Analytical SQL Project

The project about Sales Performance Analysis for Electronics Retail dataset

Table

```
CREATE TABLE electronics_sales (
    order_id        NUMBER PRIMARY KEY,
    order_date      DATE,
    region          VARCHAR2(50),
    category        VARCHAR2(50),
    product         VARCHAR2(100),
    quantity        NUMBER,
    unit_price      NUMBER,
    salesperson     VARCHAR2(50)
);
INSERT ALL
  INTO electronics_sales VALUES (1,  DATE '2024-01-15', 'North', 'Laptops', 'HP EliteBook',       5,  1200, 'Ali Youssef')
  INTO electronics_sales VALUES (2,  DATE '2024-01-20', 'South', 'Mobiles', 'iPhone 14',          10, 999,  'Sara Adel')
  INTO electronics_sales VALUES (3,  DATE '2024-02-01', 'North', 'Laptops', 'Dell XPS 13',        3,  1350, 'Ali Youssef')
  INTO electronics_sales VALUES (4,  DATE '2024-02-05', 'East',  'Tablets', 'iPad Air',           7,  650,  'Mohamed Nabil')
  INTO electronics_sales VALUES (5,  DATE '2024-02-20', 'North', 'Mobiles', 'Samsung Galaxy S23', 8,  870,  'Ali Youssef')
  INTO electronics_sales VALUES (6,  DATE '2024-03-05', 'West',  'Laptops', 'Lenovo ThinkPad',     4,  1100, 'Sara Adel')
```

```
 INTO electronics_sales VALUES (7,  DATE '2024-03-10', 'East',  'Mobiles', 'iPhone 14',          2,  999,  'Mohamed Nabil')

 INTO electronics_sales VALUES (8,  DATE '2024-04-01', 'West',  'Tablets', 'Samsung Tab S6',     5,  700,  'Sara Adel')

 INTO electronics_sales VALUES (9,  DATE '2024-04-15', 'South', 'Laptops', 'HP Pavilion',        6,  950,  'Ali Youssef')

 INTO electronics_sales VALUES (10, DATE '2024-04-20', 'North', 'Mobiles', 'Xiaomi Redmi Note',  15, 500,  'Mohamed Nabil'

)

SELECT * FROM dual;
```

A retail company wants to understand its sales performance across regions, product categories, and salespersons to:

1. Identify top-performing salespeople by region.

   Business Objective:
   Understand which salespeople perform best in each region to reward high performers and balance sales

```
select  region,salesperson,rank()over (partition by region order by sumito desc) as totalsales,sumito
from
( select distinct region,salesperson,sum(quantity*unit_price ) over (partition by region,salesperson order by region ) as sumito
from electronics_sales)
        ;
```

REGION	SALESPERSON	TOTAL_S...	SALES_RANK
East	Mohamed Nabil	6548	1
North	Ali Youssef	17010	1
North	Mohamed Nabil	7500	2
South	Sara Adel	9990	1
South	Ali Youssef	5700	2
West	Sara Adel	7900	1

2. Track sales trends across time.

Business Objective:
Monitor monthly sales performance to identify peaks and drops and guide inventory planning.

```
select distinct sum(total)over(partition by month_name order by month_name )
as ordDate,month_name
 from (
 select distinct quantity*unit_price as total, to_char(order_date,'mm-yyyy') as
month_name
  from electronics_sales

 )
          order by month_name;
```

MONTH	TOTAL_REVENUE
2024-01	15990
2024-02	15560
2024-03	6398
2024-04	16700

3. Compare average sales across categories.

Business Objective:
Identify which product categories generate the highest average revenue to inform product focus.

```
          select  distinct category,first_value(revenu) over (partition by category
order by revenu desc )as high_rev
 from(
select  category,avg(unit_price*quantity ) over (partition by category  order by
unit_price*quantity ) as revenu
from electronics_sales
)
          ;
```

CATEGORY	AVG_SALE_VALUE
Laptops	5037.5
Mobiles	6612
Tablets	4025

4. Provide a pivoted view of category sales by region.

Business Objective:
Create a dashboard-friendly summary of category-wise sales per region.

```
select * from(select region ,quantity*unit_price as tot_sales,category from
electronics_sales  ) electo
pivot (
sum(tot_sales) for category in ('Laptops'as laps ,
'Mobiles' as phones ,'Tablets' as tablet
)
)
        order by region ;
```

REGION	LAPTOPS_SALES	MOBILES_SALES	TABLETS_SALES
East		1998	4550
North	10050	14460	
South	5700	9990	
West	4400		3500

5. Compare Each Sale to Monthly Average

Business Objective:
Spot sales significantly above or below monthly average to understand exceptional performance.

```
select  order_id ,order_date,salesperson,sale_amount,monthly_average,sale_amount-
monthly_average as difference from (

 select order_id,order_date,salesperson,month_name ,  sum(total) over(partition by
order_id order by month_name asc ) as sale_amount,
 avg(total) over ( partition by month_name order by month_name )  as monthly_average

 from (
 select  quantity*unit_price as total, to_char(order_date,'mm-yyyy') as month_name,
salesperson,order_id,order_date
  from electronics_sales

 )
 )
;
```

ORDER_ID	ORDER_DATE	SALESPERSON	SALE_AMOUNT	MONTHLY_AVG	DEVIATION_FROM_AVG
2	1/20/2024	Sara Adel	9990	7995	1995
1	1/15/2024	Ali Youssef	6000	7995	-1995
4	2/5/2024	Mohamed Nabil	4550	5186.67	-636.666666666667
3	2/1/2024	Ali Youssef	4050	5186.67	-1136.66666666667
5	2/20/2024	Ali Youssef	6960	5186.67	1773.33333333333
6	3/5/2024	Sara Adel	4400	3199	1201
7	3/10/2024	Mohamed Nabil	1998	3199	-1201

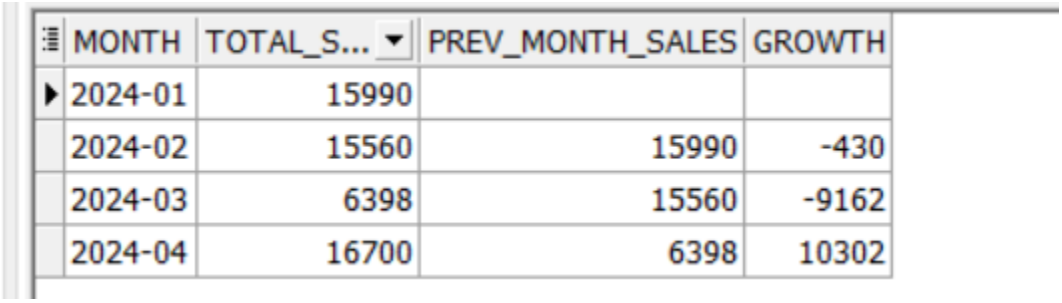
6. Sales Growth Between Months

Business Objective:

Measure month-over-month revenue change to evaluate growth trends.

```
select  month_name,total, lag(total) over ( order by month_name ) as
previous_month ,total-lag(total) over ( order by month_name ) as grwoth
 from (
 select  distinct sum(quantity*unit_price)over (partition by
to_char(order_date,'mm-yyyy')  order by to_char(order_date,'mm-yyyy'))as total
 , to_char(order_date,'mm-yyyy')  as month_name
  from electronics_sales
 )
 order by month_name

;
```



MONTH	TOTAL_S...	PREV_MONTH_SALES	GROWTH
2024-01	15990		
2024-02	15560	15990	-430
2024-03	6398	15560	-9162
2024-04	16700	6398	10302

7. Flag Orders Exceeding Regional Average (using CASE)

Business Objective:

Detect large orders that exceed normal sales volume per region for strategic insights.

```
select order_id,region,total_sales,region_avg,case when total_sales > region_avg
then 'Above Average'
else 'Normal' end case
from (
select order_id,region,
 sum(quantity * unit_price) over (partition by order_id order by region)as
total_sales,
 avg(quantity * unit_price) over (partition by region order by region)as
region_avg
 from electronics_sales
);
```

ORDER_ID	REGION	SALE_VALUE	REGIONAL_AVG	SALE_FLAG
7	East	1998	3274	Normal
4	East	4550	3274	Above Average
10	North	7500	6127.5	Above Average
3	North	4050	6127.5	Normal
1	North	6000	6127.5	Normal
5	North	6960	6127.5	Above Average
2	South	9990	7845	Above Average

8. Dense Ranking of Products per Region

Business Objective:
Rank best-selling products in each region to optimize product placement.

```
select *
        from (
        select region,product,quantity*unit_price as total_sales,rank() over (partition by
        region  order by quantity*unit_price desc   ) as pro_rank
        from electronics_sales
        )

            ;
```

REGION	PRODUCT	TOTAL_SALES	PRODUCT_RANK
East	iPad Air	4550	1
East	iPhone 14	1998	2
North	Xiaomi Redmi Note	7500	1
North	Samsung Galaxy S23	6960	2
North	HP EliteBook	6000	3
North	Dell XPS 13	4050	4
South	iPhone 14	9990	1

9. First Sale by Each Salesperson (using FIRST_VALUE)

Business Objective:
Find the first sale made by each salesperson for training or recognition purposes.

SALESPERSON	FIRST_SALE_DATE	FIRST_PRODUCT
Mohamed Nabil	2/5/2024	iPad Air
Ali Youssef	1/15/2024	HP EliteBook
Sara Adel	1/20/2024	iPhone 14

```
select distinct salesperson,
first_value( order_date ) over (partition by salesperson
order by order_date) as first_sales,
first_value( product ) over (partition by salesperson
order by order_date) as first_product
from electronics_sales
;
```