Consumer Ad-Hoc Insights

Created By Preeti Priyadarsini

About the Company

Atliq Hardware is a computer hardware and accessory manufacturer.

The company manufactures products under 3 major divisions i.e. Networking & Storage, PC, Peripherals & Accessories.

Atliq Hardware is operational in NA, LATAM, EU, and APAC regions.

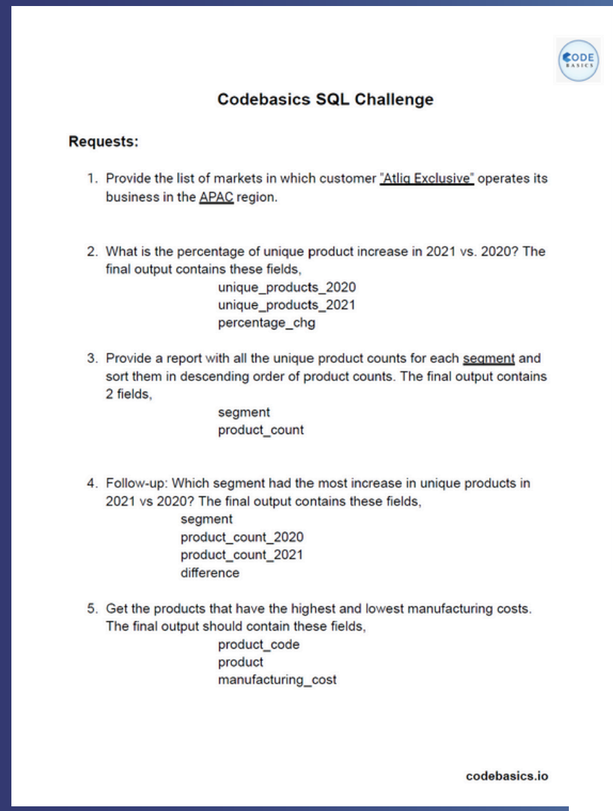
Objectives

- 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 & Tools

MySQL®

Power BI



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

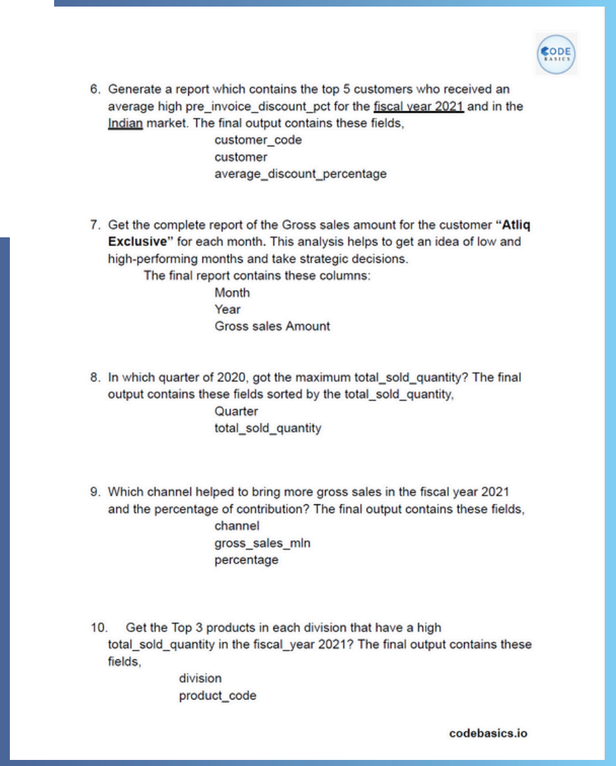
3. Provide a report with all the unique product counts for each segment and sort them in descending order of product counts. The final output contains 2 fields,
   segment
   product_count

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

codebasics.io

10 ad-hoc 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. 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

codebasics.io

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';
```

Atliq Exclusive's markets (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_chg

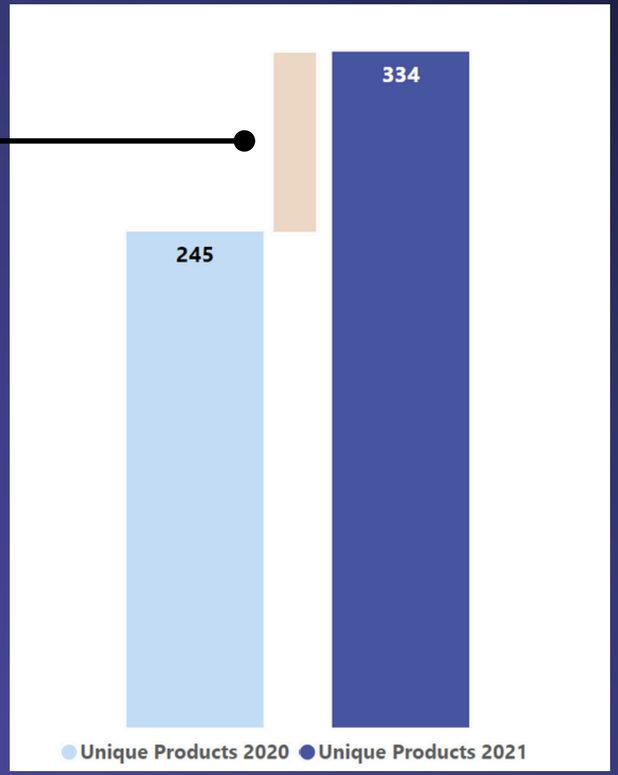
```sql
with cte1 as (
    select count(distinct product_code) as unique_products_2020
    from fact_sales_monthly fsm
    where fiscal_year = '2020'
),

cte2 as (
    select count(distinct product_code) as unique_products_2021
    from fact_sales_monthly fsm
    where fiscal_year = '2021'
)

select
    unique_products_2020,
    unique_products_2021,
    concat(round(((unique_products_2021 -  unique_products_2020)*100)/unique_products_2020,2), ' %') as percentage_chg
from cte1, cte2;
```

Unique Products 2020
vs
Unique Products 2021

Percentage Change
36.33 %

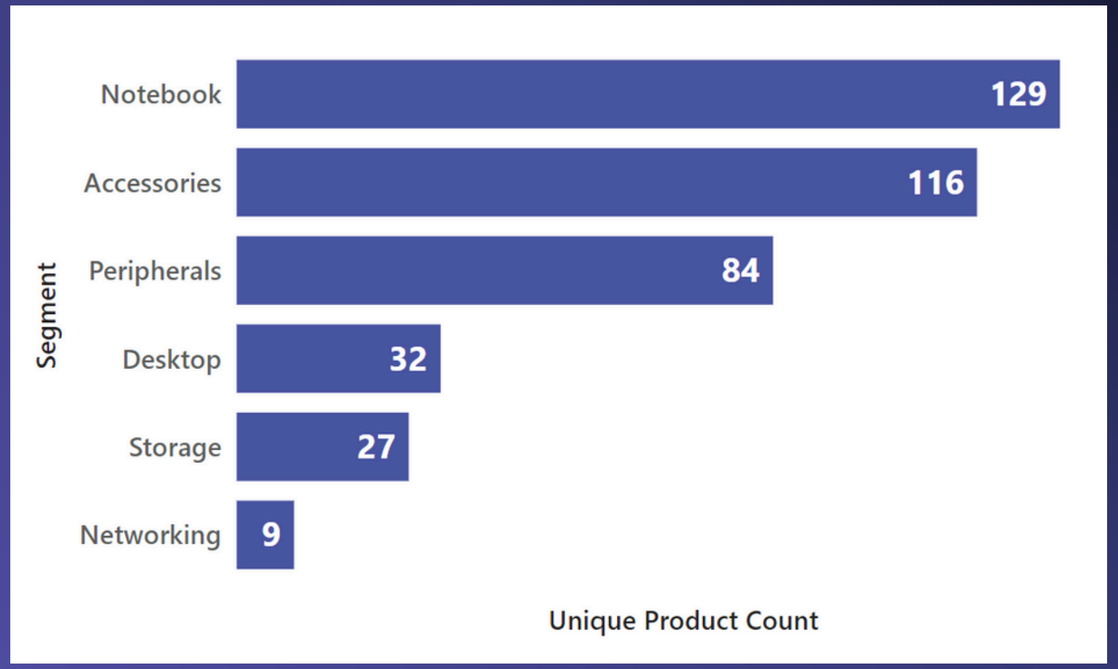


3. Provide a report with all the unique product counts for each segment and sort them in descending order of product counts. The final output contains 2 fields,

- **segment,**
- **product_count**

```sql
select
    segment,
    count(distinct product_code) as product_count
from dim_product
group by segment
order by product_count desc;
```

Unique product counts for each segment



Insights:

- Notebook & Accessories are the most popular segments compared to Peripherals, Desktop, Storage & Networking.
- Notebook, accessories, and peripherals are showing a significant growth in manufacturing.

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**

Unique product difference per segment from 2020 to 2021

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 ↑

```sql
with cte1 as (
    select
        dp.segment,
        count(distinct fsm.product_code) as product_count_2020
    from fact_sales_monthly fsm
    join dim_product dp
    on dp.product_code = fsm.product_code
    where fiscal_year = '2020'
    group by dp.segment
),

cte2 as (
    select
        dp.segment,
        count(distinct fsm.product_code) as product_count_2021
    from fact_sales_monthly fsm
    join dim_product dp
    on dp.product_code = fsm.product_code
    where fiscal_year = '2021'
    group by dp.segment
)

select
    cte1.segment,
    product_count_2020,
    product_count_2021,
    (product_count_2021 - product_count_2020) as difference
from cte1
join cte2
on cte1.segment = cte2.segment
order by difference desc;
```

Insights:

- Accessories had the largest increase in production, with 34 more unique products offered in 2021 than in 2020.

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

- **product_code,**
- **product,**
- **manufacturing_cost**

Products having
Highest & Lowest
Manufacturing costs

Product Code	Product	Manufacturing Cost
A6120110206	AQ HOME Allin1 Gen 2	240.54
A2118150101	AQ Master wired x1 Ms	0.89

```sql
select
    p.product_code,
    p.product,
    m.manufacturing_cost
from dim_product p
join fact_manufacturing_cost m
on m.product_code = p.product_code
where m.manufacturing_cost in
    (
        select max(manufacturing_cost) from fact_manufacturing_cost
    )

union

select
    p.product_code,
    p.product,
    m.manufacturing_cost
from dim_product p
join fact_manufacturing_cost m
on m.product_code = p.product_code
where m.manufacturing_cost in
    (
        select min(manufacturing_cost) from fact_manufacturing_cost
    );
```

Insights:

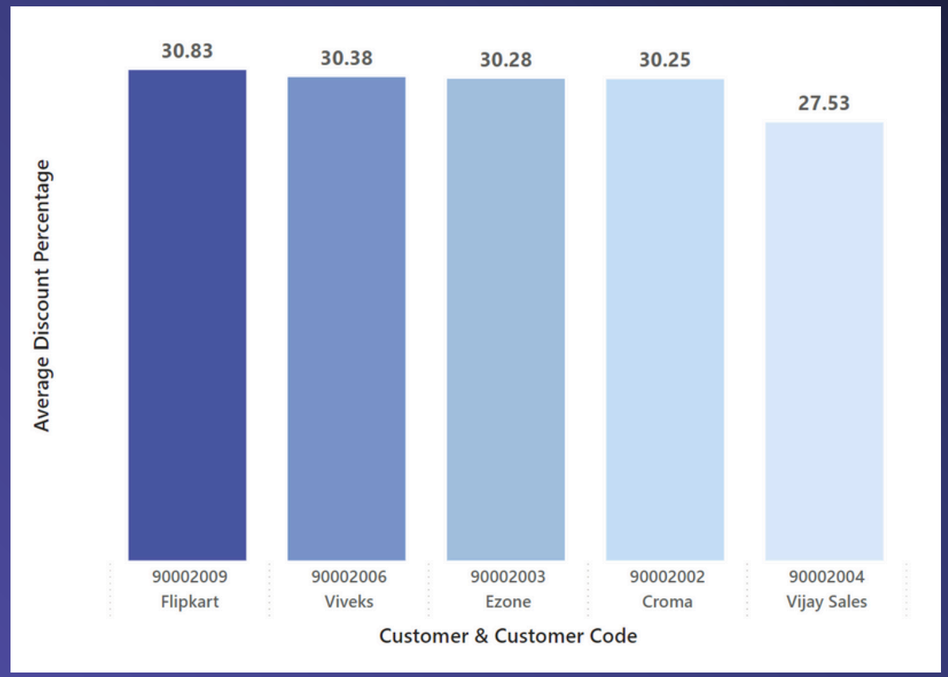
- Mouse: AQ Master wired x1 Ms has the lowest manufacturing cost.
- Personal Desktop: AQ Home Allin1 Gen2 has the highest manufacturing cost.

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**

```sql
select
    dc.customer,
    dc.customer_code,
    round(avg(pre_invoice_discount_pct)*100,2) as average_discount_percentage
from fact_pre_invoice_deductions pnv
join dim_customer dc
on dc.customer_code = pnv.customer_code
where fiscal_year = '2021' and market = 'India'
group by dc.customer
order by average_discount_percentage desc
limit 5;
```

Top 5 Indian customers with highest average discount % for FY 2021



Insights:

- The largest average pre-invoice discount was given to Flipkart.
- The least average pre-invoice discount was given to Amazon.

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(s.date, '%b') as month,
    s.fiscal_year as year,
    concat(round(sum(gp.gross_price * s.sold_quantity)/1000000,2), ' M') as gross_sales_amount
from fact_gross_price gp
join fact_sales_monthly s
on
    gp.product_code = s.product_code and
    gp.fiscal_year = s.fiscal_year
join dim_customer dc
on dc.customer_code = s.customer_code
where customer = 'Atliq Exclusive'
group by month, year;
```

FY 2020

FY 2021

Month	Year	Gross Sales Amount
Sep	2020	4.50 M
Oct	2020	5.14 M
Nov	2020	7.52 M
Dec	2020	4.83 M
Jan	2020	4.74 M
Feb	2020	4.00 M
Mar	2020	0.38 M
Apr	2020	0.40 M
May	2020	0.78 M
Jun	2020	1.70 M
Jul	2020	2.55 M
Aug	2020	2.79 M
Sep	2021	12.35 M
Oct	2021	13.22 M
Nov	2021	20.46 M
Dec	2021	12.94 M
Jan	2021	12.40 M
Feb	2021	10.13 M
Mar	2021	12.14 M
Apr	2021	7.31 M
May	2021	12.15 M
Jun	2021	9.82 M
Jul	2021	12.09 M
Aug	2021	7.18 M

M = million

Insights:

- The highest gross sales amount for both the fiscal years is in November.
- The lowest gross sales amount for FY 2020 is in March whereas for FY 2021 is in August.

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
with cte as (
    select
        date,
        sum(sold_quantity) as total_sold_qty,
        fiscal_year,
        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'
            else 'Q4'
        end as fiscal_quarter
    from fact_sales_monthly
    where fiscal_year = 2020
    group by date
)

select
    fiscal_quarter,
    sum(total_sold_qty) as total_sold_quantity
from cte
group by fiscal_quarter
order by total_sold_quantity desc
```

Total sold quantity in FY 2020 by quarter

Quarter	Total Sold Quantity
Q1	7005619
Q2	6649642
Q4	5042541
Q3	2075087

Insights:

- In Quarter 1 maximum quantity were sold.
- Quarter 3 saw the lowest total sold quantity.

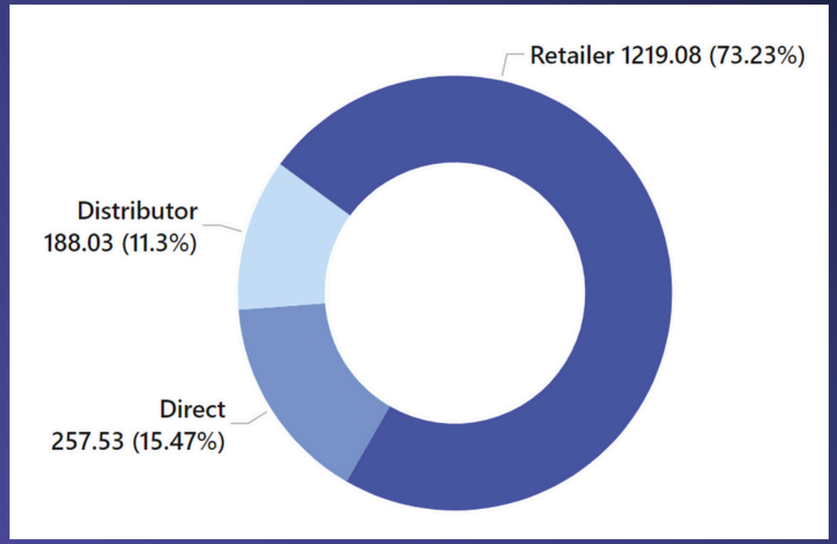
9. Which channel helped to bring more gross sales in the fiscal year 2021 and the percentage of contribution? The final output contains these fields,

- **channel,**
- **gross_sales_mln,**
- **percentage**

```sql
with cte as (
    select
        c.channel,
        round((sum(p.gross_price * s.sold_quantity))/1000000,2) as gross_sales_mln
    from dim_customer c
    join fact_sales_monthly s
    on s.customer_code = c.customer_code
    join fact_gross_price p
    on
        p.product_code = s.product_code and
        p.fiscal_year = s.fiscal_year
    where s.fiscal_year = 2021
    group by c.channel
)

select
    channel,
    gross_sales_mln,
    concat(round((gross_sales_mln * 100)/(select sum(gross_sales_mln) from cte),2), ' %') as percentage
from cte
order by gross_sales_mln desc
```

Gross sales & contribution % by channels for FY 2021



Insights:

- The channel Retailer bought more gross sales with 73.23 % in FY 2021 followed by Direct and Distributor.
- Distributor channel made the least sales contribution with 11.3 %.

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
with cte as (
    select
        p.division,
        p.product_code,
        concat(p.product, ' - ', p.variant) as 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 dim_product p
    join fact_sales_monthly s
    on s.product_code = p.product_code
    where s.fiscal_year = 2021
    group by p.division, p.product_code, p.product
)

select
    division,
    product_code,
    product,
    total_sold_quantity,
    rank_order
from cte
where rank_order <= 3
```

Top 3 Products in each Division

Division	Product Code	Product	Total Sold Quantity	Rank Order
N & S	A6720160103	AQ Pen Drive 2 IN 1 - Premium	701373	1
N & S	A6818160202	AQ Pen Drive DRC - Plus	688003	2
N & S	A6819160203	AQ Pen Drive DRC - Premium	676245	3
P & A	A2319150302	AQ Gamers Ms - Standard 2	428498	1
P & A	A2520150501	AQ Maxima Ms - Standard 1	419865	2
P & A	A2520150504	AQ Maxima Ms - Plus 2	419471	3
PC	A4218110202	AQ Digit - Standard Blue	17434	1
PC	A4319110306	AQ Velocity - Plus Red	17280	2
PC	A4218110208	AQ Digit - Premium Misty Green	17275	3

Insights:

- Every division has a product with different variants that appears twice in the top three products by division list.

Thank You For Watching!

x