

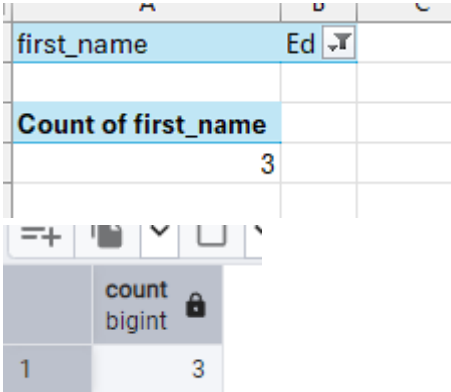
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## 3.1: Intro to Relational Databases

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### ❖ Step 2

➤



The screenshot shows a database query result with two columns: 'first\_name' and 'Count of first\_name'. The 'first\_name' column has a value 'Ed' and a dropdown arrow. The 'Count of first\_name' column has a value '3'. Below the table, there is a summary row with 'count' and 'bigint' data types, and a row with '1' and '3'.

first_name	Count of first_name
Ed	3

count bigint  
1 3

- 
- Sql is epic i love it. If you know the structure of the data you can have results in seconds

### ❖ Step 3

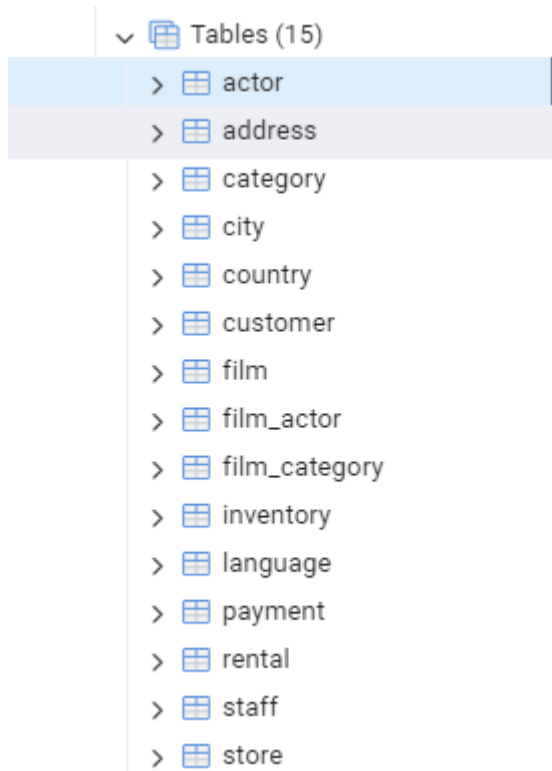
- Execute the following query and list the names of the columns in the payment table.

	payment_id [PK] integer	customer_id smallint	staff_id smallint	rental_id integer	amount numeric (5,2)	payment_date timestamp without time zone
1	17503	341	2	1520	7.99	2007-02-15 22:25:46.996577
2	17504	341	1	1778	1.99	2007-02-16 17:23:14.996577
3	17505	341	1	1849	7.99	2007-02-16 22:41:45.996577
4	17506	341	2	2829	2.99	2007-02-19 19:39:56.996577
5	17507	341	2	3130	7.99	2007-02-20 17:31:48.996577
6	17508	341	1	3382	5.99	2007-02-21 12:33:49.996577
7	17509	342	2	2190	5.99	2007-02-17 23:58:17.996577
8	17510	342	1	2914	5.99	2007-02-20 02:11:44.996577
9	17511	342	1	3081	2.99	2007-02-20 13:57:39.996577
10	17512	343	2	1547	4.99	2007-02-16 00:10:50.996577

- Under the “table\_name” column, what are the names of the tables that are available in the Rockbuster database? (List all names.)

table_name	
actor	
store	
address	
category	
city	
country	
customer	
film_actor	
film_category	
inventory	
language	
rental	
staff	
payment	
film	

- Within the pgAdmin 4 console, can you think of another way to list all the table names in the database instead of the SQL statement above?
  - In object explorer on left within the databases => Rockbuster => Schemas => Tables



- Analyze the rental duration distribution. How many days are most films rented for?

	rented for (in days) smallint	number of films bigint
1	7	191
2	5	191
3	4	203
4	3	203
5	6	212

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#### ❖ Step 4

##### **OLAP (Online Analytical Processing)**

OLAP systems are used for analyzing and summarizing large datasets for decision-making.

###### **1. Sales Trends Analysis (Sales Department):**

- The sales department would use OLAP to analyze monthly or yearly rental trends to identify which genres or movies perform best.
- This information helps forecast future demand and adjust inventory.

###### **2. Customer Retention Analysis (Marketing Team):**

- The marketing team would use OLAP to analyze customer behavior, such as churn rates and average rental frequency.
- This can help create targeted marketing campaigns to improve customer retention.

##### **OLTP (Online Transaction Processing)**

OLTP systems are designed for real-time, day-to-day operations and transactional data.

###### **1. Movie Rentals Processing (Customer Service):**

- The system handles customer transactions, such as recording when a movie is rented, returned, or reserved.
- This ensures real-time updates to the database.

###### **2. Inventory Management (Operations Team):**

- The operations team uses OLTP to update inventory levels whenever a rental transaction occurs.
- It ensures that the availability of movies is accurate for customers.

#### ❖ Step 5

➤ Does the invoice contain structured or unstructured data? Write an explanation for your answer.

- The data in this invoice is structured data because it is organized into clearly defined categories and fields, such as:
  - Invoice Number
  - Item Code
  - Quantity
  - Description
  - Price
  - Subtotal
  - Payee Information (Name, Address, Account Number)
- Table

Invoice No	Item Code	Quantity	Description	Price	Subtotal	Customer Name	Customer Address	Account Name	Payee Address	Account Number
2019001	001	01	New Video Collection Licensing	\$730	\$ 730	Mr. Timothy Walker	40 Sheila La Sparks, NV	Miko Santo	4826 Norma Avenue Andarson , TX	4929331000575420