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BEIJING NORMAL UNIVERSITY · HONG KONG BAPTIST UNIVERSITY
UNITED INTERNATIONAL COLLEGE

JavaScript 1
4a Intro, Events

Systems and Web Development Workshop
2025 Spring

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Assignment 1

- Assignment 1 has been released on Mon 3 March.
- Due date Wed 12 March 11:59 pm, right before midnight.
  - Assignment 1 instructions are given in the iSpace submission link.
  - Submit your code to both iSpace and Stuweb.
    - If you haven't figure out Stuweb, you still have this week to learn.
  - No late submission* will be accepted.
- Students will work in pairs.
  - Everyone must have a partner; will be penalized if you don't.
  - Each pair of student submit one assignment.
    - The person submitting the assignment should show a screenshot of the submission confirmation to his or her partner.

* There is a few minutes (maybe 30 minutes?) of grace period after the DDL. But do respect the DDL because the length of the grace period is not guaranteed.

Test 1 – Heads up

- Tentatively Test 1 will be held in Week 6 during the 2 hours lab.
  - If you cannot take the test at the scheduled time, you must have a valid reason and get an absentee form from the FST office.
- Sections 1 and 2 will have similar but different exams.
- More details will be given later.

Outline

0. Why study JavaScript
1. What can JavaScript do
2. How JvaScript is used
3. JavaScript Output

References for JavaScript

- Most codes are taken from these sites
- “Try it Yourself” there to test the codes
- https://www.w3schools.com/**js**/default.asp
- https://www.w3schools.cn/**js**/default.asp

- https://www.w3ccoo.com/**js**/default.asp

- In iSpace’s Sample Codes section, “4 IntroEvents_samples”

0. Why Study JavaScript?

- JavaScript is one of **3 languages** web developers must learn:

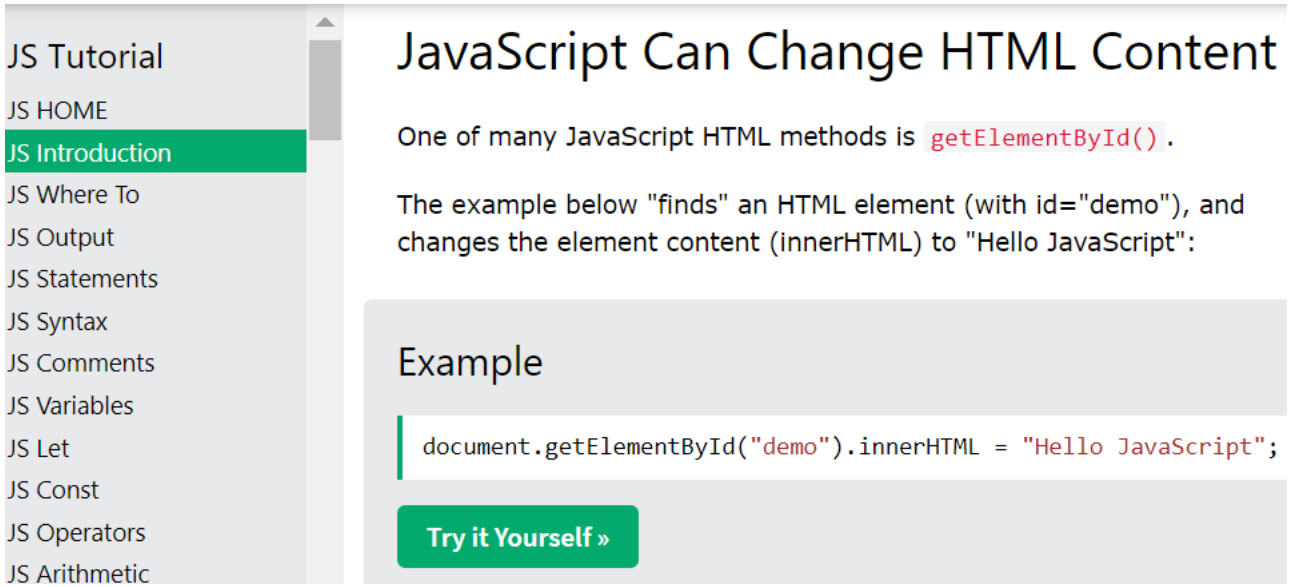
1. **HTML** to define the content of web pages
2. **CSS** to specify the layout of web pages
3. **JavaScript** to program the behavior of web pages

0. Why Study JavaScript?

- JavaScript is also used in other places:
  - Server program such as Node.js
  - Databases such as MongoDB and CouchDB
- **JavaScript** (JS) and **Java** are completely different languages, both in concept and design.
  - Later versions of JS became sort of object oriented, whereas Java is totally object oriented (or object obsessed) from its beginning.
- JavaScript was invented by Brendan Eich in 1995 and became an ECMA standard in 1997.

1 What Can JavaScript Do?

- Pages created by HTML and CSS are static.
  - The content is not changed after it's displayed.
- JavaScript can change the HTML content.

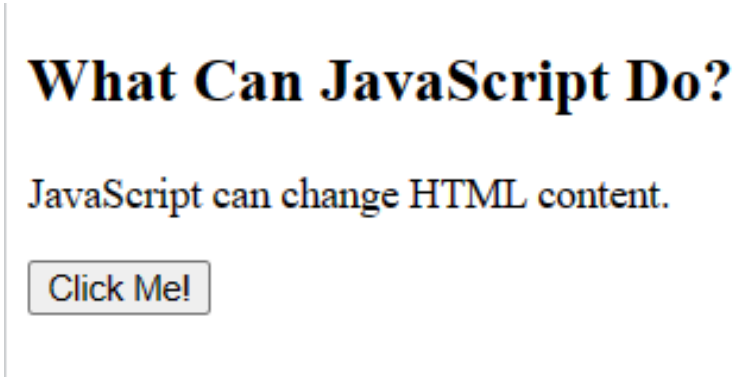


- Go to https://www.w3schools.com/js/js_intro.asp or https://www.w3schools.cn/js/js_intro.asp
- Click "Try it Yourself" in the website.

1 What Can JavaScript Do?

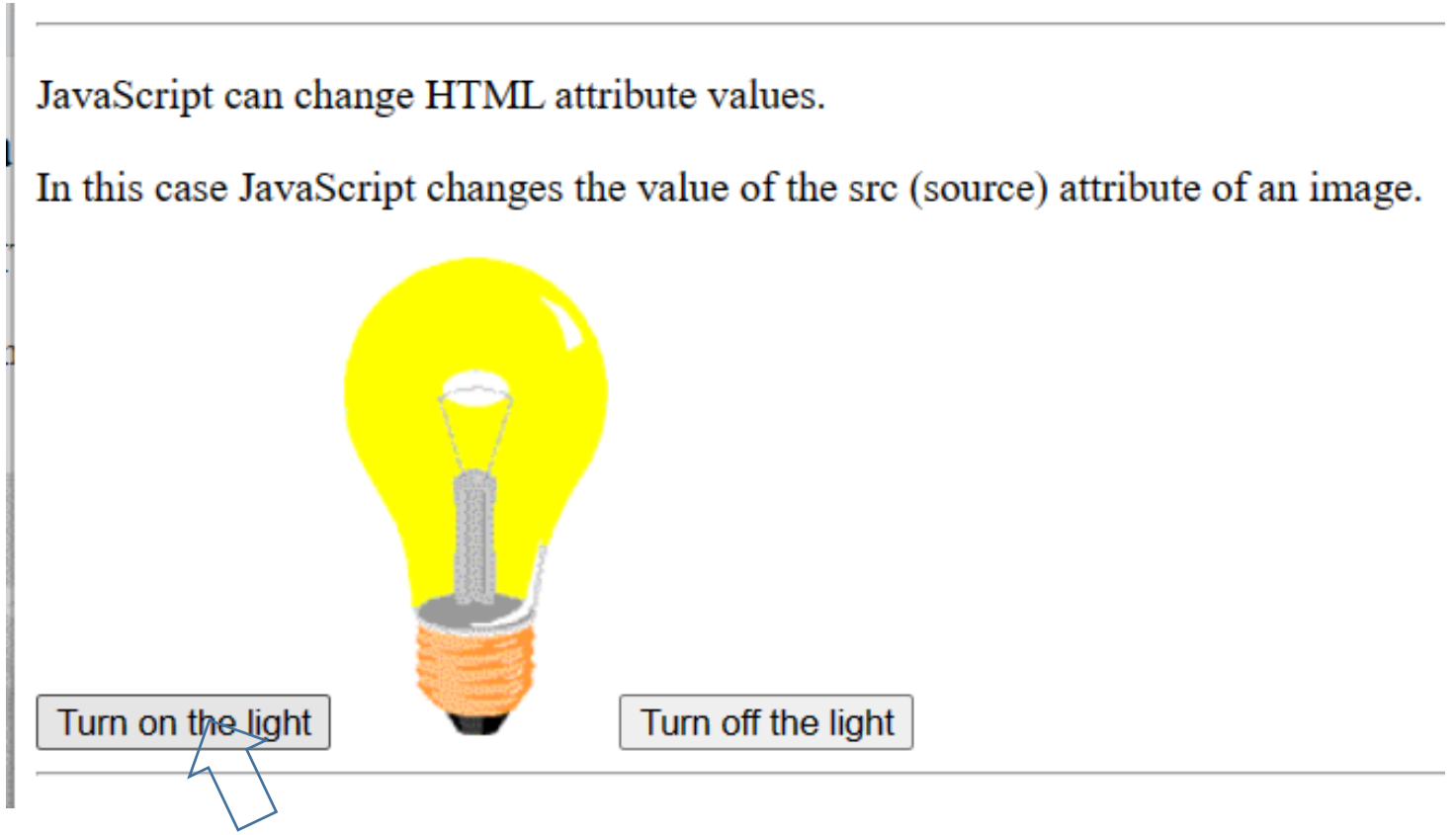
```
<p id="demo">JavaScript can change HTML content.</p>

<button type="button"
onclick='document.getElementById("demo").innerHTML =
"Hello JavaScript!"'>Click Me!</button>
```

- Use getElementById() to change the element with id=“demo”
- Try it Yourself; click the “Click Me!” button to see the change.



1 What Can JavaScript Do?

- JavaScript can change HTML attribute values.
- Run the sample code 1_WhatCanJSDo.html
  - In folder “4 IntroEvents_samples”
  - The light bulb on and off images are located in folder ./images



1 What Can JavaScript Do?

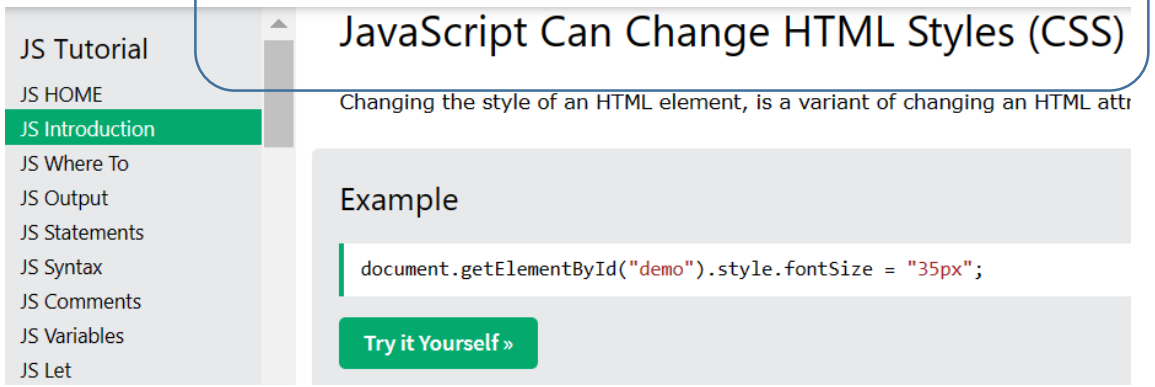
```
<p>In this case JavaScript changes the value of the src (source)
attribute of an image.</p>
<button onclick=
"document.getElementById('myImage1').src='./images/pic_bulbon.gif'">
    Turn on the light</button>
<img id="myImage1" src="./images/pic_bulboff.gif" style="width:100px">
<button onclick=
"document.getElementById('myImage1').src='./images/pic_bulboff.gif'">
    Turn off the light</button>
```

- When the “Turn on the light” button is clicked, the image source with id=“myImage1” is changed to the bulb on gif file.
- When the “Turn off the light” button is clicked, the image source with id=“myImage1” is changed to the bulb off gif file.

1 What Can JavaScript Do?

https://www.w3schools.com/js/js_intro.asp

- JavaScript can change the style of an HTML element.
  - When the button is clicked, the font size style is changed.
  - Try it Yourself



- JavaScript can hide HTML elements.
  - When the button is clicked, the HTML element is hidden by setting its .style.display='none'
- JavaScript Can Show (the hidden) HTML Elements
  - When the button is clicked, the hidden HTML element is shown by setting its .style.display='block'

2 How JavaScript is Used

2.1 The <script> tag

- In HTML, JavaScript code must be inside <script> and </script>.
  - We only have 1 line of code here., but we could have a block of JS code.

https://www.w3schools.com/js/js_whereto.asp


```
<html>
<body>

<h2>JavaScript in Body</h2>

<p id="demo"></p>

<script>
document.getElementById("demo").innerHTML = "My First JavaScript";
</script>

</body>
</html>
```

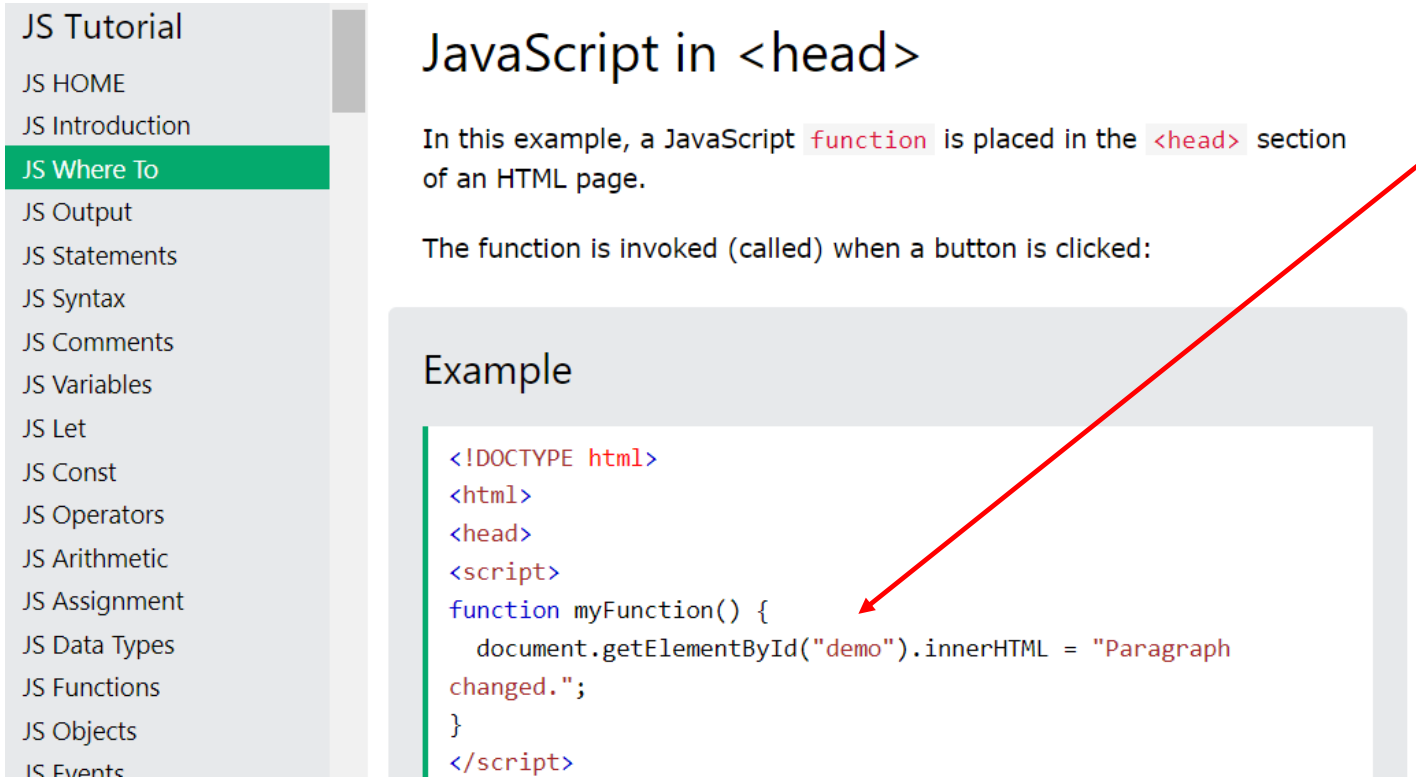
2 How JavaScript is Used

JavaScript Functions and Events

- A JavaScript **function** is a block of JavaScript code, that can be executed when "called“.
- For example, a function can be called when an **event** occurs, such as user clicking a button.
- A HTML document can have any number of scripts.
- Scripts can be placed in the <body>, or in the <head> section, or in both.

2 How JavaScript is Used

https://www.w3schools.com/js/js_whereto.asp



2.2 JavaScript in <head>

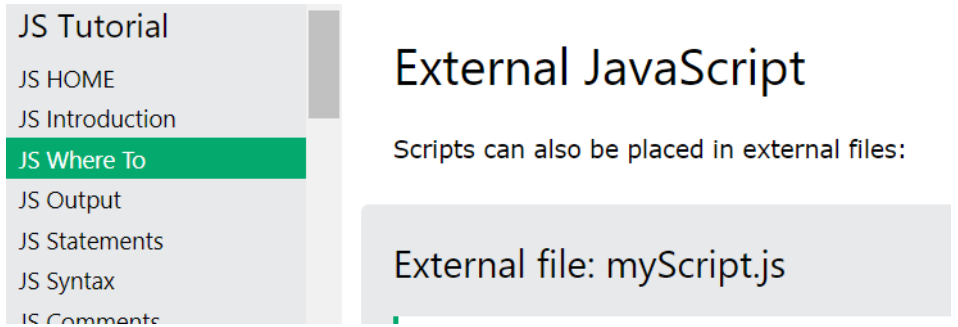
- A block of JS code (one single line in this e.g.) is placed inside myFunction().
- The function is placed inside <script>
- <script> is placed in the <head> section.
- The function is invoked (called) when the button is clicked.

2 How JavaScript is Used

https://www.w3schools.com/js/js_whereto.asp

2.3 JavaScript in <body>

- In this example, <script> is placed in the body.



2.4 External JavaScript

- In this example, the script is be placed in an external file myScript.js
- An external Java Script file has the extension .js.
- In this e.g., the source file is a local file.
- If the source file is from the web, we need to specify the full URL path.
- Try it Yourself.

2 How JavaScript is Used

So where should we place <script>?

<script> can be place in the body, head or external file.

- If the JS code inside <script> is only used by one element, place the script in the body next to that element.
- If the JS code is used in multiple places within a html file, place that <script> in the head.
- If the JS code is used throughout different web pages, place the JS code in an external file.
- This guideline is very similar to where to place CSS styles: in the element, in the head, or an external .css file.

3 JavaScript Output

- JavaScript can "display" data in different ways:
  - Writing into an HTML element, using innerHTML.
  - Writing into the HTML output using document.write().
  - Writing into an alert box, using window.alert().
  - Writing into the browser console, using console.log().
- Try it Yourself at
  - https://www.w3schools.com/js/js_output.asp
  - https://www.w3schools.cn/js/js_output.asp

3.1 Using innerHTML

https://www.w3schools.com/js/js_output.asp


```
<p id="demo"></p>
<script>
document.getElementById("demo").innerHTML = 5+6;
</script>
```

- The id attribute defines the HTML element.
  - In this e.g., id= “demo”
- Use document.getElementById(id) to access the HTML element with that id.
- The innerHTML property defines the HTML content.
  - E.g. 5+6

3.1 Using innerHTML

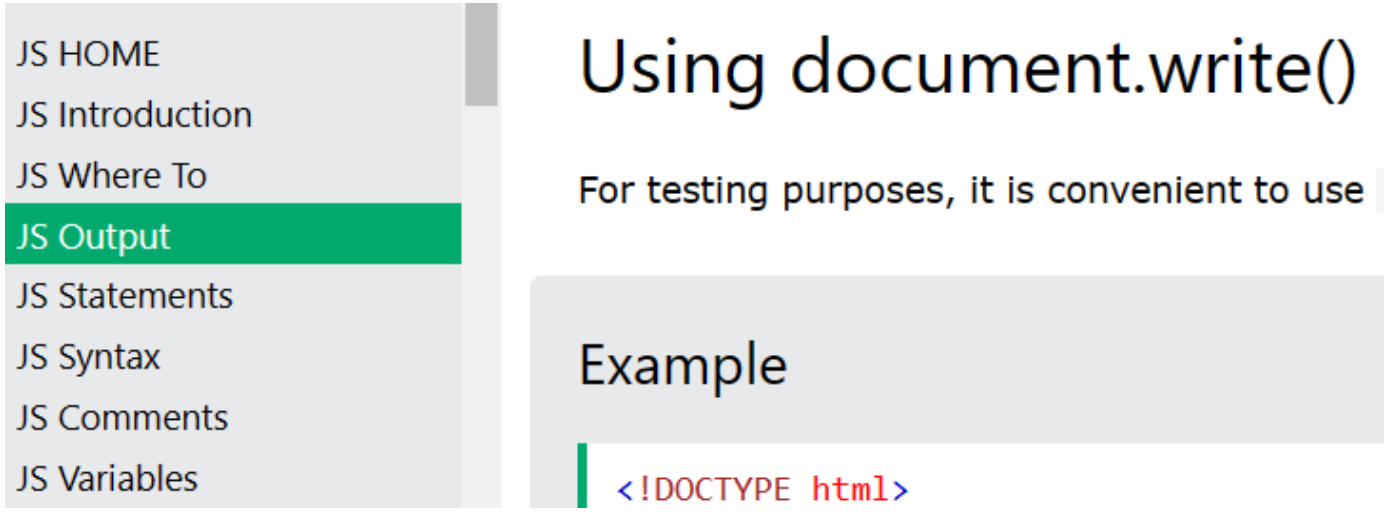
- Changing the innerHTML attribute is the most common way to display data in HTML.

3.2 Using document.write()

https://www.w3schools.com/js/js_output.asp

- For testing purpose, it's convenient to use document.write().

```
<script>
document.write(5 + 6);
</script>
```



- Warning: Using document.write() after the HTML document is fully loaded would overwrite the whole document.

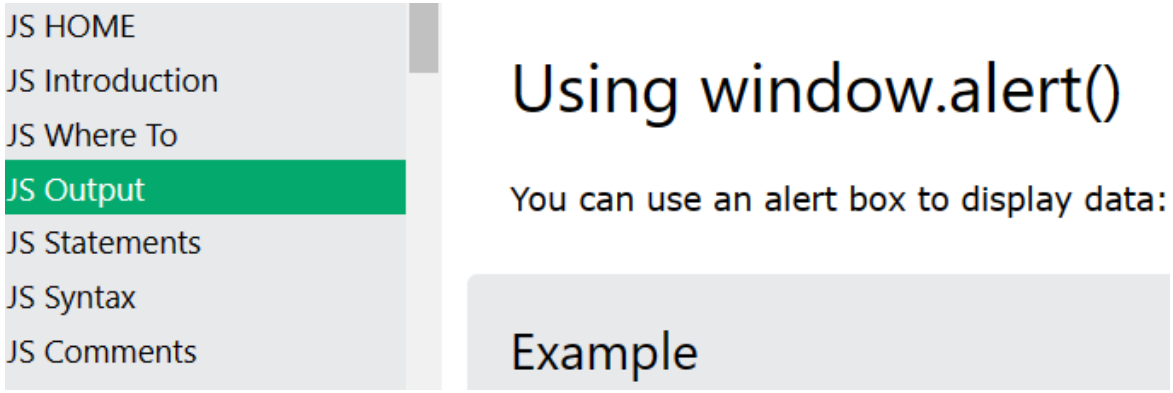
3.3 Using window.alert()

- You can use an alert box (or warning box) to display data

```
<script>
window.alert(5 + 6);
</script>
```

https://www.w3schools.com/js/js_output.asp

- The keyword “window” is optional because it is a global object.



3.4 Using console.log()

- Use console.log() for debugging.
- You can use console.log() to display data.

```
<script>
console.log(5 + 6);
</script>
```

- More on debugging later.

More examples

- In the Sample Code section of iSpace, go inside folder “4 IntroEvents_samples”,
- Download JSEventsSampleCode.zip
- The zip file contains:
  - getElementById.html, assignValue.html, displayDate.html, selectValue.html, focus.html, focus2.html, getValue.html
- You should focus on the code in red.

getElementById.html

- Get the text in an element by looking for its id.
  - We saw this in 3.1 Using InnerHTML

```
<html>
<body>

<p id="demo">Click the button to change the text in this paragraph.</p>

<button onclick="myFunction()">Try it</button>

<script>
function myFunction() {
    document.getElementById("demo").innerHTML = "Hello World";
}
</script>

</body>
</html>
```

assignValue.html

- Change the value in an input element
  - Can search the id in any HTML element, such as a textbox.
- Run assignValue.html

```
First Name: <input type="text" id="myText" value="Mickey">

<p>Click the button to display the value of the text field.</p>

<button onclick="myFunction()">Try it</button>

<p id="demo"></p>

<script>
function myFunction() {
    document.getElementById("myText").value = "Donald";
}
</script>
```

displayDate.html

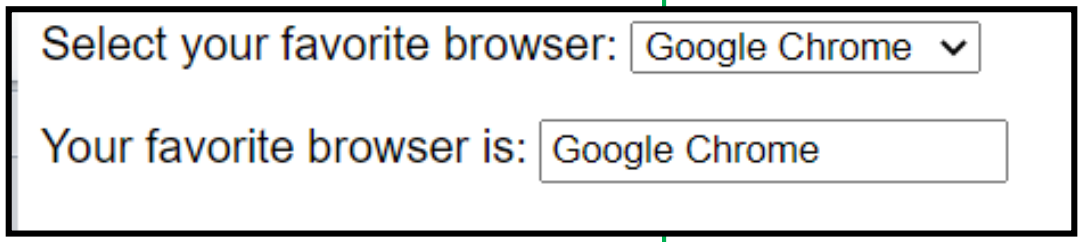
- Display the date in an element
  - Run displayDate.html

```
<p>Click the button to display the date.</p>

<button onclick="displayDate()">The time is?</button>

<script>
function displayDate() {
    document.getElementById("demo").innerHTML = Date();
}
</script>

<p id="demo"></p>
```

selectValue.html

- Get the text selected from a drop-down menu.

```
<form>
Select your favorite browser:
<select id="myList" onchange="myFunction()">
  <option></option>
  <option>Google Chrome</option>
  <option>Firefox</option>
  <option>Internet Explorer</option>
  <option>Safari</option>
  <option>Opera</option>
</select>
<p>Your favorite browser is: <input type="text" id="demo" size="20"></p>
</form>
```




```
<script>
function myFunction() {
   var mylist = document.getElementById("myList");
   document.getElementById("demo").value = mylist.options[mylist.selectedIndex].text;
}
</script>
```

Other Examples

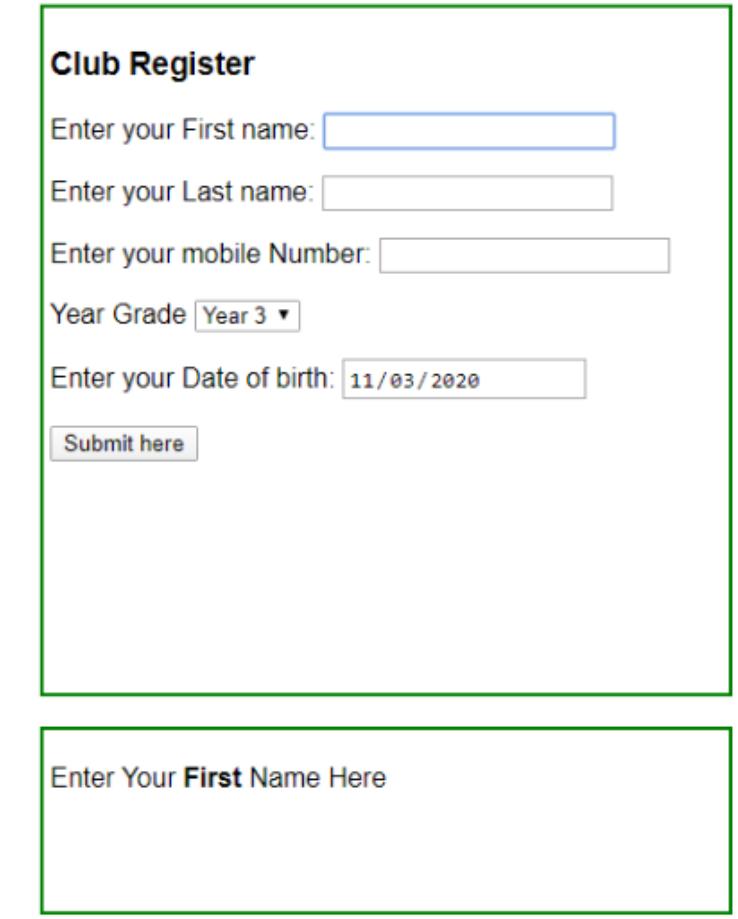
- Check the rest of samples codes in the zip file
  - focus.html
  - focus2.html
  - getValue.html
  - getValue2.html
- You need to know these to do class exercise Task01.

Task 1 Club Register

Club register

- Create the form in next slide; there are two boxes.
  - The top box holds the form.
  - The bottom box is the helper.
- When the user clicks on an input box,
  - the input area should be highlighted to show it has focus
  - the bottom box should give helpful information
- When the submit button is clicked, all entered data will be displayed with alert().

Task 1: Club Register



Fill in Form

Helpful box

- Do this exercise after you learn how to call a function with an input parameter.
  - That’s covered in the first 5 slides of lecture 4b_JS_Functions.

Submit your code in iSpace and stuweb.

- In iSpace submission link for Online text, make sure you put in the correct stuweb address, e.g.
  - https://stuweb.uic.edu.cn/yourID/Week4/clubRegister.html
  - Replace “yourID” with your actual ID beginning with a letter.
  - Week4 is a folder in public_html that contains your html file for this lab.
  - Make sure you can open this stuweb address with a browser.

- You need to submit your Assignment 1 correctly in stuweb.