Lab 8: JavaScript

Student Learning Objectives

After completion of this lab assignment, you should have demonstrated the ability to

- Work collaboratively as a **pair programming** team
- Use HTML-Kit to create an externally-linked **JavaScript file**
- Write **JavaScript code** to work with arrays and mathematical functions
- Write JavaScript code to generate XHTML to mark-up a data table

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Work collaboratively as a pair programming team

CS 250 in-class labs will be done using **pair programming**. Your partner for today's lab is listed in the table below:

Hebeler 204
Grader: John Wright II

Team 1 Abundiz, Sergio Strom, Brandt	**Team 2** Bajwa, Deepinder Chandler, Alan	**Team 3** Burley, Jonathan Dickerson, Andrew	**Team 4** Byars, Frank Juarez, Adrian	**Team 5** Carpenter, Daniel Plitkins, Kristofer
Team 6 Crockett, Jordan Prescott, Brandon	**Team 7** Hansen, Christopher Canada, Justin	**Team 8** Kinkade, Kyle Ahmady, Temourshah	**Team 9** Porter Jr, Anthony Belfiglio, Alexander	**Team 10** Rozelle, William Burton, Henry
Fill in: Taing, Pokuy				

You may wish to review basic pair programming guidelines before you begin.

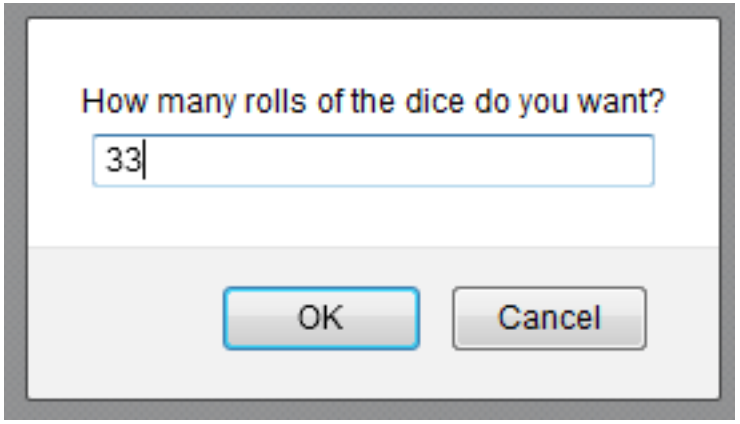
- One team member (the **driver**) has control of the keyboard/mouse and actively implements the program
- The other team member (the **navigator**) continuously observes the work of the driver to identify tactical defects (such as syntactic and spelling errors, etc.) and also thinks strategically about the direction of the work

You should **change roles** about every ten minutes during lab.

Assignment

- Create a new folder `U:\htdocs\labs\lab8`. Folder lab8 will contain two files:

    1. your `lab8.html` XHTML 1.0 Strict markup file
    2. your `lab8.js` JavaScript code file
- In your `lab8.js` file, write the JavaScript code to
    1. **Prompt** the user for the number of times to roll a pair of dice (use `window.prompt`)
    2. Roll two die ***that many times***, keeping track of the frequency the total of the **two** die rolled (2 .. 12)
    3. Construct and display an XHTML table that displays the frequencies and percentages (2 ..12) as illustrated below



Lab 8: JavaScript

Frequency for 33 Rolls

Value Rolled	Frequency	Percentage
2	1	3%
3	1	3%
4	3	9%
5	4	12%
6	3	9%
7	6	18%
8	6	18%
9	2	6%
10	2	6%
11	2	6%
12	3	9%
Totals	33	99%
percentages are rounded		

Note: Since percentages are rounded, they may not always total 100%

JavaScript Tips

Use a JavaScript **array** to hold the frequency the dice rolled any one particular value. Initialize the array cells[2..12] to 0.

```
// Declare and initialize the frequencies array to 0
var frequencies = new Array(13);
for (var index = 2; index <= 12; index++) {
   frequencies[index] = 0;
}
```

You can use the JavaScript **Math** object to generate a **random** roll (you will need two rolls per iteration) and to **round** percentages to two digits.

```
// get a random number between 1 and 6
roll = Math.floor(Math.random() * 6) + 1;

// get a percentage
percent = Math.round((frequencies[index] / numberOfRolls) * 100);
```

To Receive Credit

Labs are graded by the student teaching assistant using the **lab's scoring rubric** [PDF].

Pair programming teams will receive the scoring rubric sheet at the start of lab. Write both names on the sheet to turn in the sheet in when you finish. Name 1 should be the student who saved the pair work in their CS 250 account.

- If you **finish during lab**, have your work checked for completeness, and turn in to your instructor the **Lab's scoring rubric sheet**.
  - If you have **not** yet satisfied all criteria to the level of 4, you need to continue working on the lab outside of class time
  - Your saved solution should be stored in the CS 250 account listed under Name 1
- If you are **unable** to complete the solution during the lab period
  - Leave lab with both students having a copy of the partially completed solution
  - Agree to finish the lab together (establish a time) or independently
  - Turn in the **lab's scoring rubric** [PDF] at the **start of next Lab**
    - Use one rubric for teams finishing together or two rubrics for students finishing independently
    - Keep track of and include the **total completion time** (rounded to closest half-hour) it took to complete the lab assignment and include the time on the rubric
    - Write a score `0..4` in the rubric's **self assessment column** representing your completion status
  - Make sure your work is stored in your CS 250 account in folder `U:\htdocs\labs\lab8\`

Lab 8 is due at the start of lab of the next Lab. **No** late lab assignments will be accepted without prior approval. Your lowest lab score will be dropped.