



Exercise Sheet I I: Application Programming I (until Thursday 26.01.2012)

Please note that you need **50%** of all exercise points to receive the “Studienleistung”. Exercises have to be turned in until **Thursday** of each respective week and must be completed in teams of two students each. You may hand in your solutions either on paper **before the lecture** or into the mailbox at the IFIS floor (Mühlenpfordtstraße 23, 2nd floor). Please do not forget your “Matrikelnummer” and your tutorial group number on your solutions. Your solutions may be in German or English. Please note: To pass the “RDB I Modul” you need the exercise points and the exam! Please hand in **all** SQL statements for your solutions on paper **and** via e-mail to your tutor.

General Information

This week, we will do some practical exercises in our DB2 database. For doing so, a full dump of the IMDB database is provided to you. You may access and query the database as described in the next section. The schema of the database is really a pretty bad one – don’t be tempted to create such a schema yourself (we do not know how IMDB could ever end up with such a horrible schema; probably they skipped their course on data modeling...). Furthermore, the schema does not contain any primary nor foreign keys. However, columns sharing the same name can safely be assumed to have the same semantics (e.g. actors can be associated with a movie via title_id).

Try to familiarize yourself as good as possible with the schema. IMDB uses Strings as IDs for the different tables. These Strings contain all information about a movie, like e.g. title or year. The different parts of the ID-String are already split up into single attributes in the tables. **Please note, the IDs should only be used for table joins! For other tasks use the respective attributes!**

Example:

title_id: Terminator 3: Rise of the Machines (2003) (VG)
title_title: Terminator 3: Rise of the Machines
title_year: 2003
title_type: video game

Setting up

First, you need to download the db2 driver from the IBM Website:

<https://www-304.ibm.com/support/docview.wss?uid=swg24028317>

The file you need is inside the downloaded archive (db2jcc4.jar).

For accessing the database, we still use the Netbeans IDE which needs to be configured as follows (if you prefer, feel free to use any other SQL client):

Register the downloaded driver with Netbeans as shown in Figure 1 and Figure 2.

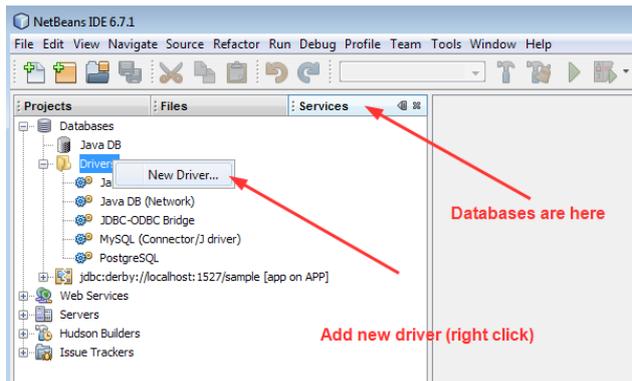


Figure 1 Add new driver in Netbeans

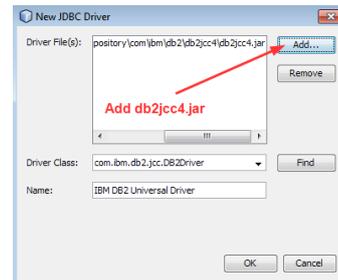


Figure 2 Add DB2 driver

Create a new database connection as shown in Figure 3 to Figure 5. Use the following JDBC connection URL (don't forget the ;):

`jdbc:db2://dmlab.ifis.cs.tu-bs.de:50000/dmlab:retrieveMessagesFromServerOnGetMessage=true;`



Figure 3 Create new connection

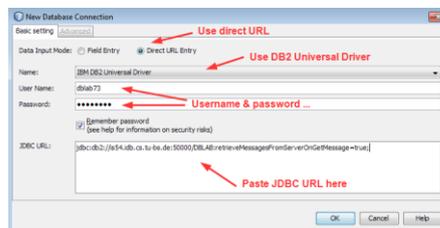


Figure 4 Enter the properties

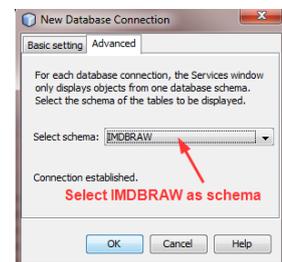


Figure 5 Select IMDBRAW

Finally, select **IMDB** as default schema.

Everytime you start Netbeans, you have to connect to the database and execute the command **SET SCHEMA IMDB** (Figure 6 - Figure 8).

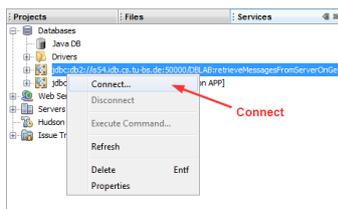


Figure 6 Connect

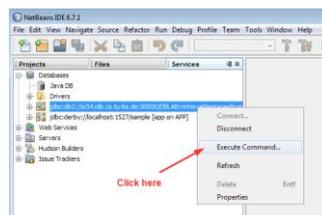


Figure 7 Create new Command

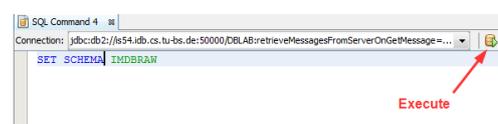


Figure 8 Execute set Schema

After that, you may start querying the DB and review results (Figure 9).

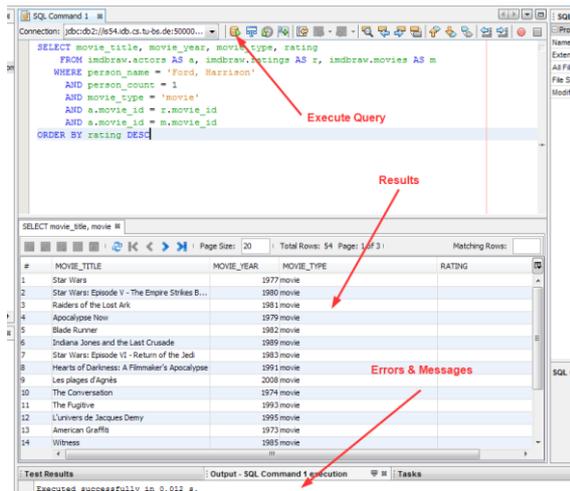


Figure 9 Execute Queries

Exercise 11.1 (14 points)

- Create a table *movie* in your own schema, including the attributes *id*, *movie_type*, *title* and *movie_year* and copy all movies from the *IMDB.MOVIES* table to your own table that were produced between 1995 and 2000 (including 1995 and 2000). (2 points)
- How many different movie types are included in your table and how many movies are there for each type? (2 points)
- Delete all movies from your table that are not of type 'film' or 'TV movie'. (2 points)
- Create a table *actors* in your schema including all actors participating in the movies in your *movies* table. The table should have the following columns: *id*, *actor_name*, *movie_id*, *characters* and *sex*. The *sex* column should mark if an actor is 'male' or 'female'. Please note, in the *IMDB* schema all male actors are in the *actors* table, and all female actors are in the *actresses* table. (3 points)
- How many female and male actors are included in your table? (2 point)
- What is the title of the movie having the most female actors? (3 points)

Exercise 11.2 (8 points)

For the following queries you have to use the *IMDB* schema.

- How many 'Action' movies have been produced in the 'USA'. (2 points)
- Show the top-100 countries that have produced the most 'Action' movies. (2 points)
- Create a query showing the number of cinema movies (type='film') where Arnold Schwarzenegger participated in. The query should also include the rank of Arnold Schwarzenegger regarding all other male actors and their number of cinema movies. (4 points)