PHP: Databases

CS174

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Outline

- Whirlwind tour of databases
- Databases in PHP

Database Management Systems and Databases

- For our purposes a database management systems (DBMS), is used to manage a collection of databases.

- That is, it manages how the data is stored in each database, and who can access it when.

- A given database consists of a collection of tables.

- Each table has a type for each of its columns and then has rows of data where the data values match the values of the column types.

- Example: Might have a table car(make VARCHAR(10), model VARCHAR(10), year DATE). A possible row could be ('Toyota', 'Corolla', '1970-01-01')

MySQL Databases

- To manage MySQL databases you need to know how to:
    - Create and manage users
    - Create new databases and tables
    - Do lots of other stuff I won't talk about
- Many of these operations can be done using phpMyAdmin.
- Alternatively, you can use the command line.

MySQL Command Line

- I will assume you have set your path so that you can directly run mysqladmin and mysql.
- To set the root password you can go to the command prompt and type:

  mysqladmin -uroot password what_password_is

- You can get a mysql shell by then typing:

  mysql -uroot -pwhat_password_is

- To see what databases are available you can use the command:

  show databases;

- To use a particular database type:

  use dbname;

- To see what tables the currently use database has type:

  show tables;

- To add a new user you can type at the prompt:

  GRANT SELECT, INSERT, UPDATE, DELETE, LOCK TABLES on dbname.* TO
  username@127.0.0.1 IDENTIFIED BY 'password';

- To quit mysql type \q or quit. For help type \h or help.
- To login using this new user type at the command prompt:

  mysql -u*username* -p*password*

Basic SQL

- SQL (Structured Query Language) is the most common language for issuing commands to a database.

- These commands can usually be given either from the mysql prompt or from within a PHP transaction that is connecting to the database.

Database, Table Creation Deletion

- To create a database one uses the CREATE DATABASE command:
    CREATE DATABASE my_nifty_db;
- Then one can type use my_nifty_db; to use this database.
- To create a table in the currently used database one can use a command like:
    CREATE TABLE customer (
        cust_id int(5) NOT NULL,
        name VARCHAR(50),
        title CHAR(3),
        PRIMARY KEY(cust_id)
)
- To delete a table type:
    DROP TABLE customer;
    To delete a database
    DROP DATABASE my_nifty_db;

SQL Query

- Some basic SQL commands are:

  select col1, col2, col3

  from table1, table2, table 3

  where condition_holds;

- Returns rows consisting of given columns of tables such that the given condition holds. For example,

  select FNAME, LNAME

  from EMPLOYEE

  Where SALARY > 10000;

SQL Insert, Delete, Update

- You can insert a row into table one uses a command like:

INSERT INTO table_name VALUES ('col1_value', 'col2_value', 'col3_value');

- To delete a set of rows from a table you can use a command like:

DELETE FROM table_name WHERE cond;

- To update a set of rows you can use a command like:

UPDATE table_name SET column='value' WHERE cond;

Connecting to MySQL from PHP

- To start a connect to a MySQL database one can issue the command:

  $db = mysql_connect();

- This function actually takes three parameters: the host, the username, and the password.

- These default to localhost, the process name PHP runs under, and blank.

  $db = mysql_connect(host, uname,pword);

- Depending on how mysql is configured, the first example above might work and saves some typing.

- This function returns false if a connection is not made.

- To close a database, one can call mysql_close();

Selecting a Database and queries

- To select a database one calls:

  mysql_select_db("cars");

- One can then do a query with a command like:

  $query ="SELECT * FROM Corvettes";

  $result = mysql_query($query);

  $num_rows = mysql_num_rows($result);

  $num_fields = mysql_num_fields($result);

  for($j =1; $j <=$num_rows; $j++)

  {

     $row = mysql_fetch_array($result);

     print $row[0].$row["some_attr"]. "<br />";

  }

- mysql_query can also be used to do inserts, etc.