

## **TASK NUMBER 1**

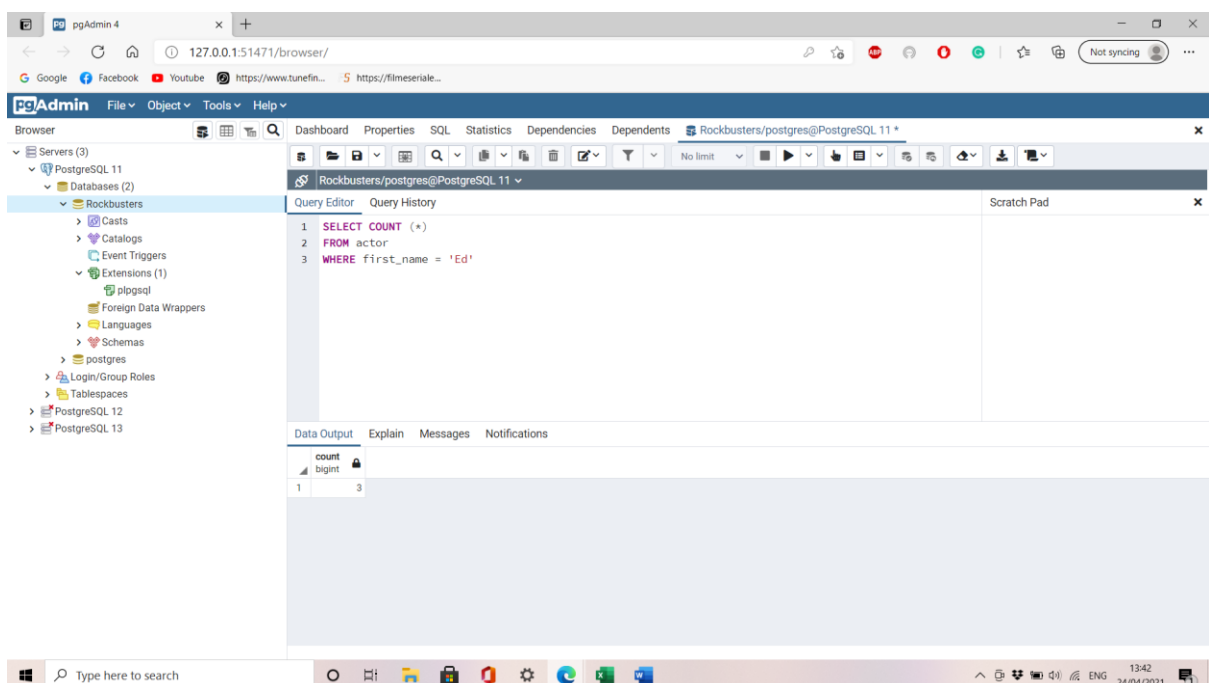
### Step 2

- Drawing on what you have learned in previous Achievements, use the appropriate functions in Excel to count all the actors whose first name is “Ed.” Write down the result in a text document.

Excel file = 3

ID	FIRST NAME	LAST NAME
3	ED	CHASE
136	ED	MANFIELD
179	ED	GUINNESS

- Launch pgAdmin 4, open the Query Tool, copy-paste the SQL statement below into the Query Editor, and execute it. If you are unsure how to do this, reread the “Bonus Content: Walkthrough of PostgreSQL pgAdmin 4” section of the Exercise. The Query Tool and Execute/Refresh buttons may look different in your pgAdmin 4 console (i.e., not a lightning bolt) depending on which version you are using.



- Copy the result that tells you the number of times the first name “Ed” appears in the “actor” table from the Data Output window into your text document from step 2b. Check that your answer matches your answer from step 2a. Was it easier to use Excel or the SQL statement and database to count the number of “Eds”? Provide an explanation for your answer in the same text document.
- It was easier using Excel as the number of data is small, but maybe by practicing more SQL it will become more intuitive as you don’t have to scroll up and down on the sheet to double check that the information is correct

### Step 3

- To answer the next set of questions, you will 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.

The screenshot shows the pgAdmin 4 web interface. The Query Editor on the right contains the SQL query: `SELECT * FROM payment LIMIT 10`. The Data Output window at the bottom displays the results of this query as a table with 10 rows and 7 columns.

	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	2001	7.00	2007-02-20 12:57:20.006577

- Under the “table-name” column, what are the names of the tables that are available in the Rockbuster database? (List all names.)

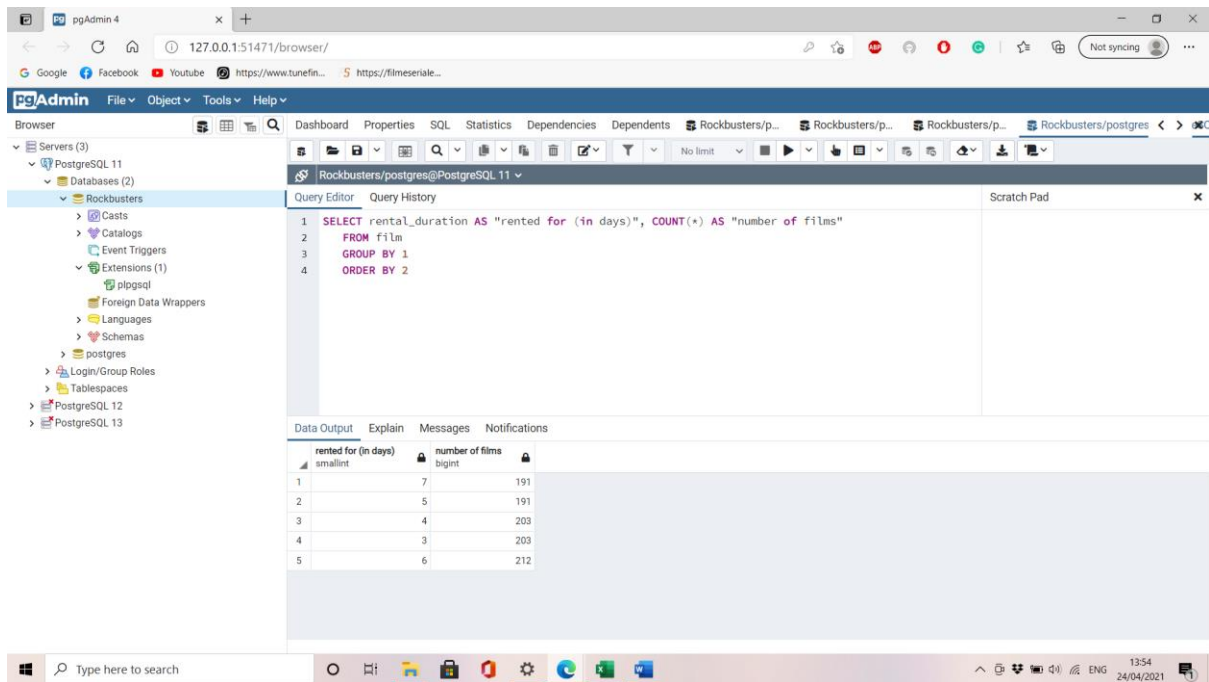
The screenshot shows the pgAdmin 4 web interface. The left sidebar displays the database structure, including Servers (3), PostgreSQL 11, and Databases (2). The 'Rockbusters' database is selected, showing its schema (public) and tables. The main pane shows the 'Query Editor' with the following SQL statement:

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

The 'Data Output' tab shows the results of the query, listing 15 tables in the 'Rockbusters' database. The columns are: table\_catalog, table\_schema, table\_name, table\_type, self\_referencing\_column\_name, reference\_generation, and user\_defined\_type\_catalog.

table_catalog	table_schema	table_name	table_type	self_referencing_column_name	reference_generation	user_defined_type_catalog
Rockbusters	public	actor	BASE TABLE	[null]	[null]	[null]
Rockbusters	public	store	BASE TABLE	[null]	[null]	[null]
Rockbusters	public	address	BASE TABLE	[null]	[null]	[null]
Rockbusters	public	category	BASE TABLE	[null]	[null]	[null]
Rockbusters	public	city	BASE TABLE	[null]	[null]	[null]
Rockbusters	public	country	BASE TABLE	[null]	[null]	[null]
Rockbusters	public	customer	BASE TABLE	[null]	[null]	[null]
Rockbusters	public	film_actor	BASE TABLE	[null]	[null]	[null]
Rockbusters	public	film_category	BASE TABLE	[null]	[null]	[null]
Rockbusters	public	inventory	BASE TABLE	[null]	[null]	[null]
Rockbusters	public	language	BASE TABLE	[null]	[null]	[null]
Rockbusters	public	rental	BASE TABLE	[null]	[null]	[null]
Rockbusters	public	staff	BASE TABLE	[null]	[null]	[null]
Rockbusters	public	payment	BASE TABLE	[null]	[null]	[null]
Rockbusters	public	film	BASE TABLE	[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?
  - Maybe “starting day of rental” instead of only rental.
- Analyze the rental duration distribution. How many days are most films rented for?
  - Most films are rented for 6 days (being the highest number of times at 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.
  - Situation 1 (OLAP): existing data could be used to analyse upcoming trends and define which “film genre/film category” might be more popular than another in a specific year.
  - Situation 2 (OLTP): to track the number of payments done in a specific period, considering possible seasonality (i.e., during cold months people use to watch more films and look for online entertainment).

## Step 5

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

- Does the invoice contain structured or unstructured data? Write an explanation for your answer.
  - The invoice contains structured data (invoice number, items, qty, price) as well unstructured data like company name, address.

- Organize and store the information on the invoice in a database. Step one will be to create a table in the text document you have started (you can insert a table if you are 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 are focusing, here, on a high-level structuring of your data.

Invoice number	Item	Quantity	Description	Billing Address Customer	Billing Address Provider	Subtotal	Total	Bank Account Details
201901	001	1	New Video collection Licensing	Mr. Timothy Walker 40 Sheila La Sparks, NV	Oaklanders 4826 Norma Avenue Anderson TX	\$730	\$730	4929 3310 0057 5422