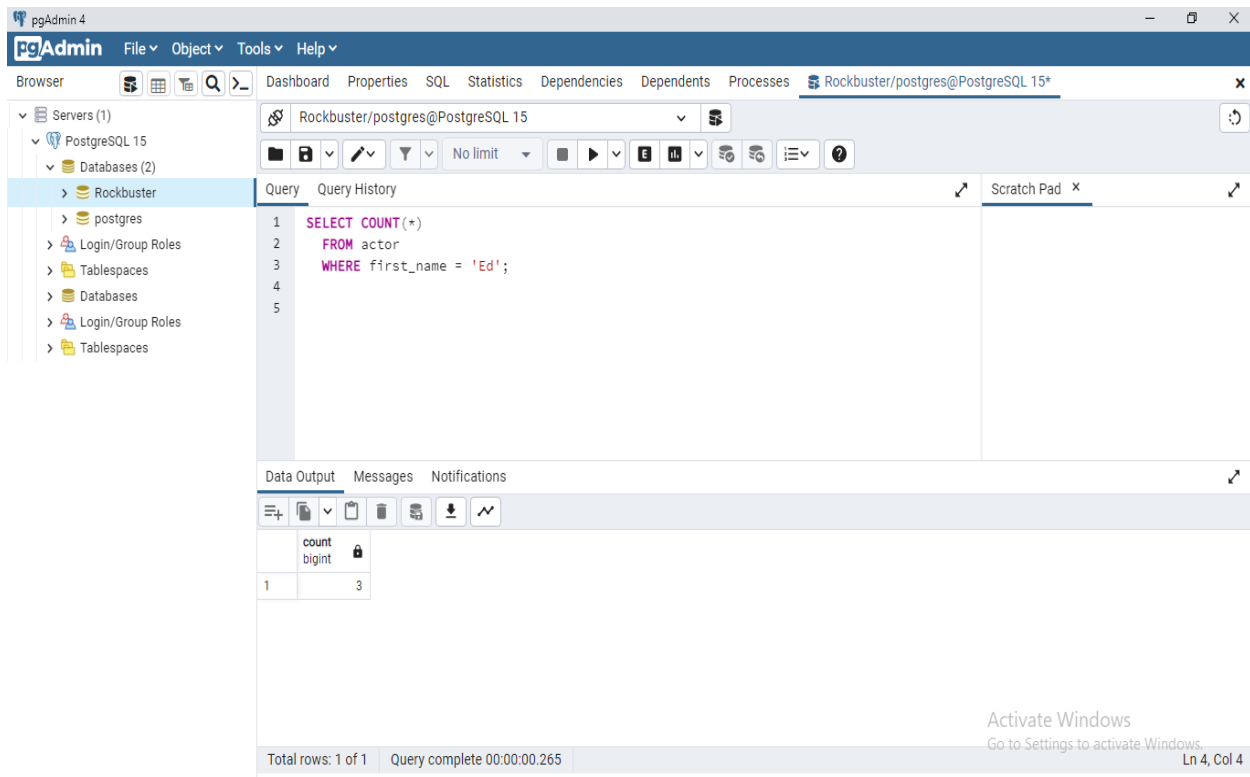


### 3.1 Task- Introduction to Relational Databases

2a. Use the appropriate functions in Excel to count all the actors whose first name is “Ed.”

Answers: 3



The screenshot shows the pgAdmin 4 interface. On the left, the 'Servers' tree is expanded to show 'PostgreSQL 15' and 'Databases (2)', with 'Rockbuster' selected. The main pane displays a SQL query in the 'Query' tab:

```
1 SELECT COUNT(*)
2 FROM actor
3 WHERE first_name = 'Ed';
4
5
```

Below the query, the 'Data Output' tab shows the result of the query:

| count |
|-------|
| 3     |

The status bar at the bottom indicates 'Total rows: 1 of 1' and 'Query complete 00:00:00.265'. A watermark 'Activate Windows' is visible in the bottom right corner.

2b. Check same 2a in Pgadmin 4 and write down the Result.

Answers: 3

2c. 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”?

Answers: The Result from excel and Pgadmin 4 both are the same. I think SQL statement is much easier to use and simple and easy Query to write. Additionally, the time took in showing the result was 2 second , which means it will be quite helpful in Large Data Sets.

3a.

The screenshot shows the pgAdmin 4 interface. The left sidebar displays the database structure: Servers (1) > PostgreSQL 15 > Databases (2) > Rockbuster. The main pane shows a SQL query in the 'Query' tab:

```
1 SELECT COUNT(*)
2 FROM actor
3 WHERE first_name = 'Ed';
4 SELECT * FROM payment LIMIT 10;
5
6
```

The 'Data Output' tab shows the results of the query in a table with 10 rows. The columns are: payment\_id, customer\_id, staff\_id, rental\_id, amount, and payment\_date.

|    | payment_id<br>[PK] integer | customer_id<br>smallint | staff_id<br>smallint | rental_id<br>integer | amount<br>numeric (5,2) | payment_date<br>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                  |

At the bottom, it says 'Total rows: 10 of 10' and 'Query complete 00:00:01.051'. There is also a watermark 'Activate Windows' and 'Go to Settings to activate Windows'.

- Payment\_id
- Customer\_id
- Staff\_id
- Rental\_id
- Amount
- Payment\_date

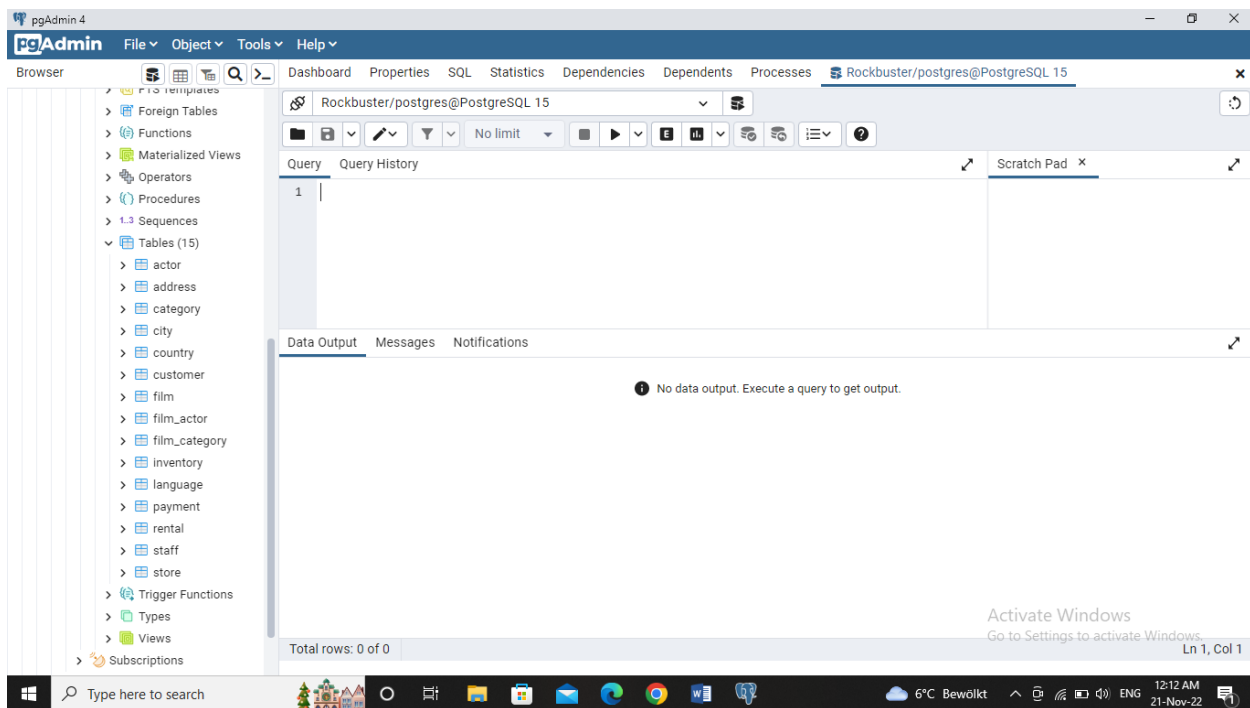
3b.

- Actor
- store
- address
- category
- city
- country
- customer
- film\_actor
- film\_category

- inventory
- language
- rental
- staff
- payment
- film

3c. 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?

The left side of the screen below the browser, when we select Schemas, we can see 15 table listed.



3d. Analyze the rental duration distribution. How many days are most films rented for?

Answers: 3 to 7 days are most film rented.

The screenshot shows the pgAdmin 4 web interface. On the left is a 'Browser' pane with a tree view of database objects: Foreign Tables, Functions, Materialized Views, Operators, Procedures, Sequences, and Tables (15). The 'Tables' folder is expanded, showing tables like actor, address, category, city, country, customer, film, film\_actor, film\_category, inventory, language, payment, rental, staff, store, Trigger Functions, Types, and Views. The main pane is titled 'Rockbuster/postgres@PostgreSQL 15'. It contains a 'Query' editor with the following SQL code:

```
1 SELECT rental_duration AS "rented for (in days)", COUNT(*) AS "number of films"
2 FROM film
3 GROUP BY 1
4 ORDER BY 2
```

Below the query editor is the 'Data Output' pane, which displays the results of the query in a table format:

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

At the bottom of the Data Output pane, it says 'Total rows: 5 of 5' and 'Query complete 00:00:00.501'. The Windows taskbar at the bottom shows the time as 12:14 AM on 21-Nov-22.

#### 4. Answers

According to me following Department need:

HR department: It required OLAP system, because he may want the Personal Detail of employees or which employees should be given Incentives according to their Sales incentives.

Marketing Department: they would use OLAP system to do Sales Analysis of videos or which videos genre preferring most.

Finance Department: they would prefer OLTP system to record, adjust, Update the money transaction about their Customers.

Inventory Department: They will use OLTP System to maintain ,add new movies or deleting existing movies records.

5a. Does the invoice contain structured or unstructured data?

After looking the Invoice, I can say it contain Structured Data. Each Part of the Invoice are clearly shown with the heading in Bold Font in simple language and also in order wise like first Item, Quantity Purchased, Description, Price and sub totals at the end.

| TRANSACTION INFORMATION |      |     |                                |       |          |
|-------------------------|------|-----|--------------------------------|-------|----------|
| Invoice Number          | Item | Qty | Description                    | Price | Currency |
| 2019001                 | 001  | 1   | New Video Collection Licensing | 730   | \$       |

| MERCHANT INFORMATION    |                    |                   |                   |          |           |
|-------------------------|--------------------|-------------------|-------------------|----------|-----------|
| Merchant name           | Accountholder name | Account Nr        | Address           | City     | State     |
| Oaklanders Sound Studio | Miko Saanto        | 49293331000575420 | 4826 Norma Aveneu | Anderson | TX(Texas) |

| CUSTOMER INFORMATION |           |        |              |        |             |
|----------------------|-----------|--------|--------------|--------|-------------|
| First Name           | Last Name | Gender | Address      | city   | State       |
| Timothy              | Walkers   | Male   | 40 sheela La | Sparks | Nv (Nevada) |