Databases

Exercise: SQL Basics

1. Self-study

- ☞ Read Chapters 3.1 – 3.3 in the book by Meier & Kaufmann (2016).
- ☞ Answer the following questions:

- ? What user groups are there and how do they interact with the database?

- ? What is the difference between set-oriented operators and relational operators?

- ? What is the connection between set-oriented query languages and relational algebra?
- ? How is the *selection* applied in SQL?
- ? How is the *projection* applied in SQL?
- ? How is the *join* applied in SQL?
- ? How do you know that the property of SQL is *descriptive*?
- ? What does the statement "SQL is *relationally complete"* mean?
- ? What does "grouping an aggregation with GROUP BY" mean?

2. Research literature

- ☞ Read the article *SEQUEL: A Structured English Query Language* by D. Chamberlin.
- ☞ You will find it on ILIAS: 03 sequel-1974.pdf

- ? What was the underlying idea of SEQUEL? (see Abstract)

- ? What were the two reasons for introducing declarative languages? (see Introduction)

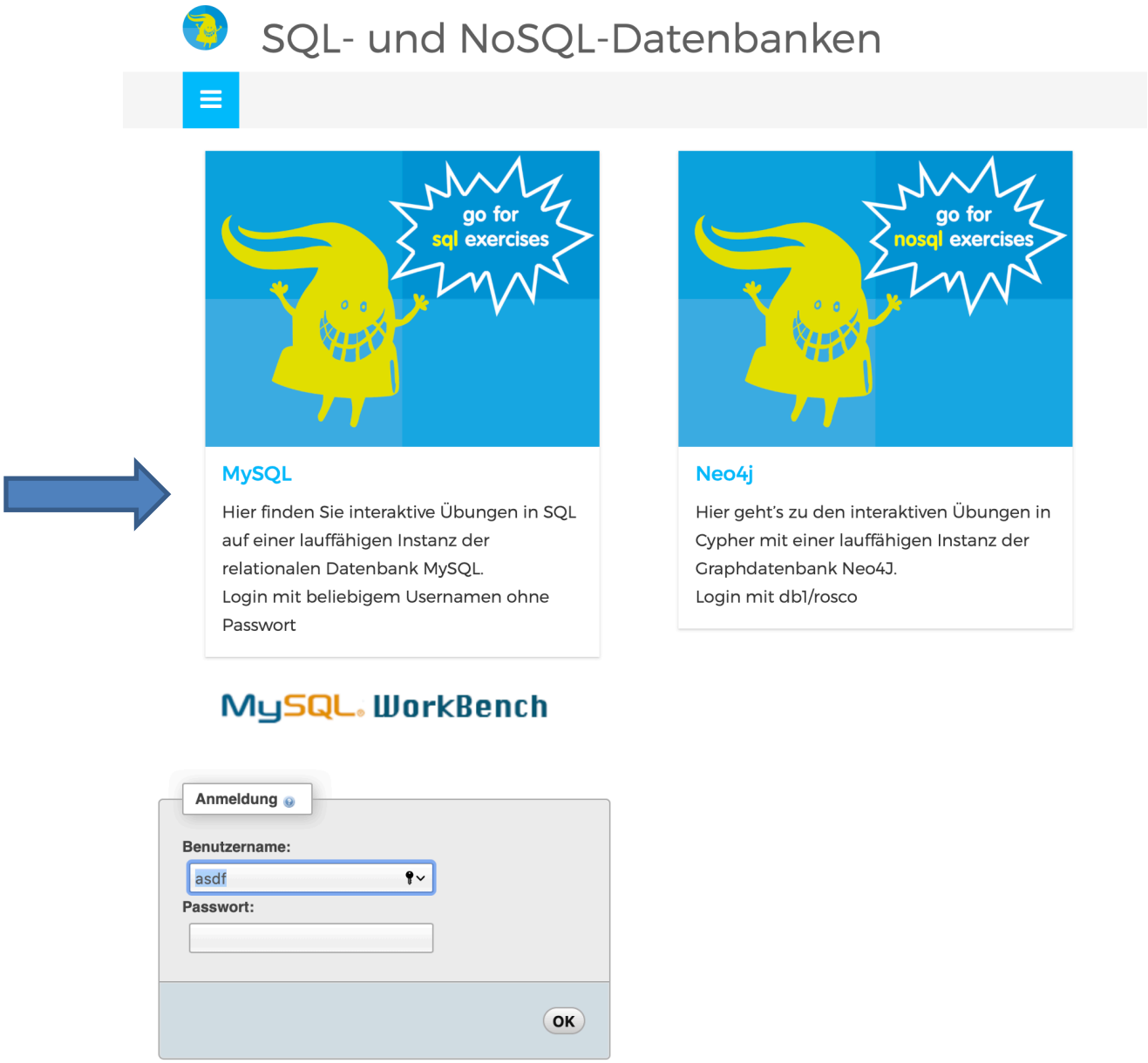
- ? What is the main difference between SQUARE and SEQUEL? (page 253)

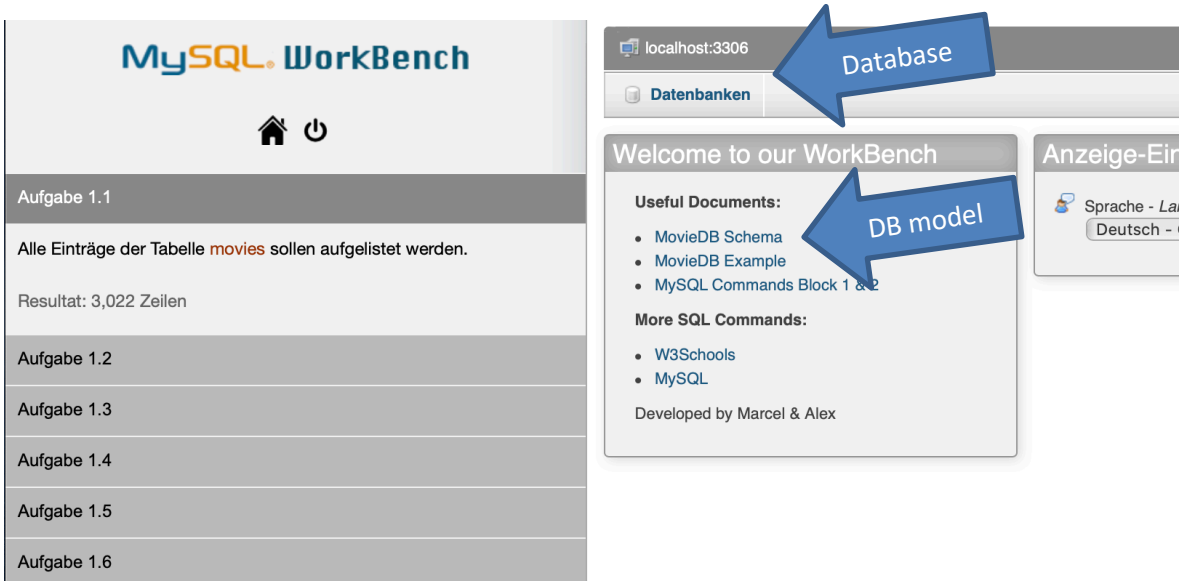
- ? What are some differences between the original SEQUEL and today's SQL?

3. SQL Workbench

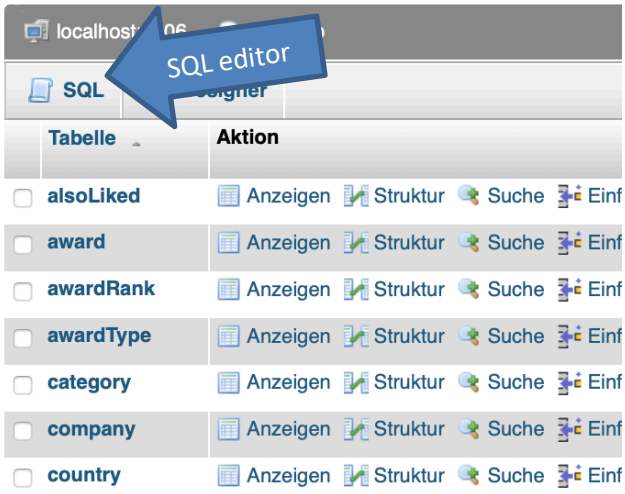
- ☞ Go to the homepage of the book by Meier & Kaufmann: www.sql-nosql.org
- ☞ Look at the data model: https://sql-nosql.org/de/sql-tutorial
- ☞ Log on to the MySQL Workbench: https://sql-nosql.org/workbench/
  - Any user, no password
- ☞ Do tasks 1.1 - 1.15 and 2.1 - 2.12.

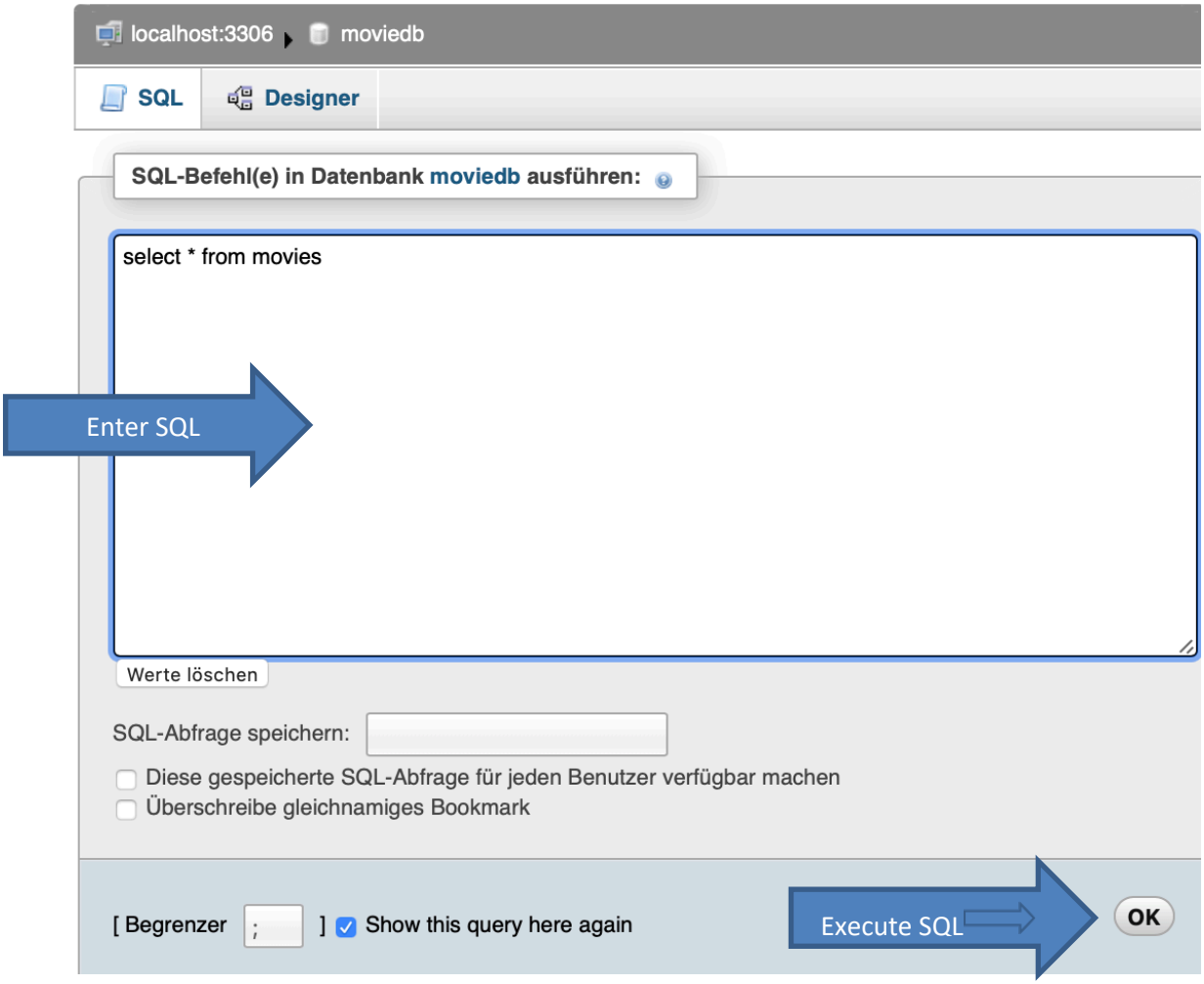
☞ Alternatively, you can install the Movie DB on a (local) MySQL server and do the exercise with MYSQL Workbench. You can find the installation files on ILIAS.




MySQL WorkBench
Aufgabe 1.1
Alle Einträge der Tabelle movies sollen aufgelistet werden.
Resultat: 3,022 Zeilen
Aufgabe 1.2
Aufgabe 1.3
Aufgabe 1.4
Aufgabe 1.5
Aufgabe 1.6
localhost:3306
Database
Datenbanken
Welcome to our WorkBench
Useful Documents:
MovieDB Schema
MovieDB Example
MySQL Commands Block 1 & 2
DB model
More SQL Commands:
W3Schools
MySQL
Developed by Marcel & Alex
Anzeige-Ein
Sprache - La
Deutsch -


Datenbanken
Create new database:
Keine Rechte
Datenbank
moviedb
Open DB
Springe zu Datenbank


SQL editor
SQL
Tabelle
Aktion
alsoLiked Anzeigen Struktur Suche Einf
award Anzeigen Struktur Suche Einf
awardRank Anzeigen Struktur Suche Einf
awardType Anzeigen Struktur Suche Einf
category Anzeigen Struktur Suche Einf
company Anzeigen Struktur Suche Einf
country Anzeigen Struktur Suche Einf



4. Relevance to the project

- ☞ Import the data you defined into your database system in accordance with the database model's structure
- ☞ Write a query that supports the decision for your use case.

- ? If you use an SQL database: What does your query look like? Which operators do you use?
- ? If you use a NoSQL database: Which query language do you use? How does it differ from SQL?

5. Discussion about the exercise and presentation

One group will present their results of this exercise in class. Organize yourselves on the ILIAS space for this modules. Refer to the semester schedule for the presentation date.