

### Syllabus

#### Course Overview

This course focuses on developing Web applications using an integrated development environment (IDE). You will apply software design and programming tools and create complex web application solutions using a responsive front end and a database back end. Topics include dynamic scripting using PHP, standard library packages, AJAX interface elements, dynamic scripting algorithms, and database access algorithms.

#### Course Competencies

(Read Only)

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

- 1 Plan strategy for developing and employing a Web application that solves an organizational problem.
- 2 Evaluate Web application services, functions, protocols, and technologies.
- 3 Design a functional Web application interface.
- 4 Manage Web application development tools and environments.
- 5 Construct Web applications and components that integrate basic design patterns and fundamental programming techniques.
- 6 Troubleshoot Web application development issues.
- 7 Implement Web application security and development standards.
- 8 Communicate effectively.

#### Course Prerequisites

Prerequisite(s): IT4731.

## Syllabus >> Course Materials

### Required

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

### Integrated Materials

Visit the [Course Materials](#) page on Campus for more information.

#### Software

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

Visit the [Course Materials](#) page on Campus for more information.

Bootstrap [Computer software]. (n.d.). Available from <http://getbootstrap.com/>

#### Book

Nixon, R. (2018). *Learning PHP, MySQL & JavaScript with jQuery, CSS & HTML5* (5th ed.). Sebastopol, CA: O'Reilly Media. ISBN: 9781491978917.

### 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.

- Patel, S. K. (2014). [Developing responsive web applications with AJAX and jQuery](#). Birmingham, England: Pact Publishing Ltd.

### 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.

- Google Geo APIs Team. (2009, August). [Creating a store locator with PHP, MySQL & Google Maps](https://developers.google.com/maps/articles/phpsqlsearch). Retrieved from <https://developers.google.com/maps/articles/phpsqlsearch>
- Google. (n.d.). [B Currency conversion PHP example](https://code.google.com/archive/p/bcurrency/). Retrieved from <https://code.google.com/archive/p/bcurrency/>
- Google. (n.d.). [Google APIs library](https://console.developers.google.com/). Retrieved from <https://console.developers.google.com/>
- Google. (n.d.). [Google currency conversion API](https://code.google.com/archive/p/currency-converter-api/). Retrieved from <https://code.google.com/archive/p/currency-converter-api/>

## 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

### Software

Capella University requires learners to meet certain minimum [computer requirements](#). The following software may go beyond those minimums and is required to complete learning activities in this course. Visit the [Course Materials](#) page on Campus for more information.

Brackets [Computer software]. (n.d.). Available from <http://brackets.io/>

MacroMates. (n.d.). TextMate [Computer software]. Available from [macromates.com/](http://macromates.com/)

Notepad++ [Computer software]. (n.d.). Available from <https://notepad-plus-plus.org/>

## 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.

- Bhog, L. (n.d.). [Building dynamic web sites with MySQL and PHP \[Tutorial\]](#). Skillsoft.
- Campbell, J. (2015). [Responsive web design: Using geolocation \[Video\]](#). Skillsoft Ireland Limited.
- Keenan, C. (2013). [JavaScript: Using the geolocation API \[Video\]](#).
- Scott, S. (n.d.). [JSON fundamentals: Bing maps API \[Video\]](#). Skillsoft Ireland.
- Skillsoft. (n.d.). [HTML5 APIs and media \[Tutorial\]](#).
- Skillsoft. (n.d.). [jQuery: Using essential features and functions \[Tutorial\]](#).
- Skillsoft. (n.d.). [JSON essentials \[Tutorial\]](#).

## Projects

### Project >> Web Application Features

#### Project Overview

In this project, you will design and develop a Web application based on the design scenario provided below for Smart Homes, Inc., or for a company of your choice. Your Web application will encompass all of the subsystems of Smart Homes or the company of your choice.

This course emphasizes Web application design and construction based on business needs and user requirements. Throughout the course, you will be evaluated on how well you have articulated a system design that is clearly and directly tied to the business needs and user requirements of Smart Homes or the company of your choice.

This course takes a case-based approach to learning the course material that puts you into a consultant's role and asks you to provide solutions to customers. The project is a series of assignments that build your skills in Web application design and development across a broad set of Web application development technologies. You will gain experience using multiple technologies to implement the same solution; thus, there is no cumulative project submission or related scoring guide.

## Smart Homes Scenario

The CIO of Smart Homes, Inc., has hired your consulting company to perform Web application design and development to support an exciting new smart home thermostat product. The company has developed its own Web-based system for registering, monitoring, and controlling a user's thermostat through a mobile computing device. Smart Homes is initially selling its product and needs a Web application to allow its site visitors to locate the nearest store that offers their product. To support this capability, Smart Homes has requested that you design and develop a prototype Web store-locator application. Your solution must address the following:

1. The Web application must use Google Maps.
2. The Web application must contain the following user interfaces:
  - The search input interface must allow the user to submit a zip code and mile radius for the search parameters.
  - The search results interface must display a table of store location results.

3. The Web application must integrate at least one social media site such as Twitter, Facebook, or Google+.
4. The Web application must allow visitors to post videos directly to YouTube or another media-sharing site.
5. The Web application must facilitate international sales of Smart Homes' thermostats by providing a currency converter, allowing users to convert the United States dollar (USD) price to the currency of the buyer.

You will be using Google Developer's Console to complete your course project. For this purpose, you will need a Google account. After you sign in to Google, go to [Google APIs Library](#) and create a project. (Note that you do not need to sign up for a free trial of the cloud platform.) Once you are in, explore the console's APIs, especially the maps, YouTube, and currency conversion APIs.

You should also download [Bootstrap](#). You will use this framework to develop your Web pages early in the course.

## Alternate Project Scenario: Your Company

For this project, you can also choose your own scenario for which you will act in a consultant's role. The scenario needs to be detailed enough to result in the design and development of a complex Web application similar to the one described for the Smart Homes scenario. You will need to submit a detailed description to your instructor. Your instructor might ask you to revise your scenario. Your project assignments will be graded with the same scoring guides used to grade the assignments for the Smart Homes scenario.

- **Written communication:** Written communication is free of errors that detract from the overall message.
- **Technical details:** Starting in Unit 2, you will implement the solution to the course project using the technologies introduced by the course readings. You will be using your own computer as a development environment to develop and test your Web application. You will submit your Web application to the instructor for testing and validation.

Modern Web applications are constructed around the concept of a multitier, or n-tier, architecture. According to Deitel and Deitel (2008), "Web-based applications are multitier applications (sometimes referred to as n-tier applications) that divide functionality into separate tiers (i.e., logical groupings of functionality). Although the tiers can be located on the same computer, the tiers of web-based applications often reside on separate computers" (p. 1245).

Deitel and Deitel (2008) described three main tiers:

- The bottom tier (also known as the data tier or information tier), which is part of the server side.
- The middle tier (also known as the business tier), which is also part of the server side.
- The top tier (also known as the client tier or presentation tier), which is part of the client side.

In this unit, you will focus your studies on the client tier of Web applications and the technologies that comprise it. You will study HTML, CSS, JavaScript, and advanced topics such as Asynchronous JavaScript and XML.

## Reference

Deitel, P. J., & Deitel, H. M. (2008). *Internet & World Wide Web: Howto program* (4th ed.). Upper Saddle River, NJ: Prentice Hall.

## Learning Activities

### u01s1 - Studies

## Readings

Use your *Learning PHP, MySQL & JavaScript* text to read the following:

- Chapter 1, "Introduction to Dynamic Web Content," pages 1–14.
- Chapter 2, "Setting up a Development Server," pages 17–33.
- Chapter 11, "Form Handling," pages 267–286.

Use the Capella University Library to read the following:

- Patel, S. K. (2014). [\*Developing responsive web applications with AJAX and jQuery\*](#). Birmingham, England: Pact Publishing Ltd.
  - Chapter 1, "Introduction to a Responsive Web Application."
  - Chapter 2, "Creating a Responsive Layout for a Web Application."

Developing modern, multitier Web applications requires knowledge of a variety of technologies that are used to develop the presentation tier, or client side. This unit's readings will review the fundamental tools, technologies, and principles of developing rich and engaging client tiers for Web applications.

# Optional Skillsoft Resources

- Bhog, L. (n.d.). [Building dynamic web sites with MySQL and PHP \[Tutorial\]](#). Skillsoft.

## u01s2 - Development Preparation

You will be using your own computer as your development and production environment. To successfully complete the course work, you can use any standard text editor that comes as a part of your computer's operating system. However, if you prefer to use a more feature-rich Web authoring tool, you can choose to use one of the following optional tools:

- [Brackets](#).
- [Notepad++](#) (Windows only).
- [TextMate](#) (Mac OS X only).

## u01s3 - Course Preparation

# Bloom's Taxonomy – Enhance Your Critical Thinking Skills

Critical thinking is an important skill to cultivate for both your course work and professional development. Many learners do not initially realize that there are different ways of thinking and levels of depth in understanding. Bloom's taxonomy provides a structure to help conceptualize these different levels. Awareness of different ways to approach information helps you move beyond basic understanding to more effectively analyze, evaluate, and synthesize important concepts. It also helps you to clarify expectations and provide an appropriate level of response for your course work. Review this [Bloom's Taxonomy](#) presentation to see how the levels are defined and to explore how this can help in your academic and professional work.

# Capella University Library

Being able to identify, analyze, and synthesize information is a critical skill. Many resources are readily available online, but it is important to use appropriate and high-quality information to support academic and professional activities. This process includes not only locating information but also ensuring that the information is sound, appropriate, and worthy of academic use. [Welcome to Library Guides](#) provides guidance for accessing and using the rich resources available in the [Capella University Library](#) and beyond.

Here are a few Capella University Library resources:

- [Tour the Library](#) | [Transcript](#).
- [Searching Effectively](#).
- [How Do I Find Peer-Reviewed Articles?](#)

## Capella Writing Center

Visit the [Writing Center](#) for a variety of tools to help you improve your written communication and presentation skills. You may also send papers to the [Smarthinking](#) tutoring service, to receive feedback and revision suggestions prior to submitting assignments.

Here are a few Writing Center resources:

- [Writing Resources](#).
- [APA Style and Format](#).
- [Annotated Bibliography](#) | [Transcript](#).
- [Academic Honesty](#).

## Campus Resources

The following resources for learners are commonly used in Capella courses:

- [Capella Academic Success Center](#).
- [Capella Career Center](#).
- [Capella Research and Scholarship Center](#).

## Self-Paced Tutorials

Capella has an extensive library of self-paced tutorials available to learners. To browse the available tutorials, go to the [Tutorials](#) page on Campus.

### u01s4 - Project Preparation

Throughout this course, you will submit assignments as part of your course project. You will be building responsive Web application components that integrate various APIs and Web services. Rather than developing all of the components, you will leverage functionality that exists through third-party services such as Google Maps, Google Currency Converter, Twitter integration, Facebook integration, YouTube, and other available options.



As noted in the course project description, you will be using [Google APIs Library](#) to complete assignments in the course. If you have not already done so, sign in to your Google account and visit the Google APIs Library. In particular, you should look at the maps, YouTube, and currency conversion APIs.

Explore [Bootstrap](#) for the purpose of creating your responsive Web application framework. You will be using this to set up a consistent layout, navigation, and design structure. Using a framework like Bootstrap will make your site much faster to deploy, while you can focus on the functionality of the various Web components.

The project will not be a cumulative project but rather individual features placed together. In a real-world scenario, these components would be individually developed and integrated into an existing Web application.

There are five components for the course project:

- Unit 1: Web Application Framework.
- Unit 2: Store Locator.
- Unit 3: Social Media Integration.
- Unit 4: Linking Dynamic Content.
- Unit 5: Currency Conversion.

To achieve a successful project experience and outcome, you are expected to meet the following requirements:

- Read the course project description to learn the requirements and objectives for your course project. Note that there is no cumulative final component or grading criteria.
- Begin preparing for your course project by observing how upcoming unit activities will be incorporated into your course project components. Refer to supplemental resources, optional readings, websites, articles, and additional suggested materials to begin your research. Contact your instructor if you have any questions about the course project or the associated project components.
- Completing each project component will require participating in several hours of guided online tutorials and another several hours of designing, developing, and testing solutions. Take time during this unit, and in the coming weeks, to begin researching and gathering potential resources to complete this work.

## **u01s5 - Ask the Experts**

In a real-world scenario, a software developer will devise questions and make preliminary assumptions regarding the design of a project. Resources available to answer those questions or to validate those assumptions include the project architect and key customers—or potential customers.

In this course, your project takes a problem-based, case-based approach to learning. You will gather facts about the business needs and user requirements of Smart Homes in order to complete the project. You can ask questions of the stakeholders (or experts, as we call them) about the problem you are trying to solve. This type of interaction simulates your interaction with stakeholders in the real world.

The experts in this course are played by your instructor, and your communication will be through discussion threads in this course's Ask the Experts discussion. The Ask the Experts studies are intended to remind you to post your project-related questions in that discussion.

Throughout this course, if you have questions that fit the [Ask the Experts Guidelines](#), post them for the stakeholders in the Ask the Experts discussion. You can also ask general questions or questions about your project. It may take 24–48 hours to receive a reply. You will need to factor this time into your plan for completing the related assignment.

## u01a1 - Project: Web Application Framework

Although there is not a cumulative project since each Web component will be individually developed, you will still want to work through creating a Web application framework for the site to create a professional design that will allow you to present each of the Web components consistently. Using a framework like Bootstrap makes your site much faster to deploy, allowing you to focus on the functionality of the various Web components. The framework focuses on cross-browser compatibility and CSS-less functionality, saving you time and creating a mobile-read website efficiently.

For this assignment, create Web pages for your site and write a one-page memo explaining the technologies, frameworks, and protocols used in your work.

Use the following steps to complete your work:

- Create all of your Web pages (one for each Web component, including this task, which will be the home page for your Web application).
- Use an existing framework to build your site.
- Use HTML, CSS, and JavaScript along with a framework to help format your pages and navigation.
- Format page navigation using consistent design specifications.
- Explain the technologies, frameworks, and protocols that you have used in creating the Web application.

When complete, submit your code and all ancillary files (.html, .css, .js, et cetera) in a single zipped document.

### Course Resources

[APA Style and Format](#)

Read the Discussion Participation Scoring Guide to learn how the instructor will evaluate your discussion participation throughout this course.

You have been hired by Smart Homes to design and implement a store locator application so that its website visitors can find the nearest location to purchase the Smart Home thermostat. The Web application requirements mandate that you use the Google API to develop the store locator. This application programming interface has the ability to provide store locations using JSON or XML. Smart Homes has requested a memo from you recommending the use of JSON or XML. Include a detailed analysis of your recommendation in the memo.

For your initial discussion post, share your memo.

## Response Guidelines

Review the posts of two of your peers, and critique their recommendations.

Course Resources
Undergraduate Discussion Participation Scoring Guide

## Unit 2 >> PHP and Geolocation

### Introduction

In the previous unit, you studied the technologies that are used to construct the client-side aspects of modern Web applications. For the remainder of this course, you will study programming languages and technologies that will allow you to build the business and information tiers in modern Web applications.

In this unit, you will begin your study of the technologies you will use to build the business and information tiers. Specifically, you will be introduced to the PHP programming language. In many ways, PHP is similar to JavaScript on the client-side. When a Web browser sees that a Web page contains JavaScript code, it enlists its JavaScript interpreter to handle the code. In contrast, when a Web server sees that a Web page contains PHP code, it enlists its PHP processor to handle the code (Sebesta, 2012, p. 366). Armed with the knowledge of creating PHP applications, you will know how to build dynamic, database-driven websites.

## Learning Activities

### u02s1 - Studies

## Readings

Use your *Learning PHP, MySQL & JavaScript* text to read the following:

- Chapter 16, "JavaScript and PHP Validation and Error Handling," pages 371–393.
- Chapter 17, "Using Asynchronous Communication," pages 395–411.
- Chapter 26, "Other HTML5 Features," pages 641–652.

Use the Capella library to read the following:

- Patel, S. K. (2014). [\*Developing responsive web applications with AJAX and jQuery\*](#). Birmingham, England: Pact Publishing Ltd.
  - Chapter 3, "Adding Dynamic Visuals to a Web Application."

## Optional Skillsoft Resources

- Skillsoft. (n.d.). [JSON essentials \[Tutorial\]](#).
- Campbell, J. (2015). [Responsive Web design: Using geolocation \[Video\]](#). Skillsoft Ireland Limited.
- Keenan, C. (2013). [JavaScript: Using the geolocation API \[Video\]](#).

### u02s2 - Creating a Store Locator Tutorial

In this unit's readings, you were introduced to server-side software development using the PHP language. At the end of this unit, you will be required to submit a solution to the project scenario using PHP. This study activity will provide you with the experience that you need to develop your solution. Work through the following PHP store locator tutorial developed by Google:

- [Creating a Store Locator With PHP, MySQL & Google Maps](#).

Watch the following video to learn how to use JSON to query the Bing Maps API:

- Scott, S. (n.d.). [JSON fundamentals: Bing maps API \[Video\]](#). Skillsoft Ireland.

## u02s3 - Ask the Experts

Remember, if you have questions that fit the [Ask the Experts Guidelines](#), post them in the Ask the Experts discussion. You can also ask general questions or questions about the project. You might not receive a reply for 24–48 hours. Factor this added time into your plan for completing the assignment.

## u02a1 - Project: Store Locator

For this project component, you will use the skills you gained in this unit's study activities to implement a locator application for Smart Homes using the PHP language. You can assume that any electronics store will have the product. The PHP store locator requirements are the following:

1. The Web application may use any map API, such as Google Maps
2. The Web application must contain the following two user interfaces:
  - The application must start with a Web page that allows the user to enter a zip code and a desired search radius in miles. Once the required data has been entered by the user, there should be a submit button to execute the search request.
  - Upon submitting the search request, the user should be presented with a Web page that contains a table of stores nearest to that location.
    - Use a mapping Web service (such as Google Maps) to display the search results onto a map.
3. Your completed PHP store locator solution should do the following:
  - Demonstrate your ability to implement a non-trivial Web application using the PHP programming language.
  - Demonstrate your ability to integrate third-party application programming interfaces to communicate with a Web service.
  - Demonstrate your ability to implement a user interface that accepts user input without error.
4. As this assignment is meant to be deployed as part of a larger project, design, readability, and reuse become important factors of the development. You will also be evaluated on other aspects beyond just the functionality, including:
  - Integrate fundamental Web programming concepts and design patterns.
  - Develop error-free Web components and Web language structures.
  - Implement Web development standards accurately.

- Apply best practices for Web design.
- Manage Web design languages, tools, and environments effectively.

Submit your assignment as a ZIP file containing all of the files you created to build your solution.

## u02d1 - Memo Review

You have learned a great deal about developing Web applications using PHP, databases, APIs, and Web services. The project manager for the store locator project for Smart Homes has asked that you share your insight and experiences with a newly hired group of junior software engineers.

For your initial discussion post, prepare a memo about your experiences using the PHP language and working with an API and Web services surrounding Google Maps. In your memo, compare it to the geolocation API through HTML5.

## Response Guidelines

Review the posts of two of your peers and respond by expanding upon their thinking.

### Course Resources

Undergraduate Discussion Participation Scoring Guide

## Unit 3 >> Social Media Integration

### Introduction

In this unit, you will learn about using social networking technologies to build the business and information tiers of modern Web applications. Organizations in today's environment heavily depend on social media in order to reach their customers. Rather than push users to their own respective sites, it is more common to see these social media elements embedded and integrated within a site itself, whether it is a Twitter post to retweet, Facebook like and share, or Google+ pushing +1 recommendations. You will be implementing and incorporating these technologies into your Web application.

These Web technologies continually evolve to provide developers with higher levels of abstraction and greater separation of the application's tiers. This separation makes Web applications more maintainable and extensible. It also allows for an effective division of labor. A graphic designer can build the application's user interface without concern for the underlying page logic, which will be handled by a programmer. Meanwhile, the programmer is free to focus on the application's business logic, leaving the details of building an attractive and easy-to-use application to the designer (Deitel & Deitel, 2012, p. 856).

Using the knowledge you gain in this unit, you will extend your course project by implementing a solution using Web technologies.

## Reference

Deitel, P. J., & Deitel, H. M. (2012). *Internet and World Wide Web: Howto program* (5th ed.). Upper Saddle River, NJ: Prentice Hall.

## Learning Activities

### u03s1 - Studies

## Readings

Use the Capella library to read the following:

- Patel, S. K. (2014). [Developing responsive web applications with AJAX and jQuery](#). Birmingham, England: Pact Publishing Ltd.
  - Chapter 4, "Twitter Integration."
  - Chapter 5, "Facebook Integration."
  - Chapter 6, "Google+ Integration."

Use your *Learning PHP, MySQL & JavaScript* text to read the following:

- Chapter 12, "Cookies, Sessions and Authentication," pages 287–307.

Developing the business and information tiers of modern Web applications can be accomplished using a variety of server-side technologies. This unit's readings will introduce you to developing Web applications using Java Web technologies.

## Optional Skillsoft Resources

- Skillsoft. (n.d.). [jQuery: Using essential features and functions \[Tutorial\]](#).

## u03s2 - Ask the Experts

Remember, if you have questions that fit the [Ask the Experts Guidelines](#), post them in the Ask the Experts discussion. You can also ask general questions or questions about the project. You might not receive a reply for 24–48 hours. Factor this added time into your plan for completing the assignment.

### u03a1 - Project: Social Media Integration

For this project component, you will use the skills you gained in this unit's study activities to implement the integration of social media and networking into your site. The social media Integration requirements are the following:

1. The Web application must use either Twitter API, Facebook SDK, or Google+ API.
2. The Web application must contain the following user interfaces depending on the social media chosen:
  - The application must start with a Web page that allows the user to present the social media component to be used.
  - If Twitter is used, you must implement the ability to post a tweet using a Twitter button. You may choose to use Twitter4J using Java or an alternate Twitter API for PHP.
  - If Facebook is used, you must implement the ability to like, share, and comment on the page.
  - If Google+ is used, you must implement the +1 button to the page.
3. Your completed social media and networking solution should do the following:
  - Demonstrate your ability to implement a non-trivial Web application using the PHP programming language.
  - Demonstrate your ability to integrate third-party application programming interfaces to communicate with a Web service.
  - Demonstrate your ability to implement a user interface that accepts user input without error.
4. As this assignment is meant to be deployed as part of a larger project, design, readability, and reuse become important factors of the development. You will also be evaluated on other aspects beyond just the functionality, including:
  - Integrate fundamental Web programming concepts and design patterns.
  - Develop error-free Web components and Web language structures.
  - Implement Web development standards accurately.
  - Apply best practices for Web design.
  - Manage Web design languages, tools, and environments effectively.

Submit your assignment as a ZIP file containing all of the files you created to build your solution.



## u03d1 - Memo Review

You have learned a great deal about developing Web applications using social media technologies, APIs, and Web services. The project manager for the Smart Homes project has asked that you share your insights and experiences with a newly hired group of junior software engineers.

For your initial discussion post, prepare a memo about your experiences using the social media integration technologies and working with an API and Web services.

## Response Guidelines

Review the posts of two of your peers and respond by expanding upon their thinking.

Course Resources

Undergraduate Discussion Participation Scoring Guide

## Unit 4 >> Dynamic Content

### Introduction

The previous two units have provided you with knowledge to create modern Web applications. In this unit, you will continue to extend your knowledge by studying how to link dynamic content from external websites. YouTube in particular is a popular video-sharing site that permits the integration of searching, result display, and embedding of videos from their site. This capability allows developers to push specific content without having to store those bandwidth-heavy elements on their own Web servers. Rather they can simply depend on these third-party components directly.

### Learning Activities

## u04s1 - Studies

# Readings

Use the Capella library to read the following:

- Patel, S. K. (2014). [Developing responsive web applications with AJAX and jQuery](#). Birmingham, England: Pact Publishing Ltd.
  - Chapter 7, "Linking Dynamic Content from External Websites."

Use your *Learning PHP, MySQL & JavaScript* text to read the following:

- Chapter 25, "HTML5 Audio and Video," pages 641–653.

Developing the business and information tiers of modern Web applications can be accomplished various server-side technologies. This unit's readings will introduce you to developing Web applications using the ASP.NET development environment.

## Optional Skillsoft Resources

- Skillsoft. (n.d.). [HTML5 APIs and media \[Tutorial\]](#).

### u04s2 - Ask the Experts

Remember, if you have questions that fit the [Ask the Experts Guidelines](#), post them in the Ask the Experts discussion. You can also ask general questions or questions about the project. You might not receive a reply for 24–48 hours. Factor this added time into your plan for completing the assignment.

### u04a1 - Project: Linking Dynamic Content

For this project component, you will use the skills you gained in this unit's study activities to implement a YouTube search to link dynamic content on the page through the use of PHP and jQuery. The linking dynamic content requirements are the following:

1. The Web application must use YouTube APIs found through the Google APIs Library (linked in the Resources).

2. The Web application must contain the following three user interfaces:
  - The application must start with a Web page that allows the user to enter a search phrase that has been prepopulated. Once the required data has been entered by the user, there should be a submit button to execute the search request to YouTube.
  - Upon submitting the search request, the user will be presented with individual search results.
  - Upon selecting one of the choices, the video will play embedded on the site.
3. Your completed linking dynamic content solution should do the following:
  - Demonstrate your ability to implement a non-trivial Web application using the PHP programming language.
  - Demonstrate your ability to integrate third-party application programming interfaces to communicate with a Web service.
  - Demonstrate your ability to implement a user interface that accepts user input without error.
4. As this assignment is meant to be deployed as part of a larger project, design, readability, and reuse become important factors of the development. You will also be evaluated on other aspects beyond just the functionality including:
  - Integrate fundamental Web programming concepts and design patterns.
  - Develop error-free Web components and Web language structures.
  - Implement Web development standards accurately.
  - Apply best practices for Web design.
  - Manage Web design languages, tools, and environments effectively.

Submit your assignment as a ZIP file containing all of the files you created to build your solution.

#### Course Resources

[Google APIs Library](#)

### u04d1 - Memo Review

You have learned a great deal about developing Web applications using dynamic content, APIs, and Web services. The project manager for the Smart Homes project has asked that you share your insights and experiences with a newly hired group of junior software engineers.

For your initial discussion post, prepare a memo about your experiences using the YouTube API and working with its Web services.

## Response Guidelines

Review the posts of two of your peers and respond by expanding upon their thinking.

## Course Resources

### Undergraduate Discussion Participation Scoring Guide

## Unit 5 >> Localization

### Introduction

Throughout this course, you have learned that a variety of Web development technologies can be used to create modern Web applications. You have learned that the technical solution to a problem is independent of the technology used to implement it. The important takeaway here is that you should wait until you fully understand your problem before choosing a technology. Ultimately, you want to ensure that you choose the technology that best suits your goals and requirements.

Localization is always a concern when it comes to deploying an international Web application. You must consider language and currency as a means to reach your audience. Generally, language has to be manually converted due to the meaning behind the content, but currency is one feature that typically will be converted automatically through a financial API. This must be done to ensure that the price/cost is correct at the time of purchase.

After you complete this unit's studies, you will be armed with the knowledge to extend your course project by implementing a solution using the Google Currency framework.

### Learning Activities

#### u05s1 - Studies

## Readings

Use the Capella library to read the following:

- Patel, S. K. (2014). [\*Developing responsive web applications with AJAX and jQuery\*](#). Birmingham, England: Pact Publishing Ltd.
  - Chapter 9, "Integrating the Google Currency Converter with Your Web Application."
  - Chapter 10, "Debugging and Testing."

Use your *Learning PHP, MySQL & JavaScript* text to read the following:

- Chapter 8, "Introduction to MySQL," pages 165–207.
- Chapter 10, "Accessing MySQL Using PHP," pages 235–266.

Developing the business and information tiers of modern Web applications can be accomplished using a variety of server-side technologies. This unit's readings will introduce you to developing Web applications using the Ruby programming language and Rails development environment.

Explore these currency conversion resources in preparation for your assignment:

- [Google Currency Conversion API](#).
- [B Currency Conversion PHP Example](#).

## u05s2 - Ask the Experts

Remember, if you have questions that fit the [Ask the Experts Guidelines](#), post them in the Ask the Experts discussion. You can also ask general questions or questions about the project. You might not receive a reply for 24–48 hours. Factor this added time into your plan for completing the assignment.

## u05a1 - Project: Currency Conversion

For this final project component, you will use the skills you gained in this unit's study activities to implement a currency converter API. Any international organization has to consider the currency of items based on the location of the customer. The currency conversion requirements are the following:

1. The Web application may be a currency converter of your choice. Note that you will want to find a free option as many existing ones are paid solutions
2. The Web application must contain the following two user interfaces:
  - The application must start with a Web page that allows the user to enter a monetary value and a desired currency supported by the API. Once the required data has been entered by the user, there should be a submit button to execute the search request.
  - Upon submitting the search request, the user should be able to convert the currency from U.S. Dollars to another currency.

- As an option, you may choose any mapping Web service to determine the location of the user to pre-populate the currency option.

3. Your completed currency conversion solution should do the following:

- Demonstrate your ability to implement a non-trivial Web application using the PHP programming language.
- Demonstrate your ability to integrate third-party application programming interfaces to communicate with a Web service.
- Demonstrate your ability to implement a user interface that accepts user input without error.

4. As this assignment is meant to be deployed as part of a larger project, design, readability, and reuse become important factors of the development. You will also be evaluated on other aspects beyond just the functionality, including:

- Integrate fundamental Web programming concepts and design patterns.
- Develop error-free Web components and Web language structures.
- Implement Web development standards accurately.
- Apply best practices for Web design.
- Manage Web design languages, tools, and environments effectively.

Submit your assignment as a ZIP file containing all of the files you created to build your solution.

## u05a2 - Web Application Services Review

Research and analyze Web application services, functions, protocols, and technologies that are alternatives to the ones that you have used in the course. Based on your research, create a memo to the Smart Homes CIO that outlines the pros and cons of the technologies you investigated in comparison to the ones used in the course. Include a plan of action for implementing these technologies. Support your analysis with a rationale, and cite relevant sources for the feasibility of the alternative technology you are using to develop the Smart Homes Web application.

## Additional Requirements

- **Written communication:** Assure written communication is free of errors that detract from the overall message.
- **Format:** The document should reflect the stylistic and formatting standards of a professional memo addressed to a manager in the IT business community.
- **Length:** Two to three (2–3) pages.
- **APA formatting:** Resources and citations should be formatted according to current APA style and formatting.

[APA Style and Format](#)

## u05d1 - Memo Review

You have learned a great deal about developing Web applications using a currency converter API, jQuery, and Web services. The project manager for the Smart Homes project has asked that you share your insights and experiences with a newly hired group of junior software engineers.

For your initial discussion post, prepare a memo about your experiences using a currency converter API and working with jQuery and Web services.

## Response Guidelines

Review the posts of two of your peers and respond by expanding upon their thinking.