Creating Tables:

Customers:

```
CREATE TABLE customer (
        customer_id serial PRIMARY KEY,
        customer_name VARCHAR ( 150 ) NOT NULL,
        customer_segment VARCHAR ( 150 ) NOT NULL

)
```

Product:

```
CREATE TABLE product (
        product_id serial PRIMARY KEY,
        product_name VARCHAR ( 150 ) UNIQUE NOT NULL,
        product_category VARCHAR ( 150 ),
        product_subcategory VARCHAR ( 150 ),
        product_manufacturer VARCHAR ( 150 )

)

CREATE TABLE orders (
        order_id VARCHAR(150) PRIMARY KEY,
        FOREIGN KEY (customer_id) REFERENCES customer (customer_id),
        customer_id INT NOT NULL,
        order_date VARCHAR ( 150 ) NOT NULL,
        shipping_city VARCHAR ( 150 ),
        shipping_state VARCHAR ( 150 ),
        shipping_region VARCHAR ( 150 ),
        shipping_country VARCHAR ( 150 ),
        shipping_postal_code INT,
        shipping_date VARCHAR ( 150 ),
        shipping_mode VARCHAR ( 150 )
)

CREATE TABLE order_details (
        order_details_id INT NOT NULL,
        product_id INT NOT NULL,
        order_id VARCHAR(150) PRIMARY KEY,
        FOREIGN KEY (product_id) REFERENCES product (product_id),
        quantity INT,
        order_discount NUMERIC,
   order_profits INT,
```

```
    order_profit_ratio NUMERIC,
    order_sales INT
)
```

1.How many Customers do we have in the data?

```
SELECT COUNT(*) FROM customers
```

ANSWER:
795

2.What was the city with the most profit for the company in 2015 and how much was it?

```
SELECT DISTINCT(SUBSTR(order_date, LENGTH(order_date)-3, 4)) AS year, shipping_city ,
SUM(order_profits) FROM orders AS o
JOIN order_details AS od ON o.order_id = od.order_id
WHERE year = '2015'
GROUP BY shipping_city, year
ORDER BY SUM(order_profits) DESC
LIMIT 1;
```

ANSWER:
New York City, 14753

3.How many different cities do we have in the data?

```
SELECT COUNT(DISTINCT(shipping_city)) FROM orders
```

ANSWER:
531

4.Show the total spent by customers from low to high

```
SELECT customer_name, SUM(order_sales) FROM customers AS c
JOIN orders AS o ON o.customer_id = c.customer_id
JOIN order_details AS od ON od.order_id = o.order_id
GROUP BY customer_name
ORDER BY SUM(order_sales) ASC
```

ANSWER:
row for each customer

5.What is the most profitable City in the State of Tennessee?

```
SELECT shipping_city, SUM(order_profits) FROM orders AS o
JOIN order_details AS od ON o.order_id = od.order_id
WHERE shipping_state = 'Tennessee'
GROUP BY shipping_city
ORDER BY SUM(order_profits) DESC
LIMIT 1;
```

ANSWER:
Lebanon, 83

6.What's the average annual profit for that city across all years in that city?

```
SELECT DISTINCT(SUBSTR(order_date, LENGTH(order_date)-3, 4)) AS year, shipping_city,
AVG(order_profits) from orders AS o
JOIN order_details AS od ON o.order_id = od.order_id
WHERE shipping_city = 'Lebanon'
GROUP BY year, shipping_city
```

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

```
SELECT customer_segment, COUNT(*) AS num_of_customers FROM customers
GROUP BY customer_segment
```

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

```
SELECT product_category, AVG(order_profits) FROM orders AS o
JOIN order_details AS od ON o.order_id = od.order_id
JOIN product AS p ON od.product_id = p.product_id
WHERE shipping_state = 'Iowa'
GROUP BY product_category
LIMIT 1;
```

ANSWER:
Furniture, 130.25

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

```
SELECT DISTINCT(SUBSTR(order_date, LENGTH(order_date)-3, 4)) AS year, product_name,
SUM(quantity) FROM orders AS o
JOIN order_details AS od ON od.order_id = o.order_id
JOIN product AS p ON p.product_id = od.product_id
WHERE year = '2016' AND product_category = 'Furniture'
GROUP BY year, product_name
ORDER BY SUM(quantity) DESC
```

```
LIMIT 1;
```

ANSWER:
Global Push Button Manager's Chair, Indigo (22)

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

```
SELECT  c.customer_id, customer_name, MAX((order_sales/(1-order_discount))-order_sales)
AS discount  FROM orders AS o
JOIN order_details AS od ON od.order_id = o.order_id
JOIN customers AS c ON c.customer_id = o.customer_id
GROUP BY c.customer_id, customer_name
ORDER BY discount DESC
LIMIT 1
```

ANSWER:
Sean Miller, , id-687

11.How widely did monthly profits vary in 2018?

```
WITH profit_month AS (
SELECT CAST(SUBSTR(order_date,1,INSTR(order_date,'/') -1) AS INT) AS month ,
SUM(order_profits) AS revenue FROM orders AS o
JOIN order_details AS od ON o.order_id = od.order_id
WHERE SUBSTR(order_date,-4)='2018'
GROUP BY month
ORDER BY month ASC)

SELECT month, revenue ,
LAG(revenue, 1,0) OVER (ORDER BY month) AS previous_revenue, (revenue - (LAG(revenue,
1,0) OVER (ORDER BY month))) AS difference
FROM  profit_month
```

12.Which order was the highest in 2015?

```
SELECT o.order_id, product_name, order_sales FROM order_details AS od
JOIN product AS p ON p.product_id = od.product_id
JOIN orders AS o ON o.order_id = od.order_id
WHERE Substr(order_date,-4)= '2015'
ORDER BY order_sales DESC
LIMIT 1;
```

ANSWER:
CA-2015-145317

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

```
SELECT shipping_region,shipping_city, SUM(quantity), DENSE_RANK() over(ORDER BY
SUM(quantity) DESC) AS rank FROM orders AS o
JOIN order_details AS od ON o.order_id = od.order_id
WHERE shipping_region = 'East' AND SUBSTR(order_date,-4)='2015'
GROUP BY shipping_region, shipping_city
```

JOIN ALL TABLES:

```
SELECT * FROM customers AS c
JOIN orders AS o ON o.customer_id = c.customer_id
JOIN  order_details AS od ON od.order_id = o.order_id
JOIN product AS p ON p.product_id = od.product_id
```