

## 3.1: Intro to Relational Databases

Step 1. Download PostgreSQL

Step 2. Compare and contrast spreadsheets and databases

Excel.

1. I extract the first two letter of each name and then I did a pivot table to count the names that start with 'Ed'.

Row Labels	Count of start
Cu	3
Da	5
De	1
Du	1
Ed	3

SQL.

Query	Query History
1	SELECT COUNT (*)
2	FROM actor
3	WHERE first_name = 'Ed'

Data Output	Messages	Notifications
count bigint		
1		3

Considering the process, the necessary steps to get the result, I can say that doing it in SQL is easier.

Step 3.

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

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

## ANSWER

It shows from the table payment all the columns (payment\_id, customer\_id, staff\_id, rental\_id, amount, payment\_date) for the first 10 records in the database.

```
1 SELECT *
2 FROM payment
3 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	3888	5.99	2007-02-21 10:00:10.996577

Total rows: 10 of 10    Query complete 00:00:00.155

- 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'
```

## ANSWER

```

1 SELECT * FROM information_schema.tables
2 WHERE table_schema = 'public'
3 AND table_type = 'BASE TABLE'

```

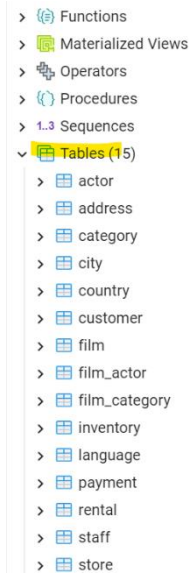
Data Output Messages Notifications

	table_catalog name	table_schema name	table_name name	table_type character varying	self_refere name
1	Rockbuster	public	actor	BASE TABLE	[null]
2	Rockbuster	public	store	BASE TABLE	[null]
3	Rockbuster	public	address	BASE TABLE	[null]
4	Rockbuster	public	category	BASE TABLE	[null]
5	Rockbuster	public	city	BASE TABLE	[null]
Total rows: 15 of 15    Query complete 00:00:00.047					

The tables are actor, address, category, city, country, customer, film, film\_actor, film\_category, inventory, language, payment, rental, staff, store.

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?

There is the option of looking for the tables in the Rockbuster Server details shown on the left side of the screen. Select Schemas> Tables.



- 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
```

## ANSWER

Most films are rented for 6 days.

Query		Query History	
1	SELECT	rental_duration AS "rented for (in days)",	
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

Marketing department.

- Based on the records registered analyze the top 5 genre of movies rented.
- See if there is a relationship between genres selected. Maybe people who like romantic movies also like drama movies, so the marketing department could make a strategy to organize the movies in specific way and people end up renting more movies.
- Analyze what are the least common genres, this could help for making promotions and encourage customers to rent more movies.

#### OLTP

- Accounting department will need a transactional system where they can change the status of orders, and update payments, or in case the customer need to pay extra fees for not returning movies on time.
- Inventory database where the status of the movie can be updated.

Step 5.

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

It has structured data. It has an invoice id, address of the supplier, address of the customer, id item, quantity, id description, price.

- 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).

The following are some examples of how the information can be grouped in tables:

General

invoice_id	Address	Item_Id	Quantity	Description	Price	Subtotal	Customer_name
2019001	40 Sheila La Sparks, NV	001	1	New Video Collection Licensing	730	730	Timothy Walker

Customer

Customer_id	Customer_name	Title	Address	City	State
	Timothy Walker	Mr.	40 Sheila	La Sparks	NV

Transaction

Invoice_id	Item	Quantity	Subtotal
2019001	001	1	730