Web/Python Programming

웹/파이썬 프로그래밍

Today

- Static web pages

- Dynamic web pages

- Why do we use Javascript to create web pages?

- Write a simple Javascript program

- Practice Javascript syntax
  - Alert and prompts
  - Events
  - Gathering user input
  - Dynamically modify HTML

Static web pages

Experimenting with Links and Text

Department of Software Convergence

Practicing HTML is fun.
So far we have learned **HTML** is a language made of tags that help us describe how we want our webpages to look. We have tried the *head, title, H(heading),* and paragraph tags so far.
Very few people know all the tags in HTML, but that is okay because we can do a lot with just some basic tags. We can learn about new tags when we need them.
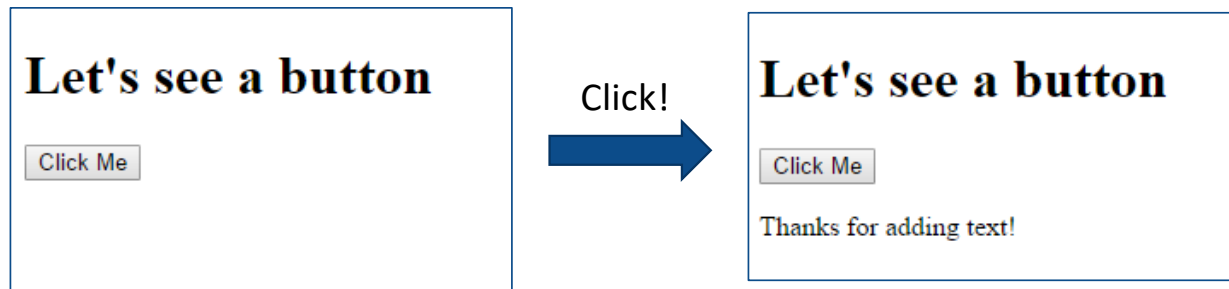
Dynamic web pages

- Server-side dynamic web page

Dynamic web pages

- Client-side dynamic web page = Use Javascript!

Button example

```html
html5.html
1   <!DOCTYPE html>
2   <html>
3   <head>
4       <title>My Dynamic Details Page</title>
5
6       <script type="text/javascript">
7
8       function addParagraphText()
9       {
10          document.getElementById("para").innerHTML = "Thanks for adding text!";
11      }
12      </script>
13
14  </head>
15
16  <body>
17
18  <H1>Let's see a button</H1>
19
20  <button onclick="addParagraphText();">Click Me</button>
21
22  <p id="para"></p>
23
24  </body>
25
26  </html>
27
```

Button example

- onclick = an event
- addParagraphText() = a program (function) to execute

- "para" = the id that we're supplying
- innerHTML = "Thanks for adding text!"

User input example

The value of JavaScript

- HTML is static
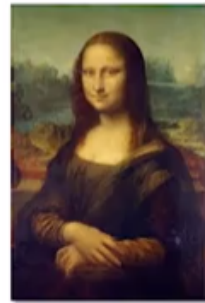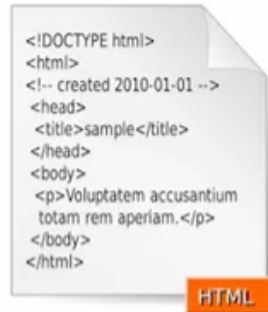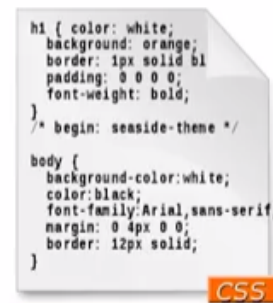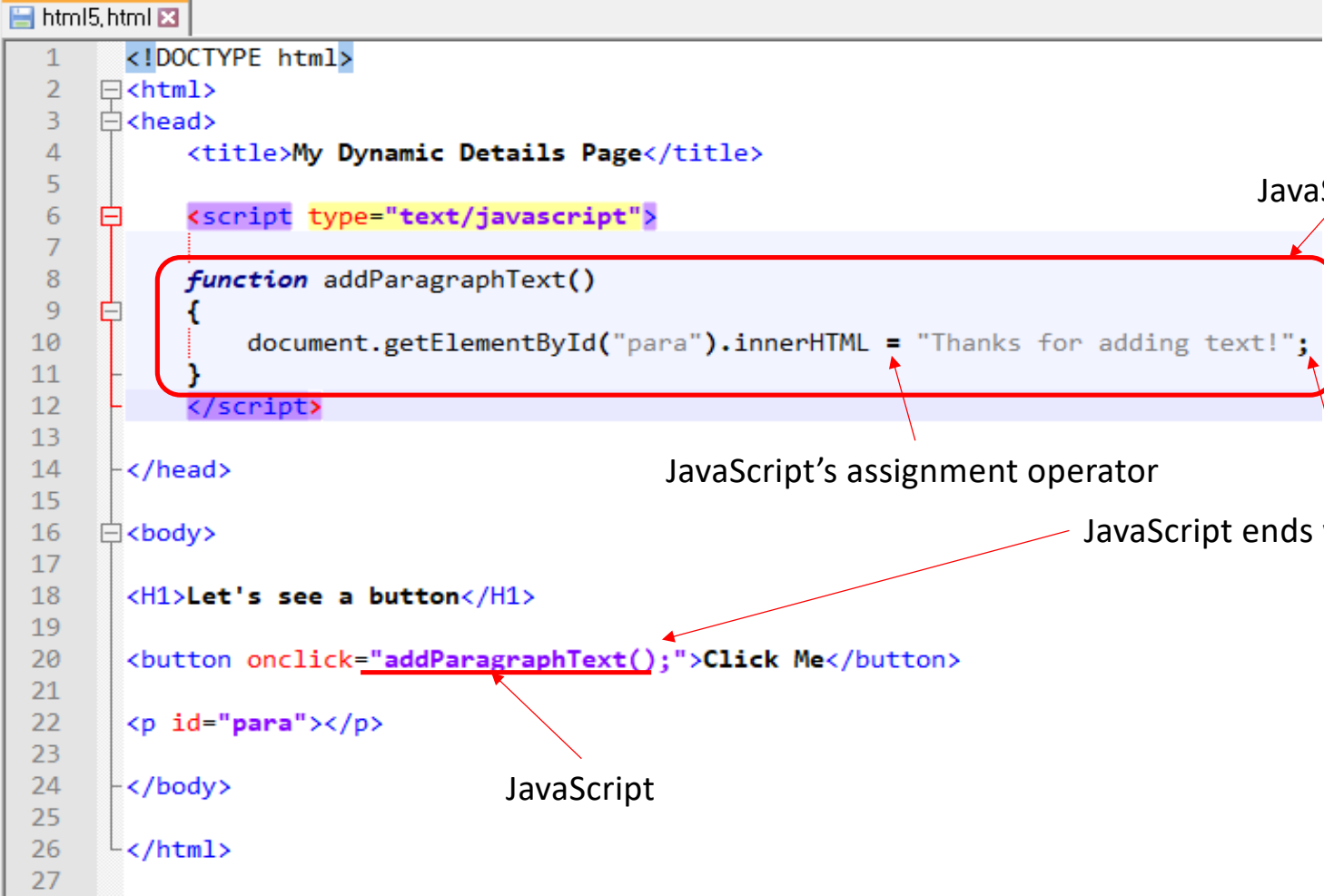
- We want our website to be responsive
  - User takes an action
  - Respond with action
  - We can't do that with plain text HTML

Responsive pages

- HTML is not a programming language
- HTML is a markup language that uses tags

- If we use a programming language…
  - Take steps and actions in a sequence
  - Do things repetitively
  - Make decisions based on data

- JavaScript is a programming language
  - We can make interactive pages
  - We can interact with users/ visitors

Button example

```
html5.html

1    <!DOCTYPE html>
2    <html>
3    <head>
4        <title>My Dynamic Details Page</title>
5
6        <script type="text/javascript">
7
8        function addParagraphText()
9        {
10           document.getElementById("para").innerHTML = "Thanks for adding text!";
11       }
12       </script>
13
14   </head>
15
16   <body>
17
18   <H1>Let's see a button</H1>
19
20   <button onclick="addParagraphText();">Click Me</button>
21
22   <p id="para"></p>
23
24   </body>
25
26   </html>
27
```

JavaScript

JavaScript's assignment operator

JavaScript ends with a semicolon

JavaScript

Button example

```
html5.html

1    <!DOCTYPE html>
2    <html>
3    <head>
4        <title>My Dynamic Details Page</title>
5
6        <script type="text/javascript">
7
8        function addParagraphText()
9        {
10            document.getElementById("para").innerHTML = "Thanks for adding text!";
11        }
12        </script>
13
14    </head>
15
16    <body>
17
18    <H1>Let's see a button</H1>
19
20    <button onclick="addParagraphText();">Click Me</button>
21
22    <p id="para"></p>
23
24    </body>
25
26    </html>
27
```

Get an element which has an id ="para"

Assign the string to the element's innerHTML

Element

User input example

- var
- function { }
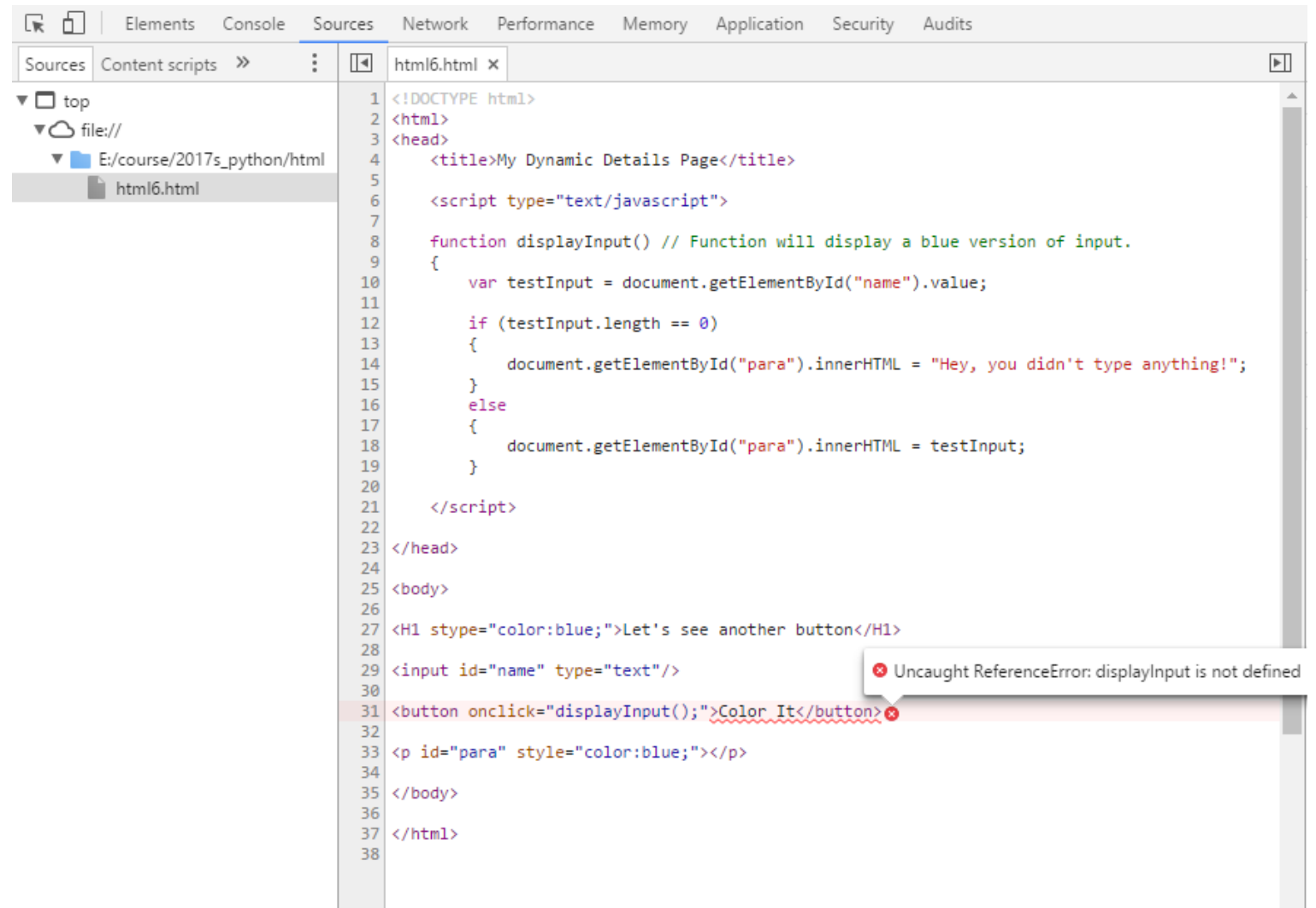- if (condition){ } else { }
- input
- Semicolon;
- Colon: not used

```html
html6.html

1    <!DOCTYPE html>
2    <html>
3    <head>
4        <title>My Dynamic Page</title>
5
6        <script type="text/javascript">
7
8        function displayInput() // Function will display a blue version of input.
9        {
10           var testInput = document.getElementById("name").value;
11
12           if (testInput.length == 0)
13           {
14               document.getElementById("para").innerHTML = "Hey, you didn't type anything!";
15           }
16           else
17           {
18               document.getElementById("para").innerHTML = testInput;
19           }
20       }
21       </script>
22
23   </head>
24
25   <body>
26
27   <H1 style="color:blue">Let's see another button</H1>
28
29   <input id="name" type="text"/>
30
31   <button onclick="displayInput();">Color It</button>
32
33   <p id="para" style="color:blue;"></p>
34
35   </body>
36
37   </html>
38
```

Chrome

- Chrome-> ⋮ ->
  More tools ->
  Developer tools

Alert example

```html
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>Alert Page</title>
5
6      <script>
7
8      function myAlertMath()
9      {
10         var userNumber = document.getElementById("mathInput").value;
11
12         alert("Your number x 5 is " + userNumber * 5);
13     }
14     </script>
15
16 </head>
17
18 <body>
19
20     <p>JavaScript Alert Tests.</p>
21
22     <button onclick="alert('The test worked');">Alert Test</button>
23
24     <input id="mathInput" type="number"/> <button onclick="myAlertMath()">Multiply x 5</button>
25
26 </body>
27
28 </html>
29
```

Alert example

Prompt example

```html
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>Prompt Page</title>
5
6      <script>
7
8      function myPrompt()
9      {
10         var person = prompt("Please enter your name"); // The second string optional
11         if (person != "")
12         {
13             document.getElementById("test").innerHTML =
14             "Hello " + person + "! How are you today?";
15         }
16     }
17     </script>
18
19  </head>
20
21  <body>
22
23      <p>JavaScript Prompt Box.</p>
24
25      <button onclick="myPrompt();">Click me</button>
26
27      <p id="test"></p>
28
29  </body>
30
31  </html>
32
```

Prompt example

Prompt – set a default value
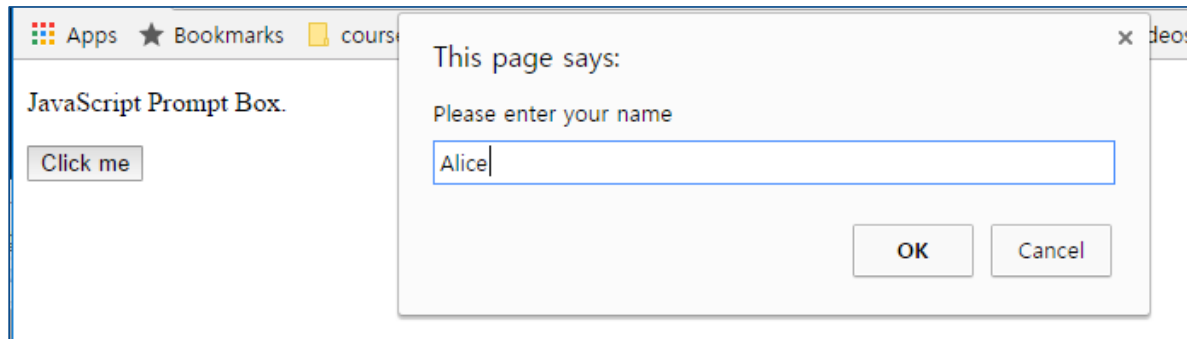
```
1   <!DOCTYPE html>
2   <html>
3   <head>
4       <title>Prompt Page</title>
5
6       <script>
7
8       function myPrompt()
9       {
10          var person = prompt("Please enter your name", "Fred"); // The second string optional
11          if (person != "")
12          {
13              document.getElementById("test").innerHTML =
14              "Hello " + person + "! How are you today?";
15          }
16      }
17      </script>
18
19  </head>
20
21  <body>
22
23      <p>JavaScript Prompt Box.</p>
24
25      <button onclick="myPrompt()">Click me</button>
26
27      <p id="test"></p>
28
29  </body>
30
31  </html>
32
```

Alert and Prompt

- Both an alert and a prompt display a pop-up to the user.

- An alert simply displays a message to the user.

- A Prompt asks the user for some sort of input.

DIY Exercise

- If nothing is entered through the prompt, show "Hey, no input" on the web page.
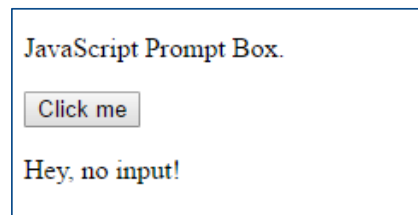
Event

- onclick
- onload
- onblur
- onmouseover


```html
javaScriptOnload.html    html2.html
1   <!DOCTYPE html>
2   <html>
3   <head>
4       <title>Onload Example</title>
5
6   </head>
7
8   <body onload="alert('The page has loaded, okay?');">
9
10      <H1 style="color:blue;">Experimenting with Links and Text</H1>
11
12      <a href="http://swcon.khu.ac.kr">Department of Software Convergence</a>
13
14      <p style="font-size:150%; color:red">Practicing HTML is fun. <br>So far
15      <strong>HTML</strong> is a language made of tags that
16      help us describe how we want our webpages to look.
17      We have tried the <em>head, title, H(heading),</em>
18       and paragraph tags so far. <br>
19      Very few people know all the tags in HTML, but that is okay
20      because we can do a lot with just some basic tags. We can learn
21      about new tags when we need them.</p>
22
23  </body>
24
25  </html>
26
```

DIY Testing

JavaScript Testing.

[Do the Math]

JavaScript Testing.

[Do the Math]

The result is Infinity

JavaScript Testing.

[Do the Math]

The result is 5

JavaScript Testing.

[Do the Math]

The result is NaN

---

javaScriptTesting.html ☒   html2.html ☒

```html
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>Onblur Event Page</title>
5
6      <script>
7
8      function doMath()
9      {
10         var x = 2;
11         var y = 10;
12         var z = 0;
13         var answer = x * y / z;
14
15         document.getElementById("output").innerHTML = "The result is " + answer;
16     }
17     </script>
18
19  </head>
20
21  <body>
22      <p>JavaScript Testing.</p>
23
24      <button onclick="doMath();">Do the Math</button>
25      <p id="output" style="color:green;font-size:200%;"></p>
26
27  </body>
28
29  </html>
30
```