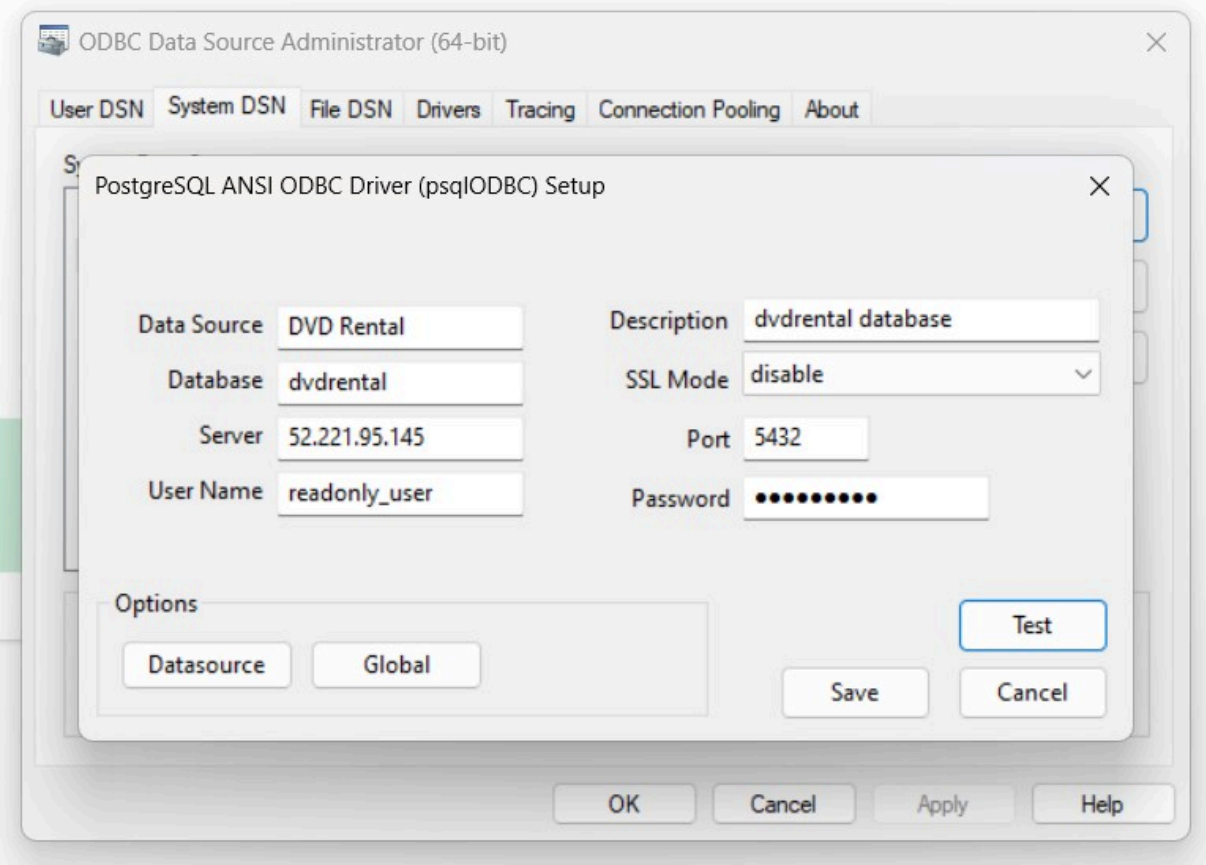
SQL for Data Analysis Final Project: Extracting Data for Power BI – dvdrental Database

Objective:

Write SQL queries to prepare **fact** and **dimension** tables from the `dvdrental` PostgreSQL database. These queries will be used to build a Power BI dashboard with key performance indicators (KPIs) such as **Revenue**, **Total Rentals**, and **Customer Count**.

ODBC Connection to DVD Rental Database



📍 Part 1: Fact Table – `FactRental`

📝 Q1.1

Write a SQL query to extract the **fact table** that contains rental and payment details. Your result should include:

- `rental_id`, `rental_date`, `return_date`
- `inventory_id`, `film_id`, `film_title`
- `customer_id`, `payment_id`, `amount`, `payment_date`
- `staff_id`

Hint:

- Start from the `rental` table.
- Join with `payment`, `inventory`, and `film`.

An example of the data output can be found in the **FactRental.csv** file.

📍 Part 2: Dimension Tables

👥 Q2.1 – DimCustomer

Write a SQL query to extract the **customer dimension** table. Your result should include:

- `customer_id`, `first_name`, `last_name`, `email`, `store_id`
- `address`, `city_id`, `city`, `country`

Hint:

- Join `customer` → `address` → `city` → `country`.

An example of the data output can be found in the **DimCustomer.csv** file.

🎬 Q2.2 – DimFilm

Write a SQL query to extract the **film dimension** table. Include:

- `film_id`, `title`, `description`, `release_year`, `language_id`, `language`
- `length`, `rating`, `special_features`, `rental_duration`, `rental_rate`, `replacement_cost`

Hint:

- Join `film` with `language` table.

An example of the data output can be found in the **DimFilm.csv** file.

👨‍💼 Q2.3 – DimStaff

Write a SQL query to extract the **staff dimension** table. Include:

- `staff_id`, `first_name`, `last_name`, `store_id`, `active`, `username`

Hint:

- Join `staff` with `address` if needed for additional info.

An example of the data output can be found in the **DimStaff.csv** file.

🌍 Q2.4 – DimLocation

Write a SQL query to extract a **location dimension** that gives a list of unique city-country pairs.

Required columns:

- `city`, `country`

Hint:

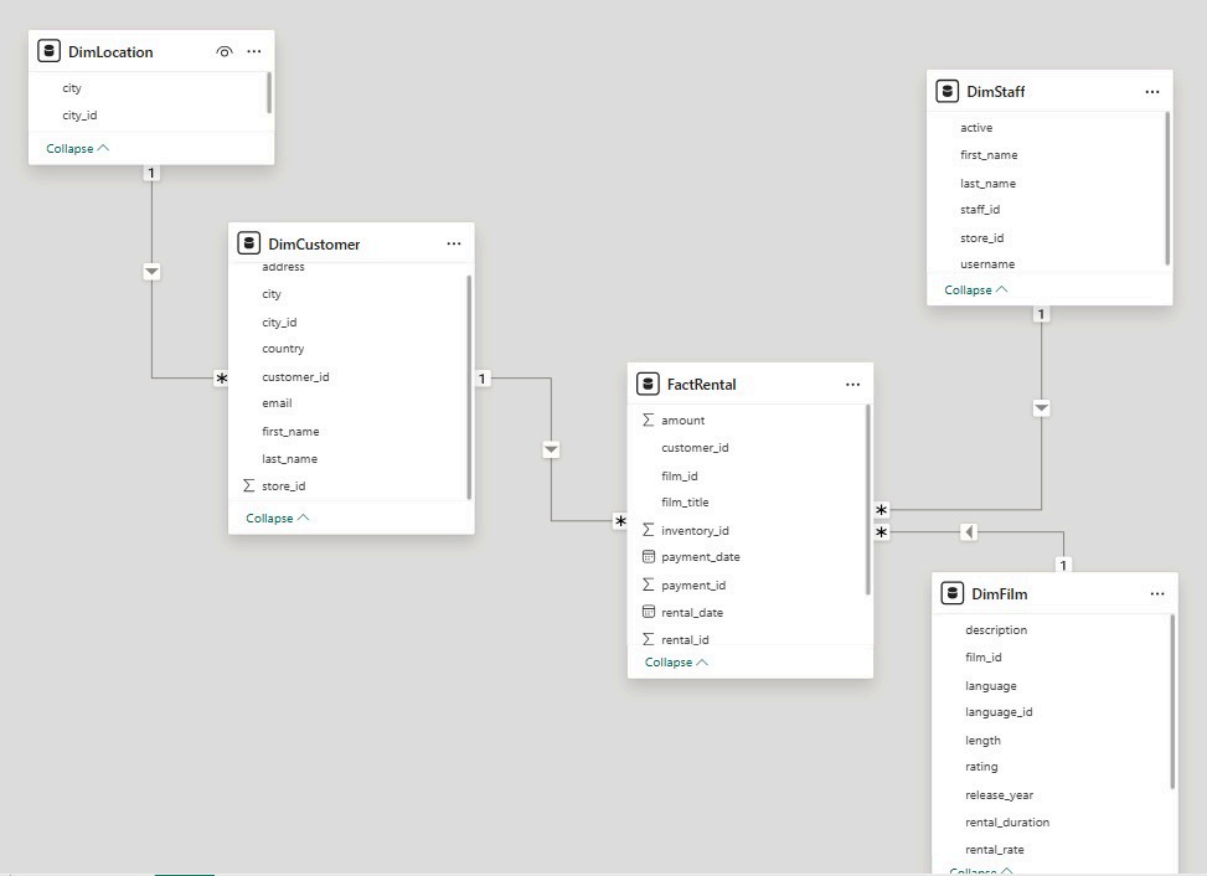
- Join `city` with `country`.
- Use `DISTINCT` and `ORDER BY`.

An example of the data output can be found in the **DimLocation.csv** file.

📌 Deliverables:

- Use each query to load as data tables into Power BI.

Data Model in Power BI

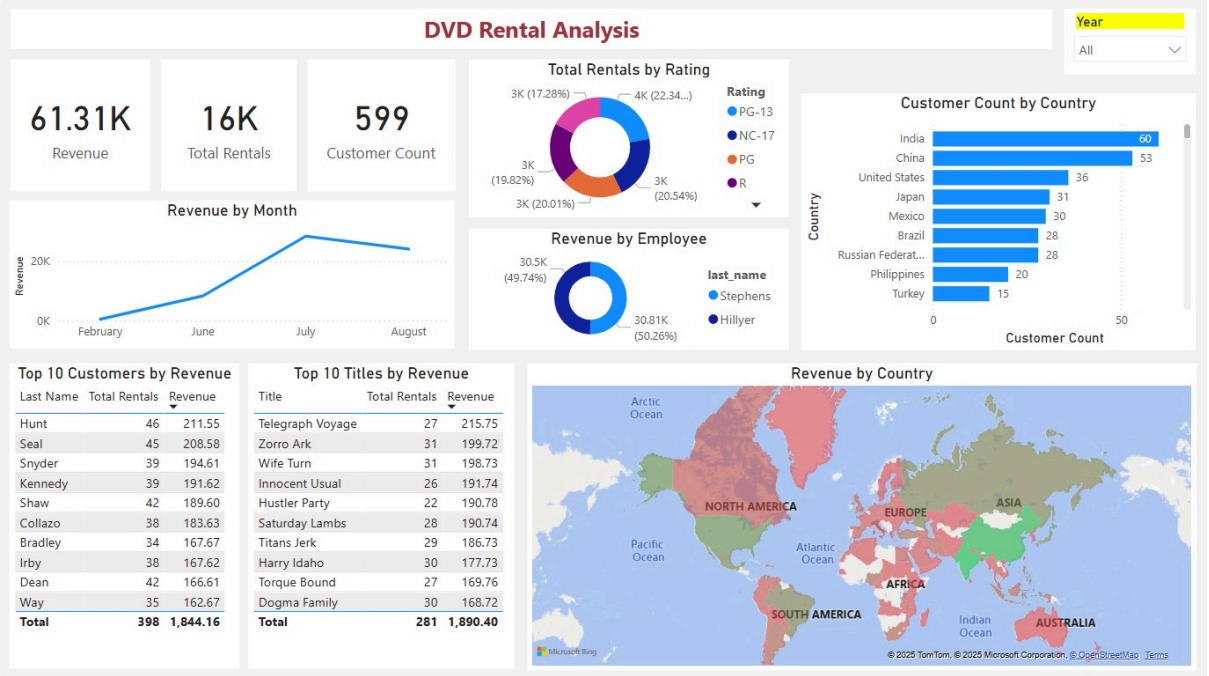


Measures in Power BI:

Q3.1 Use the following measures in Power BI for the following KPIs after loading your data:

- `Revenue = SUM(FactRental[amount])`
- `Customer Count = DISTINCTCOUNT(DimCustomer[customer_id])`
- `Total Rentals = COUNT(FactRental[rental_id])`

Dashboard Layout Example



Last Name	Total Rentals	Revenue
Hunt	46	211.55
Seal	45	208.58
Snyder	39	194.61
Kennedy	39	191.62
Shaw	42	189.60
Collazo	38	183.63
Bradley	34	167.67
Irby	38	167.62
Dean	42	166.61
Way	35	162.67
Total	**398**	**1,844.16**

Title	Total Rentals	Revenue
Telegraph Voyage	27	215.75
Zorro Ark	31	199.72
Wife Turn	31	198.73
Innocent Usual	26	191.74
Hustler Party	22	190.78
Saturday Lambs	28	190.74
Titans Jerk	29	186.73
Harry Idaho	30	177.73
Torque Bound	27	169.76
Dogma Family	30	168.72
Total	**281**	**1,890.40**

Project Deadline - 6/July/205

Email to send the Power BI file - zawmyohtetgbs@gmail.com