HTML
Lab

1   Online References

1.1   Basic references

https://www.w3schools.com/html/default.asp

https://www.tutorialrepublic.com/html-tutorial/html-get-started.php

https://www.programiz.com/html

1.2   Official references

https://developer.mozilla.org/en-US/docs/Web/HTML

2   Lab Setup

You should have received installation instructions on installing Visual Studio Code IDE as well as NotePad++.

We will need to be able to view file name extensions directly in order to be able to directly manipulate JavaScript source code files. If you are using Windows, make sure that you have checked the File name extensions in your File Explorer in order for us to be able to directly manipulate the file extensions when creating or modifying files.
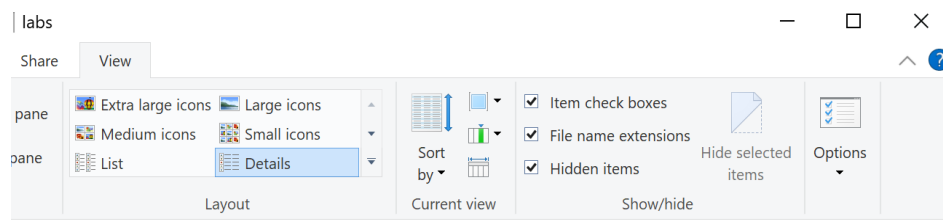
For MacOs:
[Show or hide file name extensions - Article 1](#)
[Show or hide file name extensions - Article 2](#)

Create a suitable top level folder (for e.g. `weblab`) to hold the various files that you will be generating in this lab. Alternatively, you can just create your HTML / CSS files in the `labcode` folder of the downloaded workshop material.

For the remaining lab sessions, you can copy and paste the code directly from the tutorial webpages into an existing or new HTML file that you create, and which you can subsequently edit in VS Code.

3   HTML Basic structure

https://www.tutorialrepublic.com/html-tutorial/html-get-started.php
All topics

https://www.tutorialrepublic.com/html-tutorial/html-doctypes.php

4   HTML Elements and Tags

https://www.tutorialrepublic.com/html-tutorial/html-elements.php
All topics except the last: Element Syntax, Tags vs Elements, Case Insensitivity, Empty / self-closing elements, nesting HTML elements, writing comments in HTML

Note: when nesting HTML elements, ensure proper indentation, with each element on its own line and each level of hierarchy indented by one level. This makes the markup easier to read and understand, and can help to avoid errors.

5   HTML Attributes

https://www.tutorialrepublic.com/html-tutorial/html-attributes.php
All Topics: General purpose attributes (id, title, class, style)
Note: The `id`, `class` and `style` attributes are related to the use of CSS style rules.

https://www.w3schools.com/html/html_attributes.asp
Topic: The `lang` Attribute

Global attributes:
https://www.tutorialrepublic.com/html-reference/html5-global-attributes.php

The `labcode` folder has a file `basic-template.html` which you can use as a template to create all your future HTML documents.

6 HTML Headings

https://www.tutorialrepublic.com/html-tutorial/html-headings.php
All topics: Organizing Content with Headings, Importance of headings

https://www.programiz.com/html/headings
Topic: h1 tag is important, Headings are block-level elements

7 HTML Paragraphs

https://www.tutorialrepublic.com/html-tutorial/html-paragraphs.php
Topics: Creating paragraphs, closing a paragraph element

7.1 Line breaks with

https://www.programiz.com/html/line-break

https://www.tutorialrepublic.com/html-tutorial/html-paragraphs.php
Topic: Creating Line Breaks

7.2 Horizontal line with <hr>

https://www.programiz.com/html/horizontal-line

https://www.tutorialrepublic.com/html-tutorial/html-paragraphs.php
Topic: Creating Horizontal rules

7.3 Adding whitespaces and non-breaking space with

https://www.tutorialrepublic.com/html-tutorial/html-paragraphs.php
Topic: Managing white spaces

https://www.programiz.com/html/nbsp

7.4   Preformatted text with <pre>

https://www.programiz.com/html/pre-tag

https://www.tutorialrepublic.com/html-tutorial/html-paragraphs.php
Topic: Defining Preformatted Text

8   HTML Comments

https://www.programiz.com/html/comments

You can use Edit -> Toggle Line Comments in VS Code to automatically comment or uncomment out blocks of HTML

9   HTML Text Formatting

Below are listed the formatting tags available in the latest version of HTML.
- <b> tag - Bold Text
- <i> tag - Italic Text
- <u> tag - Underlined Text
- <strong> tag - Strong Text
- <em> tag - Emphasized Text
- <mark> tag - Highlighted Text
- <sup> tag - Superscript Text
- <sub> tag - Subscript Text
- <del> tag - Deleted Text
- <ins> tag - Inserted Text
- <big> tag - Big Text
- <small> tag - Small Text

https://www.tutorialrepublic.com/html-tutorial/html-text-formatting.php
All topics: Difference between <strong> and <b> tag, Difference between <em> and <i> tag, Formatting Quotations <blockquote>, <cite>, <q>, Showing Abbreviations <abbr>, addresses <address>

The difference between <strong> and <b>, <em> and <i> tag can be considered a difference in the terms of semantics

https://www.programiz.com/html/formatting

9.1 Superscript <sup> and subscript <sub>

https://www.programiz.com/html/superscript-subscript

9.2 Elements for user input and computer code <code>, <kbd>, <samp>

https://www.w3schools.com/html/html_computercode_elements.asp

9.3 HTML entities

https://www.tutorialrepublic.com/html-tutorial/html-entities.php
All topics:

https://www.programiz.com/html/entities
Topic: Invisible characters

Symbols can also be displayed using character entities
https://www.programiz.com/html/symbols

9.4 Incorporating emojis

https://www.programiz.com/html/emojis

10 HTML Block vs Inline elements

https://www.programiz.com/html/inline-block

https://www.w3schools.com/html/html_blocks.asp

11 HTML Images

https://www.tutorialrepublic.com/html-tutorial/html-images.php
Topic: Inserting images into Web Pages, Setting the Width and Height of an Image

Note: You can open up the browser based codeLab for the tutorial above to see the images and then download them to your local machine, and then add them to same folder containing your main HTML document (or to a subfolder within the main folder containing your HTML document). If you save it in a

subfolder, then remember to specify a relative file path in the `src` attribute value, for e.g. `<img src="images/kites.jpg"`…

https://www.programiz.com/html/images
All topics: `src` attribute (local or absolute path, absolute URL, title, lazy loading, width and height

File paths for src attribute
https://www.programiz.com/html/file-paths

11.1 Places to obtain royalty free images

https://www.makeuseof.com/tag/top-5-websites-for-free-stock-photographs/
https://buffer.com/library/free-images/

You can download images from any of the sites listed above to your local machine and then link to them directly as shown previously. Alternatively, for some major image websites (like Unsplash) it is possible to directly link to the image itself on the remote website without downloading first, for e.g.

https://dev.to/ocxigin/how-to-link-unsplash-images-in-html-and-css-5dd5

In the `labcode` folder, the file `demo-link-images.html` as well as the `images` subfolder (which contain 3 jpgs), provides a quick demo of how to link to various online images as well as to images stored locally.

12 HTML Tables

https://www.tutorialrepublic.com/html-tutorial/html-tables.php
All Topics: Creating tables with <table>, <tr>, <td>, <th>, Spanning Multiple Rows and Columns with rowspan and colspan attributes, adding captions with <caption>, defining table header, body and footer with <thead>, <tbody> and <tfoot>

You can ignore the CSS section for now in the tutorial above, we will return to that in the CSS section.

https://www.programiz.com/html/table
Topic: Table Border

13 HTML Lists

https://www.tutorialrepublic.com/html-tutorial/html-lists.php
Topic: Unordered lists <ul> , Ordered lists <ol> start=x, Description lists <dl>, <dt>, <dd>

You can ignore the CSS section for now in the tutorial above, we will return to that in the CSS section.

13.1 Marker type for ordered lists, reverse and start

https://www.programiz.com/html/ordered-list
Topic: Ordered Lists Type, start, reversed attributes, Nesting list

13.2 Nesting lists

https://www.programiz.com/html/unordered-list
Topic: Nesting Lists, Ordered List inside Unordered List, Multi-level Nesting of Unordered List

14 HTML Links

https://www.tutorialrepublic.com/html-tutorial/html-links.php
Topic: HTML Link Syntax with href attribute, Setting the target attribute, Creating bookmark anchors with # and id attribute, Creating download links

The <a> tag is sometimes called the anchor tag. The content of the <a> element is the source anchor while the URL specified in the `href` attribute is the destination anchor. Source anchor can also refer to the HTML document that the <a> tag appears in.

https://www.w3schools.com/html/html_links.asp
Topic: Absolute URLs vs. Relative URLs, More on Absolute URLs and Relative URLs

https://www.w3schools.com/html/html_images.asp
Topic: Using Image as a Link

https://www.programiz.com/html/links
Topic: Email and call links in href attribute

15 HTML Forms

All topics: <form> element, Form elements, Form attributes: action, method, target, name, novalidate

Topic: Frequently Used Form Attributes

Note: The term `form elements` and `form controls` are used interchangeably

15.1 HTML Form action: POST vs GET

15.2 HTML Form Elements

The form elements available in HTML5 are as follows:
HTML <input> tag
HTML <label> tag
HTML <button> tag
HTML <select>, <option> and <optgroup> tags
HTML <textarea> tag
HTML <fieldset> tag
HTML <legend> tag
HTML <datalist> tag
HTML <output> tag

All topics: HTML form elements

15.3 HTML <input> Element

The various types of input tags available in HTML5 are:
1. text - creates a single-line text fields (default)
2. button - creates a button with no default functionality
3. checkbox - creates a checkbox
4. color - creates a color picker
5. date - creates a date picker
6. datetime-local - creates a date and time picker
7. email - creates an input field that allows the user to input a valid email address
8. file - creates an input field that lets the user upload a file or multiple files
9. hidden - creates an invisible input field
10. image - creates a button using an image
11. month - creates an input field that lets the user enter month and year
12. password - creates an input field that lets the user enter information securely
13. radio - creates a radio button

14. range - creates a range picker from which the user can select the value
15. reset - creates the button which clears all the form values to their default value
16. search - allows user to enter their search queries in the text fields
17. submit - allows user to submit form to the server
18. tel - defines the field to enter a telephone number
19. time - creates an input field that accepts time value
20. url - lets the user enter and edit a URL
21. week - lets the user pick a week and a year from a calendar

https://www.programiz.com/html/input
All topics:

16 Facilitating web development with Chrome Dev Tools

Create a new HTML file which incorporates some or all of the elements that we have studied so far. You can use any random values for the text content in the elements that require them. Make sure you include at least one element with an attribute (for e.g <img> with a `src` attribute, or <a> with a `href` attribute) When you are done, open this file in a browser tab.

You can directly view the HTML content for a web page in Chrome by right clicking on the page and selecting View Page Source.
Instructions for viewing HTML source code in other major browsers
https://www.computerhope.com/issues/ch000746.htm

All major browsers (Chrome, FireFox, Edge, etc) offer functionality to inspect and edit HTML / CSS of an open web page - this is typically known as Developer Tools.
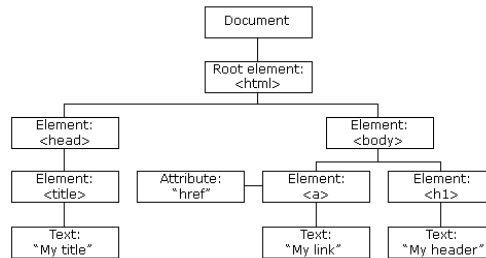To access this facility in Chrome, you can either:
   a) Right click on part of an open web page and select Inspect from the context menu
   b) Access the menu option from the upper right hand corner of the browser (More Tools -> Developer Tools)

You will see many top-level menu options that present as panels in the Dev Tools view. The one that we will be working with is the Elements panel view which shows the DOM tree.

16.1 Document Object Model (DOM) tree

When a HTML document is loaded into the browser, it creates an internal representation of that document in memory known as a Document Object Model (DOM) tree. All the various items in the HTML (the elements, attributes and content between tags) are represented as objects / nodes in the this tree. The DOM is a hierarchical tree starting from the root element <html> extending all the way down to the leaf nodes, which are typically contents or attributes of various elements.

Document
Root element:
<html>
Element:
<head>
Element:
<body>
Element:
<title>
Attribute:
"href"
Element:
<a>
Element:
<h1>
Text:
"My title"
Text:
"My link"
Text:
"My header"

The DOM exposes a cross platform programming interface (API) that allows a program (typically written in JavaScript) to modify all the objects / nodes in the tree in a specific way, thereby adding interactivity to the web page UI. This can be done using either basic JavaScript (vanilla JavaScript) or popular JavaScript library or framework such as React or Angular.

At the moment, the DOM tree structure in the Elements tab view is an exact duplicate of your HTML file, which is what you expect for a very simple HTML document. There is also no styles available as we have not added any CSS rules to this page.

In future labs, when a JavaScript script is running in the browser to operate on the DOM tree, you will see how the DOM tree can change dynamically from the original HTML that was loaded into the browser. The view on the browser page is always based on the current DOM tree in the browser memory, and not the actual HTML that was loaded in the browser.

You can perform some basic inspection / edition on the current DOM shown in the Elements panel
   a) Inspecting a node
   b) Navigating DOM Tree with a keyboard
   c) Searching for nodes
   d) Editing text content of a node
   e) Editing attributes (for e.g. `src` of an <img> or `href` of an <a>)
   f) Editing node type
   g) Edit as HTML
   h) Reorder nodes (for e.g. those in a list)
   i) Hide a node
   j) Delete a node

These steps are detailed here in the tutorial below. You can follow the examples there and repeat it on your own webpage.
https://developer.chrome.com/docs/devtools/dom/

Note that any changes you make during editing are only temporary because they are made to the DOM in the browser. The content of the actual HTML file does not change. Any changes you have made to the DOM will be lost once you reload the web page (F5) or perform a hard refresh (Ctrl+F5).

In an upcoming lab, where you will incorporate CSS styling into your HTML, you will see other ways of inspecting and working with the CSS styles.

17 HTML <head> element

https://www.tutorialrepublic.com/html-tutorial/html-head.php
All topics: <title>, <base>, <link>, <style>, <meta>, <script>

Adding a Favicon next to the page title
https://www.programiz.com/html/favicon

17.1 HTML <meta> element

https://www.tutorialrepublic.com/html-tutorial/html-meta.php
All topics: Character encoding, defining author, keyword and description, viewport,

18 Semantic elements (HTML5)

https://www.programiz.com/html/semantic-html
Go through all the other tags: div, aside, section, footer, main, figure and figcaption

Key point: The <div> tag is a very widely used non-semantic tag before HTML5 for grouping content for the purpose of styling using CSS rules. You will still see it used very widely for this purpose in many front-end frameworks and libraries such as Angular and React. However, as far as possible, you should try to perform in HTML5 using any one of the new relevant semantic elements (`article, aside, details, figure, footer, header, main, nav,` etc)

Detailed description of semantic elements
https://www.freecodecamp.org/news/semantic-html5-elements/

Other examples of semantic elements
https://www.w3schools.com/html/html5_semantic_elements.asp

19 HTML Validation

https://www.tutorialrepublic.com/html-tutorial/html-validation.php

20 HTML Style Guide

https://www.w3schools.com/html/html5_syntax.asp

https://data-flair.training/blogs/html-style-guide/