Weight: 20% of your final grade

Due: after completing Units 1–3

Instructions and General Requirements

- Use a plain text editor such as Notepad++ or TextEdit to create all your web document pages for this assignment. Do not use MS Word or similar authoring tools to create or edit your web documents because you won't be able to see the actual code in those editors.
- Plan carefully what to put on each web page and how to lay out every piece you want to present. Pay attention also to the visual design of your web pages. Clean and simple designs often work well.
- Each web application you write for an assignment project should be rendered like a real web application you see on the web. If you want to show course related information or links on a page, they should be placed in such a way that they will not interfere with the content, functionality, or the overall look-and-feel of your web application.
- You must do your best to develop the best web application for each project in the assignment. When you are asked to develop web applications, a single web page or one web document with few internal links may not be enough. It often should have a welcome page, a banner with a logo and/or title of the application, menus and buttons for navigation, and required functional modules. Your web application should be attractive,

useful, and user-friendly. Your applications may not have a perfect professional look-and-feel, but you must show your effort to achieve that. Your time and effort to develop the best web applications for the assignments will contribute greatly to your future success as a web developer.

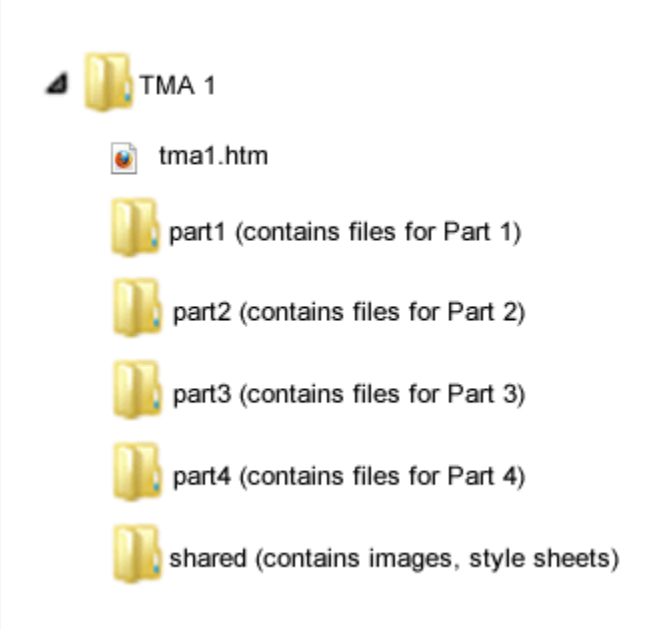
- Use the same external stylesheet for all pages of a web application to ensure it will have a consistent look-and-feel across all web pages of the same web application.
- Validate all your web documents using the tools provided at W3C.
- Test all web applications for the assignment on your personal web server to ensure that they work as expected. For this first assignment, you are not required to provide your tutor with access to the assignment on your personal server or a hosting service.
- When you submit your assignment, please pack all your assignment files into a zip file named TMA1.zip, and upload the zip file to your tutor through the Assignment 1 link on the course home page. Contact your tutor if you need help to create and upload a zip file.

Important: All work submitted must be original, and no codes or packages from a third party should be used unless it is explicitly allowed in the assignment instructions. See the Athabasca University policy on intellectual honesty.

Main Page (tma1.htm)

(10 marks)

All files for Assignment 1 should be in a directory called *TMA1* (TMA stands for 'tutor-marked assignment') and its sub-directories for each part of the assignment as shown in the illustration. Directly under TMA1 there should be a file named *tma1.htm*.



Your assignment file structure should look like this.

The tma1.htm file should begin with a cover page of the assignment clearly showing the following information:

- course number and nam
- assignment number
- your name and student ID number
- date you began working on the assignment
- date you completed the assignment
- estimated hours you spent on the assignment

Following the cover page should be the required documentation on your work for the assignment projects. For each project, the documentation should include:

- your description of the assignment project and requirements
- your analysis and design of the web application
- documentation of your implementation
- a guide for users (your tutor who will mark the assignment) to set up, to run, and to use the web application
- a link to the web applications you design for the project
- anything else you want to say to your tutor

All parts of the documentation mentioned above must be written in HTML, and all the web applications and related files you developed for the assignment must be accessible from the *tma1.htm* page, either directly or indirectly.

Part 1

(15 marks)

Create an XML version of your resume containing at least three sections: general information about you; your educational background, and your work experience, and then create a schema for the XML document, and an XSLT for the XML document so that it can be rendered in a browser.

Save all three files (resume.xml, resume.xsd, and resume.xsl) for Part 1in the directory TMA1/part1.

Part 2

(30 marks)

Using the web technologies you have learned so far, including HTML5, CSS3, JavaScript, XML and Ajax, write a web application, that can help people to learn the technologies covered in Unit 1, Unit 2, or Unit 3 of the course. The requirements are detailed as follows:

1. It must be a web-based system with a name you choose, a banner to show off your work, navigation menus and buttons. It should begin with a welcome page to greet the users, to explain what the application does, and what they get from it, and how they should proceed.
2. The application must have three pages of tutorials, accessible through navigation menus or buttons, to teach the technologies covered in Unit 1, Unit 2 and Unit 3 respectively. You don't need to teach everything covered in the three units, but there should be enough content to make each of the tutorials useful.
3. Your tutorial on HTML5 must use or teach at least five page-structure elements and six new input types.
4. There should be a quiz for each tutorial, which can be accessed right after the tutorial page, as well as through the navigation menus and buttons of the system.
5. After the submission button is hit, the quiz system should be able to grade the answers the learner has provided, show the correct answers as well as the score in percentage.
6. The quiz system should be designed so that questions can be easily edited, added, or deleted, and new quiz can be easily created.
7. You must use the web technologies covered in Unit 1, unit 2 and Unit 3, including HTML5, CSS3, JavaScript, XML and Ajax.
8. You should use an external style sheet for all pages of the system, to retain a consistent and user-friendly interface for your system.
9. When using HTML5 table, be sure that you only use it to display tabular information, not to lay out the web page.

You must pay attention to both the functionalities and user interface. Save Part 2 files in the directory TMA1/part2.

Part 3

(15 marks)

For this project, you are required to create a slideshow web application using HTML5 canvas and other web technologies you have learned so far. The requirements are as follows:

1. The slideshow should be drawn on the canvas;
2. There should be a caption for each image in the show;
3. There should be a button to start/stop the show;
4. There should be a control to toggle the show between random and sequential;
5. There should be buttons to manually turn the show backward or forward, only if the show is in sequential mode;
6. There should be a dropdown list for users to select a transition/transformation effect from at least three different transition/transformation effects;
7. The data of the images should be in a JSON array so that images and their captions can be easily maintained;
8. To avoid copyright issues, you should use the images/photos you took. If you don't have the images ready to use, please go around the place you live or work and take some;
9. The show should have at least 20 nice pictures.

Save Part 3 files in the directory TMA1/part3.

Part 4

(30 marks)

For this project, you are required to develop a web application that can provide users with the following utility tools:

- (10 marks) Measurement converters: weights, lengths, areas, and volumes
- (10 marks) A mortgage calculator
- (10 marks) A utility tool that you think could be useful. You may need to do some research on the Web to build this last tool, and in the assignment documentation for this project, you need to justify why you think it will be useful.

In order to get full marks for the above design and implementation, the following are required:

1. **It must have an integrated and user-friendly interface for users to access each of the tools you developed.**
2. **You need to use JavaScript functions and built-in objects to implement the application**.
3. **At any time only one tool will be shown, to ensure a clean and tidy space for users to work with.**
4. **You need to use Ajax technologies to eliminate whole page update when switching from one utility tool to another.**
5. **You need to use event handler to calculate and show the result as soon as the user has given enough input to the system.**

6. **In the assignment report, you need to provide enough documentation for your work, including algorithms and formulas used for the tools. If you have used any resources, including documents on the Web, you must clearly identify the source in your documentation.**

Save Part 4 files in the directory TMA1/part4.