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SQL LANGUAGE

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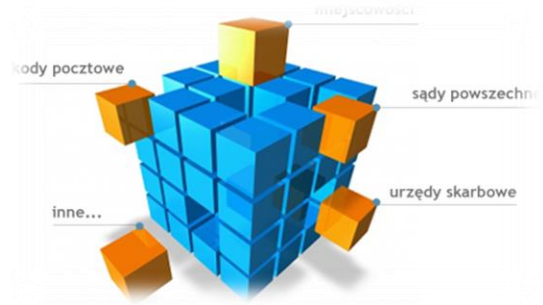


Lesson objectives

Student:

- Can characterize the syntax of the structured query language.
- Can use the functions of the structured query language.

SQL Language Standards

- The following organizations are involved in developing and publishing SQL standards:
  - ISO - International Organization for Standardization,
  - ANSI American National Standards Institute.

The language standard is a guideline for producers of Database Management Systems.

SQL is not a database

- There are many database definitions. However, neither of them say the database is SQL.
- SQL statements are used to perform tasks such as update data on a database, or retrieve data from a database.
- SQL is used to communicate with a database.

SQL

- **Structured Query Language**

Structured language for creating and modifying databases and for storing and retrieving data in and out of them.

Jest językiem deklaratywnym

It describes the conditions that our final solution must meet, not a detailed sequence of steps

- **DBMS** Database Management System.

History SQL

- The SQL language was originally developed at the IBM research laboratory in San José in the early 70s. This version, initially called SEQUEL (Structured English Query Language).
- In 1986, the first SQL standard was approved . ANSI and ISO standard groups officially adopted the standard "Database Language SQL" language definition. New versions of the standard were published in 1989, 1992, 1996, 1999, 2003, 2006, 2008, 2011 and most recently, 2016.

SQL

SQL is recognized by all the most popular database systems, such as:

- **MySQL,**
- **PostgreSQL,**
- **Microsoft SQL Server,**
- **Oracle,**
- **DB2**.

What is MySQL?

- It's a form of SQL.
- Multi-access system, source was opened.
- MySQL is a database management system.
- The Database Server is very fast, reliable, scalable, and easy to use.
- MySQL software is Open Source.
- It was established in the mid-nineties.

Architecture of MySQL

- MYSQL follow Client-Server Architecture.
- It is designed so that end user that is Clients can access the resources from Computer that is server using various networking services.
- The Architecture of MYSQL contain following major layer's :
  - Client
  - Server
  - Storage Layer

Types of SQL Statements

- **DDL - Data Definition Language**
- **DML - Data Manipulation Language**
- **DCL - Data Control Language**
- **DQL - Data Query Language**
- **TCL - Transaction Control Language**

DDL

Commands:

- ***CREATE*** *– defining objects in the database*
- ***ALTER*** *- modifying objects in the database*
- ***DROP*** *- removing objects from the database*

example DDL :

```
CREATE TABLE Uczniowie
(
        IdUcznia          int IDENTITY(1,1) NOT NULL,
        Nazwisko          varchar(50) NOT NULL,
        Imie              varchar(50) NOT NULL,
        DataUrodzenia     date NOT NULL,
        CzyChlopak        bit  NOT NULL,
        Pesel             varchar(11) NULL,
        CONSTRAINT PK_uczniowie PRIMARY KEY CLUSTERED
      (IdUcznia ASC)
) ;
```

DML

Commands:

- ***INSERT*** *– inserting new rows into the table*
- ***UPDATE*** *- modifying rows in a table*
- ***DELETE*** *- deleting rows from a table*

DCL

Commands:

- ***GRANT*** *– assignment of data rights*
- ***REVOKE*** *– deprivation of the right to data*
- ***DENY*** *- unconditional deprivation of the right to data*

DQL

- The **SELECT** statement returns a result set of records, from one or more tables.
- SELECT is the most command.
- The basic syntax of the SELECT statement is as follows

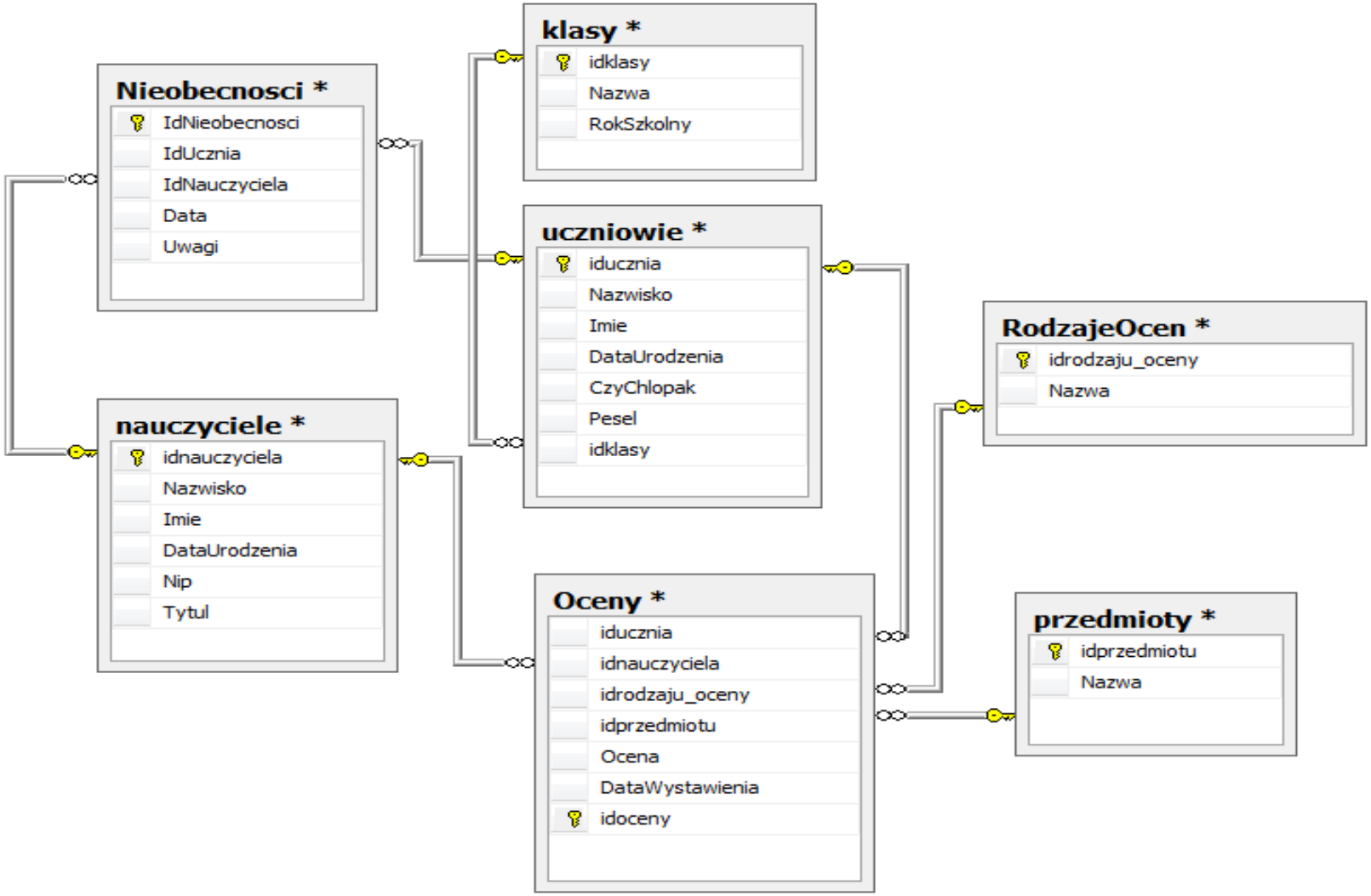
SELECT column1, column2, columnN **FROM** table_name;

TCL

Commands:

- ***BEGIN*** *– starts the transaction,*
- ***COMMIT*** *– approves the transaction,*
- ***ROLLBACK*** *– roll back the transaction,*
- ***SAVEPOINT*** *– saves the restore point of the current transaction.*

Sample database



Instructions to be followed by the student

Find it on the Internet and write it down in a notebook:

1. What you know basic data types in SQL.
2. What is the role of an alias?
3. What clauses does the SELECT statement contain?

Bibliography

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