AD-HOC INSIGHTS
CONSUMER GOODS

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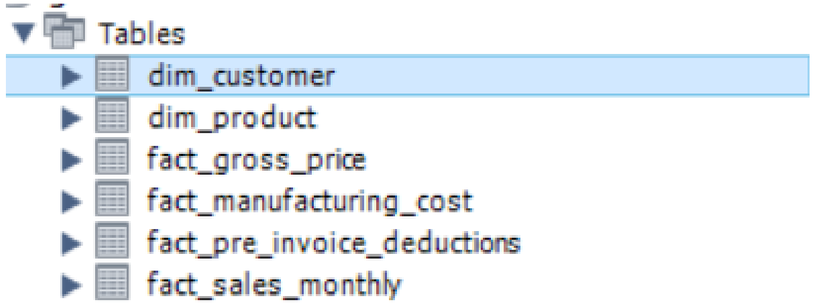
OBJECTIVES

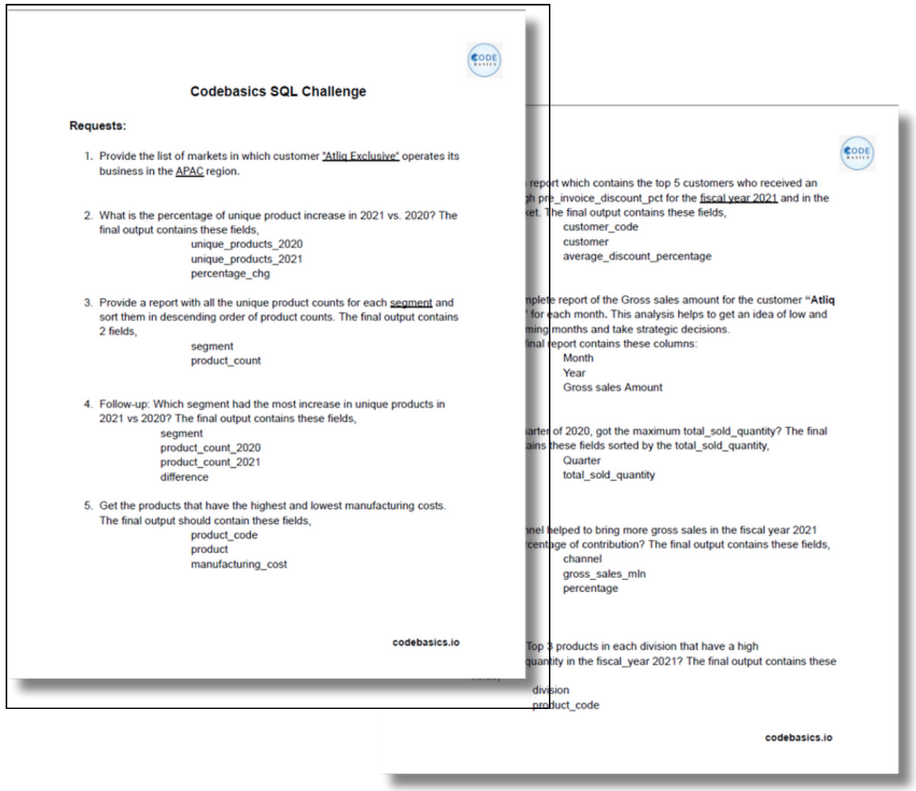
- Atliq Hardware (fictitious corporation) is one of the major computer hardware manufacturers in India, with a strong presence in other nations.
- Nevertheless, the management did note that they do not have sufficient insights to make prompt, wise, and data-informed judgments.
- Plan to expand the data 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.

DATA,REQUESTS AND TOOLS



Tables

Tools



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

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report which contains the top 5 customers who received an
pre_invoice_discount_pct for the fiscal year 2021 and in the
et. The final output contains these fields,
customer_code
customer
average_discount_percentage

mplete report of the Gross sales amount for the customer "Atliq
for each month. This analysis helps to get an idea of low and
ming months and take strategic decisions.
inal report contains these columns:
Month
Year
Gross sales Amount

arter of 2020, got the maximum total_sold_quantity? The final
ains these fields sorted by the total_sold_quantity,
Quarter
total_sold_quantity

nnel helped to bring more gross sales in the fiscal year 2021
centage of contribution? The final output contains these fields,
channel
gross_sales_mln
percentage

Top 3 products in each division that have a high
quantity in the fiscal_year 2021? The final output contains these

division
product_code

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Requests

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

market
Australia
Bangladesh
India
Indonesia
Japan
Newzealand
Philiphines
South Korea

QUERY

```
select distinct(market)
from dim_customer
where customer="Atliq Exclusive" and
region="APAC"
order by market;
```

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

unique_products_2020	unique_products_2021	percentage_change
245	334	36.33

Insight:

Production increased as there is increased in 36.33% unique products compare to last year (2020).

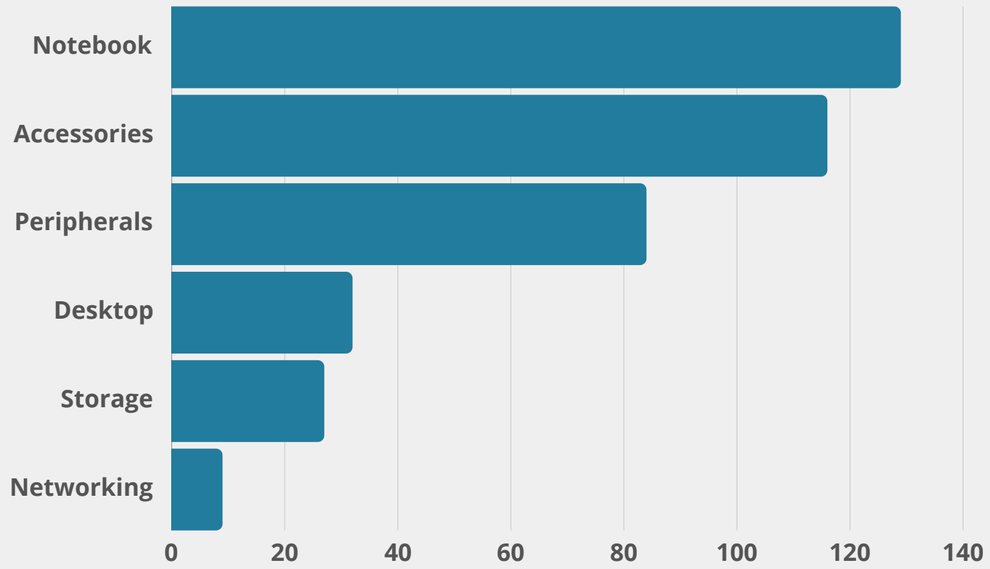
QUERY

```
WITH FY20 AS (
    SELECT COUNT(DISTINCT product_code) AS t1
    FROM fact_sales_monthly
    WHERE fiscal_year = 2020
),
FY21 AS (
    SELECT COUNT(DISTINCT product_code) AS t2
    FROM fact_sales_monthly
    WHERE fiscal_year = 2021
)
SELECT FY20.t1 as unique_products_2020,
 FY21.t2 as unique_products_2021,
 ROUND((t2-t1) * 100.0 /t1, 2) AS percentage_change
FROM FY20, FY21;
```

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

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



QUERY

```
select
    distinct(segment),
    count(product) over(partition by segment) as product_count
from dim_product
order by product_count desc;
```

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 products difference as per 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

QUERY

```
with cte1 as(
select s.product_code, s.fiscal_year,p.segment
from fact_sales_monthly s
join dim_product p on s.product_code=p.product_code limit 10000000),
cte2 as(
select segment,count(distinct(product_code)) as product_count_2020
from cte1
where fiscal_year=2020
group by segment),
cte3 as(
select segment,count(distinct(product_code)) as product_count_2021
from cte1
where fiscal_year=2021
group by segment)
select t1.segment,t1.product_count_2020, t2.product_count_2021,
(product_count_2021-product_count_2020) as difference
from cte2 t1
join cte3 t2 on t1.segment=t2.segment;
```

Insight:

- Accessories have huge increase in production compare to all segment.
- Networking has the lowest amount of production.

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

product_code
product
manufacturing_cost

Product with highest and lowest Manufacturing cost

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

QUERY

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

Insight:

- AQ HOME Allin 1 Gen 2 has **highest** manufacturing cost.
- AQ Master wired x1 Ms has **lowest** 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

Customers with highest invoice discount percentage

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

QUERY

```
with cte1 as (SELECT * FROM gdb023.fact_pre_invoice_deductions
where pre_invoice_discount_pct >
(SELECT avg(pre_invoice_discount_pct)FROM fact_pre_invoice_deductions
where fiscal_year=2021)
and fiscal_year=2021)
select t1.customer_code,t2.customer,t1.pre_invoice_discount_pct
from cte1 t1
join dim_customer t2 on t1.customer_code=t2.customer_code
where t2.market="india"
order by pre_invoice_discount_pct desc
limit 5;
```

Insight:

- Flipkart has the highest invoice discount among all customer in 2021.

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

QUERY

```
select
  monthname(s.date) as Month,
        s.fiscal_year,
        sum(s.sold_quantity * g.gross_price) as Gross_Sales_Amount
from fact_sales_monthly s
join dim_customer c on s.customer_code=c.customer_code
join fact_gross_price g on s.product_code=g.product_code
where c.customer="Atliq Exclusive"
group by Month,s.fiscal_year
order by s.fiscal_year
```

Insight:

- The lowest Gross sales total for both fiscal years is in March (2020).
- The highest Gross sales total for both fiscal years is in November (2020).
- 73.8% of the total Gross sales figure is in FY 2021.

Gross Sales per month by year

Month	fiscal_year	Gross_Sales_Amount
September	2020	9092670.3392
October	2020	10378637.5961
November	2020	15231894.9669
December	2020	9755795.0577
January	2020	9584951.9393
February	2020	8083995.5479
March	2020	766976.4531
April	2020	800071.9543
May	2020	1586964.4768
June	2020	3429736.5712
July	2020	5151815.4020
August	2020	5638281.8287
September	2021	19530271.3028
October	2021	21016218.2095
November	2021	32247289.7946
December	2021	20409063.1769
January	2021	19570701.7102
February	2021	15986603.8883
March	2021	19149624.9239
April	2021	11483530.3032
May	2021	19204309.4095
June	2021	15457579.6626
July	2021	19044968.8164
August	2021	11324548.3409

FY20
79.5M

FY21
224.4M

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

FY20

QUERY

```
select
concat("Q",quarter((date_add(date,interval 4
month)))) As Quarter,
sum(sold_quantity) as total_sold_qty
from fact_sales_monthly
where fiscal_year=2020
group by Quarter
limit 10000000000000000
```

Total sales by Quarter

Quarter	total_sold_qty
Q1	7005619
Q2	6649642
Q3	2075087
Q4	5042541

Insight:

- Quarter 1 of FY2020 saw the most units sold overall, while Quarter 3 had the fewest.
- The highest and lowest overall sold quantity is in December and March.
- Quarter 1 accounts for approximately 34% of the total sold quantity for FY2020.

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

Gross sales in Million by Channel

channel	gross_sales_mln	percentage
Retailer	1219.08	73.23%
Direct	257.53	15.47%
Distributor	188.03	11.30%

QUERY

```
with cte1 as(
select c.channel, Round(sum(s.sold_quantity* g.gross_price)/1000000,2)
as gross_sales_mln from fact_sales_monthly s
join fact_gross_price g on s.product_code=g.product_code and
s.fiscal_year=g.fiscal_year
join dim_customer c on s.customer_code=c.customer_code
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 cte1),2),"%") as percentage
from cte1
order by percentage desc
```

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

Total Sold Qty by rank order

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

QUERY

```
with cte1 as(
select p.division, s.product_code, p.product, sum(sold_quantity) as
Total_sold_quantity
from fact_sales_monthly s
join dim_product p on s.product_code=p.product_code
where s.fiscal_year=2021
group by p.product,s.product_code,p.division
order by Total_sold_quantity desc),
cte2 as (
select division, product_code,product, Total_sold_quantity,
dense_rank() over(partition by division order by Total_sold_quantity
desc) as rank_order
from cte1)
select * from cte2 where rank_order<=3
```

THANK YOU