

PHP AND MYSQL WITH PHP DATA OBJECTS

INTRODUCTION

If you haven't already done so create a MySQL user account. Access the phpmyadmin application at:

<http://homepages.shu.ac.uk/mysql>

PHPMYADMIN

In phpMyAdmin create yourself a table called 'movies'. Add fields to the table as follows:

#	Name	Type	Collation	Attributes	Null	Default	Extra	Action
<input type="checkbox"/>	1 filmID	int(11)			No	None	AUTO_INCREMENT	Change Drop
<input type="checkbox"/>	2 filmCertificate	varchar(5)	utf8_unicode_ci		No	None		Change Drop
<input type="checkbox"/>	3 filmName	varchar(70)	utf8_unicode_ci		No	None		Change Drop
<input type="checkbox"/>	4 filmDescription	text	utf8_unicode_ci		No	None		Change Drop
<input type="checkbox"/>	5 filmImage	varchar(50)	utf8_unicode_ci		No	None		Change Drop
<input type="checkbox"/>	6 filmPrice	decimal(5,2)			No	None		Change Drop
<input type="checkbox"/>	7 filmReview	int(11)			No	None		Change Drop
<input type="checkbox"/>	8 releaseDate	date			No	None		Change Drop

Download the files from Blackboard or Github. Populate your *movies* table with data from the zip in the *data/movies.csv* file via the 'import' tab. When importing data ensure you set the format to CSV and the *Columns separated with* option is set to `;` is set as the delimiting character.

Once you have the data in MySQL use the export tab to create an SQL file backup of your data.

Take time to look at the data. Knowing your data is extremely useful when building an application.

CONNECTING TO MYSQL

Open the PHP file in the *includes* folder called *conn.inc.php*. You will need to edit this file to match your own database name, username and password. For the purposes of this module you should only need to create this file once and then reference it in each of the pages on `public_html` that requires database access.

DEBUGGING

The homepages.shu.ac.uk server has error handling switched on. By adding the following to the top of any PHP script we can switch off error messages once you have finished debugging the application.

```
ini_set('display_errors', 0);
```

CREATING A SIMPLE QUERY - SINGLE RECORD

Open the file *select-single.php*. Use this to build a simple query of your data to extract one unique value. First you need to include the connection file.

```
<?php
require('includes/conn.inc.php');
?>
```

Each of our pages will follow a similar pattern:

- Build a SQL query.
- Use PDO to send your query to MySQL.
- Create an object to hold the results of your query.

Your code should now appear:

```
<?php
require('includes/conn.inc.php');
$queryFilms = "SELECT filmName, filmDescription, filmImage FROM movies
WHERE filmID = 1";
$stmt = $pdo->query($queryFilms);
$row = $stmt->fetchObject();
?>
```

The `$row` value represents a PHP object that holds the results of the query.

These pages are styled with Bootstrap. In the body of the HTML file use `echo` to output the value of *filmName* within the `<div class="col-md-8">` element.

```
<?php
echo "<h2>{$row->filmName}</h2>";
?>
```

Amend the above to output the *filmDescription* field in a `<p>` element underneath the *filmName*.

```
<?php
echo "<h2>{$row->filmName}</h2>";
echo "<p>{$row-> filmDescription }</p>";
?>
```

In the column to the left `<div class="col-md-4">` add code to output the image associated with this film.

```
<?php
echo "<p><img src=\"images/{\$row->filmImage}\"></p>";
?>
```

Note the use of backslash to escape the quotes that are needed around the `src` attribute value.

CREATING A SIMPLE QUERY - MULTIPLE RECORDS

Open the file *select-multiple.php*. Use this to build a simple query of your data to extract multiple records. First you need to include the connection file.

```
<?php
require('includes/conn.inc.php');
?>
```

- Build a SQL query.
- Use the `$pdo` object to send your query to MySQL.

Your code should now appear:

```
<?php
require('includes/conn.inc.php');
$queryFilms = "SELECT * FROM movies";
$stmt = $pdo->query($queryFilms);
?>
```

Find the `<div class="col-md-12">` element that spans across the width of the page. Add a `while` loop to `echo` around each value in the `$row` object generated by `fetchObject()`;

```
<ul>
<?php
while($row = $stmt->fetchObject()) {
    echo "<li>{$row->filmName} - {$row->filmCertificate}</li>";
}??
</ul>
```

Whilst there are still values to extract the `while()` loop sets uses `$stmt->fetchObject()` to extract the current row into the `$row` variable. This can then be used to access the fields in that row.

THINGS TO TRY

Can you display the images for each film found by the loop?

You could use Bootstrap features to output the images in a grid by setting a column value such as `col-md-3`.

CREATING A SEARCH/RESULTS PAGE - SINGLE RECORD

Open the file *prepare-single.php*. Here you will find a HTML form. In this file build a prepared statement to query of your data based on user input from a form.

- Add your connection include;
- Build a `prepare` statement;
- Bind a `$_GET` value to the query;
- Execute the query and bind the results;
- Fetch the results and close the query;

Your code should now appear:

```
<?php
require('includes/conn.inc.php');
$sql= "SELECT * FROM movies WHERE filmID = :filmID";
$stmt = $pdo->prepare($sql);
$stmt->bindParam(':filmID', $_GET['filmID'], PDO::PARAM_INT);
$stmt->execute();
$row = $stmt->fetchObject();
?>
```

This code queries the database by the *filmID* field which is the primary key in the *movies* table.

In the body of the HTML file use conditional logic to see if the form has been submitted and then output the results of the query.

To set a default/fallback value for `$_GET['filmID']` we could use an if/else condition at the top of the file:

```
<?php
if(isset($_GET['filmID'])) {
    $filmID = $_GET['filmID'];
} else {
    $filmID = 0;
}
?>
```

This could be refactored with a ternary operator to:

```
<?php
$filmID = (isset($_GET['filmID'])) ? $_GET['filmID'] : 0;
?>
```

This could be refactored even more with a Null Coalescing Operator to:

```
<?php
$filmID = $_GET['filmID'] ?? : 0;
?>
```

Now we could change the query to use the `$filmID` variable in the `bindParam()` method:

```
$stmt->bindParam(':filmID', $filmID, PDO::PARAM_INT);
```

This variable can then be used to control the output to the user.

```
<?php
if($filmID > 0){
    echo "<ul>";
    echo "<li>{$row->filmName}</li>";
    echo "</ul>";
}
?>
```

CALCULATING THE NUMBER OF RETURNED RECORDS

If no record is found we want to display a message. To do so we will use the `rowCount()` method of the statement object.

Amend the PHP code that performs the query as follows:

```
<?php
require('includes/conn.inc.php');
$filmID = $_GET['filmID'] ?? : 0;
$sql= "SELECT * FROM movies WHERE filmID = :filmID";
$stmt = $pdo->prepare($sql);
$stmt->bindParam(':filmID', $filmID, PDO::PARAM_INT);
$stmt->execute();
$totalNumFilms = $stmt->rowCount();
$row = $stmt->fetchObject();
?>
```

The value of from the `rowCount()` has been stored in the variable `$totalNumFilms`.

Amend your code to use conditional logic to display a message if no records match the primary key used.

DISPLAYING DATES

When the `$releaseDate` field is output it will appear in the format YYYY-MM-DD.

To output the date in a more user friendly format use the PHP `date()` method.

```
if($totalNumFilms > 0){
    $timestampDate = strtotime($row->releaseDate);
    $displayDate = date("D d M Y", $timestampDate);
    echo "<ul>";
    echo "<li>{$row->filmName} - {$displayDate}</li>";
    echo "</ul>";
}
```

CREATING A SEARCH/RESULTS PAGE - MULTIPLE RECORDS

Open the file *prepare-multiple.php*. Here you will again find a HTML form. In this file build a prepared statement to query the database based on user input from a form. The user expects to be able to search by film name. As they are unlikely to know the exact name of the film you will need to use wildcards in the SQL.

- Add your connection include.
- Build a prepare statement.
- Create a variable that concatenates the SQL wildcard characters to the value received from the form.
- Bind your newly created value to the query using the `PDO::PARAM_STR` data type.
- Execute the query and bind the results.

In the body of the HTML file use conditional logic to see if the form has been submitted. Then use a while loop to retrieve and echo the results of the query. Output the film's name and release date, formatting the release date using the PHP `date()` function.