



# CONSUMER GOODS INSIGHTS FOR MANAGEMENT

FISCAL YEAR 2020 - 2021 REPORT

Ad-hoc-requests SQL Challenge Report  
conducted by Codebasics for Atliq Hardware



Kumar Vaishnav



CodeBasics

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# ABOUT PROJECT

**PROVIDE INSIGHTS TO MANAGEMENT IN THE CONSUMER GOODS DOMAIN**

**Domain: Consumer Goods | | Function: Executive Management**

## OBJECTIVES

Conduct a comprehensive SQL analysis of 10 ad-hoc requests to provide insightful data for top-level strategic decision-making at Atliq Hardwares.

## DELIVERABLES

Detailed SQL queries, impactful engaging presentation, strategic recommendations, and comprehensive documentation covering methodology and assumptions.

## IMPACT

Enhance decisions, optimize operations, guide planning, streamline resources, and confer competitive edge to Atliq Hardwares..

# COMPANY OVERVIEW

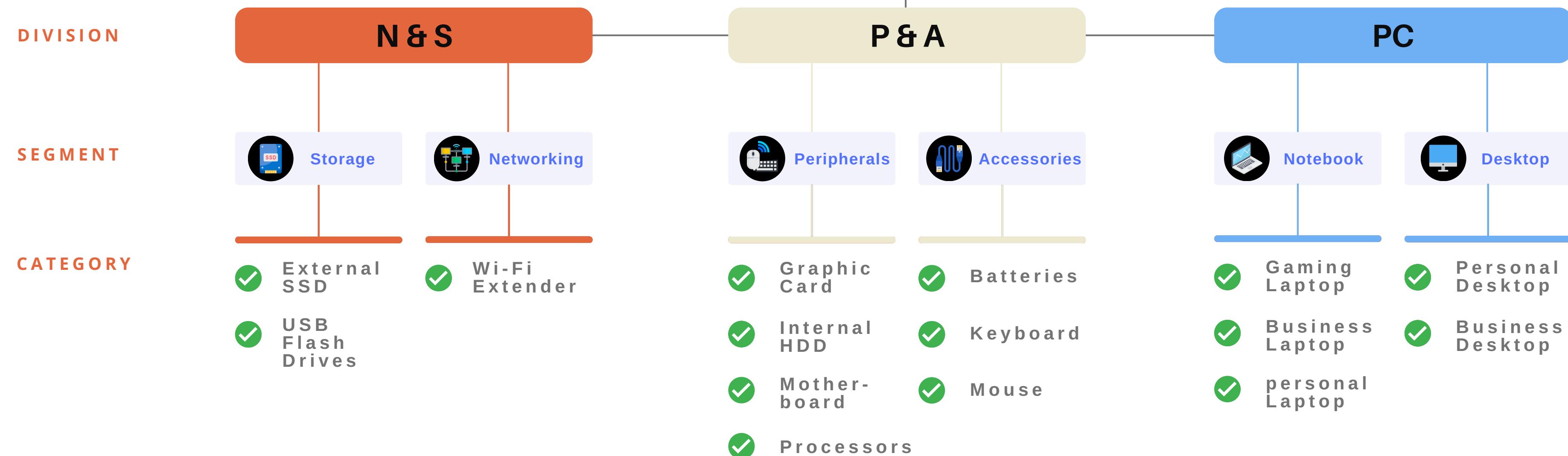
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Atliq Hardwares: A top computer hardware producer in India, & globally expanded.  
Their Product lines division are as:



# COMPANY OVERVIEW

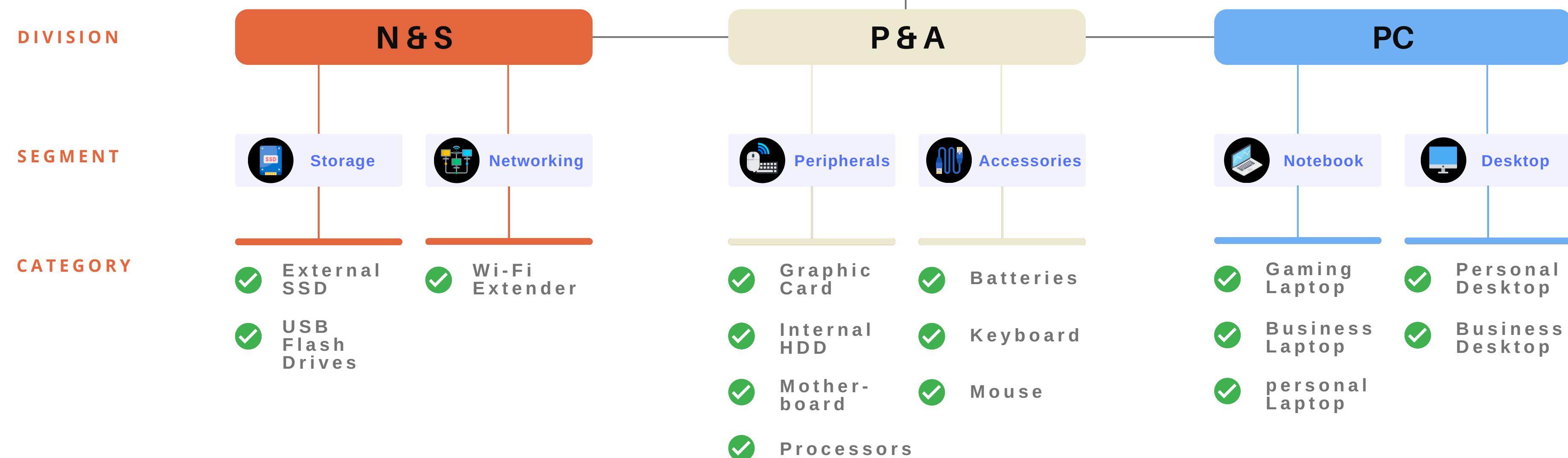
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Atliq Hardwares: A top computer hardware producer in India, & globally expanded.  
Their Product lines division are as:



## ATLIQ BUSINESS MARKET, &amp; #CUSTOMER



# PROJECT APPROACH



## DATA & REQUEST GATHERING

**Codebasics SQL Challenge**

**Requests:**

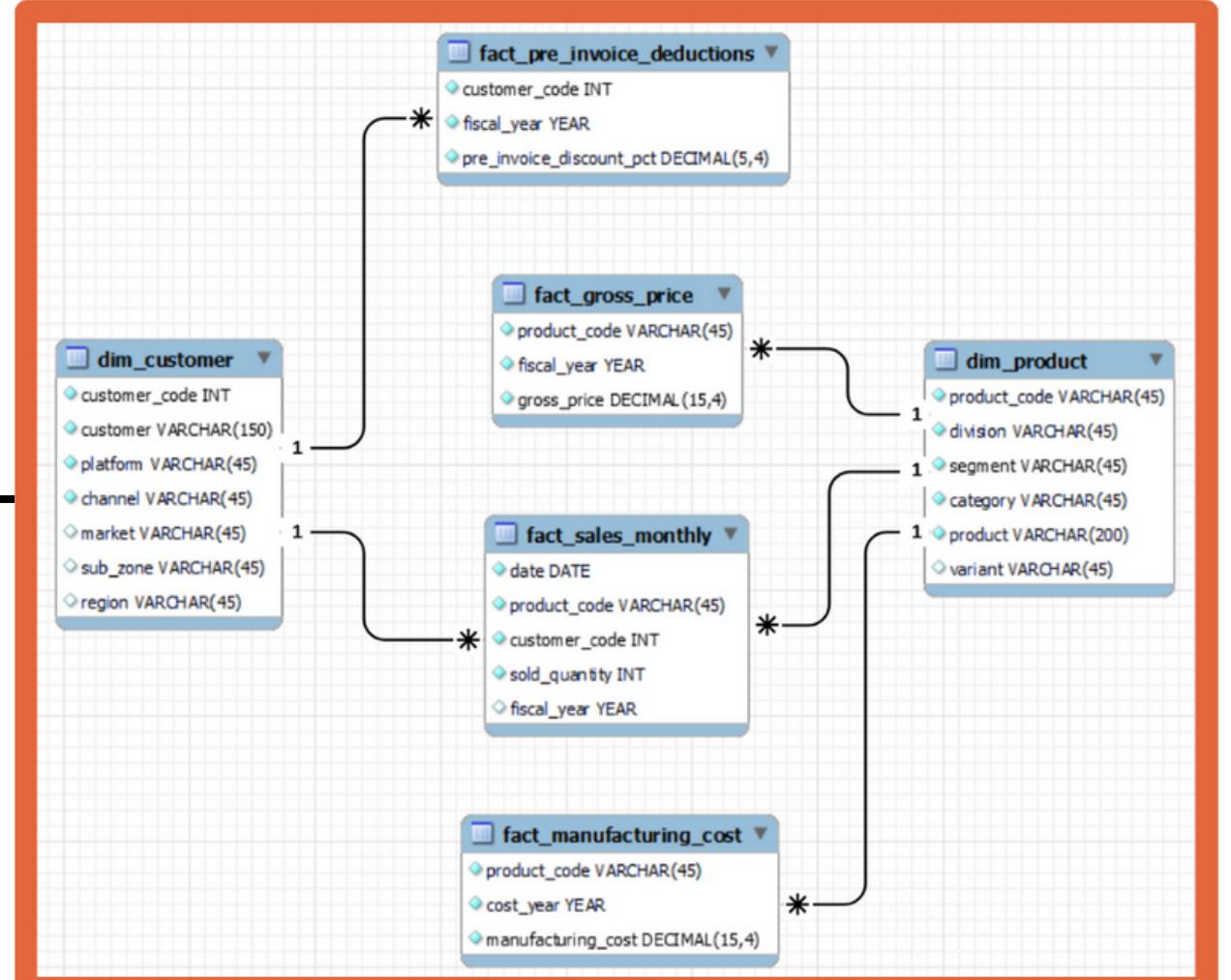
- Provide the list of markets in which customer "Atliq Exclusive" operates its business in the APAC region.
- What is the percentage of unique product increase in 2021 vs. 2020? The final output contains these fields,  
unique\_products\_2020  
unique\_products\_2021  
percentage\_chg
- Provide a report 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 "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
- 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  
product  
total\_sold\_quantity  
rank\_order

Apart from the above request, "[Atliqo Hardware DB](#)" named Database also has been provided, and contains following Tables:

+ dim_customer	+ fact_gross_price
+ dim_product	+ fact_pre_invoice_deductions
+ fact_manufacturing_cost	+ fact_sales_monthly
+ fact_sales_monthly	



## DATA MODELLING



## DATA ANALYSIS & VISUALIZATION

FOR ANALYSIS



FOR VISUALIZATION &  
INSIGHTS





# INSIGHTS

## DATA ANALYSIS & VISUALIZATION FOR SQL QUERIED AD-HOC REQUEST RESULTS

## SQL QUERY

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

## OUTPUT

market	customer	region
India	Atliq Exclusive	APAC
Indonesia	Atliq Exclusive	APAC
Japan	Atliq Exclusive	APAC
Philippines	Atliq Exclusive	APAC
South Korea	Atliq Exclusive	APAC
Australia	Atliq Exclusive	APAC
Newzealand	Atliq Exclusive	APAC
Bangladesh	Atliq Exclusive	APAC

1

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



- Atliq Hardwares currently operates **8 Atliq exclusive stores** in the Asia-Pacific region,
- Need to expand its presence in the emerging tech enthusiast communities in countries such as Singapore, Malaysia, Nepal, Thailand, and Vietnam.

## SQL QUERY

```

WITH ProductCount AS
(
SELECT
    COUNT(DISTINCT CASE WHEN fiscal_year = 2020 THEN product_code END) AS unique_products_2020,
    COUNT(DISTINCT CASE WHEN fiscal_year = 2021 THEN product_code END) AS unique_products_2021
FROM
    fact_sales_monthly
)
SELECT
    unique_products_2021,
    unique_products_2020,
    CONCAT(ROUND(((unique_products_2021-
unique_products_2020)*1.0/unique_products_2020)*100,2),'%') AS percentage_chg
FROM
    ProductCount;

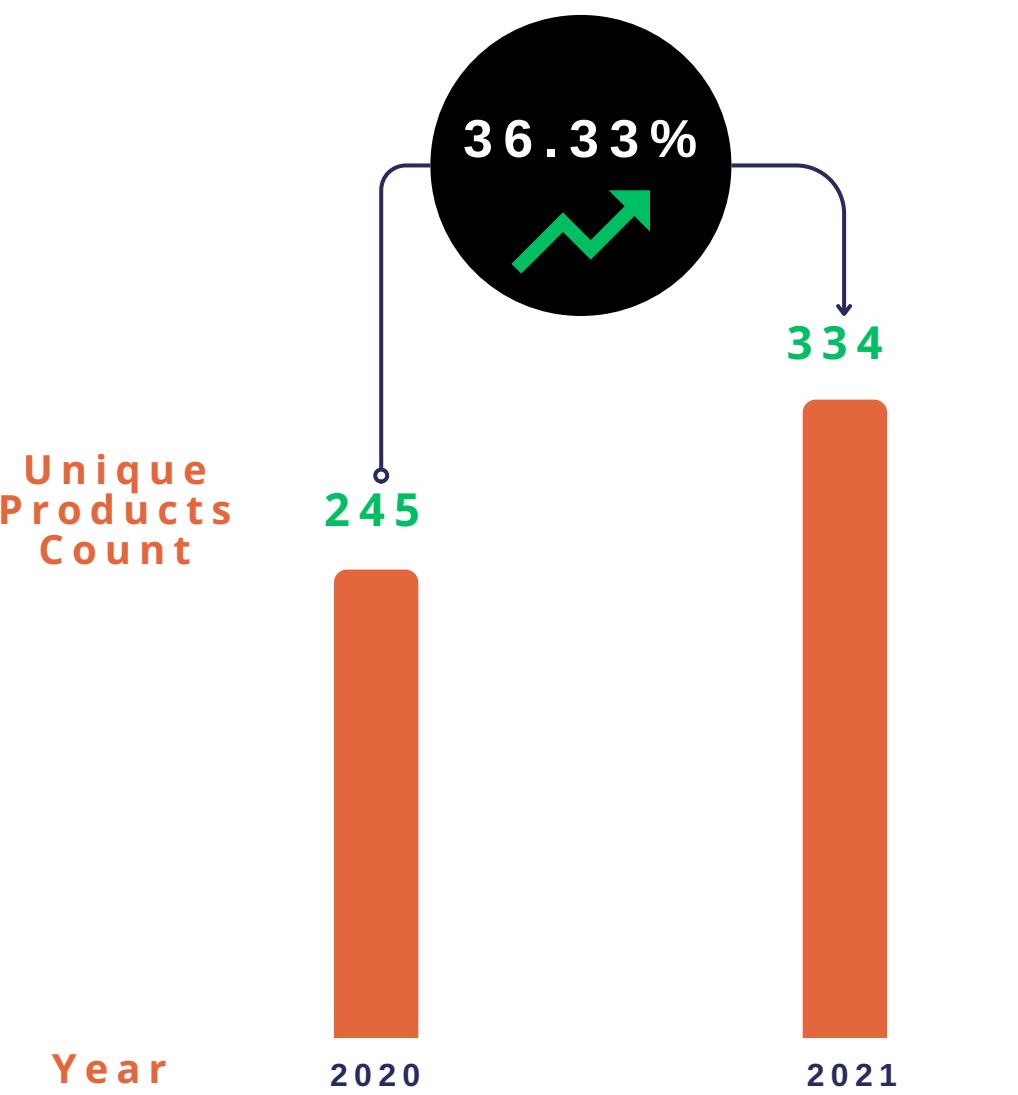
```

## OUTPUT

unique_products_2021	unique_products_2020	percentage_chg
334	245	36.33%

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**



- 2021 witnessed a **36.33%** rise in product count, indicating substantial portfolio expansion,
- The rise is attributed to increased market demand and diversification.

## SQL QUERY

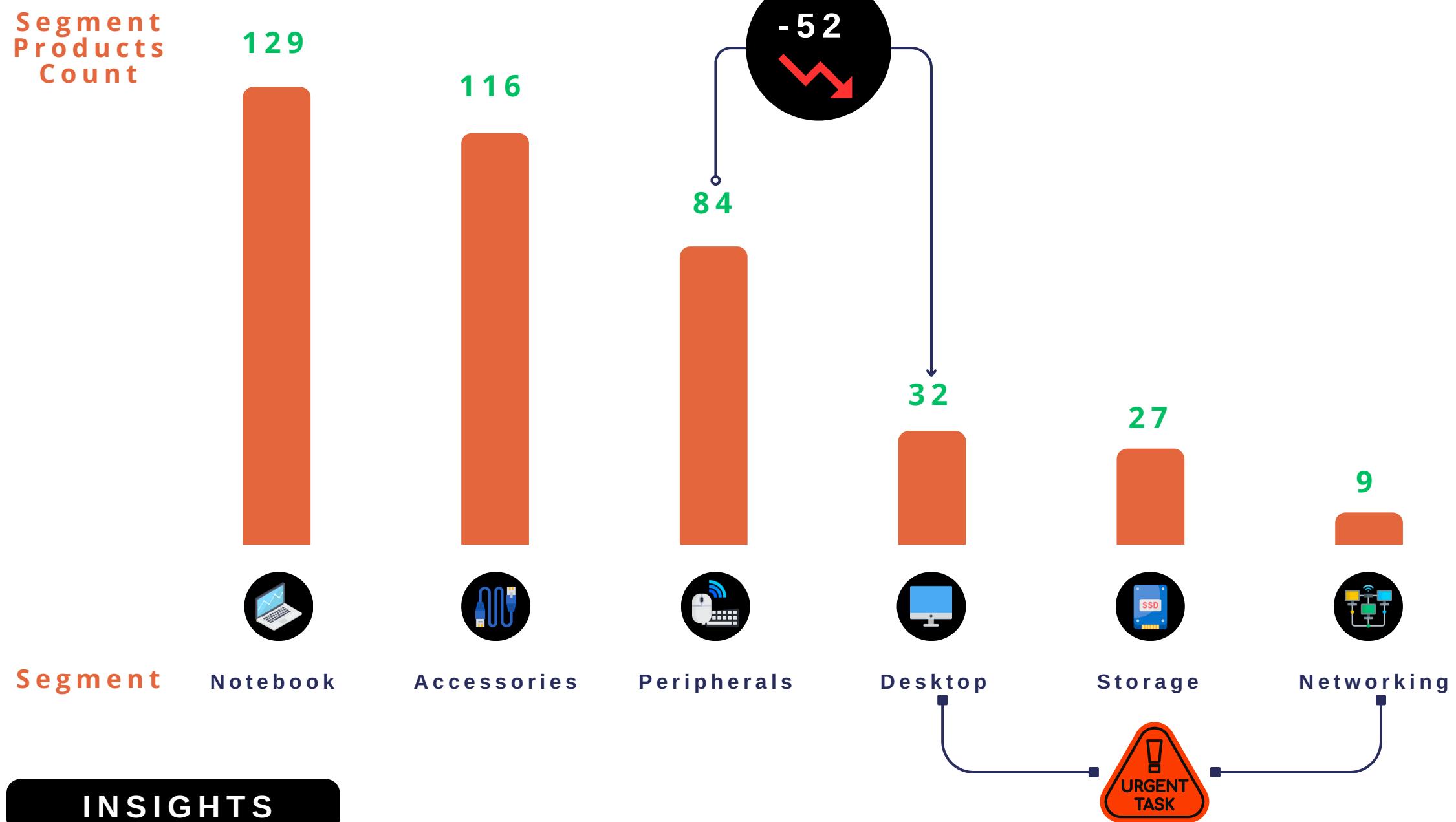
```
SELECT
    segment,
    COUNT(DISTINCT(product_code)) AS product_count
FROM
    dim_product
GROUP BY segment
ORDER BY product_count DESC;
```

## OUTPUT

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

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`



## INSIGHTS

- Consumer Trends:** Notebooks dominate, indicating strong consumer preference for portable computing solutions.
- Diverse Offerings:** The Peripherals segment highlights a diverse range, while Desktops and Storage suggest optimization opportunities.

## SUGGESTIONS

- Explore Growth Areas:** Investigate opportunities for expansion, particularly in Networking, to capitalize on market potential.

## SQL QUERY

```
WITH unique_product AS
(
SELECT
    pr.segment AS segment,
    COUNT(DISTINCT (CASE WHEN fiscal_year = 2020 THEN sm.product_code END)) AS product_count_2020,
    COUNT(DISTINCT (CASE WHEN fiscal_year = 2021 THEN sm.product_code END)) AS product_count_2021
FROM fact_sales_monthly AS sm
INNER JOIN dim_product AS pr
ON sm.product_code = pr.product_code
GROUP BY pr.segment
)
```

```
SELECT
    segment,
    product_count_2020,
    product_count_2021,
    (product_count_2021-product_count_2020) AS difference
FROM unique_product
ORDER BY difference DESC;
```

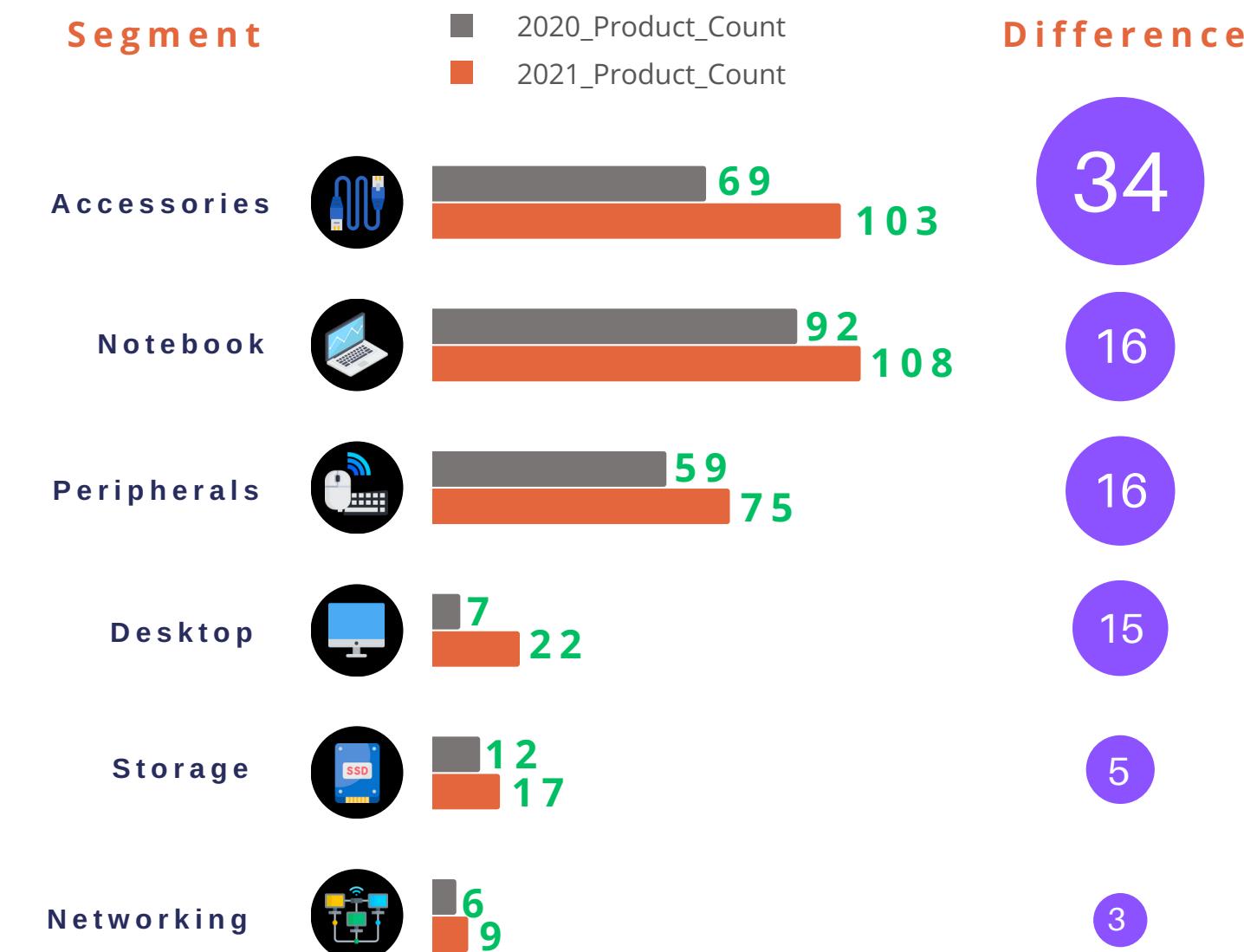
## OUTPUT

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

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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



- Accessories Surge:** Accessories spiked from 69 to 103, indicating strong market demand,
- Strategic Growth:** Desktop, Notebook, Peripherals products reflecting focused efforts,
- Networking & Storage products growth, showing needed attention to this segment.

## SQL QUERY

```

SELECT
    mc.product_code,
    concat(product," (",variant,")") AS product,
    cost_year,
    CONCAT('$',ROUND(mc.manufacturing_cost,2)) AS manufacturing_cost
FROM
    fact_manufacturing_cost mc
JOIN
    dim_product pr ON mc.product_code = pr.product_code
WHERE manufacturing_cost=
    (SELECT min(manufacturing_cost) FROM fact_manufacturing_cost)
or
    manufacturing_cost =
    (SELECT max(manufacturing_cost) FROM fact_manufacturing_cost)
ORDER BY manufacturing_cost DESC;

```

## OUTPUT

product_code	product	cost_year	manufacturing_cost
A6120110206	AQ HOME Allin1 Gen 2 (Plus 3)	2021	\$240.54
A2118150101	AQ Master wired x1 Ms (Standard 1)	2020	\$0.89

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Get the products that have the highest and lowest manufacturing costs. The final output should contain these fields:  
[product\\_code](#),  
[product](#),  
[manufacturing\\_cost](#)



Manufacturing Cost	Highest	Lowest
\$240.54		
Personal Desktop	Segment	Mouse
AQ HOME Allin1 Gen 2	Product	AQ Master wired x1 Ms
Plus 3	Variant	Standard 1

## SQL QUERY

```

SELECT
    pid.customer_code ,
    cus.customer,
    CONCAT(ROUND(AVG(pre_invoice_discount_pct)*100,2),'%') AS average_discount_percentage
FROM
    fact_pre_invoice_deductions AS pid
JOIN
    dim_customer AS cus
ON pid.customer_code = cus.customer_code
WHERE market = 'India'
AND fiscal_year = 2021
GROUP BY customer, customer_code
ORDER BY AVG(pre_invoice_discount_pct) DESC
LIMIT 5;

```

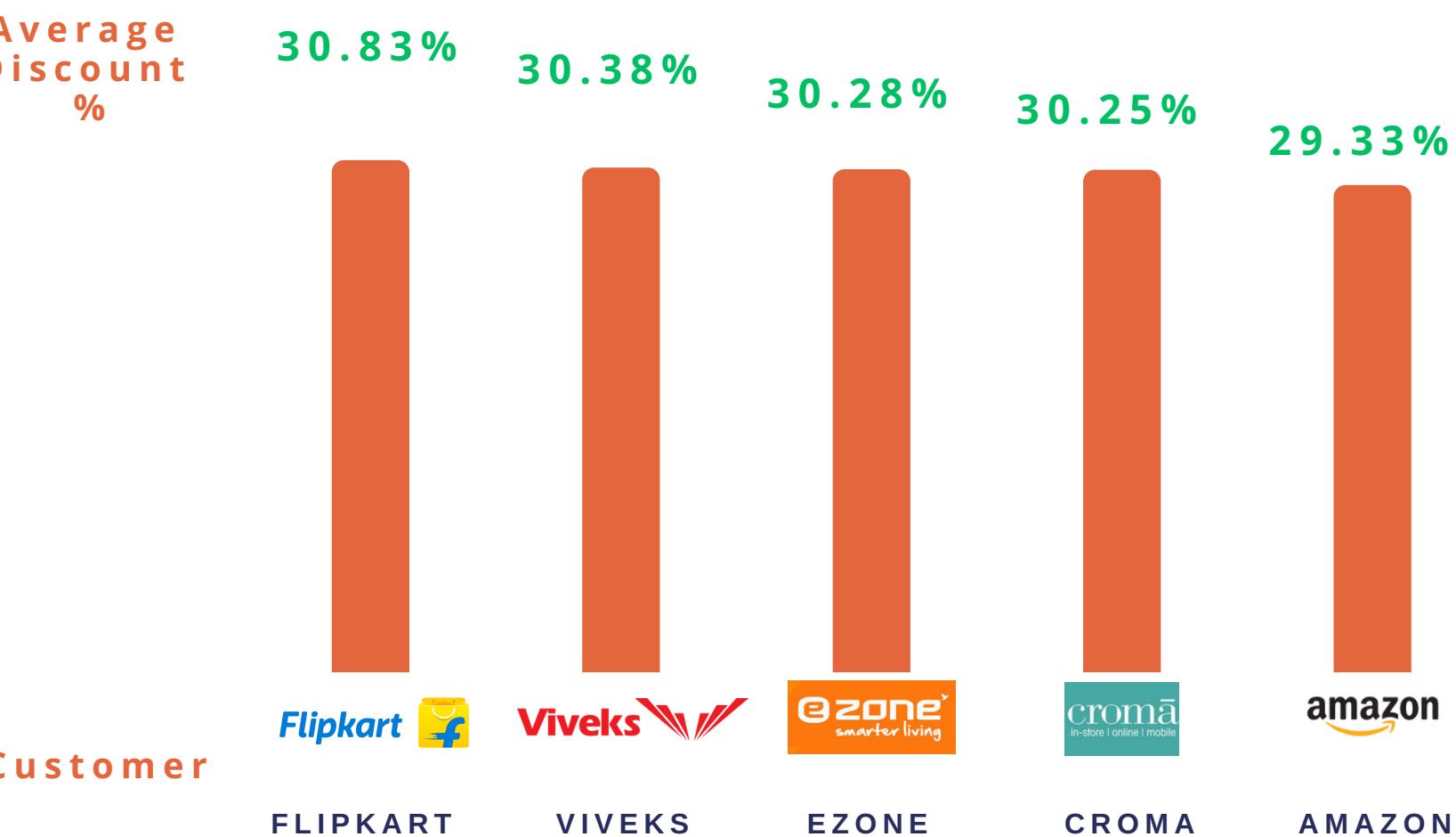
## OUTPUT

customer_code	customer	average_discount_percentage
90002009	Flipkart	30.83%
90002006	Viveks	30.38%
90002003	Ezone	30.28%
90002002	Croma	30.25%
90002016	Amazon	29.33%

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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`



- **Competitive Landscape:** Flipkart, Viveks, and Ezone offer similar average discounts around 30%, while Amazon positions slightly lower at 29.33%.
- **Strategic Differentiation:** Suggest maintaining competitive pricing and, for Amazon, leveraging a marginally lower discount with a focus on quality and variety.

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](#)

## SQL QUERY

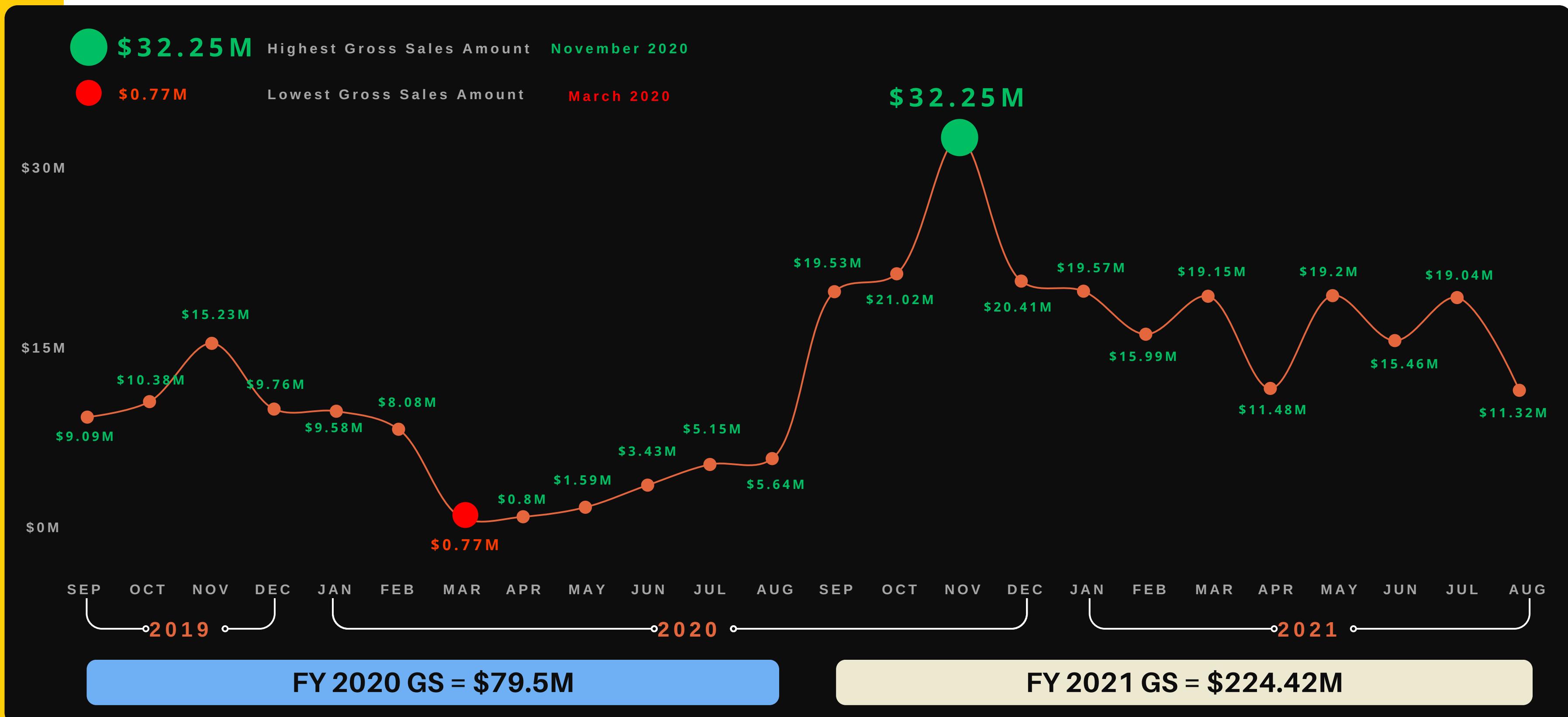
```

SELECT
    CONCAT(MONTHNAME(sm.date), ' (', YEAR(sm.date), ')') AS 'Month',
    sm.fiscal_year,
    CONCAT('$', ROUND(SUM(gp.gross_price / 1000000 * sm.sold_quantity), 2), ' M') AS Gross_sales_Amount
FROM
    fact_sales_monthly sm
JOIN
    dim_customer cus ON sm.customer_code = cus.customer_code
JOIN
    fact_gross_price gp ON sm.product_code = gp.product_code
WHERE
    cus.customer = 'Atliq Exclusive'
GROUP BY
    Month, sm.fiscal_year
ORDER BY
    sm.fiscal_year;

```

## OUTPUT

Month	Fiscal Year	Gross Sales Amount
September (2019)	2020	\$9.09 M
October (2019)	2020	\$10.38 M
November (2019)	2020	\$15.23 M
December (2019)	2020	\$9.76 M
January (2020)	2020	\$9.58 M
February (2020)	2020	\$8.08 M
March (2020)	2020	\$0.77 M
April (2020)	2020	\$0.80 M
May (2020)	2020	\$1.59 M
June (2020)	2020	\$3.43 M
July (2020)	2020	\$5.15 M
August (2020)	2020	\$5.64 M
September (2020)	2021	\$19.53 M
October (2020)	2021	\$21.02 M
November (2020)	2021	\$32.25 M
December (2020)	2021	\$20.41 M
January (2021)	2021	\$19.57 M
February (2021)	2021	\$15.99 M
March (2021)	2021	\$19.15 M
April (2021)	2021	\$11.48 M
May (2021)	2021	\$19.20 M
June (2021)	2021	\$15.46 M
July (2021)	2021	\$19.04 M
August (2021)	2021	\$11.32 M

**SALES TREND INSIGHTS**

- Seasonal Peaks:** November 2019, October 2020, and November 2020 show significant peaks, possibly due to the holiday seasons.
- Pandemic Impact:** March to May 2020 reflects a sales dip, aligning with the global COVID-19 pandemic's initial impact and Global Chip Shortage.
- Recovery and Variability:** Sales surged in September 2020, suggesting a post-lockdown recovery, but subsequent months display variability.

## SQL QUERY

```

SELECT
CASE
    WHEN date BETWEEN '2019-09-01' AND '2019-11-01' THEN 'Q1'
    WHEN date BETWEEN '2019-12-01' AND '2020-02-01' THEN 'Q2'
    WHEN date BETWEEN '2020-03-01' AND '2020-05-01' THEN 'Q3'
    WHEN date BETWEEN '2020-06-01' AND '2020-08-01' THEN 'Q4'
END AS Quarters,
CONCAT(ROUND(SUM(sold_quantity) / 1000000, 2), ' M') AS Total_sold_quantity
FROM
    fact_sales_monthly
WHERE
    fiscal_year = 2020
GROUP BY
    Quarters
ORDER BY
    Total_sold_quantity DESC;

```

## OUTPUT

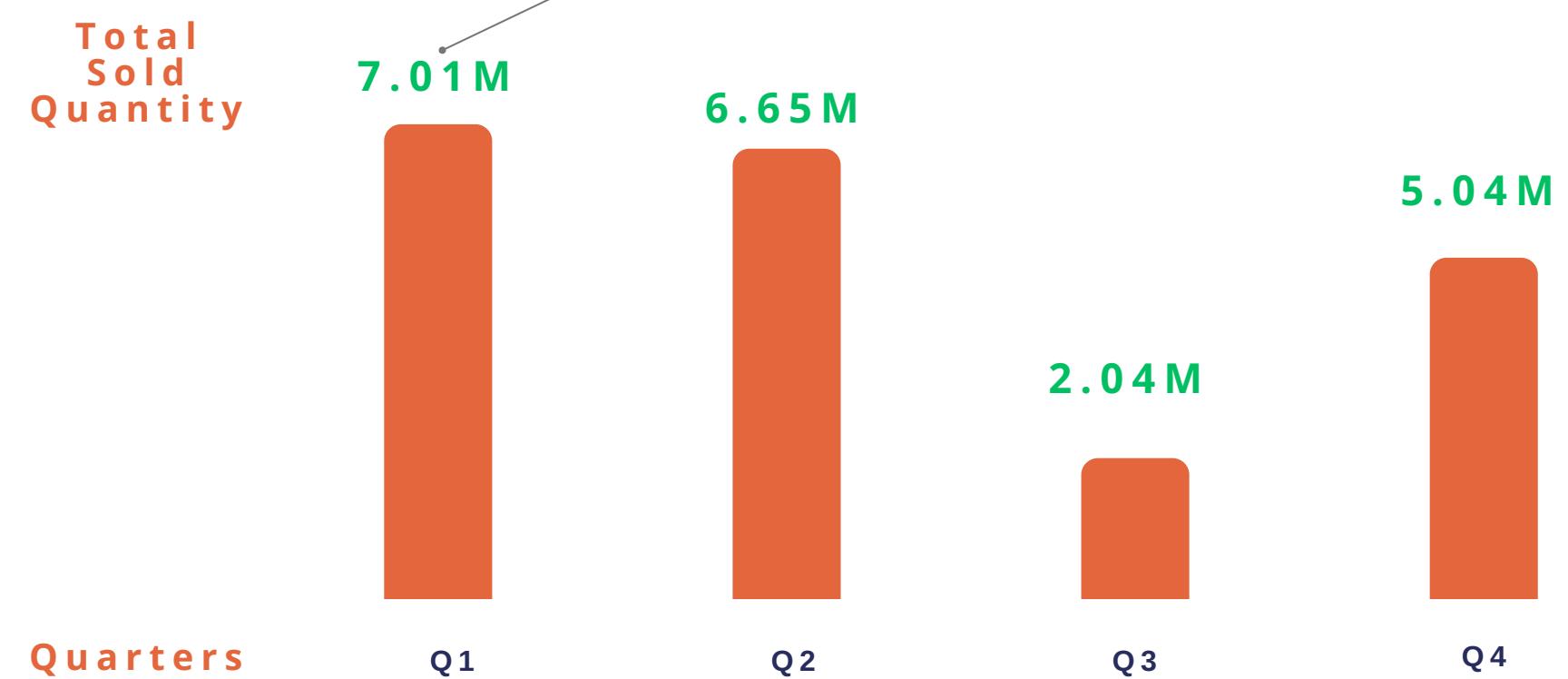
Quarters	Total_sold_quantity
Q1	7.01 M
Q2	6.65 M
Q4	5.04 M
Q3	2.08 M

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

Q1 IS THE STAR PERFORMER  
QUARTER FOR FY 2020



### REASONS FOR FY 2020 SALES TRENDS (SEP 2019 - AUG 2020):

- **Supply Chain Disruption (Q3):** Q3 sales dip may be linked to supply chain disruptions, potentially influenced by global events (**COVID-19**) or logistical challenges (**US-China Economic War**).
- **Post-lockdown Demand (Q4):** Q4 recovery could be attributed to a surge in demand post-lockdown, as consumer confidence and purchasing power began to stabilize.

## SQL QUERY

```

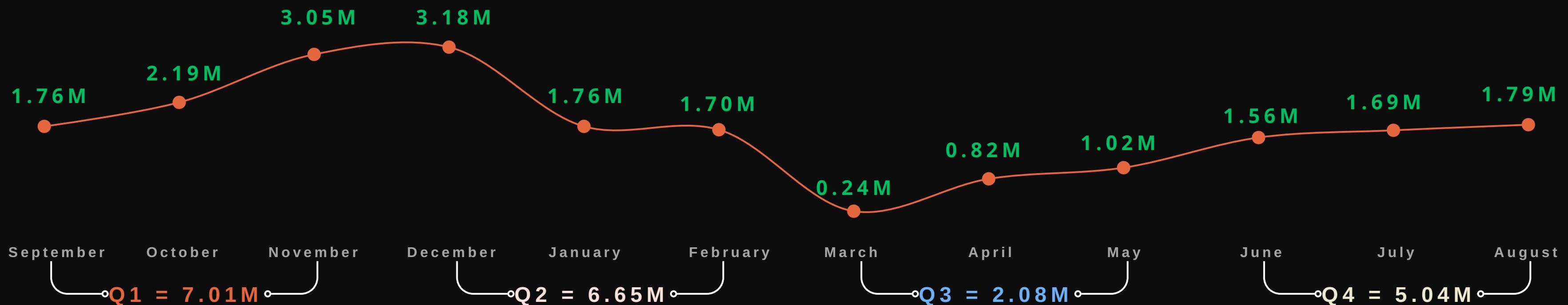
SELECT
  CASE
    WHEN date BETWEEN '2019-09-01' AND '2019-11-01' THEN 'Q1'
    WHEN date BETWEEN '2019-12-01' AND '2020-02-01' THEN 'Q2'
    WHEN date BETWEEN '2020-03-01' AND '2020-05-01' THEN 'Q3'
    WHEN date BETWEEN '2020-06-01' AND '2020-08-01' THEN 'Q4'
  END AS Quarters,
  MONTHNAME(date) AS Month_Name,
  CONCAT(ROUND(SUM(sold_quantity) / 1000000, 2), ' M') AS Total_sold_quantity
FROM
  fact_sales_monthly
WHERE
  fiscal_year = 2020
GROUP BY
  Quarters, Month_Name;

```

MORE DRILLED DOWN FOR FY 2020

## OUTPUT

Quarters	Month_Name	Total_sold_quantity
Q1	September	1.76 M
Q1	October	2.19 M
Q1	November	3.05 M
Q2	December	3.18 M
Q2	January	1.76 M
Q2	February	1.70 M
Q3	March	0.24 M
Q3	April	0.82 M
Q3	May	1.02 M
Q4	June	1.56 M
Q4	July	1.69 M
Q4	August	1.79 M



## SQL QUERY

```

WITH Channel_sales_table AS (
    SELECT
        cus.channel,
        sum(sm.sold_quantity * gp.gross_price) AS total_sales
    FROM
        fact_sales_monthly sm
    JOIN fact_gross_price gp ON sm.product_code = gp.product_code
    JOIN dim_customer cus ON sm.customer_code = cus.customer_code
    WHERE sm.fiscal_year= 2021
    GROUP BY cus.channel
    ORDER BY total_sales DESC
)

SELECT
    Channel,
    Concat('$',Round(total_sales/1000000,2), ' M') AS Gross_Sales_mln,
    Concat(Round(total_sales/(sum(total_sales) OVER())*100,2), '%') AS Percentage
FROM Channel_sales_table ;

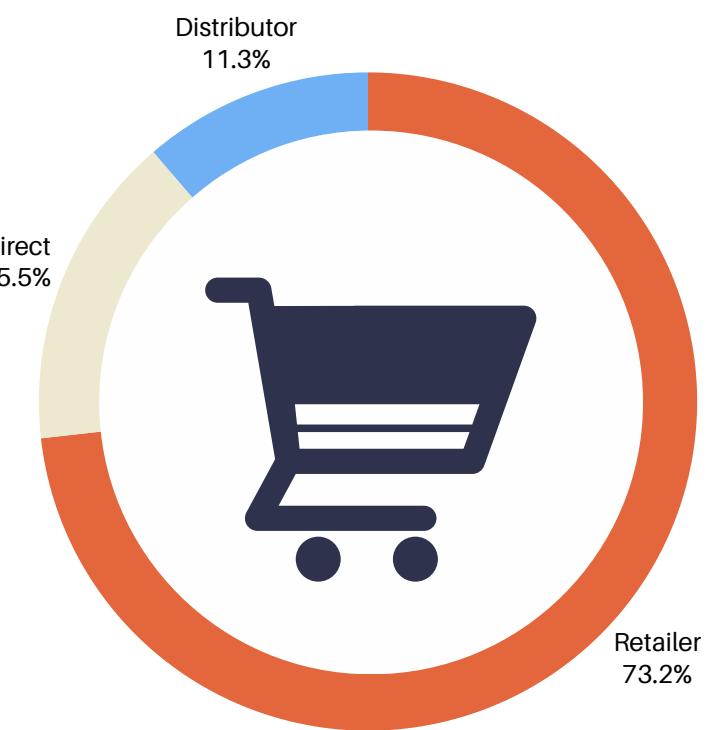
```

## OUTPUT

Channel	Gross_Sales_mln	Percentage
Retailer	\$1924.17 M	73.22%
Direct	\$406.69 M	15.47%
Distributor	\$297.18 M	11.31%

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



Retail dominates with 73.22% (\$1924.17M) in gross sales, trailed by Direct (15.47%) and Distributor (11.31%).

- **Retailer Preference:** Consumers may prefer purchasing through retailers due to convenience, brand presence, or bundled offerings.
- **Direct and Distributor Strategy:** Direct and distributor channels might focus on specific markets, exclusive products, or targeted sales strategies, explaining their smaller yet valuable contributions.

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 QUERY

```
WITH Total_Products_Sold AS
(
  SELECT pr.division AS division,
         pr.product_code AS product_code,
         pr.product AS product,
         pr.variant as Variant,
         SUM(sm.sold_quantity)/1000 AS total_sold_quantity
    FROM fact_sales_monthly AS sm
   JOIN dim_product AS pr
     ON sm.product_code = pr.product_code
   WHERE sm.fiscal_year = 2021
  GROUP BY pr.division, pr.product_code, pr.product, pr.variant
  ORDER BY total_sold_quantity DESC
),
```

### Top\_Products\_Sold\_per\_Division AS

```
( 
  SELECT Division,
         Product_Code,
         CONCAT(product," || ", Variant) as Product,
         CONCAT(Round(total_sold_quantity, 2), " K") as Total_Sold_Quantity,
         RANK() OVER(PARTITION BY division ORDER BY total_sold_quantity DESC) AS Rank_Order
    FROM Total_Products_Sold
)
```

```
SELECT * FROM Top_Products_Sold_per_Division
WHERE rank_order <= 3;
```

### OUTPUT

Division	Product_Code	Product	Total_Sold_Quantity	Rank_Order
N & S	A6720160103	AQ Pen Drive 2 IN 1    Premium	701.37 K	1
N & S	A6818160202	AQ Pen Drive DRC    Plus	688.00 K	2
N & S	A6819160203	AQ Pen Drive DRC    Premium	676.25 K	3
P & A	A2319150302	AQ Gamers Ms    Standard 2	428.50 K	1
P & A	A2520150501	AQ Maxima Ms    Standard 1	419.87 K	2
P & A	A2520150504	AQ Maxima Ms    Plus 2	419.47 K	3
PC	A4218110202	AQ Digit    Standard Blue	17.43 K	1
PC	A4319110306	AQ Velocity    Plus Red	17.28 K	2
PC	A4218110208	AQ Digit    Premium Misty Green	17.28 K	3

Ranking

1

2

3

- Premium features drive top pen drive sales; consumers favor AQ's diverse configurations in FY2021.
- Diverse gaming mice sales reflect varied preferences, catering to distinct gaming needs.
- Balancing demand: Identical sales of AQ Digit, Velocity, and Premium Misty Green indicate versatile preferences.

Product

AQ Pen Drive  
2 IN 1 ||  
PremiumAQ Pen  
Drive DRC ||  
PlusAQ Pen  
Drive DRC ||  
PremiumAQ Gamers  
Ms ||  
Standard 2AQ Maxima  
Ms ||  
Standard 1AQ Maxima  
Ms ||  
Plus 2AQ Digit ||  
Standard  
BlueAQ Velocity ||  
Plus RedAQ Digit ||  
Premium  
Misty GreenTotal Sold  
Quantity

701.37K

688K

676.25K

428.50K

419.87K

419.47K

17.43K

17.28K

17.28K

Category

USB FLASH DRIVES

MOUSE

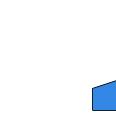
PERSONAL LAPTOP

Division

N &amp; S

P &amp; A

PC



THANK YOU



ATLIQ  
HARDWARES



CODE  
BASICS

FOR PROJECT OPPORTUNITY



+91-9693557965



[jobsforkumar.vaishnav@gmail.com](mailto:jobsforkumar.vaishnav@gmail.com)



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