

Lecture 9

HTML, CSS, and Version Control

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Introduction to HTML

- HTML (HyperText Markup Language) is the most basic building block of the Web. It defines the meaning and structure of web content.
- "Hypertext" refers to links that connect web pages to one another, either within a single website or between websites.
- Other technologies besides HTML are generally used to describe a web page's appearance/presentation (CSS) or functionality/behavior (JavaScript).
- HTML uses "markup" to annotate text, images, and other content for display in a Web browser.

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

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HTML

Good tutorial: <https://www.w3schools.com/html/>
History: <https://en.wikipedia.org/wiki/HTML>

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HTML Example

```
<!DOCTYPE html>
<html lang='en-us'>

<head>
  <meta charset="utf-8">
  <title>My First WebPage</title>
</head>

<body>
  <h1> Hello World! </h1>
</body>

</html>
```

<tag> ... </tag>: describes structures
This page has:
 <html> ... </html>: A HTML document
 <head> ... </head>: Document header
 <body> ... </body>: Document body

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HTML Document

- Tags (<...>) are hints to web browsers and are usually hidden from users, and are often in pairs. A pair of tags encloses an element.
- Some tags have attributes
 - E.g. ` ABC ` ← this is an element (including `<a...` and ``)
- HTML documents are enclosed by a HTML element: `<html>` and `</html>`
 - Two child-elements: `head` and `body`
 - `head` has identifying information not displayed.
 - `body` is displayed, with formatting:
 - `<p>`: Paragraph
 - `<h1>` through `<h6>`: Header level 1 through 6.
 - `
`: line break or carriage return
 - `<a>`: Anchor, placed around text or images; used for hyperlinks

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Tag Examples (2/2)

- Paragraph format: `<h2 align="center"> text </h2>`
- Preformatted text: `<pre> e.g. spaces, line-breaks are preserved </pre>`
- Horizontal lines: `<hr width="80%" align="left">`
- Lists: can be multi-level, etc.
 - Ordered (numbered) ``
 - Unordered (bulleted) ``
 - Definition (indented) `<dl>`
- Tables: `<table>`, `<caption>`, `<tr>` (row), etc.
- Font size and color: ``, ``
- Special characters & symbols: `>`; is `>`

Note: The attributes and tags in blue are related to the appearance. Their use has been deprecated and should not be used. Use [CSS \(Cascading Style Sheet\)](#) instead.

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

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Tag Examples (1/2)

- HTML5 tags are meant to be **semantic** tags.
 - They provide semantic meanings of the enclosing content.
 - They describe the page structure. (paragraphs, headings, ...)
 - Browser renders the content according to the structure & tags. Different browser may render it differently based on its capability.
 - Not all tags have closing tags. Some tags are self-closing.

Opening tag	Closing tag	Definition
<code></code>	<code></code>	Emphasis (often <i>italic</i>)
<code></code>	<code></code>	Strong emphasis (often bold)
<code><var></code>	<code></var></code>	Variable
<code><cite></code>	<code></cite></code>	Citation (of an article or book)
<code><code></code>	<code></code></code>	Computer code (tags ignored)

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HTML References

- <https://developer.mozilla.org/en-US/docs/Web/HTML/Reference>
- <https://www.w3schools.com/TAGS/default.asp>
- <https://htmlreference.io/>

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CSS

Good tutorial: <https://www.w3schools.com/css/>
Wiki: https://en.wikipedia.org/wiki/Cascading_Style_Sheets

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Inline style

```
<!DOCTYPE html>
<html lang="en-US">
<head>
  <title> This is a test. </title>
  <meta charset="utf-8">
</head>
<body>
  Hello World!
  <p style="color:red;">
    I should be in red.
  </p>
  <p style="background-color:blue; color:white;">
    I have a background color blue.
  </p>
</body>
</html>
```



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Styling/Formatting

- Styling is done through CSS (cascading style sheet)
- Basic syntax:
 - *selector* { property: value; property: value; ... }
 - e.g. body {background-color: black; color: white}
- Selector:
 - “select” html elements to format
 - element selector: body, p, h1, h2, ...
 - id selector: select an unique element by specifying target, #idname
 - class selector: select many elements by matching class, .classname
 - attribute selector: select many elements that has certain attribute values, [attribute=value]
- Three places for stylesheets:
 - External stylesheet
 - Internal stylesheet
 - Inline styles

<https://www.w3schools.com/css/default.asp>
<https://cssreference.io/>

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Internal style sheet

```
<!DOCTYPE html>
<html lang="en-US">
<head>
  <title> This is a test. </title>
  <meta charset="utf-8">
  <style>
    body { background-color:gray; }
    p { color:red; }
  </style>
</head>
<body>
  Hello World!
  <p>I should be in red.</p>
  <p>My color is also red.</p>
</body>
</html>
```



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External style sheet

```
<!DOCTYPE html>
<html lang="en-US">
<head>
  <title> This is a test.</title>
  <meta charset="utf-8">
  <link rel="stylesheet" type="text/css" href="myStyle.css">
</head>
<body>
  Hello World!
  <p id='a'> I should be in red. </p>
  <p id='b'> I am in blue... </p>
</body>
</html>
```

Hello World!

I should be in red.

I am in blue...

myStyle.css

```
body { background-color:gray; }
#a { color:red; }
p#b { color:blue; }
```

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Git and GitHub

Good tutorial: <https://www.w3schools.com/css/>
Wiki: https://en.wikipedia.org/wiki/Cascading_Style_Sheets

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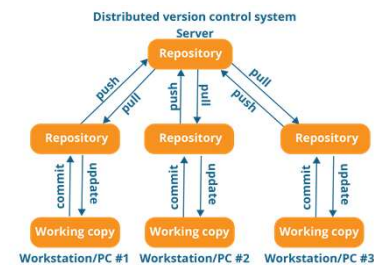
CSS References

- <https://developer.mozilla.org/en-US/docs/Web/CSS/Reference>
- <https://www.w3schools.com/cssref/index.php>
- <https://cssreference.io/>

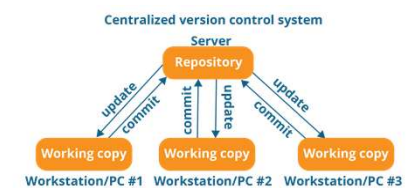
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What is Git?

- Git is a version control system created by Linus Torvalds.
- It is currently the most popular **distributed** version control system used.

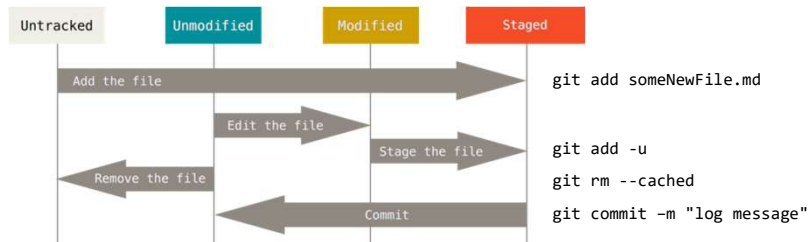


<https://www.edureka.co/blog/what-is-git/>



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Note a file can be both staged and modified. (modified after staging)



`git add -u && git commit -m "log message" → git commit -a -m "log message"`

<https://git-scm.com/book/en/v2/Git-Basics-Recording-Changes-to-the-Repository>

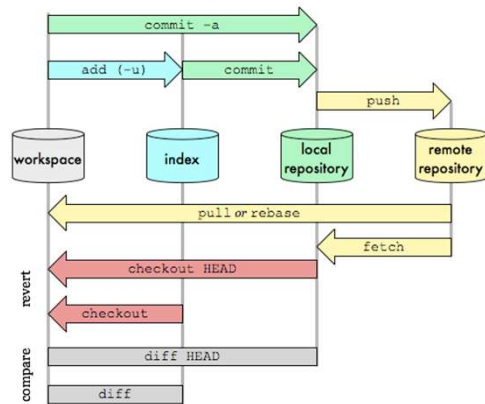
What is GitHub?

- GitHub is a web-based platform that uses Git, a distributed version control system, to facilitate the creation, storage, management, and sharing of code, primarily for software development.
- It provides tools to create and manage the shared repository to allow developers collaborate.
- Today, it also provides tools for project management, documentation (wikis), continuous integration/continuous delivery (CI/CD) via GitHub Actions, and a large community hub for open-source projects.

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Git Data Transport Commands

<http://osteele.com>



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<https://stackoverflow.com/questions/59441589/how-is-repository-different-from-workspace>

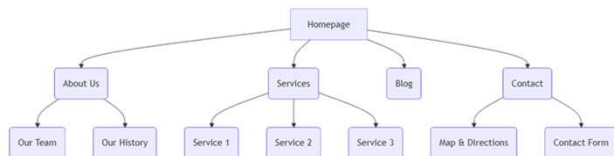
Lab – Version Control, HTML, and CSS

Be sure that you have already had a GitHub account, and you also need to install some free software on your working computer. See lab manual for details.

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Assignment #4

- You have identified MVP for your project, and you have prepared an ER diagram and its corresponding physical data populated with data. Before we starting building the system, I'd like to see your plan for your website.
- Create a new repository for your term project on GitHub (just like what we do in the lab). Use README.md to prepare a organization chart for your website. GitHub supports a) Markdown syntax for easy documentation, and b) Mermaid syntax for graph needs. Use "Mermaid" syntax to create a organization for you planned website (including who is going to be responsible for which). Also, use different colors to show your priority of implementation for the website.



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<https://docs.github.com/en/get-started/writing-on-github/getting-started-with-writing-and-formatting-on-github/quickstart-for-writing-on-github>

References

- Markdown
 - <https://www.markdowntutorial.com/>
 - <https://www.markdownguide.org/cheat-sheet/>
 - <https://docs.github.com/en/get-started/writing-on-github/getting-started-with-writing-and-formatting-on-github/quickstart-for-writing-on-github>
- Mermaid
 - <https://docs.github.com/en/get-started/writing-on-github/working-with-advanced-formatting/creating-diagrams>
 - <https://mermaid.js.org/>

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An example

```
# lab1029
```mermaid
graph TD
 A[Homepage] --> B[About Us]
 A --> C[Services]
 A --> D[Blog]
 A --> E[Contact]

 B --> B1[Our Team]
 B --> B2[Our History]
 C --> C1[Service 1]
 C --> C2[Service 2]
 C --> C3[Service 3]

 E --> E1[Map & Directions]
 E --> E2[Contact Form]
```
```



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