CA-JVSPT
JavaScript

Final Project

Your Choice Website (45%)

DUE DATE

Session 15

OBJECTIVES

The main objectives of this project are to:

- Use JavaScript with HTML elements
- Work with JavaScript variables and data types and learn how to use the operations that can be performed on them
- Add functions and control flow within your JavaScript programs
- Trace and resolve errors in JavaScript programs
- Write JavaScript code that controls the web browser through the browser object model
- Use JavaScript to make sure data was entered properly into form fields and to perform other types of preprocessing before form data is sent to a server
- Create JavaScript applications that use the object-oriented programming techniques
- Manipulate data in strings and arrays
- Save state information using hidden form fields, query strings, cookies, and Web storage
- Incorporate touchscreen support and mobile capabilities in web applications
- Dynamically update web applications with Ajax
- Build a web application using the JQuery Library

DESCRIPTION

By the time you begin this project, you should have sufficient background in HTML and programming concepts. This project will allow you to apply all that you have learned in the JavaScript course by implementing the skills within the context of a Web development project of your choice. Unlike other projects where you are provided with specific details, this time, you will be the one that determines what your site will be.
There are, however, a few rules that you need to observe. Your site must be on a topic that obtains the approval of your instructor. You are free to choose your own topic as long as it does not include anything that can be considered inappropriate. For this reason, you must validate your choice with your instructor before starting.

The project will be developed as an ongoing case study. After each session, you will be asked to build upon

your project by adding specific features that are related to the topics covered in in each chapter. For example, Chapter 2 covers the addition of mathematical formulas and equations in JavaScript; therefore, as part of your project you will be required to add a mathematical calculation feature to your project.

At the end of each session, you will be directed to the project to complete the work that is applicable to that day's lesson. You will not be provided with specific detail of what to add to your specific project as each project is unique. Instead, you will be provided with general instructions to complete for that particular session.

INSTRUCTIONS

Time Required

You will be provided 12 hours in class to complete this project. However, you will need to perform tasks each day throughout the course in order to maintain the appropriate pace.

Required Material

You will need the following material to complete this project:

- HTML and JavaScript editor (Notepad, Sublime or other similar editor)

Specifications

This project is all about your own personal creativity. You will be required to choose a topic for your website in order to create a fully functional site with JavaScript. The topics can be any topic of your choice. This can be a topic related to your field of study, personal interest, hobby or activity. Keep in mind that after each lesson you will build additional features on top of what you have already created. Avoid starting over each time!

Session 1

The main objective of this first part is to have you decide what your topic is and plan the layout.
Once you have determined your topic, you must plan a website containing at least four pages with a common layout and navigation system. You will add pages to your site in later sessions. Therefore, it is important to ensure that your navigation system can support additional content. Your initial site must include a script element that links to the modernizr.custom.05819.js file in each of your HTML document in your site. Ensure that all your pages pass validation. By the end of this first task, you should have prepared all of your design and layout documents.

Session 2

The main objective of this second part is to add a feature to add a mathematical calculation.
Plan and add a feature to one of your four pages in your project that uses at least one function to perform a mathematical calculation based on user input. Test your work and validate your pages.

Session 3

The main objective of this part is to add a feature to one or more of your web pages in your personal site that incorporates content or functionality created by a series of if, if/else and else if statements or a switch statement. Your page (or pages) must also include at least one event listener. Make sure that all functionality is backwards compatible. Test your pages in more than one browser to ensure that they work as expected.

Session 4

In this section of the project, you will add exception handling to the code for one of the forms in your personal website. If your pages do not have a form, then you must add at least one form first. Your code should display one or more relevant error messages in an appropriate format and location. After you finalize your code, write a brief summary on the debugging methods from chapter four that you used in this project, describing how you used each one in your code.

Session 5

The project requirements for Session 5 will be completed as part of Assignment 1 to be done at the end of Session 5.

Session 6

To continue working on your project, you must use the final files created because of Assignment 1.
Your next task on the project is to add validation code for one of the forms on your individual website. Before adding validation, ensure that your form(s) use at least three of the following field types: check boxes, text boxes, option buttons, selection lists and text areas. Program validation for your forms must ensure that users enter values or select in all fields. Provide appropriate feedback to users when the form fails validation.

Session 7

For this portion of the project, you will need to add a page to your site that will calculate the time elapsed since a user entered a date. The page should include a form that allows users to enter a day, month, and year (in relation to your site's content). The page should then calculate and display the elapsed time in years, months and days. Your program must include code to convert day values in excess of 31 into months and months in excess of 12 into years. This page should be tied in to your project theme. If at this point you do not find a suitable fit for adding such a page to your project, you should build it nonetheless. Later you will have an opportunity to incorporate it into your project (hint: perhaps you add a membership form and use this page to calculate time since someone became a member).

Session 8

For this section of the project, you will add a feedback form to your project. Users should be able to choose one or more options from a list of at least five options. Include code that adds user selections to either an array or an object and ensure that if a user deselects one of the options, it is removed from the array or object. Add code to convert the array or object to a string.

Session 9

For this section of the project, you will enhance your personal website to prevent security issues. Review each form field on your site and identify any additional validation that you could add. Look for situations

where you could use regular expressions to limit allowable characters in order to exclude characters used in creating JavaScript code. Use word processing software to create a table as the sample below for planning additional validation. When you have reviewed each field, add the validation described in your table. Test each field until you are satisfied with your enhanced validation code.

Filename	Field label	Validation performed before submission	Validation left to Web Server
Index.htm	Postal code	6 characters, 3 numbers, 3 letters	Verify that Postal code value is appropriate for province provided

Session 10

For this section of the project, you will enhance your existing page about browser security to show users their current location on a map. Use CSS to specify the height and width for the element in which you display the map.

Session 11

For this section of the project, you will enhance your existing website by including an Ajax service that you would like to include in your personal website. You can select any web service that would be suitable for your project (preferably, something that is different from the ones you used in Chapter 11). If you have an idea for data that you would like to access but are unsure what service might provide that data, try doing a web search on the description of the data plus "API". For example, if you wish to add daily weather forecast data, you can try looking for "Weather forecast API." You will find several free options that you can use. Use the documentation that you may find to construct an Ajax request and to display the data from the service on your website. Since you have not been exposed to PHP, please search for APIs that allow JSON-P or CORS requests which allow doing this without running a proxy.

SUBMISSION INSTRUCTIONS

Work must be submitted in the correct file type and be properly labelled as per the College naming convention:
NAME_COURSE_ASSIGNMENT. E.g. XuXiaLing_FM50D_A01.

Your project must include the following:

- All source code, as well as all other files required for the proper functioning of your application.
- A project report containing:
  - a title page with your name, the submission date and your instructor's name

- a table of contents
- the project specifications
- all relevant documentation including diagrams, flowcharts, pseudocode
- the user manual (instruction guide for your instructor, This must include any test data that you use to test your application)
- explanations of any additions that you made (where applicable)

We strongly recommend that you verify, using anti-virus software, that your submission contains no viruses.

GRADING CRITERIA

Assignment Value: **45%**

Evaluation Elements	% of mark
Analysis and Design Part 1 with complete documentation	10
Addition of mathematical function to one page	5
Incorporation of the necessary if, if/else, else if and switch statements	10
Adding of the appropriate exception handling	10
Input validation and error handling using controls and code	5
Using the Date and Math Class to calculate time elapsed	10
Addition of a feedback form	10
Prevention of security issues (enhanced validation using regular expressions to limit allowable characters in order to exclude characters used in creating JavaScript code)	10
Show users their current location on a map	10
Addition of an API request	10
Error free and bug free application (Application properly debugged)	10
TOTAL	**100**

Penalties

- A penalty of 5% will be deducted from your mark for each day your project is late.
- Any project submitted more than three calendar days late will receive a maximum mark of 60%.
- Any project containing a virus must be resubmitted and will receive a maximum mark of 60%.