Consumer Ad-Hoc Insights

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Project Scenario

01

AltiQ Hardware

Leading Indian computer hardware manufacturer operating in 27 markets across world

02

Need

Executives required quick, ad-hoc insights from large datasets.

03

Project Objective

Deliver real-time, data-driven insights that enable leadership to identify trends, evaluate performance, and optimize operations.

04

Approach

Queried databases using SQL and present insights with power BI visuals.

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

SQL Query and Output

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

market
India
Indonesia
Japan
Philiphines
South Korea
Australia
Newzealand
Bangladesh

Power BI Visual

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

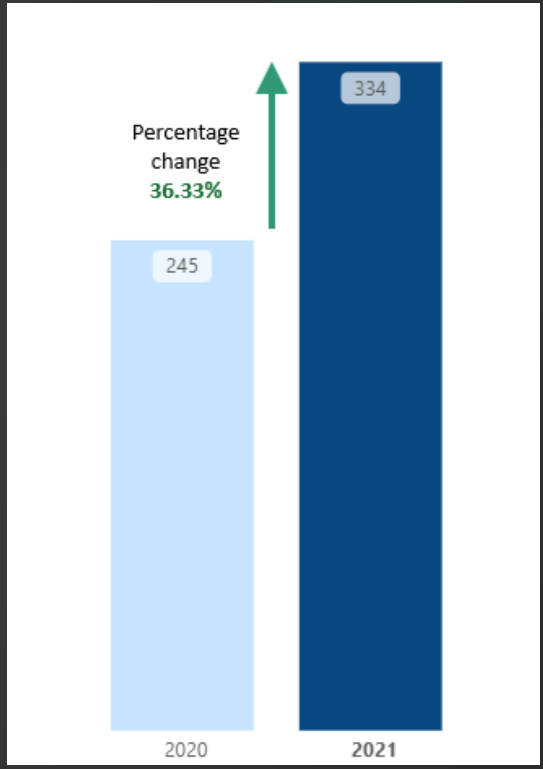
The final output contains these fields.

- unique_products_2020
- unique_products_2021
- percentage_chg

SQL Query and Output

```sql
with CTE1 AS (
    Select
     Count(distinct(product_code)) AS unique_product,
     fiscal_year
    from fact_sales_monthly
    where fiscal_year IN (2020, 2021)
    group by fiscal_year
),
CTE2 AS (
    select
    (select unique_product from CTE1 where fiscal_year = 2020) AS unique_product_2020,
    (select unique_product from CTE1 where fiscal_year = 2021) AS unique_product_2021
)
Select
    unique_product_2020,
    unique_product_2021,
    Round((unique_product_2021-unique_product_2020)*100/unique_product_2020, 2) AS percentage_chg
from CTE2;
```

unique_product_2020	unique_product_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.

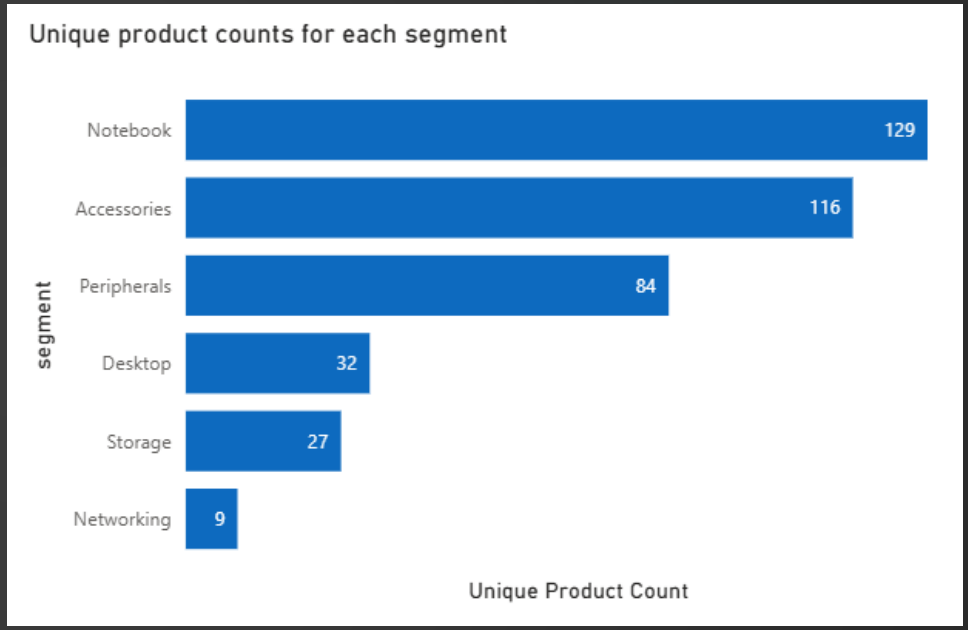
The final output contains these fields.

- Segment
- Product_count

SQL Query and Output

```sql
Select
    segment,
    Count(distinct(product_code)) AS product_count
from dim_product
group by segment
order by product_count Desc;
```

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



Insights:

- Notebook & Accessories dominate with the highest product counts.
- Peripherals have moderate presence, while Desktop, Storage & Networking lag behind with limited offerings.

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
   - Products_count_2021
   - Difference

SQL Query

```sql
With CTE1 AS (
    select *
    from dim_product
    join fact_sales_monthly
    using(product_code)
    where fiscal_year IN (2020, 2021)
)
Select
    segment,
    count(distinct case when fiscal_year=2020 then product_code END) AS product_count_2020,
    Count(distinct case when fiscal_year=2021 then product_code END) AS product_count_2021,
    count(distinct case when fiscal_year=2021 then product_code END)
    -
    count(distinct case when fiscal_year=2020 then product_code END) AS difference
from CTE1
group by segment
order by difference desc;
```

Segment	Unique_Products_2020	Unique_Products_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:

- Accessories led the growth with +34 products, showing the strongest expansion.
- Notebook, Peripherals, and Desktop saw moderate gains, while Storage and Networking grew only slightly.

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 Query

```
With CTE1 AS (
    Select p.product_code, product, manufacturing_cost,
        cost_year
    from dim_product p
    join fact_manufacturing_cost m
    using (product_code)
)
(select product_code, product, manufacturing_cost
from CTE1
order by manufacturing_cost DESC
limit 1)
union
(select product_code, product, manufacturing_cost
from CTE1
order by manufacturing_cost asc
limit 1);
```

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

Insights:

- AQ Master wired x1 Ms (Mouse) has the lowest manufacturing cost at 0.89.
- AQ Home Allin1 Gen 2 (Personal Desktop) has the highest manufacturing cost at 240.54.

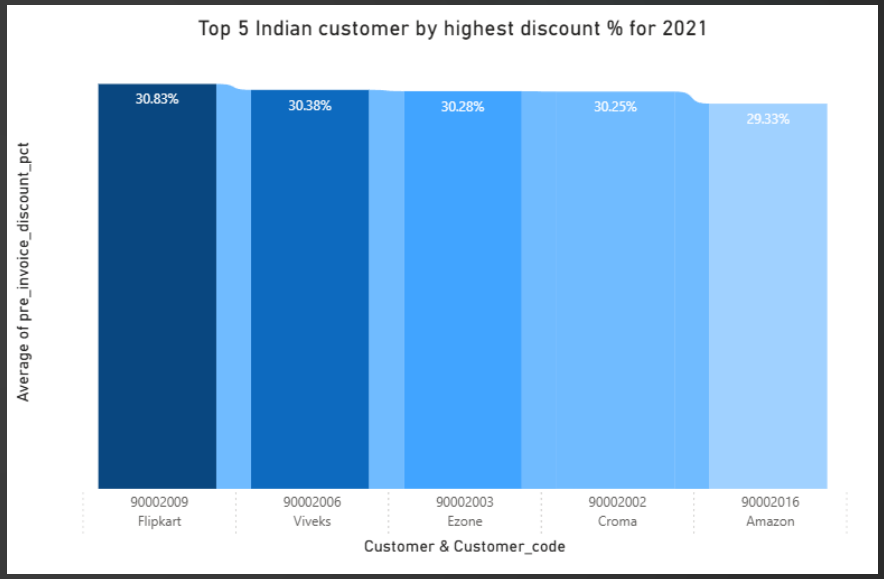
6. Generate a report which contains the top 5 customers who received an average high pre_invoice_discount_pct for the fiscal year 2021 and in the Indian market.
The final output contains these fields,

- Customer_code
- Customer
- Average_discount_percentage

SQL Query and Output

```
Select c.customer_code, c.customer,
    Round(avg(d.pre_invoice_discount_pct),4)
    as average_discount_percentage
from dim_customer c
join fact_pre_invoice_deductions d
USING (customer_code)
where market = 'India' AND fiscal_year = 2021
group by c.customer_code, c.customer
order by average_discount_percentage desc
limit 5;
```

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



Insights:

- Flipkart received the highest average pre-invoice discount at 30.83%.
- Amazon received the lowest among the top 5 at 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 Query

```sql
SELECT
    YEAR(ADDDATE(date, INTERVAL 4 MONTH)) AS Year,
    MONTH(ADDDATE(date, INTERVAL 4 MONTH)) AS Month,
    CONCAT(ROUND(SUM(p.gross_price*s.sold_quantity)/1000000,2), " ", 'M')
    AS gross_sales
FROM fact_sales_monthly s
JOIN dim_customer c
ON s.customer_code=c.customer_code
JOIN fact_gross_price p
ON s.product_code=p.product_code AND s.fiscal_year=p.fiscal_year
WHERE c.customer = 'Atliq Exclusive'
GROUP BY Year, Month;
```

Month	Year	Gross Sales Amount
Sep	2020	4.50M
Oct	2020	5.14M
Nov	2020	7.52M
Dec	2020	4.83M
Jan	2020	4.74M
Feb	2020	4.00M
Mar	2020	0.38M
Apr	2020	0.40M
May	2020	0.78M
Jun	2020	1.70M
Jul	2020	2.55M
Aug	2020	2.79M

Month	Year	Gross Sales Amount
Sep	2021	12.35M
Oct	2021	13.22M
Nov	2021	20.46M
Dec	2021	12.94M
Jan	2021	12.40M
Feb	2021	10.13M
Mar	2021	12.14M
Apr	2021	7.31M
May	2021	12.15M
Jun	2021	9.82M
Jul	2021	12.09M
Aug	2021	7.18M

Insights:

- November recorded the highest gross sales in both FY 2020 (7.52M) and FY 2021 (20.46M).
- The lowest sales were in March 2020 (0.38M) and August 2021 (7.18M).

8. In which quarter of 2020, got the maximum total_sold_quantity? The final output contains these fields sorted by the total_sold_quantity
   - Qurter
   - Total_sold_quantity

SQL Query

```sql
SELECT
    CONCAT('Q', QUARTER(ADDDATE(date, INTERVAL 4 MONTH)))
    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
Q1	7,005,619
Q2	6,649,642
Q4	5,042,541
Q3	2,075,087

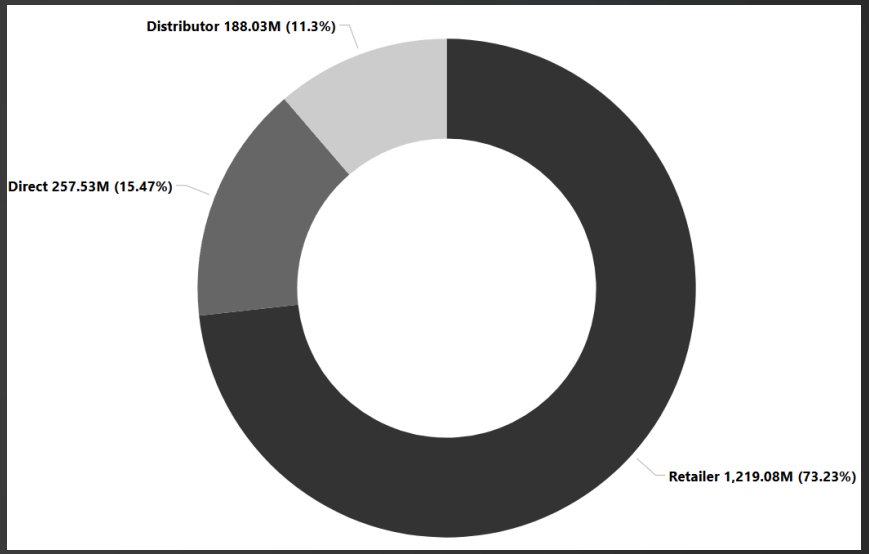
Insights:

- Q1 2020 recorded the highest total sold quantity (7M).
- Q3 2020 had the lowest sales (2.07M).

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_mlm
   - Percentage

SQL Query

```sql
WITH CTE1 AS (
    SELECT
        c.channel,
        ROUND(SUM(p.gross_price*s.sold_quantity)/1000000, 2) AS gross_sales
    FROM fact_sales_monthly s
    JOIN dim_customer c
    ON s.customer_code=c.customer_code
    JOIN fact_gross_price p
    ON s.product_code=p.product_code AND s.fiscal_year=p.fiscal_year
    WHERE s.fiscal_year=2021
    GROUP BY c.channel
)
SELECT
    channel,
    gross_sales,
    ROUND(gross_sales*100/(SELECT SUM(gross_sales) FROM CTE1),2) AS percentage
FROM CTE1
ORDER BY gross_sales DESC;
```



Insights:

- Retailer channel contributed the most to gross sales in FY 2021 with 73.23%, followed by Direct.
- Distributor channel had the lowest contribution at 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.
    - Divison
    - Product_code
    - Product
    - Total_sold_quantity
    - Rank_order

SQL Query

```sql
with CTE AS (
    Select
        p.division,
        p.product_code,
        p.product,
        SUM(s.sold_quantity) AS total_sold_quantity,
        RANK () OVER (partition by p.division order by SUM(s.sold_quantity) desc)
        AS rank_order
    from dim_product p
    join fact_sales_monthly s
    USING (product_code)
    where 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
```

division	product_code	product	Total Sold Quantity	Rank
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