

# Domain: Consumer Goods

## Function: Executive Management

SQL Challenge by: Codebasics  
Presented by - Ayush Vishwakarma

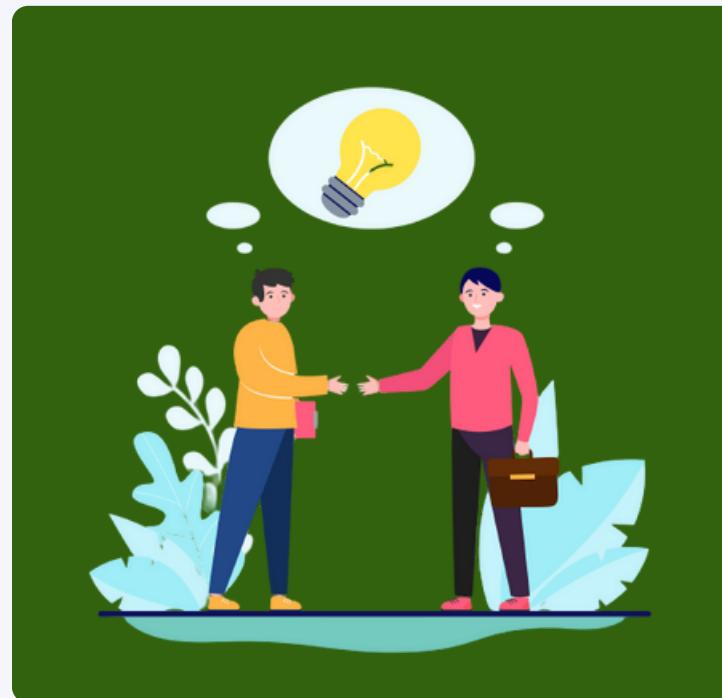


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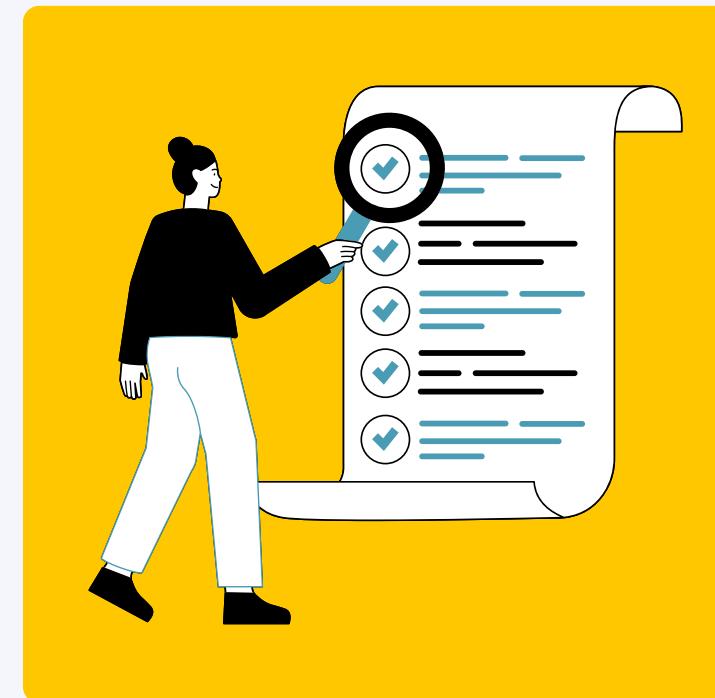
Tools used - Power BI



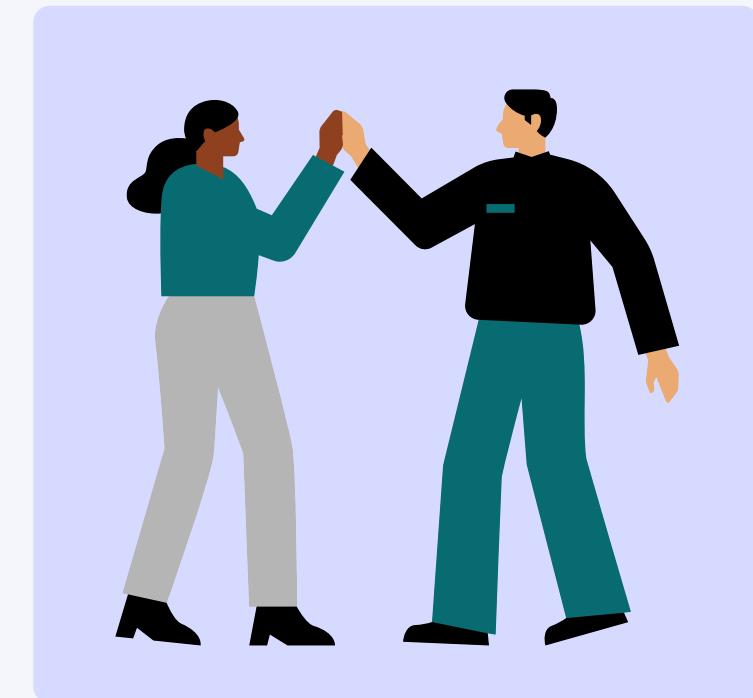
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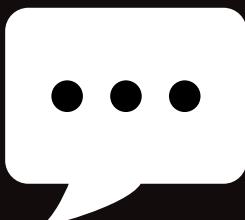


**SQL Challenge**

# PROJECT INTRODUCTION

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

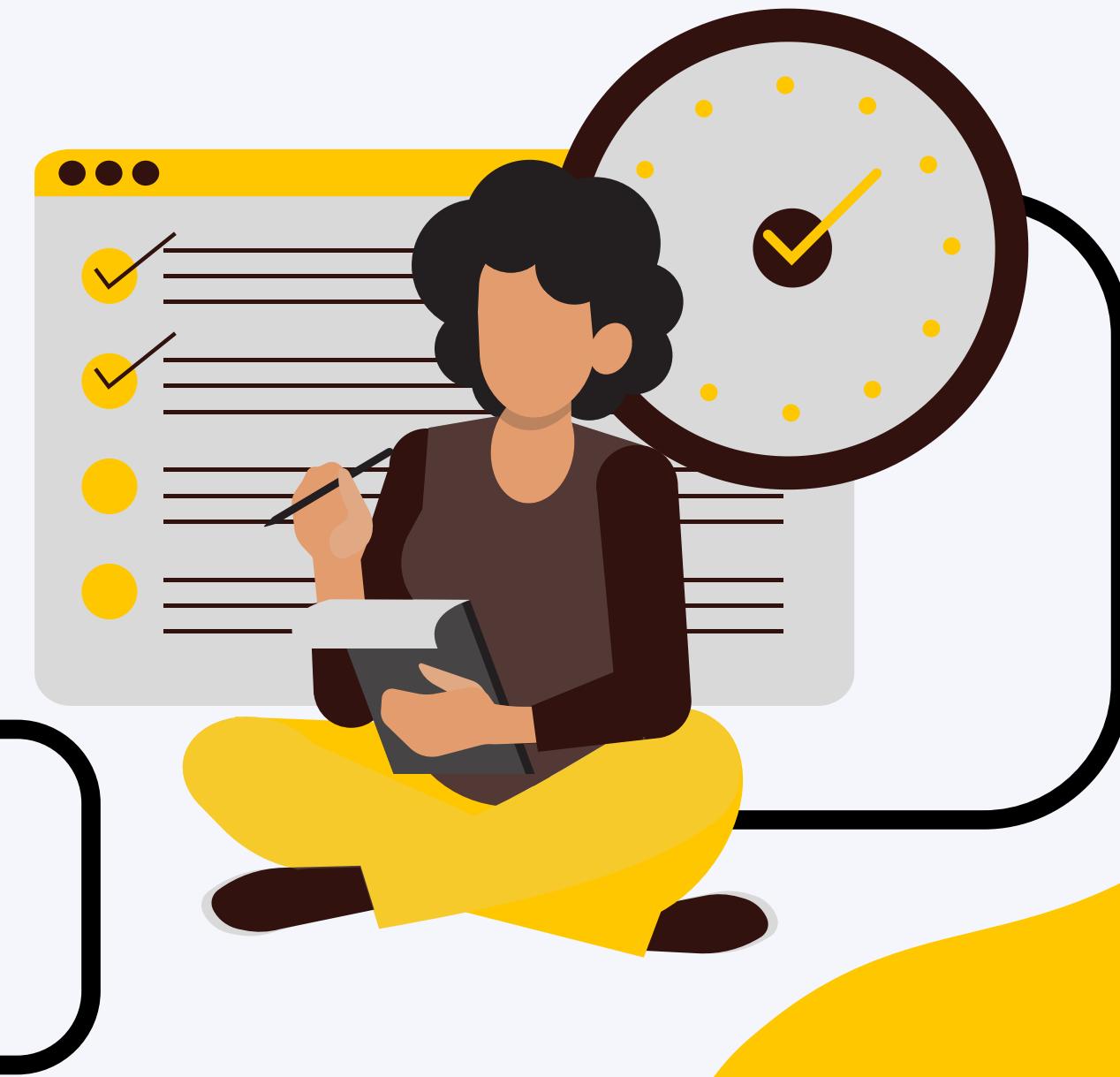
However, the management noticed that they do not get enough insights to make quick and smart data-informed decisions. They want to expand their data analytics team by adding several **junior data analysts**. Tony Sharma, their data analytics director wanted to hire someone who is good at both tech and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



# T A S K

**Imagine yourself as the applicant for this role and perform the following task**

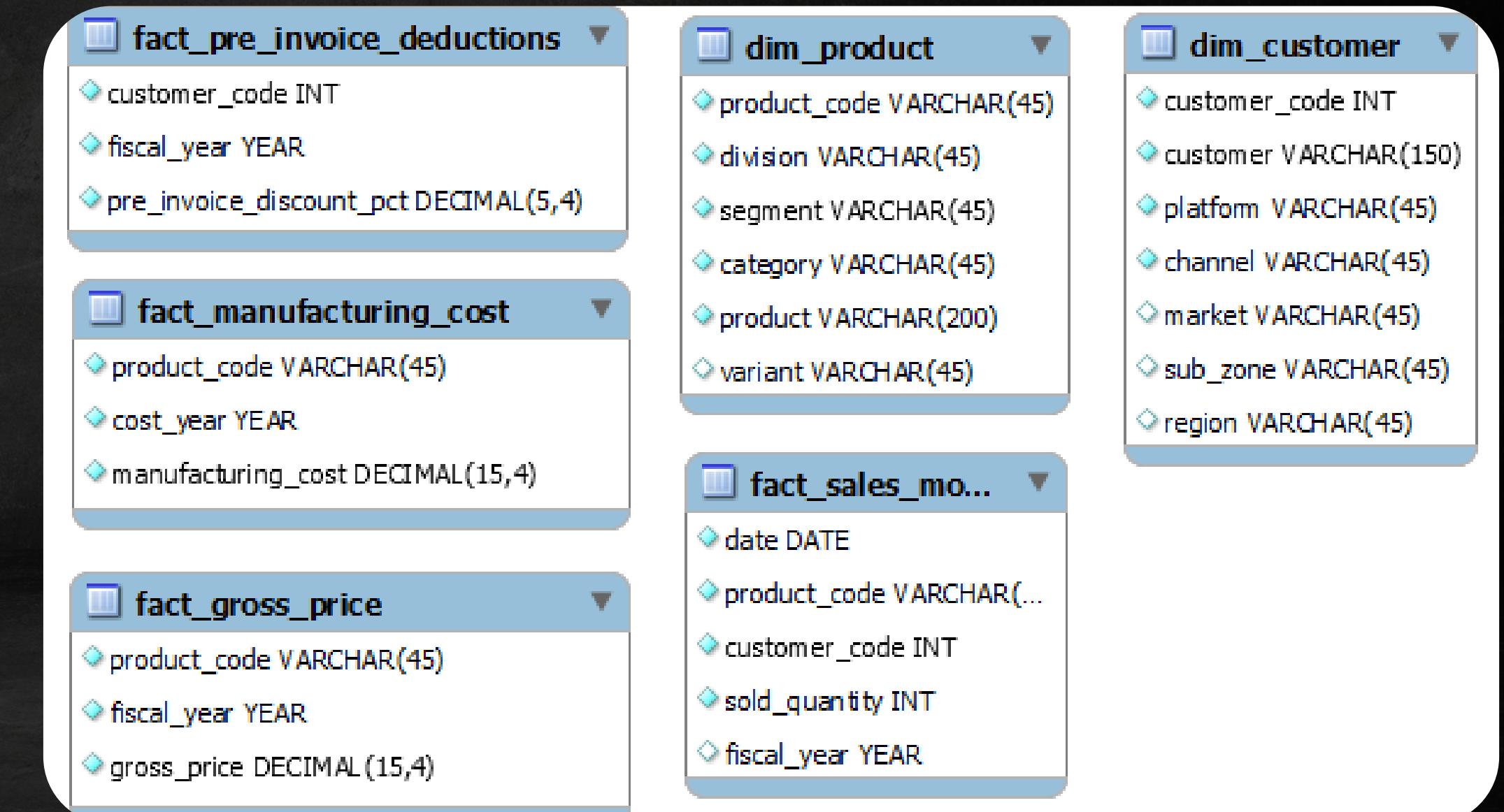
- Check 'ad-hoc-requests.pdf' - there are 10 ad hoc requests for which the business needs insights.
- You need to run a SQL query to answer these requests.
- The target audience of this dashboard is top-level management - hence you need to create a presentation to show the insights.
- Be creative with your presentation, audio/video presentation will have more weightage.



An ER diagram represents the entities (tables) in a database and the relationships between them. The ER diagram for the "gdb023" (atliq\_hw) database would look like this:



# Entity Relationship Diagram



# Codebasics SQL Challenge Requests: 1

- ▶ Provide the list of markets in which customer "Atliq Exclusive" operates its business in the APAC region.
- ▶ Select distinct market, region  
from dim\_customer  
where customer = 'Atliq Exclusive' and region = 'APAC';

Result Grid	
	market
▶	India
	Indonesia
	Japan
	Philippines
	South Korea
	Australia
	Newzealand
	Bangladesh



## Insights

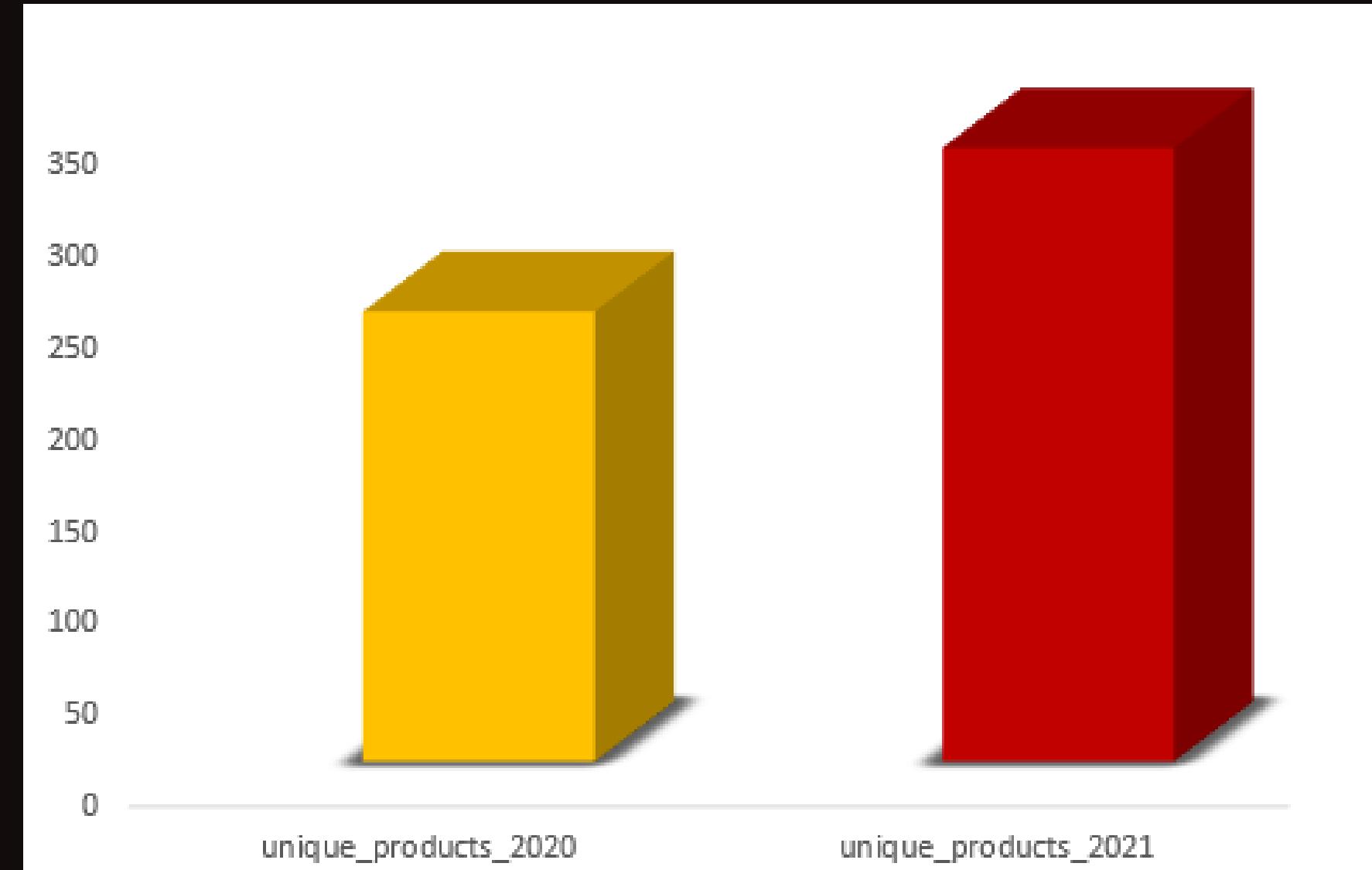
There are 8 countries in which the customer "Atliq Exclusive" operates its business in the APAC region.

# Codebasics SQL Challenge Requests: 2

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

- ▶

```
with t1 as
  (select count(distinct product_code)
   as 'unique_products_2020'
    from fact_sales_monthly
   where fiscal_year = 2020),
t2 as
  (select count(distinct product_code)
   as 'unique_products_2021'
    from fact_sales_monthly
   where fiscal_year = 2021)
select unique_products_2020,
       unique_products_2021,
       Round( 100 *
(unique_products_2021-
unique_products_2020)
/unique_products_2020,2)
as Percentage_increase from t1,t2;
```



	unique_products_2020	unique_products_2021	Percentage_increase
▶	245	334	36.33

## Insights

There are 334 unique products in 2021 and 245 unique products in 2020. 36.33% growth in unique products from 2020 to 2021

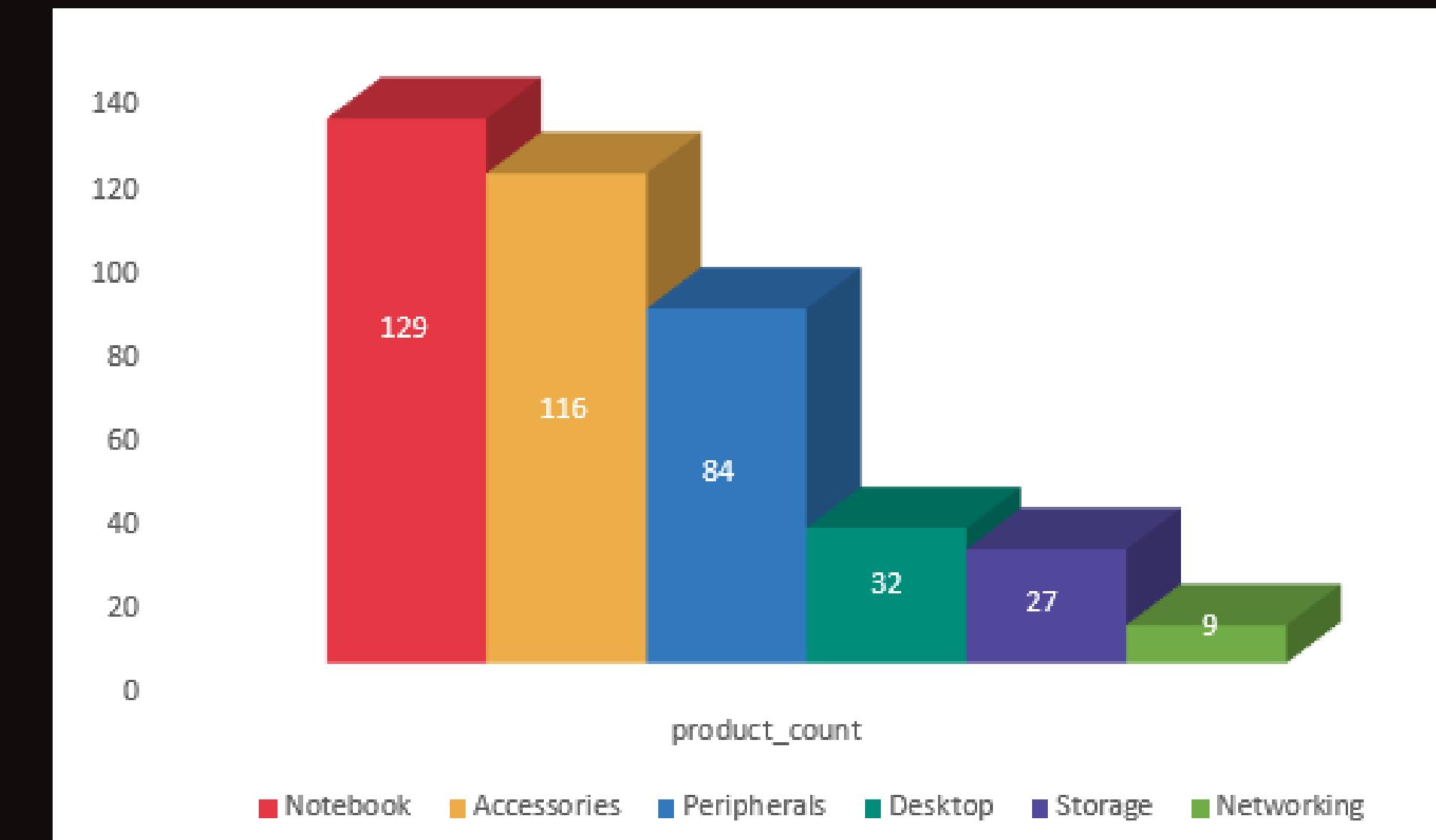
# Codebasics SQL Challenge Requests: 3

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

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

Result Grid | Filter Rows:

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



## Insights

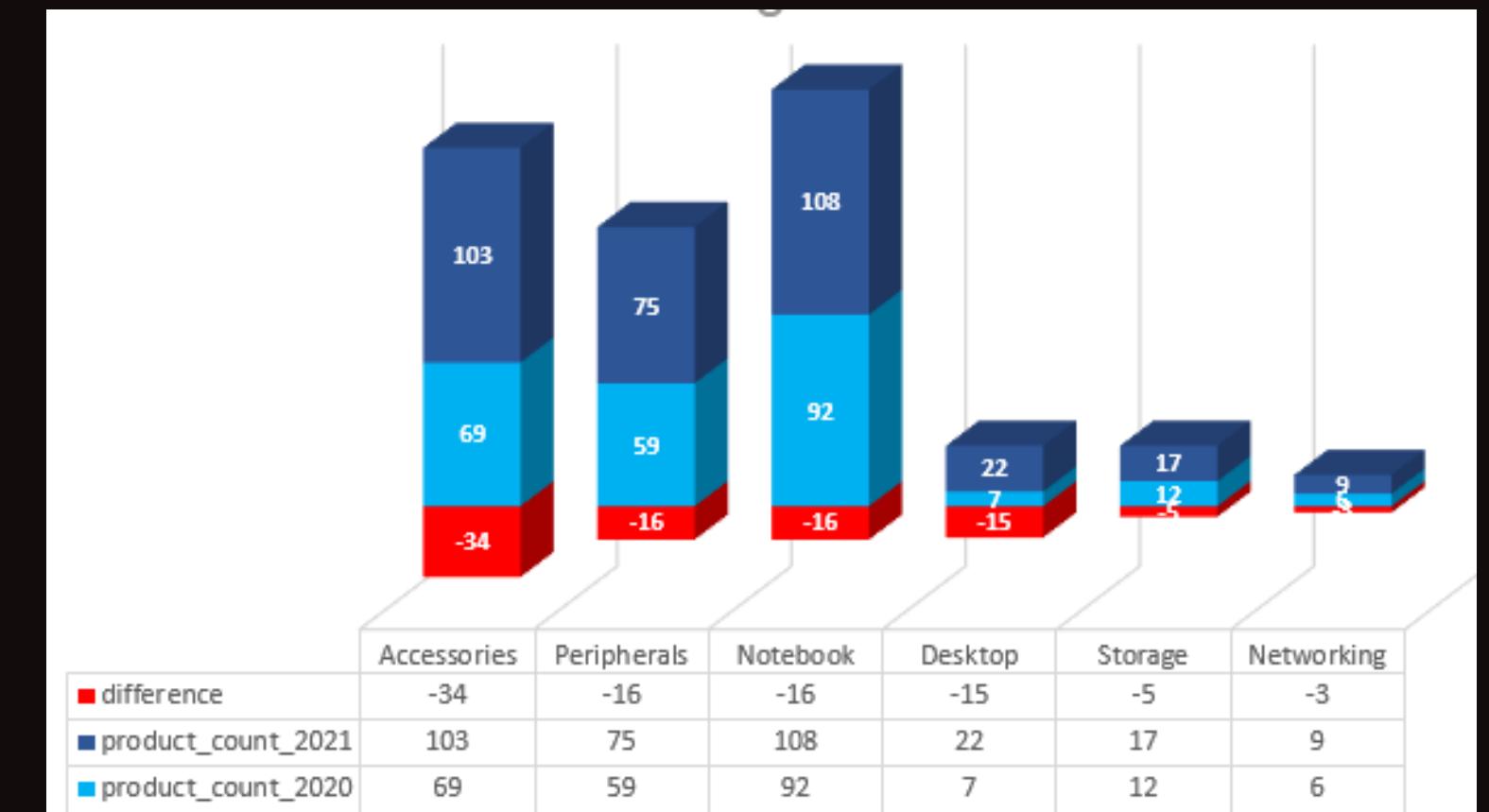
Notebook segment contains the maximum number of unique products count is 129 and the Networking segment contains the maximum number of unique products count is 9.

# Codebasics SQL Challenge Requests: 4

- ▶ Which segment had the most increase in unique products in 2021 vs 2020?
- ▶

```
with t1 as
  (select segment,count( distinct product_code) as
  'product_count_2020'
  from fact_sales_monthly join dim_product using(product_code)
  where fiscal_year = 2020
  group by 1
  order by 2 desc),
t2 as
  (select segment,
  count( distinct product_code) as 'product_count_2021'
  from fact_sales_monthly
  join dim_product using(product_code)
  where fiscal_year = 2021
  group by 1
  order by 2 desc)
select t1.segment,
  product_count_2020 ,
  product_count_2021 ,
  product_count_2021 -product_count_2020 as difference from
t1
join t2 using (segment)
order by 4 desc;
```

	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



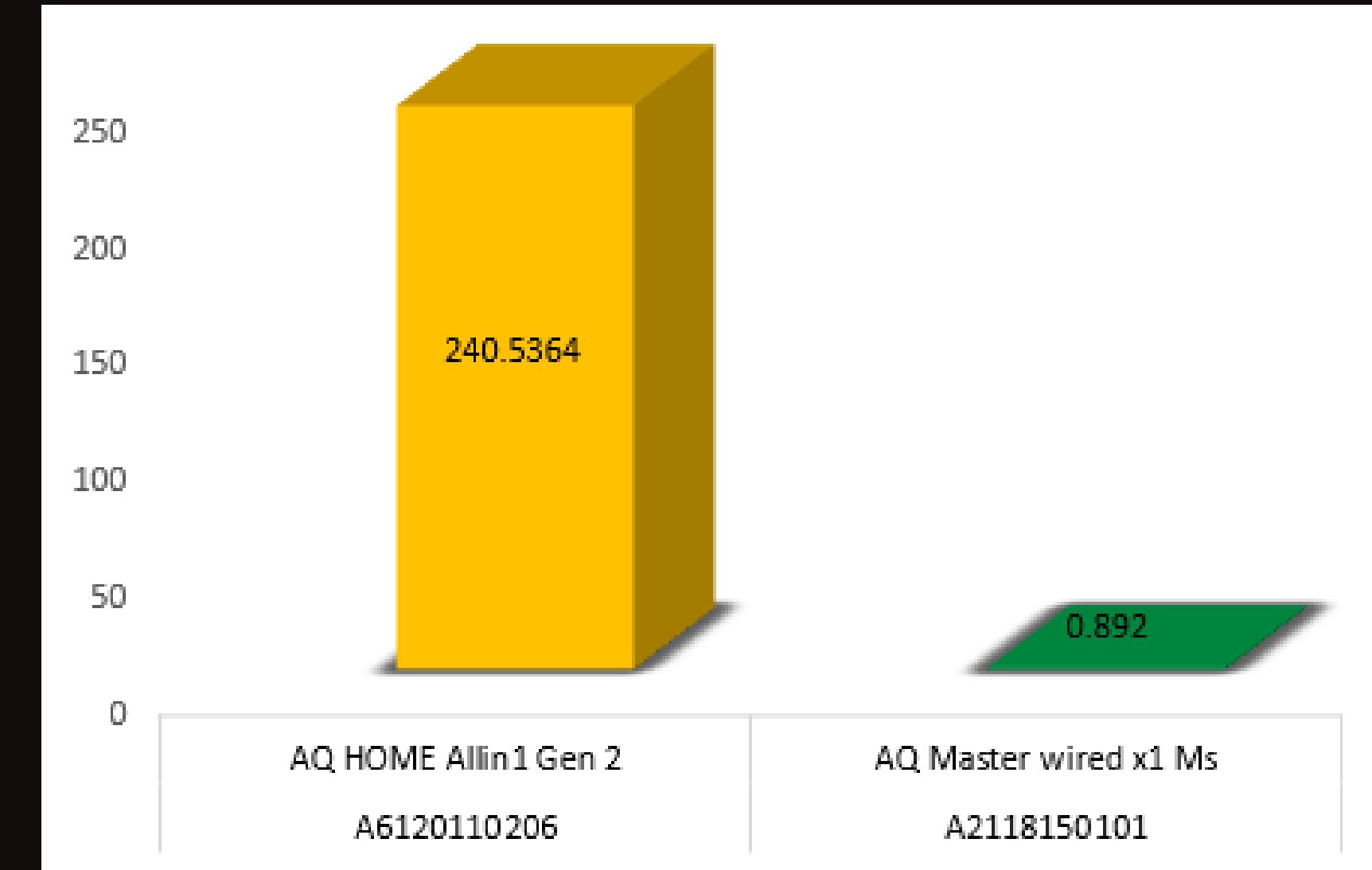
## Insights

Compared to the fiscal year 2020. In 2021 Accessories segment increased its maximum percentage is 38.20% and the Networking segment experienced slower growth ie 3.37%.

# Codebasics SQL Challenge Requests: 5

- ▶ Get the products that have the highest and lowest manufacturing costs.

```
▶ SELECT p.product_code, p.product,
m.manufacturing_cost
FROM fact_manufacturing_cost AS m INNER
JOIN dim_product AS p
ON m.product_code = p.product_code
WHERE m.manufacturing_cost = (SELECT
MAX(manufacturing_cost) FROM
fact_manufacturing_cost)
UNION
SELECT p.product_code, p.product,
m.manufacturing_cost
FROM fact_manufacturing_cost AS m INNER
join dim_product AS p
ON m.product_code = p.product_code
WHERE m.manufacturing_cost = (SELECT
MIN(manufacturing_cost) FROM
fact_manufacturing_cost);
```



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

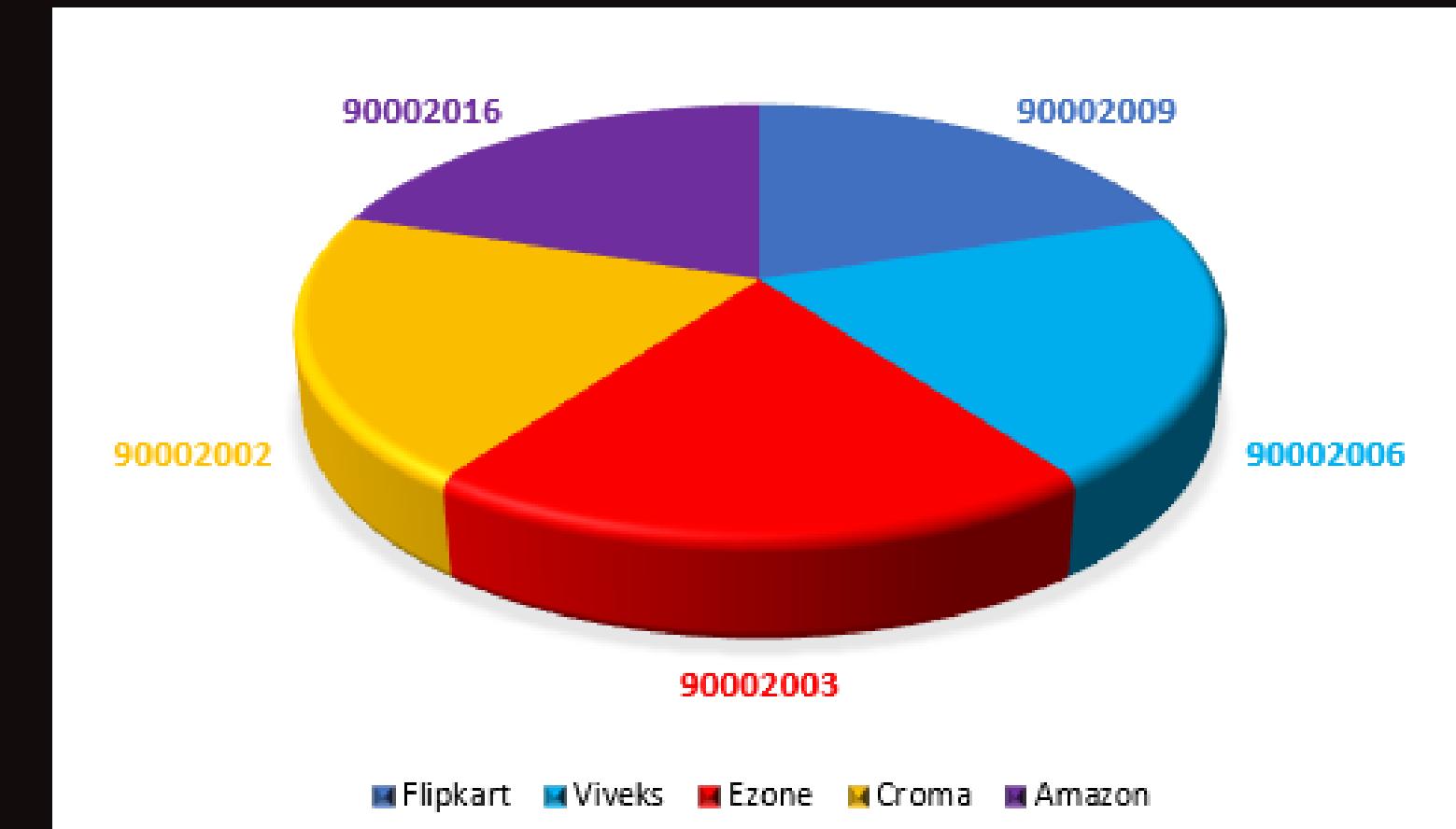
## Insights

AQ HOME Allin1 Gen 2 (A6120110206) product highest manufacturing cost is 240.54 And AQ Master wired x1 Ms (A2118150101) product lowest manufacturing cost is 0.89.

# Codebasics SQL Challenge 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

```
▶ select c.customer, c.customer_code,  
      p.pre_invoice_discount_pct  
    from dim_customer as c  
  JOIN fact_pre_invoice_deductions AS  
  p ON c.customer_code =  
       p.customer_code  
 WHERE p.pre_invoice_discount_pct >  
 (SELECT  
   AVG(pre_invoice_discount_pct) FROM  
   fact_pre_invoice_deductions) AND  
   c.market='India' AND p.fiscal_year =  
   2021  
 ORDER BY p.pre_invoice_discount_pct  
 DESC  
 LIMIT 5;
```



	customer	customer_code	pre_invoice_discount_pct
▶	Flipkart	90002009	0.3083
▶	Viveks	90002006	0.3038
▶	Ezone	90002003	0.3028
▶	Croma	90002002	0.3025
▶	Amazon	90002016	0.2933

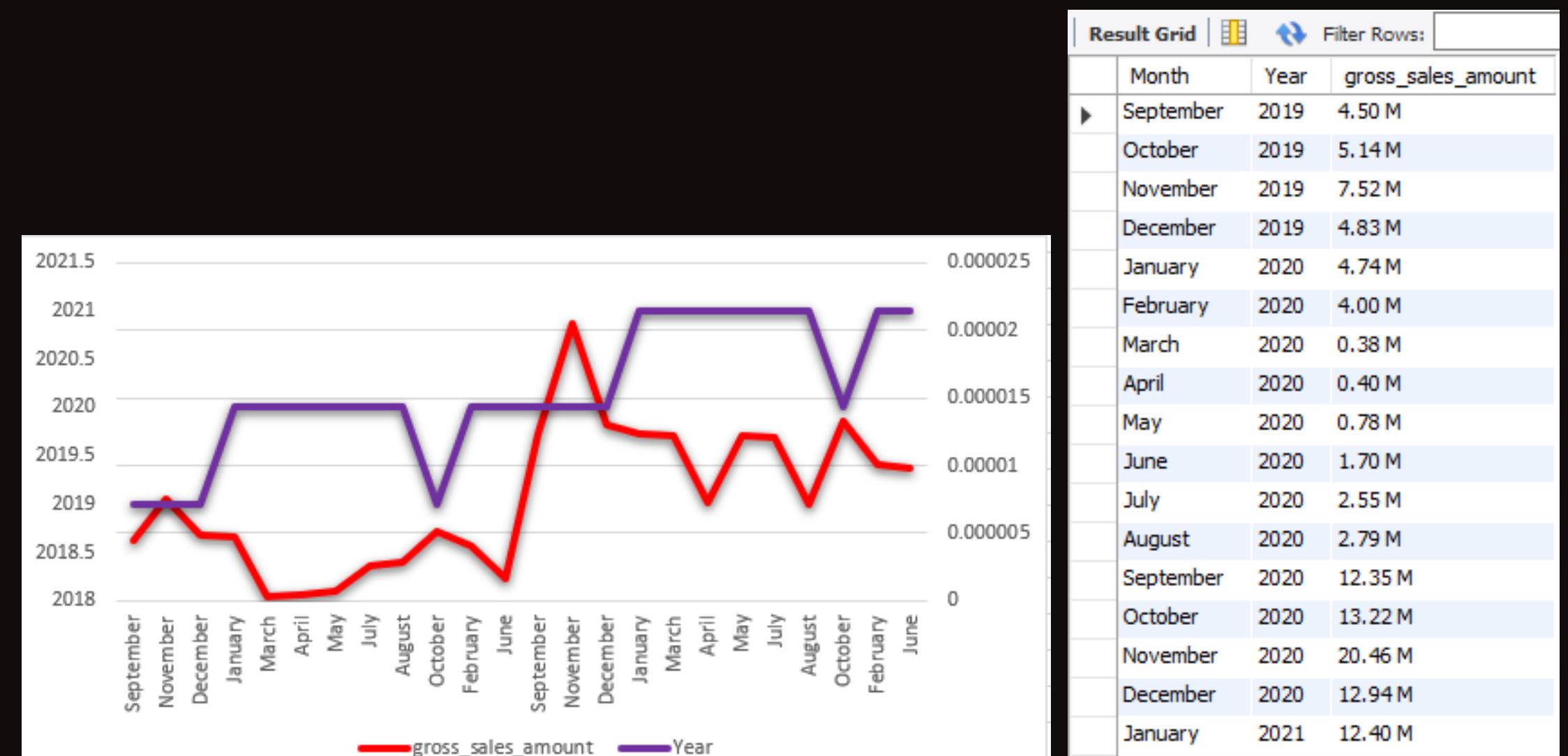
## Insights

Flipkart has the highest pre-invoice discount percentage. Amazon has the lowest pre invoice discount percentage

# Codebasics SQL Challenge 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
- ▶ 

```
Select MONTHNAME(date) as Month,
Year(date) as Year,
concat(round(sum(sold_quantity * gross_price)/1000000,2), ' M') as gross_sales_amount
from fact_sales_monthly
join dim_customer
using(customer_code)
join fact_gross_price
using (product_code,fiscal_year)
where customer = 'Atliq Exclusive'
group by month,year
Order by year;
```



## Insights

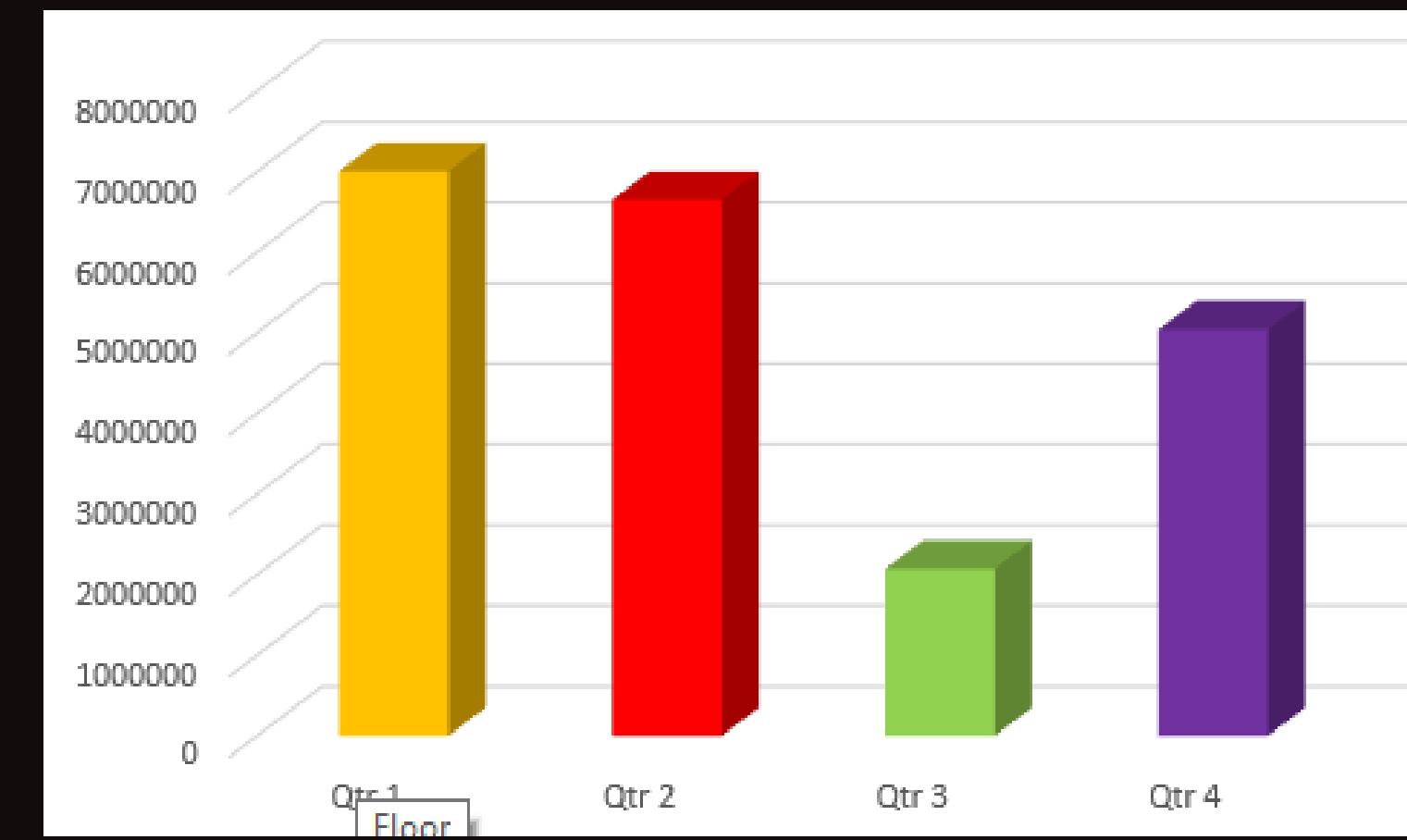
March 2020 shows the lowest gross sales of \$0.38M Fiscal year 2020. Highest gross sales in the month of November 2020.

# Codebasics SQL Challenge Requests: 8

- ▶ In which quarter of 2020, got the maximum total\_sold\_quantity?

```
▶ SELECT  
CASE  
    WHEN MONTH(date) IN (9, 10, 11) THEN  
        'Qtr 1'  
    WHEN MONTH(date) IN (12, 1, 2) THEN  
        'Qtr 2'  
    WHEN MONTH(date) IN (3, 4, 5) THEN  
        'Qtr 3'  
    WHEN MONTH(date) IN (6, 7, 8) THEN  
        'Qtr 4'  
    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;
```

	Quarter	total_sold_quantity
▶	Qtr 1	7005619
	Qtr 2	6649642
	Qtr 4	5042541
	Qtr 3	2075087



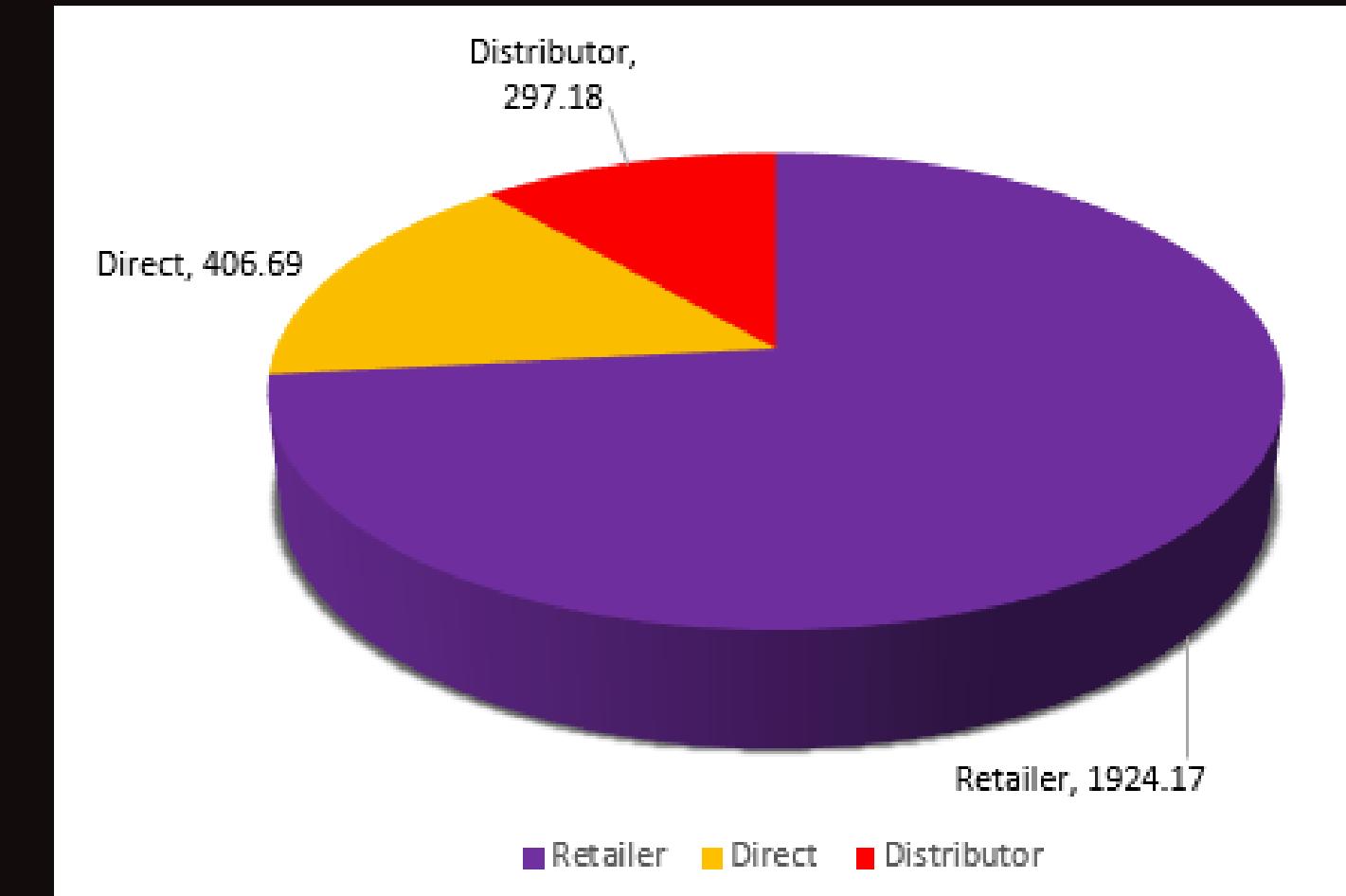
## Insights

The maximum total\_sold\_quantity Quarter of FY-2020 is Q1 ( 7005619 ). The minimum total\_sold\_quantity Quarter of FY-2020 is Q3 ( 2075087 ).

# Codebasics SQL Challenge Requests: 9

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

```
▶ WITH gross_sales_cte AS
(
    SELECT c.channel,
    ROUND(SUM((s.sold_quantity *
    g.gross_price)/1000000),2) AS gross_sales_mln
    FROM fact_sales_monthly AS s
    INNER JOIN fact_gross_price AS g
    ON s.product_code = g.product_code
    INNER JOIN dim_customer AS c
    ON s.customer_code = c.customer_code
    WHERE s.fiscal_year = 2021
    GROUP BY c.channel
    ORDER BY gross_sales_mln DESC
)
    SELECT *,
    gross_sales_mln*100/SUM(gross_sales_mln)
    OVER() AS percent
    FROM gross_sales_cte;
```



Result Grid		Filter Rows:	
	channel	gross_sales_mln	percent
▶	Retailer	1924.17	73.216922
	Direct	406.69	15.475031
	Distributor	297.18	11.308047

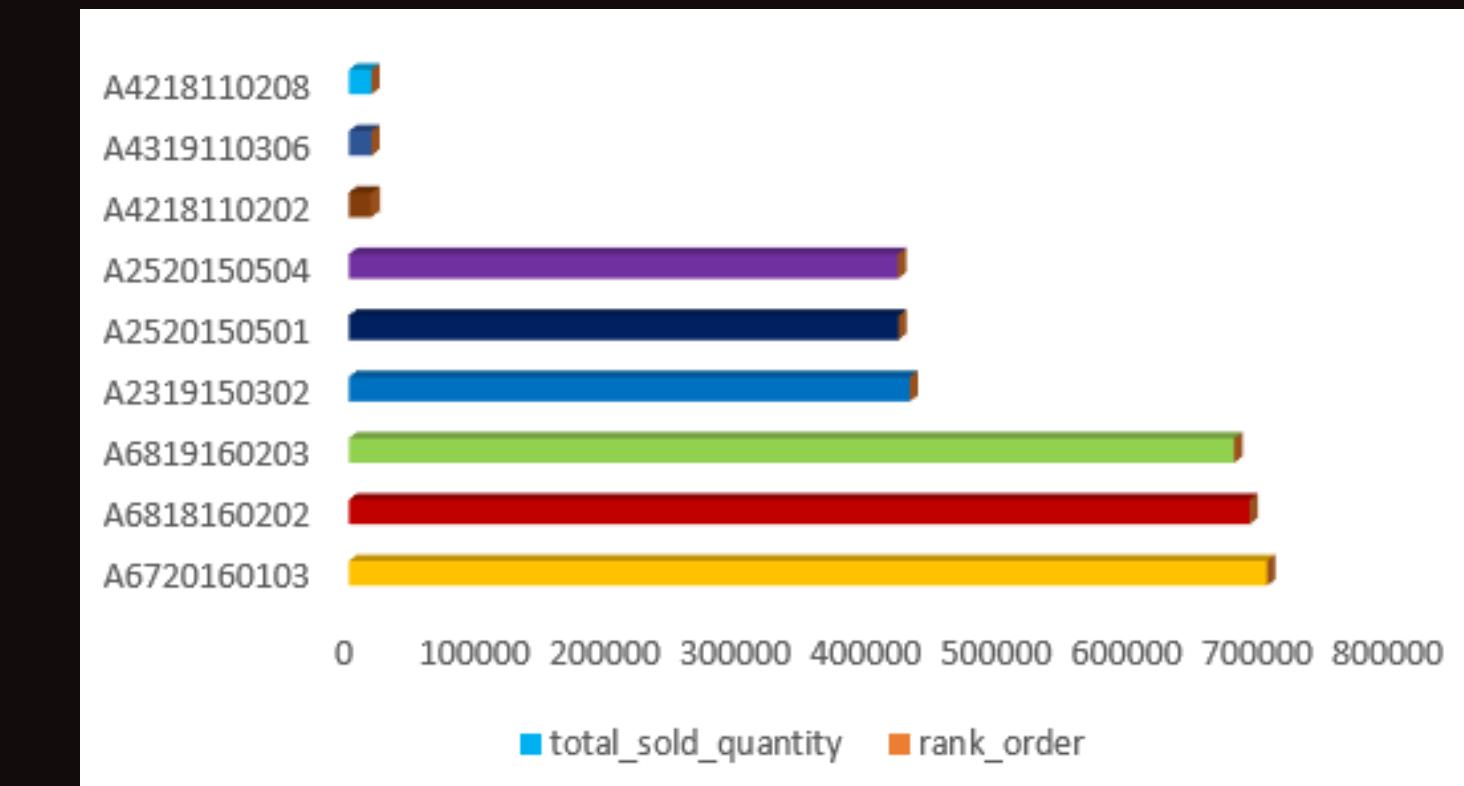
## Insights

Retailer channel helped to bring more gross sales in 2021 and the percentage of contribution is 73.23%.  
The distributor channel has less gross sales in 2021 and the percentage of contribution is 11.30%.

# Codebasics SQL Challenge Requests: 10

- ▶ Get the Top 3 products in each division that have a high total\_sold\_quantity in the fiscal\_year 2021?

```
▶ With division_sales_cte as
  ( select p.division, s.product_code,
    p.product, SUM(s.sold_quantity) as
    total_sold_quantity,
    row_number() OVER (PARTITION BY
    p.division ORDER BY sum(s.sold_quantity)
    DESC) AS rank_order
    from fact_sales_monthly as s
    JOIN dim_product p on s.product_code =
    p.product_code
    where s.fiscal_year = 2021
    GROUP BY p.division, s.product_code,
    p.product
  )
  select division, product_code, product,
  total_sold_quantity, rank_order
  FROM division_sales_cte
  WHERE rank_order <= 3;
```



	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

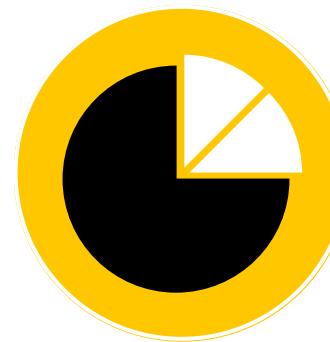
## Insights

In the N&S division, AQ Pen drives 2 IN 1. In the P&A division, Q Gamers MS. In the PC division, AQ Digit product has the highest ranking.

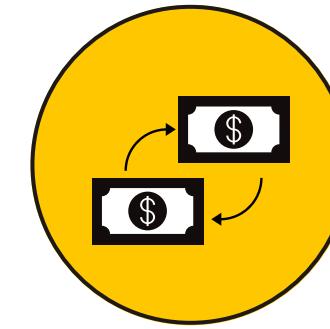
# OVERALL PERFORMANCE



**Atliq Hardware has a strong partnership with Flipkart. Q2 and Q3, there was a decline in total sales, likely influenced by the outbreak of the Covid-19 pandemic.**



**Among the different segments, Notebooks, Accessories, and Peripherals stand out as major contributors to the company's sales**



**One positive highlight was the substantial contribution from the retailer channel, which accounted for an impressive 73.22% of gross sales.**

# Concept Used



- 1 CTE's: Common Table Expression
- 2 Sub Queries
- 3 Window Function
- 4 Multiple JOINS
- 5 Aggregate Functions

# THANK YOU



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