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Exercise 3.1: Intro to Relational Databases

Step 2

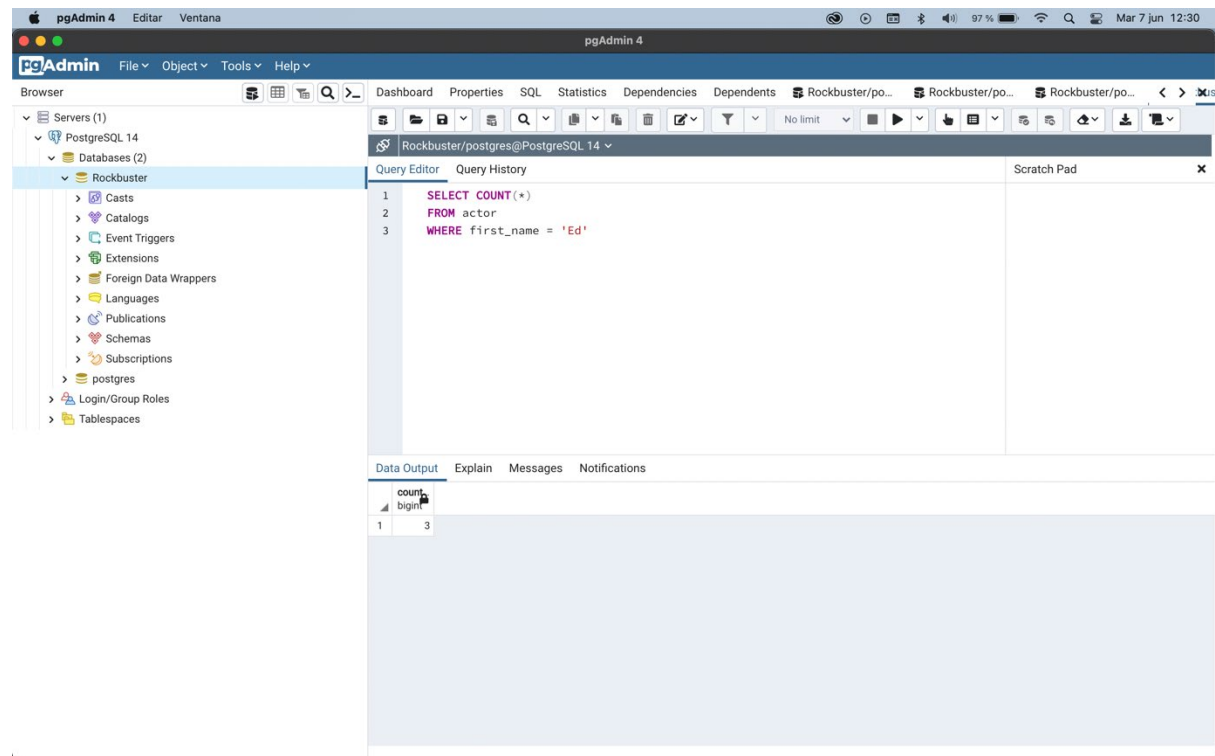
EXCEL

Function used: =COUNT.IF(B2:B201; "Ed")

Result: 3

SQL

Result: 3



- Both answers match.
- Both were easy to do, but with Excel I had to carry out one more step than in SQL.

Step 3

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

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

- payment_id
- customer_id
- staff_id
- rental_id
- amount
- payment_date

The screenshot shows the pgAdmin 4 interface. On the left, the 'Servers' tree is expanded to show the 'Rockbuster' database. The 'Query Editor' tab is active, displaying the SQL query: `SELECT * FROM payment LIMIT 10;`. Below the query editor, the 'Data Output' tab shows the results of the query in a table format.

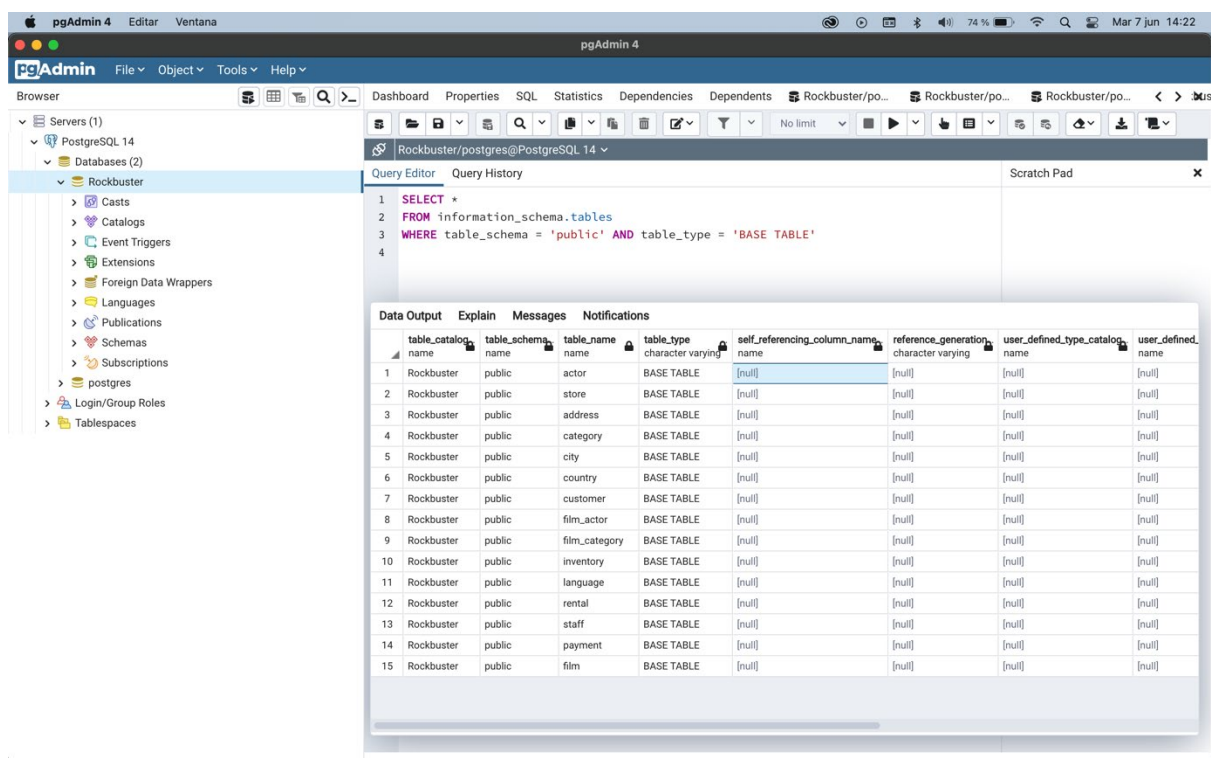
	payment_id	customer_id	staff_id	rental_id	amount	payment_date
1	17503	341	2	1520	7.99	2007-02-15 22:25:46.996577
2	17504	341	1	1778	1.99	2007-02-16 17:23:14.996577
3	17505	341	1	1849	7.99	2007-02-16 22:41:45.996577
4	17506	341	2	2829	2.99	2007-02-19 19:39:56.996577
5	17507	341	2	3130	7.99	2007-02-20 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'
```

1. actor
2. store
3. address
4. category
5. city

6. country
7. customer
8. film_actor
9. film_category
10. inventory
11. language
12. rental
13. staff
14. payment
15. 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?

It is possible to observe the table names following this continuation of folders:

Servers > PostgreSQL > Databases > Rockbuster 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

```

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

Most movies are rented for 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

1. Business Intelligence: How many active customers are.
2. Marketing: What is the most profitable film and genre.

OLTP

1. Customer Service: Modify information about their customers.
2. Finance: Add new transactions.

Step 5



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.

The invoice contains structured data because it has categorical information that we can display on a sheet.

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	QTY (Quantity)	Description	Price
2019001	001	01	New Video Collection Licensing	\$ 730

customer table

First Name	Last Name	Gender	Address	City	State	State Abbreviation
Timothy	Walker	Male	40 Sheila La	Sparks	Nevada	NV

supplier table

First Name	Account Name	Account Number	Address	City	State	State Abbreviation
Oaklanders	Miko Santo	49293310 00575422	4826 Norma Avenue	Anderson	Texas	TX