

Lecture 15

408/508 *Computational Techniques for Linguists*

Today's Topic

- **Note on Homework 6** (*due coming Sunday midnight*)
 - event loop and screen update for `alert()`
 - `setTimeout('JS Code here', 1000)`
- **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`

Note 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, param1)
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.

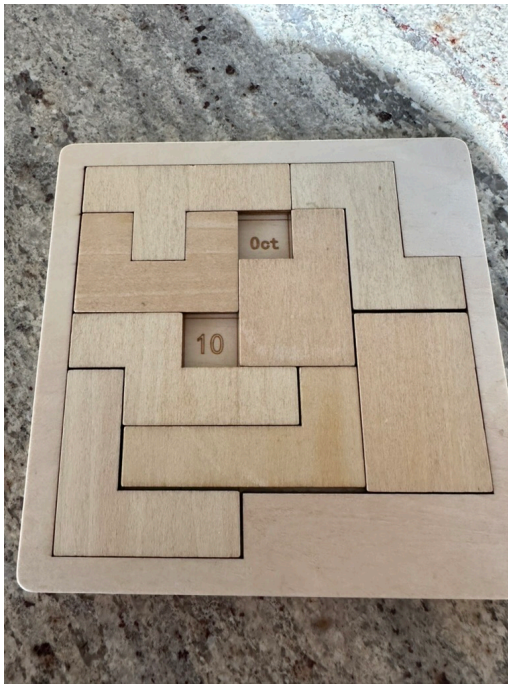
Term Project Ideas: *using a grid*



```
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>
```

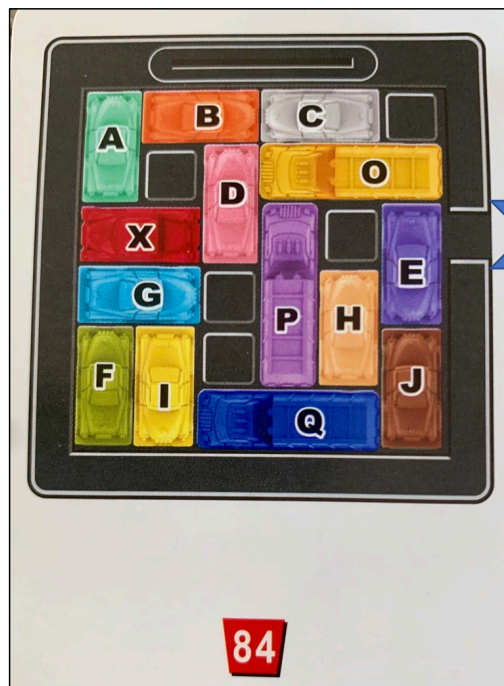
```
34<table id="puzzle">
35  <tr>
36    <td onclick="f(this)">row: 0<br>col: 0</td>
37    <td onclick="f(this)">row: 0<br>col: 1</td>
38    <td onclick="f(this)">row: 0<br>col: 2</td>
39    <td onclick="f(this)">row: 0<br>col: 3</td>
40  </tr>
41  <tr>
42    <td onclick="f(this)">row: 1<br>col: 0</td>
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>
45  </tr>
46  <tr>
47    <td onclick="f(this)">row: 2<br>col: 0</td>
48    <td onclick="f(this)">row: 2<br>col: 1</td>
49    <td onclick="f(this)">row: 2<br>col: 2</td>
50    <td onclick="f(this)">row: 2<br>col: 3</td>
51  </tr>
52  <tr>
53    <td onclick="f(this)">row: 3<br>col: 0</td>
54    <td onclick="f(this)">row: 3<br>col: 1</td>
55    <td onclick="f(this)">row: 3<br>col: 2</td>
56    <td onclick="f(this)">row: 3<br>col: 3</td>
57  </tr>
58</table>
```

Term Project Ideas: *using a grid*



- **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
 - *Oct 10th is when I made this slide*

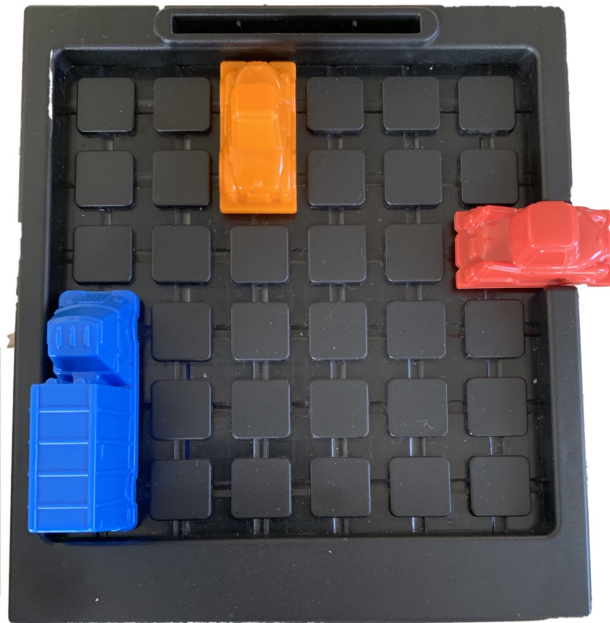
Term Project Ideas: *using a grid*



Goal:

- Get the X (red) car out
- How?
 - *Make room by*
 - *sliding other vehicles out of the way*
- Possible moves:
 - forward or backwards only

Term Project Ideas: *using a grid*



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

Term Project Ideas

<https://xkcd.com/simplewriter/>

 **SIMPLE WRITER**
WRITE LIKE UP GOER FIVE AND THING EXPLAINER

PUT WORDS HERE
Let me explain why this is a good idea. Writing simpler helps people understand complicated concepts.

YOU USED SOME LESS SIMPLE WORDS
complicated concepts

Demo

- as you type
- Javascript

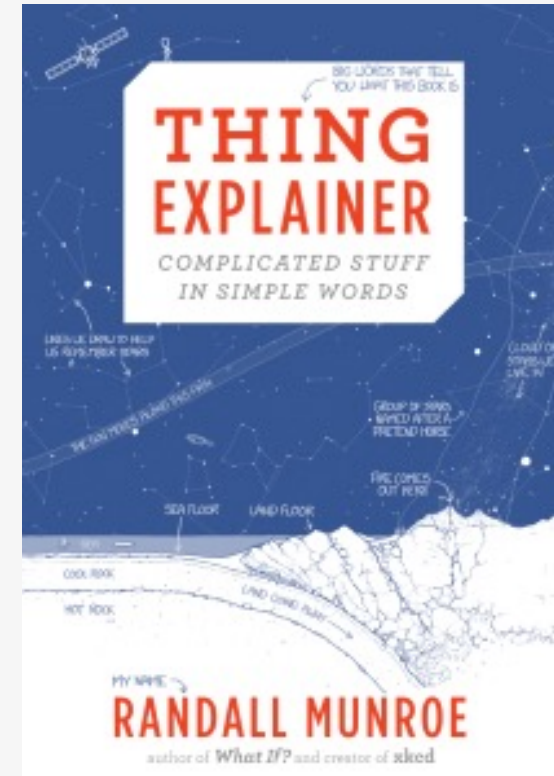
US SPACE TEAM'S
UP GOER FIVE
THE ONLY FLYING SPACE CAR THAT'S
TAKEN ANYONE TO ANOTHER WORLD
(EXPLAINED USING ONLY THE TEN HUNDRED
WORDS PEOPLE USE THE MOST OFTEN)

words.js

- `perl -le 'open $f,"1000.txt" or die "Fail"; $l = <$f>; print length($l); @w = split /\|/, $l;'`
- 26114
- `perl -le 'open $f,"1000.txt" or die "Fail"; $l = <$f>; @w = split /\|/, $l; @sw = sort @w; print "@sw"'`
- "understandings a"; able about above aboves accept accepted accepting accepts across act acted acting actings acts actually add added adding adds admit admits admitted admitting afraid after afternoon afternoons again against age aged ageing ages aging ago agree agreed agreeing agrees ahead air aired airing airings airs alive all allow allowed allowers allows allowing allows almost alone along already also although always am among an and angrier angriest angry
...
yell yelled yelling yellow yellowed yellower yellowing yellows yells yes yeses yet you young younger youngest youngling younglings your yourself

words.js

- *The set of ten hundred words in Thing Explainer comes from putting together many ways of counting how much people use a word to come up with a single set of ten hundred words that should sound familiar and simple to lots of people.*
- (I usually count all forms of a word, like “kick” and “kicked,” together as one word, although there are a few special cases where I don’t.)



Javascript Forms

Javascript Forms

- **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*)

Register for Miss Bakers Space C

Personal details

First Name

Last Name

Date of Birth

Email

URL

Telephone

Shoesize

Flying Skill level (1 low - 100 high)

0

Form: <input type="text">

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

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

<h2>The input Element</h2>

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

</body>
</html>
```

The input Element

First name:

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

<pre><!DOCTYPE html> <html> <head> <title> party ad content </title> </head> <body> <h2>Checkboxes</h2> <p>The input type="checkbox" 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>
 <input type="checkbox" id="vehicle2" name="vehicle2" value="Car"> <label for="vehicle2"> I have a car</label>
 <input type="checkbox" id="vehicle3" name="vehicle3" value="Boat"> <label for="vehicle3"> I have a boat</label>

 <input type="submit" value="Submit"> </form> </body> </html></pre>	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>

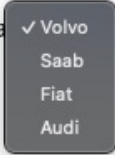
<p>The select element defines a drop-down
list:</p>

<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:  Submit

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

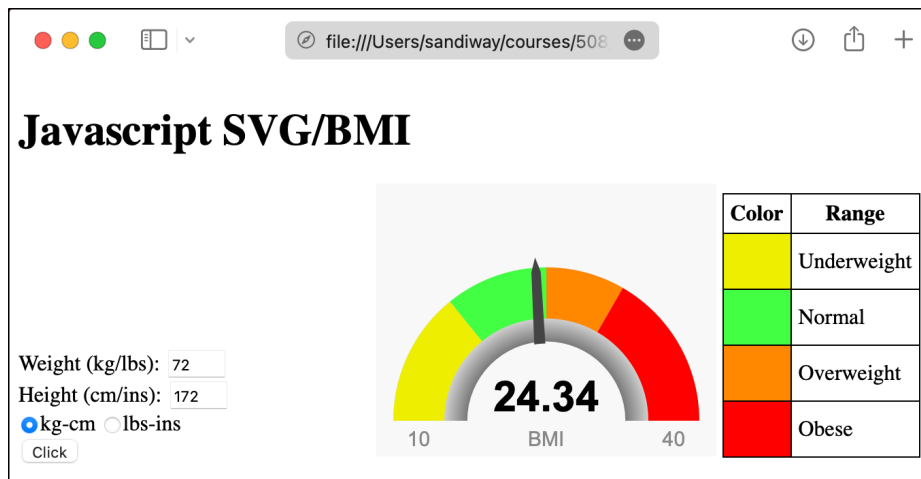
Submit

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):



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

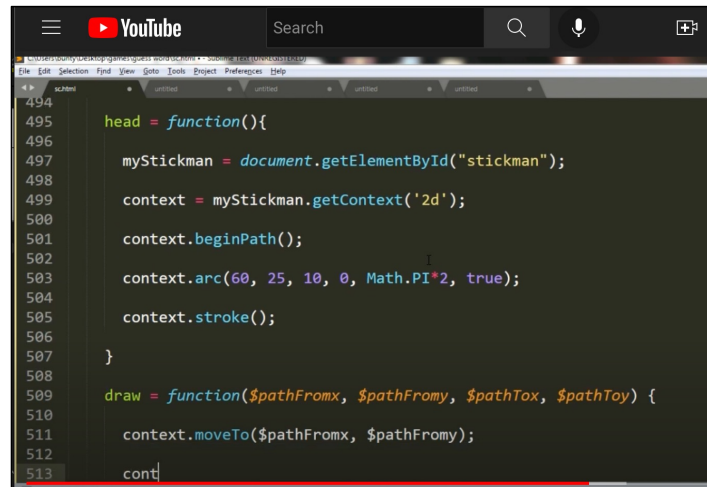
```
<div id="gauge-div" style="width: 250px; height: 200px">
  <svg version="1.1" width="100%" height="100%" style="overflow: hidden; position: relative; left: -0.5px; top:
  -0.5px;">
    <defs id="gradients">...</defs>
    <rect stroke="none" fill="#f8f8f8" x="0" y="0" width="250" height="200"></rect>
    <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 0,1 125,61.41304347826087 L125,98.91304347826087 A75,75 0 0,0
    77.8009706712622,115.62709636898805 z "></path>
    <path stroke="none" fill="#ff8800" d="M125,98.91304347826087 L125,61.41304347826087 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:

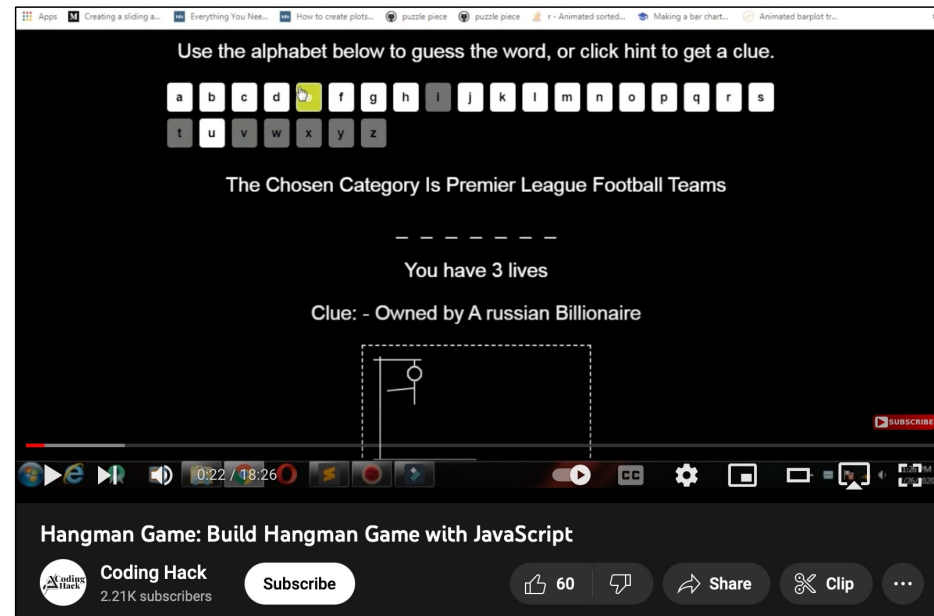
```
<svg>
  <rect x y width height>
  <path d="M/L/A/C">
  <text x y>String</text>
</svg>
```

Term Project Idea: Hangman

- `<canvas>` element



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



- 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

gaugeSVG

 **CODEPROJECT**
For Those Who Code

HomeArticlesFAQ

A Universal Gauge for Your Web Dashboard

Jun 18, 2013 8 min read words

JavascriptHTMLUIanimationweb_browser

 **by Steffen Ploetz**
Contributor

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Introduction

I was searching the web for a *free* JavaScript gauge plugin to use it in a web dashboard included in [Ploetz + Zeller GmbH](#)'s business process management software [Symbio](#). The best match I found was the very good [justGauge](#), but it has two characteristics that don't fit for me:

```
1 /**
2  * gaugeSVG - a very easy JavaScript plugin for greating simple dashboard gauges.
3  * Copyright (c) 2013 Steffen Ploetz. Licensed under LGPL.
4  * @date: 04/06/2013
5  * @author: Steffen Ploetz (@Toorshia)
6  * @version: 1.0
7  */
8 // MODIFIED: sandiway
9 // allow separate colors for lower and upper warning ranges
10 // warningLowerRangeColor warningUpperRangeColor
11
12 // @description: Create and initialize a gauge instance.
13 // @param:      params: [array] The array of named parameters.
14 // @return:      instance: [GaugeSVG] The initialize gauge instance.
15 // @remark:      params *** MUST *** contain these named parameters:
16 //              id: [string] The name of a DIV element to draw the gauge in.
17 //              params *** CAN *** contain these named parameters:
18 //              title: [string] The title text displayed above the gauge. Can be an empty string to be suppressed. Default is empty string.
19 //              titleColor: [string] The title color. Default is "#888888".
20 //              value: [float] The value to display. Default is (max - min) / 2.0.
21 //              valueColor: [string] The value text color. Default is "#000000".
22 //              label: [string] The label displayed below the value text. Can be an empty string to be suppressed. Default is empty string.
23 //              labelColor: [string] The label text color. Default is "#888888".
24 //              min: [float] The minimum of the gauge display range. Can be displayed at
```

gaugeSVG

HTML Editor

```

<div id="form">
  <input type="text" value="25.35" />
  <input type="button" value="Click" />
</div>
<div id="gauge-div" style="width: 250px; height: 200px"></div>
<div id="output" style="width: 100px; color: red">
  <table>
    <tr><th>Color</th>
    <th>Range</th></tr>
    <tr>
      <td class="color"
        style="background-color: #eeee00">
      </td><td>Underweight</td>
    </tr>
    <tr>
      <td class="color"
        style="background-color: #44ff44">

```

Console

Failed to load resource: The requested URL was not found on this server.

Javascript SVG/BMI

Weight (kg/lbs):
 Height (cm/ins):

☒ kg-cm
 ☐ lbs-ins

Click

Color	Range
Yellow	Underweight
Green	Normal

To use gaugeSVG, only three requirements are to meet:

1. The `gaugeSVG` JavaScript must be included into the HTML document.
- ```
HTML
```

```
<script src="javascript/gaugeSVG.js"></script>
```
2. The HTML document must contain a `div` element with `id`, `width` and `height` that can be used as container for `gaugeSVG`.
- ```
HTML
```

```
<div id="container1" style="width:350px; height:300px"></div>
```
3. The `gaugeSVG` JavaScript must be initialized with the `id` of the HTML document's `div` container.

JSCRIPT

```
<script>
    window.onload = function(){
        var gauge1 = new GaugeSVG({
            id: "container1"
        });
    };
</script>
```