SQL PROJECT

Consumer Goods Ad-Hoc Insights

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Introduction and Problem Statement

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

However, the management noticed that they do not get enough insights to make quick and smart data-informed decisions. They want to expand their data analytics team by adding several junior data analysts. Tony Sharma, their data analytics director wanted to hire someone who is good at both tech and soft skills. Hence, he decided to conduct a SQL challenge which will help him understand both the skills.

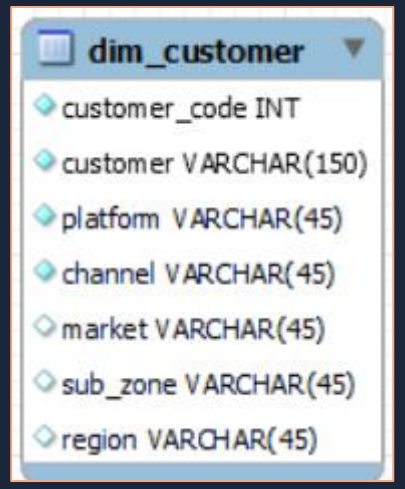
What is a Fiscal Year?

A fiscal year is a 12-month period used by businesses and organizations for financial reporting, budgeting, and tax purposes. Unlike a calendar year (which runs from January 1st to December 31st), a fiscal year can start on any date and end 12 months later.

Atliq Hardware's fiscal year starts from 1st September and ends on 31st August

Fiscal Year 2020 runs from 1st September 2019 to 31st August 2020
Fiscal Year 2021 runs from 1st September 2020 to 31st August 2021

Data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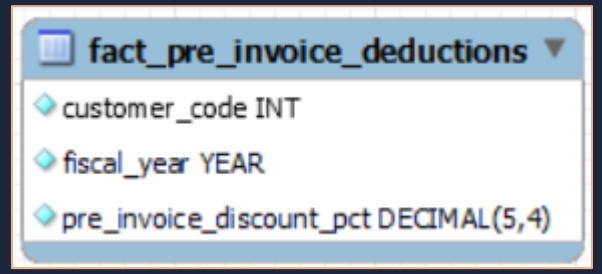
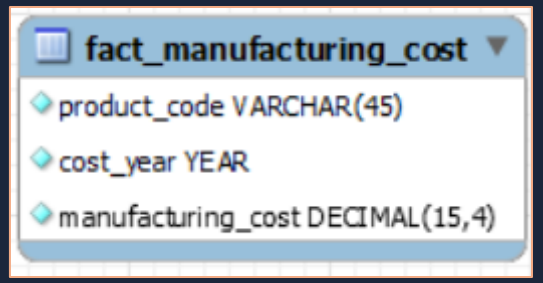
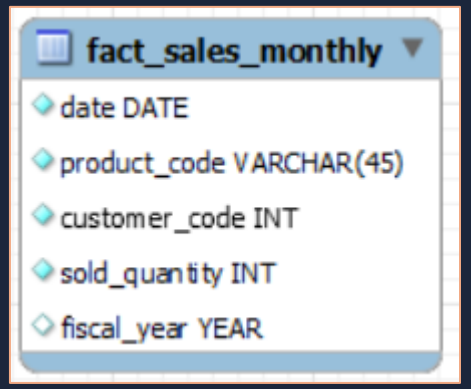
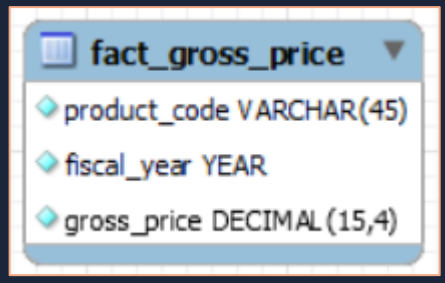
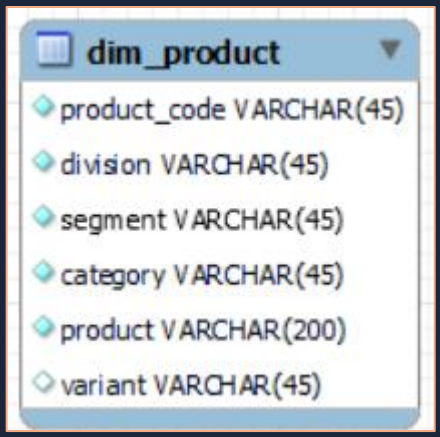
platform VARCHAR(45)
channel VARCHAR(45)
market VARCHAR(45)
sub_zone VARCHAR(45)
region VARCHAR(45)


fact_pre_invoice_deductions
customer_code INT
fiscal_year YEAR
pre_invoice_discount_pct DECIMAL(5,4)


fact_manufacturing_cost
product_code VARCHAR(45)
cost_year YEAR
manufacturing_cost DECIMAL(15,4)


fact_sales_monthly
date DATE
product_code VARCHAR(45)
customer_code INT
sold_quantity INT
fiscal_year YEAR


fact_gross_price
product_code VARCHAR(45)
fiscal_year YEAR
gross_price DECIMAL(15,4)


dim_product
product_code VARCHAR(45)
division VARCHAR(45)
segment VARCHAR(45)
category VARCHAR(45)
product VARCHAR(200)
variant VARCHAR(45)

Q1. Provide the list of markets in which customer "Atliq Exclusive" operates its business in the APAC region.

Query

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

Query Result

customer_code	customer	platform	channel	market	sub_zone	region
70002017	Atliq Exclusive	Brick & Mortar	Direct	India	India	APAC
70003181	Atliq Exclusive	Brick & Mortar	Direct	Indonesia	ROA	APAC
70004069	Atliq Exclusive	Brick & Mortar	Direct	Japan	ROA	APAC
70006157	Atliq Exclusive	Brick & Mortar	Direct	Philiphines	ROA	APAC
70007198	Atliq Exclusive	Brick & Mortar	Direct	South Korea	ROA	APAC
70008169	Atliq Exclusive	Brick & Mortar	Direct	Australia	ANZ	APAC
70009133	Atliq Exclusive	Brick & Mortar	Direct	Newzealand	ANZ	APAC
70010047	Atliq Exclusive	Brick & Mortar	Direct	Bangladesh	ROA	APAC

Q2. What is the percentage of unique product increase in 2021 vs. 2020?

Query

```
select a.x as unique_products_2020, b.y as unique_products_2021, ((b.y-a.x)/a.x *100) as percentage_chg
from
    (
        (select count(distinct(product_code)) as x from fact_sales_monthly where fiscal_year=2020) a,
        (select count(distinct(product_code)) as y from fact_sales_monthly where fiscal_year=2021) b
    )
```

Query Result

	unique_products_2020	unique_products_2021	percentage_chg
▶	245	334	36.3265

Q3. Provide a report with all the unique product counts for each segment and sort them in descending order of product counts.

Query

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

Query Result

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

Q4. Which segment had the most increase in unique products in 2021 vs 2020?

Query

```
create temporary table a
    select
        p.segment as 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 fiscal_year=2020
    group by segment;

create temporary table b
    select
        p.segment as 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 fiscal_year=2021
    group by segment;

select
    a.segment,
    a.product_count_2020,
    b.product_count_2021,
    (b.product_count_2021-a.product_count_2020) as difference
from a
join b
using(segment)
```

Query Result

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

Q5. Get the products that have the highest and lowest manufacturing costs.

Query

```
select
    m.product_code,
    p.product,
    m.manufacturing_cost
from fact_manufacturing_cost m
join dim_product p
using (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
```

Query Result

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

Q6. 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.

Query

```sql
select
    c.customer_code,
    c.customer,
    round(avg(pi.pre_invoice_discount_pct),4) as average_discount_pct
from dim_customer c
join fact_pre_invoice_deductions pi
using(customer_code)
where fiscal_year = 2021 and market = "India"
group by c.customer
order by average_discount_pct desc
limit 5
```

Query Result

customer_code	customer	average_discount_pct
90002009	Flipkart	0.3083
90002006	Viveks	0.3038
90002003	Ezone	0.3028
90002002	Croma	0.3025
90002004	Vijay Sales	0.2753

Q7. 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.

Query

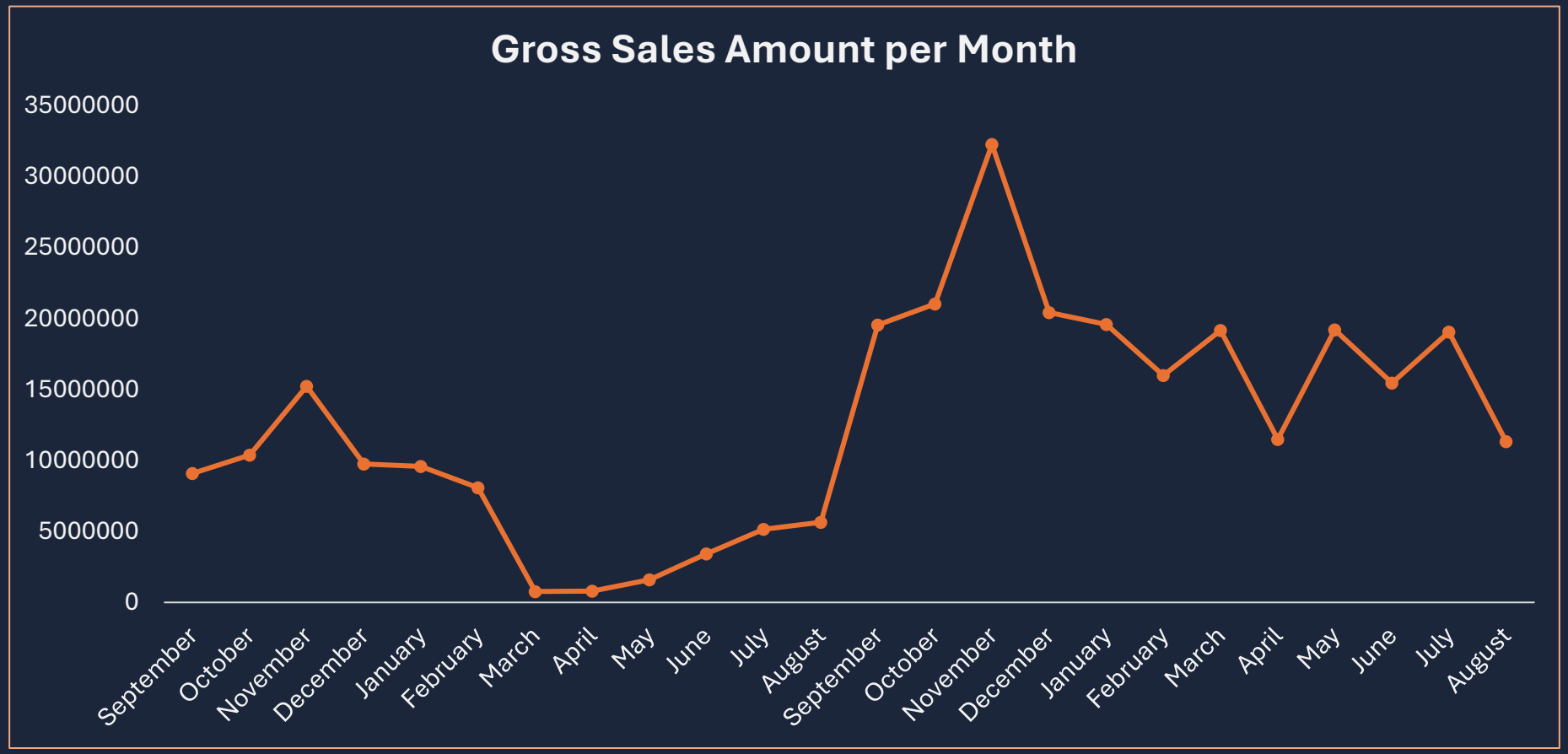
```
select
    monthname(s.date) as month,
    s.fiscal_year as year,
    sum(gp.gross_price * s.sold_quantity) as gross_sales_amount
from fact_sales_monthly s
join fact_gross_price gp
using (product_code)

join dim_customer c
using(customer_code)
where c.customer = "Atliq Exclusive"
group by month, year
order by year asc
```

Query Result

month	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

Q7. 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.



Q8. In which quarter of 2020, got the maximum total_sold_quantity?

Function

Name: get_fiscal_quarter

DDL:

```
CREATE DEFINER=`root`@`localhost` FUNCTION `get_fiscal_quarter`(
    calender_date date
) RETURNS varchar(2) CHARSET utf8mb4
    DETERMINISTIC
BEGIN
    declare month int;
    set month = month(calender_date);
    if month in (9, 10, 11)
    then
    return "Q1";

    elseif month in (12, 1, 2)
    then
    return "Q2";

    elseif month in (3, 4, 5)
    then
    return "Q3";

    elseif month in (6, 7, 8)
    then
    return "Q4";

    else
    return none;
end if;
END
```

Query

```
select
    get_fiscal_quarter(date) 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
```

Query Result

quarter	total_sold_quantity
Q1	7005619
Q2	6649642
Q4	5042541
Q3	2075087

Q9. Which channel helped to bring more gross sales in the fiscal year 2021 and the percentage of contribution?

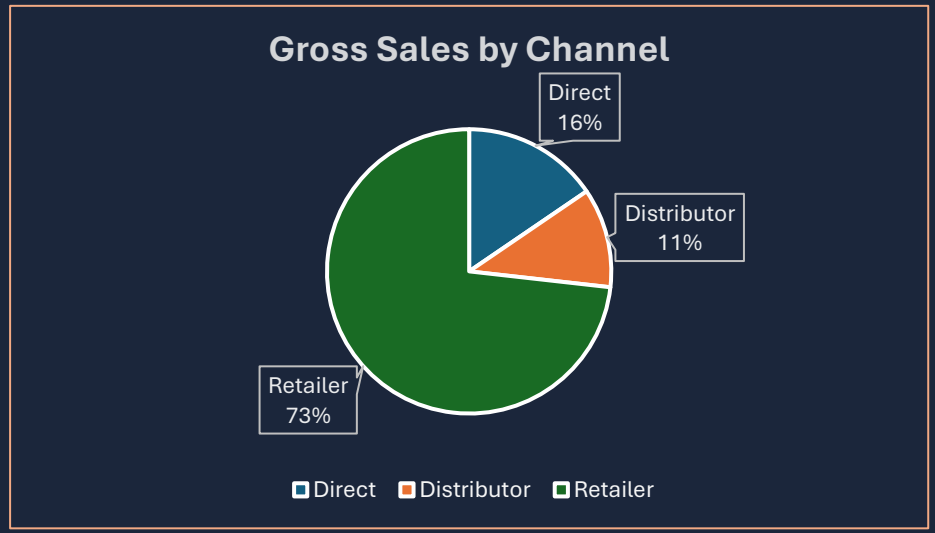
Query

```sql
with cte1 as (
select
    c.channel,
    round(sum(gp.gross_price * s.sold_quantity)/1000000,2) as gross_sales_mln
from fact_sales_monthly s
join dim_customer c
using (customer_code)

join fact_gross_price gp
using (product_code)
where s.fiscal_year = 2021
group by c.channel
)
select
    *,
    round(gross_sales_mln*100/sum(gross_sales_mln) over(),2) as pct_of_contribution
from cte1
```

Query Result

	channel	gross_sales_mln	pct_of_contribution
▶	Direct	406.69	15.48
	Distributor	297.18	11.31
	Retailer	1924.17	73.22



Q10. Get the Top 3 products in each division that have a high total_sold_quantity in the fiscal_year 2021?

Query

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

Query Result

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

Thank You