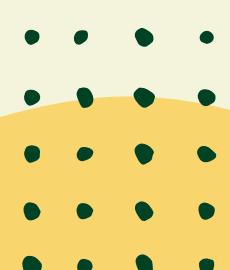




Ad-hoc Insights

Consumer Goods Domain

Prepared by
Prateek Verma





Agenda

What is Ad-hoc?

Atliq's Business Model

Problem Statement

Dataset Overview

About Atliq Company

10 Ad-hoc requests

⋮⋮⋮

What is Ad-hoc Analysis?

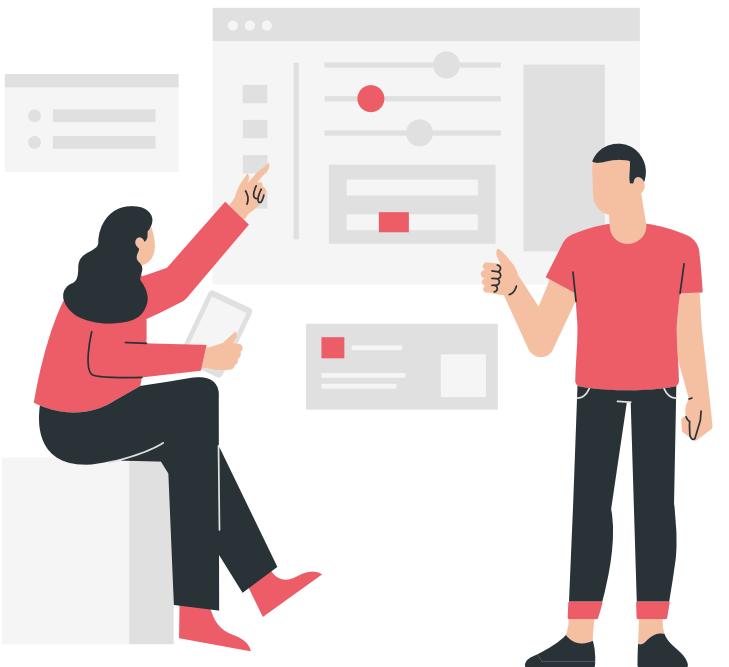
Ad-Hoc Analysis is a form of analytics that is performed on-the-fly to address specific business questions or solve immediate problems.

Key Points:

Purpose-Driven: Focused on specific questions or problems.

Flexible: Customizable and adaptable to any data query.

Timely: Provides real-time insights for prompt decisions.



It's driven by immediate needs and provides timely insights to support quick decision-making for different businesses.

Why is Ad-Hoc Analysis Important?

Decision-Making: It empowers business leaders to make informed decisions based on the most current data available.

Problem-Solving: Ad-hoc analysis helps in identifying and addressing problems as they arise, ensuring that issues are resolved promptly.

Competitive Advantage: Companies that can quickly analyze and respond to data trends often have a competitive edge in the market.





Problem Statement

Atliq Hardwares, a leading computer hardware and peripherals producer in India with a strong international presence, faces challenges in making quick, data-driven decisions.

To enhance their decision-making capabilities, the management aims to expand their data analytics team by hiring skilled junior data analysts.

Tony Sharma, the Director of Data Analytics, has initiated a SQL challenge to identify candidates who excel in both technical and soft skills.

The goal is to answer 10 specific Ad-hoc requests using SQL queries and deliver meaningful insights that helps Atliq in their expansion plan.

⋮ ⋮ ⋮ ⋮ ⋮

About Company

Atliq Hardware is a computer peripheral manufacturing company based in India, with a strong presence globally.

Specializing in the production of high-quality components and peripherals like keyboards, mice, USB drives, printers, and other accessories.

Atliq serves a diverse range of customers, from major **brick-and-mortar** retailers like Croma and HP or Dell Exclusive, to leading **e-commerce** platforms such as Amazon and Flipkart.

Fiscal Year

FY 2020

Sept 2019 - Aug 2020

FY 2021

Sept 2020 - Aug 2021



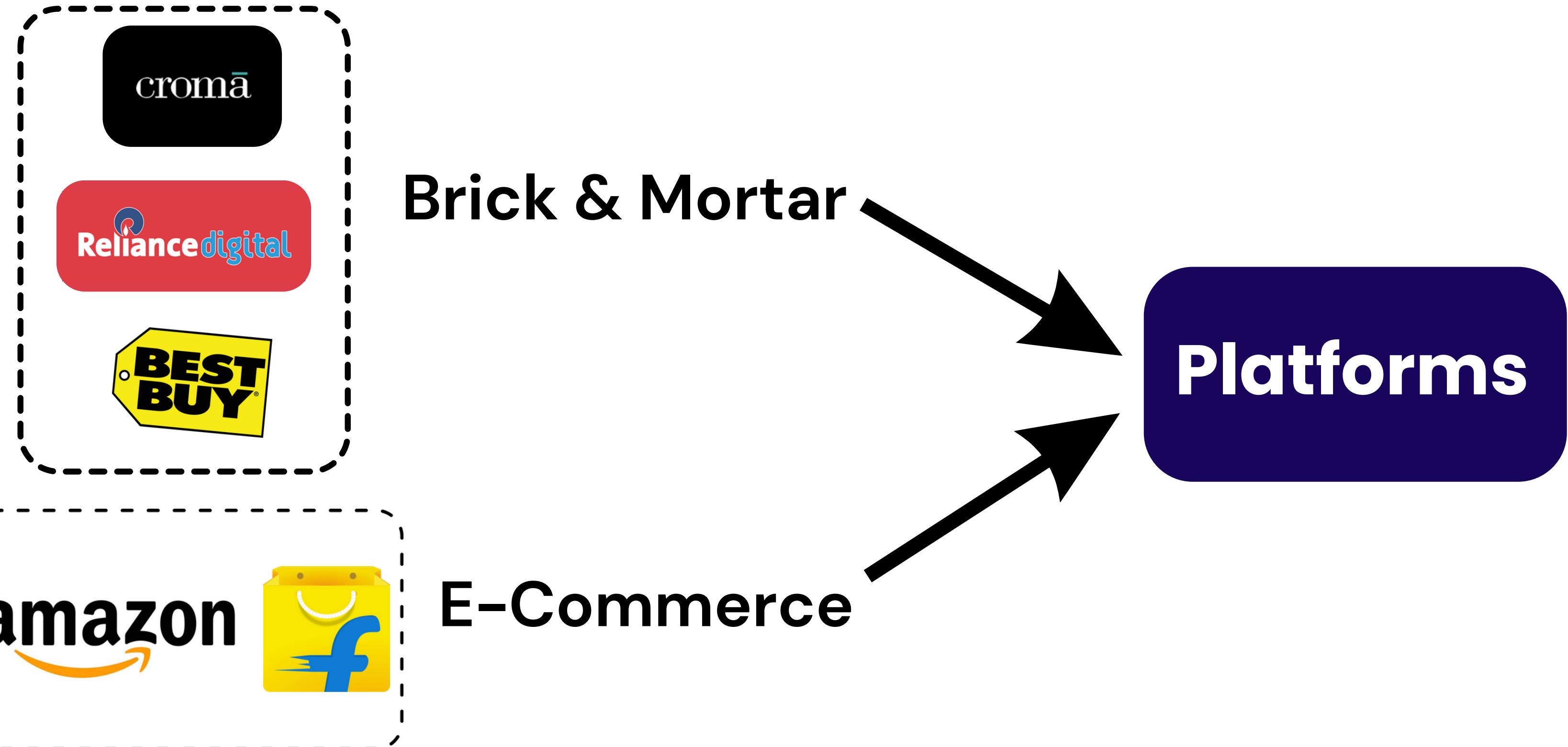


Atliq's Business Model

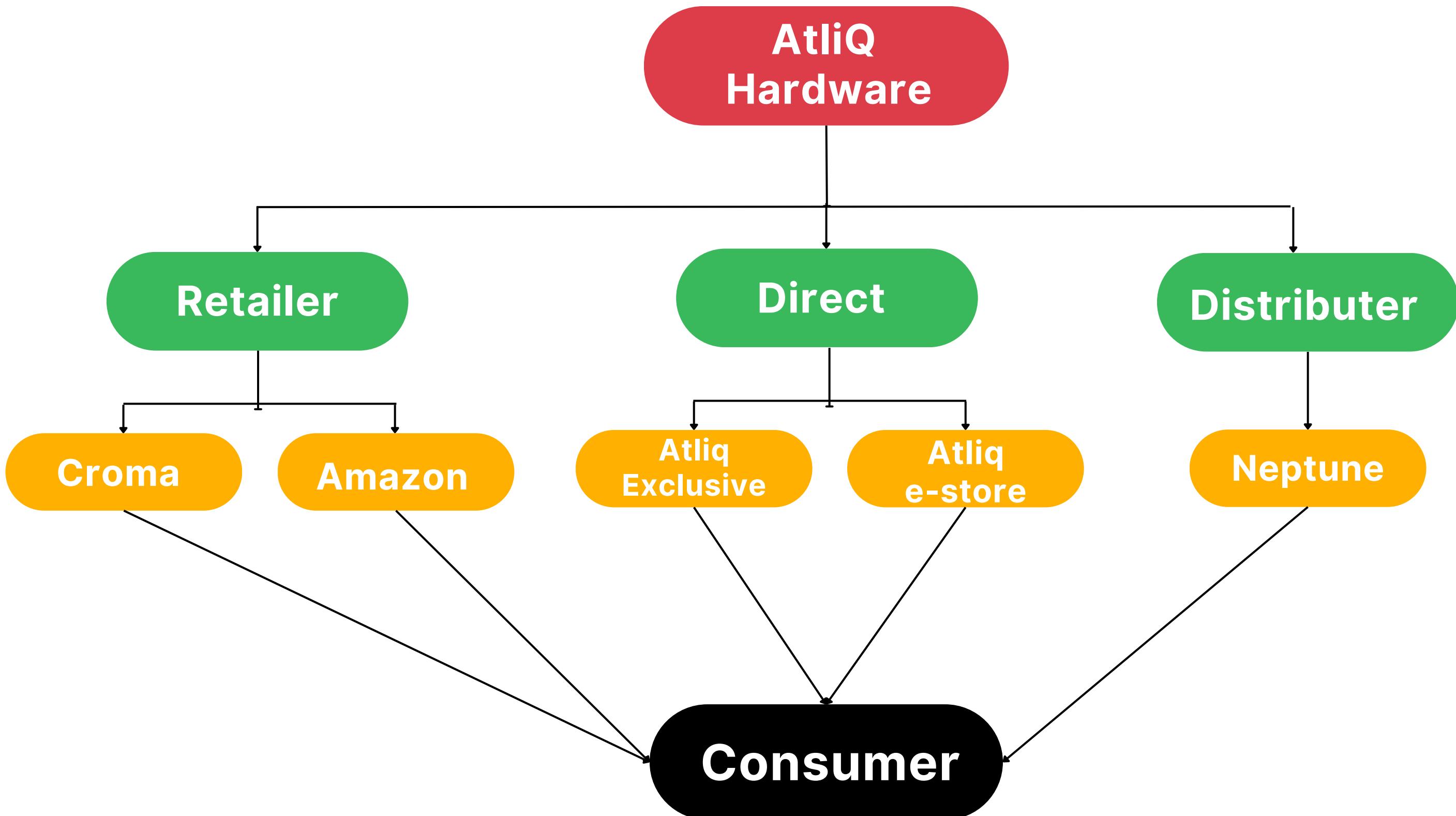




Customer Segmentation

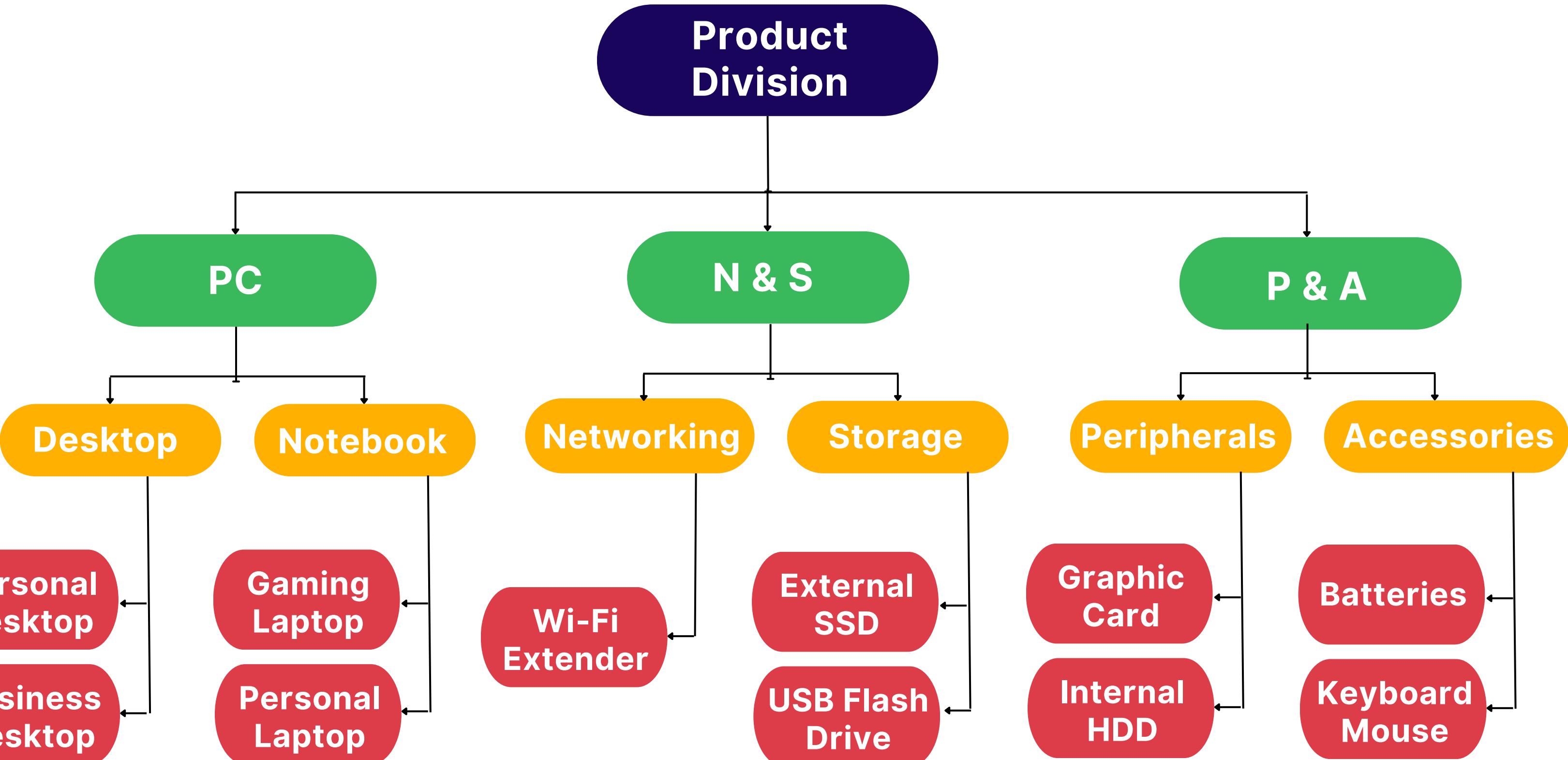


Channel Distribution





Product Distribution





Atliq's Market





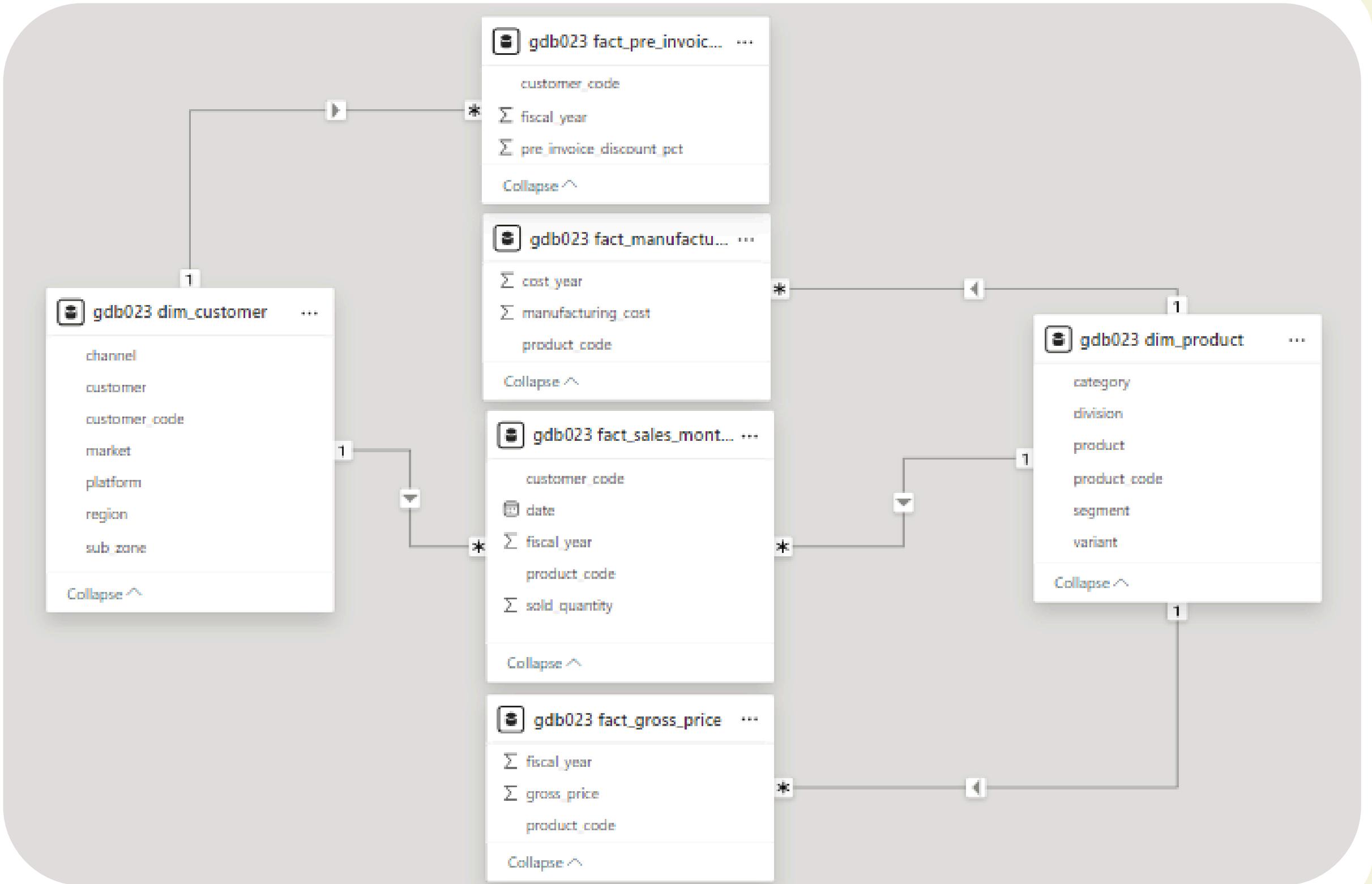
Dataset Overview

Database

gdb023



Tools Used





10

Ad-Hoc Queries



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
product
total_sold_quantity
rank_order

1.

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

```
SELECT distinct market FROM gdb023.dim_customer  
where customer = "Atliq Exclusive" and region = "APAC";
```

insights

- Atliq has a strong presence in APAC region featuring the listed countries.
- Atliq Exclusive, which is Atliq's own store captures a big market and provides more business to Atliq via direct channel.

market

India

Indonesia

Japan

Philippines

South Korea

Australia

New Zealand

Bangladesh



2.

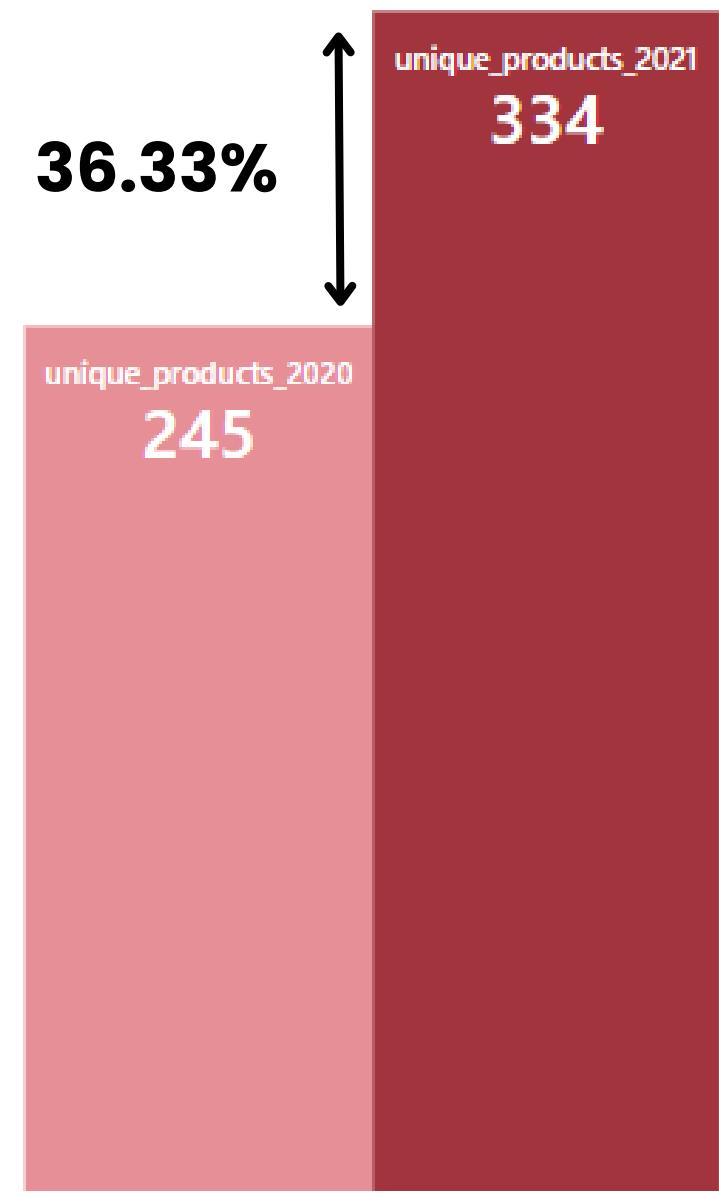
What is the percentage of unique product increase in 2021 vs. 2020?

The final output contains these fields:

unique_products_2020, unique_products_2021, percentage_chg

```
WITH cte1 AS (
    SELECT COUNT(DISTINCT product_code) AS unique_product_2020
    FROM gdb023.fact_sales_monthly
    WHERE fiscal_year = 2020
),
cte2 AS (
    SELECT COUNT(DISTINCT product_code) AS unique_product_2021
    FROM gdb023.fact_sales_monthly
    WHERE fiscal_year = 2021
)
SELECT cte1.*,
    cte2.*,
    round((unique_product_2021-unique_product_2020)*100/unique_product_2020,2) as pct_chg
FROM cte1
CROSS JOIN cte2;
```

unique_product_2020	unique_product_2021	pct_chg
245	334	36.33



insights

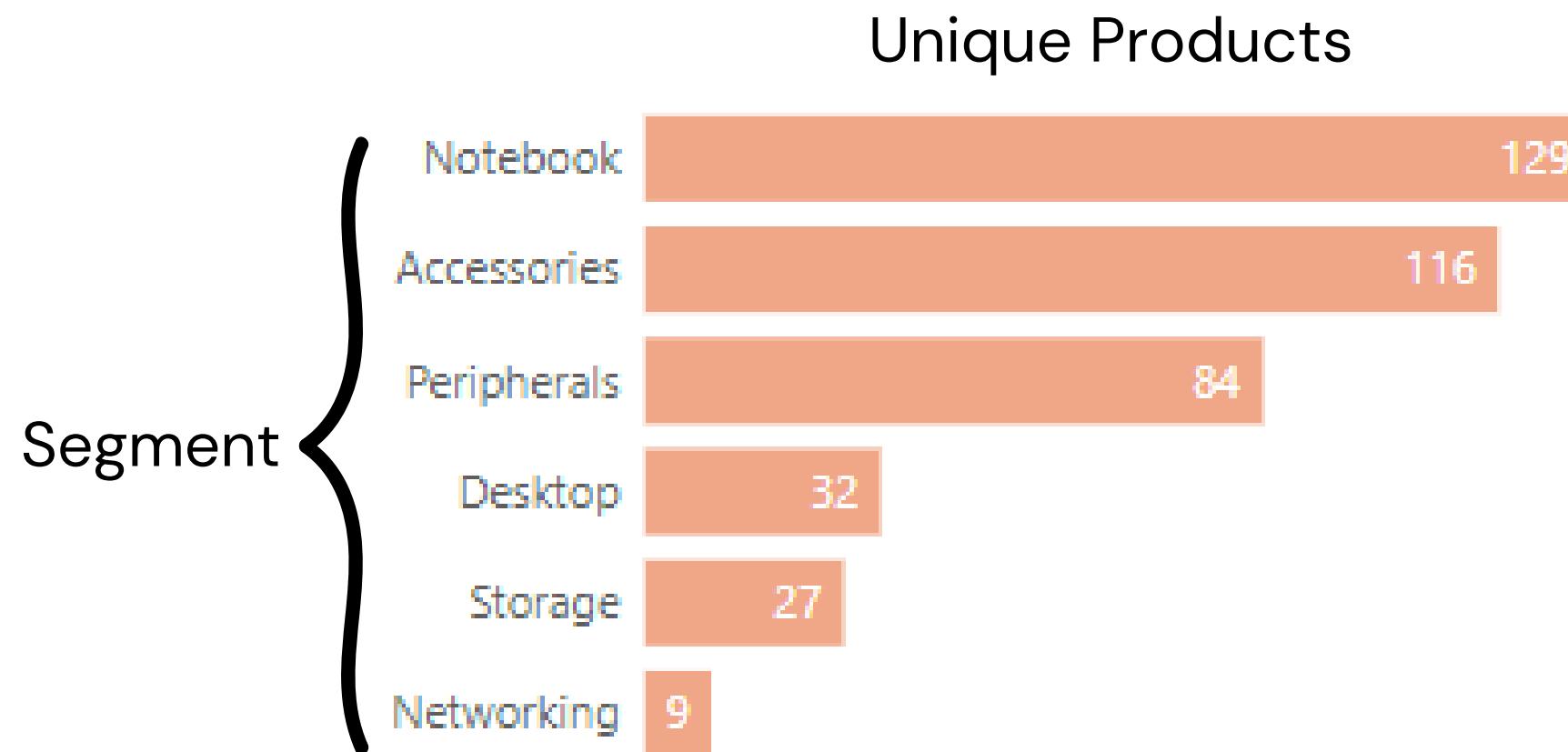
- Since the number of unique products are increasing every year, the company must monitor its product manufacturing line to fulfill and balance the demand and supply ratio.
- This change suggests, there's a scope for expanding product offerings to attract a broad range of customers and potentially boost sales and revenue of the company.
- Change indicates that the business is growing at a good growth rate and is adaptable to changing market demands.

3.

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

The final output contains 2 fields: **segment, product_count**

```
SELECT segment, count(distinct product_code) as product_count  
FROM gdb023.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

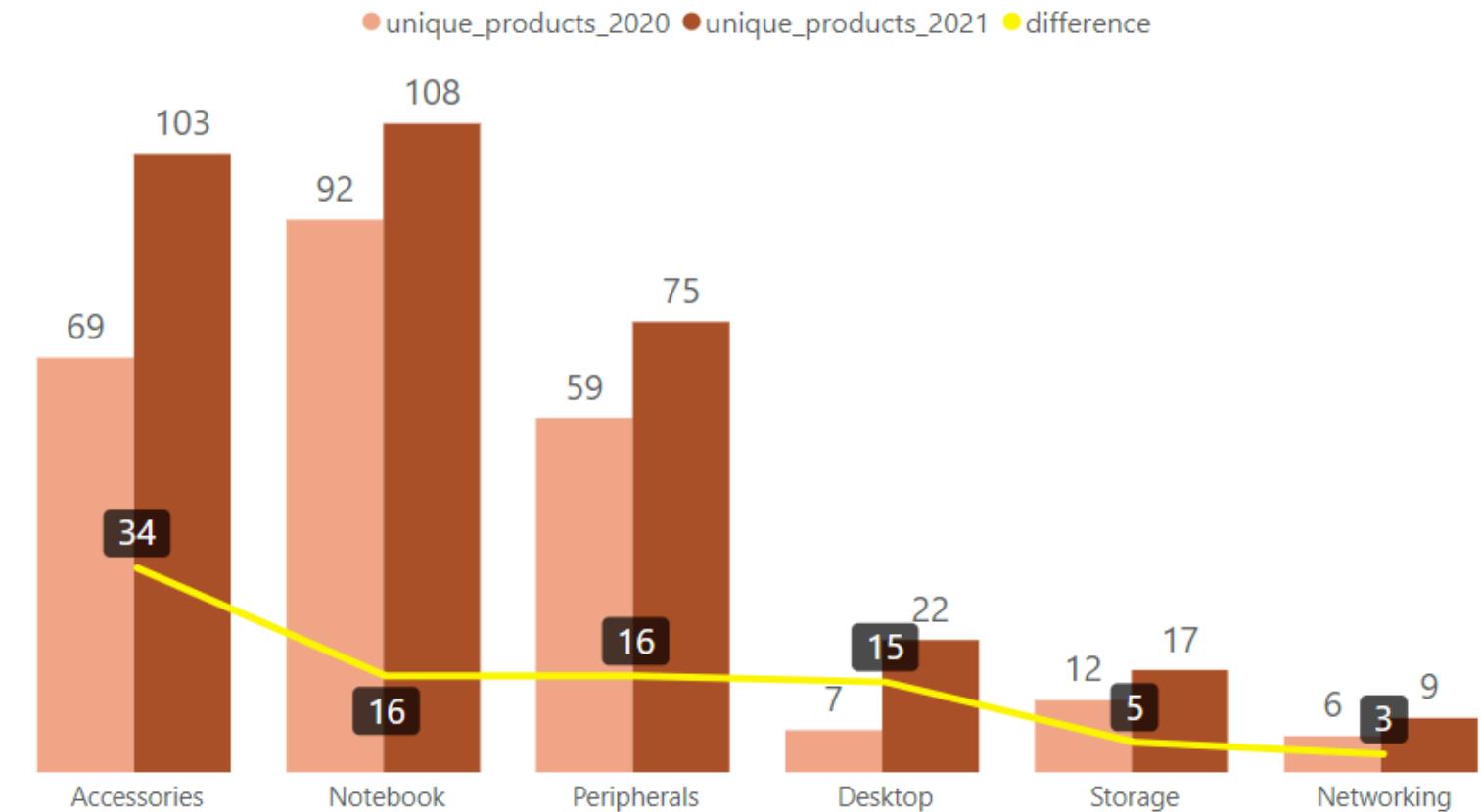
insights

- **Notebook, Accessories, and Peripherals** segments lead in product variety, indicating a strong market focus.
- Meanwhile, the **Desktop, Storage, and Networking** segments have significantly fewer products, suggesting potential areas for growth or strategic review.
- The wide range of product offerings enables the business to **address customer preferences** and requirements across different segments.

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

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

```
with cte1 as (select p.segment, count(distinct s.product_code) as product_count_2020
            from fact_sales_monthly s
            join dim_product p
            on p.product_code = s.product_code
            where s.fiscal_year = 2020
            group by p.segment
            order by product_count_2020 desc),
cte2 as (select p.segment, count(distinct s.product_code) as product_count_2021
            from fact_sales_monthly s
            join dim_product p
            on p.product_code = s.product_code
            where s.fiscal_year = 2021
            group by p.segment
            order by product_count_2021 desc)
select cte1.segment, product_count_2020, product_count_2021,
abs(product_count_2021 - product_count_2020) as difference
from cte1
join cte2
on cte1.segment = cte2.segment
order by difference desc;
```



insights

- The Accessories, Notebook, and Peripherals segments experienced a notable product rise over the year, this indicates an overall product expansion, highlighting a potential strategy to target a wide variety of customer prefs.
- Segments like Desktop, Storage, and Networking are more stable indicating consistent demand but they might represent areas for growth in future.

5.

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

```
select m.product_code, p.product, m.manufacturing_cost  
from fact_manufacturing_cost m  
join dim_product p  
on m.product_code = p.product_code  
where m.manufacturing_cost = (select max(manufacturing_cost) from fact_manufacturing_cost)  
or m.manufacturing_cost = (select min(manufacturing_cost) from fact_manufacturing_cost)  
order by m.manufacturing_cost desc;
```

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

insights

- AQ Master wired x1 (Mouse) product has the lowest manufacturing cost of \$0.89.
- AQ Home Alin 1 Gen 2 (Personal Desktop) is the most expensive product with a manufacturing cost of \$240.53.

6.

Generate a report that 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

```
select pre.customer_code, c.customer,
round(avg(pre.pre_invoice_discount_pct)*100,2) as avg_discount_pct
from fact_pre_invoice_deductions pre
join dim_customer c
on c.customer_code = pre.customer_code
where pre.fiscal_year = 2021 and c.market = "India"
group by pre.customer_code, c.customer
order by avg_discount_pct desc
limit 5;
```

customer_code	customer	Average of pre_invoice_discount_pct
90002009	Flipkart	30.83%
90002006	Viveks	30.38%
90002003	Ezone	30.28%
90002002	Croma	30.25%
90002016	Amazon	29.33%
Total		30.21%

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

insights

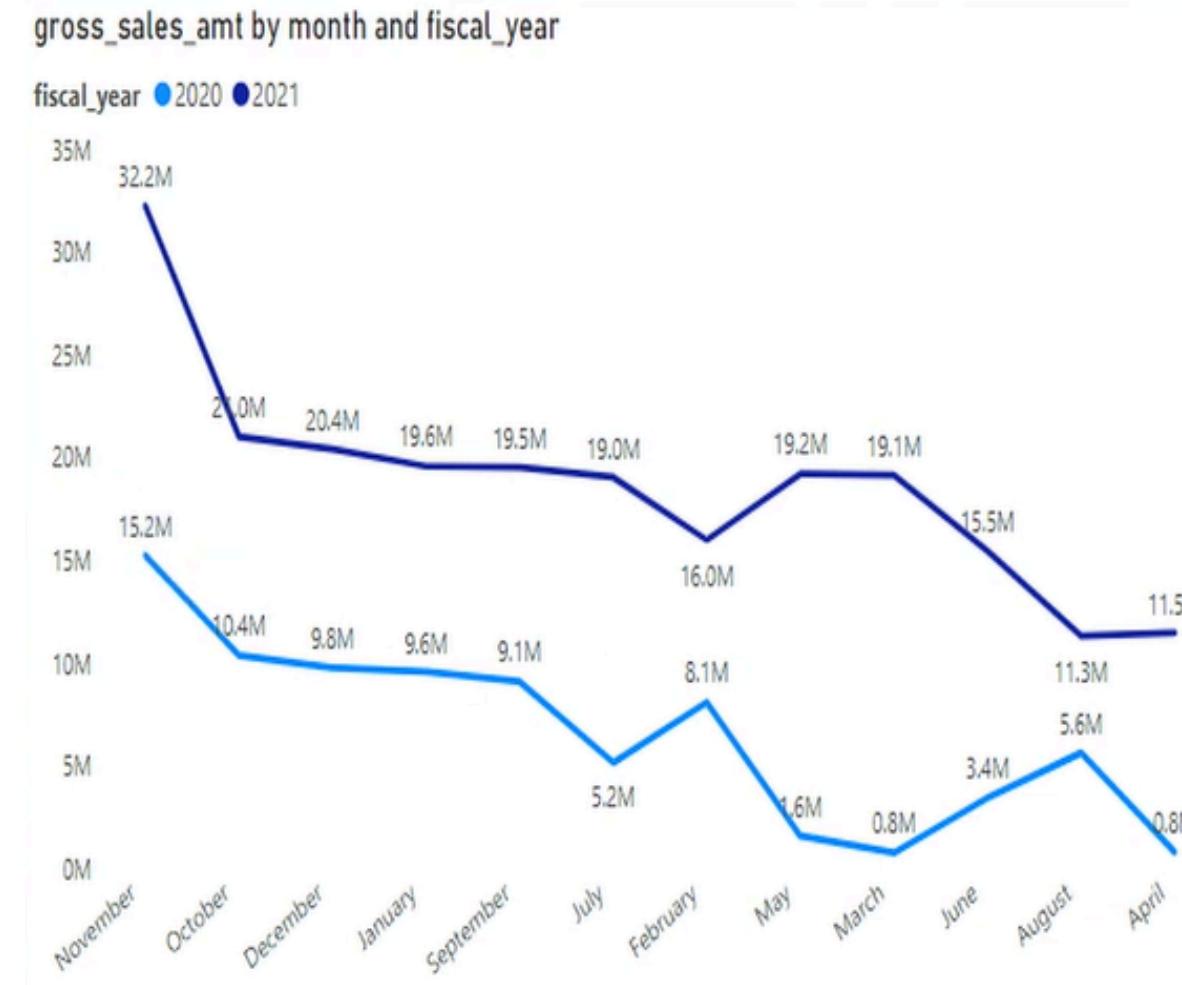
- Flipkart has been offered the largest average pre-invoice discount among all customers, while Amazon has been offered the least.
- These insights can be valuable for adjusting discount strategies and understanding their customer preferences.

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

```
select concat(monthname(s.date), ' ', '(', year(s.date), ')') as month , s.fiscal_year,
round(sum(g.gross_price * s.sold_quantity),2) as gross_sales_amount
from fact_sales_monthly s
join fact_gross_price g
on s.product_code = g.product_code
join dim_customer c
on c.customer_code = s.customer_code
where c.customer = "Atliq Exclusive"
group by s.date, fiscal_year
order by fiscal_year
```



FY: 2020

month	fiscal_year	gross_sales_amount
September (2019)	2020	9092670.34
October (2019)	2020	10378637.60
November (2019)	2020	15231894.97
December (2019)	2020	9755795.06
January (2020)	2020	9584951.94
February (2020)	2020	8083995.55
March (2020)	2020	766976.45
April (2020)	2020	800071.95
May (2020)	2020	1586964.48
June (2020)	2020	3429736.57
July (2020)	2020	5151815.40
August (2020)	2020	5638281.83

Total Sales
79.50 M

FY: 2021

month	fiscal_year	gross_sales_amount
September (2020)	2021	19530271.30
October (2020)	2021	21016218.21
November (2020)	2021	32247289.79
December (2020)	2021	20409063.18
January (2021)	2021	19570701.71
February (2021)	2021	15986603.89
March (2021)	2021	19149624.92
April (2021)	2021	11483530.30
May (2021)	2021	19204309.41
June (2021)	2021	15457579.66
July (2021)	2021	19044968.82
August (2021)	2021	11324548.34

Total Sales
224.42 M

insights

- **March** was the month for the fiscal year **2020**, when total gross sales were the **lowest** of all.
- And **November** month records the **highest** gross sales figure for both the fiscal years

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

```
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"
    ELSE "Q4"
END
as Quarters,
sum(sold_quantity) as total_sold_quantity
from fact_sales_monthly
where fiscal_year = 2020
group by Quarters
order by total_sold_quantity desc;
```

Quarters	total_sold_quantity
Q1	7005619
Q2	6649642
Q4	5042541
Q3	2075087



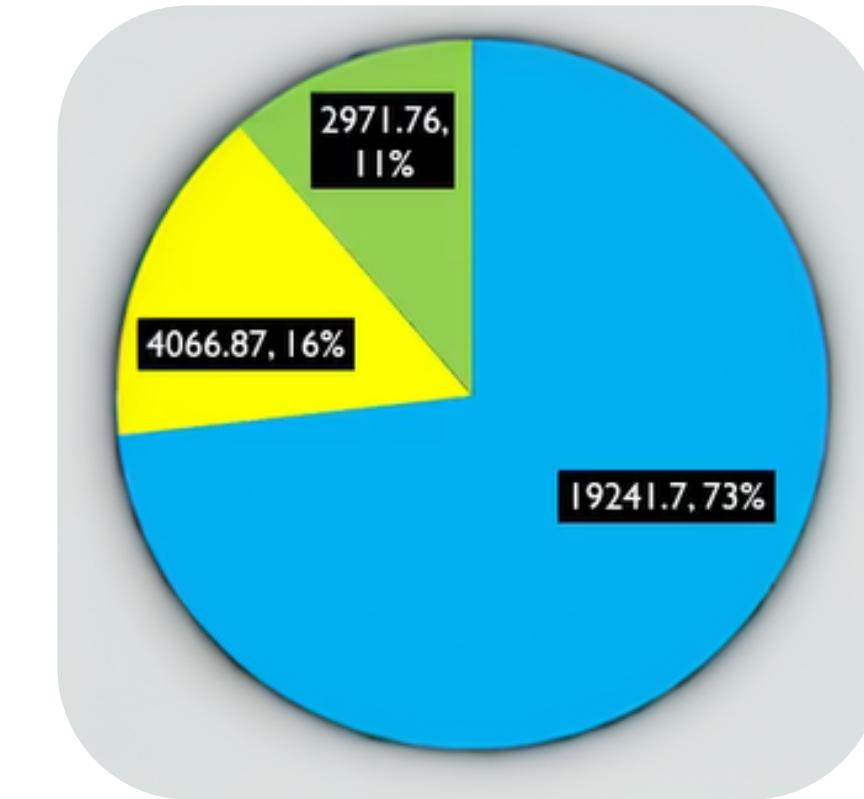
- Quarter 1 followed by Quarter 2 are the strongest in terms of total sold quantity, where the most sold quantity was in Q1.
- Q3 was the weakest of all quarters in terms of total quantity sold overall in FY2020.
- These insights are valuable for inventory management and plan market strategies to align with the goals and seasonal product demand.

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**

```
with cte1 as (select c.channel,
round(sum(g.gross_price*s.sold_quantity)/1000000,2) as gross_sales_mln
from fact_sales_monthly s
join fact_gross_price g
on s.product_code = g.product_code
join dim_customer c
on c.customer_code = s.customer_code
where s.fiscal_year = 2021
group by c.channel)
select *,
round(gross_sales_mln*100/sum(gross_sales_mln) over(),2) as percentage
from cte1
order by percentage desc
```

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



insights

- The **Retailer** Channel brought the maximum sales to the company with a contribution percentage of **73.22%** in total revenue.
- While the **Distributer** channel contributes the least at **11.31%**.
- Atliq can diversify things in the Direct and Distributer channels to explore future growth opportunities and to maximize sales.

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

```
select * from
  (with cte1 as (select p.division, p.product_code, p.product, sum(sold_quantity) as total_sold_qty
    from fact_sales_monthly s
    join dim_product p
    on p.product_code = s.product_code
    where s.fiscal_year = 2021
    group by p.division, p.product_code, p.product)
  select *, rank() over(partition by division order by total_sold_qty desc) as rank_order from cte1) x
  where x.rank_order<4;
```

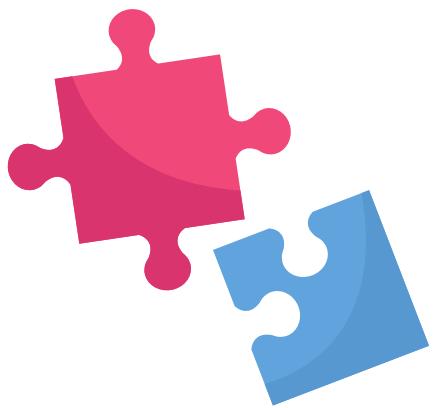

 insights

division	product_code	product	total_sold_qty	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

- In **N & S** division, there's a strong customer preference for pen drives with AQ Pen Drive 2 in 1 with the highest quantity sold followed by two variants of AQ Pen Drive DRC.
- In **P & A** division, gaming products are the most selling, AQ Gamers Ms being the best-selling product followed by two variants of AQ Maxima Ms.
- In **PC** division, AQ Digit is the most popular product sold, followed by AQ Velocity and another variant of AQ Digit

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Thank You

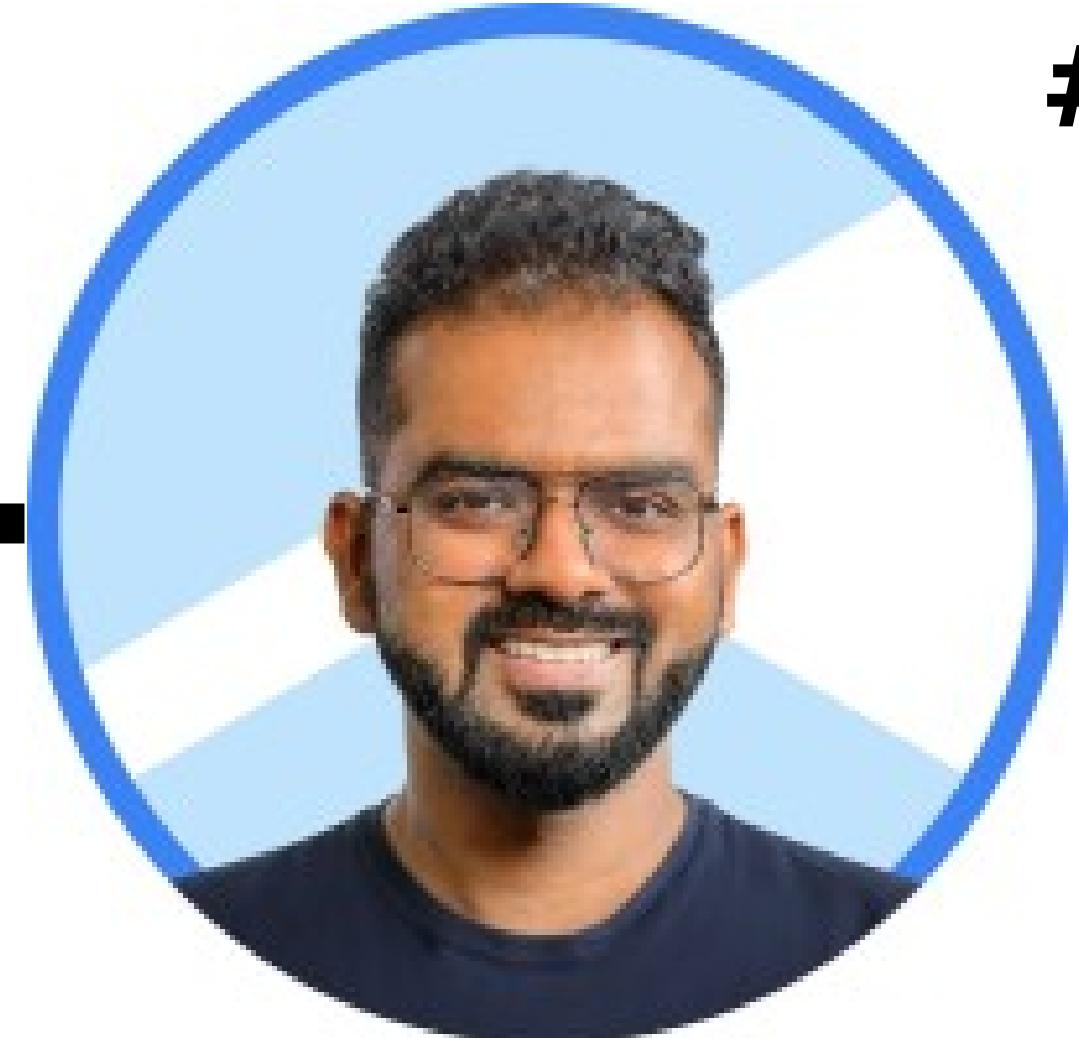
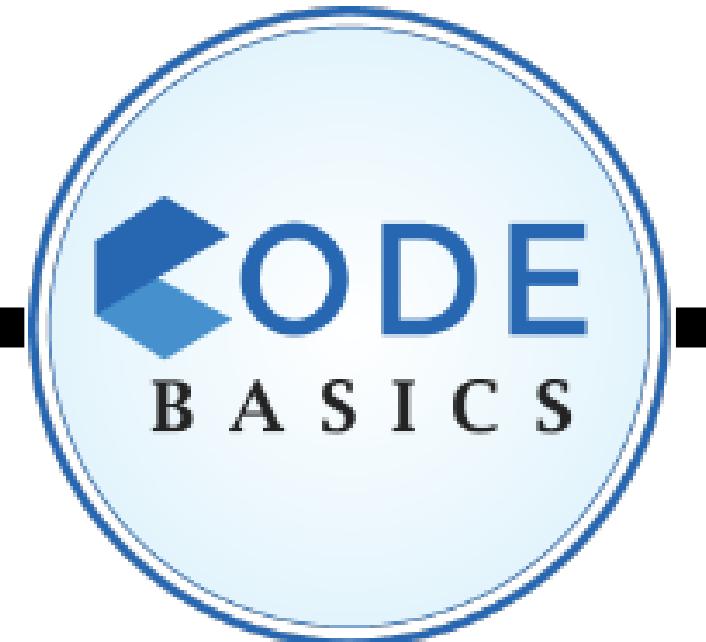


Resume
Project
Challenge

#4



Dhaval Patel



Hemanand Vadivel

