

C.R.U.D.

Charles Severance
www.wa4e.com

<http://www.wa4e.com/code/crud.zip>



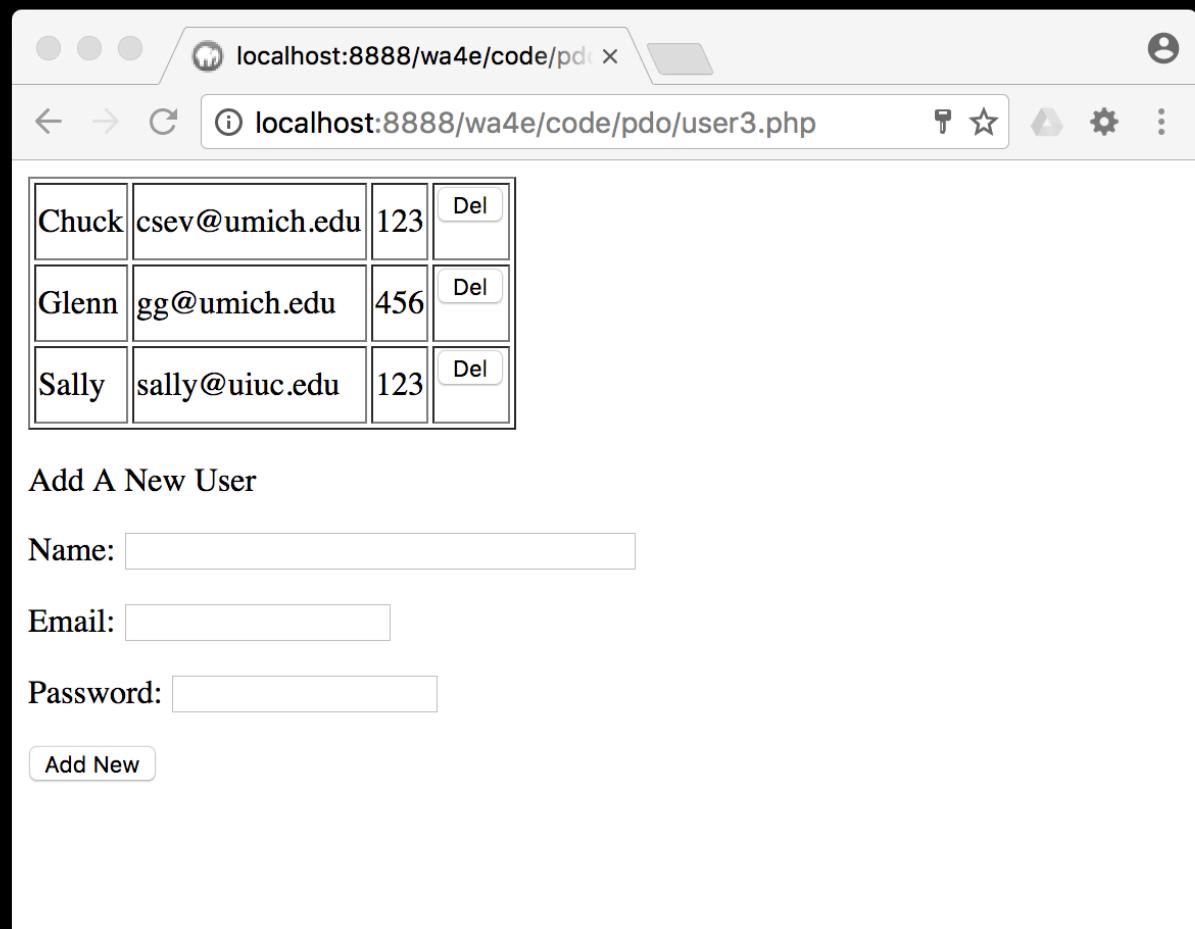
CRUD Pattern

- When we store things in database tables we generally need
 - **Create** - Insert a new row
 - **Read** - Read existing row(s)
 - **Update** - Change some values of a record
 - **Delete** - Delete a record
- So far we have done most of **CRUD**

Our Program is a Little Ugly

Usually we create several screens

- Add new row
- View all rows (paging)
- View single row
- Edit single row
- Delete a row



The screenshot shows a web browser window with two tabs open. The left tab displays a table of users with columns for Name, Email, ID, and a 'Del' button. The right tab shows a form titled 'Add A New User' with fields for Name, Email, and Password, and a 'Add New' button.

| | | | |
|-------|----------------|-----|-----|
| Chuck | csev@umich.edu | 123 | Del |
| Glenn | gg@umich.edu | 456 | Del |
| Sally | sally@uiuc.edu | 123 | Del |

Add A New User

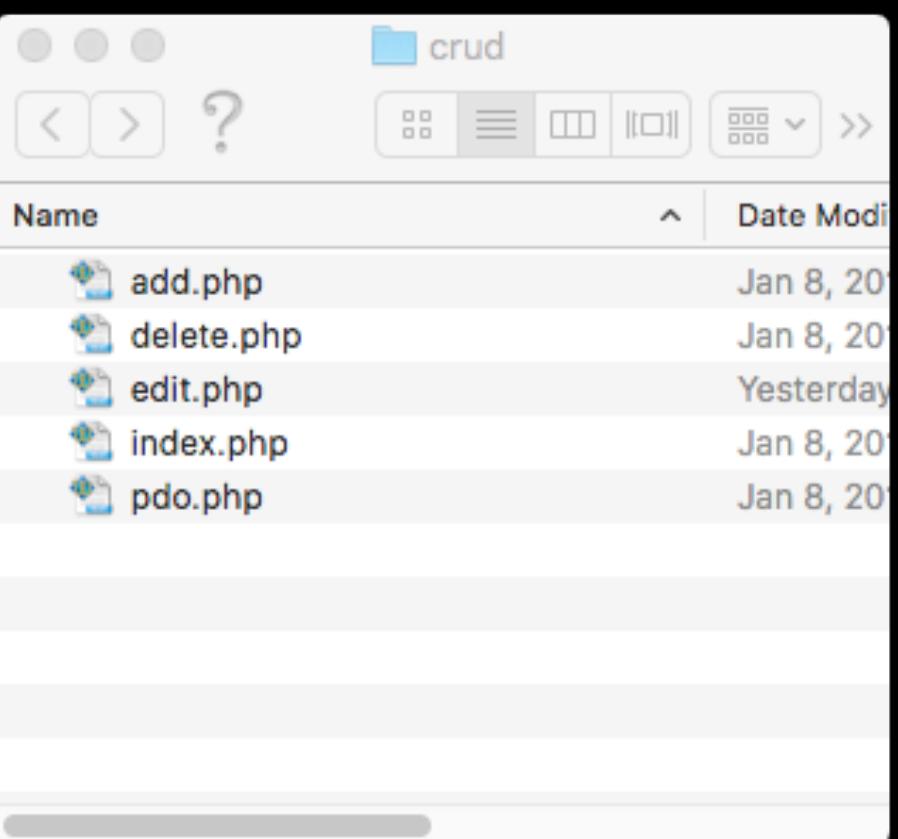
Name:

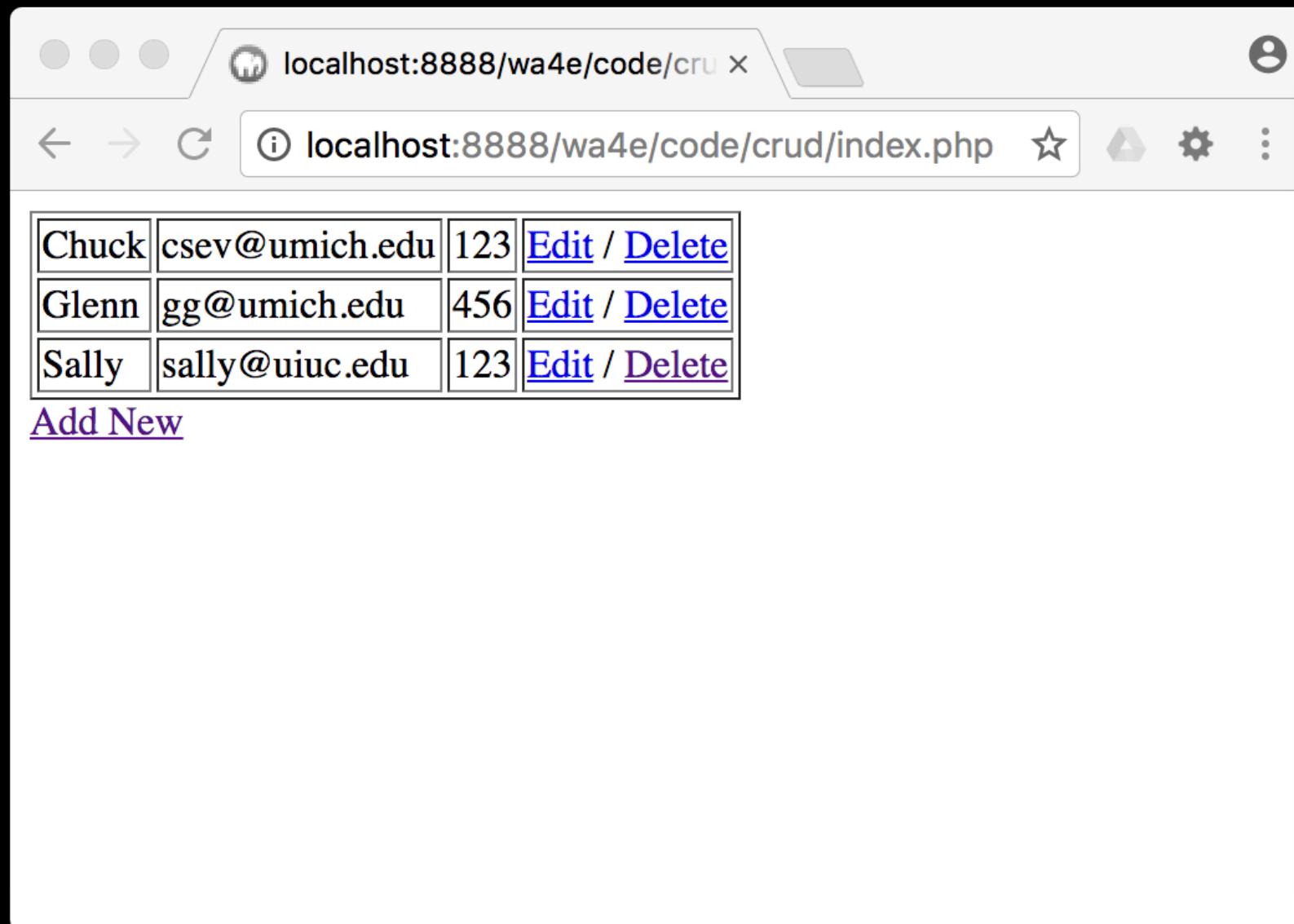
Email:

Password:

Five Separate Files

- **index.php** - Main list and links to other files
- **add.php** - Add a new entry
- **delete.php** - Delete an entry
- **edit.php** - Edit existing
- **view.php** (if index.php needs a detail view)

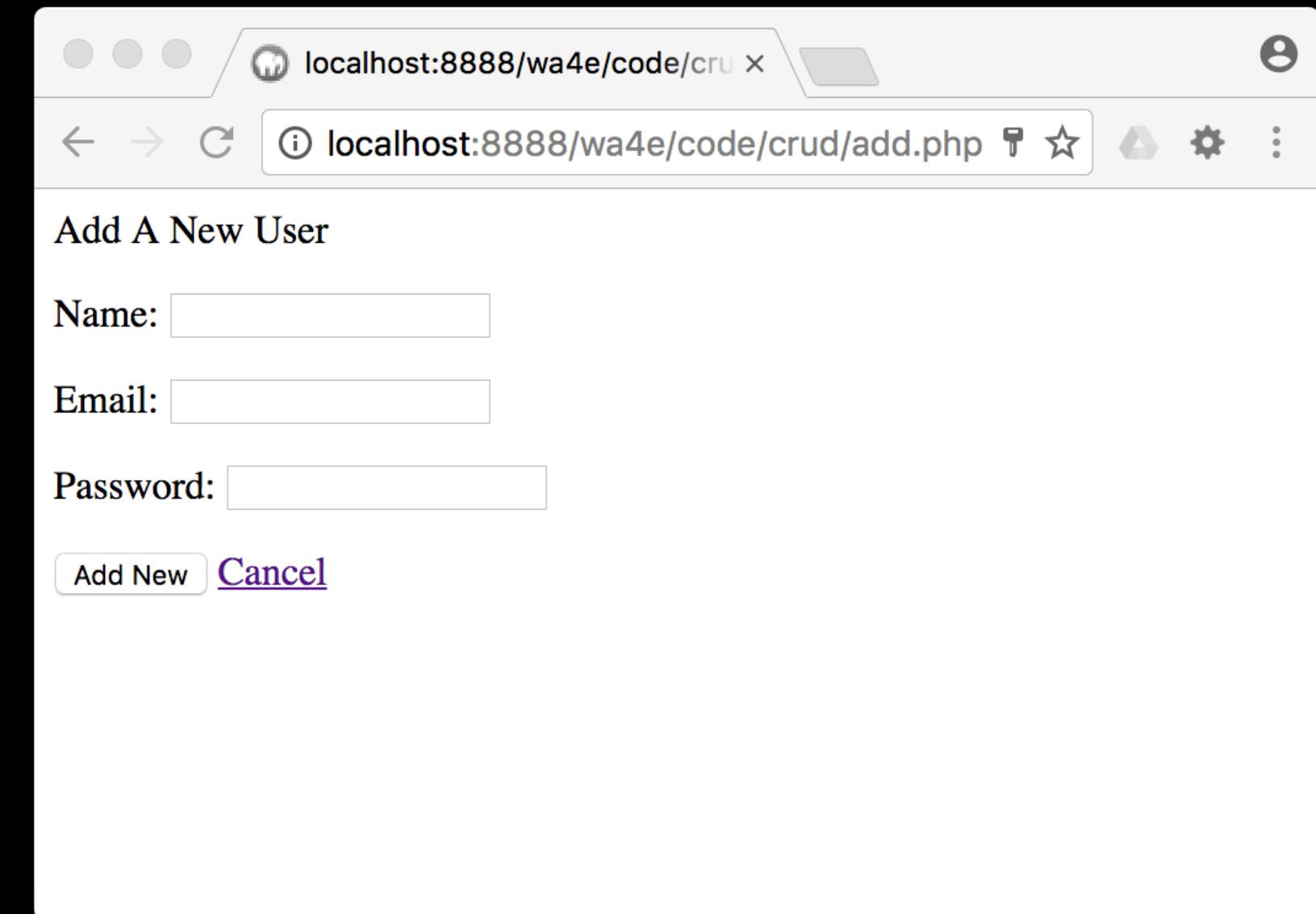




A screenshot of a web browser window showing a list of users. The URL in the address bar is `localhost:8888/wa4e/code/crud/index.php`. The page displays three rows of user data in a table format:

| | | | |
|-------|----------------|-----|---|
| Chuck | csev@umich.edu | 123 | Edit / Delete |
| Glenn | gg@umich.edu | 456 | Edit / Delete |
| Sally | sally@uiuc.edu | 123 | Edit / Delete |

[Add New](#)



A screenshot of a web browser window showing a form to add a new user. The URL in the address bar is `localhost:8888/wa4e/code/crud/add.php`. The page has a header "Add A New User" and contains four input fields:

Name:

Email:

Password:

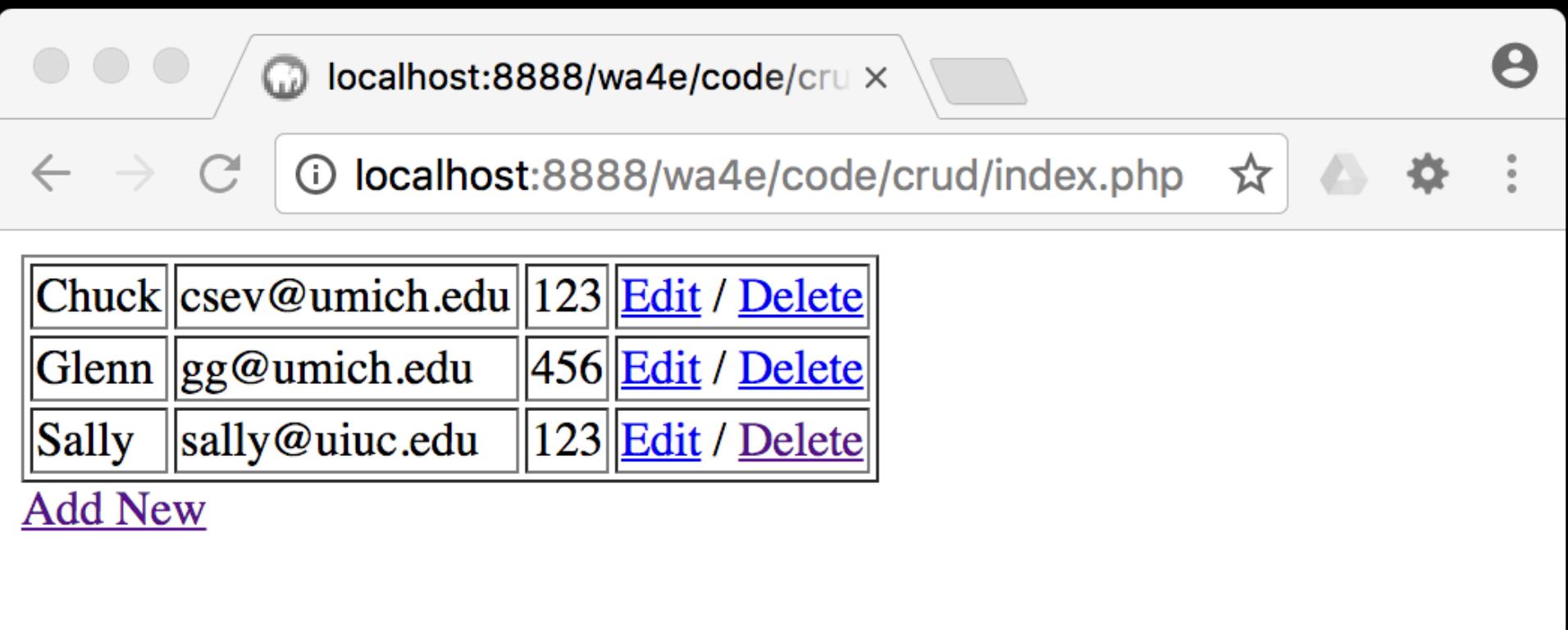
[Add New](#) [Cancel](#)

```
<?php
require_once "pdo.php";
session_start();
?>
<html><head></head>
<body>
<?php
if ( isset($_SESSION[ 'error' ]) ) {
    echo '<p style="color:red">' . $_SESSION[ 'error' ] . "</p>\n";
    unset($_SESSION[ 'error' ]);
}
if ( isset($_SESSION[ 'success' ]) ) {
    echo '<p style="color:green">' . $_SESSION[ 'success' ] . "</p>\n";
    unset($_SESSION[ 'success' ]);
}
echo( '<table border="1">' . "\n" );
```

index.php



```
<?php
echo( '<table border="1">' . "\n" );
$stmt = $pdo->query("SELECT name, email, password, user_id FROM users");
while ( $row = $stmt->fetch(PDO::FETCH_ASSOC) ) {
    echo "<tr><td>";
    echo(htmlentities($row[ 'name' ]));
    echo( "</td><td>" );
    echo(htmlentities($row[ 'email' ]));
    echo( "</td><td>" );
    echo(htmlentities($row[ 'password' ]));
    echo( "</td><td>" );
    echo( '<a href="edit.php?user_id=' . $row[ 'user_id' ].'">Edit</a> / ' );
    echo( '<a href="delete.php?user_id=' . $row[ 'user_id' ].'">Delete</a>' );
    echo( "\n</form>\n" );
    echo( "</td></tr>\n" );
}
?>
</table>
<a href="add.php">Add New</a>
?>
```



| | | | |
|-------|----------------|-----|-------------------------------|
| Chuck | csev@umich.edu | 123 | Edit / Delete |
| Glenn | gg@umich.edu | 456 | Edit / Delete |
| Sally | sally@uiuc.edu | 123 | Edit / Delete |

[Add New](#)

```
<tr><td>Chuck</td><td>csev@umich.edu</td><td>123</td><td>
<a href="edit.php?user_id=1">Edit</a> /
<a href="delete.php?user_id=1">Delete</a></td></tr>
```

```
<tr><td>Glenn</td><td>gg@umich.edu</td><td>456</td><td>
<a href="edit.php?user_id=2">Edit</a> /
<a href="delete.php?user_id=2">Delete</a></td></tr>
```

```
<?php
require_once "pdo.php";
session_start();
if ( isset($_POST['name']) && isset($_POST['email'])
    && isset($_POST['password'])) {
    $sql = "INSERT INTO users (name, email, password)
            VALUES (:name, :email, :password)";
    $stmt = $pdo->prepare($sql);
    $stmt->execute(array(
        ':name' => $_POST['name'],
        ':email' => $_POST['email'],
        ':password' => $_POST['password']));
    $_SESSION['success'] = 'Record Added';
    header( 'Location: index.php' ) ;
    return;
}
?>
<p>Add A New User</p>
<form method="post">
<p>Name:<input type="text" name="name"></p>
<p>Email:<input type="text" name="email"></p>
<p>Password:<input type="password" name="password"></p>
<p><input type="submit" value="Add New"/>
<a href="index.php">Cancel</a></p>
</form>
```

add.php

Add A New User

Name: Sarah

Email: sarah@umich.edu

Password:

[Add New](#) [Cancel](#)

localhost:8888/wa4e/code/crud/index.php

| | | | |
|-------|----------------|-----|-------------------------------|
| Chuck | csev@umich.edu | 123 | Edit / Delete |
| Glenn | gg@umich.edu | 456 | Edit / Delete |
| Sally | sally@uiuc.edu | 123 | Edit / Delete |

[Add New](#)

```
<?php
if ( isset($_POST['name']) && isset($_POST['email'])
    && isset($_POST['password'])) {
    $sql = "INSERT INTO users (name, email, password)
            VALUES (:name, :email, :password)";
    $stmt = $pdo->prepare($sql);
    $stmt->execute(array(
        ':name' => $_POST['name'],
        ':email' => $_POST['email'],
        ':password' => $_POST['password']));
    $_SESSION['success'] = 'Record Added';
    header( 'Location: index.php' );
    return;
```

localhost:8888/wa4e/code/crud/add.php

Add A New User

Name:

Email:

Password:

[Add New](#) [Cancel](#)

localhost:8888/wa4e/code/crud/index.php

Record Added

| | | | |
|-------|-----------------|--------|-------------------------------|
| Chuck | csev@umich.edu | 123 | Edit / Delete |
| Glenn | gg@umich.edu | 456 | Edit / Delete |
| Sally | sally@uiuc.edu | 123 | Edit / Delete |
| Sarah | sarah@umich.edu | 123354 | Edit / Delete |

[Add New](#)

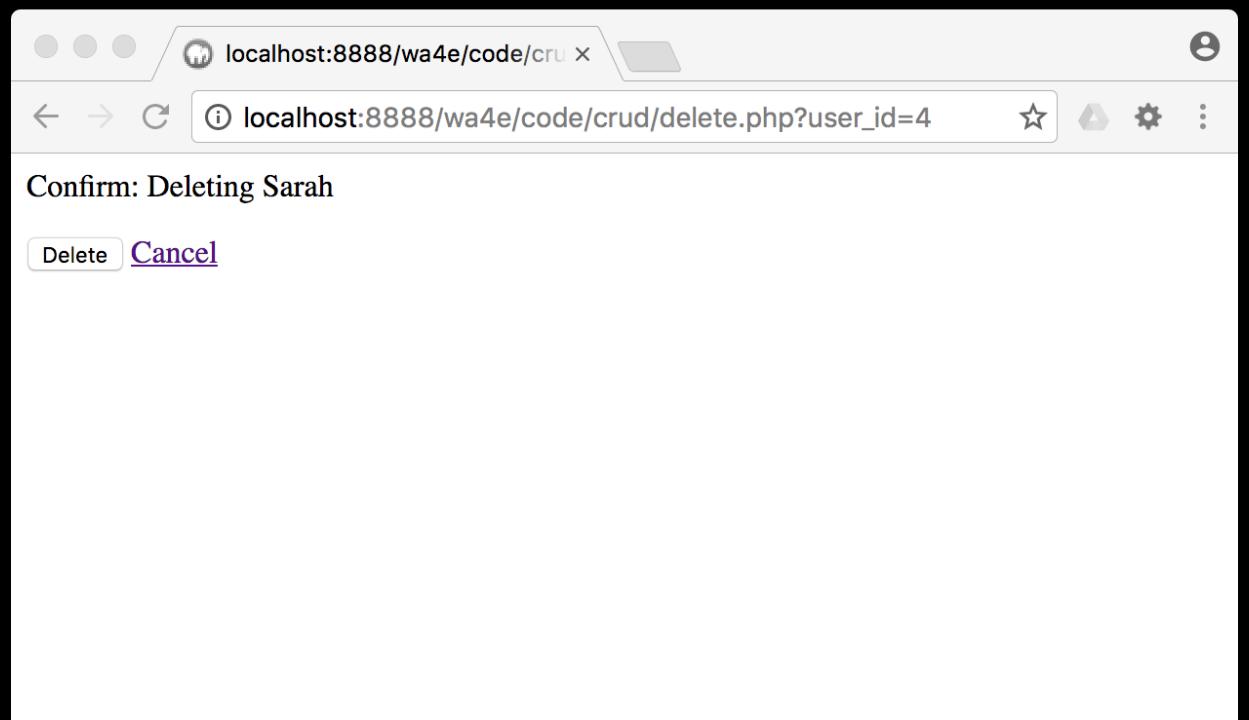
```
if ( isset($_SESSION['success']) ) {
    echo '<p style="color:green">'. $_SESSION['success'] . "</p>\n";
    unset($_SESSION['success']);
}
```

```
<?php
require_once "pdo.php";
session_start();
if ( isset($_POST['delete']) && isset($_POST['user_id']) ) {
    $sql = "DELETE FROM users WHERE user_id = :zip";
    $stmt = $pdo->prepare($sql);
    $stmt->execute(array(':zip' => $_POST['user_id']));
    $_SESSION['success'] = 'Record deleted';
    header( 'Location: index.php' );
    return;
}
$stmt = $pdo->prepare("SELECT name, user_id FROM users where user_id = :xyz");
$stmt->execute(array(":xyz" => $_GET['user_id']));
$row = $stmt->fetch(PDO::FETCH_ASSOC);
if ( $row === false ) {
    $_SESSION['error'] = 'Bad value for user_id';
    header( 'Location: index.php' );
    return;
}
?>
<p>Confirm: Deleting <?= htmlentities($row['name']) ?></p>

<form method="post"><input type="hidden"
name="user_id" value="<?= $row['user_id'] ?>">
<input type="submit" value="Delete" name="delete">
<a href="index.php">Cancel</a>
</form>
```

delete.php

Don't alter data
in a GET.



Record Added

| | | | |
|-------|-----------------|--------|-------------------------------|
| Chuck | csev@umich.edu | 123 | Edit / Delete |
| Glenn | gg@umich.edu | 456 | Edit / Delete |
| Sally | sally@uiuc.edu | 123 | Edit / Delete |
| Sarah | sarah@umich.edu | 123354 | Edit / Delete |

[Add New](#)

```
<?php
if ( isset($_POST['delete']) && isset($_POST['user_id']) ) {
    $sql = "DELETE FROM users WHERE user_id = :zip";
    $stmt = $pdo->prepare($sql);
    $stmt->execute(array(':zip' => $_POST['user_id']));
    $_SESSION['success'] = 'Record deleted';
    header( 'Location: index.php' );
    return;
}
?>
```

localhost:8888/wa4e/code/crud/delete.php?user_id=4

Confirm: Deleting Sarah

[Delete](#) [Cancel](#)

localhost:8888/wa4e/code/crud/index.php

Record deleted

| | | | |
|-------|----------------|-----|-------------------------------|
| Chuck | csev@umich.edu | 123 | Edit / Delete |
| Glenn | gg@umich.edu | 456 | Edit / Delete |
| Sally | sally@uiuc.edu | 123 | Edit / Delete |

[Add New](#)

```
if ( isset($_SESSION['success']) ) {
    echo '<p style="color:green">' . $_SESSION['success'] . "</p>\n";
    unset($_SESSION['success']);
}
```

```
<?php
require_once "pdo.php";
session_start();
if ( isset($_POST['name']) && isset($_POST['email'])
    && isset($_POST['password']) && isset($_POST['user_id']) ) {
    $sql = "UPDATE users SET name = :name,
                           email = :email, password = :password
                     WHERE user_id = :user_id";
    $stmt = $pdo->prepare($sql);
    $stmt->execute(array(
        ':name' => $_POST['name'],
        ':email' => $_POST['email'],
        ':password' => $_POST['password'],
        ':user_id' => $_POST['user_id']));
    $_SESSION['success'] = 'Record updated';
    header( 'Location: index.php' );
    return;
}
$stmt = $pdo->prepare("SELECT * FROM users where user_id = :xyz");
$stmt->execute(array(":xyz" => $_GET['user_id']));
$row = $stmt->fetch(PDO::FETCH_ASSOC);
if ( $row === false ) {
    $_SESSION['error'] = 'Bad value for user_id';
    header( 'Location: index.php' );
    return;
}
```

localhost:8888/wa4e/code/crud/edit.php?us...

Edit User

Name: Glenn

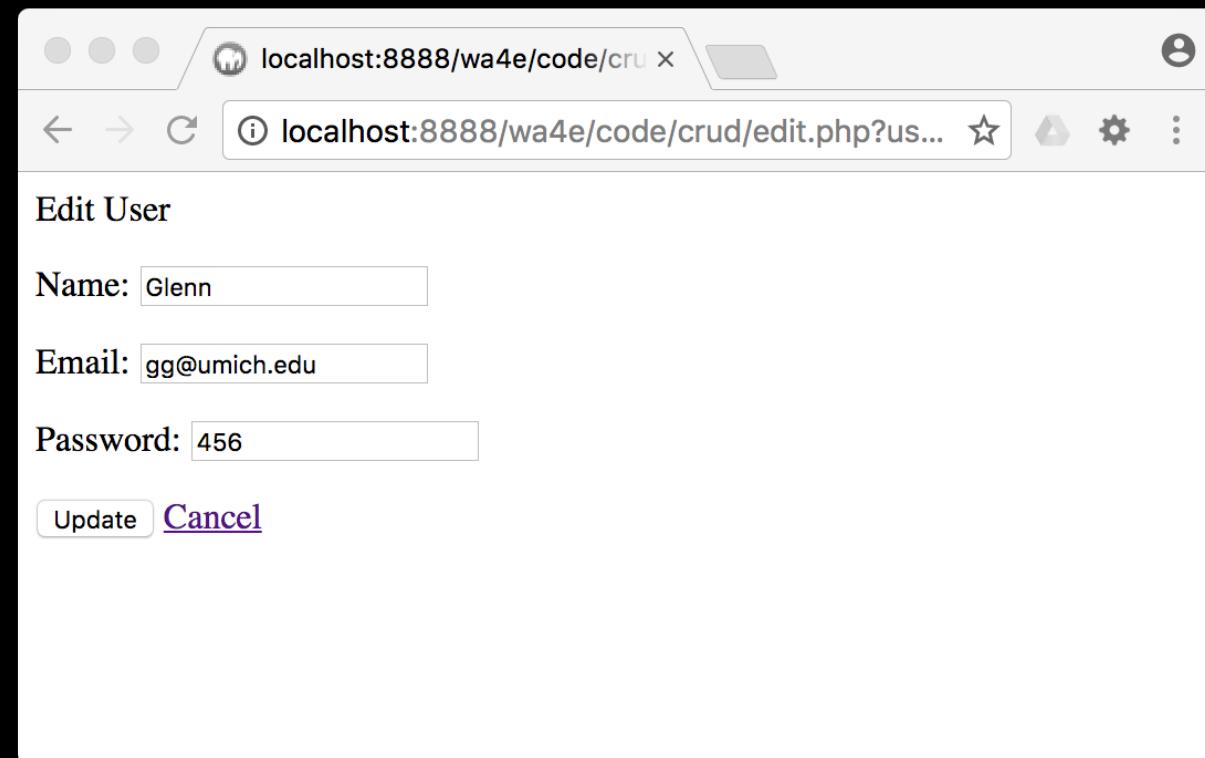
Email: gg@umich.edu

Password: 456

Update Cancel

edit.php

```
$n = htmlentities($row[ 'name' ]);  
$e = htmlentities($row[ 'email' ]);  
$p = htmlentities($row[ 'password' ]);  
$user_id = $row[ 'user_id' ];  
?>  
<p>Edit User</p>  
<form method="post">  
<p>Name:  
<input type="text" name="name" value="<?= $n ?>"></p>  
<p>Email:  
<input type="text" name="email" value="<?= $e ?>"></p>  
<p>Password:  
<input type="text" name="password" value="<?= $p ?>"></p>  
<input type="hidden" name="user_id" value="<?= $user_id ?>">  
<p><input type="submit" value="Update"/>  
<a href="index.php">Cancel</a></p>  
</form>
```



Edit User

Name: Glenn

Email: gg@umich.edu

Password: 456

Update Cancel

edit.php

localhost:8888/php-intro/code/crud/index.php

Record deleted

| | | | |
|-------|----------------|------|-------------------------------|
| Chuck | csev@umich.edu | 123 | Edit / Delete |
| Glenn | gg@umich.edu | 456 | Edit / Delete |
| Sally | sally@uiuc.edu | 0200 | Edit / Delete |

[Add New](#)

localhost:8888/wa4e/code/crud/edit.php?us...

Edit User

Name:

Email:

Password:

[Update](#) [Cancel](#)

```
if ( isset($_POST['name']) && isset($_POST['email'])  
    && isset($_POST['password']) && isset($_POST['user_id']) ) {  
    $sql = "UPDATE users SET name = :name,  
                      email = :email, password = :password  
                      WHERE user_id = :user_id";  
    $stmt = $pdo->prepare($sql);  
    $stmt->execute(array(  
        ':name' => $_POST['name'],  
        ':email' => $_POST['email'],  
        ':password' => $_POST['password'],  
        ':user_id' => $_POST['user_id']));  
    $_SESSION['success'] = 'Record updated';  
    header( 'Location: index.php' ) ;  
    return;  
}
```

localhost:8888/wa4e/code/crud/index.php

Record updated

| | | | |
|---------------|----------------|-----|-------------------------------|
| Chuck | csev@umich.edu | 123 | Edit / Delete |
| Glenn-o-matic | gg@umich.edu | 456 | Edit / Delete |
| Sally | sally@uiuc.edu | 123 | Edit / Delete |

[Add New](#)

edit.php

Summary

- Making database connections
- Doing database operations
- SQL security (a.k.a. we love PDO prepared statements)
- Exploring errors...
- A multi-file CRUD application with redirect

Acknowledgements / Contributions



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Initial Development: Charles Severance, University of Michigan
School of Information

Insert new Contributors and Translators here including names and dates

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