PHP & MySQL
Chapter 9 & 10

📝 Definitions

Databases are **collection of data** with some organization.

Most often contains tables. Each **table** identified by name, and has a number of **records**. Each record has a number of **fields**.

A **table** is a **collection of related data**, consists of **columns** and **rows**.

Database

START

ℹ SQL Query

A **query** is a question or a **request**.

With SQL, you can **query a database** and have a **result** set **returned**.

Data Manipulation Language (DML) part of SQL:
- ➢ **SELECT** – extracts data from a table.
- ➢ **UPDATE** – updates data in a table.
- ➢ **DELETE** – deletes data from a table.
- ➢ **INSERT INTO** – inserts new data into a table.

Data Definition Language (DDL) part of SQL:
- ➢ **CREATE TABLE** – creates a new table.
- ➢ **ALTER TABLE** – alters (changes) a table.
- ➢ **DROP TABLE** – deletes a table.

🤦 PhpMyAdmin

A **set of PHP scripts**, that **create** a general-purpose **interface**, **to work with MySQL** database

Written in **PHP**.

Through this software you can create, alter, drop, delete, import and export MySQL database tables.

🔗 2. Open a Connection to MySQL

Before we can access data in the MySQL database, we need to be able to connect to the server and database:

```php
<?php
    $servername = "localhost";
    $username = "root";
    $password = "";
    $dbname = "mydb";

    // create connection
    $conn = mysqli_connect($servername, $username, $password, $dbname);

    // check connection
    if (!$conn) {
        die("Connection failed: " . mysqli_connect_error());
    }
    echo "Connected successfully";
?>
```

🚪 3. Close a Connection to MySQL

The connection will be closed automatically when the script ends. To close the connection before, use the following:

```php
<?php
    $servername = "localhost";
    $username = "root";
    $password = "";
    $dbname = "mydb";

    // create connection
    $conn = mysqli_connect($servername, $username, $password, $dbname);

    // to close connection
    mysqli_close($conn);
?>
```

🔄 5. Update Data with MySQL

The UPDATE statement is used to update records in a table:

```php
<?php
    $servername = "localhost";
    $username = "root";
    $password = "";
    $dbname = "myDB";

    // Create connection
    $conn = mysqli_connect($servername,$username,$password,$dbname);

    // Check connection
    if ($conn) {
        $sql= "UPDATE MyGuestsSET lastname='Doe' WHERE id=2";

        if (mysqli_query($conn, $sql))
            echo "Record updated successfully";
        else
            echo "Error updating record";
    }

    mysqli_close($conn);
?>
```

❌ 6. Delete Data with MySQL

```php
<?php
    $servername = "localhost";
    $username = "root";
    $password = "";
    $dbname = "myDB";

    // Create connection
    $conn = mysqli_connect($servername,$username,$password,$dbname);

    // Check connection
    if ($conn) {
        $sql= "DELETE FROM MyGuests WHERE id=3";

        if (mysqli_query($conn, $sql))
            echo "Record deleted successfully";
        else
            echo "Error updating record";
    }

    mysqli_close($conn);
?>
```

MySQL

📝 1. Definitions

- ☐ A freeware **RDBMS** and query language, widely **used** for **Web** apps.
- ☐ A database system that **runs** on a **server**.
- ☐ Ideal for both **small** and **large applications**.
- ☐ **Free** to download and use.
- ☐ Developed, distributed, and supported by **Oracle**.
- ☐ Data in a MySQL database are **stored in tables**.

➡ 4. Insert Data with MySQL

SQL query and **string** must be **quoted** in PHP

Numeric values and the word **NULL** must be **not quoted**

```php
<?php
    $servername = "localhost";
    $username = "root";
    $password = "";
    $dbname = "myDB";

    // Create connection
    $conn = mysqli_connect($servername,$username,$password,$dbname);

    // Check connection
    if ($conn) {
        $sql = "INSERT INTO MyGuests (id, firstname, lastname) VALUES (1, 'John', 'Doe')";

        if(mysqli_query($conn, $sql))
            echo "New record created successfully";
        else
            echo "Error";
        }

    mysqli_close($conn);
?>
```

✔ 7. Select Data with MySQL

```php
<?php
    $servername = "localhost";
    $username = "root";
    $password = "";
    $dbname = "myDB";

    $conn = mysqli_connect($servername,$username,$password,$dbname);

    if ($conn) {
        $sql = "SELECT id, firstname, lastnameFROM MyGuests";
        $result = mysqli_query($conn, $sql);

        if (mysqli_num_rows($result) > 0) {
            // output data of each row
            while($row = mysqli_fetch_assoc($result)) {
                echo "id: ".$row["id"]." -Name: ".$row["firstname"]." ".$row["lastname"]."<br>";
            }
        }
        else {
            echo "0 results";
        }
    }

    mysqli_close($conn);
?>
```

Select Data with MySQL – Dig Deeper

The function **num_rows()** checks if there are **more than zero rows** returned.

If there are more than zero rows returned, the function **fetch_assoc() puts** all the **results into** an associative **array**, that we can loop through. The **while()** loop **loops through** the **result** set and outputs the data.

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