Consumer Goods Ad-Hoc Insights

ATLIQ HARDWARES

Atliq Hardware is a computer hardware and accessory manufacturer.

FISCAL YEAR
SEPTEMBER 2019 - AUGUST 2020
FY 2020
SEPTEMBER 2020 - AUGUST 2021
FY 2021

Objectives :

- **Atliq Hardware** (fictitious corporation) is one of the major computer hardware manufacturers in India, with a strong presence in other nations.
- Nevertheless, the management did note that they do not have sufficient insights to make prompt, wise, and data-informed judgments.
- Plan to expand the data analytics team by adding junior data analysts.
- To assess candidates, Data analytics director, Tony Sharma plans to conduct a SQL challenge to evaluate both tech and soft skills.
- The company seeks insights for 10 ad hoc requests.

Requests

Codebasics SQL Challenge

Requests:

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

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

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

4. 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

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

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. The final output contains these fields,
   - customer_code
   - customer
   - average_discount_percentage

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.
   The final report contains these columns:
   - Month
   - Year
   - Gross sales Amount

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

9. 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

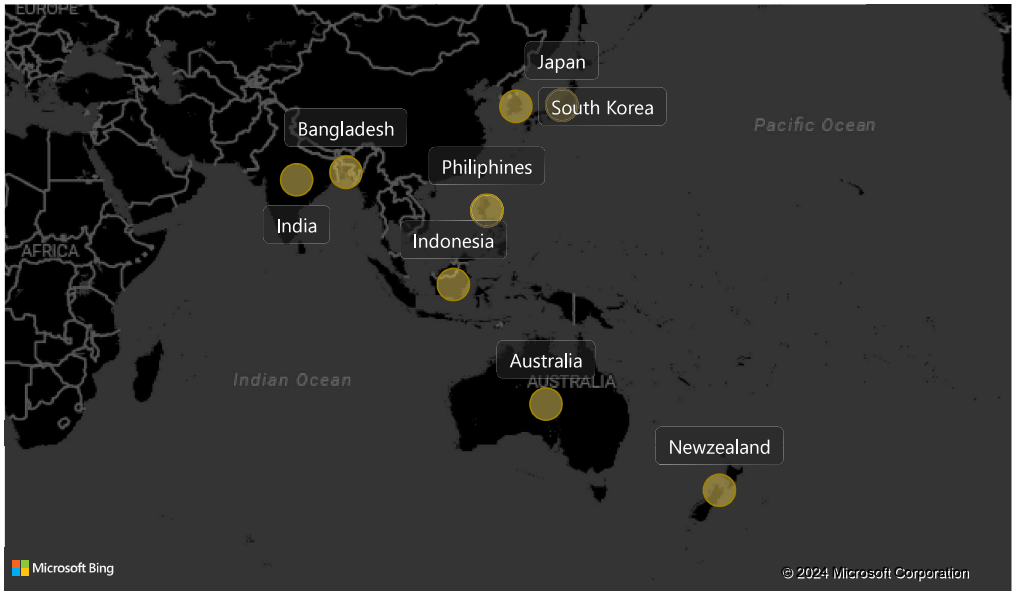
10. Get the Top 3 products in each division that have a high total_sold_quantity in the fiscal_year 2021? The final output contains these fields,
    - division
    - product_code

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

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

market
India
Indonesia
Japan
Philiphines
South Korea
Australia
Newzealand
Bangladesh

Atliq Exclusive's marketing countries in APAC region

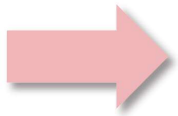


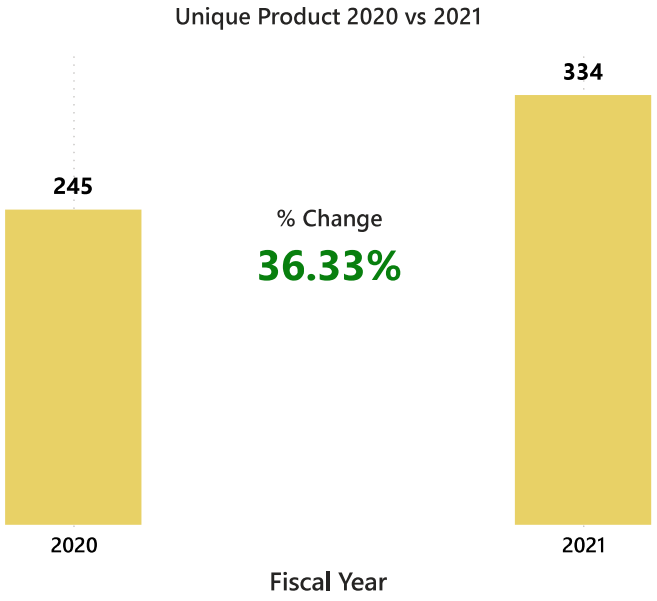
2. What is the percentage of unique product increase in 2021 vs. 2020?
The final output contains these fields : unique_products_2020, unique_products_2021, percentage change.

```sql
WITH CTE1 AS
(SELECT DISTINCT product_code AS unique_products_2020
FROM fact_sales_monthly
WHERE fiscal_year = 2020),
CTE2 AS
(SELECT DISTINCT product_code AS unique_products_2021
FROM fact_sales_monthly
WHERE fiscal_year = 2021),
CTE3 AS
(SELECT COUNT(DISTINCT unique_products_2020) AS unique_products_2020, COUNT(DISTINCT unique_products_2021) AS unique_products_2021
FROM CTE1
CROSS JOIN CTE2)
SELECT unique_products_2020, unique_products_2021,
concat(ROUND(100.0 * (unique_products_2021 - unique_products_2020)/unique_products_2020 , 2), '%') AS percentage_chg
FROM CTE3;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

unique_products_2020	unique_products_2021	percentage_chg
245	334	36.33%

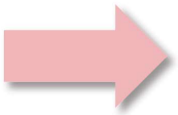


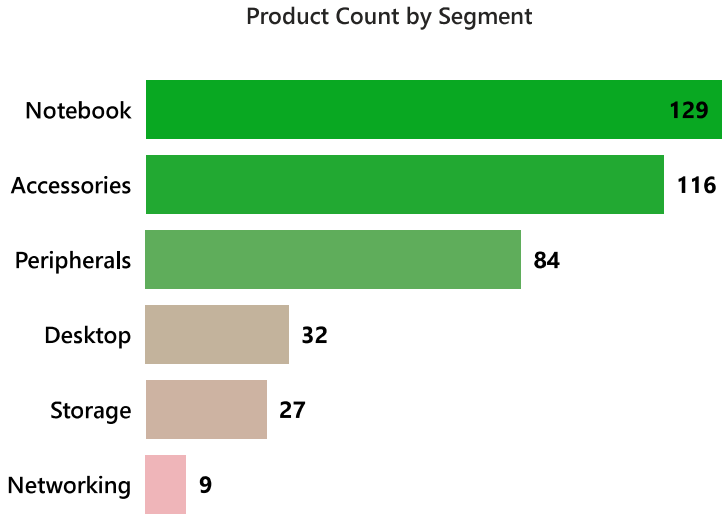


3. Provide a report with all the unique product counts for each segment and sort them in descending order of product counts.
The final output contains 2 fields: segment, product count.

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

Segment	Count
Notebook	129
Accessories	116
Peripherals	84
Desktop	32
Storage	27
Networking	9
Total	397

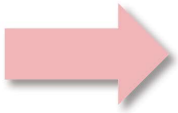




4. Which segment had the most increase in unique products in 2021 vs 2020?
The final output contains these fields: segment, product_count_2020, product_count_2021, difference.

```sql
WITH CTE1 AS
(SELECT a.segment, COUNT(DISTINCT a.product_code) AS product_count_2020
FROM dim_product AS a
LEFT JOIN fact_sales_monthly AS b
ON a.product_code = b.product_code
WHERE b.fiscal_year = 2020
GROUP BY a.segment),
CTE2 AS
(SELECT a.segment, COUNT(DISTINCT a.product_code) AS product_count_2021
FROM dim_product AS a
LEFT JOIN fact_sales_monthly AS b
ON a.product_code = b.product_code
WHERE b.fiscal_year = 2021
GROUP BY a.segment)
SELECT c1.segment, c1.product_count_2020, c2.product_count_2021, c2.product_count_2021 - c1.product_count_2020 AS difference
FROM CTE1 AS c1
JOIN CTE2 AS c2
ON c1.segment = c2.segment;
```

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



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
Total	245	334	89

5. Get the products that have the highest and lowest manufacturing costs.
The final output should contain these fields: product code, product, manufacturing cost.

```sql
WITH CTE1 AS
(SELECT MIN(b.manufacturing_cost) AS min_cost
FROM dim_product AS a
JOIN fact_manufacturing_cost AS b
ON a.product_code = b.product_code),
CTE2 AS
(SELECT MAX(b.manufacturing_cost) AS max_cost
FROM dim_product AS a
JOIN fact_manufacturing_cost AS b
ON a.product_code = b.product_code)
SELECT a.product_code, a.product, b.manufacturing_cost
FROM dim_product AS a
JOIN fact_manufacturing_cost AS b
ON a.product_code = b.product_code
WHERE manufacturing_cost = (SELECT min_cost FROM CTE1)
UNION
SELECT a.product_code, a.product, b.manufacturing_cost
FROM dim_product AS a
JOIN fact_manufacturing_cost AS b
ON a.product_code = b.product_code
WHERE manufacturing_cost = (SELECT max_cost FROM CTE2);
```

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

Highest Manufacturing Cost with Product Id & Product Name

240.54
A6120110206
AQ HOME Allin1 Gen 2

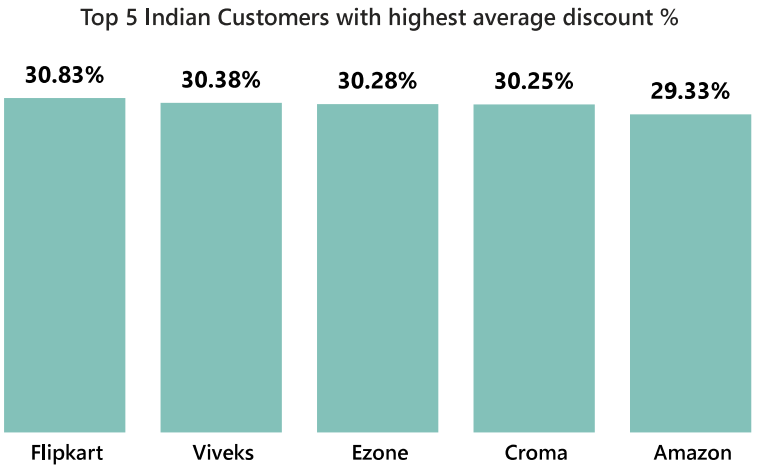
Lowest Manufacturing Cost with Product Id & Product Name

0.89
A2118150101
AQ Master wired x1 Ms

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.
The final output contains these fields: customer code, customer, average discount percentage.

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

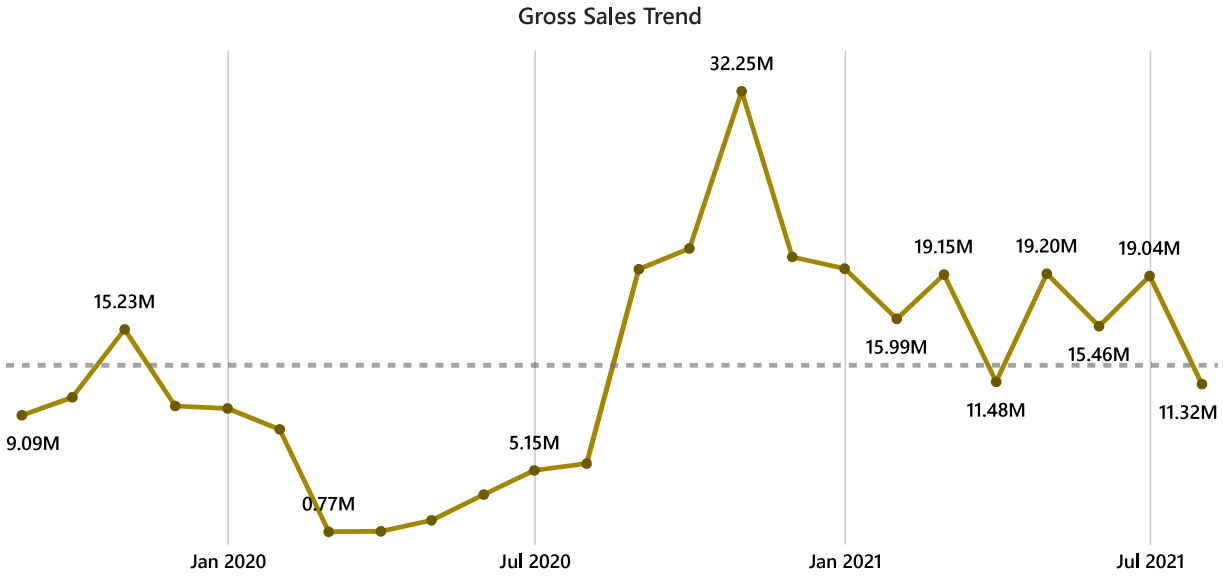
customer_code	customer	average_discount_percentage
90002009	Flipkart	30.83
90002006	Viveks	30.38
90002003	Ezone	30.28
90002002	Croma	30.25
90002016	Amazon	29.33



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.
The final report contains these columns: Month, Year, Gross sales Amount.

```sql
SELECT DATE_FORMAT(b.date, '%M') AS Month, DATE_FORMAT(b.date, '%Y') AS Year, ROUND(SUM(c.gross_price * b.sold_quantity), 2) AS gross_sales
FROM dim_customer AS a
JOIN fact_sales_monthly AS b
ON a.customer_code = b.customer_code
JOIN fact_gross_price AS c
ON b.product_code = c.product_code
WHERE a.customer = 'Atliq Exclusive'
GROUP BY DATE_FORMAT(b.date, '%M'), DATE_FORMAT(b.date, '%Y')
ORDER BY Year;
```

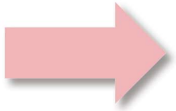
Month	Year	gross_sales
September	2019	9092670.34
October	2019	10378637.60
November	2019	15231894.97
December	2019	9755795.06
January	2020	9584951.94
February	2020	8083995.55
March	2020	766976.45
April	2020	800071.95
May	2020	1586964.48
June	2020	3429736.57
July	2020	5151815.40
August	2020	5638281.83
September	2020	19530271.30
October	2020	21016218.21
November	2020	32247289.79
December	2020	20409063.18

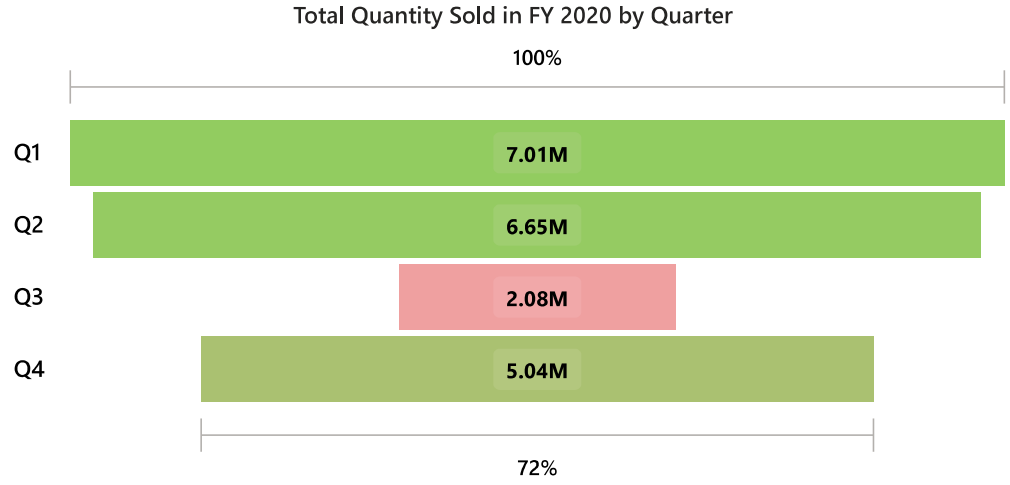


8. In which quarter of 2020, got the maximum total sold quantity? The final output contains these fields: sorted by the total sold quantity, Quarter, total sold quantity.

```sql
SELECT Quarter, SUM(sold_quantity) AS total_sold_quantity
FROM
(SELECT
CASE WHEN MONTH(date) = 9 OR MONTH(date) = 10 OR MONTH(date) = 11 THEN 'Quarter 1'
WHEN MONTH(date) = 12 OR MONTH(date) = 1 OR MONTH(date) = 2 THEN 'Quarter 2'
WHEN MONTH(date) = 3 OR MONTH(date) = 4 OR MONTH(date) = 5 THEN 'Quarter 3'
WHEN MONTH(date) = 6 OR MONTH(date) = 7 OR MONTH(date) = 8 THEN 'Quarter 4'
END AS Quarter, sold_quantity
FROM fact_sales_monthly
WHERE fiscal_year = 2020) AS x
GROUP BY Quarter
ORDER BY total_sold_quantity DESC;
```

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

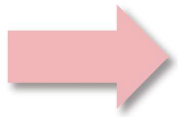


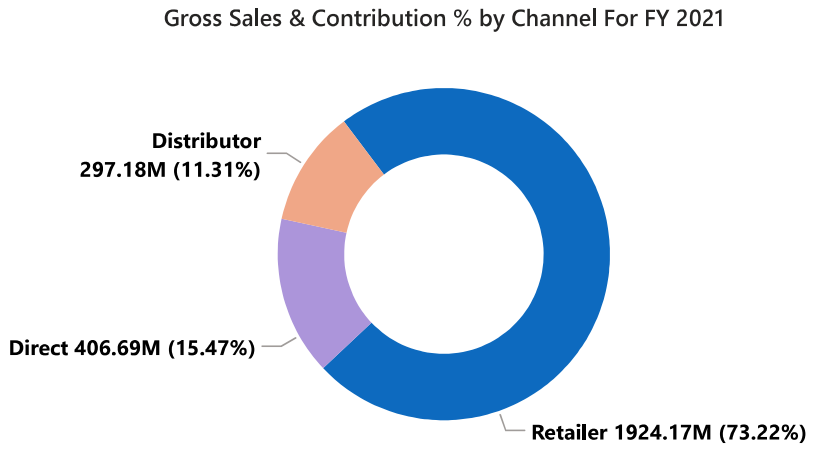


9. Which channel helped to bring more gross sales in the fiscal year 2021 and the percentage of contribution?
The final output contains these fields: channel, gross sales mln, percentage

```sql
WITH CTE AS
(SELECT a.channel, ROUND(SUM(b.sold_quantity * c.gross_price)/1000000, 2) AS gross_sales_mln
FROM dim_customer AS a
JOIN fact_sales_monthly AS b
ON a.customer_code = b.customer_code
JOIN fact_gross_price AS c
ON b.product_code = c. product_code
WHERE b.fiscal_year = 2021
GROUP BY a.channel
ORDER BY gross_sales_mln DESC)
SELECT channel, CONCAT(gross_sales_mln, ' M') AS gross_sales_mln,
CONCAT(ROUND(100 * gross_sales_mln/(SELECT SUM(gross_sales_mln) FROM CTE), 2), ' %') AS percentage
FROM CTE;
```

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





10. 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
SELECT *
FROM
(SELECT a.division, a.product_code, a.product, SUM(b.sold_quantity) AS total_sold_quantity,
DENSE_RANK() OVER(PARTITION BY a.division ORDER BY SUM(b.sold_quantity) DESC) AS rank_order
FROM dim_product AS a
JOIN fact_sales_monthly AS b
ON a.product_code = b.product_code
WHERE b.fiscal_year = 2021
GROUP BY a.division, a.product_code, a.product) AS a
WHERE rank_order < 4;
```

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