1 Total number of units sold per product SKU

```
SELECT
    productid,
    SUM(inventoryquantity) AS total_units_sold
FROM
    sales
GROUP BY
    productid
    ORDER BY total_units_sold desc;
```

Data Output   Messages   Notifications

	productid numeric	total_units_sold bigint
1	9806	210
2	3381	201
3	8486	188
4	8106	186
5	3993	182
6	9605	178

The above result of the query shows the productid's with the number of units sold, in descending order with productid 9806 having the highest number of units sold.

2) Product category with the highest sales volume in the last month

```sql
SELECT
    p.productcategory, SUM(s.inventoryquantity)AS sales_volume
FROM sales s
join product p on p.productid=s.productid
where s.sales_year = '2021' and s. sales_month='11'
group by  p.productcategory
order by sales_volume desc;
```

The above query gave the following output

Data Output   Messages   Notifications

	productcategory text	sales_volume bigint
1	Electronics	678
2	Laptops	481
3	SmartPhones	384
4	Home_Appliances	182

It shows that electronics has the highest sales volume of 678, followed by laptops 481

3) How does the inflation rate correlate with sales volume for a specific month?

   What is Correlation between inflation rate and sales volume for a specific month

```
select sales_year,sales_month,ROUND(avg (inflationrate)) as average_inflation,
  sum(sales.inventoryquantity) as sales_volume
     from sales
join factors  on sales.salesdate=factors.salesdate
group by sales_year,sales_month;
```

The above query shows the following

sales_year integer	sales_month integer	average_inflation numeric	sales_volume bigint
2022	6	3	3020
2018	8	2	2131
2022	7	3	2589
2018	11	3	1743
2020	2	3	3432
2021	12	3	2562

Total rows: 60 of 60   Query complete 00:00:00.064

This shows that inflation has no effect on sales volume, because at an inflation rate of 3, sales volume was at the highest at 3020, in year 2022

4) What is the correlation between the inflation rate and sales quantity for all products combined on a   monthly basis over the last year?

.

```
select sales.sales_year, sales.sales_month, avg(factors.inflationrate) as avg_inflation,
sum(sales.inventoryquantity) as total_sales_quantity
from sales
join factors on factors.salesdate= sales.salesdate
where sales.salesdate>= (current_date - interval '1 year')
group by sales_year,sales_month
order by sales_year, sales_month
```

The above query shows there is no correlation between the inflation rate and sales quantity for all products combined on a
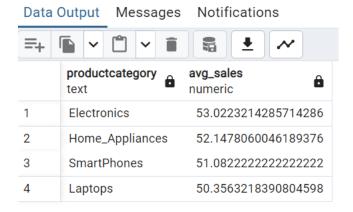
monthly basis over the last year

5) Did promotions significantly impact the sales quantity of products?

```sql
select product.productcategory,round(avg(sales.inventoryquantity))
    as average_sales_without_promotion, product.promotions
from sales
join product on product.productid=sales.productid
where product.promotions='NO'
group by product.productcategory, product.promotions
union all
select product.productcategory,round(avg(sales.inventoryquantity))
as average_sales_without_promotion, product.promotions
from sales

join product on product.productid=sales.productid
where product.promotions='YES'
group by product.productcategory, product.promotions
```

6) What is the average sales quantity per product category?

```sql
select product.productcategory, avg(inventoryquantity) as  avg_sales
from sales
join product on product.productid=sales.productid
group by product.productcategory
order by avg_sales desc;
```

Data Output   Messages   Notifications

	productcategory 🔒 text	avg_sales 🔒 numeric
1	Electronics	53.0223214285714286
2	Home_Appliances	52.1478060046189376
3	SmartPhones	51.0822222222222222
4	Laptops	50.3563218390804598

Electronics has the highest average sales quantity per product category with 53 followed by home appliances with 52.14
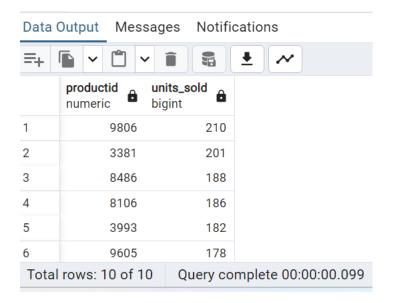
7) How does the GDP affect the total sales volume?

```
select sales.sales_year, sum(factors.gdp) as total_gdp,sum(sales.inventoryquantity)as total_sales
from sales
join factors on sales.salesdate=factors.salesdate
group by sales.sales_year
order by total_sales desc
```

sales_year integer	total_gdp numeric	total_sales bigint
2022	11784934	30376
2020	10809149	29068
2018	11720127	28494
2019	10959588	27529
2021	10437262	27349

From the result above, GDP does not affect the total sale volume

8) What are the top 10 best-selling product SKUs?

```
select productid, sum(inventoryquantity) as units_sold
from sales
group by productid
order by units_sold desc
limit 10;
```

Data Output   Messages   Notifications

	productid numeric	units_sold bigint
1	9806	210
2	3381	201
3	8486	188
4	8106	186
5	3993	182
6	9605	178

Total rows: 10 of 10   Query complete 00:00:00.099

The top selling products represented by the product ID Above.

9) How do seasonal factors influence sales quantities for different product categories?

```sql
select product.productcategory,round(avg(factors.seasonalfactor),4) as average_seasonal_factor,
sum(sales.inventoryquantity) as total_sales
    from sales
join product on product.productid=sales.productid
join factors on factors.salesdate=sales.salesdate
group by product. productcategory
order by average_seasonal_factor
```

Data Output   Messages   Notifications

	productcategory text	average_seasonal_factor numeric	total_sales bigint
1	Electronics	0.9983	44935
2	SmartPhones	1.0032	41601
3	Laptops	1.0048	40439
4	Home_Appliances	1.0076	42203

It is observed that the lower the average seasonal factor the higher the total sales.

10) What is the average sales quantity per product category, and how many products within each category were part of a promotion?

```
SELECT product.productcategory, avg(inventoryquantity) as avg_sales_qty,
    count(case when product.promotions= 'yes' then 1 end)as promotion_count
from sales
join product on sales.productid =product.productid
group by product.productcategory
order by avg_sales_qty
```