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My SQL Interview Questions and Answers



General Information About MySQL

MySQL is a very fast, multithreaded, multiuser, and robust SQL (Structured Query Language) database server.

MySQL is free software. It is licensed with the GNU GENERAL PUBLIC LICENSE





JDBC Drivers for MS SQL

Commercial (Type-3)
JDBC Drivers for all
versions of SQL Server



http://www.gnu.org/.

What Is MySQL

MySQL, the most popular Open Source SQL database, is provided by MySQL AB. MySQL AB is a commercial company that builds is business providing services around the MySQL database. See section 1.2 What Is MySQL AB.

ySQL is a database management system.

A database is a structured collection of data. It may be anything from a simple shopping list to a picture gallery or the vast amounts of information in a corporate network. To add, access, and process data stored in a computer database, you need a database management system such as MySQL. Since computers are very good at handling large amounts of data, database management plays a central role in computing, as stand-alone utilities, or as parts of other applications.

MySQL is a relational database management system.

A relational database stores data in separate tables rather than putting all the data in one big storeroom. This adds speed and flexibility. The tables are linked by defined relations making it possible to combine data from several tables on request. The SQL part of MySQL stands for "Structured Query Language" - the most common standardized language used to access databases.

MySQL is Open Source Software.

Open source means that it is possible for anyone to use and modify. Anybody can download MySQL from the Internet and use it without paying anything. Anybody so inclined can study the source code and change it to fit their needs. MySQL uses the GPL (GNU General Public License) http://www.gnu.org, to define what you may and may not do with the software in different situations. If you feel uncomfortable with the GPL or need to embed MySQL into a commercial application you can buy a commercially licensed version from us.

Why use MySQL?

MySQL is very fast, reliable, and easy to use. If that is what you are looking for, you should give it a try. MySQL also has a very practical set of features developed in very close cooperation with our users. You can find a performance comparison of MySQL to some other database managers on our benchmark page. See section 12.7 Using Your Own Benchmarks. MySQL was originally developed to handle very large databases much faster than existing solutions and has been successfully used in highly demanding production environments for several years. Though under constant development, MySQL today offers a rich and very useful set of functions. The connectivity, speed, and security make MySQL highly suited for accessing databases on the Internet.

The technical features of MySQL

For advanced technical information, see section 7 MySQL Language Reference. MySQL is a client/server system that consists of a multi-threaded SQL server that supports different backends, several different client programs and libraries, administrative tools, and a programming interface. We also provide MySQL as a multi-threaded library which you can link into your application to get a smaller, faster, easier to manage product. MySQL has a lot of contributed software available.

It is very likely that you will find that your favorite application/language already supports MySQL. The official way to pronounce MySQL is `My Ess Que Ell' (not MY-SEQUEL). But we try to avoid correcting people who say MY-SEQUEL.

The Main Features of MySQL

The following list describes some of the important characteristics of MySQL:

Fully multi-threaded using kernel threads. That means it can easily use multiple CPUs if available.

C, C++, Eiffel, Java, Perl, PHP, Python and Tcl APIs.

Works on many different platforms.

Many column types: signed/unsigned integers 1, 2, 3, 4, and 8 bytes long, FLOAT, DOUBLE, CHAR, VARCHAR, TEXT, BLOB, DATE, TIME, DATETIME, TIMESTAMP, YEAR, SET, and ENUM types.

Very fast joins using an optimized one-sweep multi-join.

Full operator and function support in the SELECT and WHERE parts of queries. Example:

mysql> SELECT CONCAT(first_name, " ", last_name) FROM tbl name

WHERE income/dependents > 10000 AND age > 30;

SQL functions are implemented through a highly optimized class library and should be as fast as they can get! Usually there shouldn't be any memory allocation at all after query initialization.

Full support for SQL GROUP BY and ORDER BY clauses. Support for group functions (COUNT(), COUNT(DISTINCT), AVG(), STD(), SUM(), MAX() and MIN()).

Support for LEFT OUTER JOIN and RIGHT OUTER JOIN with ANSI SQL and ODBC syntax.

You can mix tables from different databases in the same query (as of Version 3.22).

A privilege and password system that is very flexible and secure and allows host-based verification. Passwords are secure because all password traffic is encrypted when you connect to a server.

ODBC (Open-DataBase-Connectivity) support for Win32 (with source). All ODBC 2.5 functions and many others. For example, you can use MS Access to connect to your MySQL server. See section 18 MySQL ODBC Support.

Very fast B-tree disk tables with index compression.

Up to 32 indexes per table are allowed. Each index may consist of 1 to 16 columns or parts of columns. The maximum index length is 500 bytes (this may be changed when compiling MySQL). An index may use a prefix of a CHAR or VARCHAR field. Fixed-length and variable-length records.

In-memory hash tables which are used as temporary tables. Handles large databases. We are using MySQL with some databases that contain 50,000,000 records and we know of users that uses MySQL with 60,000 tables and about 5,000,000,000 rows

All columns have default values. You can use INSERT to insert a subset of a table's columns; those columns that are not explicitly given values are set to their default values.

Uses GNU Automake, Autoconf, and libtool for portability.

Written in C and C++. Tested with a broad range of different compilers.

A very fast thread-based memory allocation system. No memory leaks. Tested with a commercial memory leakage detector (purify).

Includes myisamchk, a very fast utility for table checking, optimization, and repair. See section 15 Maintaining a MySQL Installation.

Full support for several different character sets, including ISO-8859-1 (Latin 1), big 5, ujis, and more. For example, the Scandinavian characters `@ringaccent{a}', `@"a' and `@"o' are allowed in table and column names.

All data are saved in the chosen character set. All comparisons for normal string columns are case insensitive.

Sorting is done according to the chosen character set (the Swedish way by default). It is possible to change this when the MySQL server is started up. To see an example of very advanced

sorting, look at the Czech sorting code. MySQL supports many different character sets that can be specified at compile and run time.

Aliases on tables and columns are allowed as in the SQL92 standard.

DELETE, INSERT, REPLACE, and UPDATE return how many rows were changed (affected). It is possible to return the number of rows matched instead by setting a flag when connecting to the server.

Function names do not clash with table or column names. For example, ABS is a valid column name. The only restriction is that for a function call, no spaces are allowed between the function name and the `(' that follows it. See section 7.39 Is MySQL Picky About Reserved Words?.

All MySQL programs can be invoked with the --help or -? options to obtain online assistance.

The server can provide error messages to clients in many languages. See section 10.1 What Languages Are Supported by MySQL?. Clients may connect to the MySQL server using TCP/IP Sockets, Unix Sockets (Unixes), or Named Pipes (NT). The MySQL-specific SHOW command can be used to retrieve information about databases, tables, and indexes. The EXPLAIN command can be used to determine how the optimizer resolves a query.

Page Numbers: 1 2 3 4 5 6 7 8
9 10 11 12 13 14 15 16 17 18
19 20 21 22 23 24 25 26 27
28 29 30 31 32 33 34

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25