Part 2: JavaScript, PHP, SQL, Advanced PHP

EE4727/IM4727 Web Application Design
My**SQL**

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PHP+MySQL

- Many websites on the internet are implemented using PHP and MySQL.
- Recommended Book:

  Title : PHP and MySQL Web development – 4th ed.

  Authors: Luke Welling, Laura Thomson.

  ISBN 978-0-672-32916-6

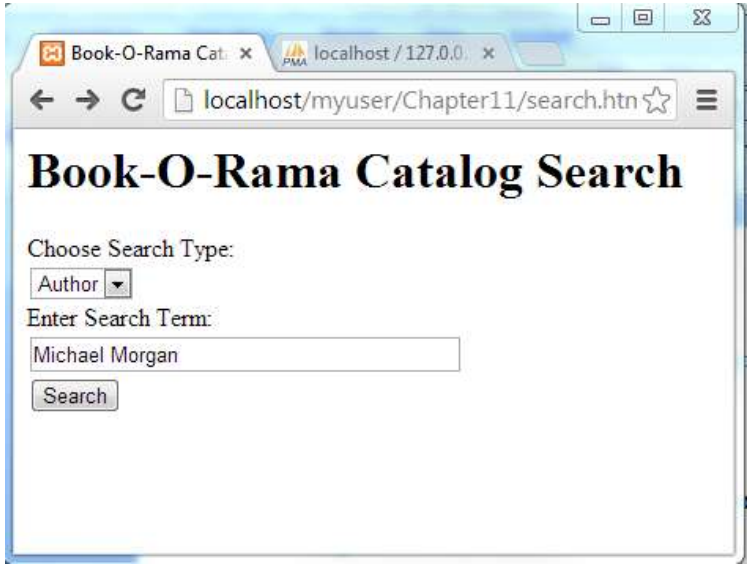
  QA76.73.P224W45 2008

  Published by Addison Wesley.

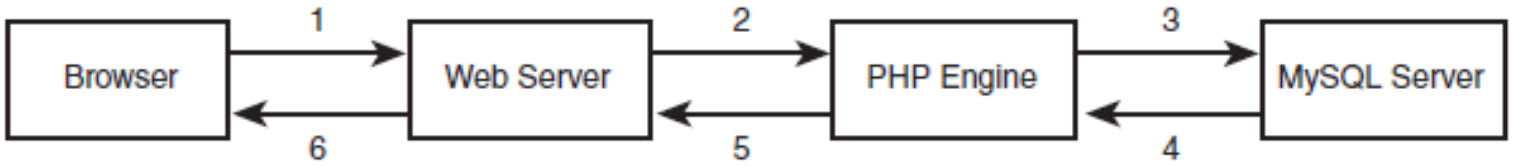
Bookshop @ Book-O-Rama

bookorama.zip

- Database is required to support dynamic web content
  - Data in Bob's Auto Parts is static and one-dimensional
- Bookshop @ Book-O-Rama
  - Uses RDBMS (such as MySQL) provides fast and efficient access and manipulation of databases
  - Allow dynamic search on author, title, and ISBN of books



Web Database Architecture



1. A user's browser issues an HTTP request for a particular web page.
   - For example, the user requested a search for all books written by Michael Morgan at Book-O-Rama, using an HTML form. The search results page is called results.php
2. The web server receives the request for results.php
   - It retrieves the file, and passes it to the PHP engine for processing.
3. The PHP engine begins parsing the script.
   - Inside the script is a command to connect to the database and execute a query (perform the search for books).
   - PHP opens a connection to the MySQL server and sends on the appropriate query.
4. The MySQL server receives the database query, processes it, and sends the results—a list of books—back to the PHP engine.
5. The PHP engine finishes running the script.
   - This usually involves formatting the query results nicely in HTML. It then returns the resulting HTML to the web server.
6. The web server passes the HTML back to the browser, where the user can see the list of books requested.

Structured Query Language (SQL)

- Widely used database language to store data to and retrieve it from a database
- SQL is a very high level language
  - Say what to do rather than how to do it
- An ANSI standard language used in almost all modern Relational Database Management System (RDBMS)
- It is used in database systems such as MySQL, Oracle, Sybase, and Microsoft SQL Server, among others.
  - Some differences between ANSI SQL and MySQL's SQL, but mostly compatible

Relational Database Concepts - Tables

- Tables
  - Relational databases are made up of relations, called tables.

CUSTOMERS

Customer ID	Name	Address	City
1	Julie Smith	25 Oak Street	Airport West
2	Alan Wong	1/47 Haines Avenue	Box Hill
3	Michelle Arthur	357 North Road	Yarraville

Book-O-Rama's customer details are stored in a table.

- Columns
  - Each column in the table has a unique name and contains different data. Columns are sometimes called fields or attributes.
- Rows
  - Each row in the table represents a different customer. Rows are also called records or tuples.
- Values
  - Each row consists a set of individual values that correspond to columns. Each value must have the data type specified by its column.

Relational Database Concepts - Keys

- Keys
  - A way of identifying each specific customer. The identifying column in a table is called the key or the primary key.
  - A key can also consist of multiple columns.
  - Databases usually consist of multiple tables and use a key as a reference from one table to another.
  - The primary key when appeared in another table is called the foreign key.
  - Below shows a second table added to the database.

CUSTOMERS

Customer ID	Name	Address	City
1	Julie Smith	25 Oak Street	Airport West
2	Alan Wong	1/47 Haines Avenue	Box Hill
3	Michelle Arthur	357 North Road	Yarraville

Primary key

ORDERS

OrderID	CustomerID	Amount	Date
1	3	27.50	02-Apr-2007
2	1	12.99	15-Apr-2007
3	2	74.00	19-Apr-2007
4	3	6.99	01-May-2007

Foreign key

Each order in the Orders table refers to a customer from the Customers table.

Relational Database Concepts - Schemas

- The database schema is a complete set of table designs for a database – a blueprint for the database.
- It shows the tables along with their columns, and the primary and any foreign keys
  - Underlined terms are primary keys and *italic* terms are foreign keys
- Foreign keys represent relationship between tables.
  - Can have one-to-one, one-to-many, and many-to-many relationship types
- Before using a database, need to select the database and create the tables

```
Customers(CustomerID, Name, Address, City)

Orders(OrderID, CustomerID, Amount, Date)

Books(ISBN, Author, Title, Price)

Order_Items(OrderID, ISBN, Quantity)

Book_Reviews(ISBN, Reviews)
```

Designing Your Web Database

- Create a database that model real-world items and relationships
  - each class of real-world objects generally needs its own table.
- In Book-O-Rama example, at least three such tables: `Customers`, `Orders`, `Books`

CUSTOMERS

CustomerID	Name	Address	City
1	Julie Smith	25 Oak Street	Airport West
2	Alan Wong	1/47 Haines Avenue	Box Hill
3	Michelle Arthur	357 North Road	Yarraville

Primary key

ORDERS

OrderID	CustomerID	Amount	Date
1	3	27.50	02-Apr--2007
2	1	12.99	15-Apr-2007
3	2	74.00	19-Apr-2007
4	3	6.99	01-May-2007

Primary key

Foreign key

BOOKS

ISBN	Author	Title	Price
0-672-31697-8	Michael Morgan	Java 2 for Professional Developers	34.99
0-672-31745-1	Thomas Down	Installing GNU/Linux	24.99
0-672-31509-2	Pruitt.et al.	Teach Yourself GIMP in 24 Hours	24.99

Design Considerations(1)

- Avoid storing redundant data
  - Redundant data takes up extra space and can cause anomalies in the data (e.g. inconsistent data updates)

OrderID	Amount	Date	CustomerID	Name	Address	City
12	199.50	25-Apr-2007	1	Julie Smith	25 Oak Street	Airport West
13	43.00	29-Apr-2007	1	Julie Smith	25 Oak Street	Airport West
14	15.99	30-Apr-2007	1	Julie Smith	25 Oak Street	Airport West
15	23.75	01-May-2007	1	Julie Smith	25 Oak Street	Airport West

Redundant data

- Use Atomic column values
  - Each attribute in each row stores only one thing

ORDERS

OrderID	CustomerID	Amount	Date	Books Ordered
1	3	27.50	02-Apr-2007	0-672-31697-8
2	1	12.99	15-Apr-2007	0-672-31745-1. 0-672-31509-2
3	2	74.00	19-Apr-2007	0-672-31697-8
4	3	6.99	01-May-2007	0-672-31745-1. 0-672-31509-2. 0-672-31697-8

ORDER_ITEMS

OrderID	ISBN	Quantity
1	0-672-31697-8	1
2	0-672-31745-1	2
2	0-672-31509-2	1
3	0-672-31697-8	1
4	0-672-31745-1	1
4	0-672-31509-2	2
4	0-672-31697-8	1

use a separate table instead

Design Considerations(2)

- Choose sensible keys
  - Make sure keys chosen are unique.
- Anticipate the use of the database
  - Make sure that the database contains all the data required and appropriate links exist between tables to answer to database requests.
- Avoid designs with many empty attributes
  - It wastes storage space and causes problems dealing with null values; whether they were truly empty or were mistakes

BOOKS

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BOOKS_REVIEWS

ISBN	Review

use a separate table instead

Working with MySQL

- Two ways of working with MySQL
  - Command-line interface
    - > **`mysql -h hostname -u username -p`**
  - Web-based MySQL administration system by logging in to phpMyAdmin at
    `http://192.168.56.2/phpmyadmin/`

Using MySQL

- MySQL command ends with a semicolon (;)
- SQL statements are not case sensitive
  - however, database and table names are case sensitive in MySQL
- Data Types in MySQL
  - AUTO-INCREMENT, an unique identifier value will be automatically generated if field is left blank
  - NOT NULL, attribute in the table must have a value
  - UNSIGNED, integer type with a zero or positive value
- Strings
  - Strings are single-quoted for literals and double-quoted for expression.
  - As in PHP, quotation marks are prime characters (‘ , “)
- Common CRUD functions of databases
  - Create, Retrieve, Update, Delete

Commonly used SQL Commands

- Some of the most important SQL commands
  - CREATE DATABASE - creates a new database
  - CREATE TABLE - creates a new table
  - INSERT INTO – insert (Create) new records (rows) into a table
  - SELECT – Retrieve a record with selected columns from a table
  - UPDATE – Updates (modify) values of an existing record in a table
  - DELETE - Deletes data from a table
  - DROP TABLE – drop (delete) an existing table
  - DROP DATABASE – drop (delete) an existing database
  - ALTER DATABASE - modifies a database (e.g. character set)
  - ALTER TABLE - modifies a table (to add, delete, or modify columns)
  - CREATE INDEX - creates an index (search key for fast search)
  - DROP INDEX - deletes an index

Creating Database using phpMyAdmin

1. Create a new database called “myuser”
   - Enter database name “myuser” under the Databases tab
2. Create the tables in ”myuser” database
   - Two ways of creating tables using phpMyAdmin
     - Interactive inputs under the ‘SQL’ tab
       - Create tables (e.g. “customers”) in the database and specify the data types
       - Then, insert the data record for each table element
     - Import from text files under the ‘Import’ tab
       - Import file containing sql CREATE TABLES commands
       - Then, Import file containing sql INSERT INTO commands

```
create table customers
( customerid int unsigned not null auto_increment primary key,
  name char(50) not null,
  address char(100) not null,
  city char(30) not null
);
```

```
use myuser;
insert into customers values
  (3, "Julie Smith", "25 Oak Street", "Airport West"),
  (4, "Alan Wong", "1/47 Haines Avenue", "Box Hill"),
  (5, "Michelle Arthur", "357 North Road", "Yarraville");
```

Importing Database Tables for Book-O-Rama

bookorama.sql

```
create table customers
( customerid int unsigned not null auto_increment primary key,
  name char(50) not null,
  address char(100) not null,
  city char(30) not null
);

create table orders
( orderid int unsigned not null auto_increment primary key,
  customerid int unsigned not null,
  amount float(6,2),
  date date not null
);

create table books
(  isbn char(13) not null primary key,
   author char(50),
   title char(100),
   price float(4,2)
);
```

```
create table order_items
( orderid int unsigned not null,
  isbn char(13) not null,
  quantity tinyint unsigned,

  primary key (orderid, isbn)

);
create table book_reviews
(
  isbn char(13) not null primary key,
  review text
);
```

Do it!

bookorama.sql - sql CREATE TABLE commands for Book-O-Rama

```
Customers(CustomerID, Name, Address, City)

Orders(OrderID, CustomerID, Amount, Date)

Books(ISBN, Author, Title, Price)

Order_Items(OrderID, ISBN, Quantity)

Book_Reviews(ISBN, Reviews)
```

Book-O-Rama database schema

Importing Data into Tables for Book-O-Rama

book_insert.sql

- book_insert.sql – sql INSERT INTO tables commands in “myuser” database

```
use myuser;

insert into customers values
  (3, "Julie Smith", "25 Oak Street", "Airport West"),
  (4, "Alan Wong", "1/47 Haines Avenue", "Box Hill"),
  (5, "Michelle Arthur", "357 North Road", "Yarraville");

insert into orders values
  (NULL, 3, 69.98, "2007-04-02"),
  (NULL, 1, 49.99, "2007-04-15"),
  (NULL, 2, 74.98, "2007-04-19"),
  (NULL, 3, 24.99, "2007-05-01");

insert into books values
  ("0-672-31697-8", "Michael Morgan", "Java 2 for Professional Developers", 34.99),
  ("0-672-31745-1", "Thomas Down", "Installing Debian GNU/Linux", 24.99),
  ("0-672-31509-2", "Pruitt, et al.", "Teach Yourself GIMP in 24 Hours", 24.99),
  ("0-672-31769-9", "Thomas Schenk", "Caldera OpenLinux System Administration Unleashed", 49.99);

insert into order_items values
  (1, "0-672-31697-8", 2),
  (2, "0-672-31769-9", 1),
  (3, "0-672-31769-9", 1),
  (3, "0-672-31509-2", 1),
  (4, "0-672-31745-1", 3);

insert into book_reviews values
  ("0-672-31697-8", "Morgan's book is clearly written and goes well beyond most of the basic Java books out there.");
```

Substitute with your default database name

Do it!

Inserting Data into Database Tables

- The usual form of an INSERT statement is

```
INSERT [INTO] table [(column1, column2, column3,...)] VALUES
    (value1, value2, value3,...);
```

  - E.g, to insert a record into Book-O-Rama's customer table, you could type

```
INSERT INTO customers VALUES
        (NULL, 'Julie Smith', '25 Oak Street', 'Airport West');
```

  - To fill in only some of the columns, or to specify them in a different order, you can list the specific columns in the columns part of the statement.

```
INSERT INTO customers (name, city) VALUES
        ('Melisssa Jones', 'Nar Nar Goon North');
```

- Alternatively, the same effect with the following syntax:

```
INSERT INTO customers
set name = 'Michael Archer',
  address = '12 Adderley Avenue',
  city = 'Leeton';
```

Try it!

Retrieving Data from Database Tables

- The basic form of a SELECT is

```
SELECT [options] items [INTO file_details]
    FROM tables [ WHERE conditions ]
    [ GROUP BY group_type ][HAVING where_definition ]
    [ ORDER BY order_type ][LIMIT limit_criteria]
    [PROCEDURE procname(arguments)][lock_options]
    ;
```

- The following query lists the contents of the name and city columns from the customers table:

```
SELECT name, city
from customers;
```

Try it!

- The next query lists all the columns from the order_items table:

```
SELECT *
from order_items;
```

Try it!

Retrieving Data with Specific Criteria

- Retrieving Data with Specific Criteria

```
SELECT *
from orders
where customerid = 3;
```

Try it!

  - It selects all the columns from the `orders` table, but only the rows with a customer id of 3.
- You can test multiple criteria using the simple operators and the pattern matching syntax and combine them into more complex criteria with AND and OR. For example,

```
SELECT *
from orders
where customerid = 3 or customerid = 4;
```

Try it!

Condition Operators for WHERE Clauses

Operator	Name (If Applicable)	Example	Description
=	Equality	Customerid = 3	Tests whether two values are equal
>	Greater than	amount > 60.00	Tests whether one value is greater than another
<	Less than	amount < 60.00	Tests whether one value is less than another
>=	Greater than or equal	amount => 60.00	Tests whether is greater than or equal to another
<=	Less than or equal	amount <= 60.00	Tests whether is less than or equal to another
!= or <>	Not equal	quantity != 0	Tests whether two values are not equal
IS NOT NULL	n/a	address is not null	Tests whether a field actually contains a value
IS NULL	n/a	address is null	Tests whether a field does not contain a value
BETWEEN	n/a	amount between 0 and 60.00	Tests whether a value is greater than or equal to a minimum value and less than or equal to a maximum value
IN	n/a	city in (“Carlton”,“Moe”)	Tests whether a value is in a particular set
NOT IN	n/a	city not in (“Carlton”,“Moe”)	Tests whether a value is not in a set
LIKE	Pattern match	name like(“Fred ”%)	Checks whether a value matches a pattern using simple SQL pattern matching
NOT LIKE	Pattern match	name not like	Checks whether a value doesn’t match a pattern
REGEXP	Pattern match	name regexp	Checks whether a value match a regular expression

Retrieving Data from Joining Two Tables

- A *join* operation is required to retrieve data from joining two tables
- To see the orders that customer, Julie Smith has placed

```
select orders.orderid, orders.amount, orders.date
from customers, orders
where customers.name = 'Julie Smith'
and customers.customerid = orders.customerid;
```

Try it!

  - the *equi-join condition* in the WHERE clause matches up the rows in both tables is

    customers.customerid = orders.customerid

  - The dot notation used to make it clear which table a particular column comes from
    - dot notation is required only if the name of a column is ambiguous — that is, if it occurs in more than one table.

Retrieving Data in a Particular Order

- The ORDER BY clause sorts the rows on one or more of the columns listed in the SELECT clause. For example,

```
SELECT name, address
from customers
order by name;
```

- The default ordering is ascending (a to z or numerically upward). Similar effect using the ABC keyword:

```
SELECT name, address
from customers
order by name asc;
```

Try it!

- You can also do it in the opposite order by using the DESC (descending) keyword:

```
SELECT name, address
from customers
order by name desc;
```

Try it!

Grouping and Aggregating Data

- Aggregate Functions in MySQL

Name	Description
`AVG(column)`	Average of values in the specified column.
`COUNT(items)`	If you specify a column, this will give you the number of non-`NULL` values in that column. If you add the word `DISTINCT` in front of the column name, you will get a count of the distinct values in that column only. If you specify `COUNT(*)`, you will get a row count regardless of `NULL` values.
`MIN(column)`	Minimum of values in the specified column.
`MAX(column)`	Maximum of values in the specified column.
`STD(column)`	Standard deviation of values in the specified column.
`STDDEV(column)`	Same as `STD(column)`.
`SUM(column)`	Sum of values in the specified column.

Aggregating Data in a Specific Column

- To calculate the average value of the amount column in the orders table:

```
select avg(amount) from orders;
```

Try it!

- The aggregate functions can also be applied to a column or to groups of data within a table.

```
select customerid, avg(amount) from orders
group by customerid;
```

Try it!

  - The GROUP BY clause changes the behavior of the aggregate function.
  - Instead of giving the average value of an entire column across the table, it gives the average value for each customer (customerid) within a table

Updating Records in the Database

- The usual form of an UPDATE statement is

```
UPDATE [LOW_PRIORITY] [IGNORE] tablename
SET column1=expression1, column2=expression2,...
[WHERE condition]
[ORDER BY order_criteria]
[LIMIT number]
```

- Examples:

```
UPDATE books
set price = price*1.1;
```

Try it!

```
UPDATE customers
set address = '250 Olsens Road'
where customerid = 4;
```

Try it!

Deleting Records from the Database

- The usual form of a DELETE statement is

```
DELETE [LOW_PRIORITY] [QUICK] [IGNORE] FROM table
[WHERE condition]
[ORDER_BY order_cols]
[LIMIT number]
```

- Example:

```
DELETE from customers
  where customerid=6;
```

Try it!

Querying a Database from the Web

- In any script used to access a database from the Web, you follow some basic steps:
  1. Check the filter data coming from the user.
  2. Set up a connection to the appropriate database.
  3. Query the database.
  4. Retrieve the results
  5. Present the results back to the user

Steps in PHP with MySQL for Insert

- Form in html:

```
<form action="insert_book.php" method="post">
    …….
    …
    <input type="submit" value="Register"> …
</form>
```

Steps in PHP with MySQL for Insert

insert_book.php

- In PHP server script

```
<?php // insert_book.php
    $isbn=$_POST['isbn']; // create short variable names
    ……..
    if (!$isbn || !$author || !$title || !$price) {…….exit;  }  // check inputs
    if (!get_magic_quotes_gpc()) { addslashes…. }  // filter input data
    @ $db = new mysqli('localhost', 'root', '', 'books');  // connect to db
    if (mysqli_connect_errno()) {……    exit;  }
    $query = "insert into books values ('".$isbn."', '".$author."',
       '".$title."', '".$price."')";  // query formulation
    $result = $db->query($query);  // query submission
    if ($result) {    } else {  …}  // insert query results
    $db->close();
?>
```

Steps in PHP with MySQL for Search

- Form in HTML

```
<form action="results.php" method="post">
    …
<input type="submit" name="submit" value="Search">
</form>
```

Steps in PHP with MySQL for Search(1)

results.php

- In PHP server script

```
<?php  // results.php
    $searchtype=$_POST['searchtype']; // create short variable names
    …….
    if (!$searchtype || !$searchterm) {  …. exit;  } // check inputs
    if (!get_magic_quotes_gpc()) {addslashes……} // filter input data
    @ $db = new mysqli('localhost', 'root', ' ', 'books'); // connect to db
    if (mysqli_connect_errno()) {   …  exit;  }
    $query = "select * from books where ".$searchtype." like
                    "%$searchterm%"; // query formulation
    $result = $db->query($query); // query submission
    $num_results = $result->num_rows; // retrieve query results
```

Steps in PHP with MySQL for Search(2)

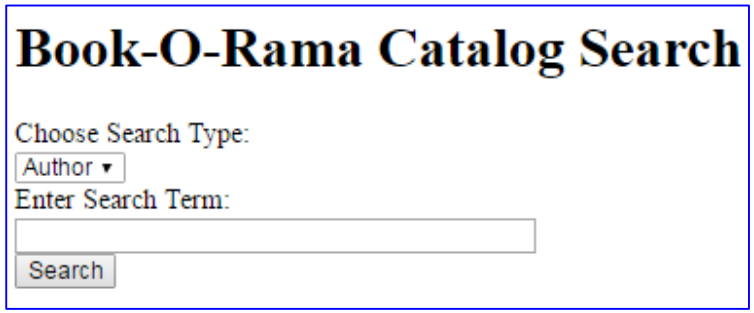
```
echo "<p>Number of books found: ".$num_results."</p>";
                                        // presenting the results
for ($i=0; $i <$num_results; $i++) {
   $row = $result->fetch_assoc();
    echo "<p><strong>".($i+1).". Title: ";
    echo htmlspecialchars(stripslashes($row['title']));
    echo "</strong><br />Author: ";
    echo stripslashes($row['author']);
    echo "<br />ISBN: "; …..
    echo "</p>";
}
$result->free();
$db->close();
?>
```

How it Works @ Book-O-Rama

search.html

Processing search.html

- **Parsing Form in serarch.html**
  - Parse values for “searchtype” and “searchterm”.
  - Pass action to “results.php” and $_GET variables for “searchtype” and “searchterm




```
<html>
<head>
  <title>Book-O-Rama Catalog Search</title>
</head>

<body>
  <h1>Book-O-Rama Catalog Search</h1>

  <form action="results.php" method="get">
    Choose Search Type:<br />
    <select name="searchtype">
      <option value="author">Author
      <option value="title">Title
      <option value="isbn">ISBN
    </select>
    <br />
    Enter Search Term:<br />
    <input name="searchterm" type="text" size="40">
    <br />
    <input type="submit" name="submit" value="Search">
  </form>

</body>
</html>
```

Try it!

Step 1: in PHP with MySQL for Search

results.php

Dissecting results.php

- **Checking and Filtering Input Data**
  - Stripping whitespace at beginning or end of user input, if any.
  - This is done by applying the function trim() to $serarchterm
  - Verify that the user has entered a search term and selected a search type
  - Test get_magic_quotes_gpc() to ensure back slashes are automatically done to escape user input data using addslashes()

```
<html>
<head>
  <title>Book-O-Rama Search Results</title>
</head>
<body>
<h1>Book-O-Rama Search Results</h1>
<?php
  // create short variable names
  $searchtype=$_GET['searchtype'];
  $searchterm=trim($_GET['searchterm']);

  if (!$searchtype || !$searchterm) {
     echo 'You have not entered search details. Please go back and try again.
     exit;
  }

  if (!get_magic_quotes_gpc()){ //default is add slashes to get, post, cookie
    $searchtype = addslashes($searchtype);
    $searchterm = addslashes($searchterm);
  }
```

Step 2

- **Setting up a Connection**
  - Connect to MySQL server as configured; e.g. a root user on a localhost with no password set
  - The connection is setup to use the database called “myuser”

@ $db = new mysqli(‘localhost’,’root’, ‘ ‘,’myuser’);

  - Or, a procedural approach…

@ $db = mysqli_connect(‘localhost’,’root’,’ ’,myuser’);

  - mysqli_connect_errno() returns an error number on error, or zero on success.
- **Choosing a Database to Use**
  - May change the default with

$db->select_db(dbname)

  - Or as……

mysqli_select_db(db_resource, db_name)

```
@ $db = new mysqli('localhost', 'root', '', 'myuser');

if (mysqli_connect_errno()) {
    echo 'Error: Could not connect to database.
    Please try again later.';
    exit;
}

$query = "select * from books where ".$searchtype.
         " like '%$searchterm%'";

$result = $db->query($query);

$num_results = $result->num_rows;
```

Step 3 and 4

- **Querying the Database**
  - Formulating the query statement:

$query = “select * from books where “. $searchtype.” like ’%$searchterm%’”;

  - Querying the database using class membership approach:

$result = $db->query($query);

  - Or, a procedural approach…

$result = mysqli_query($db, $query);

- **Retrieving the Query Results**
  - Number of rows returned is stored in num_rows of the result object

$num_results = $result->num_rows;

  - Or, procedurally mysqli_num_rows() returns the number of rows…

$num_results = mysqli_num_rows($result);

```
@ $db = new mysqli('localhost', 'root', '', 'myuser');

if (mysqli_connect_errno()) {
    echo 'Error: Could not connect to database.
    Please try again later.';
    exit;
}

$query = "select * from books where ".$searchtype.
         " like '%$searchterm%'";

$result = $db->query($query);

$num_results = $result->num_rows;
```

Step 5

- **Presenting the Query Results**
  - To process the query results, extract the elements of each row in the $result object using associative keys

For ($i=0;$i<$num_results,$i++) {

$row = $result->fetch_assoc();

Or, procedurally…

$row = mysqli_fetch_assoc($result);

}

- **Disconnecting from the database**
  - Free up the result set by either

$result->free();

Or….

mysqli_free_result($result);

  - Close connection, if necessary

$db->close();

Or….

mysqli_close($db);

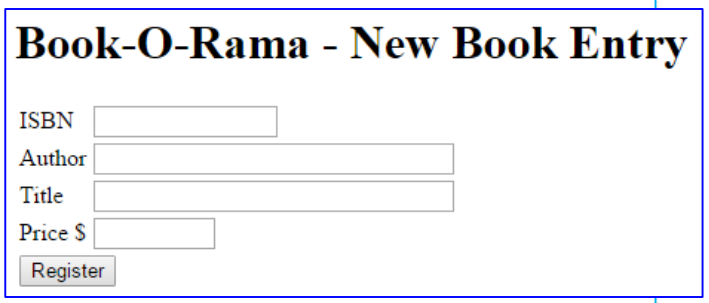
```php
echo "<p>Number of books found: ".$num_results."</p>";

for ($i=0; $i <$num_results; $i++) {
    $row = $result->fetch_assoc();
    echo "<p><strong>".($i+1).". Title: ";
    echo htmlspecialchars(stripslashes($row['title']));
    echo "</strong><br />Author: ";
    echo stripslashes($row['author']);
    echo "<br />ISBN: ";
    echo stripslashes($row['isbn']);
    echo "<br />Price: ";
    echo stripslashes($row['price']);
    echo "</p>";
}

$result->free();
$db->close();
```

Putting New Information in the Database

newbook.html

Processing newbook.html

- A basic HTML form for putting new books into the database




```
<html>
<head>
  <title>Book-O-Rama - New Book Entry</title>
</head>

<body>
  <h1>Book-O-Rama - New Book Entry</h1>

  <form action="insert_book.php" method="post">
    <table border="0">
      <tr>
        <td>ISBN</td>
        <td><input type="text" name="isbn" maxlength="13" size="13"></td>
      </tr>
      <tr>
        <td>Author</td>
        <td> <input type="text" name="author" maxlength="30" size="30"></td>
      </tr>
      <tr>
        <td>Title</td>
        <td> <input type="text" name="title" maxlength="60" size="30"></td>
      </tr>
      <tr>
        <td>Price $</td>
        <td><input type="text" name="price" maxlength="7" size="7"></td>
      </tr>
      <tr>
        <td colspan="2"><input type="submit" value="Register"></td>
      </tr>
    </table>
  </form>
</body>
</html>
```

Try it!

Step 1: in PHP with MySQL for Insert

Dissecting insert_book.php

- PHP for inserting new books into the database

- **Checking and Filtering Input Data**
  - Creating of local short variables using the POST method
  - Verify that the user has entered a search term and selected a search type
  - Test get_magic_quotes_gpc() to ensure back slashes are automatically done to escape user input data using addslashes()

```
<html>
<head>
  <title>Book-O-Rama Book Entry Results</title>
</head>
<body>
<h1>Book-O-Rama Book Entry Results</h1>
<?php
  // create short variable names
  $isbn=$_POST['isbn'];
  $author=$_POST['author'];
  $title=$_POST['title'];
  $price=$_POST['price'];

  if (!$isbn || !$author || !$title || !$price) {
     echo "You have not entered all the required details.<br />"
          ."Please go back and try again.";
     exit;
  }

  if (!get_magic_quotes_gpc()) {
    $isbn = addslashes($isbn);
    $author = addslashes($author);
    $title = addslashes($title);
    $price = doubleval($price);
  }
```

Step 2, 3 and 4

- **Setting up a Connection**
  - Connect to MySQL server:
- **Querying the database**
  - Formulating the query to insert values into the “books” table
  - Querying the database using:

$result = $db->query($query);

  - Or, procedurally…

$result = mysql_query($db, $query);

- **Verify the result of the insert**
  - The number of records inserted

$db->affected_rows

  - Or procedurally…

mysqli_affected_rows($result);

```
@ $db = new mysqli('localhost', 'myuser', 'xxxx', 'myuser');

if (mysqli_connect_errno()) {
    echo "Error: Could not connect to database.  Please try again later.";
    exit;
}

$query = "insert into books values
         ('".$isbn."', '".$author."', '".$title."', '".$price."')";
$result = $db->query($query);

if ($result) {
    echo  $db->affected_rows." book inserted into database.";
} else {
    echo "An error has occurred.  The item was not added.";
}

$db->close();
?>
</body>
</html>
```