

Full Stack Web development

MySQL

Today:

- MYSQL
- Using MYSQL with PHP
- Revisiting Forms

MySQL

- Pronounced “my sequel” or “my S.Q.L.”
- Relational Databases
 - Contain Tables
 - Contain Columns
 - Contain Rows
- It is a way of storing large data-sets in a way that relate them to each other.
- For example, Excel

Person Table

Name	DOB	Age	Height	Gender
David	9/23/81	38	5'11"	M
Ethan	12/15/02	16	6'3"	M
Alex	6/16/05	14	5'8"	M
Morgan	5/10/10	9	5'0"	F

Hobby Table

HobbyName
Football
Soccer
Baseball
Guitar
Computers
Drums
Clarinet
Astronomy
Gaming

Relationships Table

- How would we create this?
- What piece of information best relates person to hobby?
- Let's look at an example in excel

PersonHobby Table – the relation table

Name	Hobby
David	Baseball
Ethan	Guitar
Alex	Computers
Morgan	Drums

Primary Keys!

- Give each table a column that is a primary key (aka a unique number) and then you can access rows by that number.
- Uh cool, but why bother?
 - ~ What if a user changes their name?
 - ~ What if a hobby is renamed?
- Let me show you an example going back to excel.

Pulling Data Out of a RDBMS

Structured Query Language (SQL) Queries

```
SELECT * FROM Person;
```

```
SELECT Name, Age FROM Person WHERE Age > 18;
```

```
SELECT * FROM Person ORDER BY Name ASC;
```

```
SELECT Name, Height FROM Person WHERE Gender =  
"M";
```

Adding / Updating Rows

```
INSERT INTO Person (Name, DOB, Age, Height, Gender)  
VALUES ("Katherine", "11/30/90", 29, "5'2\"", "F");
```

```
UPDATE Person SET Age = Age + 1 WHERE DOB =  
TODAY();
```

```
UPDATE Person SET Name = Name + " Adkins";
```

DELETING Rows

```
DELETE FROM Person WHERE Name LIKE "%David%";
```

```
DELETE FROM Person WHERE Height < "5'6\"";
```

```
DELETE FROM Person; //uh oh, do you want to delete everything?
```

```
DROP TABLE Person;
```

JOINS

```
SELECT * FROM Person
  INNER JOIN Person-Hobby-Relationships
    ON Person.ID = Person-Hobby-Relationships.PersonID
  INNER JOIN Hobby
    ON Person-Hobby-Relationships.HobbyID = Hobby.ID
WHERE Person.Name = "David"
ORDER BY Hobby.Name ASC;
```

DISTINCT

```
SELECT DISTINCT(HobbyName) FROM Hobby;
```

Want to know more?

<https://www.youtube.com/watch?v=HXV3zeQKqGY>

Creating Database Structures

```
GRANT ALL PRIVILEGES ON *.* TO 'db_user'@'localhost' IDENTIFIED BY  
'P@s$w0rd123!';
```

```
CREATE DATABASE database_name;
```

Databases are the top-level data structure in a DBMS.
They contain tables...

Creating Tables

```
CREATE TABLE users (  
    id INT(6) UNSIGNED AUTO_INCREMENT PRIMARY KEY,  
    firstname VARCHAR(30) NOT NULL,  
    lastname VARCHAR(30) NOT NULL,  
    email VARCHAR(50),  
    reg_date TIMESTAMP DEFAULT CURRENT_TIMESTAMP  
);
```

Tables contain columns and can have a series of keywords attached to them when defined:

column_name	data_type	special keywords (NOT NULL, PRIMARY KEY, AUTO_INCREMENT, etc)
-------------	-----------	---

How do we use MySQL in PHP?

```
//open the connection
$connection = mysqli_connect("127.0.0.1","root","","DBNAME");
if (!$connection) { echo "Connection failed"; }

$result = $connection->query("SELECT Name, Age FROM Person WHERE Name = 'Ethan'");
if (!$result) {
    $data = array();
    while($row = $result->fetch_assoc) {
        echo $row['Name'] . " " . $row['Age'] . "<br>";
        array_push($data, $row);
    }
    echo "<script>".json_encode($data)."</script>";
}
mysqli_free_result($result);

//close the connection
mysqli_close($connection);
```

Want to know more?

<https://www.youtube.com/watch?v=sRvxYICmwis>

DEMO

- MySQL Database Demo
- Revisiting Forms to Insert into a database