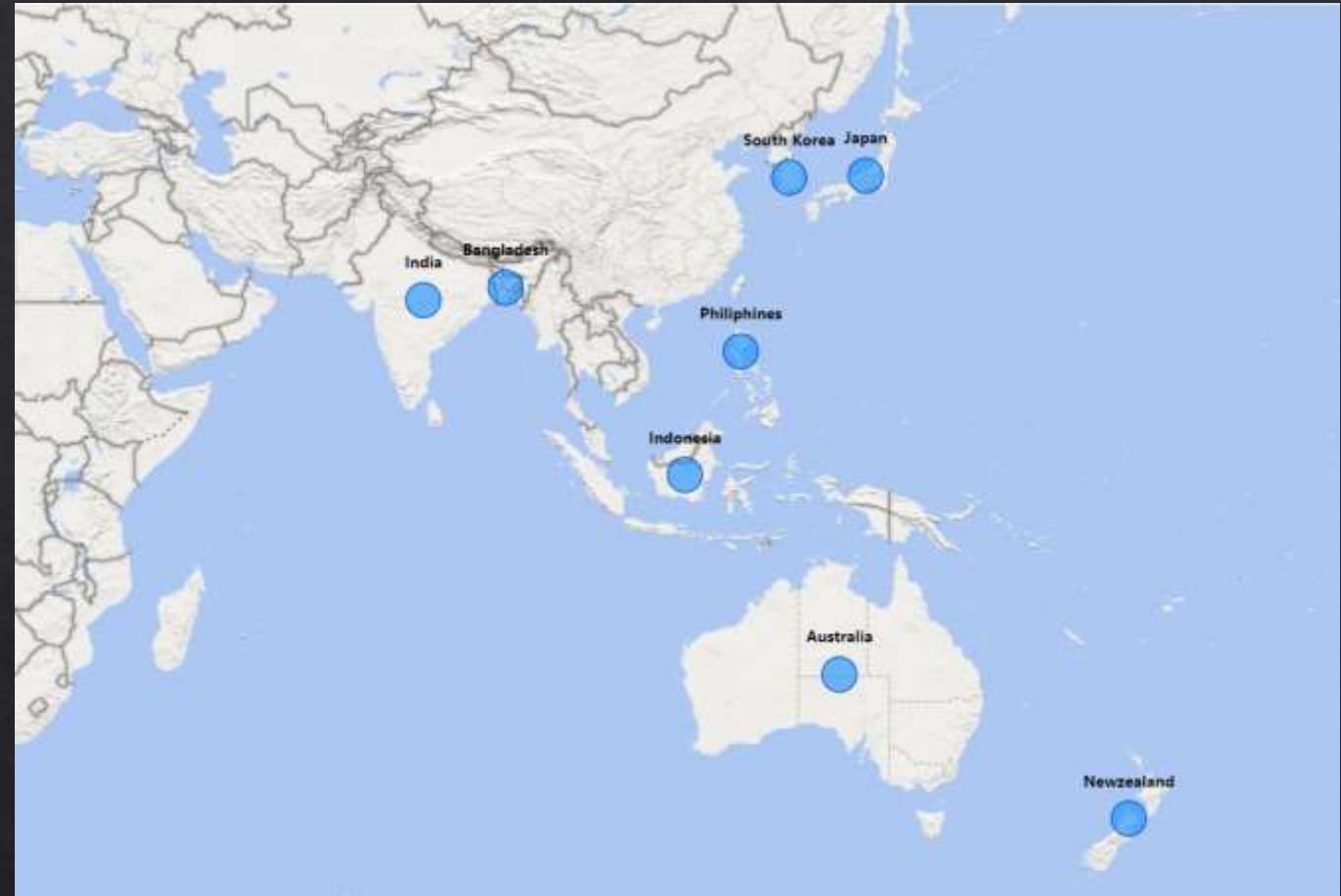
Input



```
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.

## Requests 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.

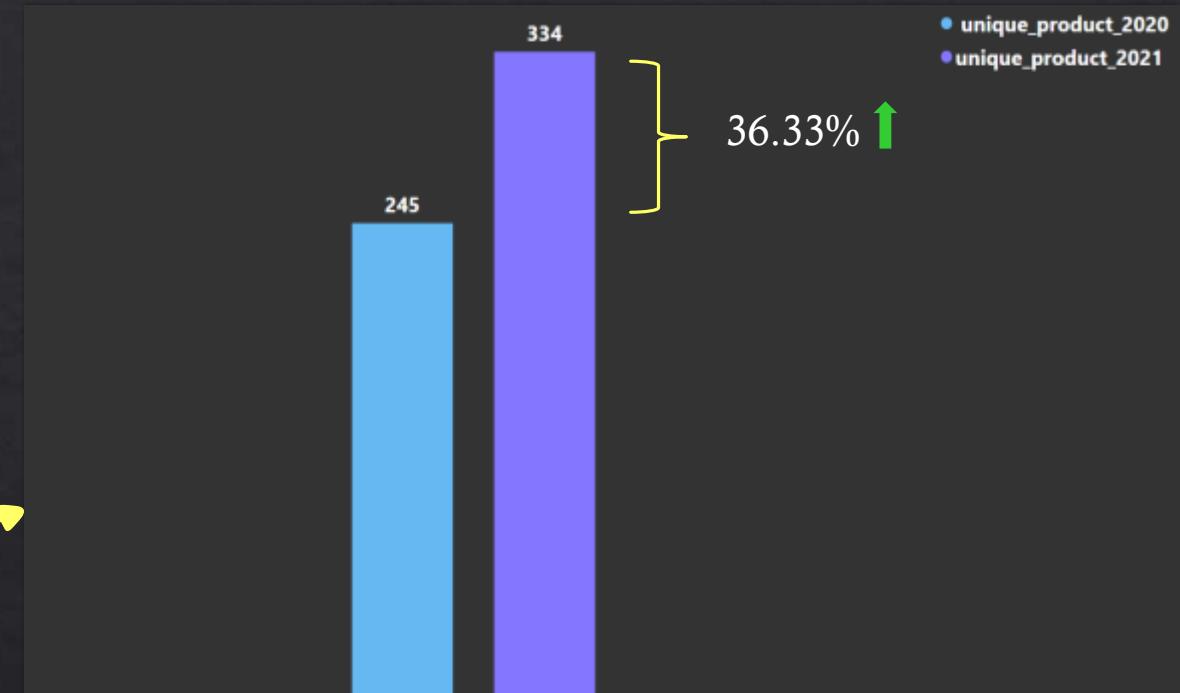
## Input



```
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 pct_change
from cte1
cross join cte2
;
```

# Output

unique_product_2020	unique_product_2021	pct_change
245	334	36.3265



# Insights

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

Requests 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.

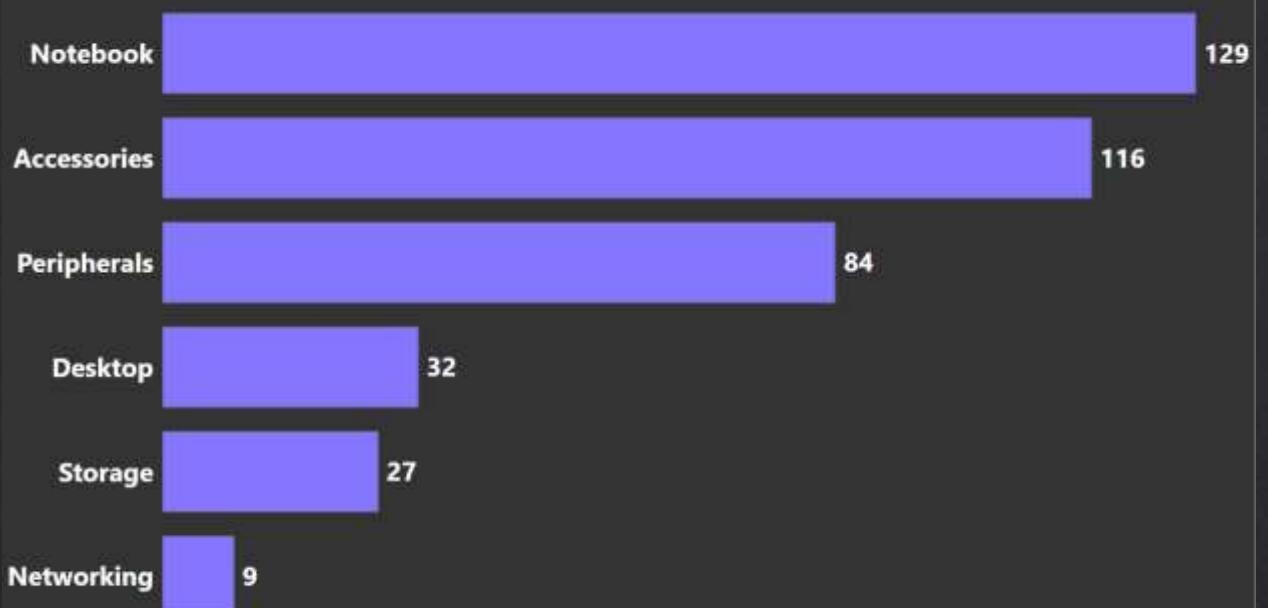
Input



```
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

1. AtliQ shines in Notebooks, Accessories, and Peripherals segment, accounting for a whopping 82.87% of product variety.
2. Desktops, Storage, and Networking currently hold a minor share (17.13%) of AtliQ's product portfolio.
3. In Desktops, Storage, and Networking segment AtliQ should focus on products that align with current customer trends and industry demands.

## Requests 4.

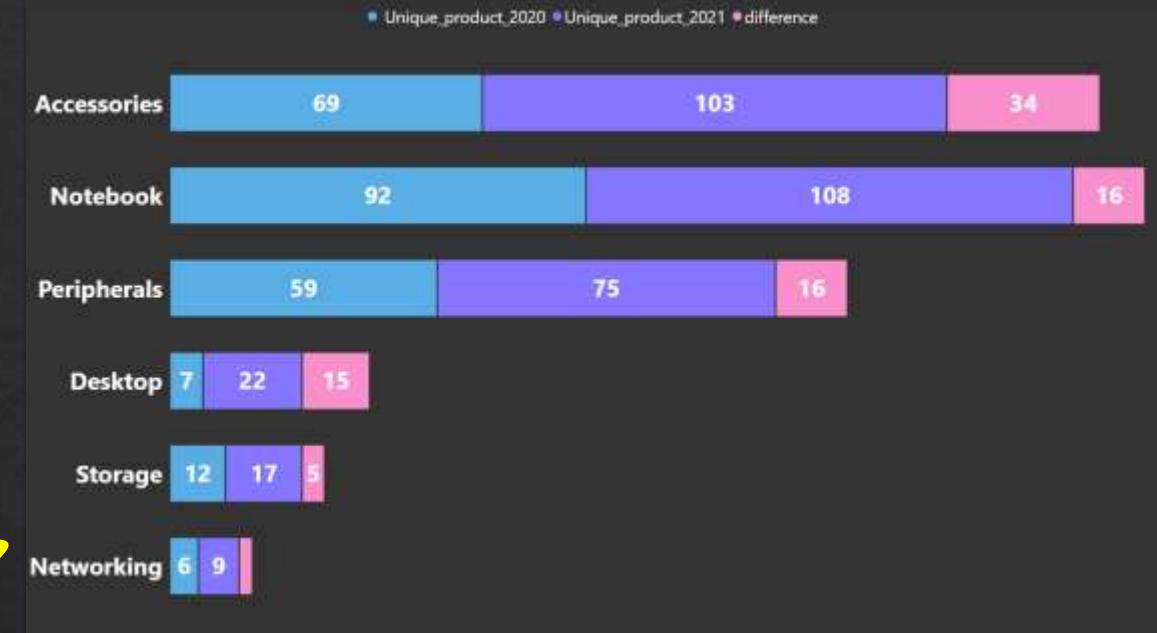
Follow-up: Which segment had the most increase in unique products in 2021 vs 2020? The final output contains these fields, segment, product\_count\_2020, product\_count\_2021, difference.

## 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

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

Requests 5.

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
    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

\$ 240.54



Personal Desktop  
(A6120110206)

AQ HOME Allin1 Gen 2

Highest  
Manufacturing  
Cost Product

\$ 0.89



Mouse  
(A2118150101)

AQ Master wired x1 Ms

Lowest  
Manufacturing  
Cost Product

## Requests 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.

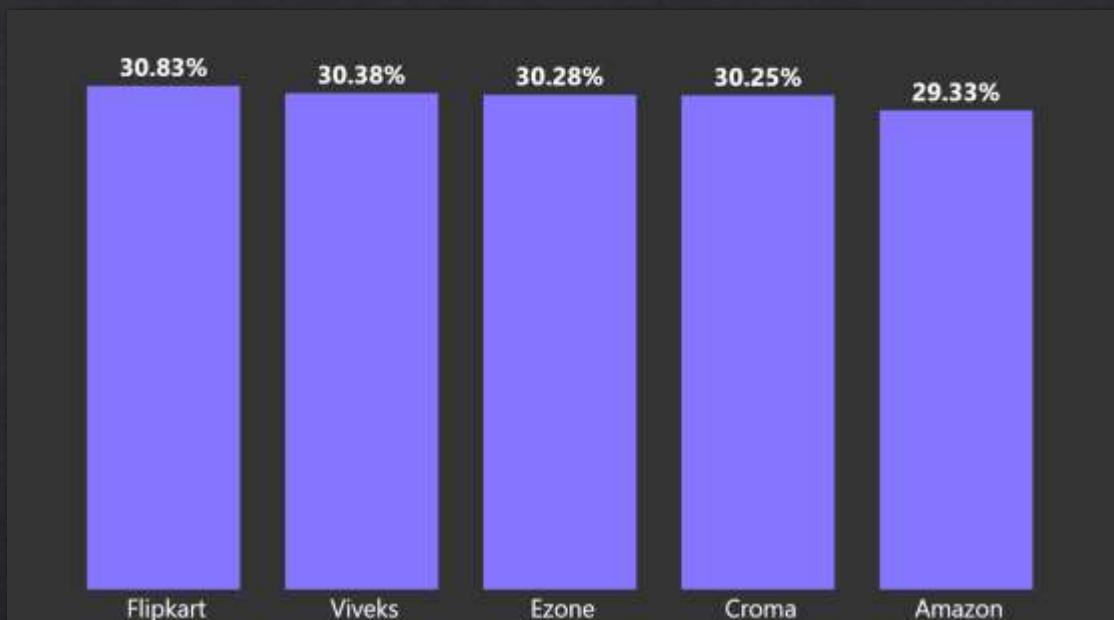
## Input



```
with cte1 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_discount_pct
from cte1
group by customer_code, customer
order by avg(pre_invoice_discount_pct)*100 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

1. Flipkart leads the list with the highest average discount percentage at 30.83%.
2. AtliQ has provided relatively uniform discount percentages to its top 5 customers, with a narrow range of discounts from 29.33% to 30.83%.

## Requests 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.

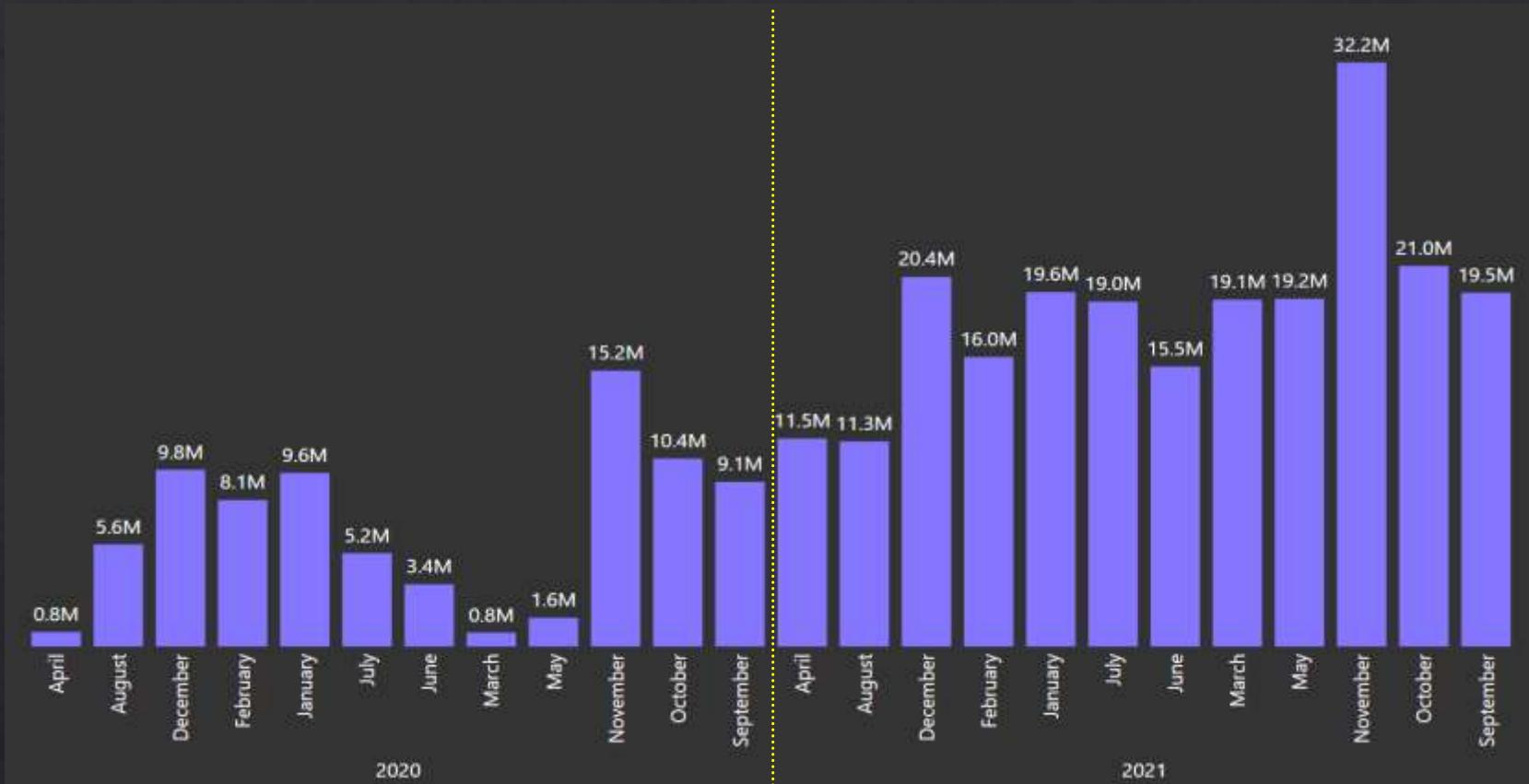
## Input



```
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

1. March, April, May recorded the lowest sales in 2020, likely due to the COVID-19 pandemic. Sales began to recover after June 2020.
2. November generated the highest sales for 2020, with around 15.23 million.
3. Sales figures in 2021 show significant growth compared to 2020.
4. In 2021, the lowest sales were in August, accounting for 11.32 million, while the highest sales were in November, reaching 32.25 million.

## Requests 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.

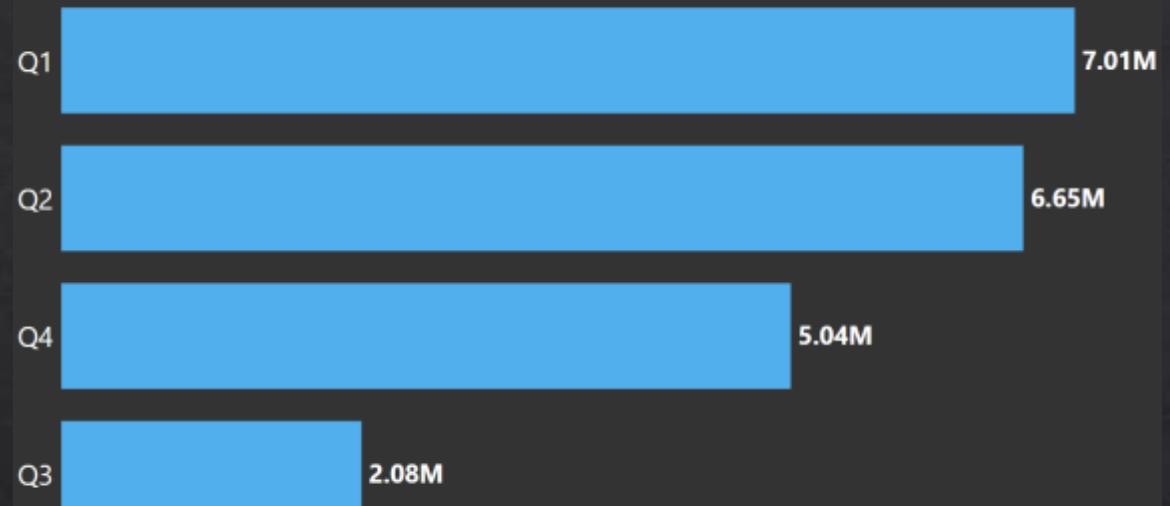
## Input



```
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

1. Q1 (2020) saw the highest sales volume, reaching around 7 million units, indicating strong performance early in the year.
2. 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.

## Requests 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.

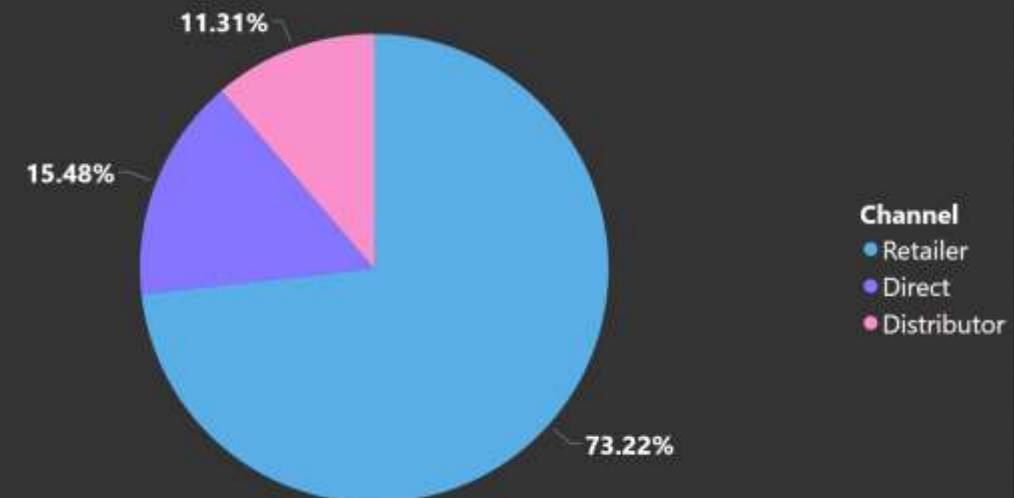
## Input



```
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

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

## Requests 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 cte1 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 cte1
where rank_order in (1,2,3)
order by division, rank_order asc
;
```

# 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

Division - N & S



Division - P & A



Division - PC



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

# Insights

# Recommendations

1. Focus on desktops, Storage, and Networking segment.
2. Emphasizes multi-channel marketing.
3. Combine pricing strategies with attractive promotions.
4. Continuously improve based on customer feedback.
5. Invest in sales team training for improved performance.

Thank You!