

## Unicorn Project SQL Challenges:

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### Question 1:

How many customers do we have in the data?

```
SELECT  
    COUNT(DISTINCT customer_id)  
FROM customers  
;
```

count
795

### Question 2:

What was the city with the most profit for the company in 2015?

```
SELECT  
    o.shipping_city  
FROM orders o  
JOIN order_details od ON o.order_id = od.order_id  
WHERE EXTRACT(YEAR FROM shipping_date) = 2015  
GROUP BY o.shipping_city  
ORDER BY SUM(od.order_profits) DESC  
LIMIT 1;
```

shipping_city
New York City

**Question 3:**

In 2015, what was the most profitable city's profit?

```
SELECT
  SUM(od.order_profits) AS profit
FROM orders o
JOIN order_details od ON o.order_id = od.order_id
WHERE EXTRACT(YEAR FROM shipping_date) = 2015
GROUP BY o.shipping_city
ORDER BY profit DESC
LIMIT 1;
```

profit ▲
14670

**Question 4:**

How many different cities do we have in the data? Please refer just to the city name and not similar city names in different states.

```
SELECT
  COUNT(DISTINCT shipping_city) AS unique_city_count
FROM orders;
```




unique_city_count ▲
531

**Question 5:**

Show the total spent by customers from low to high.

```
SELECT
    DISTINCT c.customer_id,
    c.customer_name,
    SUM(od.order_sales) AS total_spent
FROM customers c
JOIN orders o ON c.customer_id = o.customer_id
JOIN order_details od ON o.order_id = od.order_id
GROUP BY c.customer_id, c.customer_name
ORDER BY 3
;
```

customer_id ▲	customer_name ▲	total_spent ▲
456	Lela Donovan	5
738	Thais Sissman	5
546	Mitch Gastineau	16
124	Carl Jackson	17
657	Roy Skaria	22
626	Ricardo Emerson	48
725	Susan Gilcrest	49
448	Larry Blacks	50
9	Adrian Shami	58
355	Jasper Cacioppo	72
292	Fred Wasserman	81
38	Anemone Ratner	88
419	Karen Seio	89

 793  0 affected  1.048 s

**Question 6:**

What is the most profitable city in the State of Tennessee?

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

shipping\_city ▲

Lebanon

**Question 7:**

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

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

years	avg_profit
2016	6
2017	18
2018	59

**Question 8:**

What is the distribution of customer types in the data?

```
SELECT
  customer_segment,
  COUNT(customer_id) AS customer_count
FROM customers
GROUP BY customer_segment
ORDER BY customer_count DESC
;
```

customer_segment ▲	customer_count ▲
Consumer	410
Corporate	237
Home Office	148

**Question 9:**

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

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

product_category ▲
Furniture

**Question 10:**

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

```
WITH most_profitable_category AS (  
  SELECT  
    p.product_category  
  FROM product p  
  JOIN order_details od ON p.product_id = od.product_id  
  JOIN orders o ON od.order_id = o.order_id  
  WHERE o.shipping_state = 'Iowa'  
  GROUP BY p.product_category  
  ORDER BY AVG(od.order_profits) DESC  
  LIMIT 1  
)  
SELECT  
  p.product_name,  
  COUNT(od.order_id) AS order_count  
FROM product p  
JOIN order_details od ON p.product_id = od.product_id  
JOIN orders o ON od.order_id = o.order_id  
WHERE p.product_category = (SELECT product_category FROM most_profitable_category)  
  AND EXTRACT(YEAR FROM o.shipping_date) = 2018  
GROUP BY p.product_name  
ORDER BY order_count DESC  
LIMIT 1;
```

product_name	order_count
Global Wood Trimmed Manager's Task Chair, Khaki	8

**Question 11:**

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

```
SELECT
    DISTINCT c.customer_id,
    c.customer_name,
    SUM(order_discount) AS discount
FROM customers c
JOIN orders o ON c.customer_id = o.customer_id
JOIN order_details od ON o.order_id = od.order_id
GROUP BY c.customer_id, c.customer_name
ORDER BY 3 DESC
LIMIT 1
;
```

customer_id ▲	customer_name ▲	discount ▲
792	Zuschuss Carroll	7.9000000000000001



**Question 12:**

How widely did monthly profits vary in 2018?

```
WITH monthly_profits AS (  
  SELECT  
    EXTRACT(MONTH FROM o.shipping_date) AS month,  
    SUM(od.order_profits) AS total_monthly_profit  
  FROM orders o  
  JOIN order_details od ON o.order_id = od.order_id  
  WHERE EXTRACT(YEAR FROM o.shipping_date) = 2018  
  GROUP BY EXTRACT(MONTH FROM o.shipping_date)  
)  
SELECT  
  MIN(total_monthly_profit) AS min_profit,  
  MAX(total_monthly_profit) AS max_profit,  
  AVG(total_monthly_profit) AS avg_profit,  
  STDDEV(total_monthly_profit) AS stddev_profit  
FROM monthly_profits;
```

min_profit ▲	max_profit ▲	avg_profit ▲	stddev_profit ▲
2052	13164	7654.083333333333	3251.8032048900704

**Question 13:**

Which was the biggest order regarding sales in 2015?

```
SELECT  
  o.order_id,  
  SUM(od.order_sales) AS total_sales  
FROM orders o  
JOIN order_details od ON o.order_id = od.order_id  
WHERE EXTRACT(YEAR FROM o.shipping_date) = 2015  
GROUP BY o.order_id  
ORDER BY total_sales DESC  
LIMIT 1;
```




order_id ▲	total_sales ▲
CA-2015-145317	23660

**Question 14:**

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

```
SELECT
  o.shipping_city,
  SUM(od.quantity) AS total_quantity,
  RANK() OVER (ORDER BY SUM(od.quantity) DESC) AS city_rank
FROM orders o
JOIN order_details od ON o.order_id = od.order_id
WHERE EXTRACT(YEAR FROM o.shipping_date) = 2015
  AND o.shipping_region = 'East'
GROUP BY o.shipping_city
ORDER BY city_rank;
```

shipping_city ^	total_quantity ^	city_rank ^
New York City	1686	1
Philadelphia	392	2
Columbus	167	3
Newark	64	4
Fairfield	53	5
Long Beach	44	6
Lakewood	38	7
Lancaster	36	8
Lawrence	31	9
Dover	30	10
Hackensack	28	11
Utica	24	12
Bangor	24	12

 58  0 affected  0.92 s

**Question 15:**

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

```
SELECT
    customer_name
FROM customers
WHERE customer_segment IN ('Consumer', 'Corporate');
```

-- To count the total number of customers in these segments:

```
SELECT
    COUNT(customer_id) AS total_customers
FROM customers
WHERE customer_segment IN ('Consumer', 'Corporate');
```

customer_name	
Aaron Bergman	
Aaron Hawkins	
Aaron Smayling	
Adam Hart	
Adam Shillingsburg	
Adrian Barton	
Aimee Bixby	
Alan Barnes	
Alan Haines	
Alan Hwang	
Alan Schoenberger	
Alan Shonely	
Alejandro Grove	

total_customers
647

647 0 affected 1.534 s

**Question 16:**

Calculate the difference between the largest and smallest order quantities for product id '100.'

```
SELECT
    MAX(od.quantity) - MIN(od.quantity) AS quantity_difference
FROM order_details od
WHERE od.product_id = 100;
```

quantity_difference ▲
4

**Question 17:**

Calculate the percent of products that are within the category 'Furniture.'

```
SELECT
    (COUNT(CASE WHEN p.product_category = 'Furniture' THEN 1 END) * 100.0) / COUNT(*)
AS percent_furniture
FROM product p;
```

percent_furniture ▲
20.5405405405405405

**Question 18:**

Display the number of product manufacturers with more than 1 product in the product table.

```
SELECT
    COUNT(*) AS manufacturer_count
FROM (
    SELECT
        product_manufacturer
    FROM product p
    GROUP BY product_manufacturer
    HAVING COUNT(product_id) > 1
) AS manufacturers_with_multiple_products;
```

manufacturer_count ▲
169

**Question 19:**

Show the product\_subcategory and the total number of products in the subcategory.

-- Show the order for the most to least number of products.

```
SELECT
  p.product_subcategory,
  COUNT(p.product_id) AS total_products_in_subcategory,
  SUM(od.quantity) AS total_products_ordered
FROM product p
LEFT JOIN order_details od ON p.product_id = od.product_id
GROUP BY p.product_subcategory
ORDER BY total_products_in_subcategory DESC;
```

product_subcategory ^	total_products_in_subcategory ^	total_products_ordered ^
Binders	1523	5988
Paper	1369	5376
Furnishings	956	3557
Phones	889	3289
Storage	845	3149
Art	796	3000
Accessories	774	3091
Chairs	617	2372
Appliances	468	1824
Labels	367	1658
Tables	319	1241
Envelopes	254	906
Bookcases	228	868

17 0 affected 0.948 s

**Question 20:**

20 Show the product\_id(s), the sum of quantities, where for each sale of product quantities is greater than or equal to 100

```
SELECT
    product_id,
    SUM(quantity) AS total_quantity
FROM order_details
WHERE quantity >= 100
GROUP BY product_id;
```

product_id ▲	total_quantity ▲
122	143
920	130
1507	324
1600	216