

# Web/Python Programming

## 웹/파이썬 프로그래밍

Web/P

# 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

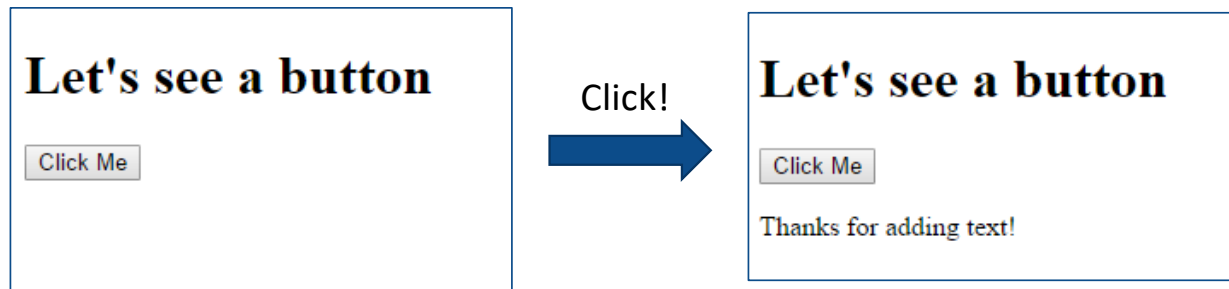
- Server-side dynamic web page

오늘의 발견 | 오늘 쿠팡이 엄선한 가장 HOT한 상품!

<p>식품</p> <p>행복촌 캘리포니아 생체리</p> <p>10,400 원</p>  <p>&gt;</p>	<p>여성의류</p> <p>오델리 에스닉 와이드 롱 치마바지</p> <p>27,000 원</p>  <p>&gt;</p>		
<p>디지털</p> <p>오아아이브릭 블루투스스피커</p> <p>19,900 원</p>  <p>&gt;</p>	<p>잡화</p> <p>썸머 왕골 빅백 14색</p> <p>4,900 원</p>  <p>&gt;</p>	<p>유아동</p> <p>바니바니 폼폼 원피스</p> <p>7,900 원</p>  <p>&gt;</p>	<p>유아동</p> <p>라인하우스 3D메쉬 낮잠 베개</p> <p>13,900 원</p> <p>로켓배송</p>  <p>&gt;</p>

# Dynamic web pages

- Client-side dynamic web page = Use Javascript!





# Button example

```
html5.html x
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

**Let's see another button**



**Let's see another button**

Hey, you didn't type anything!



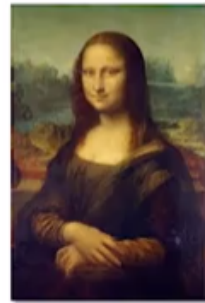
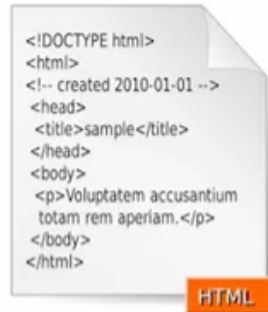
**Let's see another button**

Bob

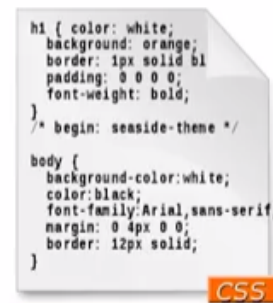


# The value of JavaScript

- HTML is static



Images



CSS



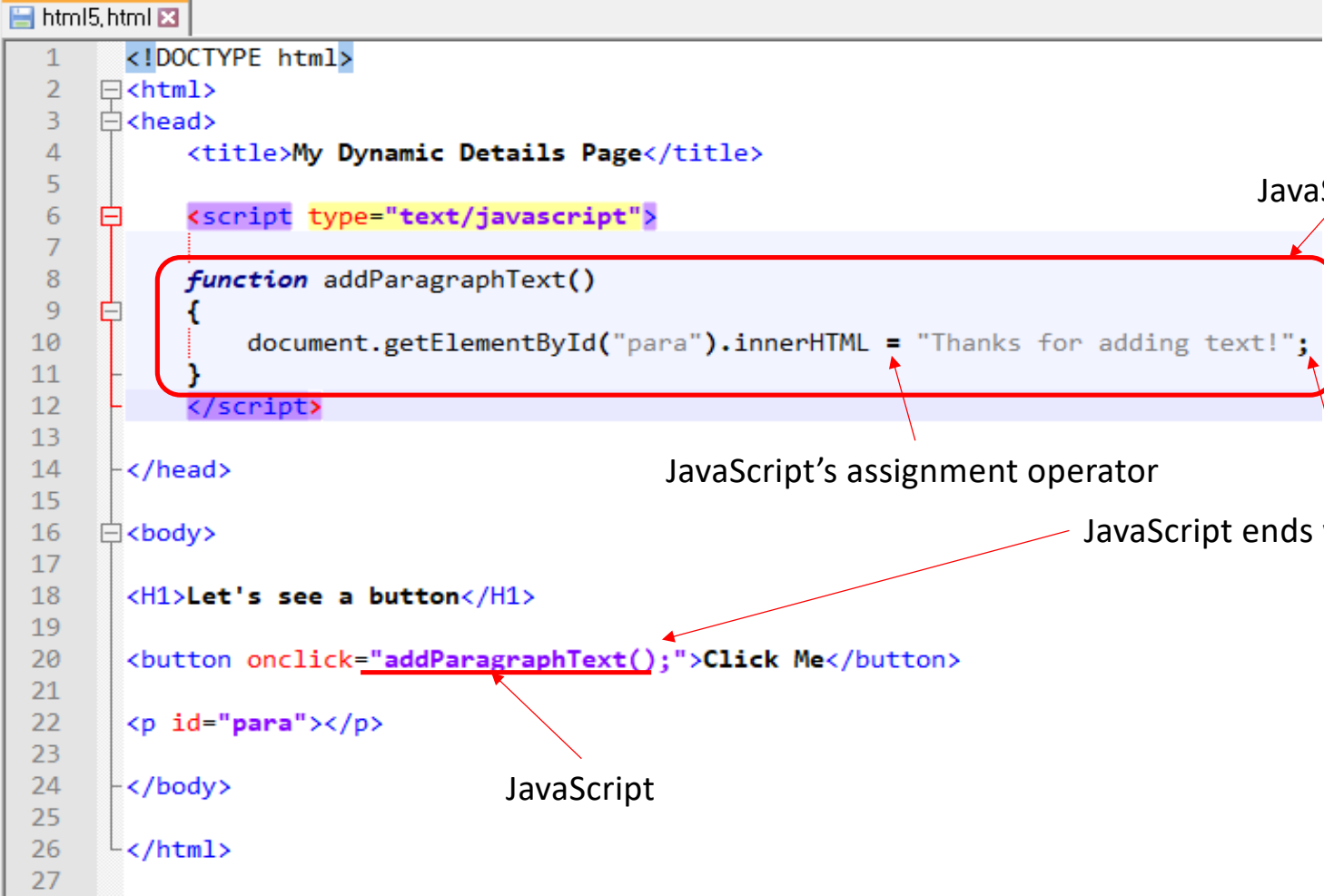
Creativity

- 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



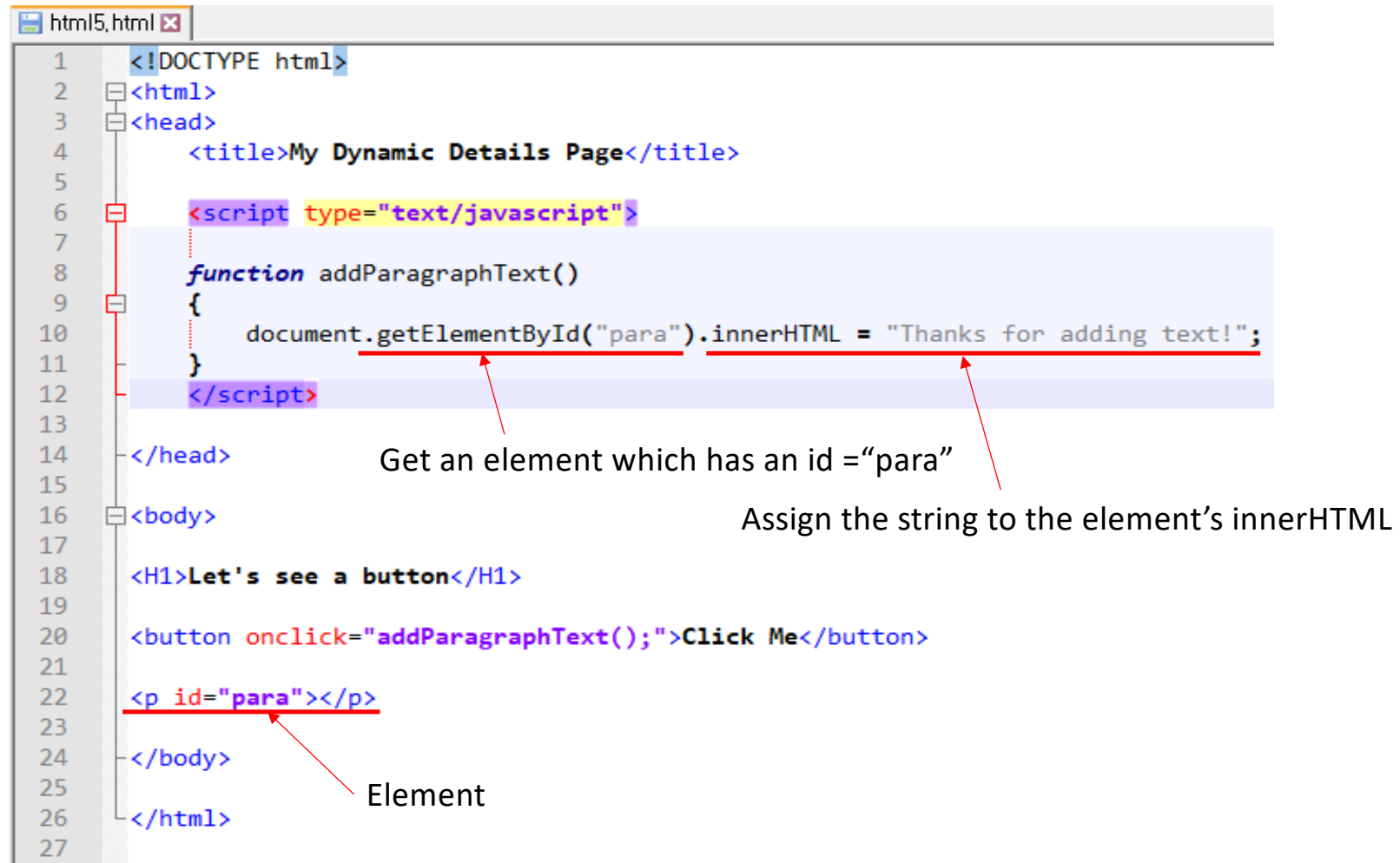
The image shows a code editor window titled "html5.html" with the following HTML code:

```
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
```

Annotations and arrows:

- A red box highlights the JavaScript function `addParagraphText()` in the `<script>` block, with an arrow pointing to it labeled "JavaScript".
- An arrow points to the `=` symbol in the function, labeled "JavaScript's assignment operator".
- An arrow points to the semicolon at the end of the function, labeled "JavaScript ends with a semicolon".
- An arrow points to the `addParagraphText();` in the `onclick` attribute, labeled "JavaScript".

# Button example



The image shows a code editor window titled 'html5.html' with a line number margin on the left ranging from 1 to 27. The code is as follows:

```
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
```

Annotations with red arrows:

- An arrow points from the text "Get an element which has an id = 'para'" to the `document.getElementById("para")` part of line 10.
- An arrow points from the text "Assign the string to the element's innerHTML" to the `.innerHTML = "Thanks for adding text!";` part of line 10.
- An arrow points from the text "Element" to the `<p id="para"></p>` line (line 22).

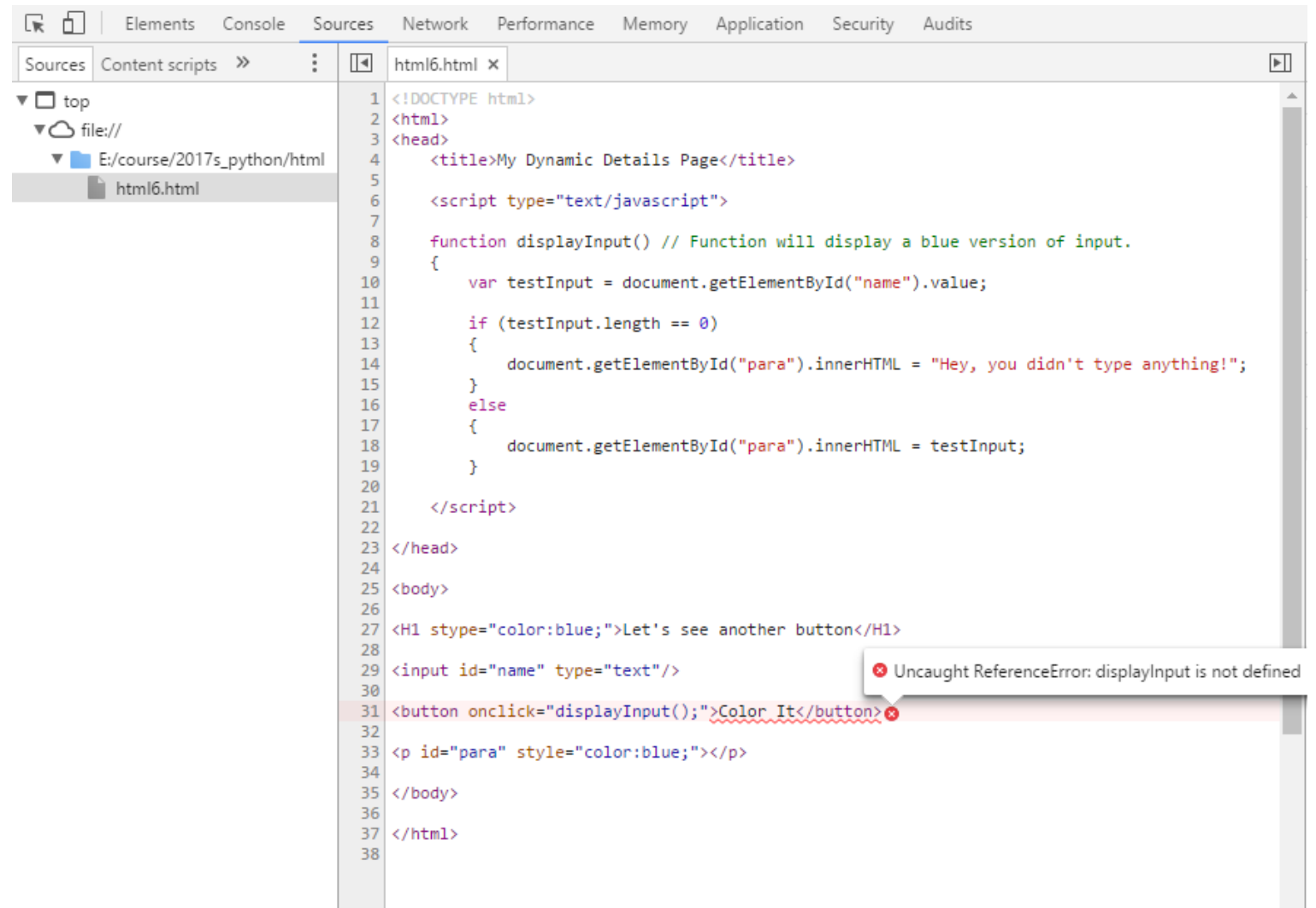
# User input example

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

```
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



The screenshot shows the Chrome Developer Tools interface with the 'Sources' tab selected. The file 'html6.html' is open, displaying the following code:

```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>My Dynamic Details 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 stype="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
```

An error message is displayed in the bottom right corner of the code editor: "Uncaught ReferenceError: displayInput is not defined". The error points to the `displayInput()` call in the button's `onclick` attribute on line 31.

# Alert example

```
html1, html x  html2, html x  html3, html x  html4, html x  javaScriptAlert, html x
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

JavaScript Alert Tests.

Alert Test  Multiply x 5

Apps ★ Bookmarks courso

JavaScript Alert Tests.

Alert Test

This page says:  
The test worked

OK

Apps ★ Bookmarks courso

JavaScript Alert Tests.

Alert Test

This page says:  
Your number x 5 is 15

OK

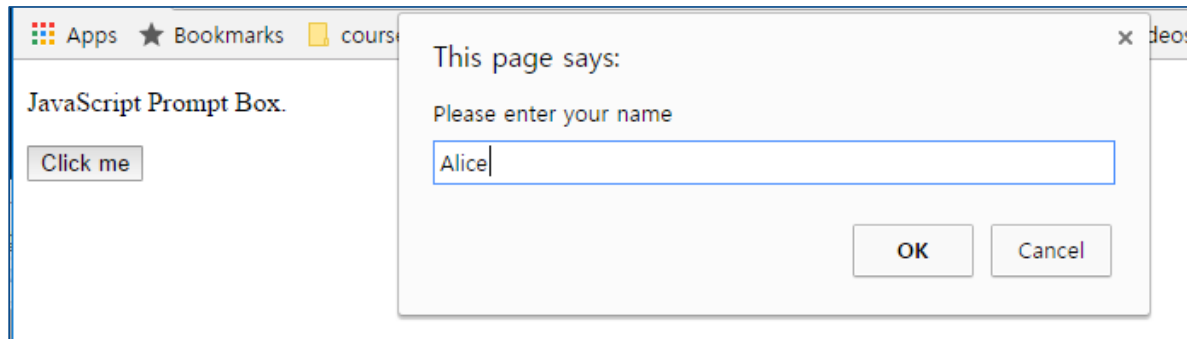
# Prompt example

```
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

JavaScript Prompt Box.

Click me



JavaScript Prompt Box.

Click me

Hello Alice! How are you today?

# Prompt – set a default value

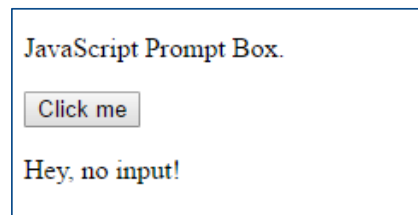
```
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>Prompt Page</title>
5
6   <script>
7
8     function myPrompt()
9     {
10       var person = prompt("Please enter your name", "Fred"); // The second string optional
11       if (person != "")
12       {
13         document.getElementById("test").innerHTML =
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

```
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

```
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
```