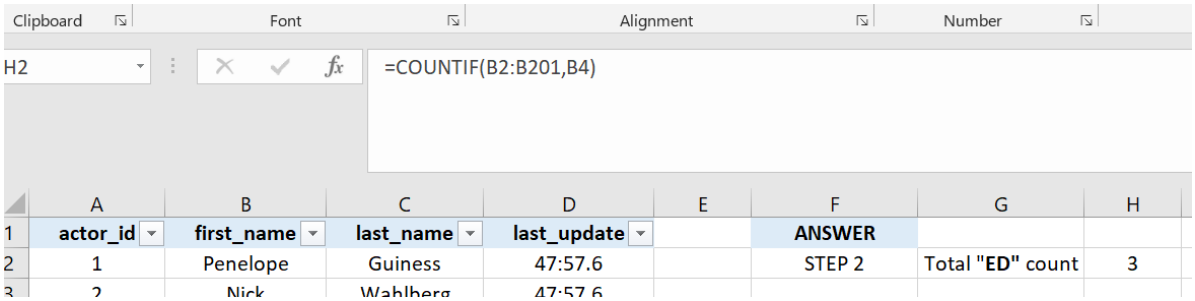
*SUBMITTED BY:*
*Grace Skelley on 10.25.2022*

***DIRECTIONS:***

**STEP 1: If you haven't done so already, install PostgreSQL and load the Rockbuster database using the instructions in the Exercise. Then download your Achievement 3 project brief (PDF) to get an idea of what each Exercise will cover.**

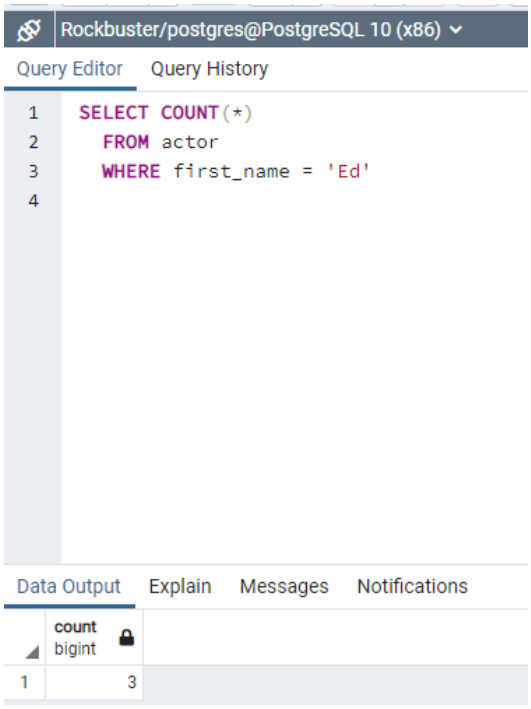
**STEP 2: Compare and contrast spreadsheets and databases by following the steps below:**

- *Download the Rockbuster "actor.csv" file and open it in Excel.*
- *Drawing on what you've learned in previous Achievements, use the appropriate functions in Excel to count all the actors whose first name is "Ed." Write down the result in a text document.*




- *Launch pgAdmin 4, open the Query Tool, copy-paste the SQL statement below into the Query Editor, and execute it.*

```
SELECT COUNT(*)
 FROM actor
 WHERE first_name = 'Ed'
```




**ANSWER:**

The Excel dataset counts three (3) "Ed" names which is the same result as SQL. However, to arrive at this result, I first filtered the "Ed" on the 2nd column and then highlighted the matching name to count the total but immediately realized that it will not calculate the count. So, I recount the use of the formula *"COUNTIF"* to give an exact measure. On the other note, SQL was straightforward and did all of the steps I took within seconds.

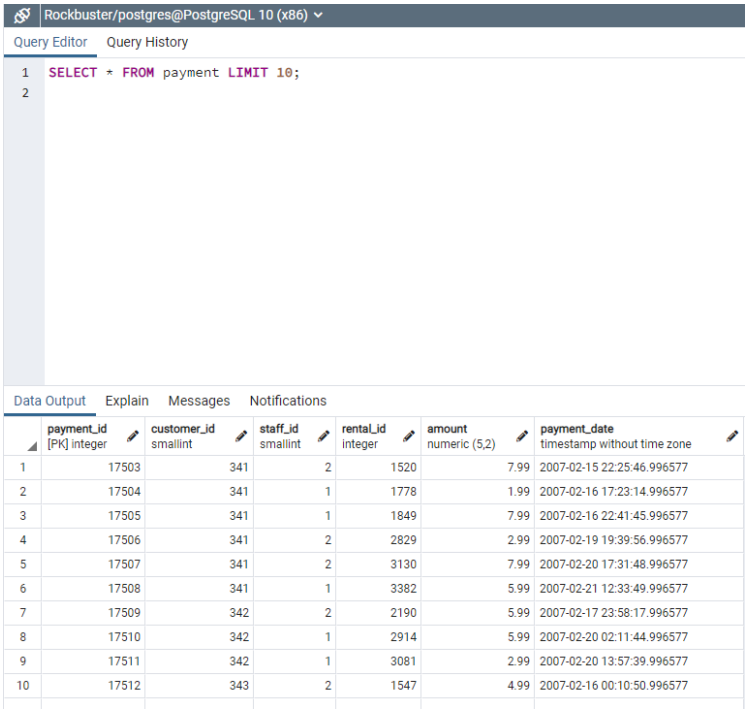
**STEP 3: To answer the next set of questions, you'll be pasting the queries provided into the Query Editor in pgAdmin 4. Note down your answers in your running text document.**

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

```
SELECT * FROM payment LIMIT 10;
```

**COLUMN NAMES:**

- Payment ID
- Customer ID
- Staff ID
- Rental ID
- Amount
- Payment Date



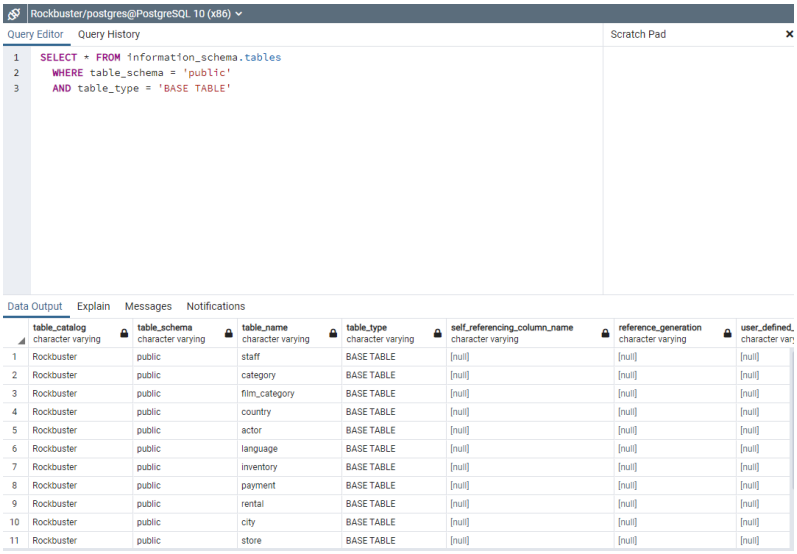

| | payment_id [PK] integer | customer_id smallint | staff_id smallint | rental_id integer | amount numeric (5,2) | payment_date timestamp without time zone |
|---|---|---|---|---|---|---|
| 1 | 17503 | 341 | 2 | 1520 | 7.99 | 2007-02-15 22:25:46.996577 |
| 2 | 17504 | 341 | 1 | 1778 | 1.99 | 2007-02-16 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.)*

```
SELECT * FROM information_schema.tables
  WHERE table_schema = 'public'
  AND table_type = 'BASE TABLE'
```

**TABLE NAMES:**

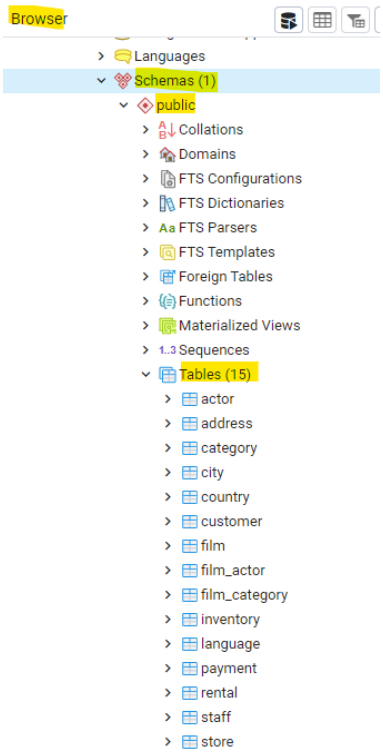
- staff
- category
- film_category
- country
- actor
- language
- inventory
- payment
- rental
- city
- store
- film
- address
- film_actor
- customer




| | table_catalog character varying | table_schema character varying | table_name character varying | table_type character varying | self_referencing_column_name character varying | reference_generation character varying | user_defined_ character var |
|---|---|---|---|---|---|---|---|
| 1 | Rockbuster | public | staff | BASE TABLE | [null] | [null] | [null] |
| 2 | Rockbuster | public | category | BASE TABLE | [null] | [null] | [null] |
| 3 | Rockbuster | public | film_category | BASE TABLE | [null] | [null] | [null] |
| 4 | Rockbuster | public | country | BASE TABLE | [null] | [null] | [null] |
| 5 | Rockbuster | public | actor | BASE TABLE | [null] | [null] | [null] |
| 6 | Rockbuster | public | language | BASE TABLE | [null] | [null] | [null] |
| 7 | Rockbuster | public | inventory | BASE TABLE | [null] | [null] | [null] |
| 8 | Rockbuster | public | payment | BASE TABLE | [null] | [null] | [null] |
| 9 | Rockbuster | public | rental | BASE TABLE | [null] | [null] | [null] |
| 10 | Rockbuster | public | city | BASE TABLE | [null] | [null] | [null] |
| 11 | Rockbuster | public | store | BASE TABLE | [null] | [null] | [null] |

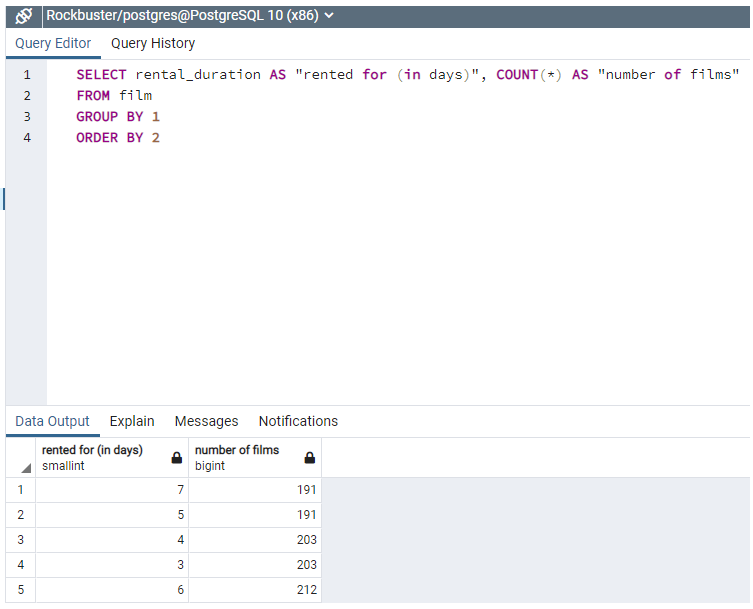
➢ *Within the pgAdmin 4 console, can you think of another way to list all the table names in the database instead of the SQL statement above?*

Referring to the "Browser" under "*Schemas*" then select "*public*" and click on "*Tables (15)*" to view all table names.




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

```
SELECT rental_duration AS "rented for (in days)", COUNT(*) AS "number of films"
FROM film
GROUP BY 1
ORDER BY 2
```




The film rentals are between 4 to 6 days.

**STEP 4: Think about who in Rockbuster Stealth might want to use an OLAP or OLTP system for their data needs; for example, the sales department, which is interested in sales trends, would likely use an OLAP system. Describe at least 2 situations for each type of system.**

**OLAP –** departments involved with the decision-making on business operations like marketing, sales, upper management, and most execs will likely need access to foresee records of the historical trends and possible company-wide issues.

**OLTP –** employees who are mostly dealing with customer-based daily transaction activities like storefront and warehouse. They will need access to maintain customer order updates (create/update accounts, order cancellations, etc.).

**STEP 5: Rockbuster Stealth has received an invoice for the licenses for its new video collection.**

**Take a moment to familiarize yourself with data in the invoice, then note down the answers to the questions below.**

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

The invoice is structured data but may be in a different form. The details on the form show transactional records for a client tracking variables like invoice number, address, item, item quantity, item description, price, total price, account name, and account number.

- *Organize and store the information on the invoice in a database. Step one will be to create a table in the text document you've started (you can insert a table if you're using MS Word or Google Docs, for example). Make sure your table contains columns with the appropriate labels, as well as the values from the invoice in each column. You're focusing, here, on a high-level structuring of your data.*

**MERCHANT**

| MERCHANT | ADDRESS | CITY | STATE | ACCOUNT NAME | ACCOUNT NO. |
|---|---|---|---|---|---|
| Oaklanders Sound Studio | 4826 Norma Avenue | Anderson | TX | Mike Santo | 4929331000575422 |

**TRANSACTION**

| INVOICE NO. | ITEM CODE | ITEM QTY | DESCRIPTION | CURRENCY | PRICE |
|---|---|---|---|---|---|
| 2019001 | 001 | 01 | New Video Collection Licensing | USD | 730 |

**CUSTOMER**

| TITLE | FIRST NAME | LAST NAME | GENDER | ADDRESS | CITY | STATE |
|---|---|---|---|---|---|---|
| MR. | TIMOTHY | WALKER | M | 40 Sheila Lane | Sparks | NV |