

Lecture 15

408/508 *Computational
Techniques for Linguists*

Today's Topic

- Some notes on Homework 6
- Term Project: other html tables ideas
- Forms and Javascript
 - Files: `inputtext.html`, `inputcheckbox.html`, `select.html` and `radio.html`
- Example: BMI Gauge animated display (*using Javascript*)
 - File: `bmi-gauge.html`
 - File: `GAUGE.js`

Notes on Homework 6

```
4<script>
5var total = 0
6function mark(element) {
7  if (element.innerHTML == "") {
8    element.innerHTML = "X";
9    total += 1;
10   insert_o();
11  }
12}
```

```
13function insert_o() {
14  var o = Math.floor(Math.random()*9)+1;
15  if (total == 9) {
16    setTimeout('alert("Game Over!)", 2000)
17  } else if (document.getElementById(o).innerHTML == "") {
18    document.getElementById(o).innerHTML = "O";
19    total += 1;
20    if (total == 9) {
21      setTimeout('alert("Game Over!)", 2000)
22    }
23  } else if (total < 9) {
24    insert_o()
25  }
26}
27</script>
```

Notes on Homework 6

- Some of you tried to send the `alert("Game Over!")`
 - and noticed `alert()` was processed before the screen was updated!
 - That's okay, this is beyond the scope of the HW, but you can let the **event loop** update the screen first with `setTimeout()`, e.g. 3 seconds:
 - `setTimeout(function () { alert(""); }, 3000);`
 - <https://stackoverflow.com/questions/41936043/javascript-alert-supersedes-preceding-code>

Notes on Homework 6

- <https://developer.mozilla.org/en-US/docs/Web/API/setTimeout>

setTimeout() global function

The global `setTimeout()` method sets a timer which executes a function or specified piece of code once the timer expires.

Syntax

JS

```
setTimeout(code)
setTimeout(code, delay)

setTimeout(functionRef)
setTimeout(functionRef, delay)
setTimeout(functionRef, delay, param1)
setTimeout(functionRef, delay, param1, param2)
setTimeout(functionRef, delay, param1, param2, /* ..., */ paramN)
```

`functionRef`

A `function` to be executed after the timer expires.

`code`

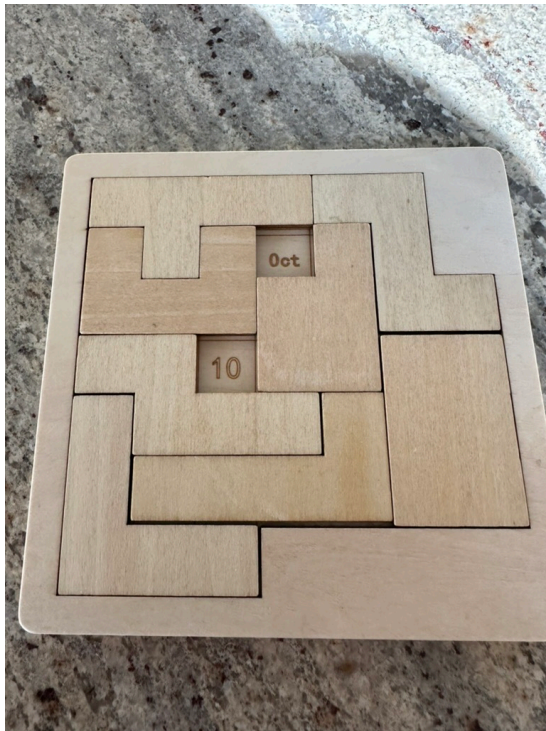
An alternative syntax that allows you to include a string instead of a function, which is compiled and executed when the timer expires. This syntax is **not recommended** for the same reasons that make using `eval()` a security risk.

Term Project Ideas



```
34<table id="puzzle">
35  <tr>
36    <td onclick="f(this)">row: 0<br>col: 0</td>
37    <td onclick="f(this)">row: 0<br>col: 1</td>
38    <td onclick="f(this)">row: 0<br>col: 2</td>
39    <td onclick="f(this)">row: 0<br>col: 3</td>
40  </tr>
41  <tr>
42    <td onclick="f(this)">row: 1<br>col: 0</td>
43    <td onclick="f(this)">row: 1<br>col: 1</td>
44    <td onclick="f(this)">row: 1<br>col: 2</td>
    <td onclick="f(this)">row: 1<br>col: 3</td>
16<script>
17function f(e) {
18  var row = e.parentElement.rowIndex;
19  var col = e.cellIndex;
20  alert("row:" + row + " col:" + col)
21}
22</script>
53  <tr>
54    <td onclick="f(this)">row: 3<br>col: 0</td>
55    <td onclick="f(this)">row: 3<br>col: 1</td>
56    <td onclick="f(this)">row: 3<br>col: 2</td>
57    <td onclick="f(this)">row: 3<br>col: 3</td>
58  </tr>
59</table>
```

Term Project Ideas



- Calendar Puzzle:
 - a different puzzle each day
 - each date is solvable (*in multiple ways*)
 - place the 8 pieces so (only) today's date is shown

Term Project Ideas



Goal:

- Get the X (red) car out
- How?
 - Slide the other vehicles out of the way
- Possible moves:
 - forward or backwards only

Term Project Ideas




- `<table>... </table>`
 - a 6 x 6 grid

Javascript Forms

Register for Miss Bakers Space Cadets

Personal details

First Name

Last Name
 

Date of Birth

Email

URL

Telephone

Shoesize

Flying Skill level (1 low - 100 high)

Example:

- <http://html5doctor.com/demos/forms/forms-example.html>
- HTML Forms:
 - allow the user to input information
 - multiple named input fields for text, numbers, radio buttons, check boxes etc. can be defined within a form
 - values can be sent to a Web server (using GET or POST) by clicking on a button
 - *web server implementation: later in this course*
 - we'll use forms and call javascript functions (*browser-side functionality only*)

Form: <input type="text">

- https://www.w3schools.com/html/tryit.asp?filename=tryhtml_elem_input

<pre><!DOCTYPE html> <html> <body> <h2>The input Element</h2> <form action="/action_page.php"> <label for="fname">First name:</label>
 <input type="text" id="fname" name="fname">

 <input type="submit" value="Submit"> </form> </body> </html></pre>	<h2>The input Element</h2> <p>First name:</p> <input type="text"/> <input type="submit" value="Submit"/>
--	---

Javascript: <input type="text">

- Course website file:
inputtext.html

The input text Element

First name:

Sandiway
Sandiway

```
1 <!DOCTYPE html> ¶
2 <html> ¶
3 <head> ¶
4 <script> ¶
5   function f(e) { ¶
6     name = document.getElementById("fname").value; ¶
7     document.body.appendChild(document.createElement("br")); ¶
8     document.body.appendChild(document.createTextNode(name)); ¶
9   } ¶
10 </script> ¶
11 </head> ¶
12 <body> ¶
13 <h2>The input text Element</h2> ¶
14 <label for="fname">First name:</label> ¶
15 <br> ¶
16 <input type="text" id="fname" name="fname"> ¶
17 <br> ¶
18 <br> ¶
19 <button onclick="f(this)">Submit</button> ¶
20 </body> ¶
21 </html> ¶
```

Form: <input type="checkbox">

- https://www.w3schools.com/html/tryit.asp?filename=tryhtml_input_checkbox

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

    <h2>Checkboxes</h2>
    <p>The <strong>input type="checkbox"</strong>
    defines a checkbox:</p>

    <form action="/action_page.php">
      <input type="checkbox" id="vehicle1"
      name="vehicle1" value="Bike">
      <label for="vehicle1"> I have a
      bike</label><br>
      <input type="checkbox" id="vehicle2"
      name="vehicle2" value="Car">
      <label for="vehicle2"> I have a car</label>
      <br>
      <input type="checkbox" id="vehicle3"
      name="vehicle3" value="Boat">
      <label for="vehicle3"> I have a
      boat</label><br><br>
      <input type="submit" value="Submit">
    </form>

  </body>
</html>
```

Checkboxes

The `input type="checkbox"` defines a checkbox:

- I have a bike
- I have a car
- I have a boat

Submit

Javascript: <input type="checkbox">

- Course website file:
inputcheckbox.html

Checkboxes

The `input type="checkbox"` defines a checkbox:

- I have a bike
- I have a car
- I have a boat

Submit

I have a Bike
I have a Boat

```
1<!DOCTYPE html>
2<html>
3<head>
4<script>
5 function f(e) {
6     var list = document.querySelectorAll("input:checked");
7     for (var i=0; i < list.length; i++) {
8         if (list[i].checked) {
9             name = list[i].value;
10            document.body.appendChild(document.createElement("br"));
11            document.body.appendChild(
12                document.createTextNode("I have a " + name));
13        }
14    }
15 }
16</script>
17</head>
18<body>
19<h2>Checkboxes</h2>
20<p>The <strong>input type="checkbox"</strong> defines a checkbox:</p>
21<input type="checkbox" id="vehicle1" name="vehicle1" value="Bike">
22<label for="vehicle1"> I have a bike</label><br>
23<input type="checkbox" id="vehicle2" name="vehicle2" value="Car">
24<label for="vehicle2"> I have a car</label><br>
25<input type="checkbox" id="vehicle3" name="vehicle3" value="Boat">
26<label for="vehicle3"> I have a boat</label><br><br>
27<br>
28<button onclick="f(this)">Submit</button>
29</body>
30</html>
```

Form: <select> ... </select>

- https://www.w3schools.com/html/tryit.asp?filename=tryhtml_elem_select

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

<h2>The select Element</h2>

<p>The select element defines a drop-down
list:</p>

<form action="/action_page.php">
  <label for="cars">Choose a car:</label>
  <select id="cars" name="cars">
    <option value="volvo">Volvo</option>
    <option value="saab">Saab</option>
    <option value="fiat">Fiat</option>
    <option value="audi">Audi</option>
  </select>
  <input type="submit">
</form>

</body>
</html>
```

The select Element

The select element defines a drop-down list:

Choose a car:

- ✓ Volvo
- Saab
- Fiat
- Audi

default

```
<option value="fiat" selected>Fiat</option>
```

The select Element

The select element defines a drop-down list:

Choose a car:

Javascript: <select> ... </select>

- Course website file:
select.html

The select Element

The select element defines a drop-down list:

Choose a car:

I have a fiat

```
1<!DOCTYPE html>␣
2<html>␣
3<script>␣
4  function f(e) {␣
5      var e2 = document.getElementById("cars");␣
6      if (e2.selectedIndex >= 0) {␣
7          name = e2.value;␣
8          document.body.appendChild(document.createElement("br")); ␣
9          document.body.appendChild(␣
10             document.createTextNode("I have a " + name));␣
11      }␣
12 }␣
13</script>␣
14<body>␣
15<h2>The select Element</h2>␣
16<p>The select element defines a drop-down list:</p>␣
17<label for="cars">Choose a car:</label>␣
18<select id="cars" name="cars">␣
19  <option value="volvo">Volvo</option>␣
20  <option value="saab">Saab</option>␣
21  <option value="fiat">Fiat</option>␣
22  <option value="audi">Audi</option>␣
23</select>␣
24<br>␣
25<button onclick="f(this)">Submit</button>␣
26␣
27</body>␣
28</html>
```


Form: <input type="radio">

- https://www.w3schools.com/html/tryit.asp?filename=tryhtml_form_radio

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

<h2>Radio Buttons</h2>

<p>Choose your favorite Web language:</p>

<form>
  <input type="radio" id="html"
name="fav_language" value="HTML">
  <label for="html">HTML</label><br>
  <input type="radio" id="css"
name="fav_language" value="CSS">
  <label for="css">CSS</label><br>
  <input type="radio" id="javascript"
name="fav_language" value="JavaScript">
  <label for="javascript">JavaScript</label>
</form>

</body>
</html>
```

Radio Buttons

Choose your favorite Web language:

- HTML
- CSS
- JavaScript

Javascript: <input type="radio">

- Course website file:
radio.html

Radio Buttons

Choose your favorite Web language:

- HTML
- CSS
- JavaScript

Submit

I like JavaScript

```
1<!DOCTYPE html>
2<html>
3<script>
4 function f(e) {
5     var list = document.querySelectorAll("input:checked");
6     for (var i=0; i < list.length; i++) {
7         if (list[i].checked) {
8             name = list[i].value;
9             document.body.appendChild(document.createElement("br"));
10            document.body.appendChild(
11                document.createTextNode("I like " + name));
12        }
13    }
14 }
15</script>
16<body>
17<h2>Radio Buttons</h2>
18<p>Choose your favorite Web language:</p>
19<input type="radio" id="html" name="fav_language" value="HTML">
20<label for="html">HTML</label><br>
21<input type="radio" id="css" name="fav_language" value="CSS">
22<label for="css">CSS</label><br>
23<input type="radio" id="javascript" name="fav_language" value="JavaScript">
24<label for="javascript">JavaScript</label>
25<br>
26<br>
27<button onclick="f(this)">Submit</button>
28</body>
29</html>
```

Example

- Remember the bash BMI calculator?
- Here's a HTML version (bmi-gauge.html):

Color	Range
Yellow	Underweight
Green	Normal
Orange	Overweight
Red	Obese

Gauge:

- SVG (Scalable Vector Graphics)
- `<div id="gauge-div" style="width: 250px; height: 200px"></div>`
- <https://developer.mozilla.org/en-US/docs/Web/SVG>

Example: SVG

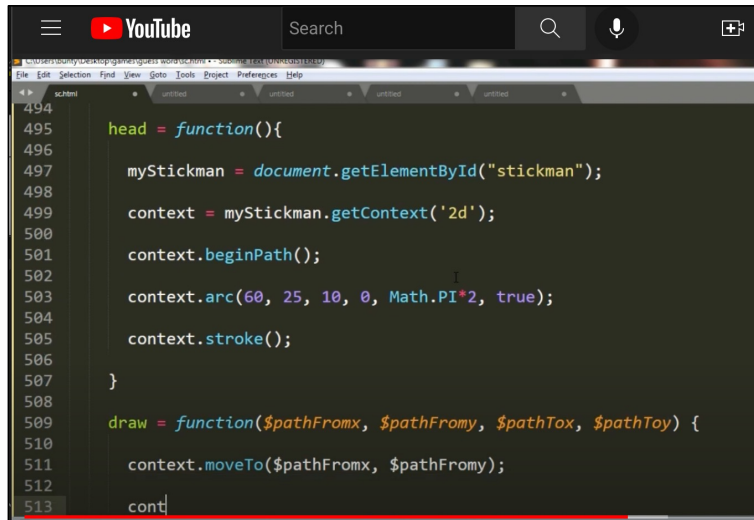
```
<div id="gauge-div" style="width: 250px; height: 200px">
  <svg version="1.1" width="100%" height="100%" style="overflow: hidden; position: relative; left: -0.5px; top:
  -0.5px;">
    <defs id="gradients">...</defs>
    <rect stroke="none" fill="#ff8f8f" x="0" y="0" width="250" height="200"></rect>
    <path stroke="#cccccc" stroke-width="0" fill="url(#gauge-div_gradient)" d="M66.875,173.91304347826087
    L12.5,173.91304347826087 A112.5,112.5 0 0,1 237.5,173.91304347826087 L183.125,173.91304347826087 A58.125,58.125
    0 0,0 66.875,173.91304347826087 z "></path>
    <path stroke="none" fill="#eeee00" d="M50,173.91304347826087 L12.5,173.91304347826087 A112.5,112.5 0 0,1
    54.20145600689331,86.48412281435164 L77.8009706712622,115.62709636898805 A75,75 0 0,0 50,173.91304347826087 z ">
    </path>
    <path stroke="none" fill="#44ff44" d="M77.8009706712622,115.62709636898805 L54.20145600689331,86.48412281435164
    A112.5,112.5 0 0,1 125,61.413043478260875 L125,98.91304347826087 A75,75 0 0,0
    77.8009706712622,115.62709636898805 z "></path>
    <path stroke="none" fill="#ff8800" d="M125,98.91304347826087 L125,61.413043478260875 A112.5,112.5 0 0,1
    181.25,76.48518555251152 L162.5,108.96113819442797 A75,75 0 0,0 125,98.91304347826087 z "></path>
    <path stroke="none" fill="#ff0000" d="M162.5,108.96113819442797 L181.25,76.48518555251152 A112.5,112.5 0 0,1
    237.5,173.91304347826087 L200,173.91304347826087 A75,75 0 0,0 162.5,108.96113819442797 z "></path>
    <path stroke="none" fill="#444444" d="M116.14189841709691,117.9851911920612
    L114.02293743814836,65.09027599593117 L116.7127969142713,54.19954271491385 L120.8776362704759,64.61575740819643
    L124.28844799160515,117.29251435021979 A56.625,56.625 0 0,0 116.14189841709691,117.9851911920612 z "></path>
    <text x="125" y="192.3076923076923" style="font-family:Arial,Verdana; font-size:15px; font-weight:normal; fill-
    opacity:1.0; fill:#888888; text-anchor:middle;">BMI</text>
    <text x="125" y="166.66666666666669" style="font-family:Arial,Verdana; font-size:31px; font-weight:bold; fill-
    opacity:1.0; fill:#000000; text-anchor:middle;">24.34</text>
    <text x="31.25" y="192.3076923076923" style="font-family:Arial,Verdana; font-size:15px; font-weight:normal;
    fill-opacity:1.0; fill:#888888; text-anchor:middle;">10</text>
    <text x="218.75" y="192.3076923076923" style="font-family:Arial,Verdana; font-size:15px; font-weight:normal;
    fill-opacity:1.0; fill:#888888; text-anchor:middle;">40</text>
  </svg>
</div>
```

x/y coordinates:

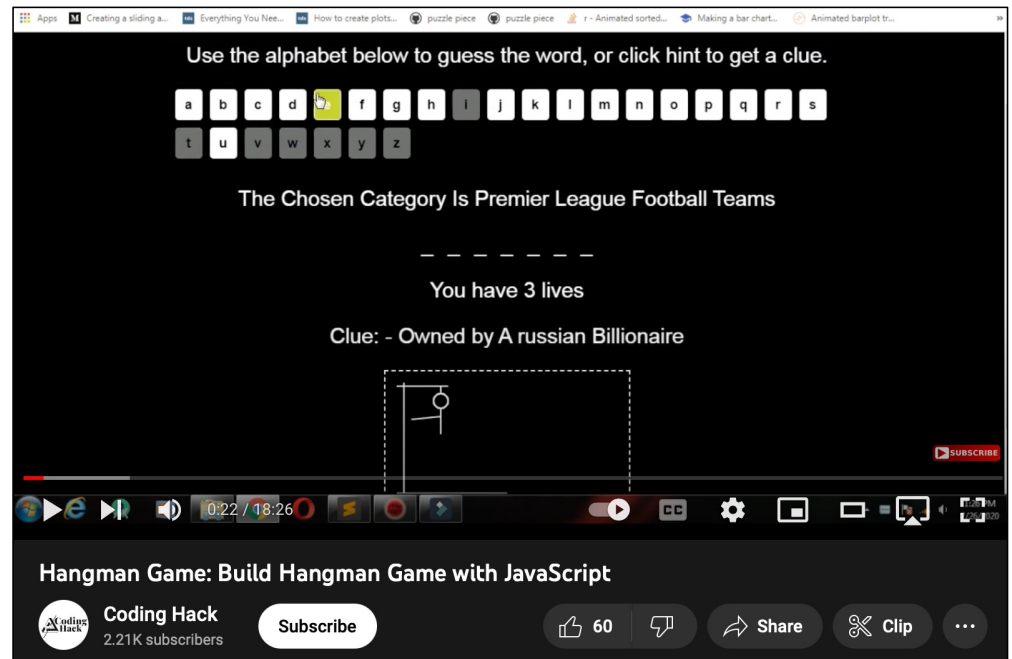
```
<svg>
  <rect x y width height>
  <path d="M/L/A/C">
  <text x y>String</text>
</svg>
```

Term Project Idea: Hangman

- `<canvas>` element



```
494
495 head = function(){
496     myStickman = document.getElementById("stickman");
497     context = myStickman.getContext('2d');
498     context.beginPath();
499     context.arc(60, 25, 10, 0, Math.PI*2, true);
500     context.stroke();
501 }
502
503 draw = function($pathFromx, $pathFromy, $pathTox, $pathToy) {
504     context.moveTo($pathFromx, $pathFromy);
505     context.lineTo($pathTox, $pathToy);
506 }
507
508
509
510
511
512
513
```



- [Code Asteroids in JavaScript \(1979 Atari game\) - tutorial](#)

Example

- Make sure you have GAUGE.js (Javascript code file) loaded in the same directory as bmi-gauge.html

```
<!DOCTYPE html>
<html>
<head>
<title>Javascript/SVG BMI</title>
<style>
div { display: inline-block }
table { border: 1px solid black;
border-collapse: collapse }
td, th { border: 1px solid black;
padding: 5px }
.color { width: 30px; height: 30px }
</style>
<script src="gaugeSVG.js"></script>
<script>
var gauge;
window.onload = function(){
  gauge = new GaugeSVG({id:
"gaug-div"
  Can't find variable: GaugeSVG
```

Console opened at 4:55:13 PM

- ❗ Failed to load resource: The file:///Users/sandiway/courses/508/ling508-22/gaugeSVG.js requested URL was not found on this server.
- ❗ ▶ ReferenceError: Can't find variable: GaugeSVG bmi-gauge.html:15
- ❗ 2 ▶ TypeError: undefined is not an object (evaluating 'gauge.refresh') computeBMI — bmi-gauge.html:48

> |

referenced here