Atliq Hardwares

Consumer Goods Ad_Hoc Insights

INTRODUCTION

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

# PROBLEM STATEMENT

The management noticed that they do not get enough insights to make quick and smart data-informed decisions. They want to expand their data analytics team by adding several junior data analysts. Tony Sharma, their data analytics director wanted to hire someone who is good at both tech and soft skills. Hence, he decided to conduct a SQL challenge which will help him understand both the skills.

OBJECTIVE

In this challenge it has been asked to run 10 important ad hoc SQL query to answer these requests for which the business needs insights. The target audience of this dashboard is top-level management so a presentation has to be created using which the management can get high-quality and accurate insights to take crucial business decisions.

The Atliq Hardware Database has six main datasets
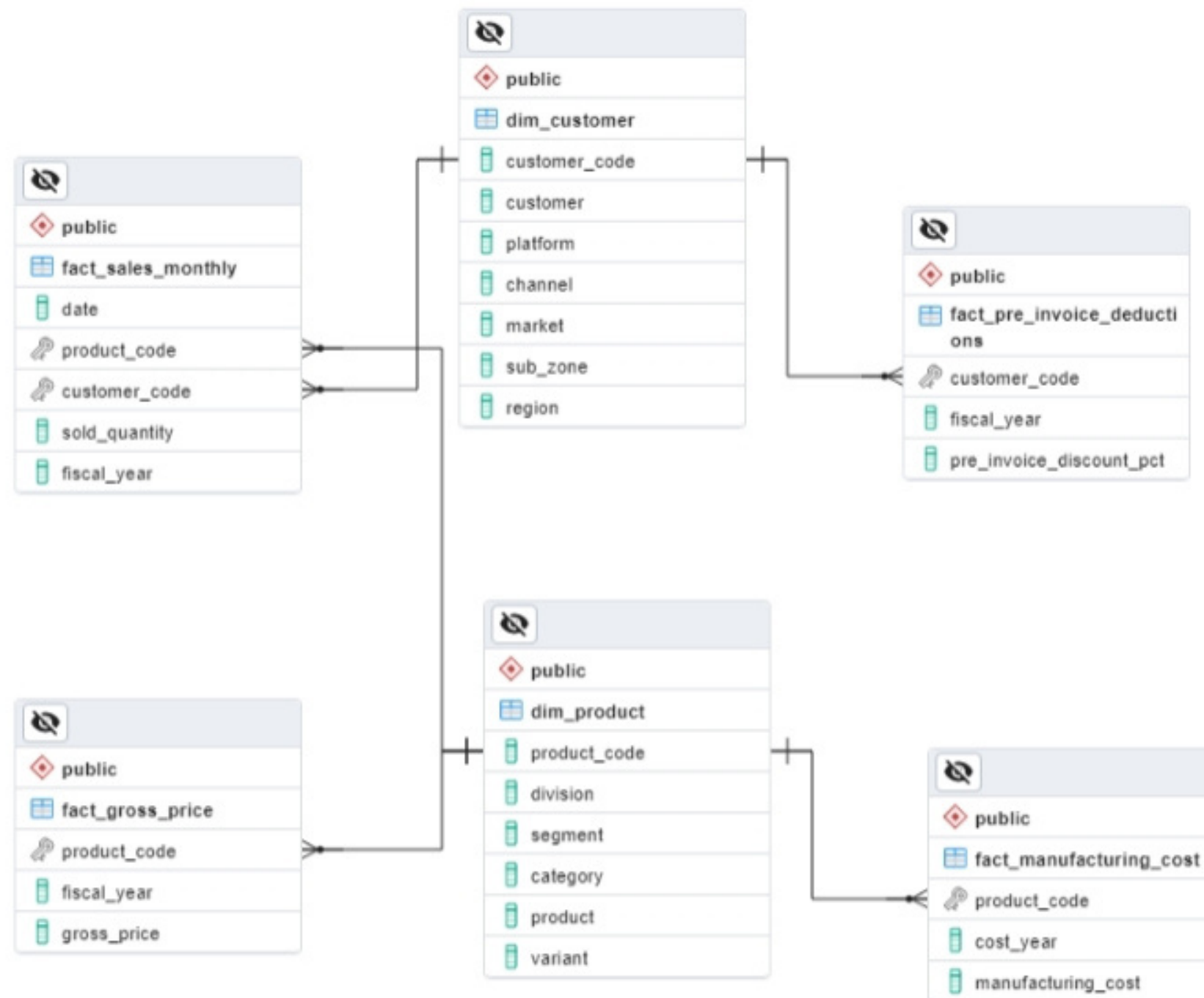
- **dim_customer**: contains customer-related

- **dim_product**: contains product-related data

- **fact_gross_price**: contains gross price information for each product

- **fact_manufacturing_cost**: contains the cost incurred in the production of each product

- **fact_pre_invoice_deductions**: contains pre-invoice deductions information for each product

- **fact_sales_monthly**: contains monthly sales data for each product.

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

Query

```sql
Select
  c.market
From
  dim_customer as c
Where
  region = 'APAC' AND customer = 'Atliq Exclusive';
```

Output

Data Output	Messages	Notifications

	market character varying (45)
1	India
2	Indonesia
3	Japan
4	Philiphines
5	South Korea
6	Australia
7	Newzealand
8	Bangladesh

Visualization

India
Indonesia
Japan
Philippines
South Korea
Australia
New Zealand
Bangladesh

Insights

- *Atliq Hardware is operating in 27 countries*
- *Atliq Hardware has its exclusive stores operating across 8 countries 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

Query

```sql
With year2020 as (
 Select
   Count(Distinct(product_code)) as UNIQUE_PRODUCT_2020
 From
   fact_sales_monthly
 Where
   fiscal_year = '2020'),
year2021 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,
   Round((UNIQUE_PRODUCT_2021 - UNIQUE_PRODUCT_2020)*100/UNIQUE_PRODUCT_2020,2) AS percentage_chg
From
   year2020,year2021;
```

Output

Visualization

% Change in Unique Products (2020 VS 2021)

Insights

- *Atliq Hardware produced 245 products in Fiscal Year 2020 and it increased to 334 product in Fiscal Year 2021.*

- *There is 89 more unique product produced by Altiq Hardware in Fiscal Year 2021 and acheived 36% change in unique product from the Previous Year.*
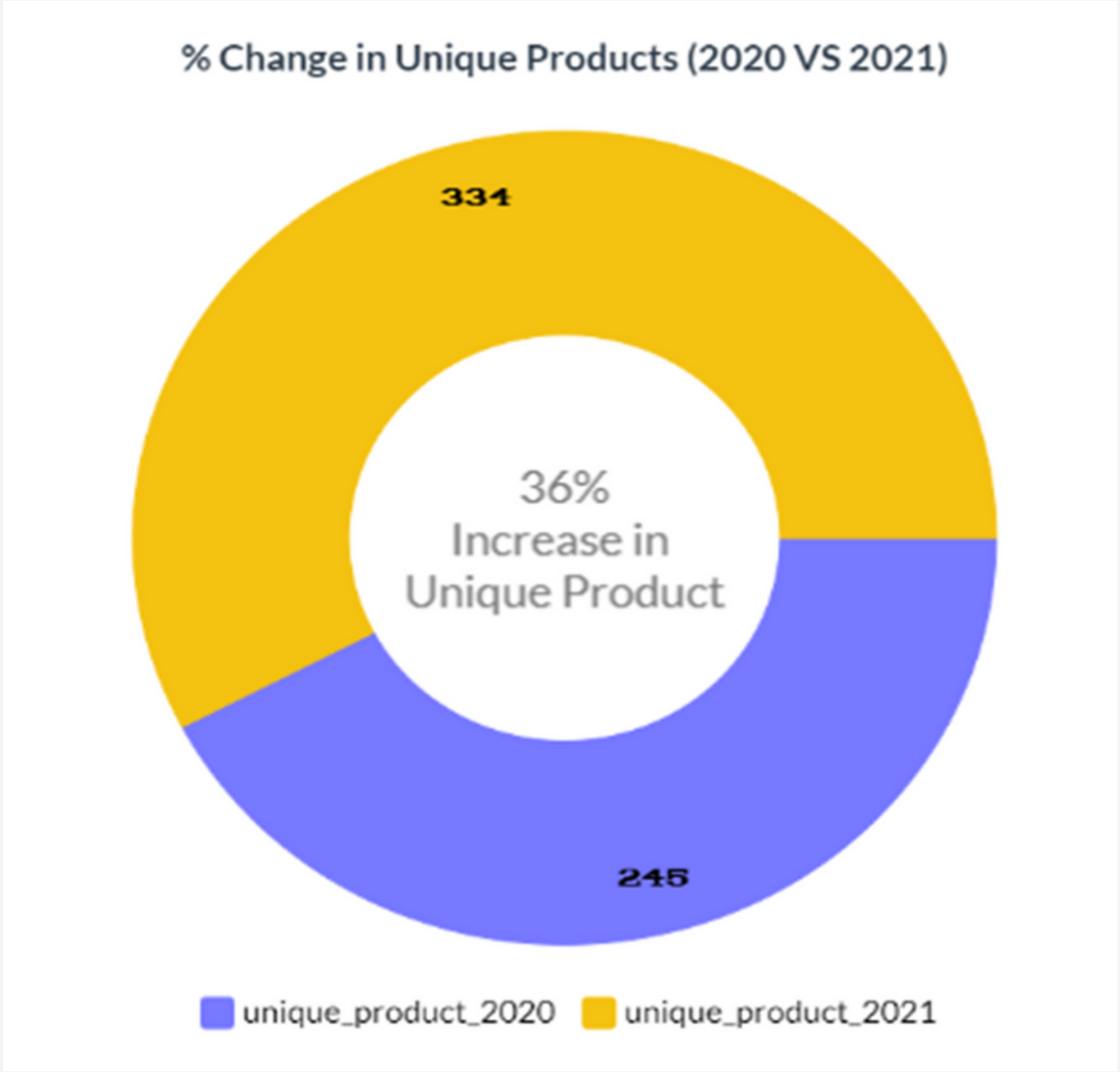
Provide a report with all the unique product counts for each segment and sort them in descending order of product counts ?
The final output contains 2 fields,
segment
product_count

Query

```
Select
    segment,
    Count(Distinct(product_code)) as product_counts
From
    dim_product
Group By
    segment
Order By
    product_counts desc;
```

Output

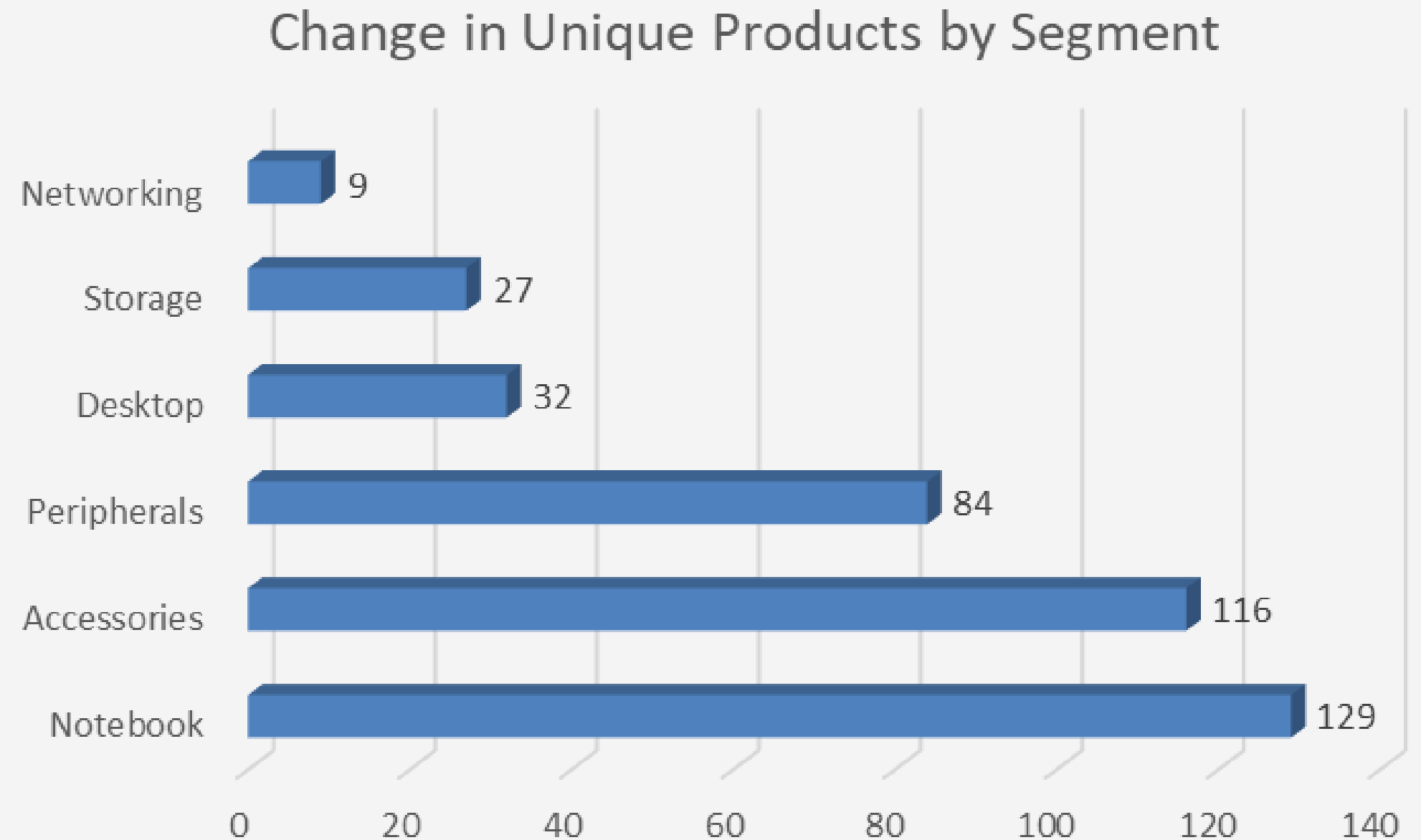|	segment character varying (45) 🔒	product_counts 🔒 bigint
1	Notebook	129
2	Accessories	116
3	Peripherals	84
4	Desktop	32
5	Storage	27
6	Networking	9

Data Output   Messages   Notifications

Insights

Visualization

- Atliq Hardware has 6 different product segment in which the Notebook Segment has highest unique product and the Networking Segment has lowest unique product.

- The Notebook Segment has 129 unique products and the Networking has 9 unique product.

- Accessories Segment and Periherals Segment are just behind the Notebook Segment with 116 and 84 unique product respectively and Storage Segment and Desktop Segment has least unique product with only 27 and 32 respectively.

Change in Unique Products by Segment

Segment	Value
Networking	9
Storage	27
Desktop	32
Peripherals	84
Accessories	116
Notebook	129

Query

```sql
With year2020 as (
Select
 p.segment,
 Count(Distinct(s.product_code)) as product_count_2020
From
 dim_product as p
 Join fact_sales_monthly as s
 On p.product_code = s.product_code
Where
 fiscal_year = 2020
Group By
 p.segment),
year2021 as (
Select
 p.segment,
 Count(Distinct(s.product_code)) as product_count_2021
From
 dim_product as p
 Join fact_sales_monthly as s
 On p.product_code = s.product_code
Where
 fiscal_year = 2021
Group By
 p.segment)
Select
  year2020.segment,
  product_count_2020,
  product_count_2021,
  (product_count_2021 - product_count_2020) as difference
From
  year2020
  Join year2021
  On year2020.segment = year2021.segment
Order By
  difference DESC;
```

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

Output

Data Output   Messages   Notifications

	segment character varying (45)	product_count_2020 bigint	product_count_2021 bigint	difference bigint
1	Accessories	69	103	34
2	Notebook	92	108	16
3	Peripherals	59	75	16
4	Desktop	7	22	15
5	Storage	12	17	5
6	Networking	6	9	3

Visualization

Change in Unique Products by Segment (2020 VS 2021)

Legend: ■ product_count_2020 ■ product_count_2021 ■ difference
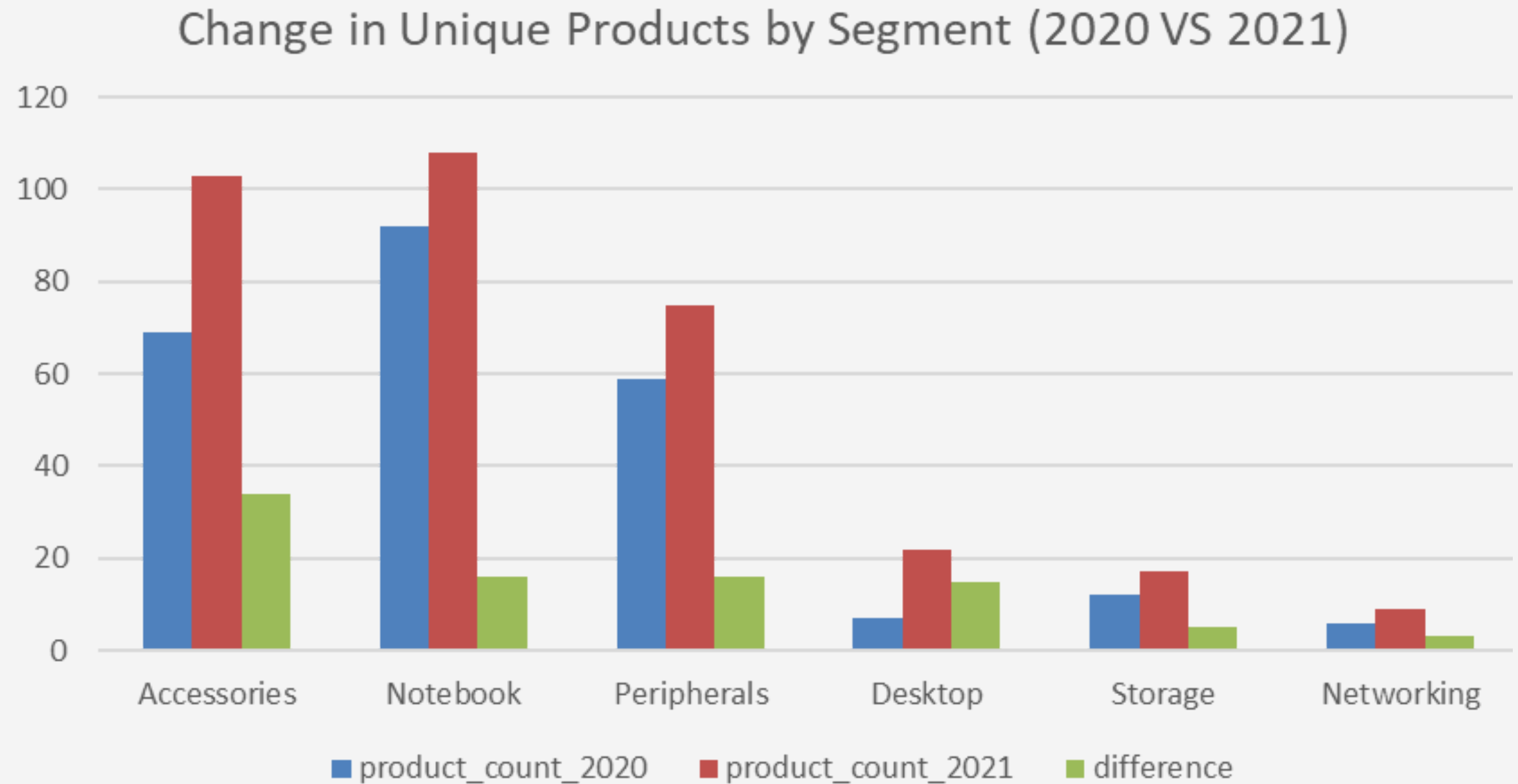
Insights

- *Atliq Hardware produced more unique product in every segment in Fiscal Year then Previous Fiscal Year.*

- *Accessories Segment has highest unique product in 2021 as Atliq Hardware produced 34 more unique product in 2021*

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

Query

```
Select
    p.product,
    p.product_code,
    m.manufacturing_cost
From
    dim_product as p
    Join fact_manufacturing_cost as m
    On p.product_code = m.product_code
Where
    m.manufacturing_cost = (Select Max(manufacturing_cost) From fact_manufacturing_cost)
     OR
    m.manufacturing_cost = (Select Min(manufacturing_cost) From fact_manufacturing_cost)
Order By
    manufacturing_cost DESC;
```

Output

Data Output   Messages   Notifications

|	product character varying (200) 🔒	product_code character varying (45) 🔒	manufacturing_cost numeric (15,4) 🔒
1	AQ HOME Allin1 Gen 2	A6120110206	240.5364
2	AQ Master wired x1 Ms	A2118150101	0.8920

- **AQ HOME Allin1 Gen 2 (Plus 3) under the personal desktop category has the highest manufacturing cost of $240.54.**

- **2 AQ Master wired x1 Ms (Standard 1) under the mouse category has the lowest manufacturing cost of $0.89.**

Visualization

$240.54

Highest Manufacturing Cost

Product Code: A6120110206

Product: AQ HOME Allin1 Gen 2

(Plus 3) Segment: Desktop

Category: Personal Desktop

Variant: Plus 3
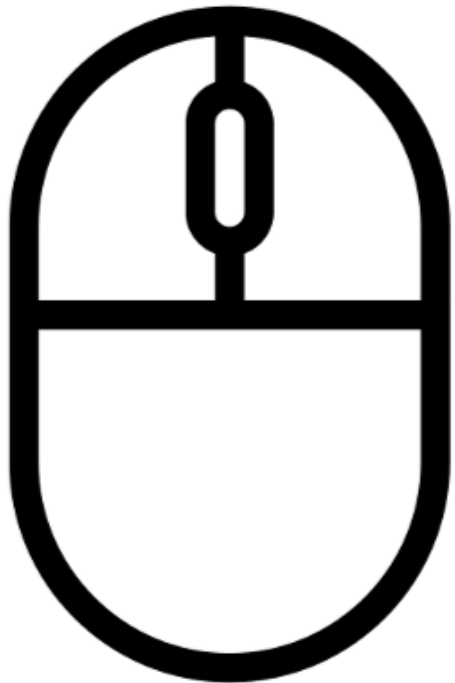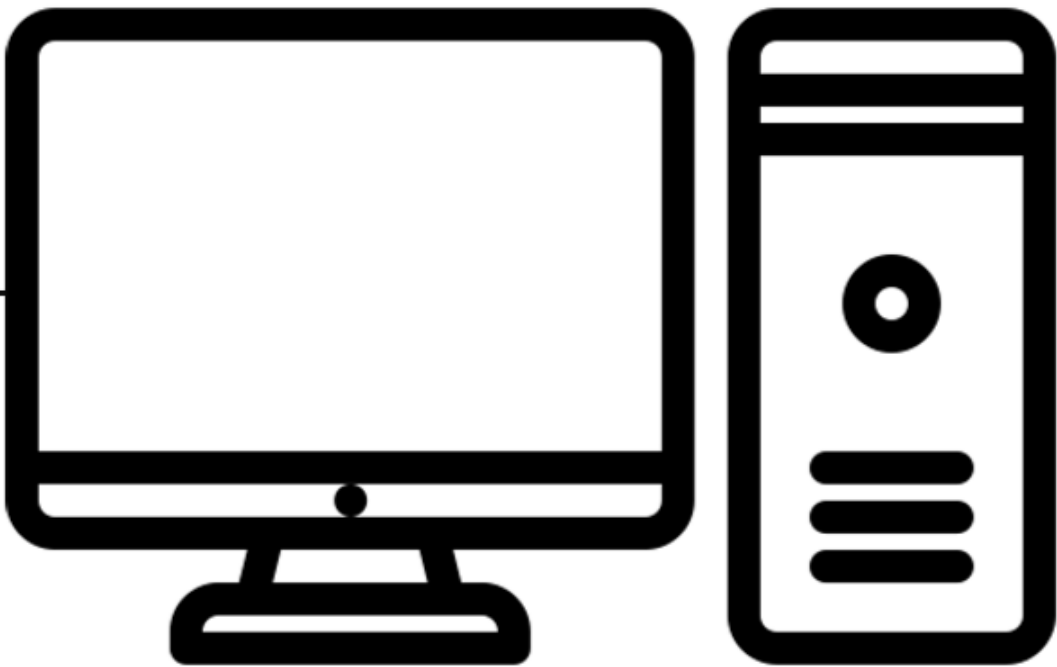
$0.89

Lowest Manufacturing Cost

Product Code: A2118150101

Product: AQ Master wired x1 Ms i
(Standard 1)

Segment: Accessories Category: Mouse

Variant: Standard 1

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

```sql
Select
    c.customer_code,
    c.customer,
    Round(Avg(d.pre_invoice_discount_pct),2) as avg_pct
From
    dim_customer as c
    Join fact_pre_invoice_deductions as d
    On c.customer_code = d.customer_code
Where
    market = 'India' AND fiscal_year = '2021'
Group By
    c.customer_code,
    c.customer
Order By
    avg_pct desc
Limit
    5;
```
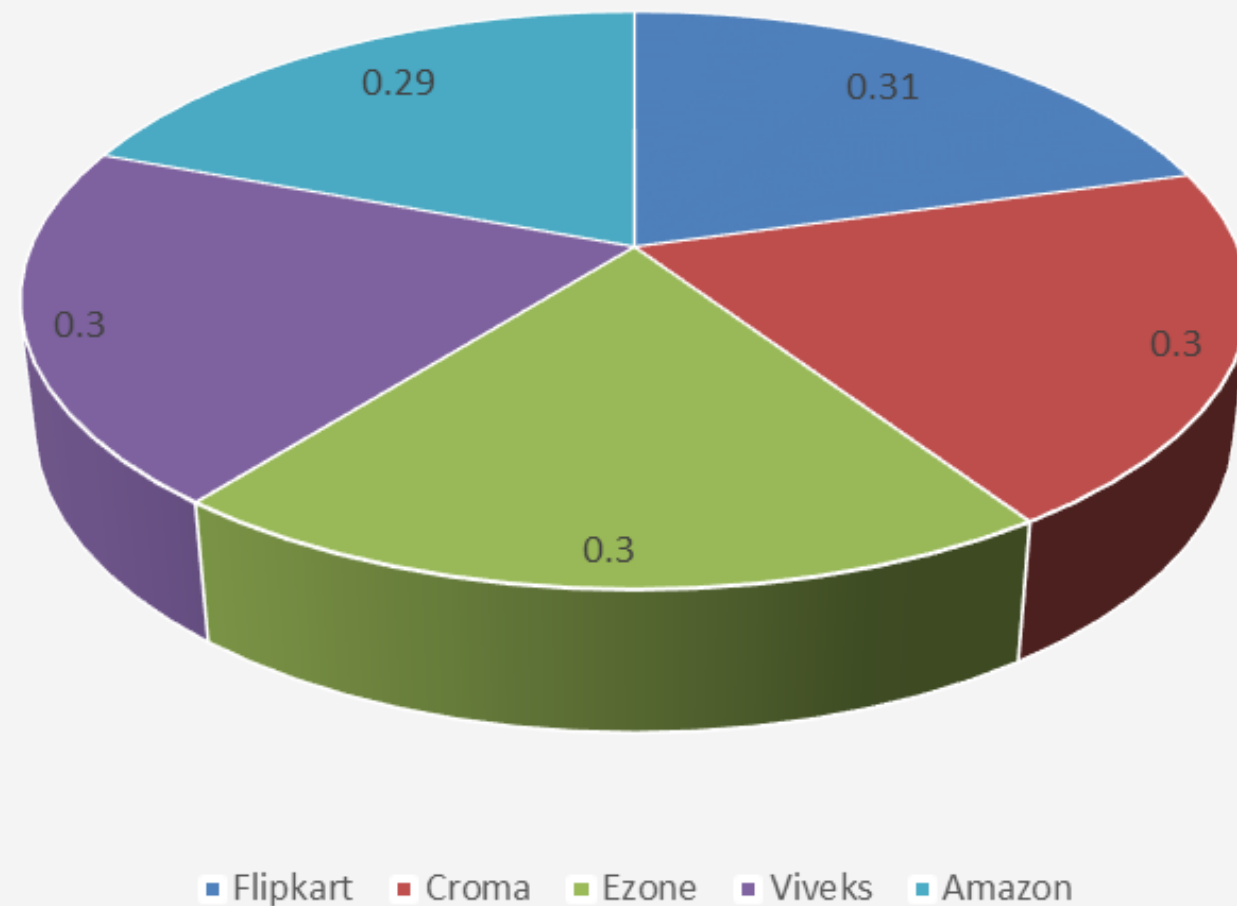
Query

Data Output   Messages   Notifications

	customer_code integer	customer character varying (150)	avg_pct numeric
1	90002009	Flipkart	0.31
2	90002002	Croma	0.30
3	90002003	Ezone	0.30
4	90002006	Viveks	0.30
5	90002016	Amazon	0.29

Output

Visualization

Top 5 Indian Customers with High Pre-Invoice Discounts (FY2021)

- 0.31 (Flipkart)
- 0.3 (Croma)
- 0.3 (Ezone)
- 0.3 (Viveks)
- 0.29 (Amazon)

■ Flipkart ■ Croma ■ Ezone ■ Viveks ■ Amazon

Insights

- *Flipkart Customer has received the high pre invoices discount percentage and followed by Viveks received second position.*

- *Amazon has received the low pre invoices discount percentage in Fiscal Year 2021.*

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

Output

	month numeric	year numeric	gross_sales_amount numeric
1	9	2019	9092670.3392
2	10	2019	10378637.5961
3	11	2019	15231894.9669
4	12	2019	9755795.0577
5	1	2020	9584951.9393
6	2	2020	8083995.5479
7	3	2020	766976.4531
8	4	2020	800071.9543
9	5	2020	1586964.4768
10	6	2020	3429736.5712
11	7	2020	5151815.4020
12	8	2020	5638281.8287
13	9	2020	19530271.3028
14	10	2020	21016218.2095
15	11	2020	32247289.7946
16	12	2020	20409063.1769
17	1	2021	19570701.7102
18	2	2021	15986603.8883
19	3	2021	19149624.9239
20	4	2021	11483530.3032
21	5	2021	19204309.4095
22	6	2021	15457579.6626
23	7	2021	19044968.8164
24	8	2021	11324548.3409

Query

```sql
Select
    Extract(Month from  s.date) as month,
    Extract(Year from s.date) as year,
    Sum(g.gross_price * s.sold_quantity) as gross_sales_amount
From
    fact_sales_monthly as s
    Join fact_gross_price as g
    On s.product_code = g.product_code
    Join dim_customer as c
    On s.customer_code = c.customer_code
Where
    c.customer = 'Atliq Exclusive'
Group By
    month,
    year
Order By
    2;
```

Insights

- **Atliq Hardware had its highest gross sales in November 2019 and the sales decrease in December month due to Covid 19 pandemic.**

- **In Begning of 2020 Year the sales decrease rapid due to Covid 19 pandemic which come in 2019 after some months the gross sales increase in November 2020 was due to consumer behaviour, including online shopping, work from home and online classes.**

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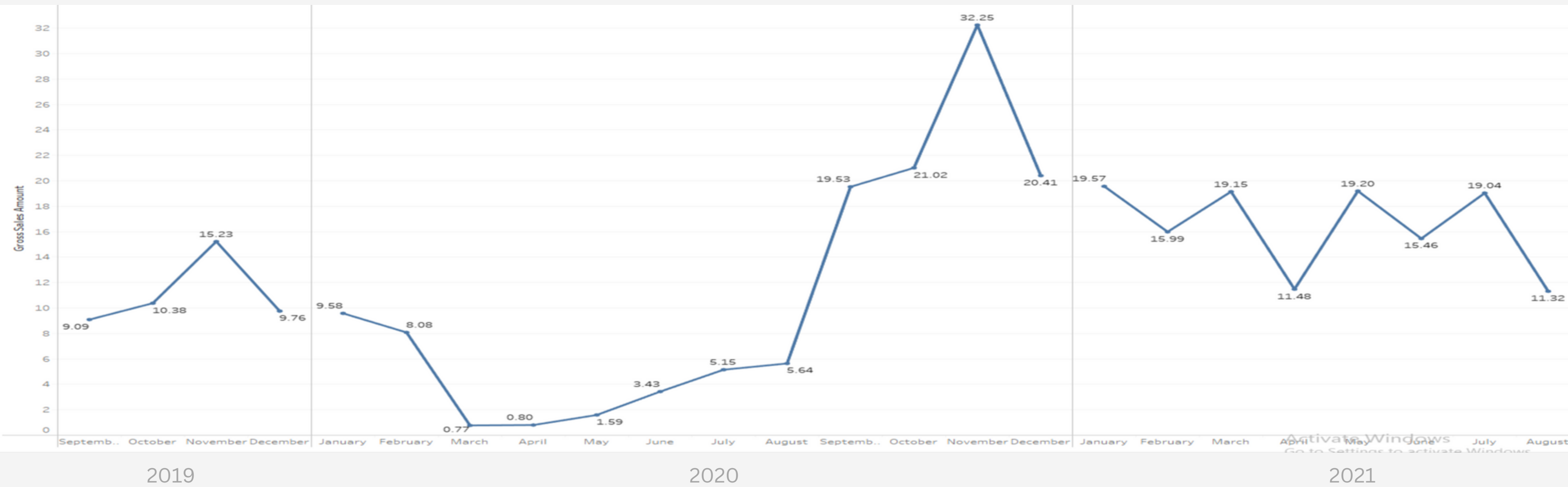
In which quarter of 2020, got the maximum total_sold_quantity?
The final output contains these fields sorted by the total_sold_quantity,
Quarter
total_sold_quantity

Query

```sql
Select
  Case
    When Extract(Month from date) in (9,10,11) then 'Q1'
    When Extract(Month from date) in (12,1,2) then 'Q2'
    When Extract(Month from date) in (3,4,5) then 'Q3'
    When Extract(Month from date) in (6,7,8) then 'Q4'
  End as Quarter,
    Sum(sold_quantity) as Total_sold_quantity
From
    fact_sales_monthly
Where
    fiscal_year = 2020
Group By
    Quarter
Order By
    Total_sold_quantity desc;
```

Output

Data Output

	quarter text	total_sold_quantity bigint
1	Q1	7005619
2	Q2	6649642
3	Q4	5042541
4	Q3	2075087

Visualization

Total Sold Quantity By Quarter FY(2020)

2075087

7005619

5042541

6649642

■ Q1 ■ Q2 ■ Q4 ■ Q3
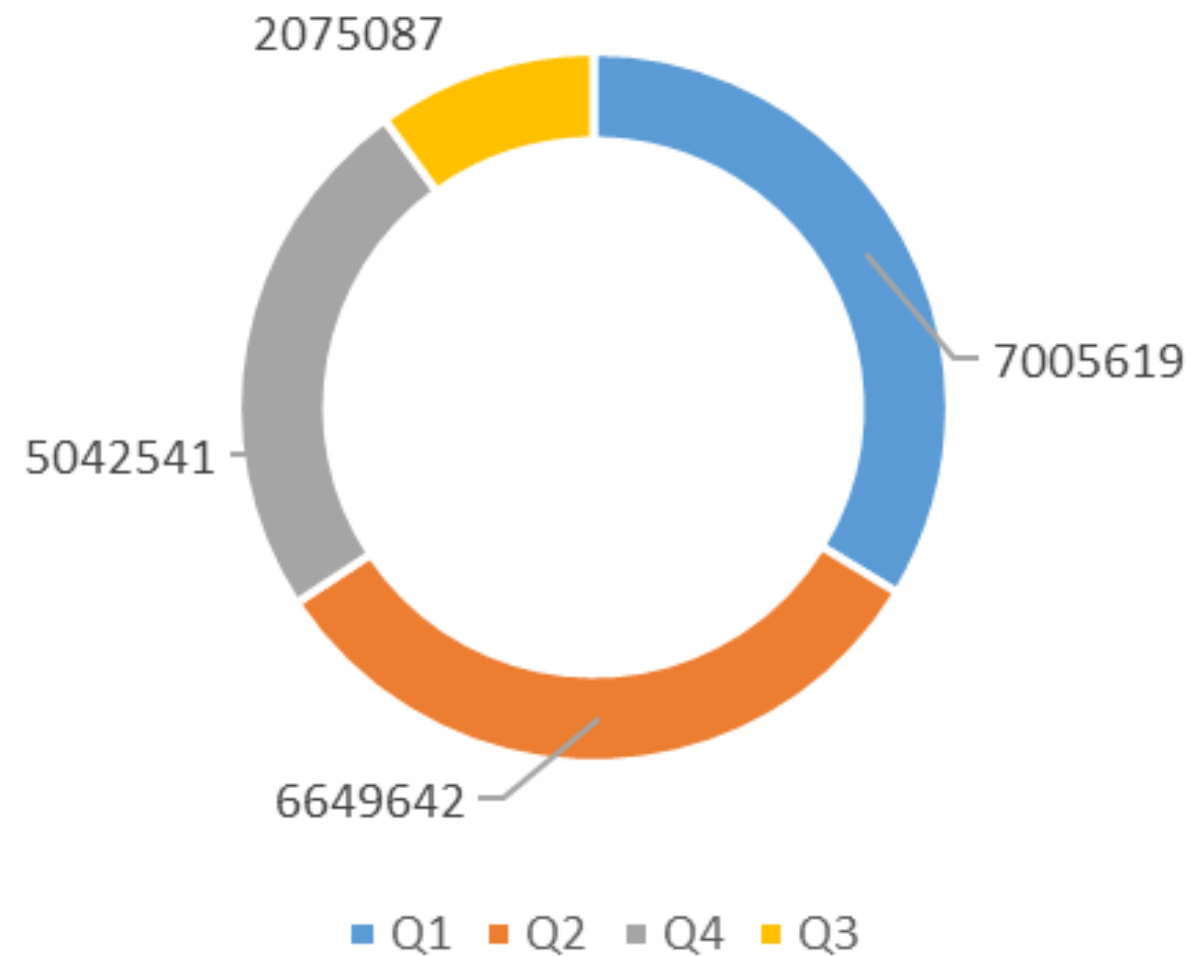
Insights

- *Quarter 1 of the Fiscal Year 2020 got the highest total sold quantity with 7005619.*

- *Quarter 3 of the Fiscal Year 2020 got the lowest total sold quantity with 2075087.*

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

Query

```sql
Select
    c.channel,
    Round(Sum(g.gross_price * s.sold_quantity)/1000000,2) as gross_sales
From
    dim_customer as c
    Join fact_sales_monthly as s
    On c.customer_code = s.customer_code
    Join fact_gross_price as g
    On g.product_code = s.product_code
Where
    s.fiscal_year = 2021
Group By
    c.channel
Order By
    gross_sales desc;
```

Output

	channel character varying (45) 🔒	gross_sales numeric 🔒
1	Retailer	1924.17
2	Direct	406.69
3	Distributor	297.18

Visualization

Gross Sales by Channel (FY2021)

11%
16%
73%

■ Retailer ■ Direct ■ Distributor
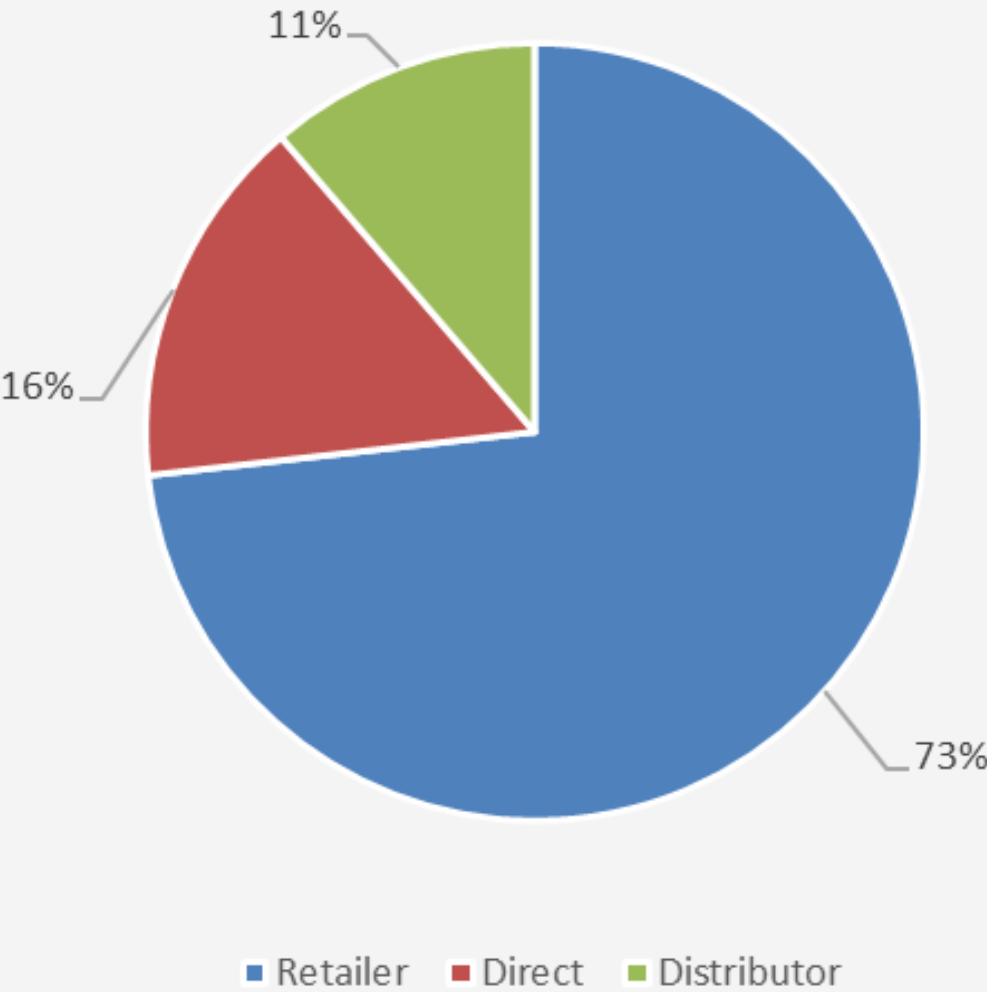
Insights

- **Retailer Channel got the highest gross sales in 2021 Fiscal Year with 1924.17 million.**

- **Distributor Channel got the lowest gross sales in 2021 Fiscal Year with 297.18 million.**

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

Query

```sql
With CTE AS(
 Select
    p.division,
    s.product_code,
    p.product,
    Sum(s.sold_quantity) AS Total_Sold_Quantity,
    Dense_Rank() OVER(Partition By p.division Order By Sum(s.sold_quantity) DESC) AS Rank_Order
  From
    dim_product AS p
    JOIN fact_sales_monthly AS s
    ON p.product_code=s.product_code
  Where
    s.fiscal_year=2021
  Group By
    p.division,
    s.product_code,
    p.product)
Select
    *
From
    CTE
Where
    Rank_Order<=3;
```
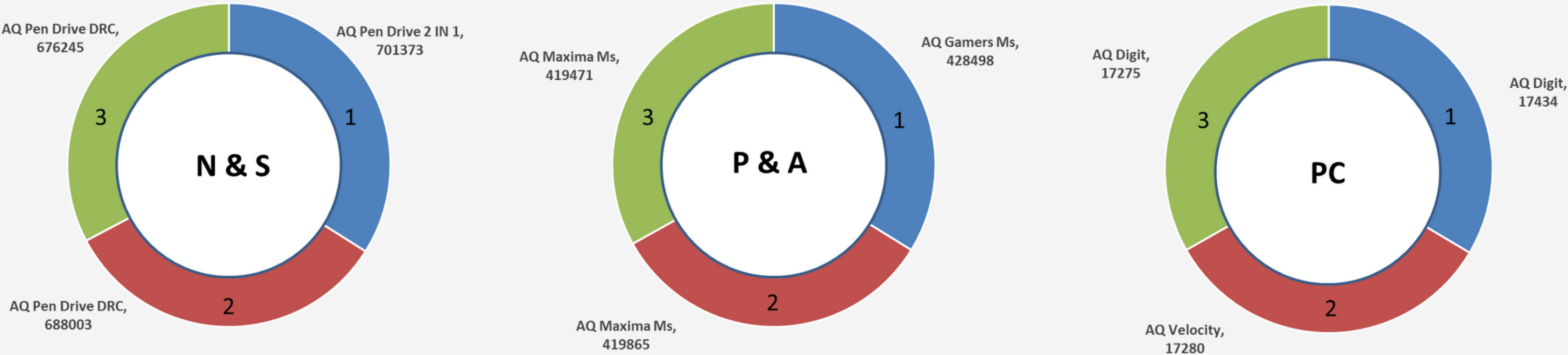
division character varying (45)	product_code character varying (45)	product character varying (200)	total_sold_quantity bigint	rank_order bigint
1	N & S	A6720160103	AQ Pen Drive 2 IN 1	701373	1
2	N & S	A6818160202	AQ Pen Drive DRC	688003	2
3	N & S	A6819160203	AQ Pen Drive DRC	676245	3
4	P & A	A2319150302	AQ Gamers Ms	428498	1
5	P & A	A2520150501	AQ Maxima Ms	419865	2
6	P & A	A2520150504	AQ Maxima Ms	419471	3
7	PC	A4218110202	AQ Digit	17434	1
8	PC	A4319110306	AQ Velocity	17280	2
9	PC	A4218110208	AQ Digit	17275	3

Insights

- **AQ Pen Drive 2 in 1, AQ Gamers Ms, AQ Digit are the top most sold product in N&S, P&A, PC division respectively in fiscal year 2021.**

- **AQ Pen Drive DRC, AQ Maxima Ms, AQ Digit(Premium Misti Green) are the least sold product in N&S, P&A, PC division respectively in fiscal year 2021.**

Output

Visualization

N & S — AQ Pen Drive DRC, 676245 (3); AQ Pen Drive 2 IN 1, 701373 (1); AQ Pen Drive DRC, 688003 (2)

P & A — AQ Maxima Ms, 419471 (3); AQ Gamers Ms, 428498 (1); AQ Maxima Ms, 419865 (2)

PC — AQ Digit, 17275 (3); AQ Digit, 17434 (1); AQ Velocity, 17280 (2)

THANK YOU!