

### 3.1: Intro to Relational Databases

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

- *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."*

Excel: =COUNTIF(B:B,"Ed") Result: 3

PostgreSQL:

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

Result: 3

	count bigint
1	3

- The answers match.
- *Was it easier to use Excel or the SQL statement and database to count the number of "Eds"?*

Taking into consideration that in pgAdmin I copy-pasted the query and in Excel I wrote the formula letter by letter, SQL statement was easier to use. For now, both are easy.

*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;
```

	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_name
name 
actor
store
address
category
city
country
customer
film_actor
film_catego...
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?*

Yes, here: PostgreSQL → Databases → Rockbuster → Schemas → Tables (15)

- *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
```

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

Result: 6 days is the number most films are rented for.

*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:

- Marketing department is interested in what are the most popular video game genres in the US.
- Sales department is interested in: do sales figures vary between geographic regions?

OLTP:

- Sales department is interested in how many transactions are done per day on self-checkout vs. cashier checkout in a grocery store.
- Customer Service updating the client's online order of shoes.

*Step 5*

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

# Oaklanders

## SOUND STUDIO

**INVOICE: 2019001**

MR. TIMOTHY WALKER  
40 SHEILA LA SPARKS, NV

ITEM	QTY	DESCRIPTION	PRICE
001	01	New Video Collection Licensing	\$730
SUB TOTAL			\$730

### OAKLANDERS

4826 NORMA AVENUE  
ANDERSON, TX

### MAKE YOUR PAYMENT TO

ACCOUNT NAME: MIKO SANTO  
ACCOUNT NO.: 4929 3310 0057 5422

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

Structured data, since it can be organized in a table (columns can include Name, Address, Invoice Number, etc.)

- *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.*

Transaction Table:

Invoice Number	ITEM	Quantity	Description	Price, \$
2019001	001	01	New Video Collection Licensing	730

Customer Table:

First Name	Last Name	Address	City	State
Timothy	Walker	40 Sheila La	Sparks	NV

Supplier Table:

Account No.	Supplier Name	Account Name	Address	City	State
4929331000575420	Oaklanders	Miko Santo	4826 Norma Ave	Anderson	TX