

INTRODUCTION

MySQL Database Management System (DBMS) is a freely distributed relational database developed and maintained by Oracle. From the very beginning, MySQL was developed by the Swedish company MySQL AB, which was later acquired by Sun Microsystems, which, in turn, was later acquired by Oracle.

MySQL is distributed under both the GNU General Public License (GPL) and its commercial license. Under the terms of the GPL, software that uses MySQL libraries must also be distributed under the GPL license. For cases where developers do not want to open the source code of their software, a commercial license is provided. The advantage of a commercial license is quality service support. Contrary to Oracle's MySQL licensing policy and to ensure free DBMS status, a fork of MySQL was created and called MariaDB. This database supports high compatibility with MySQL, ensuring the exact correspondence of the programming interface, the so-called API (Application Programming Interface), and MySQL commands.

MySQL is a great solution for small, medium, and sometimes even large software systems. MySQL is also part of the WAMP (Windows, Apache, MySQL, PHP) and LAMP (Linux, Apache, MySQL, PHP) web application development stacks. MySQL is included in many ready-made assemblies of servers designed for web applications, such as XAMPP (which is proposed for use in this laboratory workshop), OpenServer, and more. Recently, because of openness support, server builders and hosting providers are increasingly incorporating MariaDB into WAMP and LAMP stacks.

Typically, MySQL is used as a server accessed by local or remote clients. However, the distribution also contains a library that provides the deployment of an internal server for standalone applications. In this laboratory workshop, we get acquainted with the main features of MySQL in the role of the client-server database.

Simplified description of the subject area

Some enterprise purchases products from various suppliers. Suppliers can be both legal entities and individual entrepreneurs. Products purchase is performed as batches and processed in the form of supply contracts. Each supply contract has unique number and might be concluded with single supplier. Preliminary order, invoice or similar document is reason for supply. Each contract document for each product type contains product name, number of items, and cost (in UAH). Supplied products are brought to the warehouse for the purpose of further sales through various channels.

Subject area analysis allowed to identify and describe core business processes related to products supply. It is assumed that enterprise will have to store large enough amount of data related to products supply. Besides, product supply information should be organized in the way that staff and management could perform analytical processing of this information. Therefore, it is necessary to create database used to store and process information related to products supply. Business process analysis allowed to define following information that might be included in the database.

1. Product information

Includes product name, unique product identifier (ID, Stock Keeping Unit, etc.), product measurement unit (item, box, kg, etc.), and other. Products are grouped into various product groups (e.g. grocery, perfumery, household chemicals, etc.). It is assumed that each product belongs to a single product group.

2. Supplier information

Includes information about business entities on the market that offer products interested for the current enterprise. Suppliers can be both legal entities and individual entrepreneurs. Supplier information includes name, individual tax number, number of the VAT payer certificate (for legal entities); last name, first name, and second name, number of the registration

certificate (for individual entrepreneurs; address, phone number (for both types of business entity), and other.

3. Price information

Same products might be offered by various suppliers. Moreover, each supplier can offer the same products with various prices (retail, wholesale, etc.) depending on the purchase amount, contract conditions, etc.

4. Supply information

Each supply is based on contract concluded between the supplier and enterprise. For each supply the following information is known: supplier, supply date, total cost, and supplied products information. Supplied products information includes product name, number of items, and price per item. The costs of supplied products might be different than standard prices offered by supplier (special discounts might be applied for a particular customer, the price for the certain product types might be assigned individually, etc.).

Entities and attributes

Thus, there might be defined following database tables (entities in data model) based on the analysis above. Each table contains fields (attributes) that describe stored information:

1. Product groups
 - 1.1. Product group ID
 - 1.2. Product group Name
2. Product measurement units
 - 2.1. Product measurement unit ID
 - 2.2. Product measurement unit name
3. Products
 - 3.1. Product ID
 - 3.2. Product name
 - 3.3. Product group
 - 3.4. Product measurement unit
4. Product price types

- 4.1. Product price type
- 4.2. Product price type name
- 5. Suppliers
 - 5.1. Supplier ID
 - 5.2. Supplier name (for legal entity)
 - 5.3. Individual tax number (for legal entity)
 - 5.4. Number of the VAT payer certificate (for legal entity)
 - 5.5. Last name, first name, second name (for individual entrepreneur)
 - 5.6. Number of the registration certificate (for individual entrepreneur)
 - 5.7. Address
 - 5.8. Phone number
- 6. Market prices
 - 6.1. Product
 - 6.2. Supplier
 - 6.3. Price type
 - 6.4. Price value
 - 6.5. Price offer condition
- 7. Supply contracts
 - 7.1. Contract ID
 - 7.2. Supply date
 - 7.3. Supplier
 - 7.4. Comment (some additional information)
- 8. Supplied products
 - 8.1. Contract ID
 - 8.2. Products
 - 8.3. Supplied amount
 - 8.4. Price per item

Information above might be used to develop IDEF1X data model.