

Class: System Integration  
Exercise: SI\_10b\_database\_migration  
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## Tools

**pgloader** is an open-source tool for migrating data into PostgreSQL. It supports loading data from MySQL, SQLite, MS SQL Server, CSV, and other sources into PostgreSQL, handling data type conversions, schema mapping, and bulk loading efficiently.

**DataGrip** is a cross-platform database IDE by JetBrains. It supports multiple databases (PostgreSQL, MySQL, SQL Server, etc.), offers advanced SQL editing, schema browsing, data editing, and version control integration. Designed for database developers and administrators.

## Databases

**MariaDB** is an open-source relational database management system (RDBMS) and a fork of MySQL, created by the original MySQL developers. It aims for high compatibility with MySQL while offering improved performance, new features, and open development.

**PostgreSQL** is an open-source relational database management system (RDBMS) known for its advanced features, SQL compliance, extensibility, and strong support for complex queries, indexing, and concurrency. Often used for enterprise-grade applications.

## Install Databases & Set Passwords

```
sudo apt install postgresql mariadb-server pgloader
```

```
sudo -i -u postgres
psql
ALTER USER postgres PASSWORD 'your_password';
```

```
sudo mysql -u root
ALTER USER 'root'@'localhost' IDENTIFIED BY 'your_password';
FLUSH PRIVILEGES;
```

## Create Example Database

```
CREATE DATABASE movies_db;
USE movies_db;
```

```
CREATE TABLE movies (
  id INT AUTO_INCREMENT PRIMARY KEY,
  title VARCHAR(255) NOT NULL,
```

```

release_year YEAR(4),
genre VARCHAR(50),
rating DECIMAL(3,1)
);

```

```

CREATE TABLE actors (
id INT AUTO_INCREMENT PRIMARY KEY,
name VARCHAR(255) NOT NULL,
birth_year YEAR(4)
);

```

```

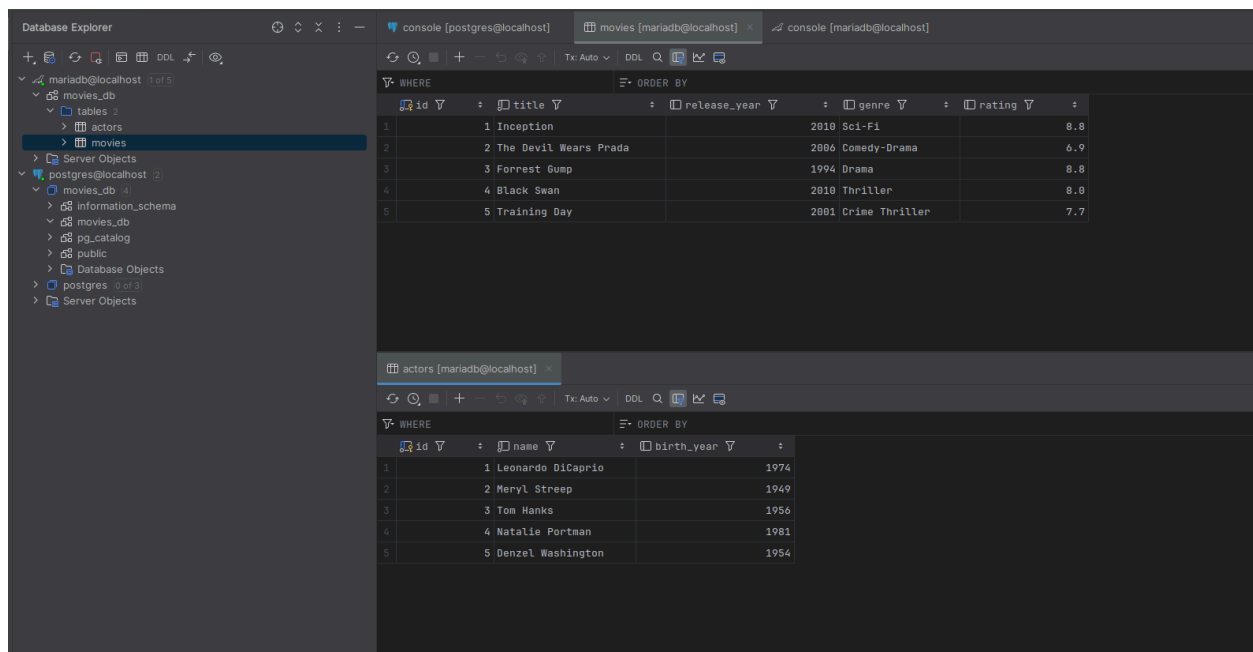
INSERT INTO actors (name, birth_year) VALUES
('Leonardo DiCaprio', 1974),
('Meryl Streep', 1949),
('Tom Hanks', 1956),
('Natalie Portman', 1981),
('Denzel Washington', 1954);

```

```

INSERT INTO movies (title, release_year, genre, rating) VALUES
('Inception', 2010, 'Sci-Fi', 8.8),
('The Devil Wears Prada', 2006, 'Comedy-Drama', 6.9),
('Forrest Gump', 1994, 'Drama', 8.8),
('Black Swan', 2010, 'Thriller', 8.0),
('Training Day', 2001, 'Crime Thriller', 7.7);

```



Shows : jetbrains datagrip connected to both databases. MariaDB shows actors & movies tables. Postgres movies\_db has no content.

# Migration Script

migrate.sh script :

**pgloader "mysql://root:your\_password@localhost/movies\_db"**

**"postgresql://postgres:your\_password@localhost/movies\_db"**

```
mordor:~/projects/hero-si$ ./migrate.sh
2025-05-10T19:52:46.017000Z LOG pgloader version "3.6.7-devel"
2025-05-10T19:52:46.019000Z LOG Data errors in '/tmp/pgloader/'
2025-05-10T19:52:46.089999Z LOG Migrating from #<MYSQL-CONNECTION mysql://root@localhost:3306/movies_db {1005F09D93}>
2025-05-10T19:52:46.089999Z LOG Migrating into #<PGSQL-CONNECTION pgsq://postgres@localhost:5432/movies_db {10060D7073}>
2025-05-10T19:52:46.414999Z LOG report summary reset
```

table name	errors	rows	bytes	total time
-----	-----	-----	-----	-----
fetch meta data	0	4		0.070s
Create Schemas	0	0		0.000s
Create SQL Types	0	0		0.003s
Create tables	0	4		0.010s
Set Table OIDs	0	2		0.003s
-----	-----	-----	-----	-----
movies_db.actors	0	5	0.1 kB	0.039s
movies_db.movies	0	5	0.2 kB	0.038s
-----	-----	-----	-----	-----
COPY Threads Completion	0	4		0.039s
Index Build Completion	0	2		0.064s
Create Indexes	0	2		0.005s
Reset Sequences	0	2		0.036s
Primary Keys	0	2		0.002s
Create Foreign Keys	0	0		0.000s
Create Triggers	0	0		0.000s
Install Comments	0	0		0.000s
-----	-----	-----	-----	-----
Total import time	✓	10	0.3 kB	0.146s

Pgloader migration output. Note 4 tables created, 5 rows copied for each table.

movies\_db.movies\_db.actors [postgres@localhost] x

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Tx: Auto ▾

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WHERE

ORDER BY

	id	name	birth_year
1	1	Leonardo DiCaprio	1974
2	2	Meryl Streep	1949
3	3	Tom Hanks	1956
4	4	Natalie Portman	1981
5	5	Denzel Washington	1954

5 rows ▾ ⋮

movies\_db.movies\_db.movies [postgres@localhost] x

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Tx: Auto ▾

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WHERE

ORDER BY

	id	title	release_year	genre	rating
1	1	Inception	2010	Sci-Fi	8.8
2	2	The Devil Wears Prada	2006	Comedy-Drama	6.9
3	3	Forrest Gump	1994	Drama	8.8
4	4	Black Swan	2010	Thriller	8.0
5	5	Training Day	2001	Crime Thriller	7.7

### Content of postgres movies\_db after migration in datagrip