AD_HOC INSIGHTS
CONSUMER GOODS

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OBJECTIVES

- AtliQ Hardware is one of the major computer hardware manufactures in india, with a strong presence in other nations too.
- However, the management noticed that they do not get enough insights to make quick and smart data-informed decisions.
- They want to expand their data analysts team by adding several junior data analysts.
- This 10 ad_hoc requests are the part of SQL challenge which will help the Tony Sharma (Data Analytics Director) to evaluate both the tech and soft skills.

COMPANY DETAILS :
AtliQ hardware is a computer hardware and accessory manufacturing.

Channels

- Direct
- Retailer
- Distributor

Segment

- Accessories
- Desktop
- Networking
- Notebook
- Peripherals
- Storage

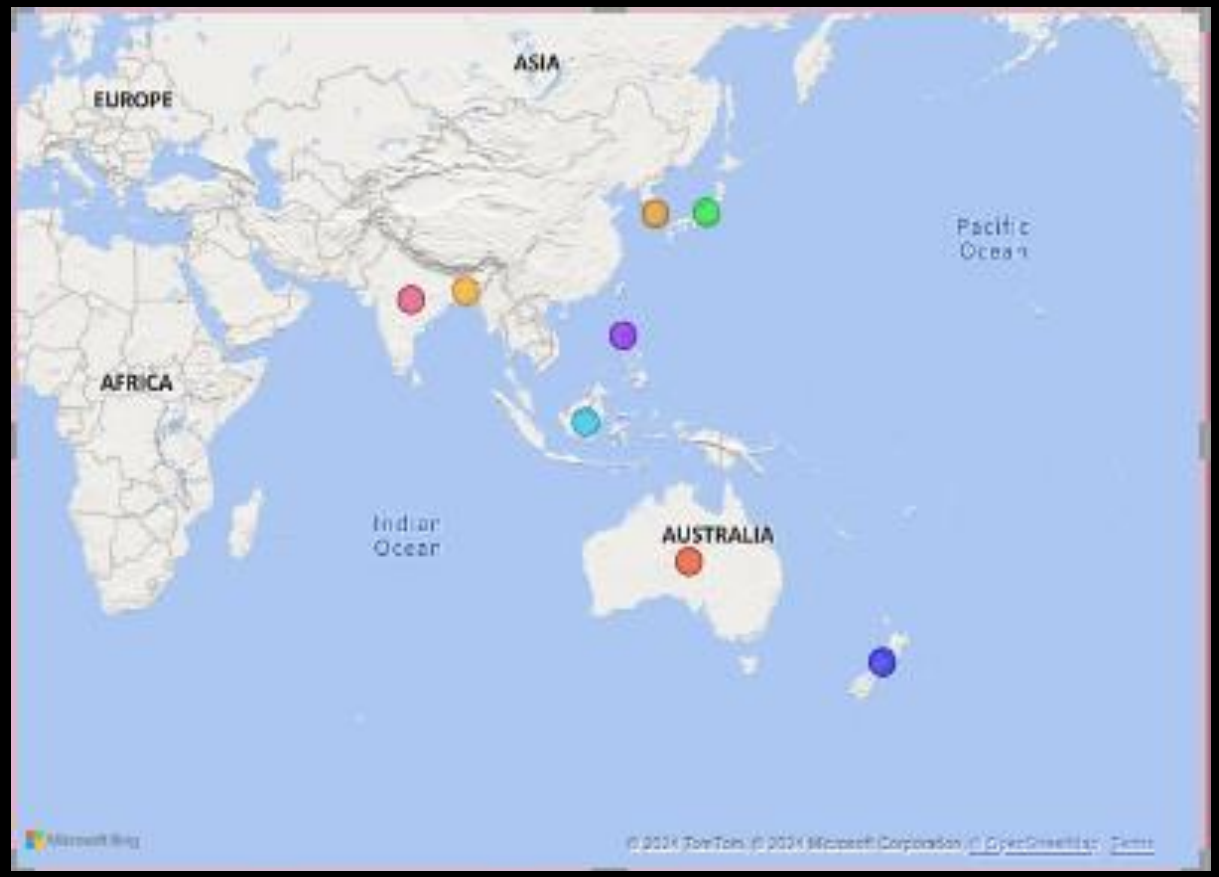
Division

- P & A
- PC
- N & S

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

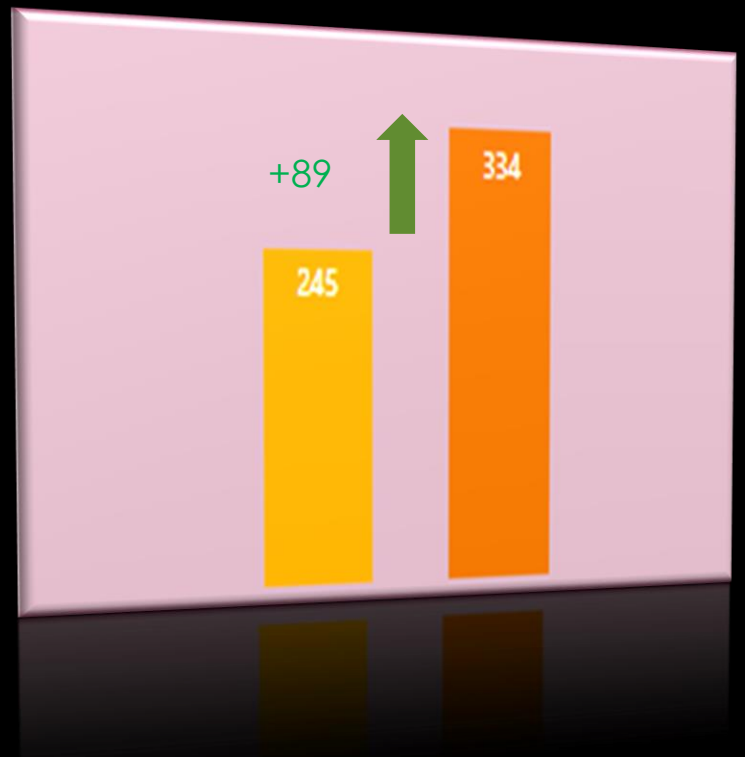

```
SELECT market, region
FROM dim_customer
WHERE customer = "Atliq Exclusive" AND region = "APAC"
GROUP BY market
ORDER BY market;
```

market
Australia
Bangladesh
India
Indonesia
Japan
Newzealand
Philiphines
South Korea



2. What is the percentage of unique product increase in 2021 vs. 2020?

unique_product_2020	unique_products_2021	Percentage_Chg
245	334	36.33




```
SELECT X.year_2020 AS unique_product_2020,
Y.year_2021 AS unique_products_2021,
ROUND((year_2021-year_2020)*100/year_2020, 2) AS percentage_chg
FROM(
(SELECT COUNT(DISTINCT(product_code)) AS year_2020 FROM fact_sales_monthly
WHERE fiscal_year = 2020) X,
(SELECT COUNT(DISTINCT(product_code)) AS year_2021 FROM fact_sales_monthly
WHERE fiscal_year = 2021) Y
);
```

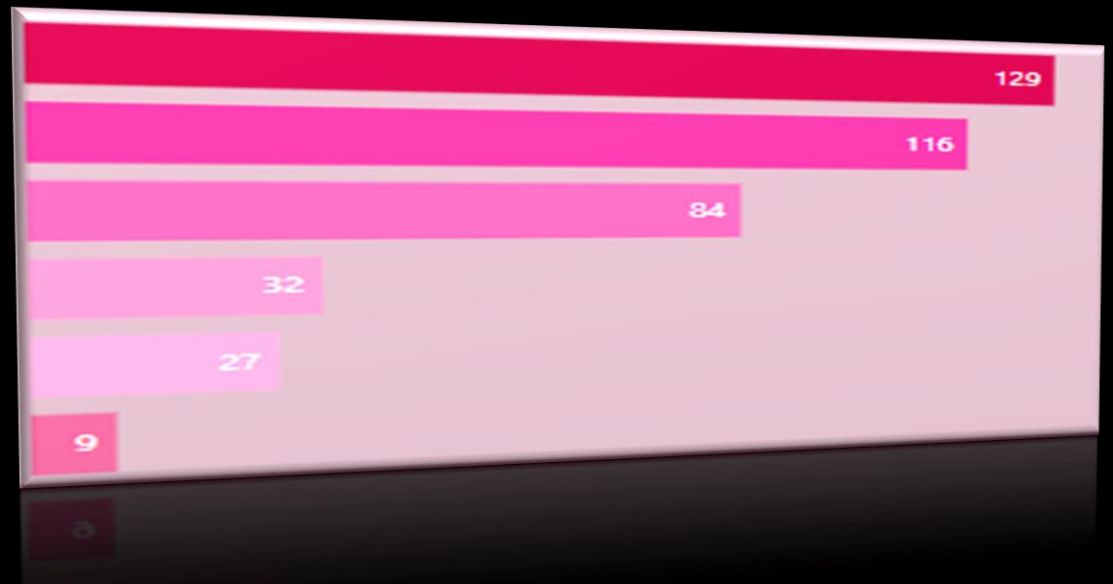
Demand and Production both increased in the year 2021.

3. Provide a report with all the unique product counts for each segment and sort them in descending order of product counts.

6

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

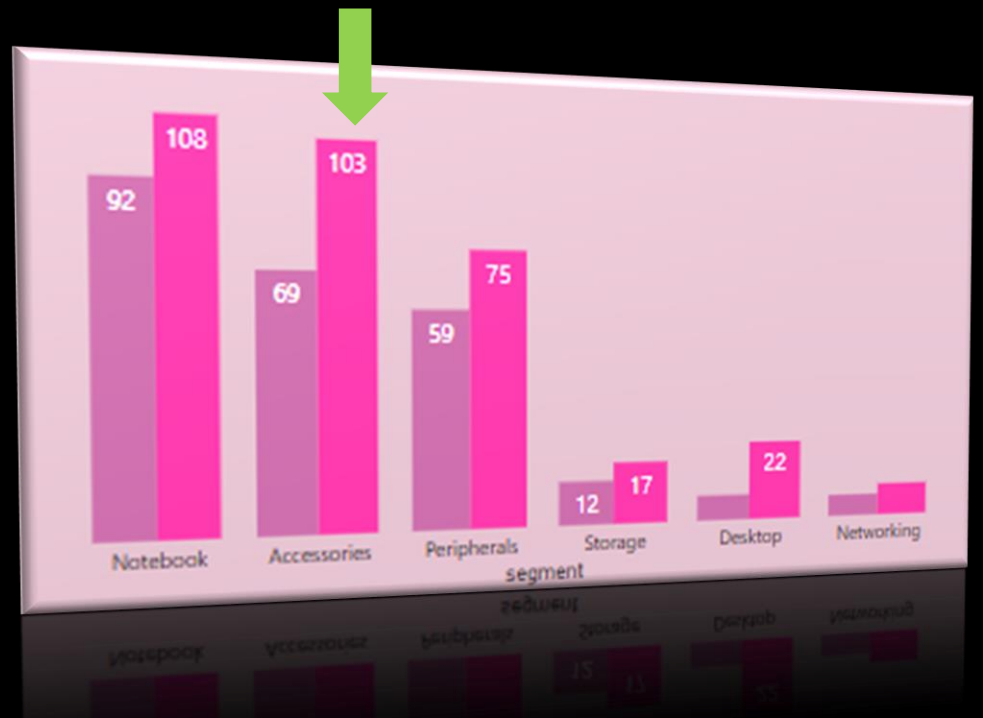
```
SELECT segment, count(distinct(product_code)) as Product_count

FROM dim_product

GROUP BY segment

ORDER BY Product_count DESC;
```



Notebook, Accessories and Peripherals constitute 85% of total manufacturing product.

4. Which segment had the most increase in unique products in 2021 vs 2020?

segment	product_count_2020	product_count_2021	difference
Accessories	69	103	34
Desktop	7	22	15
Networking	6	9	3
Notebook	92	108	16
Peripherals	59	75	16
Storage	12	17	5




```sql
WITH cte1 AS (
SELECT p.segment, COUNT(DISTINCT(s.product_code)) AS a
FROM dim_product p
JOIN fact_sales_monthly s
ON p.product_code = s.product_code
WHERE s.fiscal_year = 2020
GROUP BY p.segment),
cte2 AS (
SELECT p.segment, COUNT(DISTINCT(s.product_code)) AS b
FROM dim_product p JOIN fact_sales_monthly s
ON p.product_code = s.product_code
WHERE s.fiscal_year = 2021
GROUP BY p.segment)
SELECT cte1.segment, cte1.a AS product_count_2020,
cte2.b AS product_count_2021, b-a AS difference
FROM cte2 JOIN cte1
WHERE cte1.segment = cte2.segment
ORDER BY difference DESC;
```

Storage and Networking are showing slower production growth than other segments.

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

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

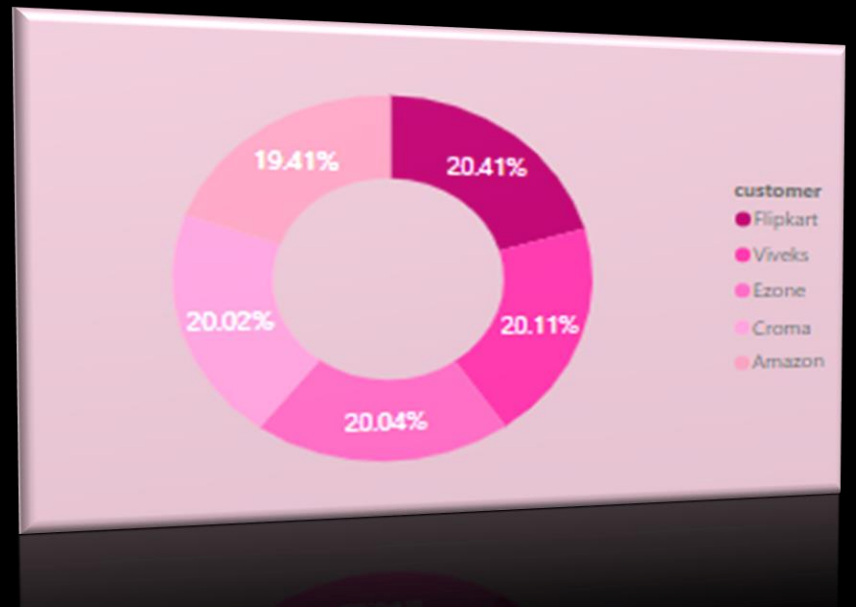
Personal Desktop : AQ HOME Alline 1 Gen 2 has the highest manufacturing cost.

Mouse : AQ Master wired x1 Ms has the lowest manufacturing cost.

```
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
WHERE manufacturing_cost IN
(SELECT MAX(manufacturing_cost) FROM fact_manufacturing_cost
UNION
SELECT MIN(manufacturing_cost) FROM fact_manufacturing_cost)
ORDER BY manufacturing_cost DESC;
```

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.

customer_code	customer	avg_discount_pct
90002009	Flipkart	0.31
90002006	Viveks	0.30
90002003	Ezone	0.30
90002002	Croma	0.30
90002016	Amazon	0.29



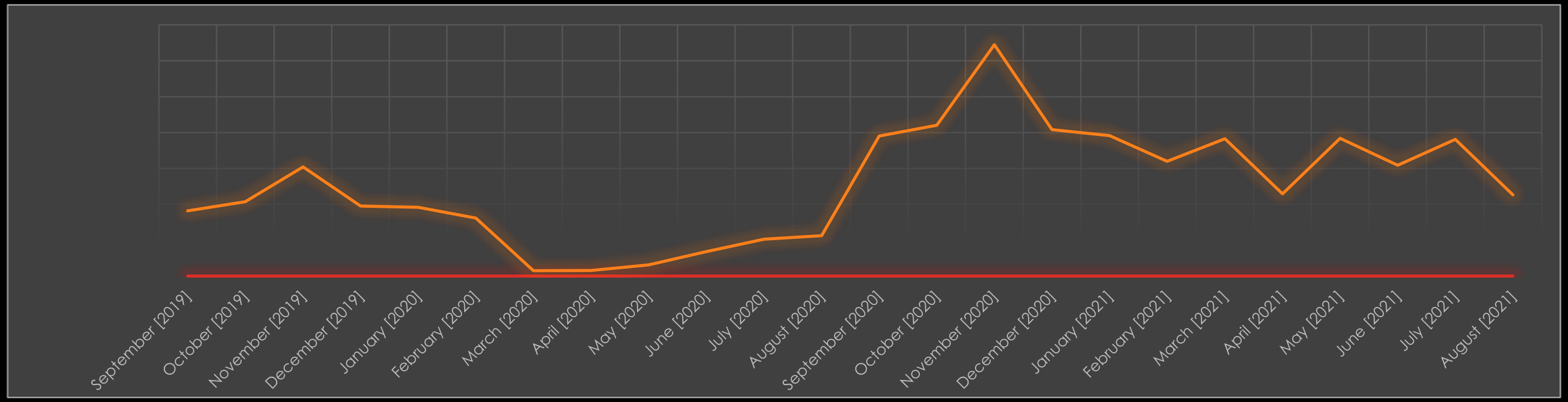

```
WITH A1 AS (
SELECT customer_code, AVG(pre_invoice_discount_pct) AS B
FROM fact_pre_invoice_deductions
WHERE fiscal_year = 2021
GROUP BY customer_code),
B1 AS (
SELECT customer_code, customer FROM dim_customer
WHERE market = "india")
SELECT b.customer_code, b.customer, ROUND(a.B, 4) AS avg_discount_pct
FROM A1 a JOIN B1 b
ON a.customer_code = b.customer_code
ORDER BY avg_discount_pct DESC
LIMIT 5;
```

The Largest Avg pre invoice discount was given to Flipkart.

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.

Month	fiscal_year	gross_sales_amount
September [2019]	2020	9092670.34
October [2019]	2020	10378637.6
November [2019]	2020	15231894.97
December [2019]	2020	9755795.06
January [2020]	2020	9584951.94
February [2020]	2020	8083995.55
March [2020]	2020	766976.45
April [2020]	2020	800071.95
May [2020]	2020	1586964.48
June [2020]	2020	3429736.57
July [2020]	2020	5151815.4
August [2020]	2020	5638281.83
September [2020]	2021	19530271.3
October [2020]	2021	21016218.21
November [2020]	2021	32247289.79
December [2020]	2021	20409063.18
January [2021]	2021	19570701.71
February [2021]	2021	15986603.89
March [2021]	2021	19149624.92
April [2021]	2021	11483530.3
May [2021]	2021	19204309.41
June [2021]	2021	15457579.66
July [2021]	2021	19044968.82
August [2021]	2021	11324548.34

```sql
SELECT CONCAT(MONTHNAME(s.date), ' [', YEAR(s.date), ']') AS 'Month', s.fiscal_year,
ROUND(SUM(s.sold_quantity*g.gross_price),2) AS gross_sales_amount
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 c.customer = "Atliq Exclusive"
GROUP BY Month, s.fiscal_year
ORDER BY S.fiscal_year;
```



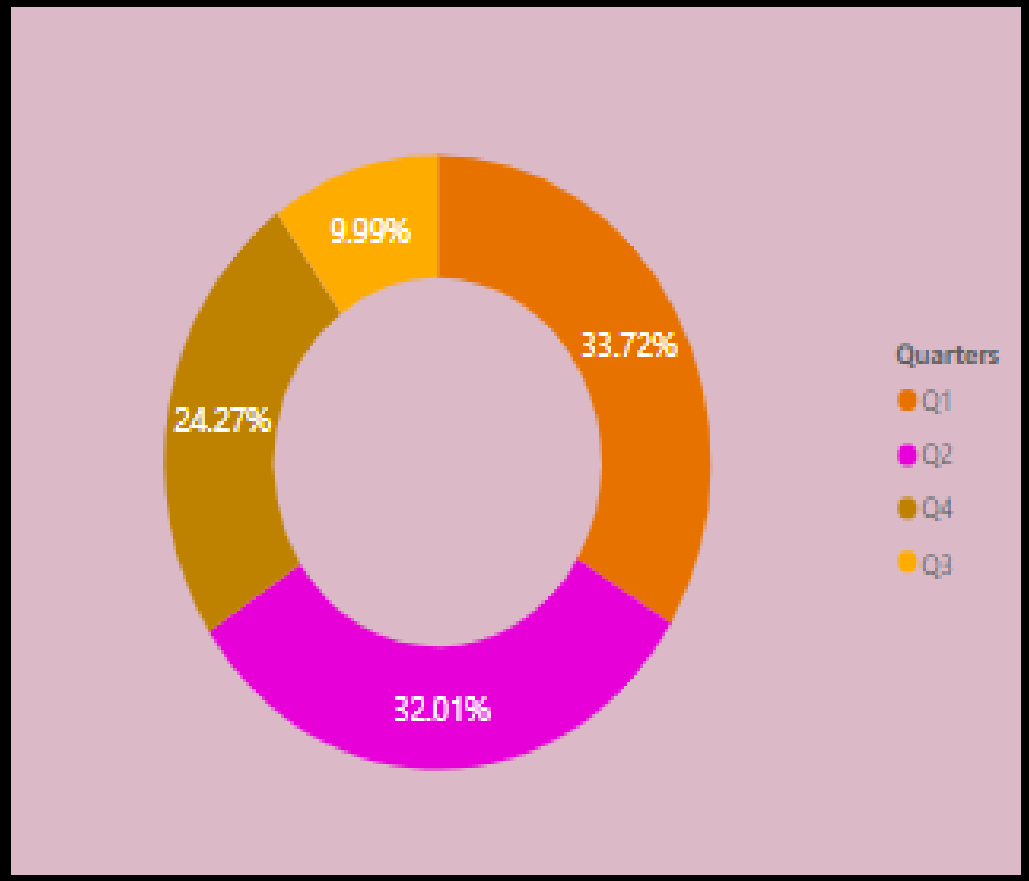
The Lowest total gross sales for both the fiscal years is in March(2020).

The highest total gross sales for both the fiscal years is in November(2020)

8. In which quarter of 2020, got the maximum total_sold_quantity?

Quarters	Month	total_sold_quantity
Q1	September	1764002
Q1	October	2190792
Q1	November	3050825
Q2	December	3184205
Q2	January	1762652
Q2	February	1702785
Q3	March	238961
Q3	April	819956
Q3	May	1016170
Q4	June	1559773
Q4	July	1692575
Q4	August	1790193

```
SELECT
CASE
    WHEN date BETWEEN '2019-09-01' AND '2019-11-01' then CONCAT('[',"Q1",'] ',MONTHNAME(date))
    WHEN date BETWEEN '2019-12-01' AND '2020-02-01' then CONCAT('[',"Q2",'] ',MONTHNAME(date))
    WHEN date BETWEEN '2020-03-01' AND '2020-05-01' then CONCAT('[',"Q3",'] ',MONTHNAME(date))
    WHEN date BETWEEN '2020-06-01' AND '2020-08-01' then CONCAT('[',"Q4",'] ',MONTHNAME(date))
    END AS Quarters,
    SUM(sold_quantity) AS total_sold_quantity
FROM fact_sales_monthly
WHERE fiscal_year = 2020
GROUP BY Quarters;
```

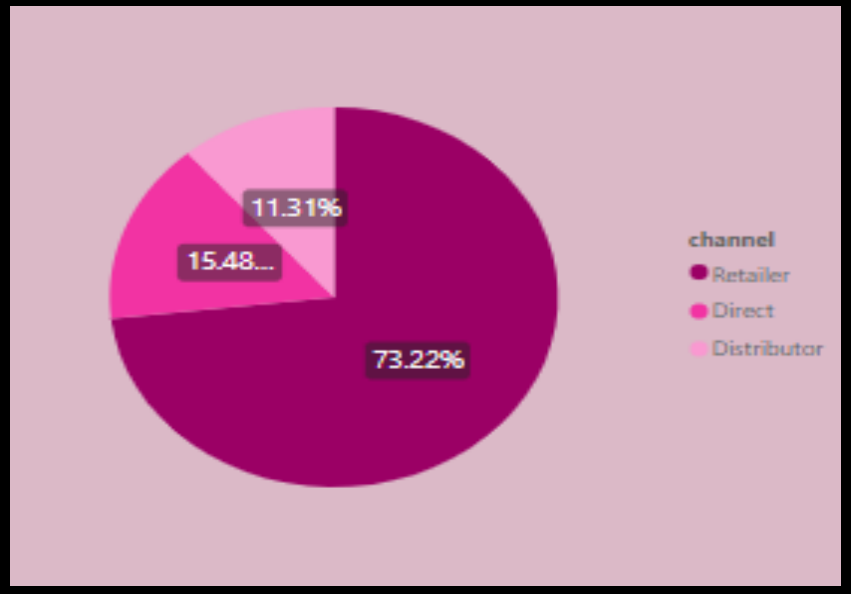


Quarter 1 of fiscal year 2020 having the most unit sold.

Quarter 3 of fiscal year 2020 showing the fewest unit sold.

9. Which channel helped to bring more gross sales in the fiscal year 2021 and the percentage of contribution?

channel	Gross_sales_mln	percentage
Retailer	1924.17 M	73.22
Direct	406.69 M	15.48
Distributor	297.18 M	11.31




```sql
WITH A1 AS
(
SELECT C.channel,
       ROUND(SUM(G.gross_price*S.sold_quantity/1000000), 2) AS Gross_sales_mln
FROM fact_sales_monthly S JOIN dim_customer C ON S.customer_code = C.customer_code
                          JOIN fact_gross_price G ON S.product_code = G.product_code
WHERE S.fiscal_year = 2021
GROUP BY C.channel
)
SELECT channel, CONCAT(Gross_sales_mln,' M') AS Gross_sales_mln ,
Gross_sales_mln*100/SUM(Gross_sales_mln) OVER() AS percentage
FROM A1
ORDER BY percentage DESC;
```

Channel Retailer helped bring maximum sales to the company.

Channel Distributor makes the least contribution.

10. Get the top 3 products in each division that have a high total_sold_quantity in the fiscal_year 2021?

division	product	product_code	Total_sold_quantity	Rank_NO
N & S	AQ Pen Drive 2 IN 1	A6720160103	7,01,373	1
N & S	AQ Pen Drive DRC	A6818160202	6,88,003	2
N & S	AQ Pen Drive DRC	A6819160203	6,76,245	3
P & A	AQ Gamers Ms	A2319150302	4,28,498	1
P & A	AQ Maxima Ms	A2520150501	4,19,865	2
P & A	AQ Maxima Ms	A2520150504	4,19,471	3
PC	AQ Digit	A4218110202	17,434	1
PC	AQ Digit	A4218110208	17,275	3
PC	AQ Velocity	A4319110306	17,280	2


```
WITH A1 AS
(
SELECT P.division, S.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  S.product_code, division, P.product
),
B1 AS
(
SELECT division, product_code, product, Total_sold_quantity,
       RANK() OVER(PARTITION BY division ORDER BY Total_sold_quantity DESC) AS Rank_NO
FROM A1
)
 SELECT A1.division, A1.product_code, A1.product, B1.Total_sold_quantity, B1.Rank_NO
 FROM A1 JOIN B1
 ON A1.product_code = B1.product_code
WHERE B1.Rank_NO IN (1,2,3);
```

Thank you