COP4813/5819 Internet Programming
Spring 2017
Assignment 3
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Due: ~~February 27~~ March 6 (Monday)
Total points: 30/35

Question 1. [10 points] A prime integer is an integer greater than 1 that's evenly divisible only by itself and 1. The Sieve of Eratosthenes is an algorithm for finding prime numbers. It operates as follows:

a) Create an array with all elements initialized to 1 (true). Array elements with prime indices will remain as 1. All other array elements will eventually be set to zero.

b) Set the first two elements to zero, since 0 and 1 are not prime. Starting with array index 2, every time an array element is found whose value is 1, loop through the remainder of the array and set to zero every element whose index is a multiple of the index for the element with value 1. For array index 2, all elements beyond 2 in the array that are multiples of 2 will be set to zero (indices 4, 6, 8, 10, etc.); for array index 3, all elements beyond 3 in the array that are multiples of 3 will be set to zero (indices 6, 9, 12, 15, etc.); and so on.

Your program should generate all the prime numbers up to 100.

Question 2. [20 points] Write a web page that enables the user to play the game of 15. There is a 4-by-4 board (implemented as an HTML5 table) for a total of 16 slots. One of the slots is empty. The other slots are occupied by 15 tiles, randomly numbered from 1 through 15. Any tile next to the currently empty slot can be moved into the currently empty slot by clicking on the tile. Your program should create the board with the tiles out of order. The user's goal is to arrange the tiles in sequential order row by row. Using the DOM and the click event, write a script that allows the user to swap the positions of the open position and an adjacent tile. [*Hint*: The click event should be specified for each table cell.]

Question 3. Graduate students only [5 points] Use CSS absolute positioning, mousemove and mouseup properties of the event object to create a program that allows you to drag and drop an image. When the user clicks the image, it should follow the cursor until the mouse button is released.

Submission

Upload the files to your personal web space on osprey.unf.edu. Create an index page at the following url:

http://www.unf.edu/~your_n_number/ip/xxx_lab3.html

where xxx are the last three digits of your n-number.

On the index page, display links pointing to your solution to each question.

Create a zip file consisting of all files related to your submission.

Submit the link and the zip file on Canvas. 40% penalty will be taken if the link is missing in the submission.