TASK 3.1

2a. In the Excel file:

- Ed as First Name : 3 times

2b. In the pgAdmin:

- 3 times

2c. The results in Excel and pgAdmin both showed 3 occurrences, matching the dataset. I found the Excel process easier than using SQL because of its simplicity and my familiarity with it. Since the dataset was small, applying filters in Excel was quicker and more intuitive compared to setting up and running an SQL query in pgAdmin. While SQL is better suited for larger datasets, Excel was more efficient for this low-volume task.

3a. The column names in the payment table are:

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

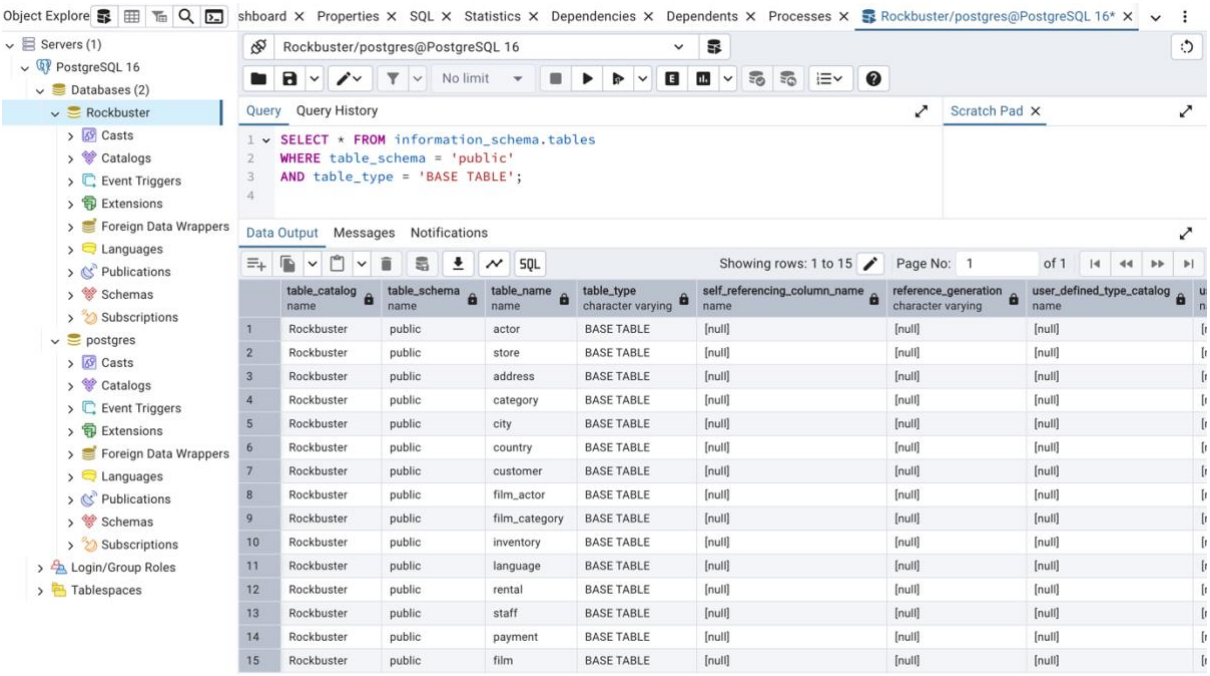
3b. the tables visible in the public schema of the Rockbuster database are:

- actor
- address
- category
- city
- country
- customer
- film
- film_actor
- film_category

- inventory
- language
- payment
- rental
- staff
- store

3c.

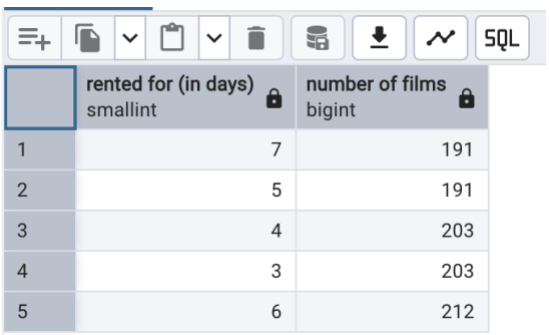
```
SELECT * FROM information_schema.tables
WHERE table_schema = 'public'
AND table_type = 'BASE TABLE';
```



	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
1	Rockbuster	public	actor	BASE TABLE	[null]	[null]	[null]
2	Rockbuster	public	store	BASE TABLE	[null]	[null]	[null]
3	Rockbuster	public	address	BASE TABLE	[null]	[null]	[null]
4	Rockbuster	public	category	BASE TABLE	[null]	[null]	[null]
5	Rockbuster	public	city	BASE TABLE	[null]	[null]	[null]
6	Rockbuster	public	country	BASE TABLE	[null]	[null]	[null]
7	Rockbuster	public	customer	BASE TABLE	[null]	[null]	[null]
8	Rockbuster	public	film_actor	BASE TABLE	[null]	[null]	[null]
9	Rockbuster	public	film_category	BASE TABLE	[null]	[null]	[null]
10	Rockbuster	public	inventory	BASE TABLE	[null]	[null]	[null]
11	Rockbuster	public	language	BASE TABLE	[null]	[null]	[null]
12	Rockbuster	public	rental	BASE TABLE	[null]	[null]	[null]
13	Rockbuster	public	staff	BASE TABLE	[null]	[null]	[null]
14	Rockbuster	public	payment	BASE TABLE	[null]	[null]	[null]
15	Rockbuster	public	film	BASE TABLE	[null]	[null]	[null]

3d. No

3e.



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

The rental durations are listed under the column "rented for x days", and the number of films is in the "number of films" column.

The distribution indicates:

- 212 films were rented for 6 days.
- 203 films were rented for 3 days.
- 203 films were rented for 4 days.
- 191 films were rented for 5 days.
- 191 films were rented for 7 days.

So most films (212) were rented for 6 days, making this the most common rental duration.

Step 4.

1.OLAP systems are used for data analysis and decision-making. They are designed to handle complex queries and aggregate large volumes of data.

Sales Trends Analysis:

- The sales department could use OLAP to analyze monthly or yearly sales trends across different regions or customer demographics.
- Example: Identify which genres of films generate the highest revenue over time.

Customer Insights:

- The marketing team might use OLAP to analyze customer rental behavior.
- Example: Determine which customer segments rent the most films or have the highest lifetime value.

2.OLTP systems are designed for real-time transaction management and are optimized for quick insert, update, and delete operations.

Rental Transactions:

- The operations team uses OLTP to handle day-to-day rental transactions when customers rent or return films.
- Example: Record each rental's payment, rental duration, and return status in real-time.

Inventory Management:

- The inventory team uses OLTP to track the availability of films.
- Example: Update the inventory database immediately when a film is rented or returned to ensure accurate stock levels.

Step 5

a.The invoice contains structured data because it is organized in a predefined format with clear fields such as Invoice Number, Item Description, Quantity, and Price. Each piece of information is labeled and categorized, making it easy to store in a relational database or table. Structured data is data that adheres to a defined schema or format, such as tables with rows and columns. In this case, the invoice has specific fields and values, which can be directly mapped to a database table.

b. To store the invoice, we can create a simple table with the following structure:

Column Name	Example Value
invoice_id	2019001
customer_name	Timothy Walker
customer_address	40 Sheila LA Sparks, NV
item_description	New Video Collection Licensing
quantity	1
price	730.00
vendor_name	Oaklanders Sound Studio