

Task Presentation At Auguma

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Workflow:

1. Table creation
2. Writing a SQL script for 'Key performance indicators'
3. Explaining it to you for the interview

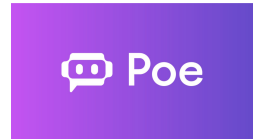


Table creation:

Parent/Child table segregation

| | A | | B | | C | | D | E | F | G |
|----|-----------------|---------------------|----------------------------|------------|------------|----------|-------------|---|---|---|
| 1 | Sales Table | | | | | | | | | |
| 2 | transaction_id | date | customer_id | store_id | product_id | quantity | total_price | | | |
| 3 | 1 | 2023-11-25 | 542 | 74 | 8930 | 3 | 256.78 | | | |
| 4 | 2 | 2023-06-10 | 124 | 17 | 2211 | 7 | 498.12 | | | |
| 5 | 3 | 2023-07-28 | 429 | 91 | 7418 | 8 | 751.55 | | | |
| 6 | 4 | 2023-12-05 | 883 | 42 | 3105 | 2 | 102.92 | | | |
| 7 | | | | | | | | | | |
| 8 | Products Table | | | | | | | | | |
| 9 | product_id | product_name | category | supplier | price | | | | | |
| 10 | 1 | Schattenfugenrahmen | Home and Living | Supplier 1 | 374.64 | | | | | |
| 11 | 2 | mirror | Home and Living | Supplier 1 | 196.86 | | | | | |
| 12 | 3 | Football | Sports | Supplier 5 | 85.58 | | | | | |
| 13 | | | | | | | | | | |
| 14 | Customers Table | | | | | | | | | |
| 15 | customer_id | customer_name | contact | membership | | | | | | |
| 16 | 1 | Max Mueller | m.mueller@example.com | Premium | | | | | | |
| 17 | 2 | Daniel Fischer | daniel.fischer@example.com | Standard | | | | | | |
| 18 | 3 | Kevin Schmidt | schmidt@example.com | Standard | | | | | | |
| 19 | | | | | | | | | | |
| 20 | Stores Table | | | | | | | | | |
| 21 | store_id | location | size | employees | | | | | | |
| 22 | 1 | Koeln | 1880 | 8 | | | | | | |
| 23 | 2 | Berlin | 2274 | 14 | | | | | | |
| 24 | 3 | Frankfurt | 1985 | 17 | | | | | | |
| 25 | | | | | | | | | | |

Deciding on primary key and foreign key:

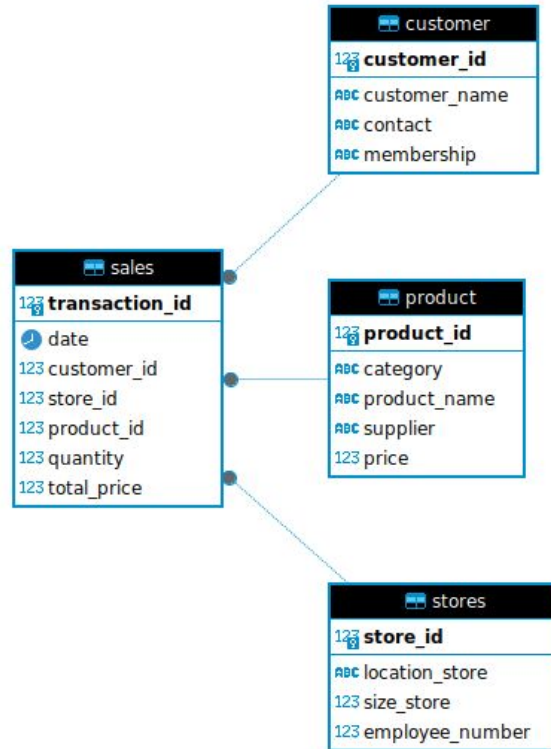


Table creation:

```
create table product (  
    product id integer primary key not null,  
    category varchar(100),  
    product name varchar(100),  
    supplier varchar(100),  
    price decimal(10, 2)  
);  
  
create table customer (  
    customer id integer primary key not null,  
    customer name varchar(255),  
    contact varchar(255),  
    membership varchar(255)  
);  
  
create table stores (  
    store id integer primary key not null,  
    location store varchar (25),  
    size store integer not null,  
    employee_number integer not null  
);  
  
create table sales (  
    transaction id serial primary key,  
    date date not null,  
    customer id integer not null,  
    store id integer not null,  
    product id integer not null,  
    quantity integer not null,  
    total price decimal(10, 2) not null,  
    foreign key (customer id) references customer(customer_id),  
    foreign key (store id) references stores(store id),  
    foreign key (product_id) references product(product_id)  
);
```

Table creation & data insertion :

How many rows we need to play with the data?

| | |
|----------------|-----------------------------|
| transaction_id | 1-1000 |
| date | past 1 year including today |
| customer_id | 1-100 |
| store_id | 1-10 |
| product_id | 1-60 |
| quantity | 1-10 |
| total_price | random |
| product_name | 1-60 |
| category | 1-9 |
| supplier | random |
| price | random |
| customer_name | random |
| contact | name.lastname@gmx.de |
| membership | standard and premium |
| location | big cities |
| size | random |
| employees | random |

Table creation & data insertion:

```
INSERT INTO product (product_id, category, product_name, supplier, price) values
('1', 'Furnitures', 'Supreme Comfort Sofa', 'Supplier 15', 799),
('2', 'Furnitures', 'Delightful Dining Table', 'Supplier 8', 499),
('3', 'Furnitures', 'Elegant Coffee Table Set', 'Supplier 7', 249),
('4', 'Furnitures', 'Royale Recliner Chair', 'Supplier 3', 699),
('5', 'Kitchen Appliances', 'Pro Smart Blender', 'Supplier 5', 89),
```

| | product id | category | product name | supplier | price |
|----|------------|-----------------------|-------------------------------|-------------|-------|
| 1 | | Furnitures | Supreme Comfort Sofa | Supplier 15 | 799 |
| 2 | 2 | Furnitures | Delightful Dining Table | Supplier 8 | 499 |
| 3 | 3 | Furnitures | Elegant Coffee Table Set | Supplier 7 | 249 |
| 4 | 4 | Furnitures | Royale Recliner Chair | Supplier 3 | 699 |
| 5 | 5 | Kitchen Appliances | Pro Smart Blender | Supplier 5 | 89 |
| 6 | 6 | Kitchen Appliances | Stainless Steel Toaster Oven | Supplier 4 | 79 |
| 7 | 7 | Kitchen Appliances | Master Multi-Cooker | Supplier 6 | 129 |
| 8 | 8 | Kitchen Appliances | Dream Espresso Machine | Supplier 19 | 299 |
| 9 | 9 | Decoration Articles | Artisanal Wall Mirror | Supplier 1 | 149 |
| 10 | 10 | Decoration Articles | Floral Canvas Artwork | Supplier 17 | 79 |
| 11 | 11 | Decoration Articles | Vintage Table Clock | Supplier 17 | 39 |
| 12 | 12 | Decoration Articles | Decorative Throw Blanket | Supplier 1 | 49 |
| 13 | 13 | Electronic Appliances | Ultra HD Smart TV | Supplier 8 | 999 |
| 14 | 14 | Electronic Appliances | Wireless Soundbar Speaker | Supplier 3 | 149 |
| 15 | 15 | Electronic Appliances | Robotic Vacuum Cleaner | Supplier 20 | 299 |
| 16 | 16 | Electronic Appliances | Smart Home Security Kit | Supplier 4 | 199 |
| 17 | 17 | Curtains | Sheer Elegance Window Curt | Supplier 2 | 59 |
| 18 | 18 | Curtains | Blackout Drapery Panels | Supplier 5 | 69 |
| 19 | 19 | Curtains | Printed Window Valances | Supplier 7 | 29 |
| 20 | 20 | Curtains | Velvet Room Divider Screen | Supplier 15 | 199 |
| 21 | 21 | Beds and Mattresses | OrthoComfort Memory Foam | Supplier 15 | 499 |
| 22 | 22 | Beds and Mattresses | Adjustable Bed Base Frame | Supplier 8 | 399 |
| 23 | 23 | Beds and Mattresses | Plush Pillow Top Mattress | Supplier 7 | 599 |
| 24 | 24 | Beds and Mattresses | Hybrid Sleep System Mattres | Supplier 3 | 799 |
| 25 | 25 | Sports | Cardio Fitness Treadmill Mach | Supplier 5 | 999 |
| 26 | 26 | Sports | Durable Soccer Goal Net | Supplier 4 | 79 |
| 27 | 27 | Sports | Yoga Mat and Block Set | Supplier 6 | 39 |
| 28 | 28 | Sports | Outdoor Badminton Set | Supplier 19 | 49 |
| 29 | 29 | Sanitary Articles | Rainfall Shower Head | Supplier 1 | 39 |
| 30 | 30 | Sanitary Articles | Modern Bathroom Faucet | Supplier 17 | 99 |
| 31 | 31 | Sanitary Articles | Bidet Toilet Seat | Supplier 17 | 149 |
| 32 | 32 | Sanitary Articles | Glass Shelf with Towel Bar | Supplier 1 | 59 |

Table creation & data insertion:

```
INSERT INTO customer (customer_id, customer_name, contact,
membership)
VALUES ('1', 'John Karlo', 'john.karlo@gmx.de', 'Standard'),
('2', 'Jane Johnson', 'jane.johnson@gmx.de', 'Premium'),
('3', 'Michael Williams', 'michael.williams@gmx.de', 'Standard'),
('4', 'Emily Brown', 'emily.brown@gmx.de', 'Premium'),
('5', 'David Jones', 'david.jones@gmx.de', 'Standard'),
('6', 'Sophia Miller', 'sophia.miller@gmx.de', 'Premium'),
```

| | customer id | customer name | contact | membership |
|----|-------------|-------------------|--------------------------|------------|
| 1 | 1 | John Karlo | john.karlo@gmx.de | Standard |
| 2 | 2 | Jane Johnson | jane.johnson@gmx.de | Premium |
| 3 | 3 | Michael Williams | michael.williams@gmx.de | Standard |
| 4 | 4 | Emily Brown | emily.brown@gmx.de | Premium |
| 5 | 5 | David Jones | david.jones@gmx.de | Standard |
| 6 | 6 | Sophia Miller | sophia.miller@gmx.de | Premium |
| 7 | 7 | William Davis | william.davis@gmx.de | Standard |
| 8 | 8 | Olivia Garcia | olivia.garcia@gmx.de | Premium |
| 9 | 9 | James Höfner | james.hofner@gmx.de | Standard |
| 10 | 10 | Maren Bankmann | maren.bankmann@gmx.de | Premium |
| 11 | 11 | Louisa Schmitz | louisa.schmitz@gmx.de | Standard |
| 12 | 12 | Karin Müller | karin.muller@gmx.de | Premium |
| 13 | 13 | Cindy Schneider | cindy.schneider@gmx.de | Standard |
| 14 | 14 | Christian Welland | christian.welland@gmx.de | Premium |
| 15 | 15 | Christian Smith | christian.smith@gmx.de | Standard |
| 16 | 16 | Olivia Johnson | olivia.johnson@gmx.de | Premium |
| 17 | 17 | Liam Williams | liam.williams@gmx.de | Standard |
| 18 | 18 | Emma Jones | emma.jones@gmx.de | Premium |
| 19 | 19 | Noah Brown | noah.brown@gmx.de | Standard |
| 20 | 20 | Ava Davis | ava.davis@gmx.de | Premium |
| 21 | 21 | Sophia Miller | sophia.miller@gmx.de | Standard |
| 22 | 22 | Isabella Wilson | isabella.wilson@gmx.de | Premium |
| 23 | 23 | Mia Moore | mia.moore@gmx.de | Standard |
| 24 | 24 | Charlotte Taylor | charlotte.taylor@gmx.de | Premium |
| 25 | 25 | Amelia Anderson | amelia.anderson@gmx.de | Standard |
| 26 | 26 | Harper Thomas | harper.thomas@gmx.de | Premium |
| 27 | 27 | Evelyn Jackson | evelyn.jackson@gmx.de | Standard |
| 28 | 28 | Abigail White | abigail.white@gmx.de | Premium |
| 29 | 29 | Emily Harris | emily.harris@gmx.de | Standard |
| 30 | 30 | Elizabeth Martin | elizabeth.martin@gmx.de | Premium |
| 31 | 31 | Mila Thompson | mila.thompson@gmx.de | Standard |
| 32 | 32 | Ella Garcia | ella.garcia@gmx.de | Premium |
| 33 | 33 | Scarlett Martinez | scarlett.martinez@gmx.de | Standard |
| 34 | 34 | Luna Robinson | luna.robinson@gmx.de | Premium |
| 35 | 35 | Sofia Clark | sofia.clark@gmx.de | Standard |
| 36 | 36 | Avery Rodriguez | avery.rodriguez@gmx.de | Premium |
| 37 | 37 | Grace Lewis | grace.lewis@gmx.de | Standard |
| 38 | 38 | Chloe Lee | chloe.lee@gmx.de | Premium |
| 39 | 39 | Victoria Walker | victoria.walker@gmx.de | Standard |
| 40 | 40 | Madison Hall | madison.hall@gmx.de | Premium |
| 41 | 41 | Eleanor Allen | eleanor.allen@gmx.de | Standard |
| 42 | 42 | Hannah Young | hannah.young@gmx.de | Premium |
| 43 | 43 | Nora Hernandez | nora.hernandez@gmx.de | Standard |

Table creation & data insertion:

```
INSERT INTO stores (store_id, location_store, size_store, employee_number)
VALUES
```

```
(1, 'Berlin', 2800, 20),
(2, 'Hamburg', 1800, 15),
(3, 'München', 1900, 25),
(4, 'Köln', 1880, 10),
(5, 'Frankfurt', 1700, 18),
(6, 'Stuttgart', 1900, 12),
(7, 'Düsseldorf', 2200, 22),
(8, 'Dortmund', 1500, 8),
(9, 'Essen', 1750, 14),
(10, 'Bremen', 1550, 16);
```

| | 123 store id ▼ | ABC location store ▼ | 123 size store ▼ | 123 employee number ▼ |
|----|----------------|----------------------|------------------|-----------------------|
| 1 | 1 | Berlin | 2,800 | 20 |
| 2 | 2 | Hamburg | 1,800 | 15 |
| 3 | 3 | München | 1,900 | 25 |
| 4 | 4 | Köln | 1,880 | 10 |
| 5 | 5 | Frankfurt | 1,700 | 18 |
| 6 | 6 | Stuttgart | 1,900 | 12 |
| 7 | 7 | Düsseldorf | 2,200 | 22 |
| 8 | 8 | Dortmund | 1,500 | 8 |
| 9 | 9 | Essen | 1,750 | 14 |
| 10 | 10 | Bremen | 1,550 | 16 |

Table creation & data insertion:

```
INSERT INTO sales (date, customer_id, store_id, product_id, quantity, total_price)
SELECT
```

```
current_date - (random() * 365)::INTEGER AS date,
(random() * 14 + 1)::INTEGER AS customer_id,
(random() * 9 + 1)::INTEGER AS store_id,
(random() * 59 + 1)::INTEGER AS product_id,
(random() * 9 + 1)::INTEGER AS quantity,
(random() * 1000)::NUMERIC(10, 2) AS total_price
from generate_series(1, 1000);
```

| | transaction id | date | customer id | store id | product id | quantity | total price |
|----|----------------|------------|-------------|----------|------------|----------|-------------|
| 1 | 1 | 2023-06-18 | 3 | 8 | 29 | 6 | 66.64 |
| 2 | 2 | 2023-10-30 | 9 | 6 | 21 | 8 | 118.19 |
| 3 | 3 | 2023-10-17 | 13 | 10 | 58 | 7 | 309.54 |
| 4 | 4 | 2023-11-16 | 2 | 6 | 27 | 2 | 170.49 |
| 5 | 5 | 2023-04-29 | 4 | 2 | 18 | 5 | 505.3 |
| 6 | 6 | 2023-06-12 | 5 | 4 | 39 | 10 | 665.87 |
| 7 | 7 | 2023-07-07 | 13 | 3 | 9 | 9 | 950.05 |
| 8 | 8 | 2023-07-15 | 11 | 6 | 25 | 8 | 939.83 |
| 9 | 9 | 2023-03-13 | 13 | 9 | 26 | 4 | 855.05 |
| 10 | 10 | 2023-09-02 | 9 | 8 | 35 | 10 | 869.52 |
| 11 | 11 | 2023-06-15 | 13 | 1 | 26 | 3 | 655.63 |
| 12 | 12 | 2023-06-18 | 6 | 4 | 60 | 7 | 48.45 |
| 13 | 13 | 2023-10-02 | 4 | 7 | 28 | 6 | 758.64 |
| 14 | 14 | 2023-10-02 | 14 | 6 | 60 | 5 | 236.49 |
| 15 | 15 | 2023-07-07 | 10 | 6 | 32 | 3 | 478.82 |
| 16 | 16 | 2023-11-04 | 8 | 5 | 41 | 9 | 833.91 |
| 17 | 17 | 2023-08-17 | 8 | 2 | 49 | 1 | 496.3 |
| 18 | 18 | 2023-05-09 | 5 | 7 | 30 | 2 | 101.83 |
| 19 | 19 | 2023-05-24 | 5 | 9 | 3 | 8 | 269.69 |
| 20 | 20 | 2023-05-27 | 6 | 4 | 26 | 9 | 964.01 |
| 21 | 21 | 2023-10-11 | 12 | 3 | 44 | 2 | 950.13 |
| 22 | 22 | 2023-09-23 | 10 | 6 | 10 | 9 | 501.11 |
| 23 | 23 | 2023-09-16 | 5 | 3 | 10 | 8 | 974.11 |
| 24 | 24 | 2023-07-10 | 2 | 8 | 19 | 7 | 410.74 |
| 25 | 25 | 2023-08-25 | 13 | 2 | 52 | 3 | 423.46 |
| 26 | 26 | 2023-05-27 | 8 | 8 | 13 | 9 | 894.65 |
| 27 | 27 | 2023-11-24 | 5 | 8 | 40 | 6 | 396.06 |
| 28 | 28 | 2023-05-12 | 3 | 9 | 48 | 7 | 613.8 |
| 29 | 29 | 2023-10-08 | 3 | 7 | 49 | 6 | 227.64 |
| 30 | 30 | 2023-07-08 | 9 | 8 | 39 | 5 | 468.99 |
| 31 | 31 | 2023-09-16 | 9 | 6 | 23 | 5 | 186.62 |
| 32 | 32 | 2023-06-11 | 9 | 7 | 50 | 5 | 460.17 |
| 33 | 33 | 2023-10-28 | 6 | 2 | 43 | 4 | 81.44 |
| 34 | 34 | 2023-04-30 | 4 | 6 | 25 | 4 | 392.4 |
| 35 | 35 | 2023-04-20 | 7 | 9 | 16 | 9 | 964.59 |
| 36 | 36 | 2023-03-05 | 15 | 5 | 50 | 5 | 548.71 |
| 37 | 37 | 2023-02-02 | 12 | 5 | 15 | 4 | 390.24 |
| 38 | 38 | 2023-04-17 | 5 | 8 | 55 | 9 | 960.4 |
| 39 | 39 | 2023-05-31 | 4 | 1 | 50 | 3 | 190.92 |
| 40 | 40 | 2023-08-12 | 4 | 2 | 16 | 5 | 990.89 |
| 41 | 41 | 2023-11-18 | 1 | 3 | 30 | 10 | 449.72 |
| 42 | 42 | 2023-03-06 | 2 | 2 | 56 | 2 | 842.11 |

Point Two: Writing a SQL script for 'Key performance indicators'

Sales Performance Analysis:

1. Write SQL queries to calculate the total sales for each store last month.

```
SELECT s.store_id, st.location_store, SUM(s.total_price) AS total_sales
FROM sales s
JOIN stores st ON s.store_id = st.store_id
where EXTRACT(MONTH FROM s.date) = 12 and EXTRACT(YEAR FROM s.date) = 2023
GROUP BY s.store_id, st.location_store
ORDER BY total_sales DESC;
```

| | 123 store id ▼ | ABC location store ▼ | 123 total sales ▼ |
|----|----------------|----------------------|-------------------|
| 1 | 4 ↗ | Köln | 6,568.25 |
| 2 | 3 ↗ | München | 4,950.09 |
| 3 | 9 ↗ | Essen | 4,769.48 |
| 4 | 6 ↗ | Stuttgart | 4,398.53 |
| 5 | 8 ↗ | Dortmund | 3,902.51 |
| 6 | 7 ↗ | Düsseldorf | 3,296.89 |
| 7 | 2 ↗ | Hamburg | 2,474.09 |
| 8 | 5 ↗ | Frankfurt | 2,314.29 |
| 9 | 10 ↗ | Bremen | 1,887.52 |
| 10 | 1 ↗ | Berlin | 400.92 |

Point Two: Writing a SQL script for 'Key performance indicators'

Sales Performance analysis

2. Identify the top 5 performing products in terms of quantity sold.

```
SELECT p.product_name, p.category, s.product_id, SUM(s.quantity) AS total_quantity
FROM sales s
JOIN product p ON s.product_id = p.product_id
GROUP BY s.product_id, p.product_name, p.category
ORDER BY total_quantity DESC
LIMIT 5;
```

| | ABC product name ▼ | ABC category ▼ | 123 product id ▼ | 123 total quantity ▼ |
|---|--------------------------|-----------------------|------------------|----------------------|
| 1 | Outdoor Badminton Set | Sports | 28 ↗ | 148 |
| 2 | Ultra HD Smart TV | Electronic Appliances | 13 ↗ | 139 |
| 3 | Decorative Floor Vase | Decoration Articles | 47 ↗ | 130 |
| 4 | Royale Recliner Chair | Furnitures | 4 ↗ | 128 |
| 5 | Classic Leather Armchair | Furnitures | 37 ↗ | 127 |

Point Two: Writing a SQL script for 'Key performance indicators'

Sales Performance analysis

3. Analyze the sales trend for a particular product category over the past year.

```
SELECT p.category, DATE_TRUNC('month', s.date) AS month, SUM(s.total_price) AS total_sales
FROM sales s
JOIN product p ON p.product_id = s.product_id
GROUP BY p.category, DATE_TRUNC('month', s.date)
order by category;
```

| | category | month | total sales |
|----|-----------------------|-------------------------------|-------------|
| 1 | Beds and Mattresses | 2023-01-01 00:00:00.000 +0100 | 495.01 |
| 2 | Beds and Mattresses | 2023-02-01 00:00:00.000 +0100 | 9,263.01 |
| 3 | Beds and Mattresses | 2023-03-01 00:00:00.000 +0100 | 4,158.14 |
| 4 | Beds and Mattresses | 2023-04-01 00:00:00.000 +0200 | 2,065.13 |
| 5 | Beds and Mattresses | 2023-05-01 00:00:00.000 +0200 | 7,722.19 |
| 6 | Beds and Mattresses | 2023-06-01 00:00:00.000 +0200 | 5,917.25 |
| 7 | Beds and Mattresses | 2023-07-01 00:00:00.000 +0200 | 4,563.4 |
| 8 | Beds and Mattresses | 2023-08-01 00:00:00.000 +0200 | 3,326.58 |
| 9 | Beds and Mattresses | 2023-09-01 00:00:00.000 +0200 | 5,337.93 |
| 10 | Beds and Mattresses | 2023-10-01 00:00:00.000 +0200 | 5,721.56 |
| 11 | Beds and Mattresses | 2023-11-01 00:00:00.000 +0100 | 7,452.16 |
| 12 | Beds and Mattresses | 2023-12-01 00:00:00.000 +0100 | 5,896.34 |
| 13 | Beds and Mattresses | 2024-01-01 00:00:00.000 +0100 | 4,853.6 |
| 14 | Curtains | 2023-01-01 00:00:00.000 +0100 | 235.35 |
| 15 | Curtains | 2023-02-01 00:00:00.000 +0100 | 6,808.13 |
| 16 | Curtains | 2023-03-01 00:00:00.000 +0100 | 6,900.91 |
| 17 | Curtains | 2023-04-01 00:00:00.000 +0200 | 7,774.07 |
| 18 | Curtains | 2023-05-01 00:00:00.000 +0200 | 7,343.62 |
| 19 | Curtains | 2023-06-01 00:00:00.000 +0200 | 6,070.21 |
| 20 | Curtains | 2023-07-01 00:00:00.000 +0200 | 7,598.45 |
| 21 | Curtains | 2023-08-01 00:00:00.000 +0200 | 8,468.91 |
| 22 | Curtains | 2023-09-01 00:00:00.000 +0200 | 5,145.4 |
| 23 | Curtains | 2023-10-01 00:00:00.000 +0200 | 6,166.31 |
| 24 | Curtains | 2023-11-01 00:00:00.000 +0100 | 4,402.55 |
| 25 | Curtains | 2023-12-01 00:00:00.000 +0100 | 9,095.99 |
| 26 | Curtains | 2024-01-01 00:00:00.000 +0100 | 4,344.42 |
| 27 | Decoration Articles | 2023-01-01 00:00:00.000 +0100 | 885.09 |
| 28 | Decoration Articles | 2023-02-01 00:00:00.000 +0100 | 3,195.9 |
| 29 | Decoration Articles | 2023-03-01 00:00:00.000 +0100 | 5,751.59 |
| 30 | Decoration Articles | 2023-04-01 00:00:00.000 +0200 | 3,341.93 |
| 31 | Decoration Articles | 2023-05-01 00:00:00.000 +0200 | 7,713.81 |
| 32 | Decoration Articles | 2023-06-01 00:00:00.000 +0200 | 5,323.02 |
| 33 | Decoration Articles | 2023-07-01 00:00:00.000 +0200 | 6,193.76 |
| 34 | Decoration Articles | 2023-08-01 00:00:00.000 +0200 | 5,932.69 |
| 35 | Decoration Articles | 2023-09-01 00:00:00.000 +0200 | 6,567.33 |
| 36 | Decoration Articles | 2023-10-01 00:00:00.000 +0200 | 2,495.51 |
| 37 | Decoration Articles | 2023-11-01 00:00:00.000 +0100 | 5,426.19 |
| 38 | Decoration Articles | 2023-12-01 00:00:00.000 +0100 | 5,712.18 |
| 39 | Decoration Articles | 2024-01-01 00:00:00.000 +0100 | 4,318.99 |
| 40 | Electronic Appliances | 2023-01-01 00:00:00.000 +0100 | 898.23 |
| 41 | Electronic Appliances | 2023-02-01 00:00:00.000 +0100 | 5,277.91 |
| 42 | Electronic Appliances | 2023-03-01 00:00:00.000 +0100 | 2,650.64 |
| 43 | Electronic Appliances | 2023-04-01 00:00:00.000 +0200 | 5,550.3 |

Point Two: Writing a SQL script for 'Key performance indicators'

Customer Insights:

4. Determine the average purchase value per customer.

```
select
    count(s.transaction_id) as total_number_of_purchases,
    sum(total_price) as total_sales_revenue,
    sum(total_price)/count(s.transaction_id) as average_purchase_value_per_customer
from sales s;
```

| | 123 total number of purchases ▼ | 123 total sales revenue ▼ | 123 average purchase value per customer ▼ |
|---|---------------------------------|---------------------------|---|
| 1 | 1,000 | 491,075.5 | 491.0755 |

Point Two: Writing a SQL script for 'Key performance indicators'

Customer Insights:

5. Identify the top 10 customers based on their total spending.

```
select s.customer_id, c.customer_name, sum(total_price) as total_spending
from sales s
join customer c on c.customer_id = s.customer_id
group by s.customer_id, c.customer_name
order by total_spending desc
limit 10;
```

| | 123 customer id ▼ | ABC customer name ▼ | 123 total spending ▼ |
|----|-------------------|---------------------|----------------------|
| 1 | 11 ↗ | Savannah Moore | 45,397.3 |
| 2 | 3 ↗ | Scarlett Moore | 38,463.04 |
| 3 | 8 ↗ | Nova Ross | 37,782.95 |
| 4 | 2 ↗ | Hailey Morgan | 36,955.22 |
| 5 | 12 ↗ | Alice Rodriguez | 36,913.26 |
| 6 | 10 ↗ | Chloe Stewart | 36,120.58 |
| 7 | 6 ↗ | Karin Murphy | 35,259.06 |
| 8 | 14 ↗ | Hannah Howard | 34,072.08 |
| 9 | 13 ↗ | Madelyn Torres | 31,067.87 |
| 10 | 7 ↗ | Lucy Cooper | 30,371.45 |

Point Two: Writing a SQL script for 'Key performance indicators'

Customer Insights:

6. Find patterns (look at average spendings) in purchase behavior based on membership status.

```
select c.membership, avg(s.total_price) as average_spending
from sales s
join customer c on c.customer_id = s.customer_id
group by c.membership
order by average_spending desc;
```

| | ABC membership ▼ | 123 average spending ▼ |
|---|------------------|------------------------|
| 1 | Premium | 499.6133563218 |
| 2 | Standard | 484.5021061947 |

Point Two: Writing a SQL script for 'Key performance indicators'

Advanced Analysis:

7. Use window functions to rank stores based on their growth in sales quarter over quarter.

```
SELECT store_id, location_store, quarter, avg_sales_growth, store_rank
FROM (
  SELECT store_id, location_store, quarter, avg_sales_growth,
    RANK() OVER (PARTITION BY quarter ORDER BY avg_sales_growth DESC) AS store_rank
  FROM (
    SELECT s.store_id, st.location_store,
      DATE_TRUNC('quarter', s.date) AS quarter,
      AVG(s.total_price) - LAG(AVG(s.total_price)) OVER (PARTITION BY s.store_id ORDER BY DATE_TRUNC('quarter', s.date)) AS
avg_sales_growth
    FROM sales s
    JOIN stores st ON s.store_id = st.store_id
    GROUP BY s.store_id, st.location_store, DATE_TRUNC('quarter', s.date)
  ) AS subquery
) AS ranked_stores ;
```

| | 123 store id | abc location store | quarter | 123 avg sales growth | 123 store rank |
|----|--------------|--------------------|-------------------------------|----------------------|----------------|
| 1 | 3 | München | 2023-04-01 00:00:00.000 +0200 | 108.5633030303 | 1 |
| 2 | 1 | Berlin | 2023-04-01 00:00:00.000 +0200 | 3.384375 | 2 |
| 3 | 9 | Essen | 2023-04-01 00:00:00.000 +0200 | -9.6440977444 | 3 |
| 4 | 10 | Bremen | 2023-04-01 00:00:00.000 +0200 | -9.7871428571 | 4 |
| 5 | 4 | Köln | 2023-04-01 00:00:00.000 +0200 | -40.4226851852 | 5 |
| 6 | 5 | Frankfurt | 2023-04-01 00:00:00.000 +0200 | -45.4220952381 | 6 |
| 7 | 7 | Düsseldorf | 2023-04-01 00:00:00.000 +0200 | -53.8208 | 7 |
| 8 | 2 | Hamburg | 2023-04-01 00:00:00.000 +0200 | -58.611884058 | 8 |
| 9 | 6 | Stuttgart | 2023-04-01 00:00:00.000 +0200 | -59.165297619 | 9 |
| 10 | 8 | Dortmund | 2023-04-01 00:00:00.000 +0200 | -63.7881313131 | 10 |
| 11 | 8 | Dortmund | 2023-07-01 00:00:00.000 +0200 | 105.5015757576 | 1 |
| 12 | 7 | Düsseldorf | 2023-07-01 00:00:00.000 +0200 | 58.7675857143 | 2 |
| 13 | 5 | Frankfurt | 2023-07-01 00:00:00.000 +0200 | 23.536183908 | 3 |
| 14 | 9 | Essen | 2023-07-01 00:00:00.000 +0200 | -5.9412672811 | 4 |
| 15 | 10 | Bremen | 2023-07-01 00:00:00.000 +0200 | -13.7395238095 | 5 |
| 16 | 2 | Hamburg | 2023-07-01 00:00:00.000 +0200 | -37.5919254658 | 6 |
| 17 | 4 | Köln | 2023-07-01 00:00:00.000 +0200 | -59.7388148148 | 7 |
| 18 | 6 | Stuttgart | 2023-07-01 00:00:00.000 +0200 | -69.2363425926 | 8 |
| 19 | 1 | Berlin | 2023-07-01 00:00:00.000 +0200 | -79.5177083333 | 9 |
| 20 | 3 | München | 2023-07-01 00:00:00.000 +0200 | -140.7619030303 | 10 |
| 21 | 6 | Stuttgart | 2023-10-01 00:00:00.000 +0200 | 101.9354131054 | 1 |
| 22 | 2 | Hamburg | 2023-10-01 00:00:00.000 +0200 | 48.2204761905 | 2 |
| 23 | 9 | Essen | 2023-10-01 00:00:00.000 +0200 | 37.6201958525 | 3 |
| 24 | 3 | München | 2023-10-01 00:00:00.000 +0200 | 23.9750615385 | 4 |
| 25 | 1 | Berlin | 2023-10-01 00:00:00.000 +0200 | 5.8825641026 | 5 |
| 26 | 7 | Düsseldorf | 2023-10-01 00:00:00.000 +0200 | 4.2645186335 | 6 |
| 27 | 5 | Frankfurt | 2023-10-01 00:00:00.000 +0200 | -9.0002231237 | 7 |
| 28 | 4 | Köln | 2023-10-01 00:00:00.000 +0200 | -29.9104444444 | 8 |
| 29 | 8 | Dortmund | 2023-10-01 00:00:00.000 +0200 | -41.0930909091 | 9 |
| 30 | 10 | Bremen | 2023-10-01 00:00:00.000 +0200 | -80.0738596491 | 10 |
| 31 | 10 | Bremen | 2024-01-01 00:00:00.000 +0100 | 299.1985263158 | 1 |
| 32 | 4 | Köln | 2024-01-01 00:00:00.000 +0100 | 61.1156944444 | 2 |
| 33 | 3 | München | 2024-01-01 00:00:00.000 +0100 | -4.7714615385 | 3 |
| 34 | 2 | Hamburg | 2024-01-01 00:00:00.000 +0100 | -21.1695833333 | 4 |
| 35 | 6 | Stuttgart | 2024-01-01 00:00:00.000 +0100 | -96.4274038462 | 5 |
| 36 | 8 | Dortmund | 2024-01-01 00:00:00.000 +0100 | -105.549004329 | 6 |
| 37 | 5 | Frankfurt | 2024-01-01 00:00:00.000 +0100 | -128.2710084034 | 7 |
| 38 | 7 | Düsseldorf | 2024-01-01 00:00:00.000 +0100 | -160.0679710145 | 8 |
| 39 | 1 | Berlin | 2024-01-01 00:00:00.000 +0100 | -170.5758974359 | 9 |
| 40 | 9 | Essen | 2024-01-01 00:00:00.000 +0100 | -205.9141071429 | 10 |

Now, we will jump on to the real playground! Thank you very much for your attention so far! :)