

Syllabus

Course Overview

Welcome to Dynamic Web Development!

This course focuses on the integration of the web technologies you learned to use in previous courses to create dynamic web functionality that is common to modern web applications. The various technologies that you will use include HTML5, CSS3, PHP, JavaScript, jQuery, AJAX, XAMPP and MariaDB. Many of these are technologies you have worked with previously in other courses, and now you will integrate them into a single cohesive solution.

The course is based upon a project that requires you to develop features for a web site concept of your choice. These features, or web components, include a user registration form, user authentication, server sessions, form validation using AJAX, web scraping, emails, and captchas. Although you may have developed some of these features or functionality in the past, your development for this project requires you to fully integrate them into a website. You will also learn about web accessibility and the importance of adhering to accessibility standards.

Kaltura Media

In this course, you will be required to create a presentation. If you choose Kaltura to accomplish this, you should refer to [Using Kaltura \[PDF\]](#) for more information about this courseroom tool.

Note: If you require the use of assistive technology or alternative communication methods to participate in these activities, please contact [Disability Services](#) to request accommodations.

Course Competencies

(Read Only)

To successfully complete this course, you will be expected to:

- 1 Set up an open source web platform development environment.
- 2 Implement interactive, dynamic website features using a server side programming language.
- 3 Apply fundamental capabilities of open source software to develop an interactive web application.

- 4 Design the user interaction to meet the needs of a target audience and ensure accessibility.
- 5 Explain how design strategies meet user needs.

Course Prerequisites

IT4797.

Syllabus >> Course Materials

Required

The materials listed below are required to complete the learning activities in this course.

Integrated Materials

Many of your required books are available via the VitalSource Bookshelf link in the courseroom, located in your Course Tools. Registered learners in a Resource Kit program can access these materials using the courseroom link on the Friday before the course start date. Some materials are available only in hard-copy format or by using an access code. For these materials, you will receive an email with further instructions for access. Visit the [Course Materials](#) page on Campus for more information.

eBook

Welling, L., & Thomson, L. (2017). *PHP and MySQL web development*(5th ed.). Boston, MA: Addison-Wesley. ISBN: 9780321833891.

Library

The following required readings are provided in the Capella University Library or linked directly in this course. To find specific readings by journal or book title, use [Journal and Book Locator](#). Refer to the [Journal and Book Locator library guide](#) to learn how to use this tool.

- de León, I. (2016). [Moving to responsive web design](#). Apress.
- Kromann, F. M. (2016). [PHP and MySQL recipes: A problem-solution approach \(2nd ed.\)](#). Apress.
- Lengstorf, J., Wald, K. (2016). [Pro PHP and jQuery \(2nd ed.\)](#). Apress.
- Siriwardena, P. (2014). [Advanced API security](#). Apress.
- West, A. W. (2014). [Practical PHP and MySQL web site databases: A simplified approach](#). Apress.

External Resource

Please note that URLs change frequently. While the URLs were current when this course was designed, some may no longer be valid. If you cannot access a specific link, contact your instructor for an alternative URL. Permissions for the following links have been either granted or deemed appropriate for educational use at the time of course publication.

- AChecker. (2011). [AChecker web accessibility checker](https://achecker.ca/checker/index.php). Retrieved from <https://achecker.ca/checker/index.php>
- Apache Friends. (n.d.). [XAMPP download](https://www.apachefriends.org/download.html). Retrieved from <https://www.apachefriends.org/download.html>
- Google. (n.d.). [reCAPTCHA V2](https://developers.google.com/recaptcha/docs/display). Retrieved from <https://developers.google.com/recaptcha/docs/display>
- Instagram. (n.d.). [Instagram developer documentation](https://www.instagram.com/developer/). Retrieved from <https://www.instagram.com/developer/>
- Instagram. (n.d.). [Instagram developer documentation: Authentication](https://www.instagram.com/developer/authentication/). Retrieved from <https://www.instagram.com/developer/authentication/>
- Level Access. (n.d.). [Web accessibility](https://www.webaccessibility.com/best_practices.php). Retrieved from https://www.webaccessibility.com/best_practices.php
- W3C. (n.d.). [Web content accessibility and mobile web: Making a website accessible both for people with disabilities and for mobile devices](http://www.w3.org/WAI/mobile/overlap.html). Retrieved from <http://www.w3.org/WAI/mobile/overlap.html>

Suggested

The following materials are recommended to provide you with a better understanding of the topics in this course. These materials are not required to complete the course, but they are aligned to course activities and assessments and are highly recommended for your use.

Optional

The following optional materials are offered to provide you with a better understanding of the topics in this course. These materials are not required to complete the course.

Integrated Materials

Hardware

Capella University requires learners to meet certain minimum [computer requirements](#). The following hardware may go beyond those minimums and is required to complete learning activities in this course.

Note: If you already have the following hardware, you do not need to purchase it. Visit the [Course Materials](#) page on Campus for more information.

Presentation Hardware: Capella University requires learners to meet certain minimum computer requirements. The following hardware may go beyond those minimums and is required to complete learning activities in this course. Headsets and webcams are available for purchase at the Capella

University Bookstore. Refer to the manufacturer's directions for installing and connecting the devices to your computer. **Note:** If you already have the following hardware, you do not need to purchase it.

1. External or built-in microphone
2. Broadband Internet connection

Library

The following optional readings may be available in the Capella University Library. To find specific readings by journal or book title, use [Journal and Book Locator](#). Refer to the [Journal and Book Locator library guide](#) to learn how to use this tool. If the full text is not available, you may be able to request a copy through the [Interlibrary Loan](#) service.

- Alfred, A. (2013). [PHP: Inserting into a MySQL database table \[Video\]](#). Skillssoft Ireland.
- Alfred, A. (2013). [PHP: Validating required form input fields \[Video\]](#). Skillssoft Ireland.
- Bhog, L. (2015). [LAMP: Administering MySQL database by using phpMyAdmin \[Video\]](#). Skillssoft Ireland.
- Bhog, L. (2016). [LAMP - Exercise: Connect MySQL with PHP by using MySQLi \[Video\]](#). Skillssoft Ireland.
- Bhog, L. (2016). [LAMP: Installing and configuring MySQLi \[Video\]](#). Skillssoft Ireland.
- Calnan, C. (2017). [Exploring the future of UI/UX: Alternatives to CAPTCHA \[Video\]](#). Skillssoft Ireland.
- Calnan, C. (2017). [jQuery essentials: Handling AJAX errors \[Video\]](#). Skillssoft Ireland.
- Calnan, C. (2017). [jQuery essentials: Making a simple AJAX request \[Video\]](#). Skillssoft Ireland.
- Calnan, C. (2017). [jQuery essentials: Manipulating an element with AJAX \[Video\]](#). Skillssoft Ireland.
- Calnan, C. (2017). [jQuery essentials: Updating page content from an AJAX request \[Video\]](#). Skillssoft Ireland.
- Calnan, C. (2017). [jQuery essentials: Using the AJAX event handlers \[Video\]](#). Skillssoft Ireland.
- Easttom, C. (2015). [Defensive programming in JavaScript and HTML5: Cross-browser testing for JavaScript and HTML5 \[Video\]](#). Skillssoft Ireland.
- Ewing, A. (2016). [jQuery essentials: Creating and manipulating a web page \[Video\]](#). Skillssoft Ireland.
- Ewing, A. (2016). [jQuery essentials: Using jQuery in a web page \[Video\]](#). Skillssoft Ireland.
- Foulkes, L. (2016). [PowerPoint best practices: Communicating your message \[Video\]](#). Skillssoft Ireland.
- Lassoff, M. (2013). [HTML5: Verifying HTML5 document validity \[Video\]](#). Skillssoft Ireland.
- Lee, J. (2014). [CSS3: Styling forms fields according to validity of input \[Video\]](#). Skillssoft Ireland.
- Miller, W. (2013). [PHP: Updating a MySQL database table \[Video\]](#). Skillssoft Ireland.
- Miller, W. (2013). [PHP: Writing simple PHP mail forms \[Video\]](#). Skillssoft Ireland.
- Nordin, D. (2015). [UX foundations: Help and FAQ pages \[Video\]](#). Skillssoft Ireland.
- Nordin, D. (2015). [UX foundations: Navigation model \[Video\]](#). Skillssoft Ireland.
- Sampson, A. (2015). [Securing user accounts: Using CAPTCHA \[Video\]](#). Skillssoft Ireland.
- Scott, S. (2015). [JSON fundamentals: Flickr API \[Video\]](#). Skillssoft Ireland.
- Scott, S. (2015). [JSON fundamentals: Internet archive JSON output \[Video\]](#). Skillssoft Ireland.
- Skillssoft. (n.d.). [Ajax APIs and mashups \[Tutorial\]](#).
- Skillssoft. (n.d.). [Ajax, XML, and CSS \[Tutorial\]](#).
- Skillssoft. (n.d.). [Exercise: Using JSON to query the Bing synonyms API \[Tutorial\]](#).
- Skillssoft. (n.d.). [Form elements: Form basics \[Tutorial\]](#).
- Skillssoft. (n.d.). [Form validation \[Tutorial\]](#).
- Skillssoft. (n.d.). [Handling JSON data \[Tutorial\]](#).

- Skillsoft. (n.d.). [Home page design and content \[Tutorial\]](#).
- Skillsoft. (n.d.). [Serialization in forms with Ajax \[Tutorial\]](#).
- Skillsoft. (n.d.). [Submitting a file to a server in HTML5 \[Tutorial\]](#).
- Skillsoft. (n.d.). [Using email form field validation in HTML5 \[Tutorial\]](#).

External Resource

Please note that URLs change frequently. While the URLs were current when this course was designed, some may no longer be valid. If you cannot access a specific link, contact your instructor for an alternative URL. Permissions for the following links have been either granted or deemed appropriate for educational use at the time of course publication.

- Brackets. (n.d.). [Brackets](#). Retrieved from <http://brackets.io/>
- GSA. (n.d.). [Section 508 law and related laws and policies](#). Retrieved from <https://www.section508.gov/content/learn/laws-and-policies>
- [Instagram](#). (2019). Retrieved from <https://www.instagram.com/>
- MariaDB. (2017). [MariaDB versus MySQL: Compatibility](#). Retrieved from: <https://mariadb.com/kb/en/library/mariadb-vs-mysql-compatibility/>
- MariaDB. (n.d.). [About MariaDB](#). Retrieved from <https://mariadb.com/about-us>
- Tran, V. (2017). [IT4799 - Database configuration and setup](#). | [Transcript](#) Retrieved from <https://youtu.be/RbFEvFAOq6c>
- Tran, V. (2017). [IT4799 - Installing XAMPP, setup and configuration](#). | [Transcript](#) Retrieved from <https://youtu.be/Tnzt9IOJH8o>
- Tran, V. (2017). [IT4799 - Web accessibility](#). | [Transcript](#) Retrieved from <https://youtu.be/PitWY8DSat8>
- Tran, V. (2017). [IT4799 - jQuery and Ajax](#). | [Transcript](#) Retrieved from <https://youtu.be/eIABr1z8aH4>
- Tran, V. (2017). [IT4799 - Web scraping](#). | [Transcript](#) Retrieved from <https://youtu.be/DhonMqSMFDA>
- W3C. (n.d.). [Web Content Accessibility Guidelines \(WCAG\) overview](#). Retrieved from <https://www.w3.org/WAI/intro/wcag>
- Webopedia. (2007). [Understanding LAMP and its effect on web development](#). Retrieved from https://www.webopedia.com/DidYouKnow/Computer_Science/LAMP.asp

Projects

Project >> Dynamic Website

Project Overview

This project requires you to create a website that makes use of dynamic client-side and server-side functionality, assembled piece by piece as you progress through each assignment in the course.

The project requires that you extend and refine some of the website elements that you have been introduced to in past courses by giving them additional functionality. Consider the website that you design and build for your project as a canvas for you to demonstrate your understanding of dynamic web development.

Your website (for a fictional client) will be created using a variety of tools, but is based upon the XAMPP suite. Your web accessible site requires the use of jQuery, MySQL, PHP, AJAX, MariaDB, OAuth and other modern dynamic web development tools to create forms and logins, and integrate external data and social media. Learning to use these tools will provide you with the essential abilities to create professional dynamic website functionality.

Your project is comprised of the following assignments:

- XAMPP Setup and Configuration.
- Project Proposal.
- Database Connectivity.
- User Registration.
- User Authentication/Login.
- jQuery and AJAX.
- Using External Data.
- Contact Form.
- Social Media Integration with OAuth.
- Web Accessibility.
- Site Presentation.

You are encouraged to be creative in your approach to site design, while being practical and efficient in its execution. At the end of the course you will create a presentation for your completed website.

Unit 1 >> Development Environment

Introduction

In most coding settings, there are separate environments used in the deployment of a web application. The production environment includes a complete installation of the web application and is normally deployed on a hosting server containing all required technologies.

Testing unverified code in the production environment could seriously compromise certain business processes. A specific feature could be broken or the data in a SQL statement could be wiped out by an incomplete statement. In addition, it can be inefficient for developers to constantly have to push code to a remote server when changes are made. Due to these potential issues, most coding settings have other environments that may include development, test and QA environments.

The development environment is where we configure, customize and build the web application. Code is fully tested by the developer before being promoted to another environment. Here, developers may write upgrade procedures to be followed in each target environment.

The test environment is where we test the upgrade procedure against a controlled set of data. This test environment is frequently combined with the QA environment.

The QA environment is separate and is where a QA team tests the upgrade procedure against the data, hardware and software that simulates the production environment. It is where intended users and stakeholders test the web application.

Many web development environments implement a technology stack that includes Linux, PHP, MariaDB/MySQL and Apache. XAMPP is an open-source web development platform that uses this particular stack of technologies and can be run on Windows, Mac or Linux. This stack is included by default in nearly all Linux distributions (Webopedia, 2007).

Reference

Webopedia. (2007). Understanding LAMP and its effect on web development. Retrieved from https://www.webopedia.com/DidYouKnow/Computer_Science/LAMP.asp

Learning Activities

Readings

Read the following in your *PHP and MySQL web development* text:

- Chapter 1, "PHP Crash Course," pp. 12–53.
- Chapter 25, "Using PHP and MySQL for Large Projects," pp. 529–542.

Chapter 1 provides you a crash course on PHP and gives you an overview of the PHP syntax and language constructs. Chapter 25 provides a guideline to help plan and run a web application with PHP and MySQL and explores best practices.

Read the following Skillsoft resource:

- West, A. (2014). [*Practical PHP and MySQL web site databases: A simplified approach*](#). Apress.
 - Chapter 1: "Create and Test a MySQL Database and Table."

Optional Videos

- Skillsoft:
 - [LAMP: Installing and configuring MySQLi](#), (4 minutes).
- YouTube:
 - [IT4799 - Installing XAMPP, setup and configuration](#) | [Transcript](#).

u01s1 - Learning Components

- Identify the components of XAMPP.
- Explain the purpose of each of the components in XAMPP.
- Explain Apache, MariaDB, and PHP configuration files and their uses.
- Test configuration changes in XAMPP.

u01d1 - Local and Hosted Development Environments

When using a dynamic programming language, we generally need to deploy our web sites onto a web hosting environment.

- How does the use of a local development and hosting environment help with the efficiency of the development process?
- What components does XAMPP include? How does each component help address a development need?

Response Guidelines

Comment on the post of at least two other learners. Offer insights, solutions, examples, or opinions that add depth and value to the conversation.

Note regarding discussions in this course: The discussion topic should determine the length of your post, however, a minimum of 150 words is recommended. Refer to the Discussion Participation Scoring Guide for post expectations. **Make your initial posts early in the week** to allow time sufficient for peers to respond. The expectation within the course discussions is to respond to at least two posts by the end of the unit, but it is highly recommended that you extend the dialog further. Responding over multiple days will help stimulate a lively discussion.

Course Resources

[Undergraduate Discussion Participation Scoring Guide](#)

u01d1 - Learning Components

- Identify the components of XAMPP.
- Explain the purpose of each of the components in XAMPP.

u01a1 - XAMPP Setup and Configuration Guide

Overview

Note: This assignment is crucial foundation for the rest of the course. You will use this environment to build your local test server.

Although a testing server is not required to develop web applications, it does help provide the ability to test PHP/MySQL locally without needing a live site. There are multiple tools available for testing locally before online deploying. LAMP, WAMP, MAMP and XAMPP are the popular choices which are for Linux, Windows, Mac and cross-platform respectively. In this course you will use XAMPP.

What is XAMPP?

XAMPP is often the tool of choice in a mixed development environment. XAMPP includes everything that would be required to setup a web server including Apache (server application), MariaDB (a database), and PHP (a scripting language). Since most web server deployments use the same components, this makes it easy to transition our local test server to a live server.

In this assignment, you install and configure XAMPP to run your own web server. Beyond just installing XAMPP, you configure Apache, MariaDB and PHP. Even though you will be creating your own project, there are certain

components that are common in most websites. You are provided an SQL script to create and set up the key database tables.

Preparation

Download the following found in the Resources.

- IT4799_setup.sql.
- Download XAMPP.
- XAMPP Configuration Instructions.
- Download the *XAMPP Installation Guide Template* found in the Resources.
- Watch the optional videos:
 - IT4799 - Installing XAMPP, Setup and Configuration (10 minutes).
 - IT4799 - Database Configuration and Setup (7 minutes).

Directions

Create an installation guide based upon the XAMPP Installation Guide Template found in the Resources. The completed template should fully document your installation process. Make sure to take screen shots at appropriate points during your install to include in the guide to fully illustrate the process.

Make sure to:

- Install and configure XAMPP with port alterations.
- Configure properly functioning php.ini and sendmail.ini files.
- Create an installation guide that effectively documents the install process.

Submission Requirements

- Submit your completed installation guide template in the courseroom.

Course Resources

[XAMPP Download](#)

XAMPP Installation Guide Template.

IT4799_setup.sql

XAMPP Configuration Instructions

[IT4799 - Installing XAMPP, Setup and Configuration](#) | [Transcript](#)

[IT4799 - Database Configuration and Setup](#) | [Transcript](#)

Unit 2 >> Database Setup

Introduction

Databases are crucial to modern websites. They manage data efficiently and allow us to collect and organize data into tables. MySQL, MariaDB, Oracle and SQL Server are some examples of databases that are frequently used in web applications. MySQL and MariaDB in particular are popular as they are open-source database management systems.

Note: When Oracle acquired Sun Microsystems, which owned MySQL, many of the original developers of MySQL split off in 2009 and created MariaDB. This was done because of a concern that MySQL would no longer be developed, or would only be developed by Oracle developers. It's important to note that the latest versions of MySQL and MariaDB are mostly, if not fully, compatible.

References

MariaDB. (n.d.). About MariaDB. Retrieved from <https://mariadb.com/about-us>

MariaDB. (n.d.). MariaDB vs. MySQL: Compatibility. Retrieved from <https://mariadb.com/kb/en/library/mariadb-vs-mysql-compatibility/>

Learning Activities

u02s1 - Studies

Readings

Read the following in your *PHP and MySQL web development* text.

- Read Chapter 7, "Error and Exception Handling," pp. 198–208.
- Read Chapter 8, "Designing Your Web Database," pp. 209–220.
- Read Chapter 9, "Creating Your Web Database," pp. 221–246.
- Read Chapter 10, "Working with Your MySQL Database," pp. 247–270.

Some of these chapters are review, but they will help you understand how to integrate PHP with MySQL and how to create your database and navigate it using various tools.

Read the following Skillsoft resource:

- Kromann, F. (2016). [*PHP and MySQL recipes: A problem-solution approach \(2nd ed.\)*](#). Apress.
 - Chapter 16: "Using MySQL Databases," pp. 333–356.

Optional Videos

- Skillsoft:
 - [LAMP: Administering MySQL database by using phpMyAdmin](#), (3 minutes).
 - [PHP: Updating a MySQL database table](#), (5 minutes).
 - [LAMP - Exercise: Connect MySQL with PHP by using MySQLi](#), (10 minutes).
- YouTube:
 - [IT4799 - Database Configuration and Setup | Transcript](#).

u02s2 - Kaltura Media Preparation

Your Unit 10 assignment requires you to record audio and video. You may opt to use Kaltura Media software to complete your presentation. If you decide to use it, refer to the [Using Kaltura \[PDF\]](#) tutorial for directions on recording and submitting your recording in the courseroom.

If you have not already done so, set up and test your headset, using the installation instructions provided by the manufacturer. Then practice using it to ensure the audio quality is sufficient.

Note: If you require the use of assistive technology or alternative communication methods to participate in this activity, please contact [Disability Services](#) to request accommodations.

u02s2 - Learning Components

- Understand Kaltura software.

u02d1 - Database and phpMyAdmin

Databases are a key component in dynamic websites. In past classes, you've likely completed the website development separately from the database design. The use of phpMyAdmin is an industry standard tool to navigate both MySQL and MariaDB, while avoiding the command line.

Share three ways that phpMyAdmin might be helpful to your database work. Provide screenshots that support or illustrate your points.

Response Guidelines

Comment on the post of at least two other learners. Offer insights, solutions, examples, or opinions that add depth and value to the conversation.

Course Resources

Undergraduate Discussion Participation Scoring Guide

u02d1 - Learning Components

- Describe how to link PHP files.

u02a1 - Project Proposal

Overview

Before you can design and develop your website, you must have a clear understanding of what it is that you want to create. A project normally has a set of core features and functionality that is defined by the client. For the purposes of your project, many of the design decisions will be determined by you. However there are a minimum of required features that you need to incorporate in your site. They are:

- User Registration.
- User Login.
- A Contact form.
- Social Media Integration – Instagram.
- The ability to display data from an external website.

In this assignment you create a website project proposal for a fictional client that includes the above features.

Preparation

Download and review the Project Proposal Template found in the Resources.

Directions

Use the Project Proposal Template to create your website proposal. It should be of a quality that is appropriate for submission to a client and address all of the requirements below.

Note: There are certain project components that are normally included in a proposal that will not need to be filled out as they are outside the scope of this course. The project proposal should include the following details, but omit the two in bold:

- Project Goal – Consider the user needs and what the client would like to achieve.
- Target Audience – Define user profiles, include demographic information.
- Project Analysis – What the project will be about, why there is a need for the project?
- Project Definition – The specific features/pages that the project will include (provide learners with key pages including registration, login, contact pages).
- Domain Name – Although you will not be registering for a domain name, it can be helpful to look up a domain name that could be used for the organization.
- Project Timeline – **(not required for this assignment – leave blank)**.
- Project Assets – **(not required for this assignment – leave blank)**.
- Site Navigation Diagram – Depiction of the pages and how they are connected.
- Design Details – Include color scheme, and fonts specifications only. (Websites normally require a more thorough description of design elements, but you should focus only on these two). Other design details are not required.

Make sure to:

- Create a professional project proposal that reflects the project requirements.
- Create a project proposal that effectively addresses each section of the Project Proposal Template.

Submission Requirements

- Submit your completed project proposal template.

Course Resources

Project Proposal Template

u02a2 - Database Connectivity

Overview

As we've seen, web applications have several running components. The most common connection among web server components is the one between the application server (Apache) and the database (MariaDB). In order to make that connection there are a few steps involved to ensure your environment is properly setup.

In this assignment, you are walked through the initial setup of your website database using XAMPP. Once completed, you add users, create permissions, and write a PHP script to connect the database to your website.

Directions

Complete the setup of MariaDB by adding two users and their respective permissions. Then, set up the test connection files to verify the database connectivity using PHP.

Step 1: Create the user accounts

In XAMPP, start up Apache and MySQL. Click on "admin" beside MySQL to access phpMyAdmin. Click on "privileges". Here, you'll see all of the users that currently have access to the database along with what privileges they currently have. You may notice that by default, the root user is the only one that exists and has all privileges. Although you can use the root user to setup the database and setup the connectivity, this can create serious vulnerabilities. So, following the principle of least privilege, it can be effective to create additional database accounts for various purposes.

Create an account for admin purposes and another account for the web application.

Admin Account

The web application account will only have access to data-related privileges. The admin account will have the privileges to select from the data and all "structure" and "administration" functionality. Click on "Add user" and fill in the following fields:

- User Name: it4799_user
- Host name: %
- Password: it4799_pass
- Re-type: it4799_pass
- Authentication Plugin: Native MySQL Authentication
- Uncheck "grant all privileges on database it4799_db"
- Check the following under Data:
 - SELECT
 - INSERT
 - UPDATE
 - DELETE
 - FILE

Web Application Account

Create the web application account using the following fields:

- User Name: it4799_admin
- Host name: %
- Password: it4799_pass
- Re-type: it4799_pass
- Authentication Plugin: Native MySQL Authentication
- Uncheck "grant all privileges on database it4799_db"
- Check the following under Data:
 - SELECT

- Check all under structure and administration.

Step 2: Create the PHP connection file.

In Brackets.io (link can be found in the Resources), or another text editor of your choice, open up a new document and save it as dbconnection.php. Here, you will enter the code to connect to the database:

```
<?php

$dbconnect = mysqli_connect("localhost" , "it4799_user" , "it4799_pass")

    or die("Database Connection Failed" . mysqli_error());

$select_db = mysqli_select_db($dbconnect, "it4799_db");

?>
```

The code above will create a database connection to the database that you've created using the credentials and then select the database to access. The next step is to create a test to verify the connection accurately works.

Create a new document and name it dbtest.php. In the code, you will include in the following lines:

```
<?php require_once('dbconnection.php'); ?>

<h1>DB Connection test </h1>
```

Open up a web browser and point it to the dbtest.php file in XAMPP (localhost) to verify the database connection was successful. If you see the DB Connection test message, it means that the code has worked and the database connection was successful. You can verify it to change the password to an invalid value and reload the dbtest.php file.

Make sure to:

- Properly create the database users.
- Setup permissions for the database users based on duties.
- Create PHP script to connect to the database.

Course Resources

[Brackets](#)

Unit 3 >> User Registration End-to-End

Introduction

In this unit, you have the opportunity to develop a web form, add in client-side validation, add in server-side validation, and then insert the data into the database. This sequence constitutes a full transaction of a common web form.

A note on security: When conducting server-side validation, it is important to escape the special characters in a string and create a legal SQL string to increase the security from SQL injection. This can mitigate the ability of an attacker to inject and run malicious SQL code through a web form. Attackers can bypass authentication completely or remove all of your data if your scripts uses a DELETE or UPDATE query.

Learning Activities

u03s1 - Studies

Readings

Read the following in your *PHP and MySQL web development* text.

- Read Chapter 11, "Accessing Your MySQL Database from the Web with PHP," pp. 271–290.
- Read Chapter 12, "Advanced MySQL Administration," pp. 291–314.
- Read Chapter 19, "Managing the Date and Time," pp. 423–436.

These chapters describe various features with PHP and MySQL. Some of the key considerations with MySQL administration, managing the date and time are also explored. Date and time are frequently an issue to consider as PHP and MySQL handle them differently.

Read the following Skillsoft resources:

- Kroman, F. (2016). [PHP and MySQL recipes: A problem-solution approach \(2nd ed.\)](#), Apress.
 - Chapter 13, "Creating and Using Forms," pp. 271–291.
- West, A. (2014). [Practical PHP and MySQL web site databases: A simplified approach](#). Apress.
 - Chapter 2, "Create Web Pages That Interact with Users," pp. 25–59.
 - Chapter 12, "Troubleshooting Your Database-Driven Web Site," pp. 379–386.

Optional Skillsoft Videos

- [PHP: Inserting into a MySQL database table](#), (5 minutes).
- [PHP: Updating a MySQL database table](#), (5 minutes).
- [PHP: Writing simple PHP mail forms](#), (5 minutes).

- Describe the different database privileges.
- Examine how to access phpMyAdmin and navigate the database features.
- Explain the basic SQL transactions.
- Identify how to setup an insert statement using SQL and PHP.
- Understand how form fields are processed in PHP using HTML form fields.
- Identify the different types of input fields.
- Explain how to use CSS to format the form input fields.
- Identify how to validate various input types using PHP.
- Review examples of professionally designed user registration forms.
- Understand how to plan for and code error messages.
- Describe how to display error messages back to the user and repopulate the fields.

u03d1 - Form Validation and Security

Form validation is often an important requirement in web environments. There is both client and server-side form validation. Although client-side validation is helpful for real-time feedback, users can bypass it whether by disabling JavaScript or using a user agent that doesn't support JavaScript. As such, server-side validation is crucial to implement regardless if there is client-side validation or not.

- What different ways can we validate input using PHP to prepare the data for inserting it into the database?
- What additional data security concerns should be considered?

Response Guidelines

Comment on the post of at least two other learners. Offer insights, solutions, examples, or opinions that add depth and value to the conversation.

Course Resources

Undergraduate Discussion Participation Scoring Guide

u03a1 - User Registration

Overview

When building a web application, it is important to create a customized environment for users. For this assignment, you create a user registration form. In the next, you create the user login, and in Unit 5 you extend on

the user registration to implement AJAX to verify and validate the user's email address and username to ensure that a user is not already registered.

Directions

Create and validate a registration form that includes the following input fields and functionality:

- First name.
- Last name.
- Email address.
- Username.
- Password.

Upon form submission, the user should be sent to a new page that validates the input data to ensure that all fields have been properly filled out. Once the validation is completed, the data should be inserted into the database using PHP and SQL.

Upon the successful insert, a successful registration confirmation message should be displayed. If there is an error, the user should be informed that there was an error and what the issue was. Error messages should be short, concise and cover all possible input errors.

Make sure to:

- Create a user registration form that includes all specified input fields.
- Design a professionally formatted user registration form.
- Create server-side validation components for all input fields that effectively filter undesirable inputs.
- Insert the input data into the correct table using SQL and PHP.
- Program appropriate error messages for undesirable form inputs.

Submission Instructions

Submit your assignment as a ZIP file containing all of the files you created to build your solution. Include an export of the database in a .sql file in the root folder of your zipped file.

Unit 4 >> User Authentication/Login

Introduction

User authentication and login are a must for many websites. In this unit, we consider typical login functionality. There are two parts to this process with the first being the actual login component. The login form allows the user

to enter in their username and password. Upon entry, the user's information is validated against the database tables to ensure that they are valid. If there is a match, the user is logged in and should be sent to an account page.

The second part of the process takes place on the account page, which is only accessible if the user has logged in. If the user tries to access the account page directly, they are normally redirected back to the login page. This functionality is crucial to track the user in the web application through the use of server-side sessions in PHP. The use of the `session_start()` function is required before specific session variables can be set such as the user ID to be tracked.

Learning Activities

u04s1 - Studies

Readings

Read the following in your *PHP and MySQL web development* text:

- Read Chapter 13, "Advanced MySQL Programming," pp. 315–330.
- Read Chapter 16, "Implementing Authentication Methods with PHP," pp. 365–378.
- Read Chapter 22, "Using Session Control in PHP," pp. 475–490.
- Read Chapter 27, "Building User Authentication and Personalization," pp. 562–597.

These chapters explore authentication in PHP and describe how to handle sessions in PHP. Integrating these components with MySQL is an important concept.

Read the following Skillsoft resources:

- Kroman, F. (2016). [*PHP and MySQL recipes: A problem-solution approach \(2nd ed.\)*](#). Apress.
 - Chapter 12, "Web Fundamentals," pp. 249–269.
- Lengstorf, J., Wald, K. (2016). [*Pro PHP and jQuery \(2nd ed.\)*](#). Apress.
 - Chapter 1, "Introducing jQuery," pp. 3–23.
 - Chapter 2, "Common jQuery Actions and Methods," pp. 25–82.
 - Chapter 6, "Password Protecting Sensitive Actions and Areas," pp. 195–228.

Optional Skillsoft Videos

- [Submitting a file to a server in HTML5](#), (4 minutes).
- [Using email form field validation in HTML5](#), (3 minutes).
- [CSS3: Styling forms fields according to validity of input](#), (8 minutes).

- Explain how to use parameters in building SQL statements using PHP.
- Explain how server sessions are managed in PHP.
- Describe how to redirect the user's browser to a new page.
- Review examples of professionally designed user login pages.

u04d1 - Tracking User States

There are different ways to keep track of the user state within a website, whether its through cookies, client-side sessions, or local storage. Compare and contrast one of those approaches with server-side sessions. Discuss the following:

- Describe two examples for each method that would make its implementation preferable to the others.
- How or when would each be set and how would they be removed or ended?
- How might you handle user state tracking in your project?
- In your website plan, what pages would require the state for access?

Response Guidelines

Comment on the post of at least two other learners. Offer insights, solutions, examples, or opinions that add depth and value to the conversation.

Course Resources

[Undergraduate Discussion Participation Scoring Guide](#)

u04d1 - Learning Components

- Explain how server sessions are managed in PHP.

u04a1 - User Authentication/Login

Overview

Now that the user registration has been created, the next step is to create a user login form along with a protected account page that the user can view and edit once they have logged in. These components are completely database dependent.

In this assignment, you create the login and protected account pages and their associated error messages.

Directions

Step 1: Login Page

Create a login page that validates the username and password against the content in the database. If the login is valid, a server session should be created and the user directed to the protected account page. If the login is invalid, the user should be given notification that the login failed and why. Notifications should include:

- Username not found.
- Incorrect password was entered.
- No username was entered.
- No password was entered.

Step 2: Protected Account Page

Create a protected account page that displays the user's account information (first name, last name, email, username and password). If the user attempts to access the protected account page without being authenticated, the user should be directed to the login page.

Make sure to:

- Create a login form that permits the user to login based on existing credentials.
- Create a protected account page that is only accessible with a successful login.
- Design a user login and protected account pages that are formatted professionally.
- Program appropriate error notifications.

Submission Requirements

Submit your assignment as a ZIP file containing all of the files you created to build your solution. Include an export of the database in a .sql file in the root folder of your zipped file.

Unit 5 >> jQuery and AJAX

Introduction

It's important to note that AJAX is not a single technology but a combination of several technologies including HTML, CSS, JavaScript and a server-side language like PHP. JavaScript is the language that binds the functionality together. In this unit's assignment you use the jQuery framework.

AJAX starts with JavaScript sending a request to the web server. Then the web server processes the request and sends the data back to the browser. JavaScript then takes the response from the server and processes it. What separates this from a non-AJAX scenario is that by using AJAX, we do not have a page reload.

Using AJAX, the server request and response occurs asynchronously, which allows the browser to continue doing what it is doing without holding up the functionality. An example of this is Google's auto-complete feature that provides suggestions based on your input. In your project, validation should be done on the username to ensure that the username has not been used.

Learning Activities

u05s1 - Studies

Readings

Read the following in your *PHP and MySQL web development* text.

- Read Chapter 5, "Reusing Code and Writing Functions," pp. 131–158.
- Read Chapter 23, "Integrating JavaScript and PHP," pp. 493–518.

These chapters focus on creating PHP functions to encourage reuse. These PHP functions are needed to implement AJAX components. JavaScript and PHP are core elements of AJAX.

Read the following Skillsoft resources:

- Lengstorf, J., Wald, K. (2016). [Pro PHP and jQuery \(2nd ed.\)](#). Apress.
 - Chapter 4: "Build an Events Calendar," pp.115–160.
 - Chapter 5: "Add Controls to Create, Edit, and Delete Events," pp. 161–194.
 - Chapter 7: "Enhancing the User Interface with jQuery," pp.231–260.
 - Chapter 8: "Editing the Calendar with AJAX and jQuery," pp. 261–308.
 - Chapter 9: "Performing Form Validation with Regular Expressions," pp. 311–342.

Optional Videos

- Skillsoft:
 - [Form elements: Form basics](#), (5 minutes).
 - [Form validation](#), (6 minutes).
 - [Serialization in forms with Ajax](#), (4 minutes).
 - [Handling JSON data](#), (5 minutes).
 - [Using jQuery in a web page](#), (2 minutes).
 - [Exercise: Creating and manipulating a web page](#), (3 minutes).
 - [Using the AJAX event handlers](#), (7 minutes).
 - [Making a simple AJAX request](#), (4 minutes).
 - [Handling AJAX Errors](#), (4 minutes).
 - [Updating page content from an AJAX request](#), (3 minutes).
 - [Exercise: Manipulating an element with AJAX](#), (6 minutes).

- YouTube:

- [IT4799 - jQuery and AJAX](#) | [Transcript](#).

u05s1 - Learning Components

- Explain how to use the remote attribute as part of jQuery validation.
- Describe how to integrate the database validations to client-side code.
- Explain how to incorporate jQuery and AJAX with PHP.
- Define how to process a JSON string.
- Explain how to use the formatting of email addresses.
- Explain how to dynamically set HTML content using AJAX.

u05d1 - jQuery, AJAX, PHP and Dynamic Data

Most jQuery components that you've used in prior classes have been for design aspects within a site. However, we can use jQuery with AJAX to make use of dynamic data. Search the Internet and view the video "IT4799 - jQuery and Ajax" in the Resources below to identify two examples that integrate jQuery and AJAX with a database. Share links to the examples and briefly describe the integration.

Explain how you could effectively incorporate this functionality into your site.

Response Guidelines

Comment on the post of at least two other learners. Offer insights, solutions, examples, or opinions that add depth and value to the conversation.

Course Resources

[Undergraduate Discussion Participation Scoring Guide](#)

[IT4799 - jQuery and Ajax](#) | [Transcript](#)

u05d1 - Learning Components

- Explain how to use the remote attribute as part of jQuery validation.

u05a1 - jQuery and AJAX

Overview

In the previous assignment you created login and account pages. In this assignment, you enhance the registration and account pages by incorporating jQuery and AJAX to check that the email and username are not already registered.

Hint: It can help to keep the browser development tools open so that you're able to review the AJAX requests so you can easily study the requests and responses to get a better understanding of how the application works. This is an important feature as we do not want multiple users to have the same username or email, and we don't want a user having multiple accounts with the same email.

Directions

Modify your registration page to incorporate features that ensure that the email and username have not been previously registered.

- Create two separate PHP scripts that query the database. One that checks for the existence of the entered username and the other for the existence of the entered email address.
- Next, add in a remote attribute on the email and username fields that returns either a "true" or "false" based upon user input.
- "True" should indicate that the value that the user email/username is valid (not in the database).
- "False" should indicate that the user input is invalid (The username/email is already in the database).

Note that the remote attribute is not a normal HTML attribute, but it's a custom attribute that's part of the jQuery validation plugin. When we add in the remote attribute to a field that's using jQuery validation, it enables the field to send an AJAX request to the page specified.

Make sure to:

- Modify the registration page to verify and validate the username for existing values.
- Modify the registration page to verify and validate the email for existing values.
- Verify and validate of the input fields through the use of AJAX and jQuery with the remote attribute.

Submission Requirements

Submit your assignment as a ZIP file containing all of the files you created to build your solution. Include an export of the database in a .sql file in the root folder of your zipped file.

It's not always viable for websites to manually update content as many sites do not have content curators. Without updated content, websites can feel stale. In order to address this, many sites incorporate data from other sites or feeds to display on their pages. This may be RSS or API feeds that allow users access to updated online content. Another approach is to use web scraping to extract data from sites. This method pulls data right out of the HTML code without the need for APIs.

One of the first things we need to do when fetching data, is identify its endpoints. These endpoints are the URLs that return the desired data. Pay close attention to the URLs and see how they change as you click through sections or pages of websites. A site's search functionality generally uses the GET parameter that includes the key/value pair.

In this unit, you are presented with various methods of web scraping external data.

Learning Activities

u06s1 - Studies

Readings

Read the following in your *PHP and MySQL web development* text.

- Read Chapter 18, "Using Network and Protocol Functions," pp. 403–422.

This chapter provides you about using various network-oriented functions in PHP to interact with the Internet. This includes sending emails, web scraping, using network lookup functions and other protocols.

Read the following Skillsoft resources:

- Kroman, F. (2016). [PHP and MySQL recipes: A problem-solution approach \(2nd ed.\)](#). Apress.
 - Chapter 14, "XML, RSS, WDDX, and SOAP," pp. 293–345.
- West, A. (2014). [Practical PHP and MySQL web site databases: A simplified approach](#). Apress.
 - Chapter 8, "Creating a Product Catalog," pp. 223–258.
 - Chapter 9, "Adding Multiple Tables and Other Enhancements," pp. 259–294.

Optional Videos

- Skillsoft:
 - [Ajax APIs and mashups](#), (25 minutes).
 - [Ajax, XML, and CSS](#), (25 minutes).
 - [Flickr API](#), (5 minutes).
 - [Internet archive JSON output](#), (5 minutes).
- YouTube:
 - [IT4799 - Web Scraping | Transcript](#).

u06s1 - Learning Components

- Describe the process to extract desired data.
- Explain how to use the `file_get_contents` and `curl_exec` function.
- Describe how to integrate data from various sources.
- Describe how to use `explode`, `list` and `trim` functions.
- View an installation guide template.
- Explain how to use CSS to format the form input fields.
- Review examples of stylizing of appropriate content.

u06s2 - Practicing Content Retrieval

Practice for Unit 6 Assignment

In your Unit 6 assignment you use the following content retrieval method to import data into your site. This practice exercise gives you the opportunity to practice and become familiar with the method.

In the `IT4799_U6_DataFiles.zip` file provided in the Resources, you will find `webscrapeCurrency.html` and the `convert_currency.php` files. These files together read a specific URL and provide a means to pass and display external data - in this case, a currency converter application from Google.

Test the code in a browser. Notice that it passes the parameters from your form to the URL, executes the request, and then parses the data accordingly to retrieve the converted currency. You will need to perform similar processing in order to capture the specific data from a page of your choice.

In the same `IT4799_U6_DataFiles.zip`, you will find `simple_html_dom.php` and `webscrape.php` that you can test to scrape the YouTube trending list and display it in a list format.

Using your own site content, you will repurpose this content retrieval approach to embed external content on your page.

Course Resources

[IT4799_U6_DataFiles.zip](#)

u06s2 - Learning Components

- Describe the process to extract desired data.
- Describe how to integrate data from various sources.

u06d1 - Methods for Integrating External Data to Your Website

We can implement dynamic websites without having to create our own content by pulling data from other websites, RSS feeds, web services and others.

Research a unique method to integrate data from other resources and share it with the class. Provide the coding snippets of how to perform it and explain where it could be used in your site.

Response Guidelines

Comment on the post of at least two other learners. Offer insights, solutions, examples, or opinions that add depth and value to the conversation.

Course Resources

[Undergraduate Discussion Participation Scoring Guide](#)

u06d1 - Learning Components

- Describe the process to extract desired data.

u06a1 - Using External Data

Overview

It is often useful to incorporate external content from web services onto a website. Some examples are news snippets, weather information, stock quotes, etc. PHP makes it easy to incorporate external data even if it's not a published API. As long as the external content can be accessed using a consistent URL, we can extract data.

Preparation

Make sure you have access to the IT4799_U6_DataFiles.zip file that you experimented with in the u06s2.

Directions

Modify one of your pages to incorporate externally embedded content from two sources using the content retrieval approach found in u06s2. The embedded content should be incorporated into your page in a user-friendly manner with style attributes that are consistent with the site's design.

Make sure to:

- Apply the content retrieval approach to accurately embed external content on your web page.

- Modify a web page to include content from external sources to add value to your website.
- Stylize the embedded external content to match the style of the web site.

Submission Instructions

Submit your assignment as a ZIP file containing all of the files you created to build your solution. Include an export of the database in a .sql file in the root folder of your zipped file.

Course Resources

IT4799_U6_DataFiles.zip

Unit 7 >> Captcha and Sending Emails

Introduction

Using a captcha program is a common method to protect systems against bots. Captcha programs are designed to distinguish between humans and bots by creating a test that most computer programs are unable to pass. They are frequently used to prevent spam comments in different blogs or create the ability to register user accounts automatically. Captcha programs can also protect certain data from being displayed to avoid bots from accessing some personal information such as emails.

Google's reCAPTCHA is a free service that makes it very easy to implement captcha functionality without the complexity of requiring users to manually solve a captcha.

Learning Activities

u07s1 - Studies

Readings

Read the following in your *PHP and MySQL web development* text.

- Read Chapter 4, "String Manipulation and Regular Expressions," pp. 101–130.

This chapter describes the process of using string manipulation to help with email processing. Sending emails is quite finicky and requires special attention to manipulating the input strings to be properly formatted for emails.

Read the following Skillsoft resources:

- West, A. (2014). [Practical PHP and MySQL web site databases: A simplified approach](#). Apress.
 - Chapter 7, "Migrating to a Host and Backing Up Your Web Site Database," pp. 187–222.

Optional Skillsoft Videos

- [PHP: Writing simple PHP mail forms](#), (5 minutes).
- [PHP: Validating required form input fields](#), (5 minutes).
- [PHP: Inserting into a MySQL database table](#), (5 minutes).
- [Securing user accounts: Using CAPTCHA](#), (5 minutes).
- [Alternatives to CAPTCHA](#), (5 minutes).

u07s1 - Learning Components

- Describe the issues of web robots.
- Describe how to create insert statements in SQL.
- Review various methods of using captcha.
- Review examples of professionally designed contact forms.
- Describe how to send an email in PHP.
- Understand the various aspects of a mail object in PHP.

u07d1 - Defending Against Web Bots

Any web form that is publicly accessible is prone to spam and web bots. You may have seen old blogs or websites seemingly having random content being posted. Many of these come from these bots.

- Describe two different methods that are used to help deal with web robots.
- What captcha method would you implement on your site? Or would you use a method other than captcha? If so, why is it preferable?

Response Guidelines

Comment on the post of at least two other learners. Offer insights, solutions, examples, or opinions that add depth and value to the conversation.

Course Resources

Undergraduate Discussion Participation Scoring Guide

u07d1 - Learning Components

- Describe the issues of web robots.
- Review various methods of using captcha.

u07a1 - Contact Form

Overview

Contact forms are a common way to interact with websites. Most contact forms include a name, an email address, and a message. With these forms, you do have to worry about web robots and the amount of spam that can be generated from them. Using captcha features can help to mitigate the impact of web robots.

In this assignment, you create a contact form that captures user information into a database and sends appropriate response emails. Then you implement the reCAPTCHA V2 feature from Google to avoid web bots.

Hint: Remember in Unit 1, you modified the php.ini and sendmail.ini files so you can send out emails. If you modify those files again you must reboot XAMPP in order to apply the changes that you make to the configuration files.

Preparation

Visit reCAPTCHA V2 in the Resources for an explanation of how to display and customize the reCAPTCHA V2 widget on your webpage.

Directions

Create a webpage with a contact form with a reCAPTCHA that protects it from web bots. The form should record the following user information into your database and then generate an email to both the user and yourself.

- First name.
- Last name.
- Email address.
- Message.

Make sure to:

- Create a contact form that correctly inserts specified data into the database.
- Create a form that generates an appropriate response email.
- Implement an image generation captcha that helps defend against web bots.

Submission Requirements

Submit your assignment as a ZIP file containing all of the files you created to build your solution. Include an export of the database in a .sql file in the root folder of your zipped file.

Course Resources

[reCAPTCHA V2](#)

Unit 8 >> OAuth and Social Media Integration

Introduction

Social media integration into web sites is more common than ever. Instead of pushing users to social media sites, websites have been incorporating features internally. Each platform has different methods of integration using their own web services and APIs. One of the common approaches is to use OAuth (a PHP library) to make those connections.

OAuth is an open-source standard that allows users to log into other websites using the credentials of the sites that they already have. OAuth provides access to necessary resources without having to use the user's credentials. Instead it uses username and password tokens from the resource owner.

OAuth also allows developers to complete security authorizations simply. The authorization frameworks allows web applications access to an HTTP service. OAuth allows us to interact with protected data more efficiently and gives users access to their data in third party sites while still protecting their credentials.

Our web application is viewed as the client when we are attempting to get access to the user's account from the third party site. The web application needs to be able to get user permission before proceeding. The API server is the resource server that we use to access the user's information. We also have the authorization server which provides the interface that the user can approve or deny the connect request.

Learning Activities

u08s1 - Studies

Readings

Read the following in your *PHP and MySQL web development* text.

- Read Chapter 30, "Social Media Integration Sharing and Authentication," pp. 30-1 through 30-13.

This chapter walks through social media integration using Instagram. Use the examples as a starting point but be sure to use the latest API details from Instagram Developer.

Read the following Skillsoft resources:

- Siriwardena, P. (2014). [Advanced API security](#). Apress.
 - Chapter 1, "Managed APIs," pp. 1–10.
 - Chapter 2, "Security by Design," pp. 11–31.
 - Chapter 3, "HTTP Basic/Digest Authentication," pp. 33–46.
 - Chapter 5, "Identity Delegation," pp. 59–73.
 - Chapter 7, "OAuth 2.0," pp. 91–132.

Optional Skillsoft Videos

- [Flickr API](#), (5 minutes - review).
- [Internet archive JSON output](#), (5 minutes - review).
- [Exercise: Using JSON to query the Bing synonyms API](#), (6 minutes).

u08s1 - Learning Components

- Explain how to use OAuth to connect to various clients.
- Describe how to use AJAX calls to process JSON input.
- Understand how to connect to the Instagram API.
- Describe how to parse data from a JSON string.
- Explain how to use the Instagram API to return a list of photos.
- Describe how to use the Instagram API to like a photo.

u08d1 - Connecting Third Parties and Clients Using OAuth

You were exposed to OAuth in the Studies. It is one of the most common approaches to connect third parties and clients. It does so by acting as an intermediary on behalf of the end user.

- Describe an example of how third party integration using OAuth might benefit your site.

Find a web service or client that you can connect to using OAuth.

- Briefly explain what's involved in building the OAuth connection into your site.

Response Guidelines

Comment on the post of at least two other learners. Offer insights, solutions, examples, or opinions that add depth and value to the conversation.

Undergraduate Discussion Participation Scoring Guide

u08d1 - Learning Components

- Explain how to use OAuth to connect to various clients.

u08a1 - Social Media Integration with OAuth

Overview

In this assignment you add Instagram functionality (using OAuth) that allows any user already logged onto Instagram on their mobile device or computer to directly interact with your site's photos as if they were on the Instagram site.

Preparation

- If you don't currently have a user Instagram account, sign up for one at the Instagram home page, linked in the Resources.
- Next, create a new developer account at Instagram Developer Registration link found in the Resources.
- Next, register the application using `http://localhost` as the URI. register by going to the Management Client interface in developer account and filling out the form. The redirect URLs should ensure that you include the `http://localhost` as a reference. Once you have created the client, you will be provided with the client ID and client secret values to have a successful Authorization Code grant.
- Read "Instagram Developer Notes: Authentication" found in the Resources.

Directions

Create a web page on your site called `instagram.php` to display your personal Instagram feed. Your user account feed should display on your page in an aesthetically pleasing manner, and have the ability to "like" photos.

Make sure to:

- Integrate a properly functioning Instagram feed into your website.
- Display an Instagram feed on a page in a manner consistent with the site design.
- Implement the ability to "like" a photo on your page feed.

Submission Requirements

Submit your assignment as a ZIP file containing all of the files you created to build your solution. Include an export of the database in a `.sql` file in the root folder of your zipped file.

Course Resources

[Instagram Developer Notes: Authentication](#)

[Instagram Developer Documentation](#)

[Instagram](#)

Unit 9 >> Web Accessibility

Introduction

Web accessibility is quite important for organizations. Section 508 of the Rehabilitation Act specifies design standards that detail technical standards for insuring website accessibility.

The Web Accessibility Initiative focuses on promoting the achievement of web accessibility for a variety of people with disabilities. In particular for content developers, there are the Web Content Accessibility Guidelines (WCAG) that specify the technical specifications to employ.

Guidelines from these sources should be applied to ensure that the content is accessible as many users as possible. It is crucial that web developers and designers understand the technical regulations, standards and best practices to ensure web accessibility.

Reference

GSA (n.d.). Section 508 Law and Related Laws and Policies. Retrieved from <https://www.section508.gov/content/learn/laws-and-policies>

W3C. (n.d.). Web Content Accessibility Guidelines (WCAG) Overview. Retrieved from <https://www.w3.org/WAI/intro/wcag>

W3C (n.d.). Web Accessibility Initiative (WAI). Retrieved from <https://www.w3.org/WAI/>

Learning Activities

u09s1 - Studies

Readings

Read the following Skillsoft resources:

- de León, I. (2016). [Moving to Responsive Web Design](#). Apress.
 - Chapter 2, "The Content Development Stage," pp. 23–46.
 - Chapter 3, "The Design Stage," pp. 47–91.
 - Chapter 4, "The Build Stage," pp. 93–136.

Optional Videos

- Skillsoft:
 - [HTML5: Verifying HTML5 document validity](#), (3 minutes).
 - [Defensive programming in JavaScript and HTML5: Cross-browser testing for JavaScript and HTML5](#), (3 minutes).
- YouTube:
 - [IT4799 - Web Accessibility | Transcript](#).

u09s1 - Learning Components

- Study the various web accessibility guidelines.
- Explain how to verify validate HTML and CSS code.
- Analyze the results of the accessibility reports.

u09d1 - Web Accessibility

Read the following web pages linked in the Resources:

- Web Content Accessibility and Mobile Web.
 - This page from the World Wide Web Consortium (W3C) explains how making a website accessible for people with disabilities improves user experience for all users on mobile devices.
- Web Accessibility.
 - Explore this index of web accessibility topics.

Discuss some of the barriers people with disabilities have using mobile and tablet devices.

- How are they similar and different to desktop devices?
- How do you design for mobile and accessibility?
- What are three of the best practices you will follow as you develop your website this week?

Response Guidelines

Comment on the post of at least two other learners. Offer insights, solutions, examples, or opinions that add depth and value to the conversation.

Course Resources

Undergraduate Discussion Participation Scoring Guide

[Web Content Accessibility and Mobile Web](#)

[Web Accessibility](#)

u09d1 - Learning Components

- Study the various web accessibility guidelines.

u09a1 - Web Accessibility

Overview

Ensuring web accessibility has become more important than ever for organizations. Web accessibility means that web content should be delivered as efficiently as possible across a broad range of devices such as web browsers, text browsers or screen readers. Web accessibility covers all types of disabilities for our users including challenges with vision, auditory, cognitive and motor skills. Web accessibility is also important to those that have technological restraints such as low bandwidth and have slow/old computers. We need to optimize our pages to load as quickly as possible.

In this assignment you use AChecker to test your site for web accessibility.

Directions

Go to the AChecker link found in the Resources and Choose "HTML File upload" and ensure the following are checked:

- Enable HTML Validator.
- Enable CSS Validator.
- WCAG 2.0 (Level AA).
- View from Guideline.

Once you have run your web accessibility test, you will notice that there will be five different problem labels: "Known Problems," "Likely Problems," "Potential Problems," "HTML Validation," and "CSS Validation." To

better understand these problems, you can select the option "Web Accessibility Checker" located on the top-right corner of the screen.

- Run accessibility checks for your CSS **and** each page on your site. AChecker has an option at the top of the Accessibility Review panel for exporting the results. Select PDF as the file type and save the file as *lastname_report_pagename.pdf*. Do this for each of your pages.
- Fix and resolve all known and likely problems identified by AChecker.
- Once you have no more "known" and "likely" problems, save validation PDF reports for each of your pages as *lastname_report_pagename_fixed.pdf*.
- Describe what the issues were on each of your pages, and explain how you solved them in a Word document.

Make sure to:

- Create AChecker validation reports that check web accessibility of all site HTML and CSS code.
- Fix all pages so they have been validated to be web accessible.
- Document fixes for all "known" and "likely" accessibility problems identified by AChecker.

Submission Requirements

Submit your assignment as a ZIP file containing:

- A Word document describing how you fixed the "known" and "likely" accessibility problems.
- All of the files you created to build your solution.
- An export of the database in a .sql file (place in the root folder of your zipped file).
- Initial and resolved pdf files for all pages produced by AChecker.

Course Resources

[AChecker Web Accessibility Checker](#)

Unit 10 >> Presentation

Introduction

Throughout the class, you've uncovered new approaches to integrate and implement various technologies to create a cohesive dynamic website. In this final unit, you have an opportunity to explore additional techniques and features that could assist in web development. You'll also spend the time to style and finalize your dynamic website for stakeholder presentation.

Learning Activities

u10s1 - Studies

Readings

Read the following in your *PHP and MySQL web development* text:

- Read Chapter 20, "Internationalization and Localization," pp. 437–448.
- Read Chapter 21, "Generating Images," pp. 449–474.
- Read Chapter 24, "Other Useful Features," pp. 519–527.

These chapters will explore some advanced features of PHP and MySQL that can be implemented into your dynamic websites.

Optional Skillsoft Videos

- [Communicating your message](#), (2 minutes).
- [Navigational models](#), (4 minutes).
- [Home page design and content](#), (3 minutes).
- [Help and FAQ pages](#), (1 minute).

u10s1 - Learning Components

- Explain how to use parameters in building SQL statements using PHP.
- Describe how to integrate the database validations to client-side code.
- Understand Kaltura software.
- Describe how to use AJAX calls to process JSON input.
- Examine professional project proposals.
- Explain Apache, MariaDB, and PHP configuration files and their uses.
- Describe how to integrate data from various sources.

u10s2 - Kaltura Media

In preparation for creating the audio recordings required for this course, complete the following **only if you plan to use Kaltura for your presentation**:

- If you have not already done so, install your audio recording device on your computer, using the installation instructions from the manufacturer.
- Practice using the audio equipment to ensure the audio quality is sufficient.

- Refer to the [Using Kaltura](#) tutorial for directions on recording and uploading your recordings in the courseroom.

Note: If you require the use of assistive technology or alternative communication methods to participate in this activity, please contact [Disability Services](#) to request accommodations.

u10s2 - Learning Components

- Understand Kaltura software.

u10d1 - Uncover and Share a Useful PHP Technique

We have only scratched the surface of all of the features and functionality that can be implemented using PHP. Research and share a new technique that could be implemented that was not covered in the class. Provide code associated with the technique and discuss what could be implemented with it.

Response Guidelines

Comment on the post of at least two other learners. Offer insights, solutions, examples, or opinions that add depth and value to the conversation.

Course Resources

Undergraduate Discussion Participation Scoring Guide

u10d1 - Learning Components

- Explain how to use parameters in building SQL statements using PHP.

u10d2 - Share Your Website

This is a great opportunity to share your site with the class. Either post your presentation, zipped site file or deployed site URL for other learners to see. Please comment on other's work.

u10d2 - Learning Components

- Examine professional project proposals.

u10a1 - Presentation

Overview

Ready your site for presentation to your fictional client. It is often helpful to have a third party proof and evaluate before sharing it with a client. As a part of your presentation you must describe the technologies that you used to develop your site.

Preparation

- Review your site and fix any issues identified in feedback.
- Choose a presentation software to create your presentation.
- Consider these guidelines as you prepare to create your presentation:
 - We suggest that you write an outline or script of what you are going to say before you begin recording in addition to having your website and other visuals ready. Although many software programs allow you to pause or edit, it is advisable to prepare before you start recording.
 - View your video prior to posting to ensure that the audio volume is appropriate.

Kaltura

For this assignment, you may choose to create your presentation using Kaltura. To learn how to use Kaltura, refer to the Using Kaltura tutorial linked in the Resources.

Note: If you require the use of assistive technology or alternative communication methods to participate in these activities, please contact [Disability Services](#) to request accommodations.

Directions

Create a 10-15 minute presentation that describes your site and provides information useful for informing a stakeholder interested in understanding the technologies that you employed during site development. Your presentation must include audio narration and visual depictions of your site that illustrate your design and technologies used.

The first 5 minutes or so of your presentation should introduce your site and explain general items such as audience, visual design, functionality, and how the design meets user needs. The remainder of the presentation should focus on describing the following development related items:

- Networking technologies employed.
- Software used.
- Database design and usage.
- Methods of data integration including email and social media.

Make sure to:

- Create a presentation that effectively explains the technologies and software used in the website development.
- Describe database design elements in a way that effectively informs stakeholders.
- Present the various methods of network technology integration including email and social media integration.
- Explain how the website design strategy meets user needs.

Submission Requirements

Submit your 10-15 minute presentation in the courseroom. If the file is larger than 15 MB in size, you may choose to zip it for submission.

Course Resources

[Using Kaltura \[PDF\]](#)

Presentation Hardware: Capella University requires learners to meet certain minimum computer requirements. The following hardware may go beyond those minimums and is required to complete learning activities in this course. Headsets and webcams are available for purchase at the Capella University Bookstore. Refer to the manufacturer's directions for installing and connecting the devices to your computer.

Note: If you already have the following hardware, you do not need to purchase it.

1. External or built-in microphone
2. Broadband Internet connection