

Ad-Hoc Insight

Consumer Goods



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Company Overview

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

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.

Ad-Hoc Requests, Output & Insights

Request 1

Request 2

Request 3

Request 4

Request 5

Request 6

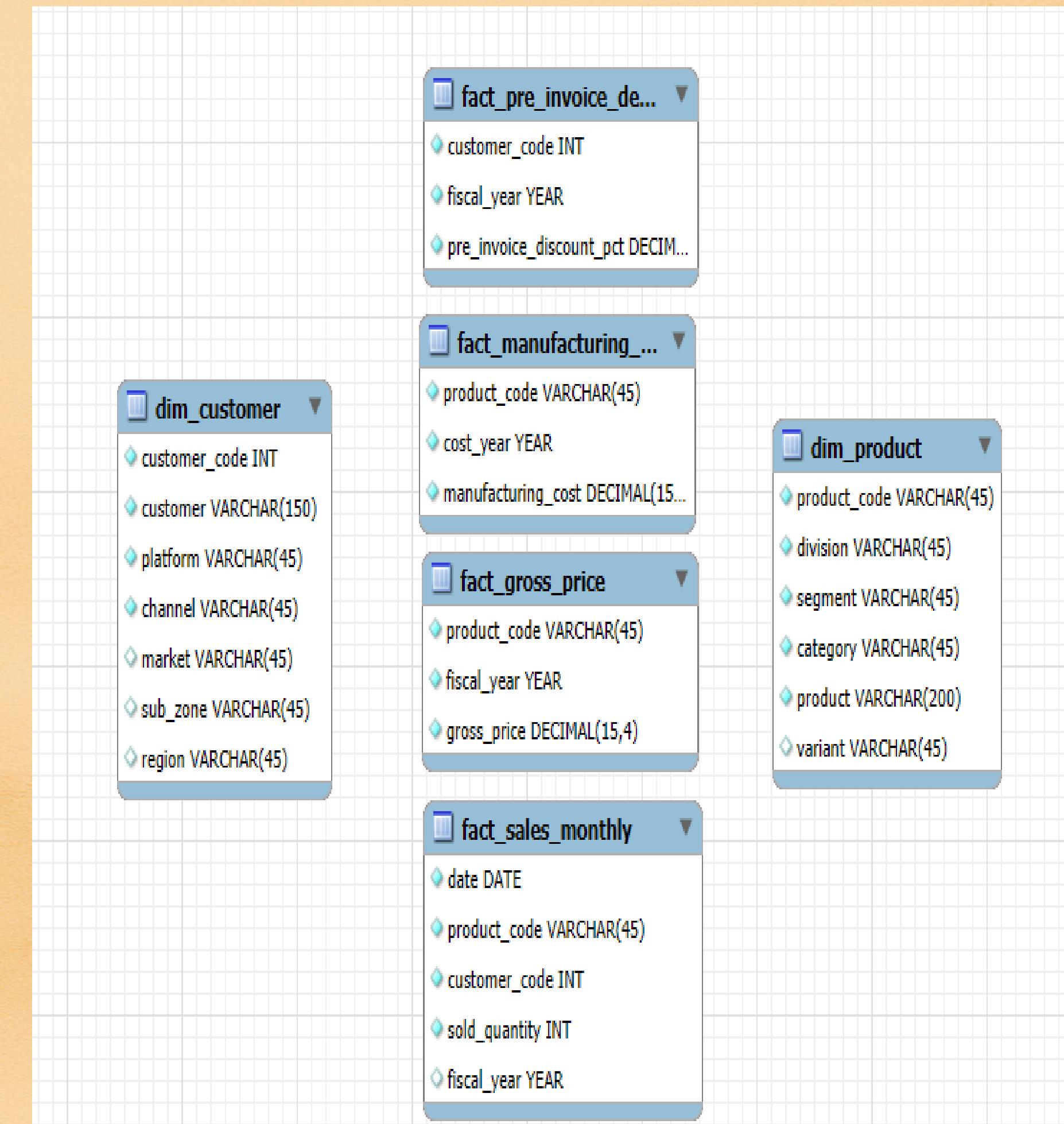
Request 7

Request 8

Request 9

Request 10

Dataset & Model





Requests: 1. Provide the list of markets in which customer "Atliq Exclusive" operates its business in the APAC region.

Request 2

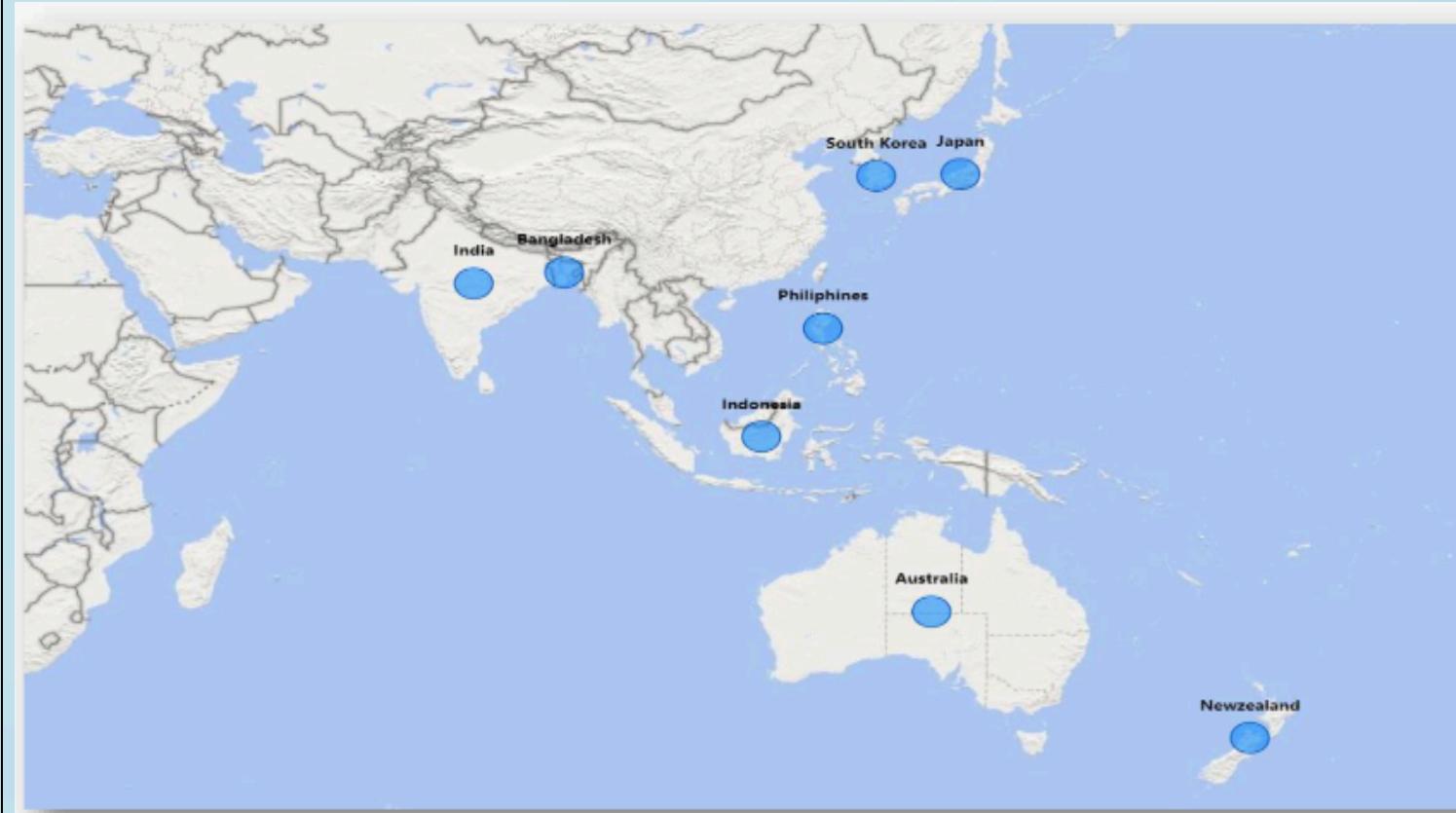
SQL Query

```
SELECT DISTINCT
    market, customer, region
FROM
    dim_customer
WHERE
    customer = 'Atliq Exclusive'
    AND region = 'APAC'
```

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

MARKET OF OPERATIONS





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

Request 3

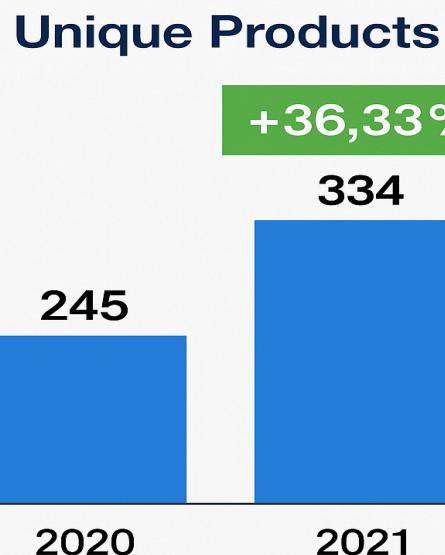
SQL Query

```
with Yearly_product_count as(select fiscal_year,count(distinct product_code ) as unique_products  
from fact_sales_monthly  
where fiscal_year in (2020,2021)  
group by fiscal_year),  
  
Yearly_comparision as(select ypc_2020.unique_products as unique_products_2020,  
ypc_2021.unique_products as unique_products_2021  
from (select unique_products from Yearly_product_count where fiscal_year = 2020)ypc_2020  
cross join (select unique_products from Yearly_product_count where fiscal_year = 2021)ypc_2021)  
  
select unique_products_2020,unique_products_2021,  
round(100.0 *(unique_products_2021 - unique_products_2020)/  
nullif(unique_products_2020,0),2) as pct_chg  
from Yearly_comparision
```

OUTPUT

	unique_products_2020	unique_products_2021	pct_chg
▶	245	334	36.33

VISUALIZATION



KEY INSIGHTS

Unique products increased from **245 in 2020 to 334 in 2021.**

This is a **growth of +36.33%** year-over-year.





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

Request 4

SQL Query

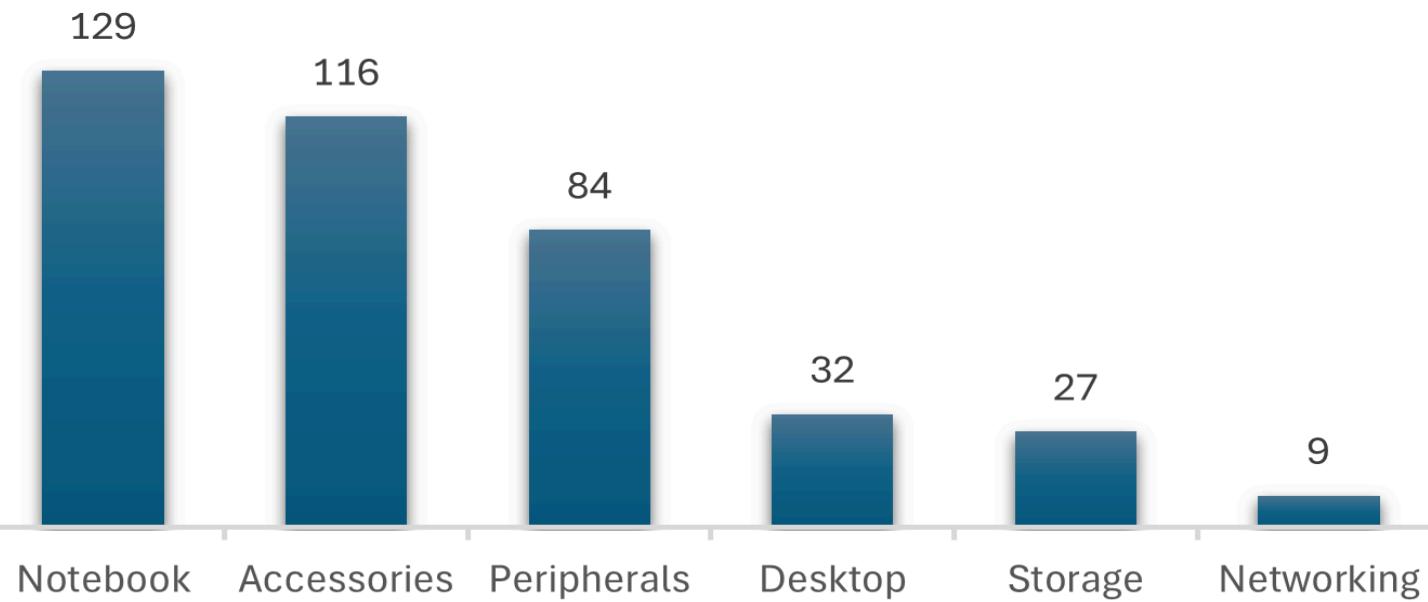
```
SELECT
    segment, COUNT(DISTINCT product_code) AS product_count
FROM
    dim_product
GROUP BY segment
ORDER BY product_count DESC
```

OUTPUT

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

VISUALIZATION

product count by Segment



KEY INSIGHTS

- > Notebooks dominate the lineup, with 129 products, representing the segment with the widest variety.
- > Accessories (116) and Peripherals (84) are also significant contributors—together, the top three segments make up nearly 80% of all products





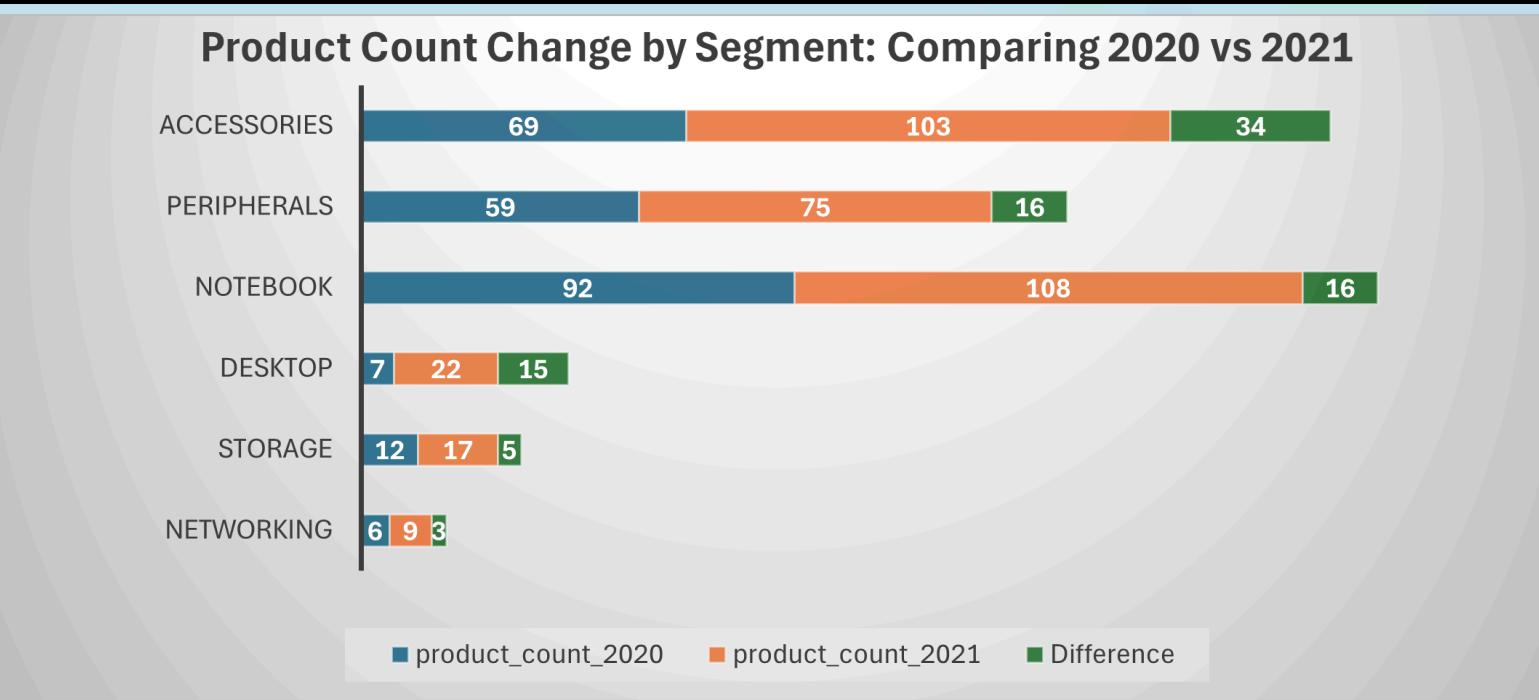
Requests: 4. Which segment had the most increase in unique products in 2021 vs 2020?

Request 5

SQL Query

```
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;
```

VISUALIZATION



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

KEY INSIGHTS

- > **Accessories** led growth with a **+34 increase** (69 → 103 products).
- > **Notebook** and **Peripherals** followed, each adding **+16 products**.
- > **Desktop** saw the **highest relative growth** (tripled from 7 to 22).
- > **Networking** (+3) and **Storage** (+5) stayed **niche and low-growth**.





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

Request 6

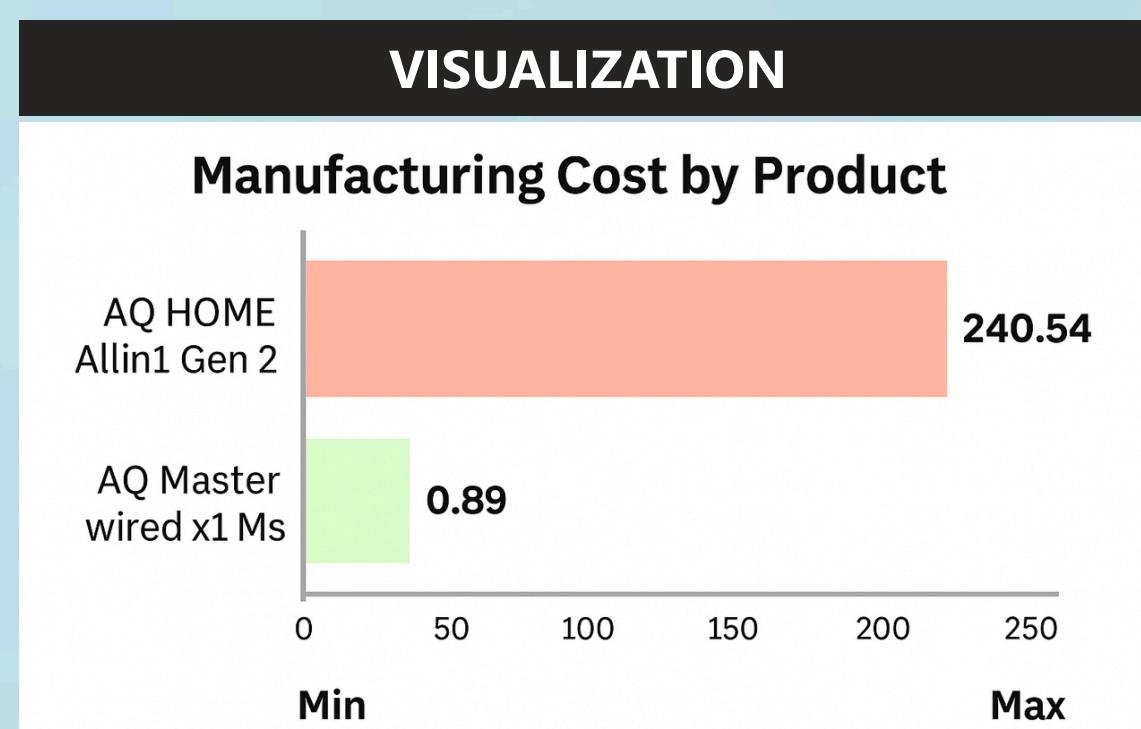
SQL Query

```
SELECT dp.product_code, dp.product, mc.manufacturing_cost
FROM fact_manufacturing_cost mc
JOIN dim_product dp
ON mc.product_code = dp.product_code
WHERE mc.manufacturing_cost = (SELECT MAX(manufacturing_cost) FROM fact_manufacturing_cost)

UNION ALL

SELECT dp.product_code, dp.product, mc.manufacturing_cost
FROM fact_manufacturing_cost mc
JOIN dim_product dp
ON mc.product_code = dp.product_code
WHERE mc.manufacturing_cost = (SELECT MIN(manufacturing_cost) FROM fact_manufacturing_cost);
```

OUTPUT		
product_code	product	manufacturing_cost
A6120110206	AQ HOME Allin1 Gen 2	240.5364
A2118150101	AQ Master wired x1 Ms	0.8920





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.

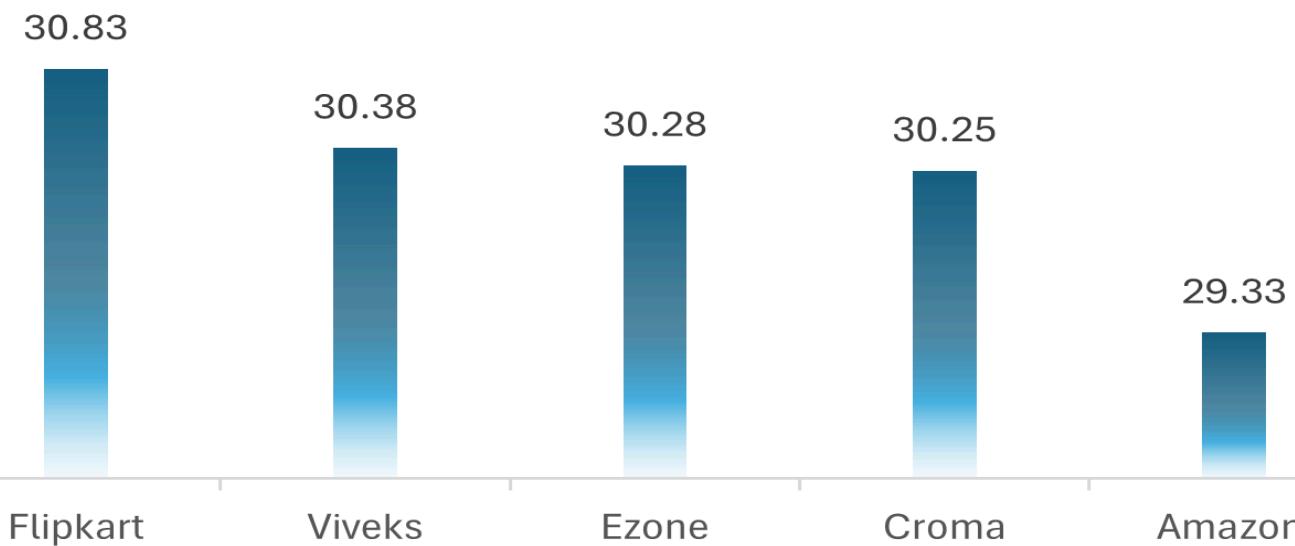
Request 7

SQL Query

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

VISUALIZATION

AVERAGE_DISCOUNT_PCT BY CUSTOMER



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

KEY INSIGHTS

- > Flipkart appears to be the most aggressive in discounting among all customers. with average discount of 30.83%
- > At 29.33%, Amazon's discounting is still substantial but slightly more restrained
- > The difference between the highest (Flipkart) and lowest (Amazon) is just **1.5 percentage points**. Suggests that **discount policies are relatively consistent** among major retail players





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.

Request 8

SQL Query

```
select monthname(s.date) as Month,s.fiscal_year as Year,
concat(round(sum(g.gross_price*s.sold_quantity)/1000000,2),'M') as Gross_sales_Amount
from fact_sales_monthly s
join dim_customer dc
on s.customer_code = dc.customer_code
join fact_gross_price g
on s.product_code = g.product_code and s.fiscal_year = g.fiscal_year
where dc.customer = 'Atliq Exclusive'
group by monthname(s.date),s.fiscal_year
order by monthname(s.date),s.fiscal_year
```

VISUALIZATION

ATLIQ EXCLUSIVE GROSS_SALES_AMOUNT BY MONTH



OUTPUT

Month	Year	Gross_sales_Amount
April	2020	0.40M
August	2020	2.79M
December	2020	4.83M
February	2020	4.00M
January	2020	4.74M
July	2020	2.55M
June	2020	1.70M
March	2020	0.38M
May	2020	0.78M
November	2020	7.52M
October	2020	5.14M
September	2020	4.50M
April	2021	7.31M
August	2021	7.18M
December	2021	12.94M
February	2021	10.13M
January	2021	12.40M
July	2021	12.09M
June	2021	9.82M
March	2021	12.14M
May	2021	12.15M
November	2021	20.46M
October	2021	13.22M
September	2021	12.35M

- >Sales increased from ₹0.40M in Apr 2020 to ₹12.35M in Sep 2021 it shows Consistent Upward Growth Trend
- >**November** Generated the Highest sales in 2020 that is 7.52M
- >As you can see the sales figure of 2021 is much better as compared to the previous year.
- >**March ,April, May** Recorded the lowest sale in 2020. likely because of the **COVID** Pandemic which has Affected the supply chain of the whole world.





Requests: 8. In which quarter of 2020, got the maximum total sold quantity?

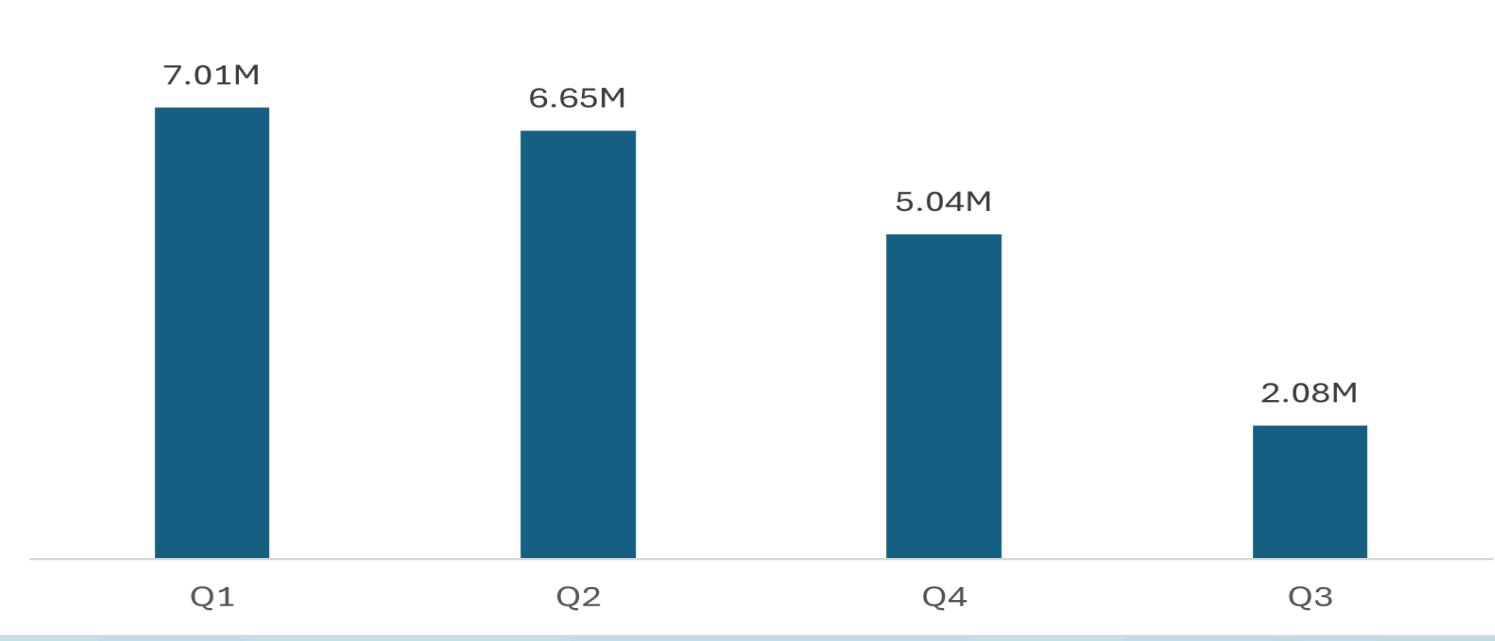
Request 9

SQL Query

```
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 Quarters,
ROUND(SUM(sold_quantity), 2) AS total_sold_quantity
FROM fact_sales_monthly
WHERE fiscal_year = 2020
GROUP BY Quarters
ORDER BY total_sold_quantity DESC;
```

VISUALIZATION

Total Sold Quantity in FY 2020 by Quarter



OUTPUT

Quarters	total_sold_quantity
Q1	7005619
Q2	6649642
Q4	5042541
Q3	2075087

KEY INSIGHTS

- >**Q1 (Sep–Nov)** had the **highest sales**, reaching **7.01 million units**, likely boosted by festive season demand.
- >**Q2 (Dec–Feb)** maintained strong momentum with **6.65 million units** sold.
- >**Q3 (Mar–May)** saw the **lowest sales** at **2.08 million**, hinting at seasonal dips or disruptions.
- >**Q4 (Jun–Aug)** rebounded to **5.04 million units**, marking a solid recovery phase.





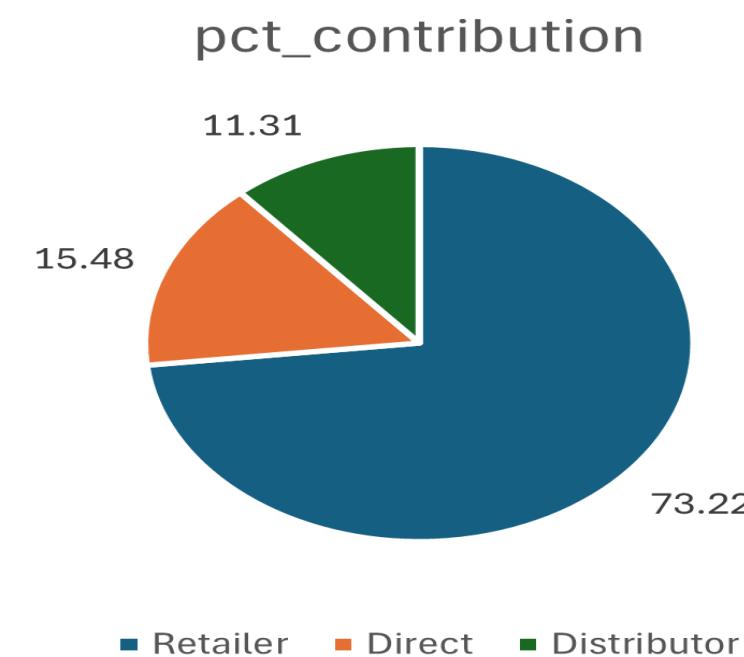
Requests: 9. Which channel helped to bring more gross sales in the fiscal year 2021 and the percentage of contribution?

Request 10

SQL Query

```
WITH sales_FROM_channels AS (
  SELECT
    dc.channel,
    round(SUM(g.gross_price*s.sold_quantity)/1000000,2) AS gross_sales_mln
  FROM fact_sales_monthly s
  JOIN dim_customer dc USING (customer_code)
  JOIN fact_gross_price g USING (Product_code)
  WHERE s.fiscal_year = 2021
  GROUP BY dc.channel)
SELECT
  sfc.channel, gross_sales_mln,
  ROUND((sfc.gross_sales_mln / (SELECT sum(gross_sales_mln)
  FROM sales_FROM_channels))* 100, 2) AS pct_contribution
FROM sales_FROM_channels sfc
ORDER BY gross_sales_mln DESC;
```

VISUALIZATION



OUTPUT

channel	gross_sales_mln	pct_contribution
Retailer	1924.17	73.22
Direct	406.69	15.48
Distributor	297.18	11.31

KEY INSIGHTS

- > **Retailers** make up the biggest part of sales at **73.22%**, showing they're the main way products are sold.
- > **Direct sales** bring in **15.48%**, and there's room to grow by reaching big buyers or businesses.
- > **Distributors** are the smallest group at **11.31%**, which could be a chance to expand into more B2B selling..





Requests: 10. Get the Top 3 products in each division that have a high total sold quantity in the fiscal year 2021?

[Home](#)

SQL Query

```

with product_sales as(select
dp.division,dp.product_code,dp.product,
sum(s.sold_quantity) as total_sold_quantity
from dim_product dp
join fact_sales_monthly s
on dp.product_code = s.product_code
where fiscal_year = 2021
group by dp.division,dp.product_code,dp.product),

Ranked_product as ( select *,
dense_rank() over
(partition by division order by total_sold_quantity desc) as rank_order
from product_sales)

select division, product_code, product, total_sold_quantity,rank_order
from Ranked_product
where rank_order <= 3
order by division,rank_order;

```

OUTPUT

division	product_code	product	total_sold_quantity	rank_order
N & S	A6720160103	AQ Pen Drive 2 IN 1	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

KEY INSIGHTS

-> N & S Division

AQ Pen Drive 2 in 1 leads with **701K units** — far ahead of others.

-> P & A Division

Tight Competition at the Top

The top 3 products are extremely close in sales — AQ Gamers Ms: **428K units**, AQ Maxima Ms: **420K units**, AQ Maxima Ms: **419K units**

→ A difference of just **9K units** separates all three

-> PC Division

AQ Digit dominates top spots

Both 1st and 2nd place products are **AQ Digit variants** — showing strong brand pull and reliability within this segment.

VISUALIZATION

Top 3 Selling Products by Division



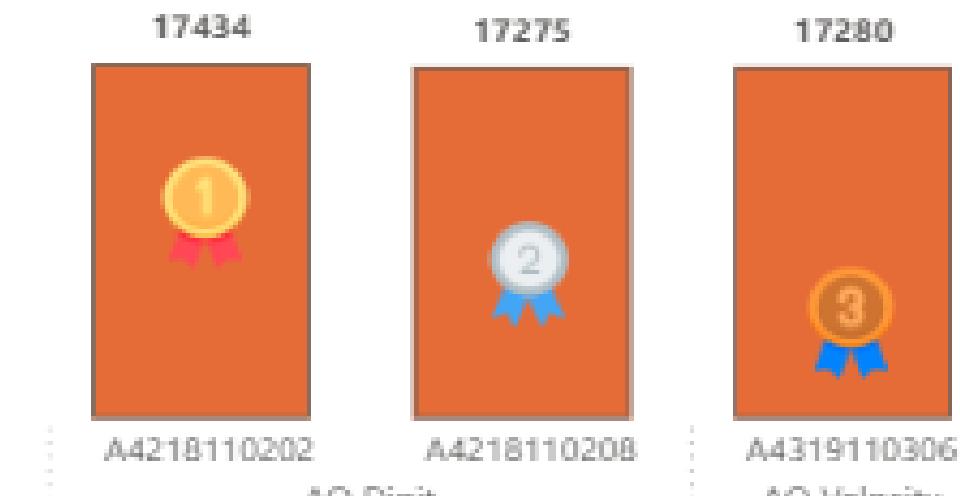
N & S

Top 3 Selling Products by Division



P & A

Top 3 Selling Products by Division



PC