



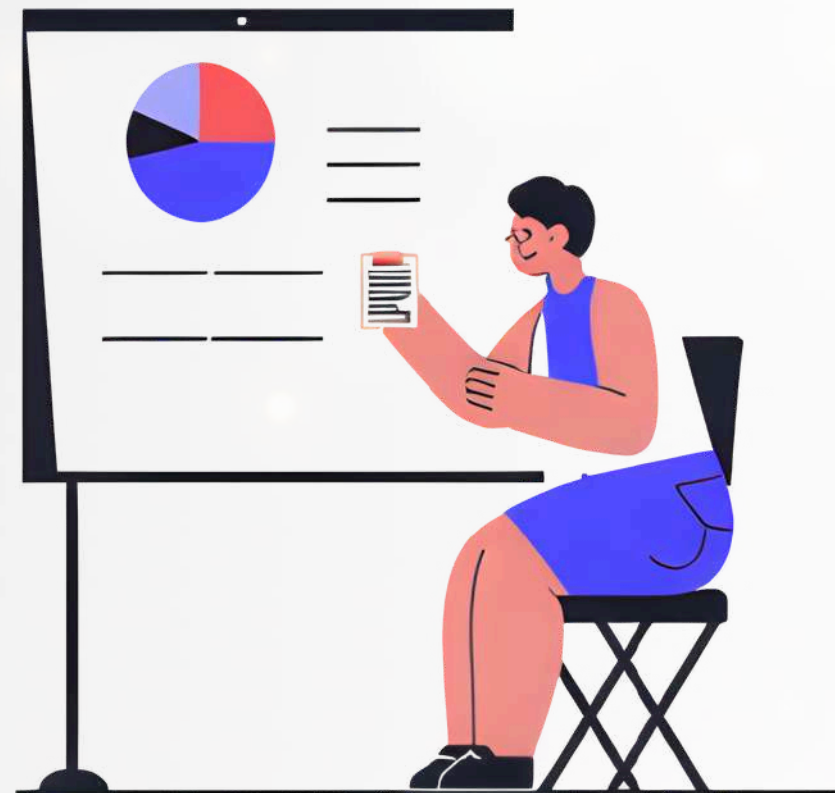
AD_HOC INSIGHTS

Consumer goods



by Vishu

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COMPANY OVERVIEW

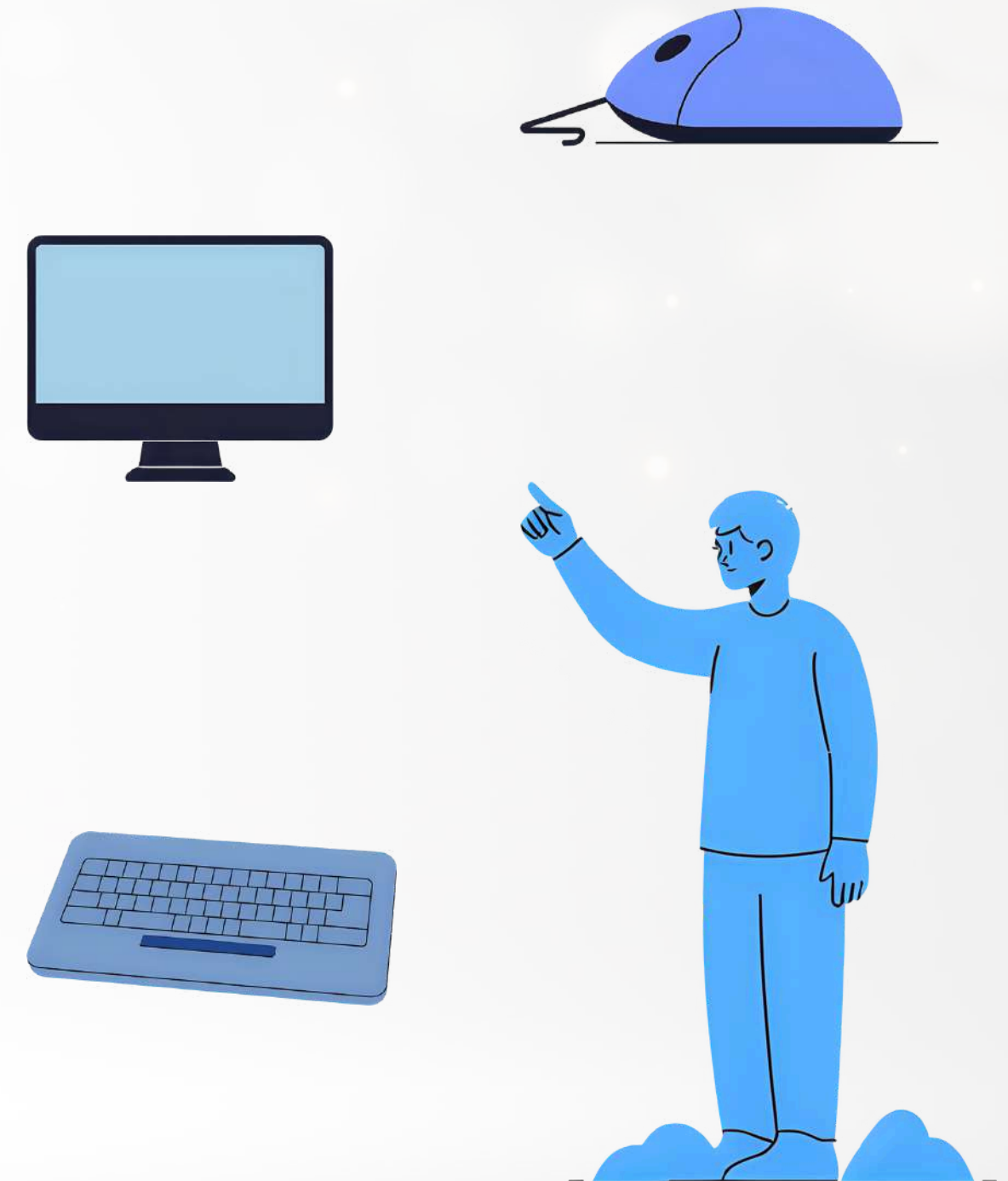
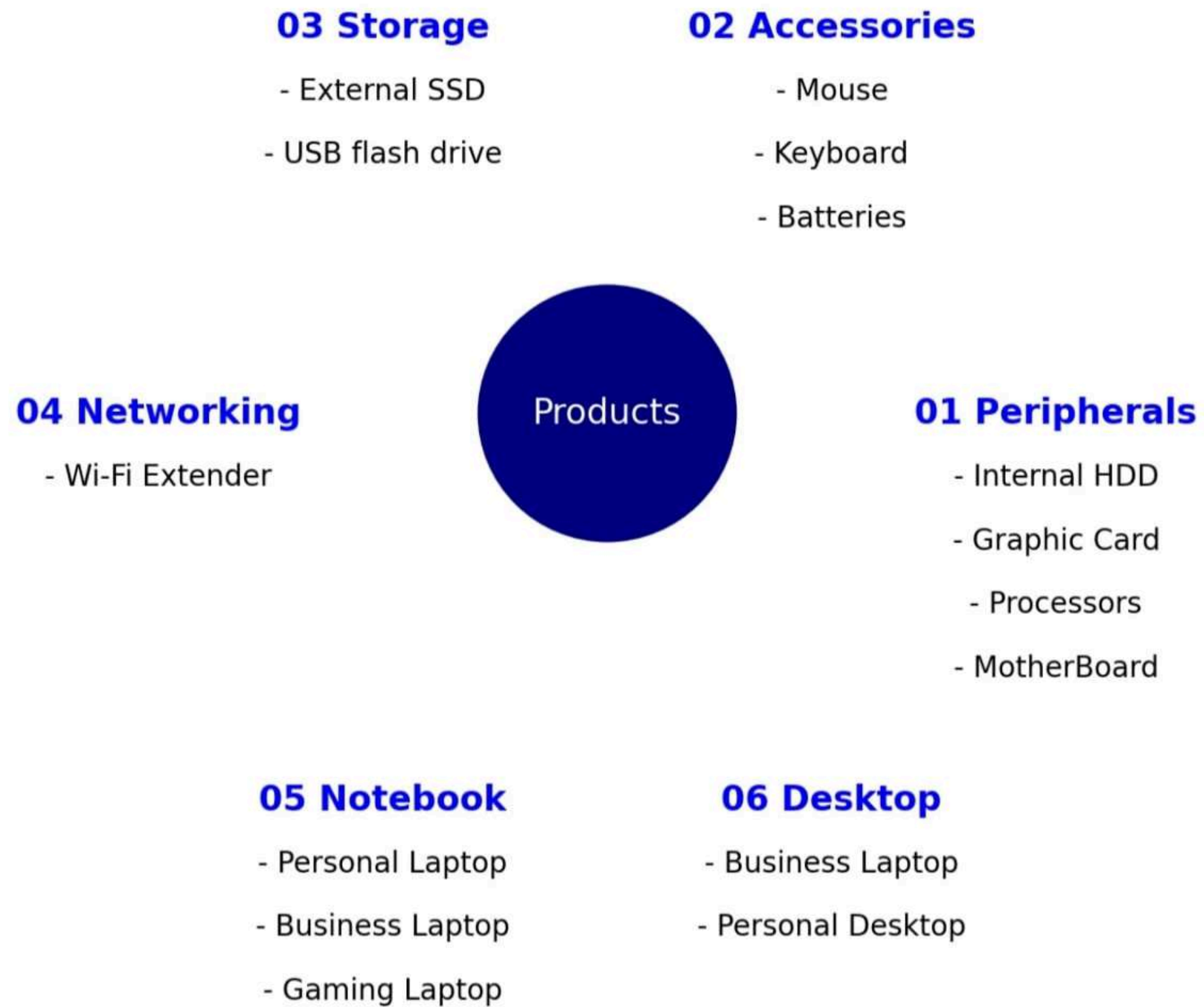
Atliq Hardware (Imaginary Company) is a global company selling computer hardware across the world wide focused on delivering quality tech solutions.



MARKET



PRODUCT LINE

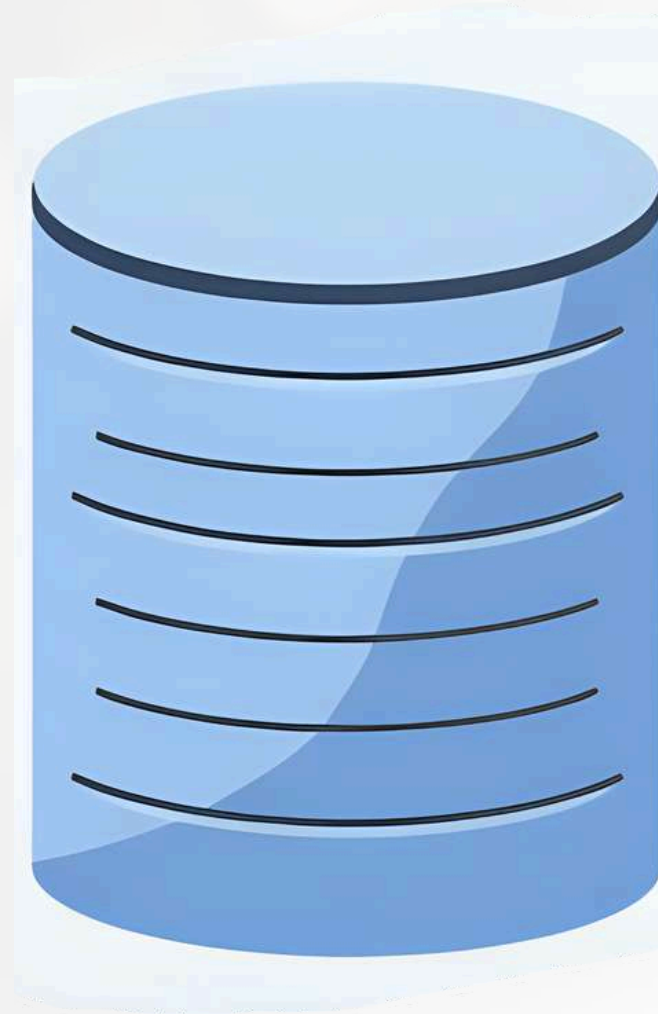


PROBLEM STATEMENT



- ◆ **Management noticed a lack of sufficient insights for making quick a smart data-informed decisions.**
- ◆ **To address this, they plan to expand the data analytics team by hiring several junior data analysts**
- ◆ **Tony Sharma, the Data Analytics Director, emphasized the need for candidates with strong technical as well as soft skills.**
- ◆ **To evaluate both skill sets, he decided to conduct a SQL challenge.**

DATASET



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

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

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

fact_gross_price
product_code VARCHAR(45)
fiscal_year YEAR
gross_price 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

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

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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

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REQUEST 1

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

INPUT:

```
USE gdb023;
```

```
SELECT distinct market  
FROM dim_customer  
where region = "APAC" and customer = "Atliq Exclusive"
```

OUTPUT:

market
India
Indonesia
Japan
Philippines
South Korea
Australia
Newzealand
Bangladesh



INSIGHTS:

Atliq Exclusive operates its business in 8 markets across different countries in the APAC region.

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

INPUT:

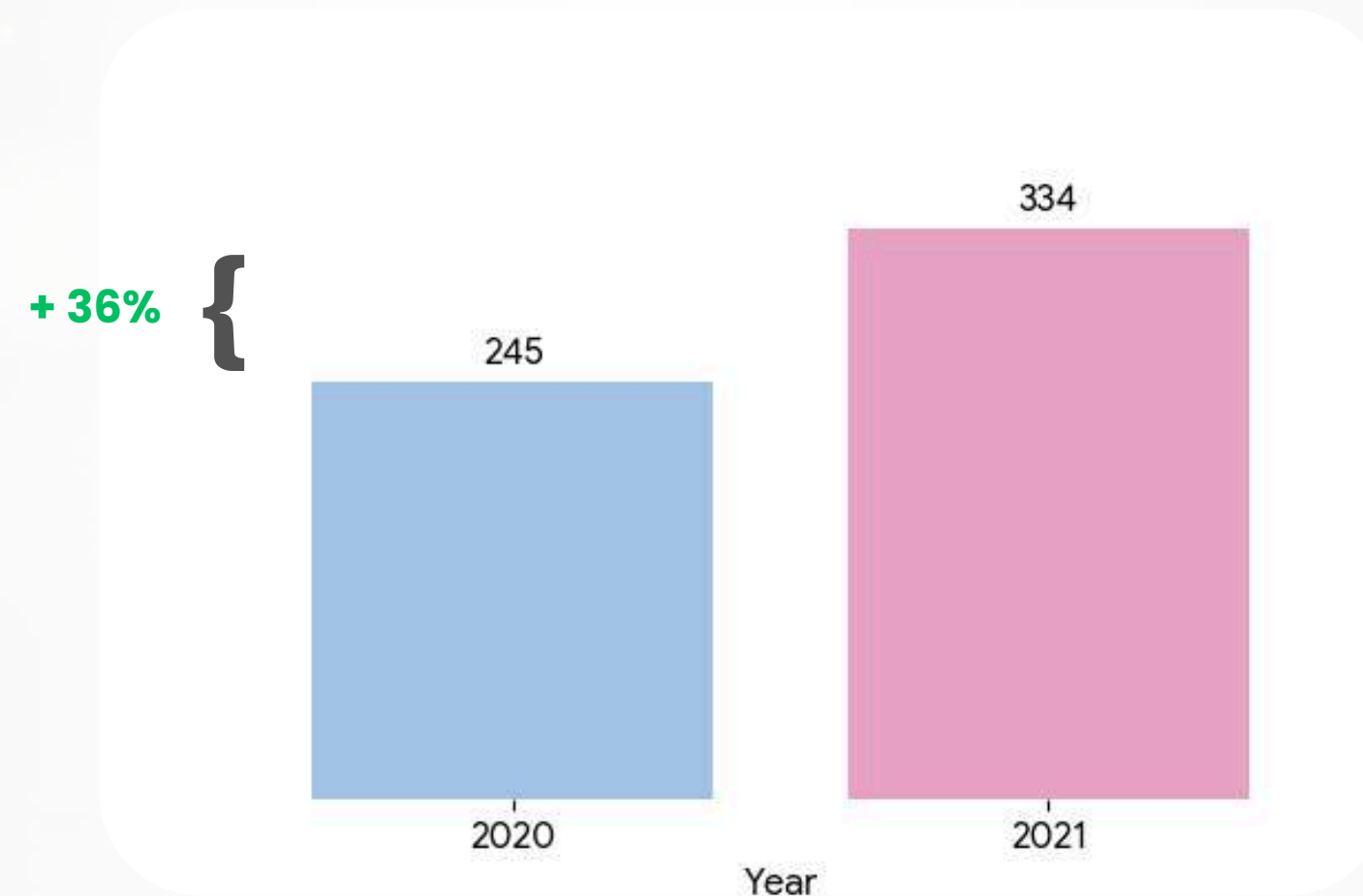
```
use gdb023;
with cte_1 as
(SELECT count(distinct product_code) as unique_product_2020
FROM fact_sales_monthly
where fiscal_year = 2020),

cte_2 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)/unique_product_2020 *
       100 as pct_chg
from cte_1
cross join cte_2
```

OUTPUT:

unique_product_2020	unique_product_2021	pct_chg
245	334	36.3265



INSIGHTS:

1. The number of unique products grew from 245 in 2020 to 344 in 2021, reflecting a 36% year-over-year increase.
2. This growth signifies the company's commitment to innovation and diversification of its product portfolio according to 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. The final output contains 2 fields,

```
segment  
product_count
```

INPUT:

```
USE gdb023;
```

```
SELECT
```

```
    segment,
```

```
    COUNT(DISTINCT product_code) AS product_count
```

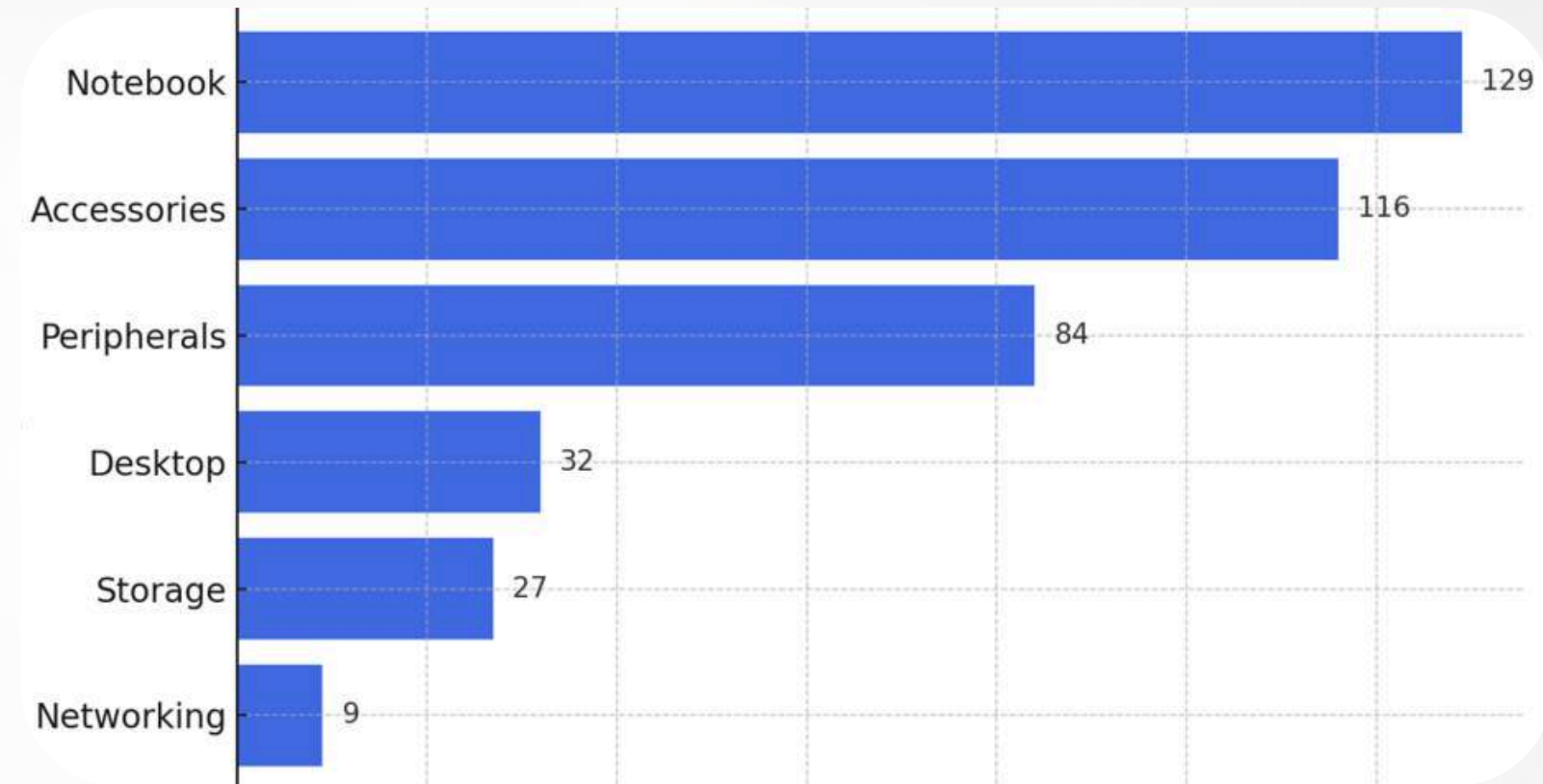
```
FROM dim_product
```

```
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 commands an impressive 82% market share in Networking, Accessories, and Peripherals, highlighting its strong dominance and leadership in these segments.
2. Atliq captures 17% market share in Desktop, Storage, and Networking segments, reflecting its growing presence and strategic foothold in these categories.
3. Atliq should prioritize Desktop, Storage, and Networking segments by analyzing customer demand and developing targeted strategies accordingly.

REQUEST 4

Follow-up: Which segment had the most increase in unique products in 2021 vs 2020? The final output contains these fields

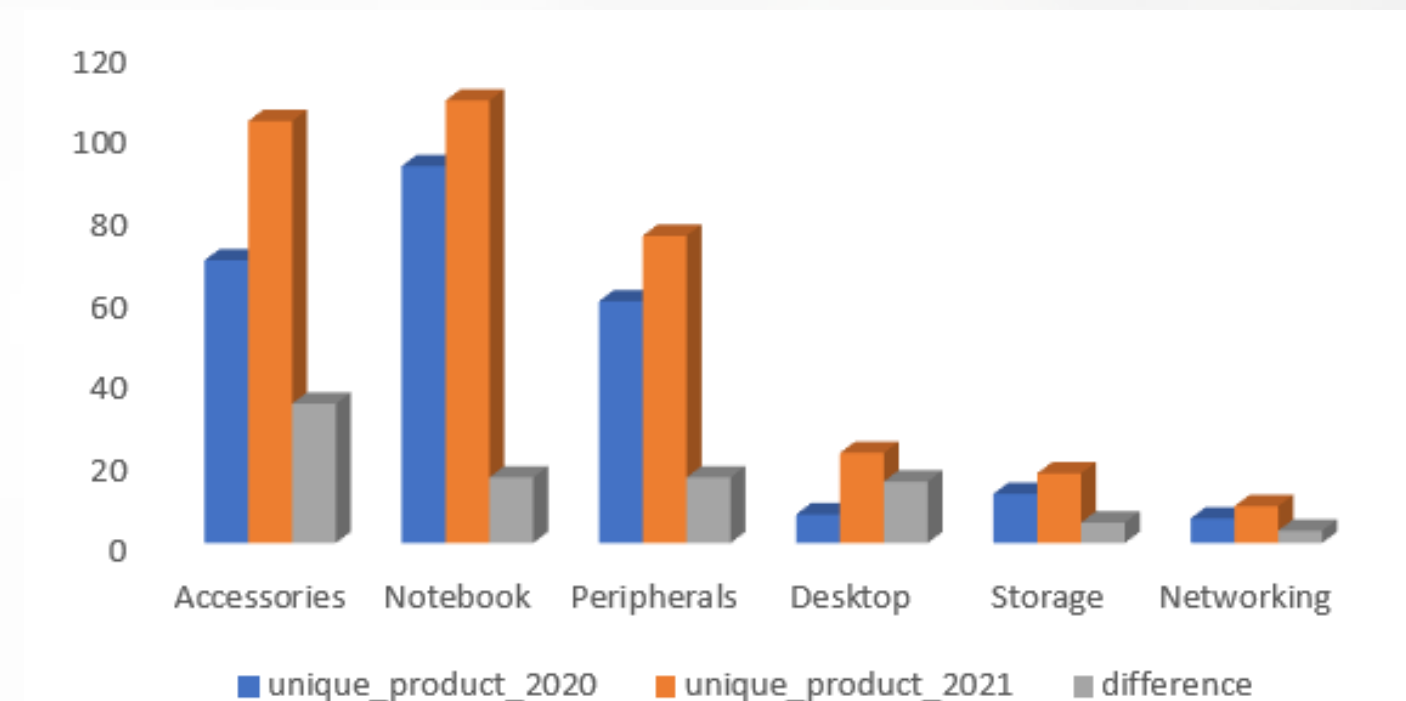
segment
product_count_2020
product_count_2021
difference

INPUT:

```
USE gdb023;
WITH cte_1 AS (
    SELECT
        p.segment,
        COUNT(DISTINCT CASE WHEN s.fiscal_year = 2020 THEN s.product_code END) AS
unique_product_2020,
        COUNT(DISTINCT CASE WHEN s.fiscal_year = 2021 THEN s.product_code END) AS
unique_product_2021
    FROM dim_product p
    JOIN fact_sales_monthly s
        ON s.product_code = p.product_code
    GROUP BY p.segment
)
SELECT
    segment,
    unique_product_2020,
    unique_product_2021,
    (unique_product_2021 - unique_product_2020) AS difference
FROM cte_1
ORDER BY difference DESC;
```

OUTPUT:

segment	unique_product_2020	unique_product_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 → Grew by 49% with 34 new products
2. Desktop → Highest growth of 214% with 15 new products
3. Storage & Networking → Lowest growth with only 5 new products in Storage and 3 in Networking

REQUEST 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:

USE gdb023;

```
WITH cte_1 AS (  
    SELECT m.product_code, d.product, m.manufacturing_cost  
    FROM fact_manufacturing_cost m  
    JOIN dim_product d  
    ON d.product_code = m.product_code)
```

```
(SELECT product_code, product, manufacturing_cost  
FROM cte_1  
ORDER BY manufacturing_cost DESC  
LIMIT 1)
```

UNION ALL

```
(SELECT product_code, product, manufacturing_cost  
FROM cte_1  
ORDER BY 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



AQ HOME Allin 1 Gen 2
\$: 240



AQ Master wired x 1 Ms
\$:0.89

INSIGHTS:

- 1. The AQ HOME Allin1 Gen 2 computer recorded the highest manufacturing cost at \$240
- 2.The AQ Master Wired x1 Ms mouse had the lowest manufacturing cost at just \$0.89 in Networking

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,

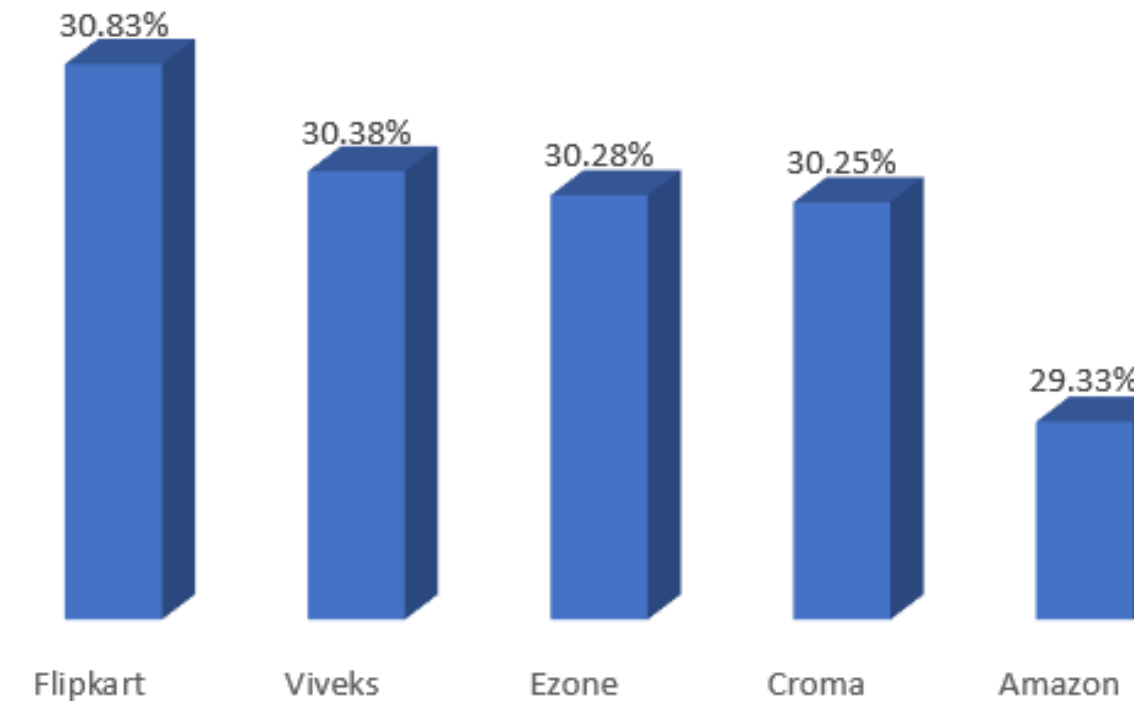
customer_code
customer
average_discount_percentage

INPUT:

```
USE gdb023;
SELECT
    d.customer_code,
    c.customer,
    concat(ROUND(AVG(pre_invoice_discount_pct) * 100, 2), '%') AS average_discount_pct
FROM fact_pre_invoice_deductions d
JOIN dim_customer c
    ON c.customer_code = d.customer_code
WHERE d.fiscal_year = 2021
    AND market = 'india'
GROUP BY c.customer, d.customer_code
ORDER BY AVG(pre_invoice_discount_pct) DESC
LIMIT 5;
```

OUTPUT:

customer_code	customer	average_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 offers the highest discount at 30.83%.
2. Vivek, Ezone, and Croma maintain a uniform discount range between 30.25% – 30.38%.
3. Amazon provides the lowest discount among the top 5 at 29.33%, which is lower than all other competitors in this group.

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 report contains these columns:

Month
Year
Gross sales Amount

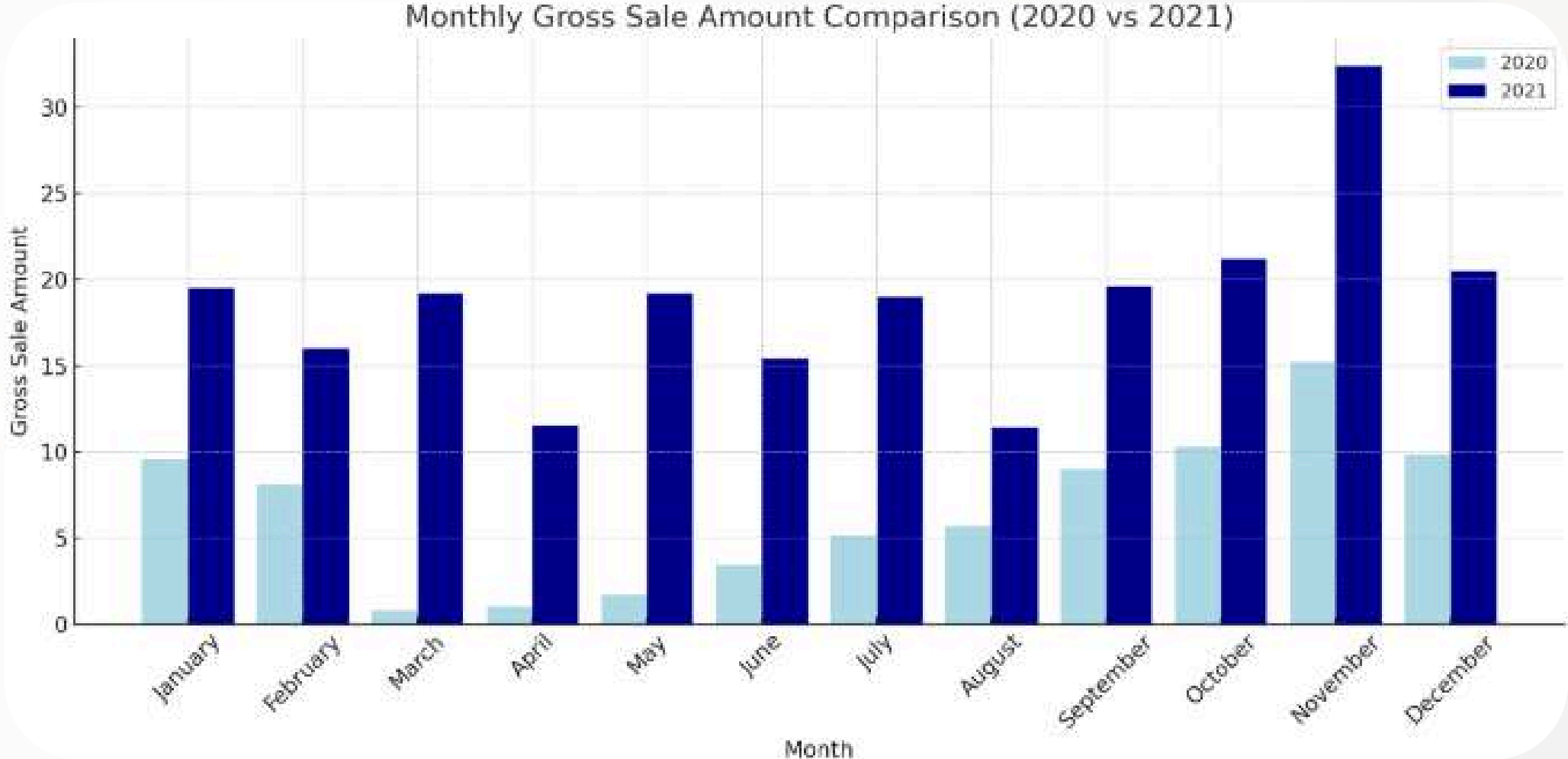
INPUT:

```
USE gdb023;
```

```
SELECT
    MONTHNAME(s.date) AS Month,
    s.fiscal_year AS Year,
    ROUND(SUM(s.sold_quantity * g.gross_price)/1000000,2) AS Gross_sales_amount_mln
FROM fact_sales_monthly s
JOIN fact_gross_price g
    ON g.product_code = s.product_code
JOIN dim_customer c
    ON c.customer_code = s.customer_code
WHERE c.customer = 'Atliq Exclusive'
GROUP BY s.fiscal_year, MONTH(s.date), MONTHNAME(s.date)
ORDER BY s.fiscal_year ASC, MONTH(s.date) ASC;
```

OUTPUT:

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



INSIGHTS:

- 1. November 2021 recorded the highest gross sales amount around 32 millions.
- 2. In 2020, the months of March, April, and May reflected the lowest sales performance due to covid-19 pandemic but showed a remarkable rebound later.
- 3. Overall, 2021 significantly outperformed 2020, demonstrating strong and consistent sales growth throughout the year

REQUEST 8

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

Quarter
total_sold_quantity

INPUT:

```
USE gdb023;
```

```
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(s.sold_quantity) AS Total_Sold_Quantity
```

```
FROM fact_sales_monthly s
```

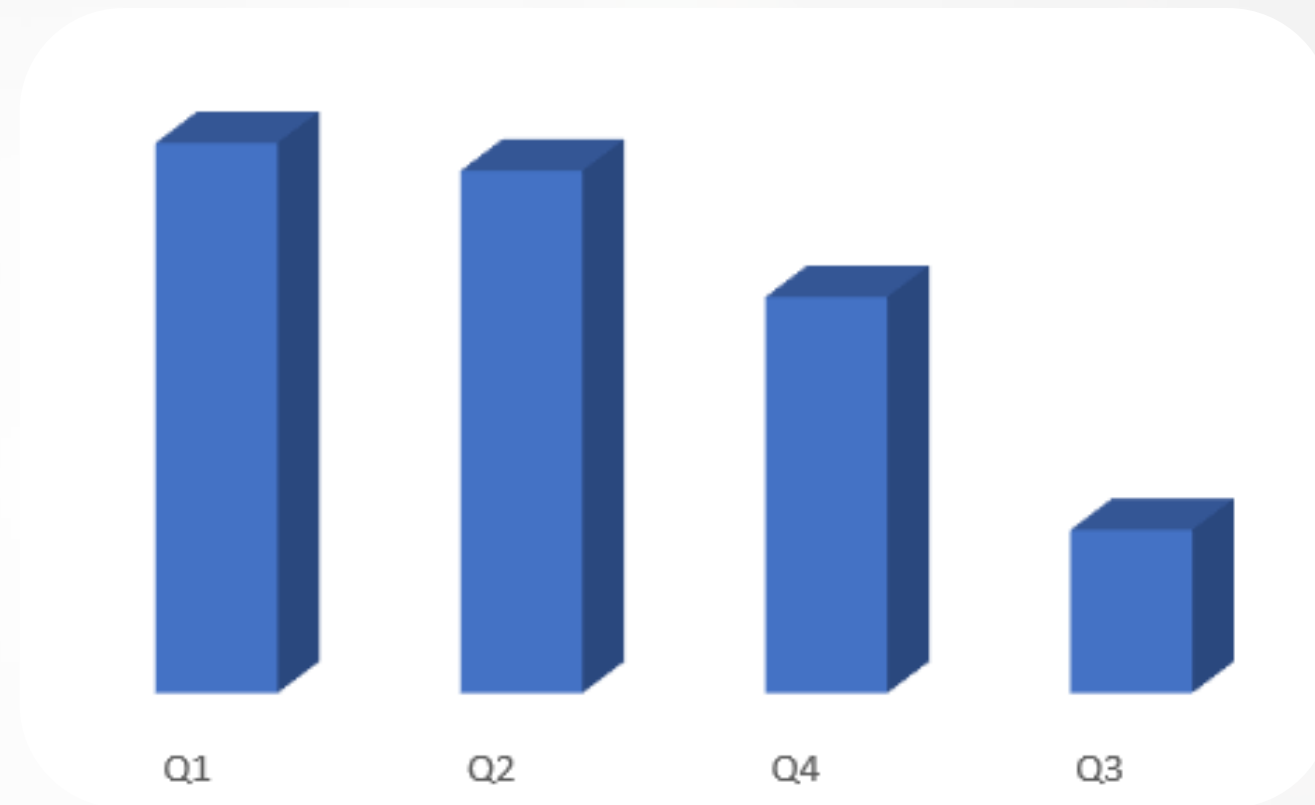
```
WHERE s.fiscal_year = 2020
```

```
GROUP BY Quarter
```

```
ORDER BY Total_Sold_Quantity desc;
```

OUTPUT:

Quarter	Total_Sold_Quantity
Q1	7005619
Q2	6649642
Q4	5042541
Q3	2075087



INSIGHTS:

1. Q1 recorded the highest total sold quantity 7 Millions showcasing strong demand early during this period.
2. AtliQ experienced decline in sales during Q3 (march,april,may) reflected the lowest total sold quantity, highlighting a seasonal dip in sales performance.

These insights indicate clear demand fluctuations across quarters, useful for planning inventory and sales strategy.

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,

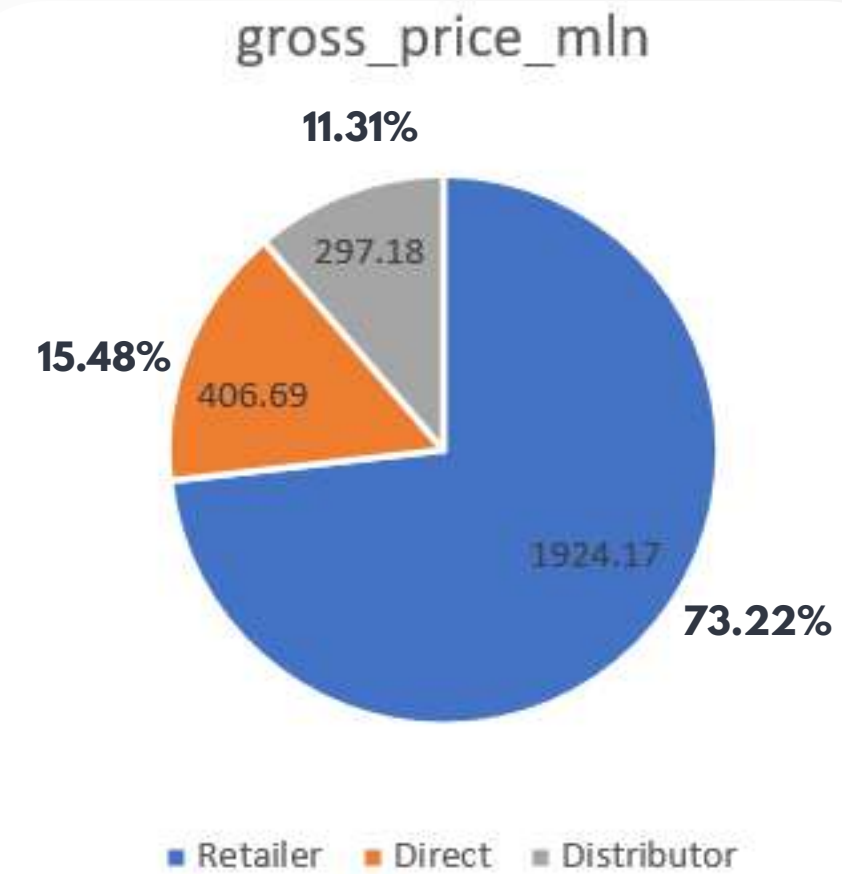
channel
gross_sales_mln
percentage

INPUT:

```
USE gdb023;
WITH cte_1 AS (
  SELECT
    c.channel,
    ROUND(SUM(s.sold_quantity * g.gross_price) / 1000000, 2) AS gross_price_mln
  FROM dim_customer c
  JOIN fact_sales_monthly s
    ON s.customer_code = c.customer_code
  JOIN fact_gross_price g
    ON g.product_code = s.product_code
  WHERE s.fiscal_year = 2021
  GROUP BY c.channel
)
SELECT
  *,
  CONCAT(
    ROUND(gross_price_mln * 100 / (SELECT SUM(gross_price_mln) FROM cte_1), 2),
    '%'
  ) AS percentage
FROM cte_1
ORDER BY gross_price_mln DESC;
```

OUTPUT:

channel	gross_price_mln	percentage
Retailer	1924.17	73.22%
Direct	406.69	15.48%
Distributor	297.18	11.31%



INSIGHTS:

1. Retailer helped to bring more gross sales in the fiscal year 2021 and the percentage of contribution is 73.22% .
2. Direct and distributor contribute 26.79%.

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

INPUT:

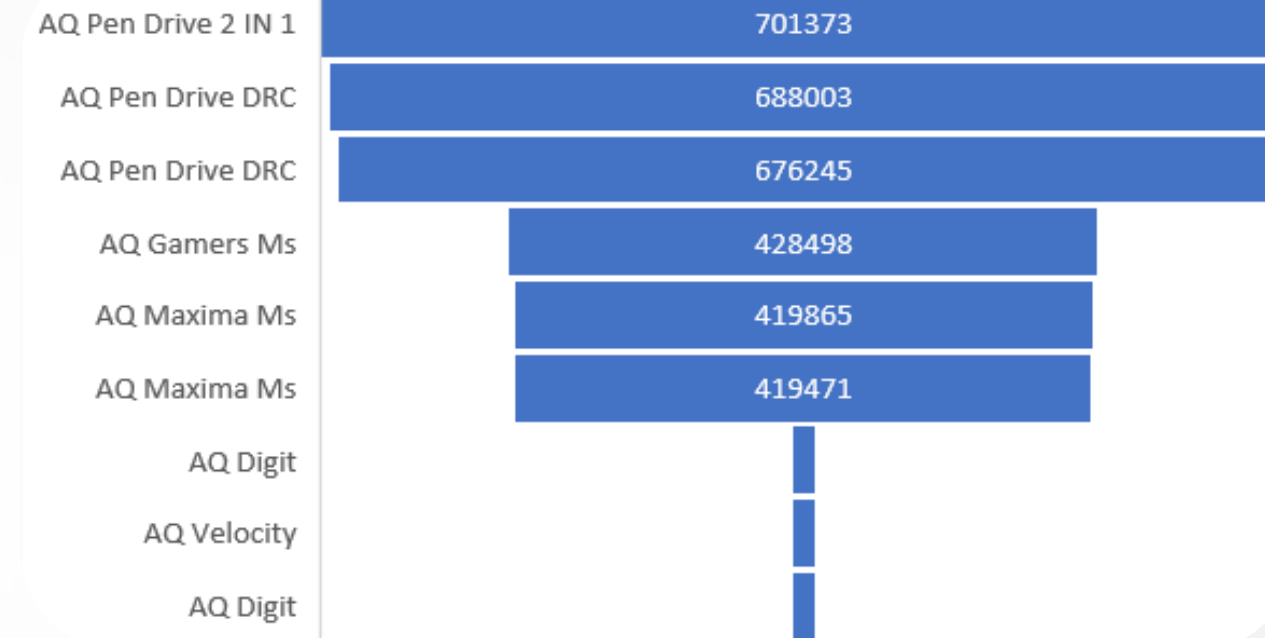
```
USE gdb023;
```

```
with cte_1 as  
(SELECT p.division,p.product_code,p.product,  
sum(s.sold_quantity) as total_sold_quantity,  
RANK() OVER (partition by division ORDER BY sum(s.sold_quantity) DESC) AS rank_order  
from dim_product p  
join fact_sales_monthly s  
on s.product_code = p.product_code  
where s.fiscal_year = 2021  
group by p.division,p.product_code,p.product)
```

```
select * from cte_1  
where rank_order in (1,2,3)
```

OUTPUT:

division	product_code	product	total_sold_quantity	rank_order
N & S	A6720160103	AQ Pen Drive 2 ...	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:

1. Network & Security led with 2.06M units (61.2%), with Pen Drive as the top-selling product.
2. Peripherals & Accessories followed at 1.20M units (37.3%), driven by strong sales of Mouse.
3. Personal Computers contributed only 51.9K units (1.53%), with Personal Laptops leading sales.

Network & Security dominates FY 2021 sales with 61% share, far ahead of other divisions.

RECOMENDATIONS



- **Products: Focus on Desktop, Storage & Networking.**
- **Pricing: Competitive in Desktop/Storage, premium in Networking.**
- **Channels: Boost Distributor with discounts; keep Retailer strong (73% share).**
- **Market: Study customer needs, plan for seasonality (Q1 high, Q3 low).**
- **Discounts: Tiered – higher for bulk buyers, moderate for others**