MySQL

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Introduction

- SQL is a standard language for accessing databases.
- SQL is used to access and manipulate data in: MySQL, SQL Server, Access, Oracle, Sybase, DB2, and other database systems.

MySQL

- It is a database system used on the web
- It is a database system that runs on a server
- It is ideal for both small and large applications
- It is very fast, reliable, and easy to use
- It supports standard SQL
- It compiles on a number of platforms
- It is free to download and use
- It is developed, distributed, and supported by Oracle Corporation
- MySQL is the most popular database system used with PHP.
- Eg : Friendster, Yahoo, and Google

MySQL Commands

Data Definition Language (DDL):

- Create
- Drop
- Alter

Data Manipulation Language (DML):

- Select
- Update
- Insert
- Delete

Data Control Language (DCL):

- Commit
- Revoke

Database process

- CREATE DATABASE databaseName;
- DROP DATABASE databaseName;
- SHOW DATABASES;
- USE databaseName;

DDL processs:

- SHOW TABLES;
- DESCRIBE table;
- CREATE TABLE tableName(name1 type1, name2 type2, …);
- ALTER TABLE tableName add / modify fieldname type, ……;
- DROP TABLE tableName;

DML Process:

- INSERT INTO TABLE VALUES(value1, value2, …);
- SELECT field1, field2, … FROM tableName;
- UPDATE TABLE tablename SET field = exp / val [where condition];
- DELETE FROM tablename [where condition];

Datatype – Text

CHAR( )	A fixed section from 0 to 255 characters long.
VARCHAR( )	A variable section from 0 to 255 characters long.
TINYTEXT	A string with a maximum length of 255 characters.
TEXT	A string with a maximum length of 65535 characters.
BLOB	A string with a maximum length of 65535 characters.
MEDIUMTEXT	A string with a maximum length of 16777215 characters.
MEDIUMBLOB	A string with a maximum length of 16777215 characters.
LONGTEXT	A string with a maximum length of 4294967295 characters.
LONGBLOB	A string with a maximum length of 4294967295 characters.

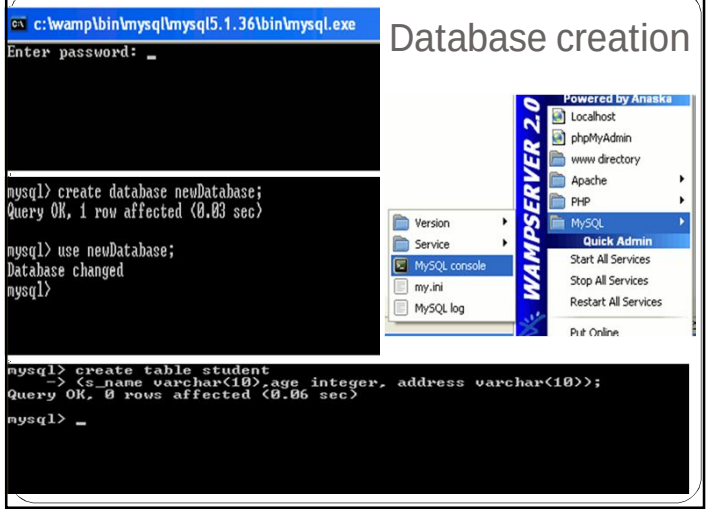
Datatype -Number

TINYINT( )	-128 to 127 normal 0 to 255 **UNSIGNED.**
SMALLINT( )	-32768 to 32767 normal 0 to 65535 **UNSIGNED.**
MEDIUMINT( )	-8388608 to 8388607 normal 0 to 16777215 **UNSIGNED.**
INT( )	-2147483648 to 2147483647 normal 0 to 4294967295 **UNSIGNED.**
BIGINT( )	-9223372036854775808 to 9223372036854775807 normal 0 to 18446744073709551615 **UNSIGNED.**
FLOAT	A small number with a floating decimal point.
DOUBLE(,)	A large number with a floating decimal point.
DECIMAL(,)	A DOUBLE stored as a string , allowing for a fixed decimal point.

Datatype - Date

DATE	The is the standard data type to use for storing dates. The date format is YYYY-MM-DD. supported range for dates is 1000-01-01 to 9999-12-31.
DATETIME	DATETIME is similar to DATE, but adds time elements. The standard format is: YYYY-MM-DD HH:MM:SS. Similar to DATE, the range of supported values is 1000-01-01 00:00:00 to 9999-12-31 23:59:59.

Database creation



Open a connection

- mysqli_connect(host,username,password,dbname);

Parameter	Description
host	Optional. Either a host name or an IP address
username	Optional. The MySQL user name
password	Optional. The password to log in with
dbname	Optional. The default database to be used when performing queries

```
<?php
$dbserver="localhost";$username="root";
$password="";$databasename="student";
$connection=mysqli_connect("$dbserver","$username","$password",
"$databasename") or die ("Error in database connection");
$query="select * from company";
$result=mysqli_query($connection,$query) or die("Error in database
reading");
while($row=mysqli_fetch_row($result))
{
echo "Company Name:$row[0]<br>";
echo "No.ofWorkers:$row[1]<br>";
echo "Date:$row[2]<br><br><br>";
}
mysqli_close($connection); ?>
```

http://localhost/db_student.php

Company Name:CTS
No.ofWorkers:5000
Date:2014-03-10

Company Name:TCS
No.ofWorkers:4000
Date:2014-04-14

In Lab : Start→All Programs→ Appserv→ MySql command client
Stored in : D:Appserv→MySQL→data

```
while($row=mysqli_fetch_assoc($result))  {
        extract($row);
        echo "Company Name:$Name<br>";
        echo "No.ofWorkers:$Workers<br>";
        echo "Date:$DOJ<br><br><br>"; }

while($row = mysqli_fetch_array($result)) {
        echo "<tr>";
        echo "<td>" . $row['Name'] . "</td>";
        echo "</tr>";
}
```

What will the different functions return?

- All of the mentioned functions will return an array, the differences between them is what values that are being used as keys in the returned object.
- **mysql_fetch_row**

This function will return a row where the values will come in the order as they are defined in the SQL query, and the keys will span from 0 to one less than the number of columns selected.

- **mysql_fetch_assoc**

This function will return a row as an associative array where the column names will be the keys storing corresponding value.

- **mysql_fetch_array**

This function will actually return an array with both the contents of mysql_fetch_rowand mysql_fetch_assoc merged into one. It will both have *numeric* and *string* keys which will let you access your data in whatever way you'd find easiest.

form_student.php

```
<html>
<body>
<form action="db_student.php" method="post" >
Company Name <input type=text name=cname><br>
No.ofWorkers <input type=text name=nw><br>
Date<input type=text name=date><br>
<input  type=submit name=submit value=Insert>
</form></body></html>
```

Insertion

Program : form_student.php

Program : db_student.php

MySQL : student (Database) → company (Table)

```
$CName=$_POST['cname'];
$NW=$_POST['nw'];
$Date=$_POST['date'];

$iquery="INSERT INTO company VALUES
('$CName','$NW','$Date')";
mysqli_query($connection,$iquery);

// escape variables for security
$firstname = mysqli_real_escape_string($con, $_POST['firstname']);
```

Queries

- CREATE TABLE table_name(field_name);
- INSERT INTO table_name VALUES (value1, value2..);
- SELECT * FROM table_name;
- SELECT column_names FROM table_name;
- UPDATE table_name Set colunm_name = new_value WHERE column_name = some_name;
- DELETE FROM table_name WHERE column_name = some_name;
- DESC table_name;

Create database

```
$sql="CREATE DATABASE my_db";
if (mysqli_query($con,$sql))
{
 echo "Database my_db created successfully";
}
else
{
 echo "Error creating database: " .
mysqli_error($con);
}
```

Auto Increment

```
$sql = "CREATE TABLE Persons
(
PID INT NOT NULL AUTO_INCREMENT,
PRIMARY KEY(PID),
FirstName CHAR(15),
LastName CHAR(15),
Age INT
)";
```

Exercise

Create a table **Emp** with **id-integer(3), name- varchar(30), dob-date, dept - varchar(20), salary – double** as fields.

a. Insert some records into the table.
b. Update salary with 10% hike those who got more than 30000.
c. List the number of records in each department
d. List the minimum salary of every department
e. Find the average salary
f. Delete a record whose id is 45
g. List the employees who born in the month of March
h. List the employees whose name starts with 'A'
i. List the employees whose name length is 5 and starts with S.

- Develop a PHP program to insert a record into Emp table with necessary checking conditions. Develop a HTML page to get input for those fields.
- Develop a page to populate id's as a list and let user can choose an id from list. Develop a PHP program to remove a record from Emp table.
- Design a page to list the departments uniquely and let the user chose a department. Develop a PHP program to display employees belong to the selected department in HTML table format.