Database Administration
Lab 02: Reverse Design

Andrés Oswaldo Calderón Romero, Ph.D.

February 9, 2026

1 Introduction

The main objective of this lab is to explore a database tool to work on the DBA database design, specifically with the technique of Reverse Design to obtain an ERD. DBeaver is a multiplatform DBA tool designed for diverse DBMSs. It is a Java-based application with a GUI that can connect to a database (via a JDBC driver), extract the required data, and generate an ERD from scratch. We will cover a basic guide using a couple of DBMSs, complete some sections of the online course, and then explore other online alternatives as independent work.

2 DBeaver Tutorial

2.1 Installation

If you are using a lab computer, please follow these instructions to install a **Vagrant Linux box with PostgreSQL**. While this is recommended for consistency in the lab, it is ***not*** a strict requirement; you are free to use your own laptop if you prefer.

1. Database Server Requirement

These exercises assume you have a functional instance of **PostgreSQL** running.

- **Lab Computers:** Follow the Vagrant setup instructions provided.
- **Personal Machines:** Ensure PostgreSQL is installed and active. If you already have a running installation on your system, you may skip the server configuration steps.

2. Installing DBeaver

To interact with the database, we will use the DBeaver GUI. You can download the appropriate installer for your operating system from the official download page: `https://dbeaver.io/download/`.

- **Windows & macOS:** Download and follow the standard installation wizard.
- **Linux:** Download the Linux package and uncompress the file, and you are ready to go! So let's follow these steps:

  1. Open a terminal console and type:

```
wget https://dbeaver.io/files/dbeaver-ce-latest-linux.gtk.x86_64.tar.gz
```

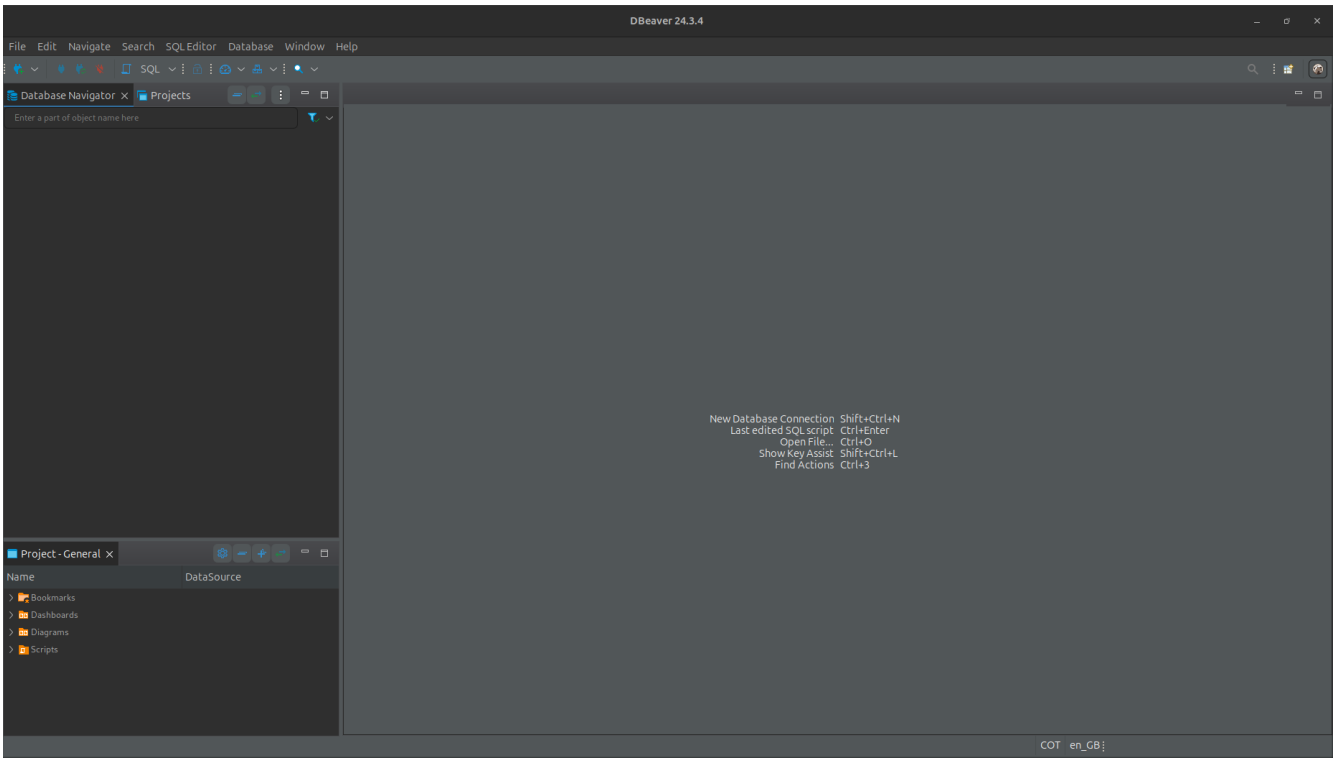

Figure 1: DBeaver GUI.

2. Decompress the tar file by executing:

```
tar -zxvf dbeaver-ce-latest-linux.gtk.x86_64.tar.gz
```

3. Now, you can execute DBeaver from your terminal by navigating inside the dbeaver folder and running the executable. Type the following commands:

```
cd dbeaver
./dbeaver
```

If everything goes well, you will see something like Figure 1.

2.2 Reverse ERD using SQLite

Overall, this will be very simple. We will connect to a sample database called Chinook, implemented in SQLite3. SQLite is a highly portable DBMS, and you will not need any additional installation (I believe?). You can download the database from here.

Follow this video to explore the steps for generating the ERD for this database by making the connection from DBeaver. Let's go!

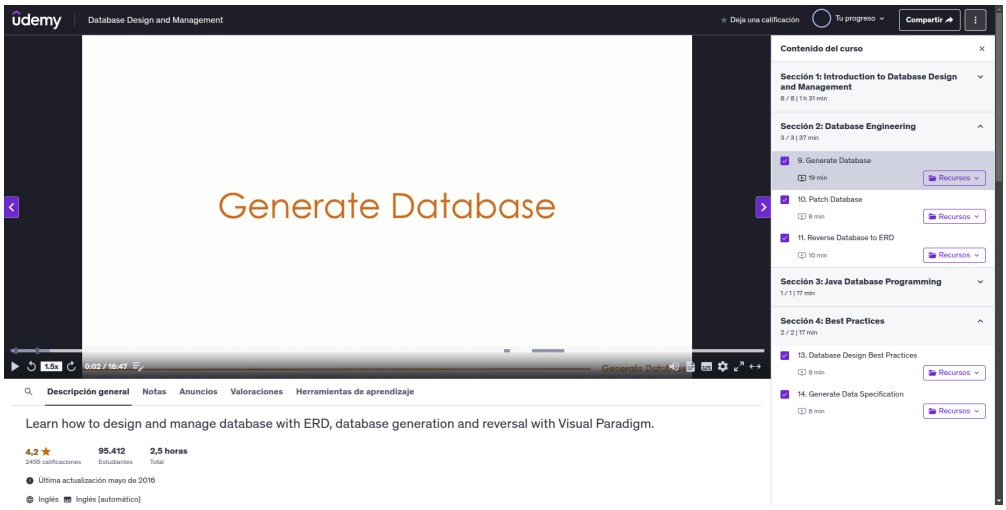

Figure 2: Progress in the *Database Design and Management* Udemy course (checkboxes on the right).

2.3 Reverse ERD using PostgreSQL

Ok, now we will give our PostgreSQL installation a try with an interesting sample database named Pagila. You can download the database schema from here and the actual data from here.

Again, follow this new video to explore the steps for generating the ERD, this time by connecting to a PostgreSQL instance. Here we go!

3 Independent Work

3.1 Complete Others Sections in the Course

You are asked to create an account on Udemy and visit the webpage of the *Database Design and Management* course. Follow sections 2 and 4. Once you complete those sections, please take a screenshot of your progress (see Figure 2 for an example) and attach it to your report.

3.2 Explore Others Options

As before, we will now explore the same topic using a similar approach but this time by trying out online tools for creating E-R diagrams. Read the list of a few interesting tools here.

So, you will have a list of E-R Diagram tools:

- Azimutt
- draw.io
- Lucidchart
- QuickDBD
- DBDiagram.io
- DrawSQL
- Dia

and a list of DBMSs:

- Oracle
- SQLServer
- MySQL
- DB2

Now you will choose a combination of a E-R Diagram tool and a DBMS (i.e. Lucidchart + MySQL) and then write a well-structured tutorial on how to use that tool to generate or create ERDs for the **Chinook** database for that particular DBMS.

We expect you to submit your report by **Febraury 23, 2026**, via the link that will be provided on Brightspace™.

Happy Hacking 😎!