



Database Management in MYSQL

Jodi Wahyudi¹, Masduki Asbari^{2*}, Ipang Sasono³, Tias Pramono⁴, Dewiana Novitasari⁵

^{1,2,3,4,5} Universitas Insan Pembangunan Indonesia, Indonesia

*Corresponding email: kangmasduki.ssi@gmail.com

Receive: 12/08/2022

Accepted: 11/09/2022

Published: 01/10/2022

Abstract

The purpose of this research is to find out what is database management in MySQL or read My Sequel is a Database Management System often abbreviated as DBMS, MySQL is an open-source database management system. MySQL can be used to create and manage databases and their contents, from the smallest to the very large and to convey information to its users. MySQL is also included in the RDBMS or Relational Database Management system, where in its database structure so that when the data retrieval process uses the relational database method and becomes a liaison between the software and the database server. The thing to remember is that MySQL can be used for free.

Keywords: Database, management, MySQL database.

Introduction

Before entering the MySQL database, we must first know what the database means. The database is known as a database, consisting of the base and data of the word. Data is a record of a collection of facts that represent an object. Data is raw and has no context. While the base or base can be interpreted as the headquarters, the gathering place of an object or object representation. The database is a collection of data that are interconnected with one another, stored on computer hardware, and used by software to manipulate it. The database is one of the important components in information systems because it is the basis for providing information to users. MySQL or read My Sequel is a Database Management System often abbreviated as DBMS, MySQL is an open-source database management system. MySQL is a compatible partner of PHP. MySQL is created and developed by MySQL AB based in Sweden.

MySQL can be used to create and manage databases and their contents. We can use MySQL to add, modify and delete data in the database. MySQL is a relational database management

system. This means that the data that is managed in the database will be placed in several separate tables so that data manipulation will be much faster. MySQL can be used to manage databases ranging from small to very large. MySQL can also run Structured Query Language (SQL) commands to manage the databases in it. Until now, MySQL has grown to version 5. MySQL 5 already supports triggers to facilitate the management of tables in the database. MySQL is also included in the RDBMS or Relational Database Management system, where in its database structure so that when the data retrieval process uses the relational database method and becomes a liaison between the software and the database server.

Method

The approach that the researcher uses in this research is a descriptive qualitative approach which explains that qualitative research is research that produces descriptive data, namely writing. Where this approach is expected to produce an in-depth description of writing and others that are studied from a complete point of view.

A qualitative method or a descriptive approach means that this research is carried out by searching for theoretical sources on Google or browsing the internet and then analyzing the data, then interpreting and making conclusions. While the source of this research was obtained from the Module in the Classroom entitled "DATA BASIS".

Results and Discussion

MySQL was created in 1979, by Michael "Monty" Wideners, a Swedish computer programmer. Monty developed a simple database system called UNIREG that uses a low-level ISAM database engine connection with indexing. At that time Monty was working for a company called TX in Sweden. TX in 1994 beg to develop web-based applications and plans to use UNIREG as a database system. But unfortunately, UNIREG is considered unsuitable for dynamic databases such as the web. TSX then tries to find other alternative database systems, one of which is mSQL (mini SQL). However, mSQL version 1 also has a drawback, namely that it does not support indexing, so its performance is not very good. To improve SQL performance, Monty tried to contact David Hughes (the programmer who developed mSQL) to ask if he was interested in developing a connector in mSQL that could be connected with UNIREG ISAM so it supports indexing. But at that time Hughes refused, arguing that he was developing an independent indexing technology for MySQL version 2. Due to this refusal, David Hughes, TSX (and also Monty) finally decided to design and develop their new database system concept. This system is a combination of UNIREG and mSQL (whose source code is free to use). So in May 1995, a new RDBMS, called MySQL was released.

David Axmark of Detron HB, a TSX partner proposed that MySQL be 'sold' under a new business model. He proposed that MySQL be developed and released for free. The company's net income is obtained from selling "support" services for companies that want to implement MySQL. This business concept is now known as Open Source.

So MySQL is a SQL database management system software (English: database management system) or DBMS that is multithreaded, multi-user, with about 6 million installations worldwide.

MySQL AB makes MySQL available as free software under the GNU General Public License (GPL), but they also sell under a commercial license for cases where its use is incompatible with the use of the GPL.

Unlike projects like Apache, where software is developed by the general community, and the copyright for the source code is owned by the respective authors, MySQL is owned and sponsored by a Swedish commercial company MySQL AB, which holds the copyright to almost all of the code. the source. The two Swedes and one Finn who founded MySQL AB are David Ax mark, Allan Larsson, and Michael "Monty" Wideners.

Relational database management system

MySQL is an implementation of a relational database management system (RDBMS) that is distributed free of charge under the GPL (General Public License). Every user can freely use MySQL, but with limitations, the software may not be used as a commercial derivative product. MySQL is a derivative of one of the main concepts in a pre-existing database; SQL (Structured Query Language). SQL is a database operation concept, especially for the selection or selection and entry of data, which allows data operations to be done easily and automatically.

The reliability of a database system (DBMS) can be seen from the way the optimizer works in processing SQL commands made by users and application programs that use them. As a database server, MySQL supports transactional database operations as well as non-transactional database operations. In the non-transactional mode of operation, MySQL can be said to be superior in terms of performance compared to other competitor database server software. However, in the non-transactional mode, there is no guarantee of the reliability of the stored data, therefore the non-transactional mode is only suitable for types of applications that do not require data reliability such as web-based blogging applications (word press), CMS, and the like. For system needs that are intended for business, it is highly recommended to use transactional database mode, but as a consequence, MySQL's performance in transactional mode is not as fast as performance in non-transactional mode.

MySQL features include:

1. Relational Database System. Like other database software on the market, MySQL is an RDBMS.
2. Client-Server Architecture. MySQL has a client-server architecture where the MySQL database server is installed on the server. MySQL clients can be on the same computer as the server, and can also be on other computers that communicate with the server through the network and even the internet.
3. Familiarize yourself with standard SQL commands. SQL (Structured Query Language) is a standard language that applies to almost all database software. MySQL supports SQL version SQL: 2003.
4. Supports Sub Select. As of version 4.1, MySQL supports select in select (sub-select)
5. Support Views. MySQL supports views since version 5.0
6. Supports Stored Procedures (SP). MySQL supports SP since version 5.0.
7. Support Triggers. MySQL supports triggers in version 5.0 but is still limited. MySQL developers promise to improve the ability of triggers in version 5.1.

Data Type

Several types of data types in MySQL have their types in each field in the database table.

MySQL recognizes several types of data fields, namely:

- a. Numeric data type.
Numeric data types can be divided into two groups, namely integer data types and floating point data types. The integer data type is for integer data while the floating point data type is used for decimal numbers.
- b. String data type.
- c. Time data type.

MySQL Privileges

MySQL has several features, including:

1. Portability.
MySQL can run stably on various operating systems such as Windows, Linux, FreeBSD, Mac OS X Server, Solaris, Amiga, and many more.
2. Open source software.

MySQL is distributed as open-source software, under the GPL license so it can be used free of charge.

3. Multi-user.
MySQL can be used by multiple users at the same time without experiencing problems or conflicts.
4. Performance tuning.
MySQL has amazing speed in handling simple queries, in other words, it can process more SQL per unit of time.
5. Variety of data types.
MySQL has a very rich variety of data types, such as signed/unsigned integers, float, double, char, text, date, timestamp, and others.
6. Commands and Functions.
MySQL has full operators and functions that support Select and Where commands in queries.
7. Security.
MySQL has several layers of security such as subnet mask level, hostname, and user access permissions with a detailed permission system and encrypted password.
8. Scalability and Restrictions.
MySQL can handle databases on a large scale, with more than 50 million records and 60 thousand tables, and 5 billion rows. In addition, the index limit that can be accommodated reaches 32 indexes in each table.
9. Connectivity.
MySQL can connect to clients using the TCP/IP, UNIX sockets (UNIX), or Named Pipes (NT) protocols.
10. Localization.
MySQL can detect error messages on clients using more than twenty languages. Even so, Indonesian is not included in it.
11. Interface.
MySQL has an interface for various applications and programming languages using API (Application Programming Interface) functions.
12. Client and Equipment.
MySQL is equipped with a variety of tools (tools) that can be used for database administration, and each existing tool is included online instructions.

13. Table structure.

MySQL has a table structure that is more flexible in handling ALTER TABLE, compared to other databases such as PostgreSQL or Oracle.

Why MySQL Becomes Popular Database Management

Broadly speaking, MySQL has a function to manage and create databases from the server side that contain various information using SQL. In data science, MySQL is used to query large datasets to make it easier for users to access the dataset.

1. Ease of Management

MySQL offers fast and powerful capabilities with an average download time of fewer than fifteen minutes. This is no exception on platforms that DQLab data friends have, namely Microsoft Windows, Macintosh, Linux, and others. MySQL provides a complete set of management tools, solves problems, and can control the number of MySQL servers operating in one workstation. With this convenience, it can make it easier for you to use various types of types in MySQL such as text, timestamp, integer, float, and others. Thus, easy database management will also help software development well such as handling complete database administration tasks to performance monitoring.

2. Open-source and Flexible

Many companies are hesitant to use open-source because they believe that they will not get any kind of professional support or service and do not guarantee overall success. This becomes a consideration for the company regarding the losses that may occur. MySQL is a free database management, but that doesn't mean it has poor performance. With its open-source nature, it is very helpful and easy to use because MYSQL works 24 hours a day. MySQL itself is supported by Oracle, so it provides unique support that provides a combination of freedom in the use of open-source that can be used by multiple users with trusted software to support development.

3. Have High Performance

As the volume of data is increasing every day, there is a need for improvements to cope with the workload without decreasing performance. MySQL can support and process large databases because of its high-speed load utility, dedicated

memory cache, and also other work-enhancing mechanisms MySQL offers all the ammunition that is very precise and becomes a very important system for any organization or business. By having high performance and its use can be used by many users while making MySQL a popular open-source and providing comprehensive support for application development needs.

4. Strong Data Protection

Protecting data is one of the most crucial jobs for organizations and businesses, MySQL in its use provides security features that can ensure absolute data protection. Because of the mechanism, MySQL will ensure that only authorized users can enter the database server and can allow blocking users. Thus, we can ensure a safe and secure connection on the server using access rights, namely password encryption, data hiding, and other forms of security that protect data integrity.

5. Improve Coding Skills to Advanced with DQLab!

Educational background is not an obstacle for those of you who want to develop and improve coding skills or other data science knowledge. If you are looking for a place to study that is fun and applicable in the real work industry, DQLab is the solution! There are already available modules that suit your needs and are easy to understand.

MySQL Database Advantages and Disadvantages: **Advantages**

- a. GPL Licensed and Multi-Platform.
- b. Can be integrated with several programming languages such as .Net, Java, Python, and Perl which are the most dominant programming languages among programmers.
- c. Supports ODBC for the Windows operating system so that it can be used by applications that run in windows.
- d. It can run on low hardware specifications because it saves memory resources (compared to other databases) so it is easy to use for learning materials.
- e. MySQL can detect error messages on clients using more than 20 languages, although Indonesian is not included in it.

Deficiency

- a. Many claims to lack support for Visual/Desktop programming, so few use it for visual applications.
- b. Because it is GPL-licensed, it is difficult to get updates for urgent problems, so mid-sized companies prefer licensed and supported RDBMS such as Oracle and MS SQL Server.
- c. It is very doubtful in handling large-scale data because several opinions are pro and contra on MySQL's ability to process large data.

Conclusion

It can be concluded from the article above that MySQL was created by Michael "Monty" Wildenus, he developed a database called UNIREG which is web-based but not compatible with the dynamic web. Then switch mSQL to connect with UNIREG whose source code is free to use. So that the release of the RDBMS is called MySQL or known as open source. MySQL AB makes MySQL for free software, where this software is developed by the general community and the source code copyright is owned by the respective authors. MySQL is used to query databases in large numbers to make it easier to access datasets, besides that MySQL also has a weakness in the non-transaction mode, namely, there is no guarantee of the reliability of the stored data.

References

- Effendi, M. R., & Saputra, J. (2022). Design and Build an Employee Leave Application System. *Journal of Information Systems and Management (JISMA)*, 1(4), 42-53.
- Hermansyah, R., & Asbari, M. (2022). Edifying In The Industrial Revolution 4.0 With The Role Of Islamic Education. *Journal of Information Systems and Management (JISMA)*, 1(5), 7-11.
- Indra, F., Juliana, J., Hubner, I., & Sitorus, N. B. (2022). Development Of Gastronomic Tourism Potential In Pontianak West Kalimantan. *Journal of Information Systems and Management (JISMA)*, 1(5), 28-42.
- Jasin, M. (2022). How The Role of online and viral marketing and competitiveness ability on business performance of SMEs. *Journal of Information Systems and Management (JISMA)*, 1(2), 28-35.
- Jasin, M. (2022). The Role of Social Media Marketing and Electronic Word of Mouth on Brand Image and Purchase Intention of SMEs Product. *Journal of Information Systems and Management (JISMA)*, 1(4), 54-62.
- Novitasari, D. (2022). Hospital Quality Service and Patient Satisfaction: How The Role of Service Excellent and Service Quality?. *Journal of Information Systems and Management (JISMA)*, 1(1), 29-36.
- Novitasari, D. (2022). SMEs E-commerce Buying Intention: How the Effect of Perceived Value, Service Quality, Online Customer Review, Digital Marketing, and Influencer Marketing. *Journal of Information Systems and Management (JISMA)*, 1(5), 61-69.
- Patmawati, S., Dewi, V. M., & Asbari, M. (2023). THE EFFECT OF SHORT-TERM AND LONG-TERM LEARNING IN QUALITY MANAGEMENT AND INNOVATION. *Journal of Information Systems and Management (JISMA)*, 2(1), 21-26.
- Purwanto, A. (2022). WHAT IS THE ROLE OF CUSTOMER BEHAVIOR FOR ELECTRONIC E-COMMERCE AND MODERN MARKET VISIT INTENTION? *Journal of Information Systems and Management (JISMA)*, 1(6), 46-57.