



Spring Framework 7

Beginner to Guru

Overview of MySQL



About MySQL

- With over 100 million downloads, MySQL is the most popular database in history
- MySQL is a Relational Database System (aka RDMS)
- MySQL is owned by Oracle, but MySQL is open source and free to use
- Officially pronounced 'My Ess Que Ell'





MySQL History

- MySQL was created in 1995 by a Swedish company called MySQL AB
- Original developers included: Michael (Monty) Widenius, David Axmark, Allan Larsson
 - MySQL is named after Monty's daughter 'My'
- Under GPL, MySQL was open source in 2000
- MySQL had over 2 million active installations by the end of 2001





MySQL History

- In 2005, Oracle acquired Innobase, the company behind the storage backend of MySQL
- In 2006, MySQL had 8 million installations, 320 employees, across 25 countries
- Sun Microsystems bought MySQL in 2008 for \$1 billion
 - MySQL had become the choice database for large corporations, banks, and telecoms





MySQL History

- In 2010, after legal complications in the EU, Oracle's acquisition of Sun Microsystems was finalized
 - This included the purchase of MySQL
- Michael (Monty) Widenius left Sun Microsystems and developed a fork of MySQL called MariaDB
 - Largely out of concern about the future of MySQL
 - The MariaDB API remains 100% compatible with MySQL





MySQL Features

- MySQL is a Relational Database Management System
- “SQL” stands for Structured Query Language
 - MySQL supports the ANSI/ISO SQL standard
- MySQL is developed in C and C++, making it portable across many different platforms
- MySQL is very fast, stable and scalable.
- There are MySQL clients for all popular languages.
 - C, C++, Eiffel, Java, Perl, PHP, Python, Ruby, Tcl, and ODBC, JDBC, [ADO.NET](#)





MySQL Features

- Stored Procedures
- Triggers
- Cursors
- Updated Views
- Query Cache
- Subselects





MySQL Features

- ACID Compliance
 - Atomicity - all or nothing
 - Consistency - transactions are valid to rules of the DB
 - Isolation - Results of transactions are as if they are done end to end
 - Durability - Once a transaction is committed, it remains so





MySQL Editions

- **MySQL Community Edition** - free!
 - Open Source under GPL, free to use.
 - This is the edition we will use in the course.
 - Community support only
- **MySQL Standard Edition** - Annual subscription (\$2,000/year, per ~ server)
 - 24x7 Support from Oracle
 - Technically the same as Community Edition, but with support from Oracle





MySQL Editions (Cont.)

- **MySQL Enterprise Edition** - (\$5,000/year per ~server)
 - Provides features for cluster routing and partitioning.
 - Includes Enterprise tooling for monitoring, backups, and security
 - Thread pooling for significant increase in performance under large loads
- **MySQL Cluster CGE** - (\$10,000/year per ~server)
 - Designed for near linear scalability through clustering.
 - High volume, highly available.





MySQL Installation Options

- MySQL is available for all major operating systems
 - Supported OS's: Microsoft Windows, macOS, Linux, Solaris (Unix), FreeBSD
- MySQL can also be run in a Docker container
 - Recommended to use official MySQL Docker image
- MySQL Workbench - GUI interface for MySQL available for major operating systems
 - Use is optional





MySQL and Spring Boot

- Connectivity to MySQL is managed via a JDBC Driver
- **JDBC** - **J**ava **D**ata**B**ase **C**onnectivity
- All major Relational Databases have a database specific JDBC Driver
- MySQL was selected for this course due to its widespread popularity and its free to use
- Configuration steps for Spring Boot for other relational databases will be roughly the same
 - JDBC is a common API abstraction
 - Each will have vendor specific options





Course Requirements

- Require access to MySQL instance with root user permissions
 - Free community edition is perfect
- Local installation is preferred
 - Docker container optional
 - VM instance in cloud optional
- Verification - Able to connect using root user account using GUI tool like MySQL Workbench
 - If you cannot connect using a GUI tool, you will not be able to connect from Spring





Coming Up In Course

- With MySQL we will be performing the following tasks
 - Creating user accounts with limited permissions
 - Creating database schemas
 - Creating database tables and indexes
- Required SQL scripts will be provided in course for above tasks



