```
1.SELECT  COUNT(DISTINCT(customer_id))
FROM customers
```

795

2. SELECT AS

```
 SUM(od.order_profits) AS profit,EXTRACT(year FROM o.order_date) AS year
FROM orders o
JOIN order_details od
on o.order_id=od.order_id
Where EXTRACT(year FROM o.order_date)=2015
GROUP BY city,year
ORDER BY profit DESC
```

New York City 14753(year_2015)

4..How many different cities do we have in the data?
SELECT COUNT(DISTINCT(shipping_city))
FROM orders
ANS_ 531

5. Show the total spent by customers from low to high
SELECT o.customer_id AS id,SUM(od.order_sales) AS total_spent
FROM orders o
JOIN order_details od
ON o.order_id=od.order_id
GROUP BY id
ORDER BY total_spent ASC
Id total_spent
456 5
738 5

6. **What is the most profitable city in the State of Tennessee?**
SELECT o.shipping_city AS city,SUM(od.order_profits) AS profit
From orders o
JOIN order_details od
on o.order_id=od.order_id
WHERE o.shipping_state='Tennessee'
GROUP BY city
ORDER BY profit DESC
LIMIT 1
ANS_ Lebanon profit(83)

7..**What's the average annual profit for that city across all years?**

```
SELECT o.shipping_city AS city,AVG(od.order_profits) AS AVG_profit
From orders o
JOIN order_details od
on o.order_id=od.order_id
WHERE o.shipping_city='Lebanon'
GROUP BY city
```

ANS_ AVG_profit=27.66

8. What is the distribution of customer types in the data?

```
SELECT customer_segment as customer_type,
COUNT(customer_segment)/795.0 as distribution
FROM customers
GROUP BY customer_type
```

ANS_ 51.57% are Consumers, 29.81% are Corporates, and 18.62% are Home Offices.

9. **What's the most profitable product category on average in Iowa across all years?**

```
SELECT AVG(od.order_profits) AS Most_profitable,
p.product_category AS category
FROM order_details od
JOIN product p
On od.product_id=p.product_id
JOIN orders o
ON o.order_id=od.order_id
WHERE shipping_state='Iowa'
GROUP BY category
ORDER BY Most_profitable DESC
```

Furniture_130.25

10. **What is the most popular product in that category across all states in 2016?**

```
SELECT p.product_name AS product_name,SUM(od.quantity) AS quantity,
EXTRACT(year from o.order_date) AS year
FROM order_details od
JOIN product p
On od.product_id=p.product_id
JOIN orders o
ON o.order_id=od.order_id
WHERE product_category='Furniture' AND EXTRACT(year from order_date)=2016
GROUP BY product_name,year
ORDER BY quantity DESC
LIMIT 1
```

According to the above query, the answer is Global Push Button Manager's Chair, Indigo (Personally, not a huge fan) with 22 sales across all states in 2016.

11. Which customer got the most discount in the data? (in total amount)

```
SELECT sum(od.order_sales*od.order_discount/(1-od.order_discount)) AS Max_discount
,o.customer_id AS customer,c.customer_name AS name
FROM order_details od
JOIN orders o
ON o.order_id=od.order_id
join customers c
on c.customer_id=o.customer_id
GROUP BY customer,name
ORDER BY Max_discount DESC
LIMIT 1
```

Sean Miller $23929.08

12. How widely did monthly profits vary in 2018?

```
WITH t1 AS (SELECT EXTRACT(month FROM o.order_date) AS month,
sum(od.order_profits) AS profit
FROM orders o
JOIN order_details od
ON o.order_id=od.order_id
WHERE EXTRACT(year FROM o.order_date)='2018'
GROUP BY month),

t2 AS (SELECT EXTRACT(month FROM o.order_date) AS month,
LAG(sum(od.order_profits),1,0) OVER(ORDER BY EXTRACT(month FROM o.order_date))
AS lag
FROM orders o
JOIN order_details od
ON o.order_id=od.order_id
WHERE EXTRACT(year FROM o.order_date)='2018'
GROUP BY month)

SELect t1.month,t1.profit,t2.lag ,
(t1.profit-t2.lag) AS difference
FROM t1
JOIN t2
on t1.month=t2.month
```

13. 13.Which order was the highest in 2015?

```
select od.order_sales AS highest_order,o.order_id AS id
FROM order_details od
JOIN orders o
ON o.order_id=od.order_id
WHERE EXTRACT(year FROM order_date)=2015
ORDER BY highest_order DESC
```

The highest order ID was CA-2015–145317 with an amount of $22638.

14. What was the rank of each city in the East region in 2015?

```
SELECT o.shipping_city AS city,sum(od.quantity) as total,
o.shipping_region AS region,
dense_rank() OVER(
ORDER BY sum(od.quantity)) AS rank
FROM orders o
JOIN order_details od
USING(order_id)
WHERE o.shipping_region='East' AND
EXTRACT(year FROM order_date)=2015
GROUP BY city,region
ORDER BY total DESC
```

15.Display customer names for customers who are in the segment ‘Consumer’ or ‘Corporate.’ How many customers are there in total?

```
SELECT customer_name AS name,customer_segment AS segment,count(*) AS
total_customers
FROM customers
WHERE customer_segment='Consumer' OR customer_segment='Corporate'
GROUP BY customer_name,customer_segment
```

16.Calculate the difference between the largest and smallest order quantities for product id ‘100.’

```
SELECT MAX(quantity) AS max, MIN(quantity) AS min,
(MAX(quantity)-MIN(quantity)) as difference
FROM order_details
WHERE product_id='100'
```

17.Calculate the percent of products that are within the category ‘Furniture.’

```
SELECT count(product_name)/795.0 AS percent
FROM product
WHERE product_category='Furniture'
```

18. Display the number of duplicate products based on their product manufacture

```
SELECT count(*) AS number_duplicate,product_manufacturer
```

```
FROM product
GROUP BY product_manufacturer
HAVING count(*)>1
order BY count(*) DESC
```

19.Show the product_subcategory and the total number of products in the subcategory.

```
SELECT product_subcategory,count(*) AS total_products
FROM product
GROUP BY product_subcategory
ORDER BY count(*) DESC, product_subcategory ASC
```

20.Show the product_id(s), the sum of quantities, where the total sum of its product quantities is greater than or equal to 100.

```
SELECT p.product_id,SUM(od.quantity) over(order by p.product_id) AS total_sum
from product p
join order_details od
on p.product_id=od.product_id
GROUP BY p.product_id,od.quantity
HAVING SUM(od.quantity) >=100
```