CS213: Software Systems Laboratory
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Recap

Unix
- o *Basics: shell, file system, permissions, process hierarchy, process monitoring, ssh, rsync*
- o *Tools: grep, find, head, tail, tar, cut, sort, sed, awk*
- o *Bash scripting: I/O redirection, pipes, makefile, libraries and linking*

Report and Presentation tools
- o *Tools: Latex , beamer*
- o *Drawing software (e.g., Inkscape, xfig open-office)*

Web Design
- o *HyperText Markup Language (HTML)*
- o *Hypertext Preprocessor (PHP), Structured Query Language (SQL) and Java Script*

Outline

- HyperText Markup Language (HTML)
- HTML Specifications
  - Heading
  - Paragraph
  - Link
  - Button
  - Image
  - Preformat
  - Lists
  - Tables
  - Form
- Cascading Style Sheets

What is HTML?

HyperText Markup Language

- Standard markup language for Web
  - Similar to Latex → it's not a *programming language...* it's a **declarative** language
  - Invented in early 1990s
  - Filename extension
    - .html
    - .htm

- HTML Editors
  - Windows: Notepad
  - Mac: TextEdit
  - Linux: vim, emacs, gedit, nano
  - IDEs
  - Chrome Browser

- Not case-sensitive

markup
/ˈmɑːkʌp/

noun

noun: **markup**; plural noun: **markups**; noun: **mark-up**; plural noun: **mark-ups**

1. the amount added to the cost price of goods to cover overheads and profit.
   "a markup of 50 per cent"

2. the process or result of correcting text in preparation for printing.

3. COMPUTING
   a set of tags assigned to elements of a text to indicate their relation to the rest of the text or dictate how they should be displayed.
   "markup languages"

HTML

Living Standard — Last Updated 5 October 2023

One-Page Version | Multipage Version | Version for Web Devs | PDF Version | Translations | FAQ | Chat

HTML Standard (whatwg.org)

HTML Element

HTML Element (1)

Main Heading

<h1> Welcome to CS 213 </h1>

<h2> Welcome to CS 213 </h2>

<h3> Welcome to CS 213 </h3>

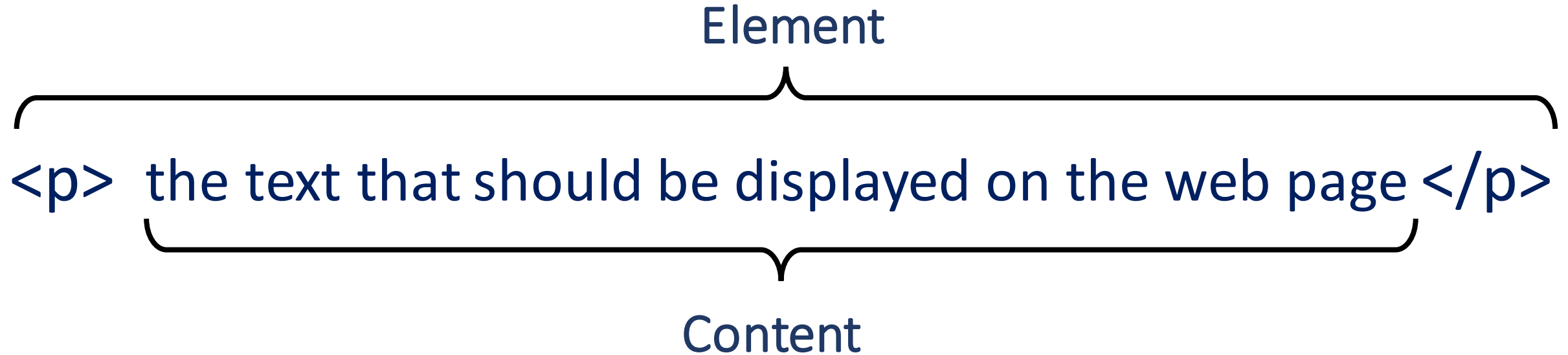<h4> Welcome to CS 213 </h4>

<h5> Welcome to CS 213 </h5>

<h6> Welcome to CS 213 </h6>

- There are 6 levels, **<h1>** through **<h6>**
- Think of them like an outline. All levels default **Bold**
- The numbers of the headings *are* significant, as they will define a hierarchical structure for the page

HTML Element (2)

Paragraph

Element

<p> the text that should be displayed on the web page </p>

Content

- **HTML ignores whitespace.**
  - spaces, tabs, newlines etc.
  - so if you want to start a paragraph, use **<p>**
  - the closing **</p>** tag is optional

HTML Specification

`<!Doctype html>` this says we're using HTML5

`<html>`

`<head>`

<head> tells the browser *about* the page

`</head>`

HTML Document

`<body>`

<body> contains the page *contents* – text, images, links, layout, etc.

`</body>`

`</html>`

HTML Specification

Header

`<!Doctype html>` this says we're using HTML5

`<html>`

HTML Document

```
<head>
    <meta charset="utf-8">
    <title>Welcome to CS213 </title>
</head>
```


Welcome to CS213 ✕

```
<body>

</body>
```

`<body>` contains the page *contents* – text, images, links, layout, etc.

`</html>`

HTML Specification

Body

```
<!Doctype html>
```
this says we're using HTML5

```
<html>
  <head>
        <meta charset="utf-8">
        <title>Welcome to CS213 </title>
  </head>

  <body>
   <h1> Welcome to CS213 HTML Class </h1>
   <p> This class introduces different features of
HTML such as attributes, order list, unorder list,
tables, forms </p>
  </body>
</html>
```
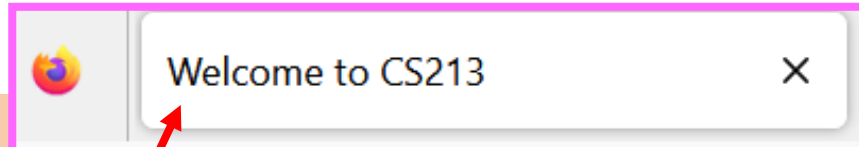
HTML Document

Welcome to CS213

HTML Specification

```html
<!Doctype html>
<html>
 <head>
       <meta charset="utf-8">
       <title>Welcome to CS213 </title>
 </head>

 <body>
   <h1> Welcome to CS213 HTML Class </h1>
   <p> This class introduces different
features of HTML such as attributes,
order list, unorder list, tables, forms
</p>
 </body>
</html>
```

HTML Specification
Link and Button

```
<!Doctype html>
<html>
  <head>
        <meta charset="utf-8">
        <title>Welcome to CS213 </title>
  </head>


  <body>
                        Attribute

    <a href="https://iitdh.ac.in/"> <button> Navigate
      to IITDh! </button> </a>



  </body>

</html>
```

HTML Document

HTML Specification

Image

HTML Document

```
<!Doctype html>
<html>
 <head>
      <meta charset="utf-8">
      <title>Welcome to CS213 </title>
 </head>

 <body>
 <img src="iitdh_logo.png" style="background-color:
  black; width=500;height=600;">
 <hr />
 </body>

</html>
```

HTML Specification
Preformated

```
<!Doctype html>
<html>
 <head>
      <meta charset="utf-8">
      <title>Welcome to CS213 </title>
 </head>


 <body>
   <pre>
    int main(){
     int i, j;
     CS213 ();
   </pre>
</body>
</html>
```

HTML Document

```
int main(){
 int i, j;
 CS213 ();
}
```

HTML Specification
Ordered List

HTML Document

```
<!Doctype html>
<html>
  <head>
        <meta charset="utf-8">
        <title>Welcome to CS213 </title>
  </head>


  <body>
    <ol>
      <li> HTML Elements tag name
      <li> HTML Elements tag closed properly or not
      <li> HTML Attributes names and values
    </ol>
  </body>
</html>
```

1. HTML Elements tag name
2. HTML Elements tag closed properly or not
3. HTML Attributes names and values

HTML Specification
Unordered List

HTML Document

```
<!Doctype html>
<html>
  <head>
        <meta charset="utf-8">
        <title>Welcome to CS213 </title>
  </head>


  <body>
   <ul>
      <li> HTML Elements tag name
      <li> HTML Elements tag closed properly or not
      <li> HTML Attributes names and values
   </ul>
  </body>
</html>
```

- HTML Elements tag name
- HTML Elements tag closed properly or not
- HTML Attributes names and values

HTML Elements: Summary

Element	Tag
Headings	h1 to h6
Paragraph	p
Link	a
Image	img
Button	button
List	ol, ul, li
Line break	br
Centering content	center
Horizontal lines	hr
Preserve formatting	pre
Space	

HTML Specification
Attributes

```
<!Doctype html>
```

Always specified in the start tag

```
<html>
```

HTML Document

```
 <head>
      <meta charset="utf-8">
      <title>Welcome to CS213 </title>
 </head>

<body text='black' link='red' alink='pink' vlink='blue'
bgcolor='#DDDDDD' background='wallpaper.gif'>
 <p align="left"> Welcome to CS213 </p>
 <p align="center"> Welcome to CS213 </p>
 <p align="right"> Welcome to CS213 </p>
</body>

</html>
```

HTML Attributes

Attributes provide additional information about an element
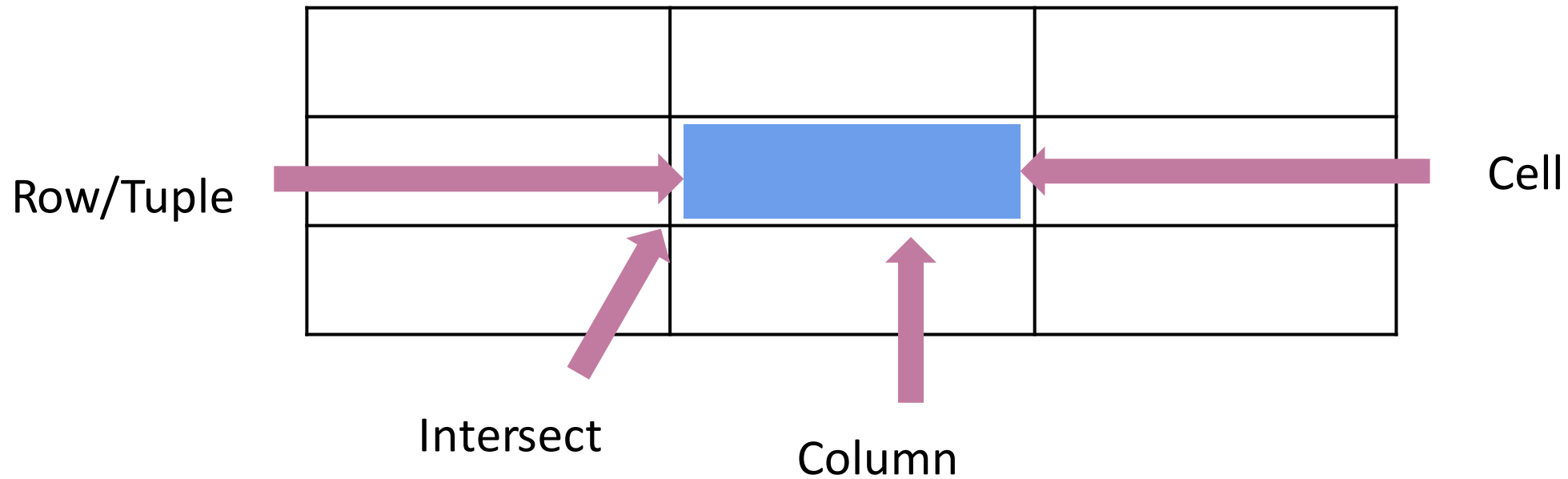Always specified in the start tag

Attribute	Operations	Description
align	right, left, center	Horizontally aligns tags
valign	top, middle, bottom	Vertically aligns tags within an HTML element.
bgcolor	numeric, hexadecimal, RGB values	Places a background color behind an element
background	URL	Places a background image behind an element
id	User Defined	Names an element for use with Cascading Style Sheets.
class	User Defined	Classifies an element for use with Cascading Style Sheets.
width	Numeric Value	Specifies the width of tables, images, or table cells.
height	Numeric Value	Specifies the height of tables, images, or table cells.
title	User Defined	"Pop-up" title of the elements.
alt	User Defined	Specifies an alternative text for an image, when the image cannot be displayed
src	URL	Specifies the URL (web address) for an image

HTML Style and Formatting

Name	Syntax	Description
Background color	"background-color:red;"	Defines background color for an HTML element
Text color	"color:blue;"	Defines text color for an HTML element.
Font style	"font-family:verdana;"	Defines font style to be used for an HTML element.
Font size	"font-size:300%;"	Defines font size for an HTML element.
Text alignment	"text-align:center"	Defines horizontal text alignment for an HTML element.
Bold & Strong	<b> & <strong>	
Italic	<i> or <em>	
Small and highlight	<small> & <mark>	
Delete & insert	<del> & <ins>	
Sub & super script	<sub> & <sup>	

HTML Table

HTML Table : A combination of rows and columns, which interact
with each other and create cell where user store the value

HTML Table : Structure

HTML Table : Allows the web developer to arrange data into rows and columns

1. <table>   : Defines an HTML table
2. <th>   : Define the table headers
3. <tr>   : Defines a table row
4. <th>   : Defines a table's headers and data cell

"Tables are useful for the general display of tabular data"

<table>
  <tr>
    <th> RollNo </th>
    <th> Name </th>
  </tr>
  <tr>
    <td> 1 </td>
    <td> Rama </td>
  </tr>
</table>

<table>

<th> RollNo </th>	<th> Name </th>
<td> 1 </td>	<td> Rama </td>

</table>

HTML Table : Attribute

The table tag begins the process of building a table. It carries the following list of attributes

<table Border = "1" Bordercolor = "red" >

<table Border = "1" width = "50% or Height = 50%">

<table align = "Left / Center / right>

- Border
- Bordercolor
- Width
- Height
- BG color
- BackGround
- Frame
- Rules
- Align
- Valign

RollNo	Name
1	Rama

HTML Table : BackGround

Background attribute of the **TABLE, TR, and TD (TH)** elements specifies the background of the table.

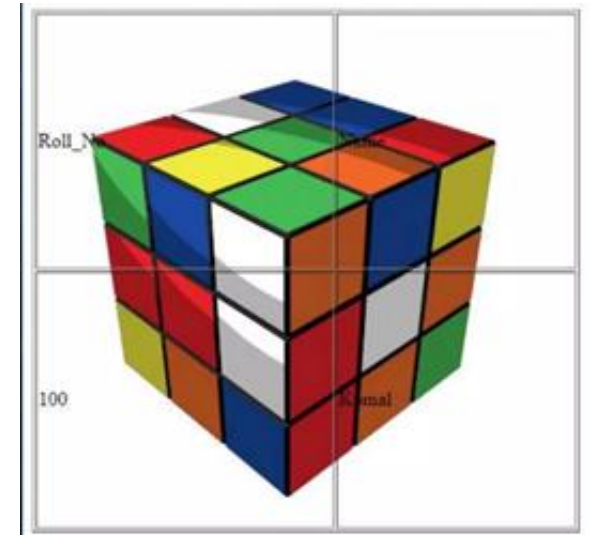> <table background = "image_name.type> ⇒ Applies to an entire table
> <tr background = "image_name.type> ⇒ Applies to all cells in a row
> <td background = "image_name.type> ⇒ Applies to one cell

<table Border = "1" background = dice.gif width = 30% height = 55%>

<th> RollNo </th>	<th> Name </th>
<td> 1 </td>	<td> Rama </td>

<tr>   **</tr>**

</table>

HTML Specification
Forms

```
<input type="text">
<input type="radio">
<input type="checkbox">
<input type="submit">
<input type="button">
```

```html
<form>

  <label for="fname">First name:</label><br>
  <input type="text" id="fname" name="fname"><br>
  <label for="lname">Last name:</label><br>
  <input type="text" id="lname" name="lname">
  <textarea id="message" name="message" rows="4" cols="50"
placeholder="Write your message here..." required></textarea>
</form>
```

Introduction to CSS

- **CSS Sytax**
  - Ruleset
  - Selector Property
  - Values
- **CSS Properties**
  - text-alginment
- **Integrating HTML and CSS**
  - Container Elements → div
  - Class attributes

Cascading Style Sheets

CSS Syntax

- Ruleset

Selector {

Property1: value1;
Property2: value2;

}

Cascading Style Sheets

- CSS is a set of rulesets

CSS Ruleset

Selector

.hcenter {

text-algin: center;

}

Property   **Value**

Cascading Style Sheets

- CSS is a set of rulesets

<tag attribute="value" >   Content   </tag>

Element

Integrating HTML and CSS

```html
<!Doctype html>
<html>
 <head>
      <meta charset="utf-8">
      <title>Welcome to CS213 </title>
      <link rel="stylesheet" href="hcenter.css">
 </head>

 <body>
  <h1 class="hcenter"> Welcome to CS213 CSS Class
</h1>
  <p class="hcenter">This class introduces
different features of HTML such as attributes,
order list, unorder list, tables, forms </p>
  </body>
</html>
```

HTML Document

1

2

CSS: Container Element

<div> Elements </div>

Element

```
<!Doctype html>
<html>
 <head>
      <meta charset="utf-8">
      <title>Welcome to CS213 </title>
      <link rel="stylesheet" href="hcenter.css">    ①
 </head>
 <body>                                              ②
 <div class="hcenter">
   <h1> Welcome to CS213 CSS Class </h1>
   <p>This class introduces different features of HTML
such as attributes, order list, unorder list, tables,
forms </p>
 </div>
 </body>

</html>
```

CSS: Multi-Ruleset

\<div\> Elements \</div\>

Element

Welcome to CS213 CSS Class

This class introduces different features of HTML such as attributes, order list, unorder list, tables, forms

```
.backgroundcolor{
    background-color: lightblue;
    text-align: center;
}
```
(1)

```
.header{
    color: black;
}
```
(2)

```
.paragraph{
    color: blue;
}
```
(3)

Integration HTML and CSS: Multi-Ruleset

```html
<!Doctype html>
<html>
<head>

        <meta charset="utf-8">
        <title>Welcome to CS213 </title>
        <link rel="stylesheet" href="header.css">
        <link rel="stylesheet" href="backgroundcolor.css">
        <link rel="stylesheet" href="paragraph.css">

</head>
  <body>
  <div class="backgroundcolor">
   <h1 class="header"> Welcome to CS213 CSS Class </h1>
   <p class="paragraph">This class introduces different features of
HTML such as attributes, order list, unorder list, tables, forms </p>
   </div>
  </body>
</html>
```

thank you!

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