

HTML

What is HTML?

- **HTML** stands for Hypertext Markup Language
- A computer language understood by Web browsers to format Webpages
- We describe the format of the Webpage by marking it up with special symbols we refer to as tags, e.g., the following **tags** format the text as bold:
- ****This text is bold****

What is HTML?

- Page format is written in plain text as opposed to some proprietary binary format
- Some text can be formatted to do some action and is referred to as hypertext to distinguish it from text that does not do any action

Creating an HTML Webpage

- Creating an HTML Webpage is as easy as creating a text file
- From your favorite text editor, create a new file and save it with the .html extension
- Often HTML Webpages are referred to as HTML Documents
- Here's a simple HTML document in file ***hello.html***:
- `Hello World!`
- Open the same file `hello.html` with a browser

The document type

- The **DOCTYPE** declares the type of the document as html. Helps browsers making sure they open the right type of document

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<title>This is the Page Title</title>
```

```
<link href="style.css" rel="stylesheet"/>
```

```
</head>
```

```
<body>
```

```
Hello World!
```

```
</body>
```

```
</html>
```

HTML Comments

- Comments are short pieces of text developers add to document code
- Help developers remember what thinking when they wrote the code
- Comments are ignored by Web browsers since they only mean something to the developer

```
<!-- This is a short one line comment -->
```

```
<!-- This is a longer  
two line comment -->
```

Hello World!

The body tag

- The **body** tag contains the main content of a Webpage and it's where we'll be spending most of our time

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<title>This is the Page Title</title>
```

```
<link href="http://somewhere.in.europe/style.css" rel="stylesheet"/>
```

```
</head>
```

```
<body>
```

```
Hello World!
```

```
</body>
```

```
</html>
```

The structure of HTML documents

- HTML Documents have the following structure. Rewrite hello.html so that the content is in the body tag

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<title>This is the Page Title</title>
```

```
<link href="style.css" rel="stylesheet"/>
```

```
</head>
```

```
<body>
```

```
Hello World!
```

```
</body>
```

```
</html>
```


The HTML root tag

- HTML Documents are **XML (eXtensible Markup Language)** documents with root tag **html**

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<title>This is the Page Title</title>
```

```
<link href="style.css" rel="stylesheet"/>
```

```
</head>
```

```
<body>
```

```
Hello World!
```

```
</body>
```

```
</html>
```

The head tag

- The head tag configures meta information about the document such as the author, document title, scripts, styling, etc

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<title>This is the Page Title</title>
```

```
<link href="style.css" rel="stylesheet"/>
```

```
</head>
```

```
<body>
```

```
Hello World!
```

```
</body>
```

```
</html>
```

White spaces are ignored

- We use white spaces to structure documents visually.
Browsers only respect single spaces; tabs and newlines are ignored
<body> <!-- we'll stop using body since it's implied -->
Hello World!

Consider this paragraph of text. It's separated visually from the text above by a new line character that adds vertical spacing.

Also these paragraphs are indented from the left margin with tabs. Tabs and newlines are ignored so this whole content will render as a single paragraph.

</body>

Paragraphs

- Use paragraphs to explicitly add vertical spacing between portions of text

<p>Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book</p>

<p>Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book</p>

HEADINGS

Headings

- Use headings as titles to introduce distinct sections
- Headings come in 6 sizes starting with h1, h2, through h6
- H1 is the largest size, h6 is the smallest

<h1>This is the largest heading**</h1>**

<h2>This is the second largest heading**</h2>**

<h6>This is the smallest heading**</h6>**

Using headings

- For instance we can use headings to introduce all the topics we've covered so far...

`<h1>HTML</h1>`

`<h2>Paragraphs</h2>`

`<!-- content discussing paragraphs -->`

`<h2>Headings</h2>`

`<!-- content discussing headings -->`

DOM

Document Object Model (DOM)

- **The DOM is a tree like data structure browsers use to represent and render Websites**
- **A browser parses an HTML document and creates an equivalent DOM instance**

Example DOM

- Consider the following HTML

`<body>`

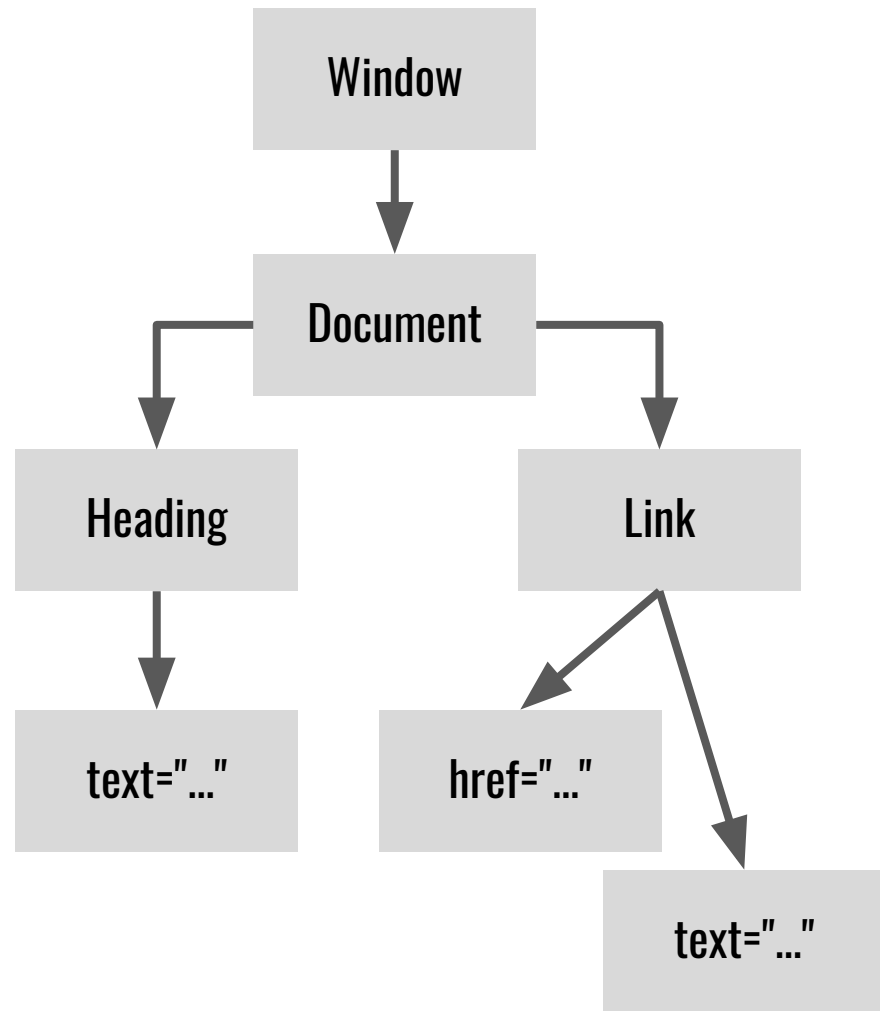
`<h1>Read about the DOM</h1>`

``

`DOM on MDN`

``

`</body>`



LISTS

Lists

<h2>Courses Spring 2018</h2>

CS5610

CS4500

CS5200

<h2>Semesters</h2>

Spring

Summer 1

Summer 2

Fall

Courses Spring 2018

- CS5610
- CS4500
- CS5200

Semesters

1. Spring
2. Summer 1
3. Summer 2
4. Fall

Ordered lists

- Ordered lists enumerate line items

<h2>Ordered lists</h1>

Follow these steps

Learn HTML

Learn JavaScript

Build cool stuff

Ordered lists

Follow these steps

1. Learn HTML
2. Learn JavaScript
3. Build cool stuff

Unordered lists

- Unordered lists render as bullet points

<h2>Unordered lists</h1>

Follow these steps

Learn HTML

Learn JavaScript

Build cool stuff

Unordered lists

Follow these steps

- Learn HTML
- Learn JavaScript
- Build cool stuff

TABLES

Tables

- Use tables to display **tabular data**, their intended purpose, e.g., each row is a record, each column has same data types.
- Do not use tables to layout content. Use DIVs and CSS instead

<table>

<thead></thead>

<tbody></tbody>

</table>

Table headings and rows

```
<table border="1"> <!-- border attribute sets border width -->
  <thead> <!-- contains table heading content -->
    <tr> <!-- heading can have several rows; 1 row is common -->
      <th>Username</th><th>Password</th><th>First Name</th>
      <th>Last Name</th><th>Role</th><th>&nbsp;</th>
    </tr>
  </thead>
</table>
```

Username	Password	First Name	Last Name	Role	
----------	----------	------------	-----------	------	--

Table body, table rows, and table data

```
<table border="1">
  <tbody>
    <tr>
      <td>alice</td>   <td>*****</td> <td>Alice</td>
      <td>Wonderland</td> <td>Student</td> <td>Edit | Remove</td>
    </tr>
  </tbody>
</table>
```

Username	Password	First Name	Last Name	Role	
alice	*****	Alice	Wonderland	Student	Edit Remove
bob	*****	Bob	Marley	Faculty	Edit Remove

**INPUT, DATES &
DROP DOWNS**

Input fields and labels

```
<label for="usernameFld">
```

Username

```
</label>
```

```
<input id="usernameFld"
```

```
  type="text"
```

```
  title="Username"
```

```
  placeholder="alice" />
```

Username

alice

First Name

Alice

Last Name

Wonderland

```
<label for="firstNameFld">
```

First Name</label>

```
<input id="firstNameFld"
```

```
  value="Alice" />
```

Date input fields

<label

for="dobFld">

Date of Birth

</label>

<input

type="date"

id="dobFld"

value="2011-11-22" />

Date of Birth

11/22/2011

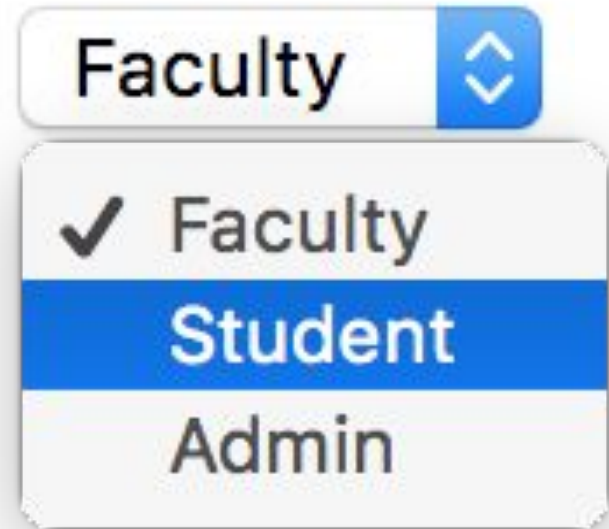
November 2011 ▼



Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	1	2	3

Dropdowns with SELECT

```
<select name="role">  
  <option value="FACULTY">  
    Faculty  
  </option>  
  <option value="STUDENT">  
    Student  
  </option>  
  <option value="ADMIN">  
    Admin  
  </option>  
</select>
```



**BUTTONS,
RADIOS &
CHECKBOXES**

Buttons

```
<button type="button">
```

Delete

```
</button>
```

```
<button type="button">
```

Edit

```
</button>
```

```
<button type="submit">
```

Update

```
</button>
```

A rectangular button with a light gray border and the text "Delete" in black.A rectangular button with a light gray border and the text "Edit" in black.A rectangular button with a light gray border and the text "Update" in black.

Default submit behavior won't be used in course

Checkbox and radio buttons

```
<label>  
  <input name="b" type="checkbox"/> Tenured  
</label>
```



```
Tenured:  
<label>  
  <input name="a" type="radio"/> Yes  
</label>  
<label>  
  <input name="a" type="radio" checked/> No  
</label>
```

Tenured:



Wrap with label to increase click area

ANCHORS

Anchors

- Use anchors to link to other documents, email or phones

`Wikipedia`

`See my profile`

`Jose`

`Call me`

Table of Content

`<h2 id="toc">Table of Content</h2>`

`Jump to Section 1`

`Jump to Section 2`

`<h1 id="#section1">Section 1</h1>`

`TOC`

`<h2 id="#section2">Section 2</h2>`

`TOC`

INLINE FRAMES (IFRAME)

Iframes

- Iframes (inline frames) allow embedding other Websites into your own

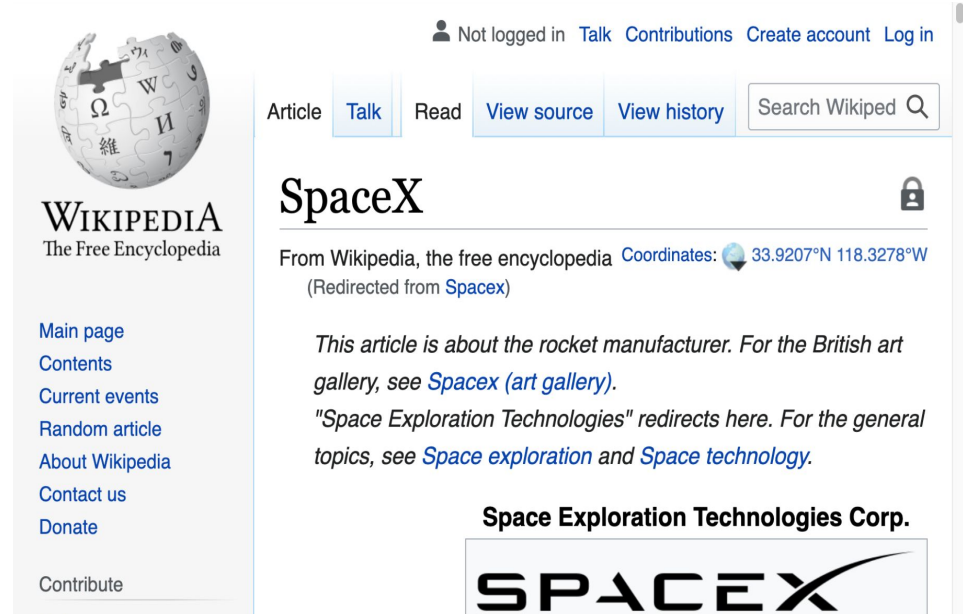
```
<iframe src="http://url/to/other/website.html"  
width="200px" height="100px"></iframe>
```

Embedding Wikipedia

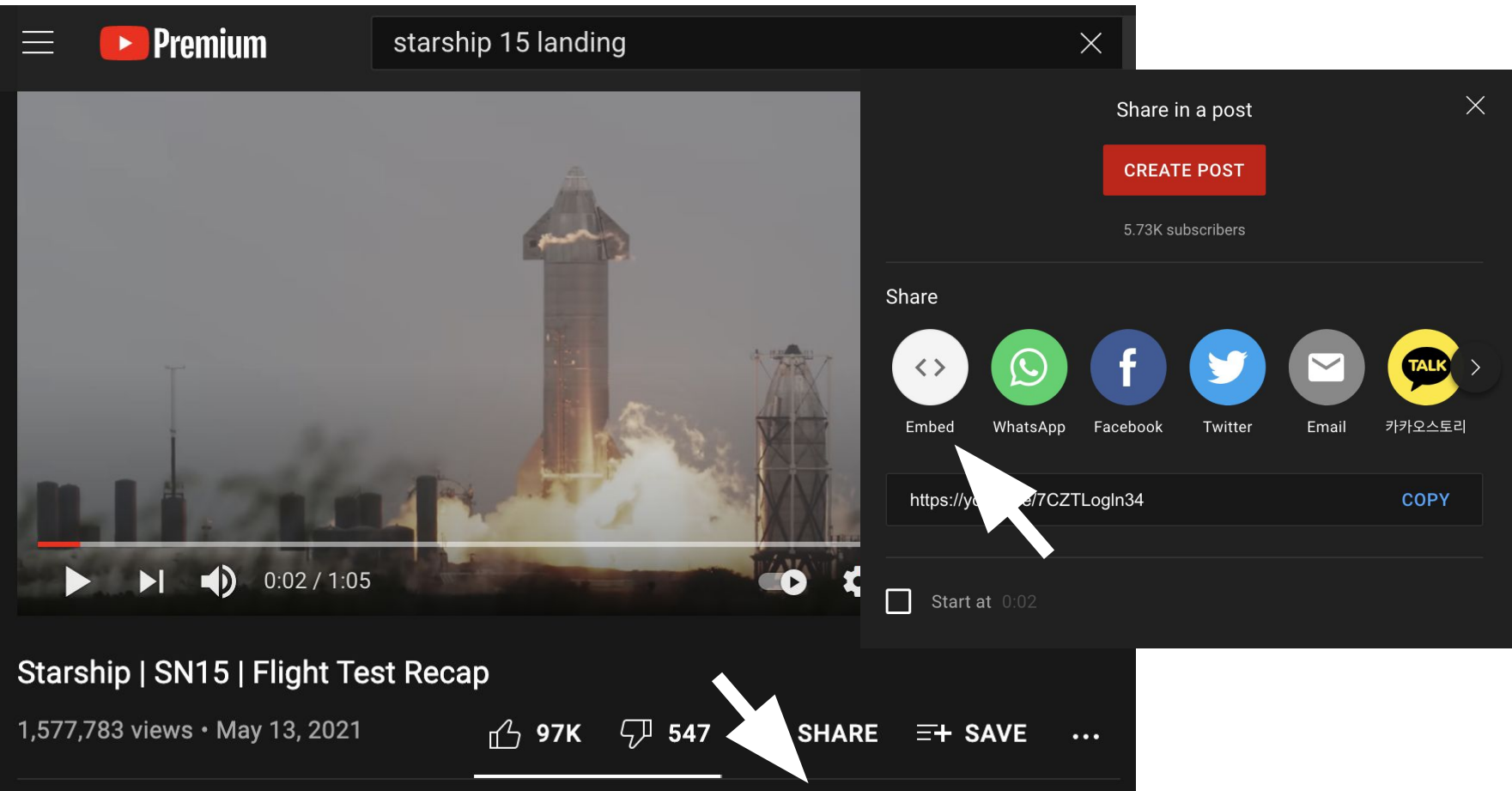
- Set `iframe's src attribute` Website's URL

```
<iframe src="https://en.wikipedia.org/wiki/SpaceX"  
width="400px"  
height="300px">  
</iframe>
```

- Specify `size of frame`



Embedding YouTube Videos with iFrame



starship 15 landing

Premium

Share in a post

CREATE POST

5.73K subscribers

Share

Embed WhatsApp Facebook Twitter Email 카카오톡

https://youtu.be/7CZTLogIn34 COPY

Start at 0:02

Starship | SN15 | Flight Test Recap

1,577,783 views • May 13, 2021

97K 547 SHARE SAVE ...

Embedding YouTube Videos with iFrame

- Copy iframe tag to your Webpage

```
<iframe width="560" height="315"  
src="https://www.youtube.com/embed/7CZTLogIn  
34" title="YouTube video player" frameborder="0"  
allow="accelerometer; autoplay; clipboard-write;  
encrypted-media; gyroscope; picture-in-picture"  
allowfullscreen></iframe>
```

Embedding Google Slides with iFrame

- File, Publish to the web, Embed, Publish

<iframe

```
src="https://docs.google.com/presentation/d/e/2PACX-1v  
TrbGSby9TY1qA9ZWLRa7BFWERL4e-oLF_JGeKD9DHj9BaW  
R3SEDZNAgYGBeRhZah3DhTjmhJp9WqEy/embed?start=fal  
se&loop=false&delayms=3000" frameborder="0"  
width="960" height="569" allowfullscreen="true"  
mozallowfullscreen="true"  
webkitallowfullscreen="true"></iframe>
```

SCALABLE VECTOR GRAPHICS

Scalable Vector Graphics

Container defines coordinate system to embed SVG fragments within HTML document

```
<svg viewBox="0 0 300 100" stroke="red" fill="grey">  
  <circle cx="50" cy="50" r="40" />  
  <rect width="100" height="100" />  
  <svg viewBox="0 0 10 10" x="200" width="100">  
    <circle cx="5" cy="5" r="4" />  
  </svg>  
</svg>
```

Lines

Use SVG's line element to draw lines

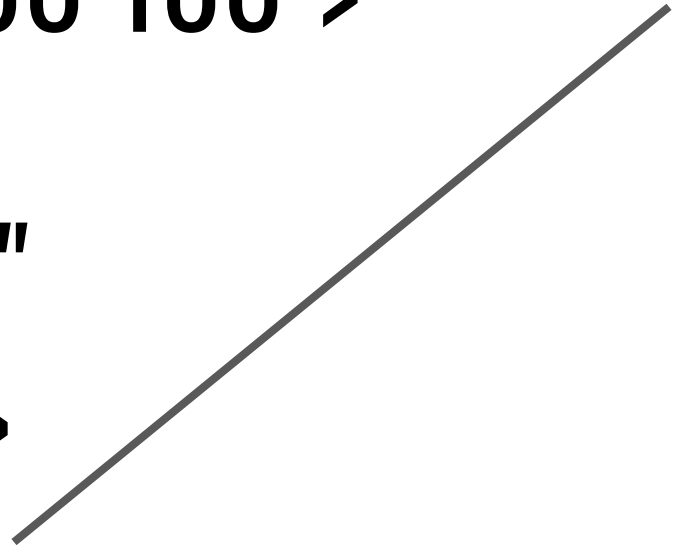
```
<svg viewBox="0 0 100 100">
```

```
  <line x1="0" y1="80"
```

```
    x2="100" y2="20"
```

```
    stroke="black" />
```

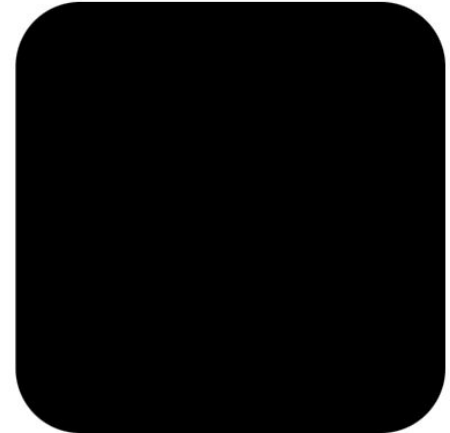
```
</svg>
```



Rectangle

Use SVG's rect element to draw rectangles

```
<svg viewBox="0 0 220 100">  
  <rect width="100" height="100" />  
  <rect x="120" width="100"  
    height="100"  
    rx="15" />  
</svg>
```



Circle

Use SVG's rect element to draw rectangles

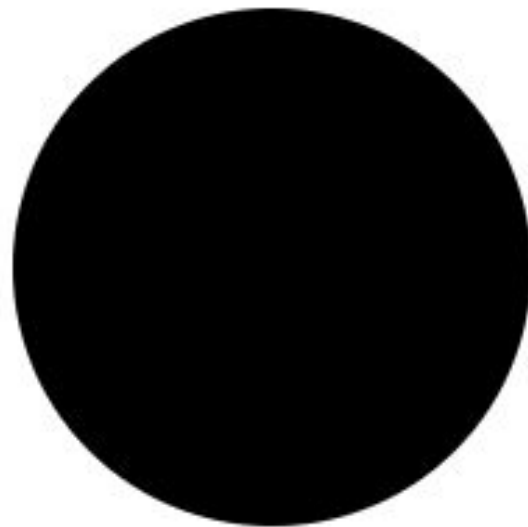
```
<svg viewBox="0 0 100 100">
```

```
  <circle cx="50"
```

```
    cy="50"
```

```
    r="50"/>
```

```
</svg>
```



Polygon

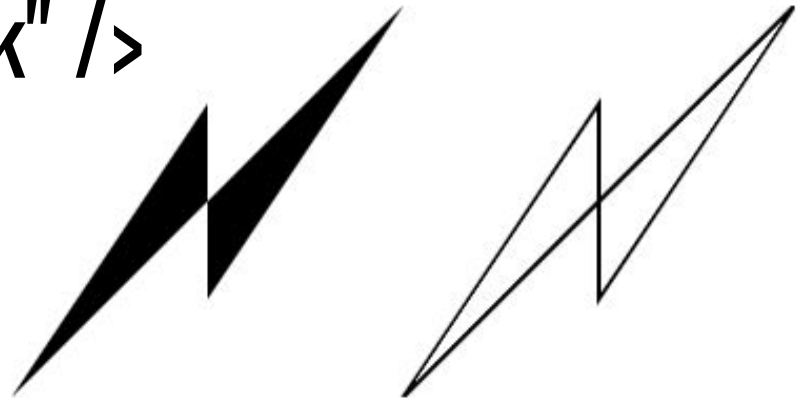
Use SVG's polygon element to draw polygons

```
<svg viewBox="0 0 200 100">
```

```
  <polygon points="0,100 50,25 50,75 100,0" />
```

```
  <polygon points="100,100 150,25 150,75 200,0"  
    fill="none" stroke="black" />
```

```
</svg>
```



USER
ADMIN

Create table headings

```
<table>
  <thead>
    <tr>
      <th>Username</th>
      <th>Password</th>
      <th>First Name</th>
      <th>Last Name</th>
      <th>Role</th>
      <th>DOB</th>
      <th>&nbsp;</th>
    </tr>
    ...
```

Username

Password

First Name

Last Name

Role

DOB

Add form row

```
<tr>
  <th><input placeholder="username"/></th>
  <th><input placeholder="password"/></th>
  <th><input placeholder="first name"/></th>
  <th><input placeholder="last name"/></th>
  <th><select><option>Faculty</option>
    <option>Student</option>
    <option>Admin</option></select></th>
  <th><input type="date"/></th>
  <th><button>Update</button>
    <button>Create</button></th></tr>
</thead>
```

Username	Password	First Name	Last Name	Role	DOB		
<input type="text" value="username"/>	<input type="password" value="password"/>	<input type="text" value="first name"/>	<input type="text" value="last name"/>	Faculty 	<input type="text" value="mm/dd/yyyy"/>	<input type="button" value="Update"/>	<input type="button" value="Create"/>

Add table body content

```
<tbody><tr><td>alice</td><td>****</td><td>Alice</td><td>Wonderland</td><td>Faculty</td><td>11/22/1968</td><td><button>Delete</button><button>Edit</button></td></tr><tr><td>bob</td><td>****</td><td>Bob</td><td>Marley</td><td>Student</td><td>10/12/1982</td><td><button>Delete</button><button>Edit</button></td></tr></tbody></table>
```

Username	Password	First Name	Last Name	Role	DOB		
<input type="text" value="username"/>	<input type="text" value="password"/>	<input type="text" value="first name"/>	<input type="text" value="last name"/>	<input type="text" value="Faculty"/>	<input type="text" value="mm/dd/yyyy"/>	<input type="button" value="Update"/>	<input type="button" value="Create"/>
alice	****	Alice	Wonderland	Faculty	11/22/1968	<input type="button" value="Delete"/>	<input type="button" value="Edit"/>
bob	****	Bob	Marley	Student	10/12/1982	<input type="button" value="Delete"/>	<input type="button" value="Edit"/>

Column span

Column span

<table>

<thead></thead>

<tbody></tbody>

</table>

Row span

Row span

<table>

<thead></thead>

<tbody></tbody>

</table>

Table footer

Table footer

<table>

<thead></thead>

<tbody></tbody>

<tfoot></tfoot>

</table>

Column layout with tables

Column layout

<table>

<thead></thead>

<tbody></tbody>

<tfoot></tfoot>

</table>

Border layout with tables

Border layout

<table>

<thead></thead>

<tbody></tbody>

<tfoot></tfoot>

</table>

Layout with CSS

Layout with CSS

<table>

<thead></thead>

<tbody></tbody>

<tfoot></tfoot>

</table>

HTML



CSS

