Centre For Innovation

WEBOPS AND BLOCKCHAIN CLUB
IIT MADRAS

Introduction to WebDev

A Basic Workshop on HTML, CSS, JS

What is WebDev?

- WebDev or Web Development is how websites/webpages are built.
- Any webpage consists of three components:
  - Skeleton: coded by HTML
  - Styling: coded by CSS
  - Functionality: coded by JS

Setup

- VScode
  - Live Server Extension
- Create a folder: Project
  - HTML file: `Index.html`
  - CSS file: `styles.css`
  - JS file: `script.js`

HTML

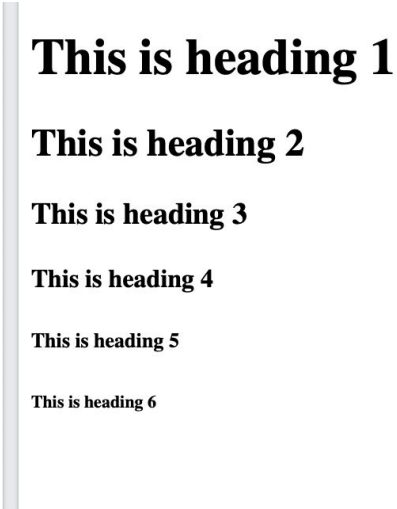
- HTML or HyperText Markup Language is the language used to build the structure and content of the webpage.
- The syntax of HTML elements are tags.

```
<h1>Heading 1</h1>
<p>paragraph</p>
```

HTML-Headings

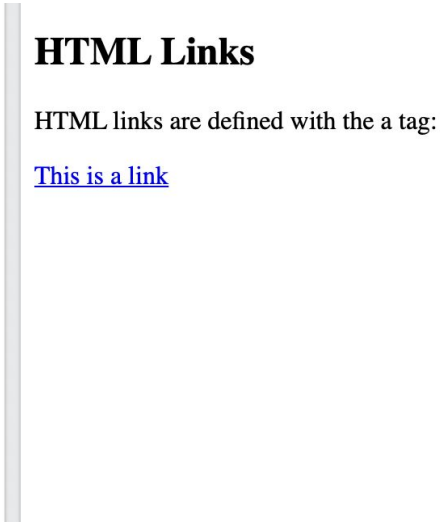
- Heading Tags

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

<h1>This is heading 1</h1>
<h2>This is heading 2</h2>
<h3>This is heading 3</h3>
<h4>This is heading 4</h4>
<h5>This is heading 5</h5>
<h6>This is heading 6</h6>

</body>
</html>
```



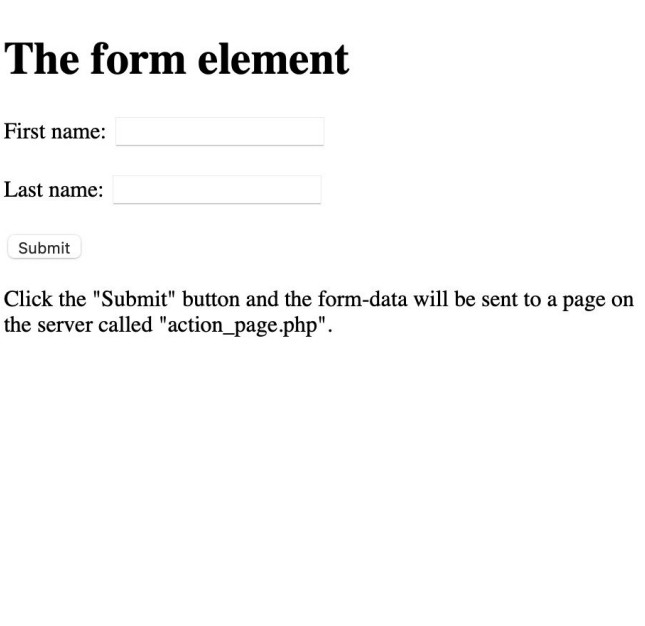
HTML-Links

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

<h2>HTML Links</h2>
<p>HTML links are defined with the a tag:</p>

<a href="https://www.w3schools.com">This is a
link</a>

</body>
</html>
```



HTML-Form

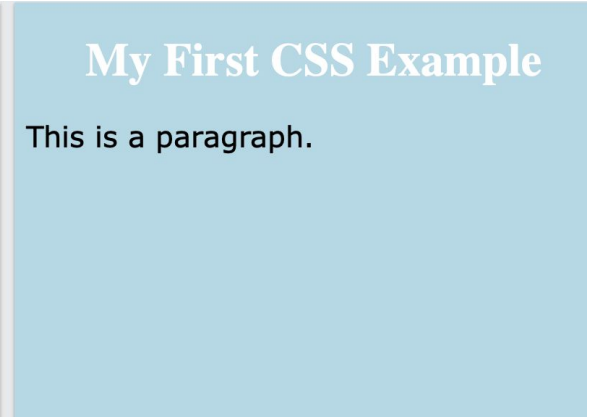
```
<!DOCTYPE html>
<html>
<body>

<h1>The form element</h1>

<form action="/action_page.php">
  <label for="fname">First name:</label>
  <input type="text" id="fname" name="fname"><br>
<br>
  <label for="lname">Last name:</label>
  <input type="text" id="lname" name="lname"><br>
<br>
  <input type="submit" value="Submit">
</form>

<p>Click the "Submit" button and the form-data will
be sent to a page on the
server called "action_page.php".</p>

</body>
</html>
```



CSS

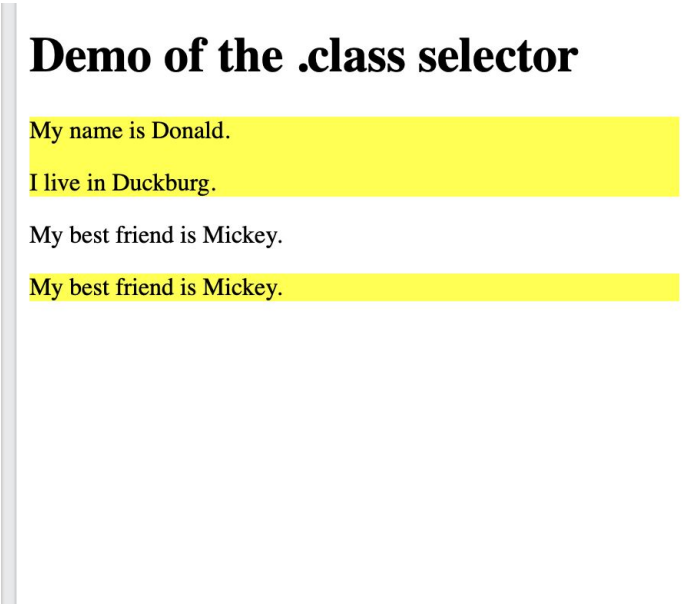
- CSS or Cascading Style Sheets is the way to style the HTML elements on the webpage.

```
body {
  background-color: lightblue;
}

h1 {
  color: white;
  text-align: center;
}

p {
  font-family: verdana;
  font-size: 20px;
}
```



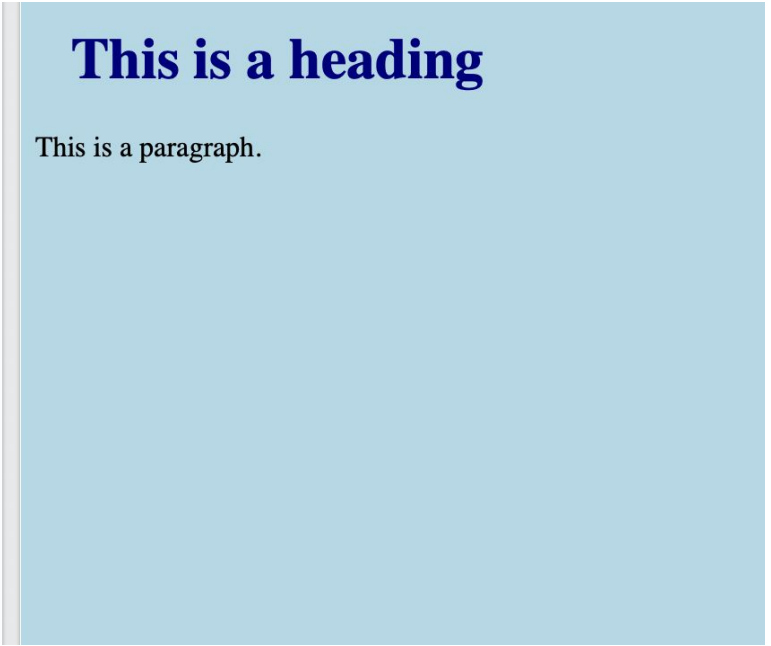
CSS-Selectors

```
.intro {
  background-color: yellow;
}


<h1>Demo of the .class selector</h1>

<div class="intro">
  <p>My name is Donald.</p>
  <p>I live in Duckburg.</p>
</div>

<p>My best friend is Mickey.</p>

<p class="intro">My best friend is Mickey.</p>
```



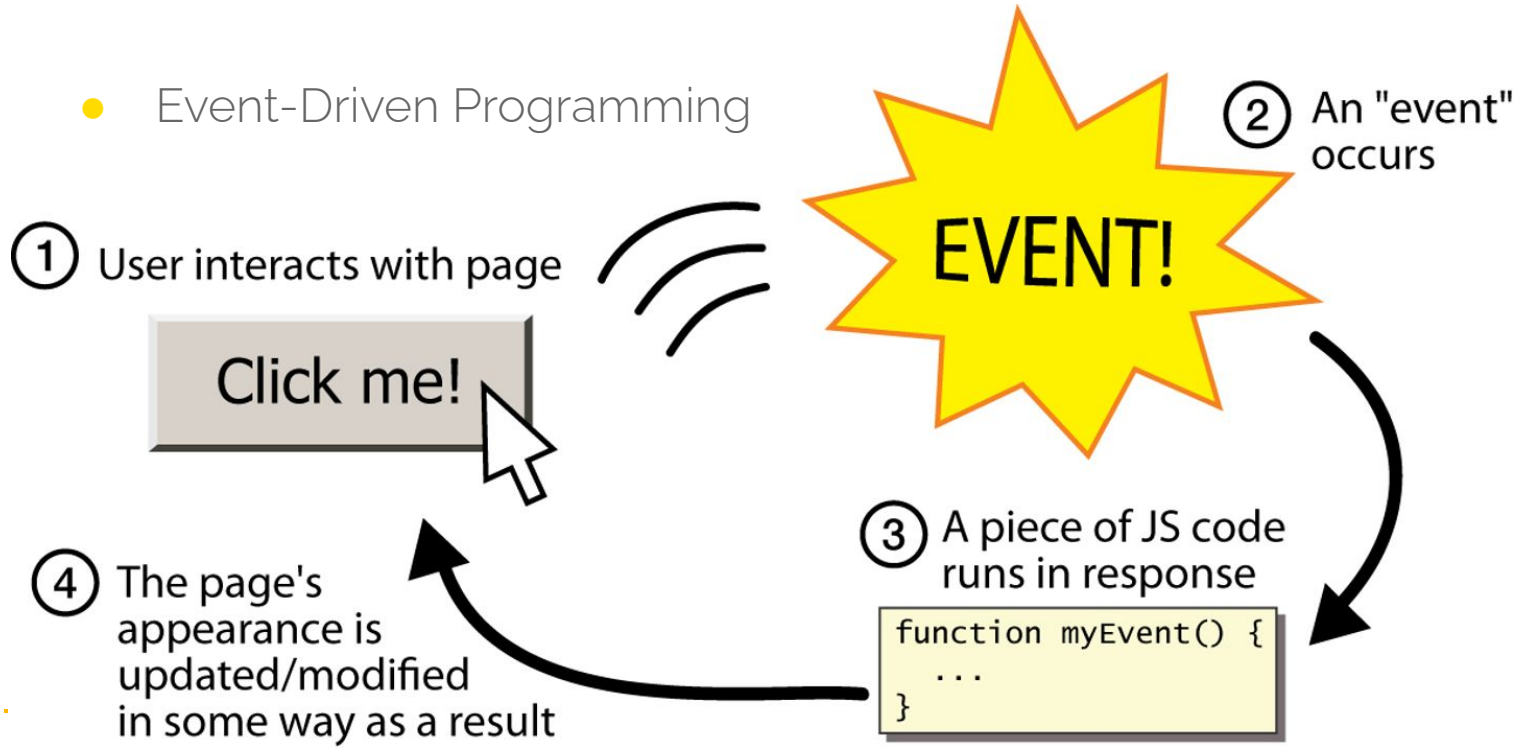
CSS-Linking

```
<!DOCTYPE html>
<html>
<head>
<link rel="stylesheet" href="mystyle.css">
</head>
<body>

<h1>This is a heading</h1>
<p>This is a paragraph.</p>

</body>
</html>
```



JavaScript

- Event-Driven Programming



JS-Events

```HTML
<button>Click me!</button>
```

- button's text appears inside tag; can also contain images
- To make a responsive button or other UI control:
  - choose the control (e.g. button) and event (e.g.mouse 1. click) of interest
  - write a JavaScript function to run when the event occurs
  - attach the function to the event on the control

JS-Event Handler

```HTML
<element attributes onclick="function();">...
```

```HTML
<button onclick="myFunction();">Click me!</button>
```

- JavaScript functions can be set as event handlers
  - when you interact with the element, the function will execute
- onclick is just one of many event HTML attributes we can use

JS-Functions

statements placed into functions can be evaluated in response to user events

```JS
function name() {
statement ;
statement ;
...
statement ;
}
```

```JS
function myFunction() {
      alert("Hello!");
      alert("How are you?");
}
```

JS-DOM Manipulation

- most JS code manipulates elements on an HTML page
- we can examine elements' state
  - e.g. see whether a box is checked
- we can change state
  - e.g. insert some new text into a div
- we can change styles
  - e.g. make a paragraph red