Introduction to MySQL RDBMS

Agenda

- Overview of My Database Server 5.5
- Installing MySQL Database Server 5.5
- Overview of MySQL Database Tools

Agenda

- Creating a new database
- MySQL Workbench & MySQL console crash courses
- Designing a database schema using MySQL Workbench

Overview of MySQL Database Server 5.5

Overview of MySQL Database Server 5.5

- MySQL Database Server is one of the world's most widely used RDBMS (Relational Database Management System)
- Popular choice for use by web applications
- Supports a variety of platforms (Windows/Linux/Solaris and others)

Overview of MySQL Database Server 5.5

- MySQL is dual-licensed (open-source and commercial licenses)
- Editions:
  - Community Edition (FOSS - free and open-source)
  - MySQL standard edition
  - MySQL enterprise edition
  - MySQL Cluster Carrier Grade Edition

Overview of MySQL Database Server 5.5

- Key features include:
  - ANSI-SQL 99 support (with custom extensions)
  - Stored procedures, cursors, triggers, views, nested queries
  - Information and performance schemas
  - Distributed transactions based on the X/Open XA standard

Overview of MySQL Database Server 5.5

- Key features include:
  - Partitioning, clustering and replication
  - Pluggable storage engine and a number of storage engine implementations (such as InnoDB and MyISAM)
  - Query caching
  - Security features such as SSL support

MySQL Database Server 11g Installation

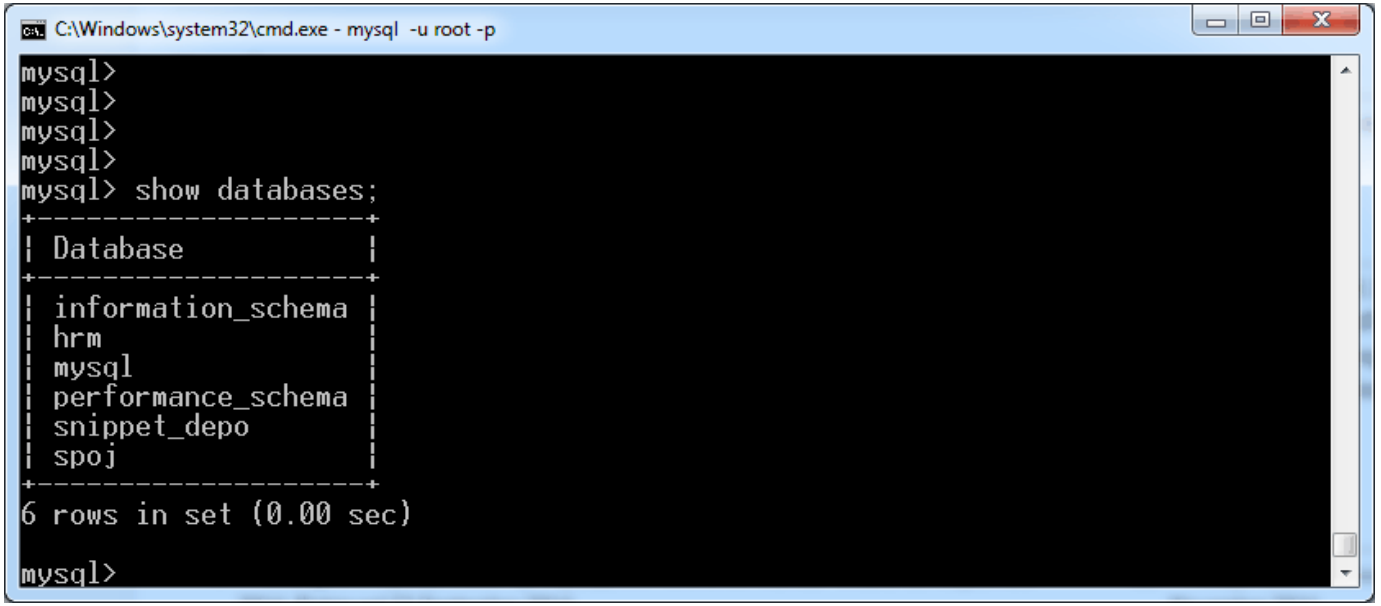
Overview

Overview of MySQL 5.5 Tools

- **mysql** console - main command line interface for managing and working with the MySQL database server
- **MySQL Workbench** - GUI application for working the MySQL database server

Overview of MySQL 5.5 Tools

- **mysql** console
  - command line administration tool
  - can execute SQL statements



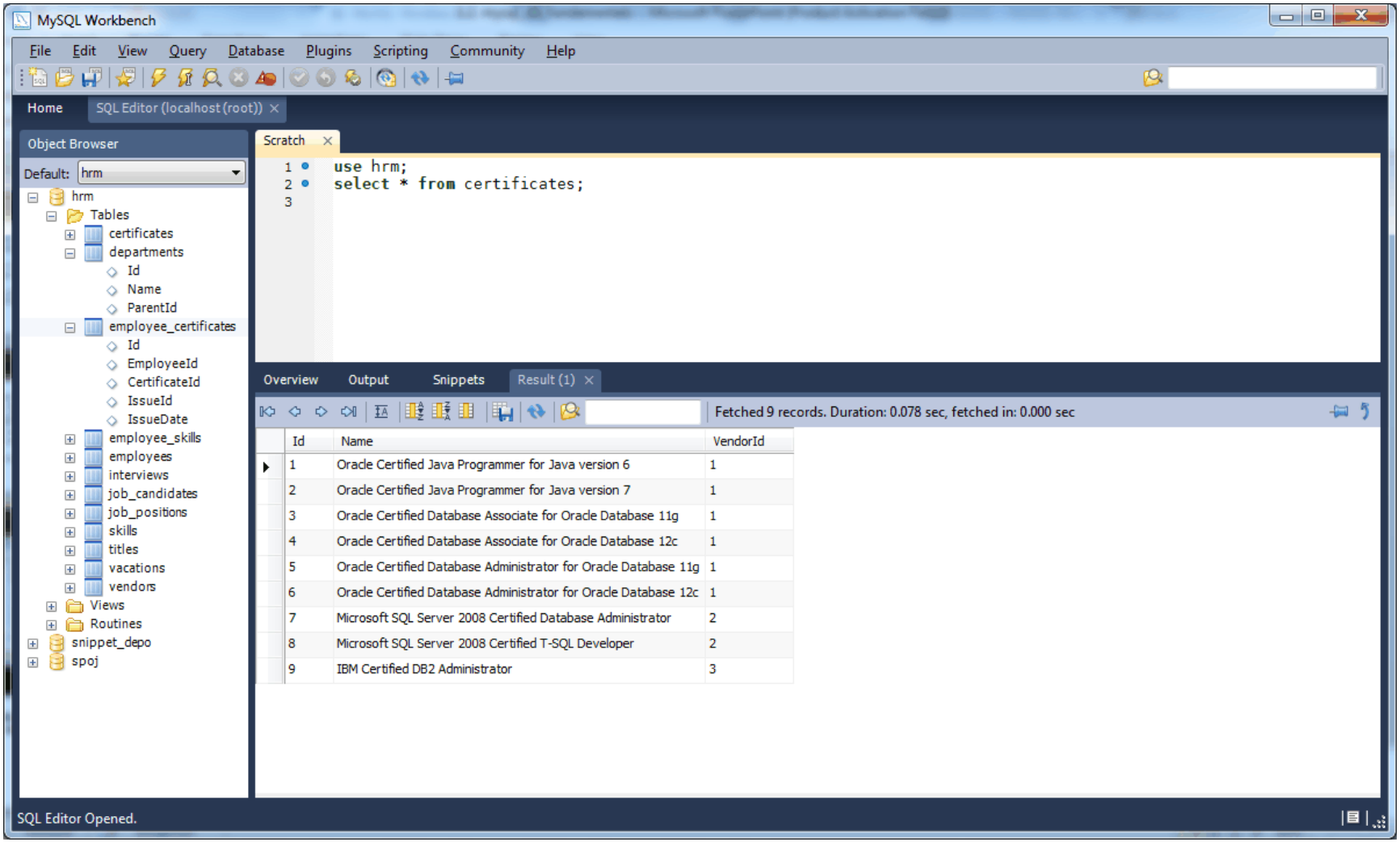
Overview of MySQL 5.5 Tools

- **MySQL Workbench**:
  - an external GUI tool for working with MySQL database server
  - provides browser for database objects
  - provides interface for execution of SQL statements and scripts
  - provides utilities to manage tables, views, sequences, triggers and other database objects

Overview of MySQL 5.5 Tools

- **MySQL Workbench**:
  - provides utilities for database administration (such as starting/stopping a database, user management, backup and restore and log inspection)
  - provides utilities for performance monitoring
  - provides utilities for database migration (to other RDBMS)
  - provides utilities for visual schema design

Overview of MySQL 5.5 Tools



Creating a new database

demo

MySQL console & MySQL Workbench crash course

demo

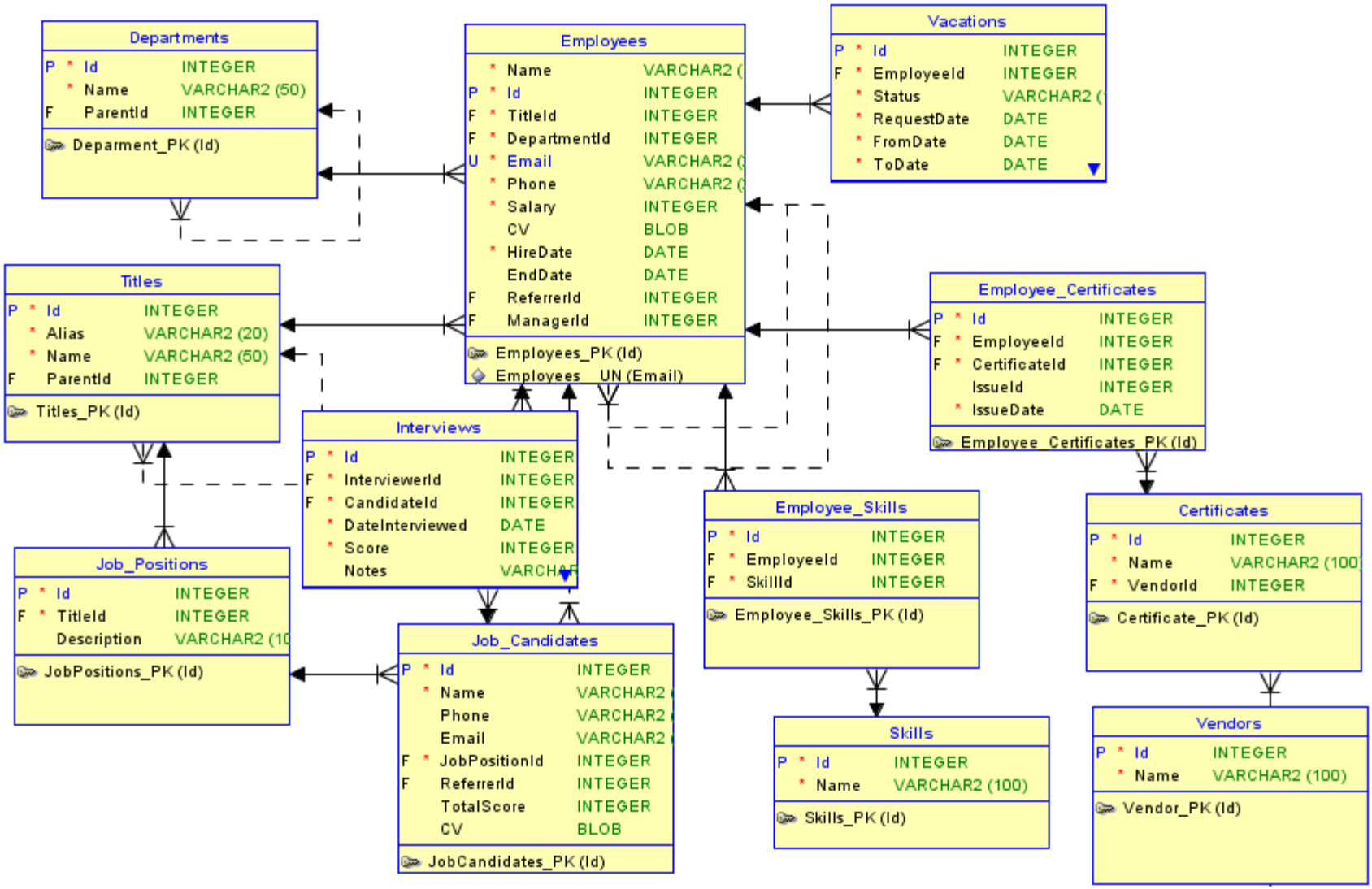
Creating a Database Schema Using MySQL Workbench

demo

Example HRM Schema

- The HRM (Human Resource Management) system:
  - Is a system for managing human resource activities in a middle-sized software company
  - Should be able to manage employee records
  - Should be able to manage job candidate records
  - Should be able to manage employee vacations, promotions, skills, certificates and annual reviews

Example HRM Schema



Creating the Example Database Schema using MySQL Workbench

demo

Questions ?

Exercises (1)

1. Install MySQL Database Server community edition (if not already installed) and MySQL Workbench.
2. List key features of MySQL 5.5 database server.
3. List key tools of the MySQL ecosystem and describe their purpose.

Exercises (2)

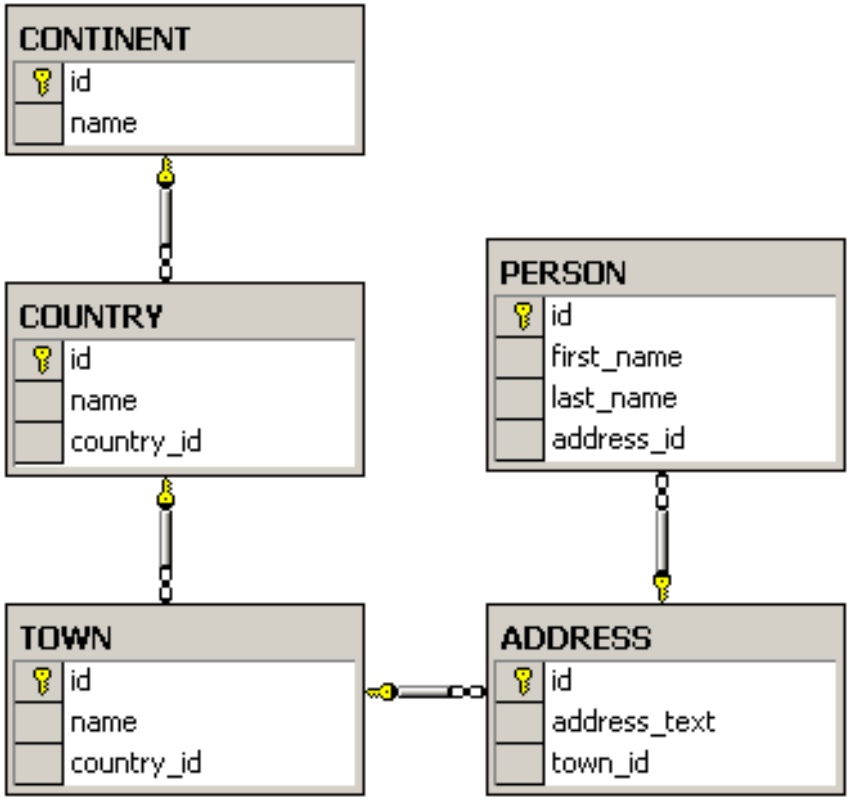
5. Create a new database called HRM.
6. Create the HRM schema using MySQL Workbench.
7. Import sample data records in the schema (thus also verifying that you have created a correct schema).

Exercises (3)

8. The typical universities have: faculties, departments, professors, students, courses, etc. Faculties have name and could have several departments. Each department has name, professors and courses. Each professor has name, a set of titles (Ph. D, academician, senior assistant, etc.), and a set of courses. Each course consists of several students. Each student belongs to some faculty and to several of the courses. Create a data model diagram for the typical university using MySQL Workbench. Export the diagram for MySQL Database Server 5.5.

Exercises (4)

9. Create the following database diagram and export it to MySQL database server:



Exercises (5)

10. We should design a multilingual dictionary. We have a set of words in the dictionary. Each word can be in some language and can have synonyms and explanations in the same language and translation words and explanations in several other languages. The synonyms and translation words are lists of words from the dictionary. The explanations are textual descriptions. Design a database schema (a set of tables and relationships) to store the dictionary.