



Codebasics Resume Challenge#4

**Providing Insights to the Management in
Consumer Goods Domain
in SQL approach**



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Background

Atliq Hardwares (imaginary company) is one of the leading computer hardware producers in India and well expanded in other countries too.

Problem Statement

The management has observed a need for quicker and more insightful data-driven decision-making. To address this, they plan to expand the data analytics team by hiring junior analysts. Tony Sharma, the Director of Data Analytics, is specifically looking for individuals skilled in both technical and soft aspects. In pursuit of this, he has introduced a SQL challenge to assess candidates comprehensively in SQL proficiency and soft skills. This approach aims to identify candidates with not only technical expertise but also effective communication and collaboration abilities, essential for the team's success.

Objective

In the capacity of a Junior Data Analyst, my primary goal is to respond to ten ad hoc requests from the business, translating these queries into actionable insights. This involves delving into the data, extracting relevant information, and presenting solutions that align with the strategic objectives of the organization.



Data Model

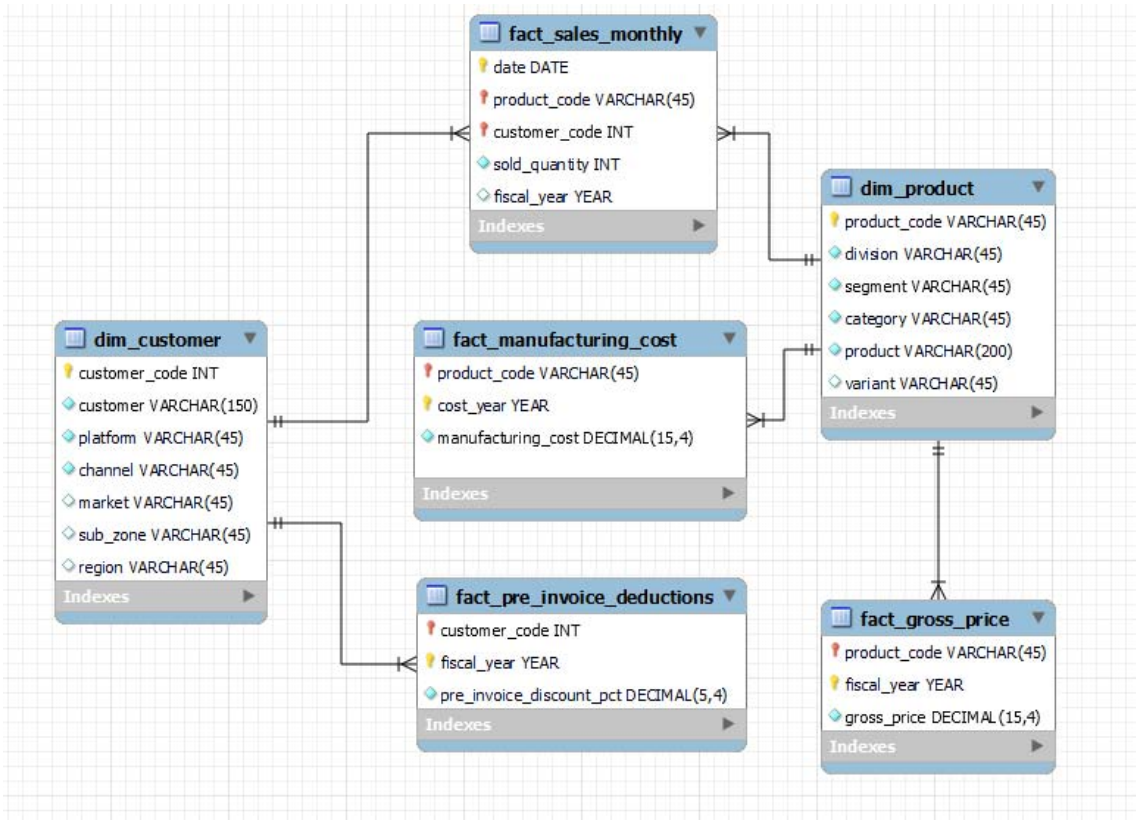


Figure1: Data Model of the Atliq Hardwares Company System



10 ad-hoc requests

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

```
select
    market
from dim_customer
where customer = "Atliq Exclusive" and region = "APAC";
```

Output

	market
▶	India
	Indonesia
	Japan
	Philippines
	South Korea
	Australia
	Newzealand
	Bangladesh
	India

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

```
With unique_product as(
SELECT
    (SELECT COUNT(DISTINCT product_code) FROM fact_sales_monthly
     WHERE fiscal_year = 2020)
    AS unique_product_2020,
    (SELECT COUNT(DISTINCT product_code) FROM fact_sales_monthly
     WHERE fiscal_year = 2021)
    AS unique_product_2021
)
select
    *,
    round((unique_product_2021 - unique_product_2020) * 100/unique_product_2020,2)
    as percentage_chg
from unique_product;
```



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Output

	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.

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

Output

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



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4. Follow-up: Which segment had the most increase in unique products in 2021 vs 2020?

```
with product_count_by_year2020 as (  
    select  
        segment,  
        count(distinct s.product_code) as product_count_2020  
    from dim_product p  
    join fact_sales_monthly s  
    on s.product_code = p.product_code  
    where fiscal_year = 2020  
    group by 1  
),  
product_count_by_year2021 as (  
    select  
        segment,  
        count(distinct s.product_code) as product_count_2021  
    from dim_product p  
    join fact_sales_monthly s  
    on s.product_code = p.product_code  
    where fiscal_year = 2021  
    group by 1  
)  
select  
    p21.segment,  
    product_count_2020,  
    product_count_2021,  
    (product_count_2020 - product_count_2021) as difference  
from product_count_by_year2021 p21  
join product_count_by_year2020 p20  
on p21.segment = p20.segment  
order by difference;
```

Output

	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



5. Get the products that have the highest and lowest manufacturing costs.

```
select
    product_code,
    product,
    manufacturing_cost
from dim_product p
join fact_manufacturing_cost m
using (product_code)
where manufacturing_cost in (
    (select max(manufacturing_cost) from fact_manufacturing_cost),
    (select min(manufacturing_cost) from fact_manufacturing_cost)
);
```

Output

	product_code	product	manufacturing_cost
▶	A2118150101	AQ Master wired ...	0.8920
	A6120110206	AQ HOME Allin1 G...	240.5364

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.

```
select
    customer_code,
    customer,
    pre_invoice_discount_pct as average_discount_percentage
from fact_pre_invoice_deductions pre
join dim_customer c
using (customer_code)
where market = "india"
and fiscal_year = 2021
and pre_invoice_discount_pct > (
    select avg(pre_invoice_discount_pct)
    from fact_pre_invoice_deductions)
order by pre_invoice_discount_pct desc
limit 5;
```



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Output

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

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.

```
select
    monthname(date) as Month,
    g.fiscal_year as Year,
    sum(gross_price) as 'Gross sales Amount'
from dim_customer c
join fact_sales_monthly s
on c.customer_code = s.customer_code
join fact_gross_price g
on g.fiscal_year = s.fiscal_year
where customer = 'Atliq Exclusive'
group by 2,1
order by 3 desc;
```




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Output

	Month	Year	Gross sales Amount
►	May	2021	374949823.8640
	January	2021	373947284.2280
	September	2021	373804064.2800
	November	2021	331912229.4900
	July	2021	327687241.0240
	March	2021	327544021.0760
	October	2021	306132638.8500
	June	2021	303912729.6560
	February	2021	303769509.7080
	December	2021	190768970.7360
	August	2021	188835501.4380
	April	2021	188549061.5420
	January	2020	165692221.2126
	September	2020	164261373.0156
	November	2020	153196146.9588
	July	2020	145851126.2142
	October	2020	140127733.4262
	February	2020	136073663.5347
	May	2020	121288232.1657
	June	2020	112893922.7433

8. In which quarter of 2020, got the maximum total_sold_quantity?

```
select
    concat("Q",ceil(month(date_add(date,interval 4 month))/3))
    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
limit 1;
```

Output

	Quarter	total_sold_quantity
►	Q1	7005619



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9. Which channel helped to bring more gross sales in the fiscal year 2021 and the percentage of contribution?

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

Output

	channel	gross_sales_mln	percentage
►	Retailer	94.81	78.21
	Direct	23.20	19.14
	Distributor	3.22	2.66



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10. Get the Top 3 products in each division that have a high total_sold_quantity in the fiscal_year 2021?

```
With top_products as (  
  select  
    division,  
    p.product_code,  
    product,  
    sum(sold_quantity) as total_sold_quantity  
  from dim_product p  
  join fact_sales_monthly s  
  on p.product_code = s.product_code  
  where s.fiscal_year = 2021  
  group by 1,2,3  
,  
all_rank as (  
  select  
    *,  
    dense_rank() over(partition by division order by total_sold_quantity desc)  
  as rank_order  
  from top_products  
)  
select * from all_rank where rank_order < 4;
```

Output

	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