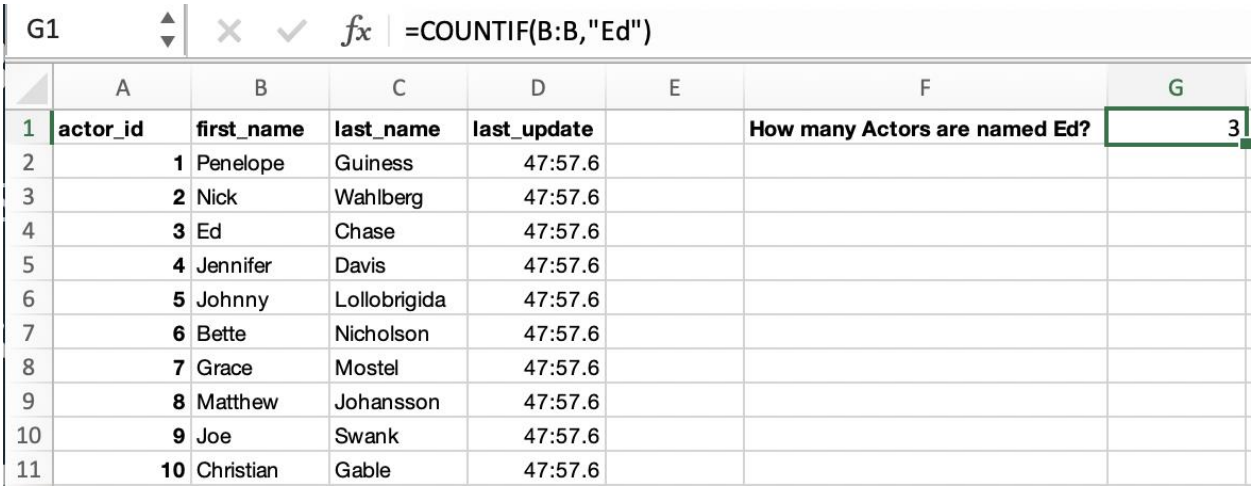
# Intro to Relational Databases

## Step 2:

Excel

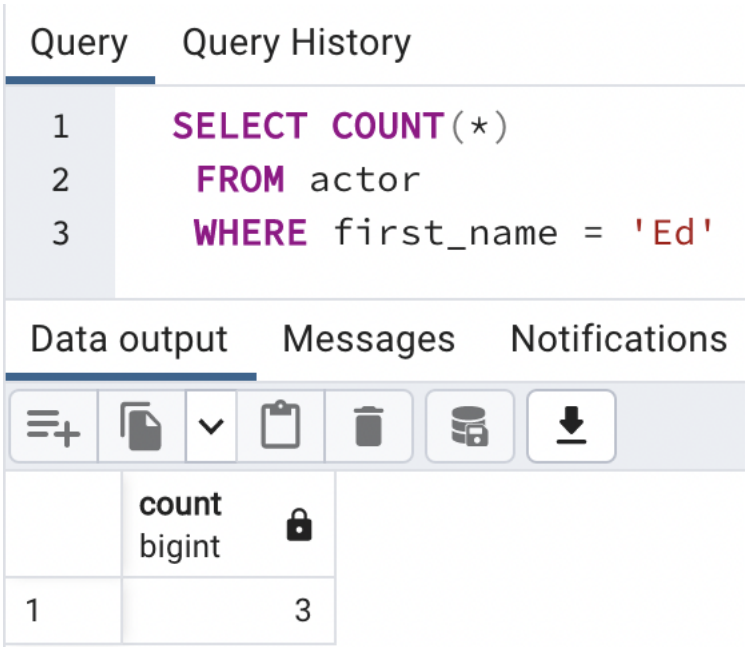


G1 | =COUNTIF(B:B,"Ed")

| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| 1 | actor_id | first_name | last_name | last_update | | How many Actors are named Ed? | 3 |
| 2 | 1 | Penelope | Guiness | 47:57.6 | | | |
| 3 | 2 | Nick | Wahlberg | 47:57.6 | | | |
| 4 | 3 | Ed | Chase | 47:57.6 | | | |
| 5 | 4 | Jennifer | Davis | 47:57.6 | | | |
| 6 | 5 | Johnny | Lollobrigida | 47:57.6 | | | |
| 7 | 6 | Bette | Nicholson | 47:57.6 | | | |
| 8 | 7 | Grace | Mostel | 47:57.6 | | | |
| 9 | 8 | Matthew | Johansson | 47:57.6 | | | |
| 10 | 9 | Joe | Swank | 47:57.6 | | | |
| 11 | 10 | Christian | Gable | 47:57.6 | | | |

Function: =COUNTIF(B:B,"Ed")

SQL




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

Comparison

The task is simpler on SQL as you can immediately fetch the relevant information without having the table visable.

## Step 3:

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

Query | Query History | Scratch Pad

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

Data output | Messages | Notifications

| | 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.)

Query | Query History | Scratch Pad

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

Data output | Messages | Notifications

| | table_catalog name | table_schema name | table_name name | table_type character varying | self_referencing_column_name name | reference_generation character varying | user_defined_type_catalog name | user_ name |
|---|---|---|---|---|---|---|---|---|
| 1 | Rockbuster | public | actor | BASE TABLE | [null] | [null] | [null] | [null] |
| 2 | Rockbuster | public | store | BASE TABLE | [null] | [null] | [null] | [null] |
| 3 | Rockbuster | public | address | BASE TABLE | [null] | [null] | [null] | [null] |
| 4 | Rockbuster | public | category | BASE TABLE | [null] | [null] | [null] | [null] |
| 5 | Rockbuster | public | city | BASE TABLE | [null] | [null] | [null] | [null] |
| 6 | Rockbuster | public | country | BASE TABLE | [null] | [null] | [null] | [null] |
| 7 | Rockbuster | public | customer | BASE TABLE | [null] | [null] | [null] | [null] |
| 8 | Rockbuster | public | film_actor | BASE TABLE | [null] | [null] | [null] | [null] |
| 9 | Rockbuster | public | film_catego... | BASE TABLE | [null] | [null] | [null] | [null] |
| 10 | Rockbuster | public | inventory | BASE TABLE | [null] | [null] | [null] | [null] |
| 11 | Rockbuster | public | language | BASE TABLE | [null] | [null] | [null] | [null] |
| 12 | Rockbuster | public | rental | BASE TABLE | [null] | [null] | [null] | [null] |
| 13 | Rockbuster | public | staff | BASE TABLE | [null] | [null] | [null] | [null] |
| 14 | Rockbuster | public | payment | BASE TABLE | [null] | [null] | [null] | [null] |
| 15 | Rockbuster | public | film | BASE TABLE | [null] | [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?

Another way to access the information above is to click “Schemas” to the left, and then press “Tables” and it lists all 15 table names.

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

Most commonly films are rented for 6 days, as shown below.

Query  Query History

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

Data output  Messages  Notifications

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

## 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
    1. Marketing team would benefit, as this type of system could help them identify which movies are the best sellers, or renters rather, which could be used in advertisements for Rockbuster.
    2. Manufacturing team would benefit as they can see which movies are doing the best in order to produce more
- OLTP
    1. Finance team would benefit, as they could use this to manipulate orders.
    2. Customer service team would benefit, as they could use this to alter details in the event of any complaints.

## Step 5:

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

It contains structured data as there are clear column titles, which could allow it to be structured as a table.

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).

Transaction Table

| Invoice Number | Item | Quantity | Description | Price | Currency |
|---|---|---|---|---|---|
| 2019001 | 1 | 1 | New Video Collection Licensing | 730 | $ |

Merchant Table

| Merchant Name | Account Name | Account Number | Address | City | State | State Abbrev. |
|---|---|---|---|---|---|---|
| Oaklanders Sound Studio | Mike Santo | 4929331999575420 | 4826 Norma Avenue | Anderson | Texas | TX |

Customer Table

| First Name | Last Name | Gender | Address | City | State | State Abbrev. |
|---|---|---|---|---|---|---|
| Timothy | Walker | Male | 40 Sheila Lane | Sparks | Nevada | NV |