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Microsoft

MTA HTML5 App

Development Fundamentals

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# Additional Exercises

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## Lab Challenge 1

### Exercise 1 - Identify the tags element

TAG	Description
<head>	
<a href=>	
<p>	
<header>	
<section>	
<aside>	
<article>	
&reg;	
&copy;	
<!DOCTYPE>	

### Exercise 2 - Using notepad to create a basic web page

Using notepad, create a simple web page to display the following text:

“Hello World!”

### Exercise 3 - Displaying images on your web page

You wish to display an image called tennisball.png on your web page, the image is stored in a folder called “images”.

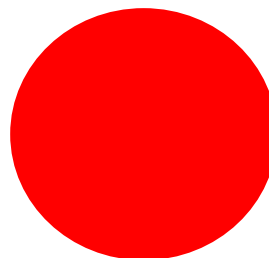
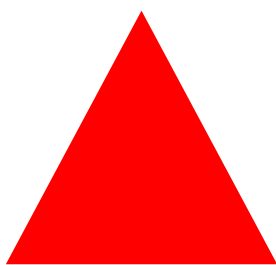
What mark-up/elements would you use?

Write your answer in the box below:

What are the <figure> and <figcaption> tags used for?

### Exercise 4 - Using SVG

Using Visual Studio use SVG to draw the following shapes



### Exercise 5 - Displaying video

When displaying video what does the POSTER property do?

You'd like to allow visitors to your site to stop, pause and start a video called /videos/funtime.mp4

What markup would you use?

### Exercise 6 - Lists

What is the difference between Ordered and Unordered lists?

If you were asked to create an Unordered list of your top 3 favourite colours what markup would you use?

What is a Definition list?

## Exercise 7 - Input and Forms

What do the following attributes/tags do?

Attribute	Description
Autofocus	
Checked	
Pattern	
Placeholder	
Required	
<datalist>	

Using Visual Studio, create a query form that will collect the following information for a user of your website:

1. Full name
2. Email address
3. Telephone number
4. Query

All information is required and examples of the information needed should be provided.

## Exercise 8 - CSS

What do the following CSS selectors do?

Selector	Description
P	
.	
#	
H1	
div > p	
P::first-letter	

What does the following CSS markup do?

```
@font-face
```

```
{
```

```
font-family: headerfont;
```

```
src: fonts\headerfont.tft;
```

```
}
```

Describe the difference between Inline and Block flow?

Please match the vendor prefix with the appropriate browser

Prefix	Browser
-ms-	
-moz-	
-o-	
-webkit-	

What elements make up the CSS Box model?

What is Flexbox?

Using Visual Studio create 9 <div> elements with the text “One” in the 1<sup>st</sup> div, “Two” in the 2<sup>nd</sup> div etc. Arrange the divs using the grid layout with 3 rows and 3 columns.

Make sure the div with the text “One” is on row 3 and the div with the text “Seven” is on row 1.

## Exercise 9 - Build a website

Create a web page with the following elements:

- a. A header with the text “Countries of Europe”
- b. A navigation element which will navigate you to 4 different pages:
  - Home
  - Contacts
  - About US
  - News
- c. On the home page include:
  - A <section> element that has 2 paragraphs of text that will explain the purpose of your website
  - An image of the European continent

- A table that lists the top 5 European countries by population
- d. On the Contacts page include a contact form to collect:
  - Username
  - Email address
- e. On each page include a footer with a copyright symbol and your name on it

You should be able to use the navigation element to move between the 4 pages.

Each of your pages should have a light grey background.

All fonts should use the Sans Serif font except for the main page headers “Countries of Europe” which should use a custom font you have downloaded and made available to the users of your site.

Style your page with coloured and different sized fonts.

Find 3 pictures that represent 3 different European countries and add them to a flexbox at the bottom of your page just above your footer.

## Lab Challenge 2

### Exercise 1 - Create a box with rounded corners

Using Visual Studio create a web page with 3 div elements that have blue backgrounds, add a few words of text to each div. Then using the appropriate CSS properties configure:

- a. The 1<sup>st</sup> div with 4 rounded corners
- b. The 2<sup>nd</sup> div with the bottom left corner rounded
- c. The 3<sup>rd</sup> div with the top right corner rounded

Add the appropriate CSS properties e.g. padding, width, font size so that the boxes are distinct and separate.

Using the boxes created in Exercise 1, add a drop shadow to each box. Make sure the 3 boxes have shadows of different horizontal and vertical positions.

### Exercise 2 - Identify the following properties

Property	Description
Opacity	
Linear-gradient	
Radial-gradient	
Border-radius	
-moz-linear-gradient	
@font-face	



### Exercise 3 - Adding a 2D translation

Using the boxes created in Exercise 1 add the relevant CSS properties to change the position of box 3 by 200px left and 350px down. Also use the appropriate CSS to change the size of box 3, make it 2x its original size. Finally, rotate box 3 by 45 degrees.

### Exercise 4 - on Hover Transition

Using the boxes created in Exercise 1 and CSS transition property, add transition to box 2 that changes the background colour of the box from blue to red over a 3 second period. The animation should be activated when a user hovers over the box.

### Exercise 5 - Keyframes Animation

Using the boxes created in Exercise 1 add Keyframes animation. Move box 1 from its starting position 500px to the right and then back to its original position. Allow this animation to repeat. The animation should occur over 15 seconds.

### Exercise 6 - Identify JavaScript elements

Look at the code below, what does it do?

```
<!DOCTYPE html>
<html>
<body>

<h2>JavaScript Alert</h2>

<button onclick="myFunction ()">Try it</button>

<script>
function myFunction() {
    alert("I am an alert box!");
}
</script>

</body>
</html>
```

Look at the code below, what does it do?

```
<!DOCTYPE html>
<html>
<body>
<canvas id="myCanvas" width="200" height="100"
style="border:1px solid #c3c3c3;">
Your browser does not support the canvas element.
</canvas>

<script>
var canvas = document.getElementById("myCanvas");
var ctx = canvas.getContext("2d");
ctx.fillStyle = "#FF0000";
ctx.fillRect(0,0,150,75);
</script>

</body>
</html>
```

As an extra step, copy the code into notepad or a Visual Studio project to see the results.

### Exercise 7 - Some JavaScript questions

Question	Answer
What is a JavaScript Function?	
What are variables used for?	
What is jQuery?	
How do we include jQuery in our websites?	

### Exercise 8 - Missing text

Look at the code below, what will you need to do to make this code return the result 12?

```
<!DOCTYPE html>
<html>
<body>

<h2>JavaScript Functions</h2>

<p>This example calls a function which performs a calculation, and returns the
result:</p>

<p id=""></p>

<script>

function myFunction(p1, p2) {
  return * ;
}
document.getElementById("demo").innerHTML = myFunction();

</script>

</body>
</html>
```

Look at the code below, what will you need to do to change the text in the paragraph to “Hello World” once the button is clicked?

```
<!DOCTYPE html>
<html>
<body>

<p id="demo">Click the button to change the text in this paragraph.</p>

<button onclick="">Try it</button>

<script>
function myFunction() {
  document.getElementById("").innerHTML = "";
}
</script>

</body>
</html>
```

Look at the code below, what will you need to do to change the colour of the paragraph to **red** once the button is clicked?

```
<!DOCTYPE html>
<html>
<body>

<p id="">Click the button to change the colour of this paragraph.</p>

<button onclick="">Try it</button>

<script>
function myFunction() {
  var x = getElementById("demo");
  x.style.color = "";
}
</script>

</body>
</html>
```

### Exercise 9 - What does the code do?

Look at the code below, what does it do?

```
<!DOCTYPE html>
<html>
<body>

<p>Click the button to make a BUTTON element with text.</p>

<button onclick="myFunction()">Try it</button>

<script>
function myFunction() {
  var btn = document.createElement("BUTTON");
  var t = document.createTextNode("CLICK ME");
  btn.appendChild(t);
  document.body.appendChild(btn);
}
</script>

</body>
</html>
```

### Exercise 10 - Some questions

Question	Answer
What is AppCache	
What are Cookies	
What is LocalStorage	
What is the XMLHttpRequest API	

## Lab Challenge 1 - Answers

### Exercise 1 - Answers

TAG	Description
<code>&lt;head&gt;</code>	Contains markup and code used by the browser such as scripts, keywords and can also include styling for the page
<code>&lt;a href=&gt;</code>	An anchor element
<code>&lt;p&gt;</code>	Defines text as a paragraph
<code>&lt;header&gt;</code>	Defines a header for a document or section; may contain introductory content or navigation links
<code>&lt;section&gt;</code>	Defines a section of a document, such as chapters, parts of a thesis, or parts of a webpage whose content is distinct from each other
<code>&lt;aside&gt;</code>	Defines content that's separate from but related to the page content
<code>&lt;article&gt;</code>	Defines an article, such as a magazine or newspaper article, blog post or similar content
<code>&amp;reg;</code>	Adds a registered trademark symbol to the page
<code>&amp;copy;</code>	Adds a copyright symbol to the page
<code>&lt;!DOCTYPE&gt;</code>	The very first thing in an HTML document, it is an instruction to the web browser about what version of HTML the page is written in

### Exercise 2 - Answers

Using notepad, create a simple web page to display the following text:

"Hello World!"

See Hello World Example.htm in the classroom share or provided by your instructor.

### Exercise 3 - Answers

```

```

`<figure>` = Specifies the type of figure you want to use in your HTML document.

`<figurecaption>` = Provides a caption for your figure.

### Exercise 4 - Answers

See SVG.html in the classroom share or provided by your instructor.

### Exercise 5 - Answers

The Poster attribute displays a static image file before the video loads.

```
<video src="/videos/funtime.mp4"
  Width="400" Height="300"
  Poster="poster.jpg"
  Controls="controls"
  Loop="loop">
</video>
```

### Exercise 6 - Answers

Ordered list - Order the list entries using numbers.

Unordered list - Displays list entries in a bulleted list.

```
<p>fav colours:</p>
<ul>
<li>RED</li>
<li>GREEN</li>
<li>Blue</li>
</ul>
```

Definition lists contain a list item and a definition:

```
<dl>
  <dt>RED</dt>
    <dd>The colour of Fire Engines</dd>
  <dt>GREEN</dt>
    <dd>The colour of envy</dd>
  <dt>Blue</dt>
    <dd>We've been through it all together</dd>
</dl>
```

### Exercise 7 - Answers

Attribute	Description
<b>Autofocus</b>	A Boolean attribute, specifies that a control is to be focused or selected as soon as the page loads
<b>Checked</b>	Specifies that an input element be preselected upon page load
<b>Pattern</b>	Provides a format (a regular expression) for an input field
<b>Placeholder</b>	Displays a key word or a short phrase that describes the expected value
<b>Required</b>	A Boolean attribute that requires an input field to be filled out before submitting the form
<b>&lt;datalist&gt;</b>	Enables you to present a drop-down list of options to select from

See Form.html in the classroom share or provided by your instructor.

## Exercise 8 - Answers

Selector	Description
<b>P</b>	The Paragraph selector
<b>.</b>	The Class Selector
<b>#</b>	The ID Selector
<b>H1</b>	Selects all H1 elements
<b>div &gt; p</b>	Selects Paragraph elements that are children of Div elements
<b>P::first-letter</b>	Selects the first letter of each Paragraph Element

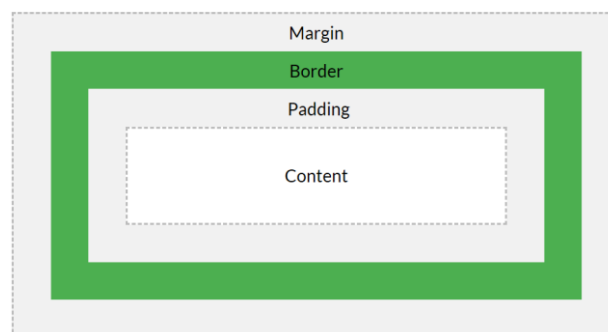
@font-face - is used to add custom fonts to be used on your website.

Inline flow - it forces no new lines before or after the inlined element, but simply places the element between the content before and after the inlined element.

Block flow - elements are separated from each other by new lines above and below.

Prefix	Browser
<b>-ms-</b>	Internet Explorer
<b>-moz-</b>	Firefox
<b>-o-</b>	Opera
<b>-webkit-</b>	Chrome and Safari

CSS Box model - Margin, Border, Padding, Content



Flexbox - a layout model for using flexible boxes in the user interface.

See Grid.html in the classroom share or provided by your instructor.

## Exercise 9 - Answers

Open Website.sln in the website folder in the classroom share or provided by your instructor.



## Lab Challenge 2 - Answers

### Exercise 1 - 5 - Answers

Open Boxes.sln in the website folder in the classroom share or provided by your instructor.

### Exercise 6 - Answers

Code block 1 - this block of code creates a button that once clicked runs a function called myFunction. This function opens an alert box.

Code block 2 - this block creates a canvas with a solid 1px border. It then uses the <script> tag to draw a rectangle to the canvas.

### Exercise 7 - Answers

Question	Answer
What is a JavaScript Function?	A function is a segment of a program defined and performed in isolation from other parts. The action of a function is the sequence of the actions of the statements inside it
What are variables used for?	A variable represents a piece of data that will be used by your JavaScript. The content of a variable can change throughout the flow of a script
What is jQuery?	jQuery is a very popular JavaScript library. A library is a collection of resources like pre-written functions that developers can use to create programs
How do we include jQuery in our websites?	We can include jQuery in our websites by including the source of a jQuery CDN in the title section of our page or by downloading the jQuery minimised library and add the path to it in the title section of our website

## Exercise 8 - Answers

```
<!DOCTYPE html>
<html>
<body>

<h2>JavaScript Functions</h2>

<p>This example calls a function which performs a calculation, and returns the
result:</p>

<p id="demo"></p>

<script>
function myFunction(p1, p2) {
    return p1 * p2;
}
document.getElementById("demo").innerHTML = myFunction(4, 3);
</script>

</body>
</html>
```

```
<!DOCTYPE html>
<html>
<body>

<p id="demo">Click the button to change the text in this paragraph. </p>

<button onclick="myFunction()">Try it</button>

<script>
function myFunction() {
    document.getElementById("demo").innerHTML = "Hello World";
}
</script>

</body>
</html>
```

```
<!DOCTYPE html>
<html>
<body>

<p id="demo">Click the button to change the colour of this paragraph.</p>

<button onclick="myFunction()">Try it</button>

<script>
function myFunction() {
  var x = document.getElementById("demo");
  x.style.color = "red";
}
</script>

</body>
</html>
```

### Exercise 9 - Answers

```
<!DOCTYPE html>
<html>
<body>

<p>Click the button to make a BUTTON element with text.</p>

<button onclick="myFunction()">Try it</button>

<script>
function myFunction() {
  var btn = document.createElement("BUTTON");
  var t = document.createTextNode("CLICK ME");
  btn.appendChild(t);
  document.body.appendChild(btn);
}
</script>

</body>
</html>
```

## Exercise 10 - Answers

Question	Answer
What is AppCache	AppCache saves a copy of your web site files locally, the files could include HTML, CSS and JavaScript along with other resources needed to run your site
What are Cookies	Cookies are small text files that web sites save to a computer's hard disk that contain information about the user and his or her browsing preferences
What is LocalStorage	Local Storage uses the localStorage object to store data for your entire website, permanently. That means the stored local data will be available on the next day, the next week, or the next year unless you remove it
What is the XMLHttpRequest API	The XMLHttpRequest API enables you to use JavaScript to pass data in the form of text strings between a client and a server

### AppCache Example

```

<!DOCTYPE html>
<html manifest="demo_html.appcache">
<body>

<script src="demo_time.js"></script>

<p id="timePara"><button onclick="getDate()>Get Date and
Time</button></p>

<p></p>

<p>Try opening <a href="tryhtml5_html_manifest.htm" target="_blank">this
page</a>, then go offline, and reload the page. The script and the image should
still work.</p>

<p><b>Note:</b> The manifest attribute is not supported in Internet Explorer 9
and earlier versions.</p>

</body>
</html>

```

## Cookies Example

### Create Cookies

- 1) `document.cookie = "username=John Doe";`
- 2) `document.cookie = "username=John Doe; expires=Thu, 18 Dec 2013 12:00:00 UTC";`
- 3) `document.cookie = "username=John Doe; expires=Thu, 18 Dec 2013 12:00:00 UTC; path=/";`

### Read Cookies

- 4) `var x = document.cookie;`

### Change a Cookie with JavaScript

- 5) `document.cookie = "username=John Smith; expires=Thu, 18 Dec 2013 12:00:00 UTC; path=/";`

The old Cookie is overwritten

## LocalStorage Example

### Store

```
localStorage.setItem("lastname", "Smith");
```

### Retrieve

```
document.getElementById("result").innerHTML =  
localStorage.getItem("lastname");
```

## XMLHttpRequest Example

```
<!DOCTYPE html>
<html>
<body>

<h2>Using the XMLHttpRequest Object</h2>

<div id="demo">
<button type="button" onclick="loadXMLDoc()">Change Content</button>
</div>

<script>
function loadXMLDoc() {
  var xhttp = new XMLHttpRequest();
  xhttp.onreadystatechange = function() {
    if (this.readyState == 4 && this.status == 200) {
      document.getElementById("demo").innerHTML =
        this.responseText;
    }
  };
  xhttp.open("GET", "xmlhttp_info.txt", true);
  xhttp.send();
}
</script>

</body>
</html>
```