CPSC 1045: Assignment 6 [20 marks]

Due: Date set in D2L   10% penalty if submitted the next day

Download a6.zip. It contains a6.html and a6.js. Except for add event handlers for the buttons and the load event, nothing needs to be done in a6.html

Part 1: The Beautiful People

A line of people is going to be displayed on the canvas. The buttons will affect the people displayed.

- Create a global variable that stores an empty array. This will store information for people that will be drawn on the canvas.

- Write the function randomInteger(low, high)
    - **Parameters**: Two integers
    - **Operation**: The function will produce a random integer from low to high (inclusive) You can assume low and high have appropriate values. Error checking is not necessary.
    - **Returns**: an appropriate random integer
        - randomInteger(4,6) could return 4, 5, or 6

- In a setup() function, use the randomInteger function to choose a value from 5 to 10 and fill your global array with the details for that many people. Each person will have a color and a Boolean specifying whether it is a child stored in an array.
    - To select a random color, use a random integer to select one of the indexes of the global colors array
    - Use a random integer to decide whether each person is a child or not
    - ['green',true] or [true,'green'] would be a green child
    - ['purple',false] or [false, 'purple'] would be an purple adult
    - When finished, your global array will be a 2d array storing information for each person
    - Finally, the setup() function should call the draw() function (described next)
- Write a draw() function. **This is the only function that should call drawPerson or change the canvas in other ways. Every other function should only call draw() when needed.** It will first clear the canvas and fill it with black. Then loop through your global array, calling the supplied drawPerson(x,y,color,child) function for each person in the array. The people should be drawn in a horizontal line. People should be spaced so that there should be no empty horizontal space. The "hands" of two adults or two children next to each should be touching. Use the fact that adults are 40 pixels wide and children are 20 to accomplish this. See the screenshots below. If there are too many people, not everyone will fit on the canvas.
- Finally, write functions to make the buttons work.
    - The 'Add More People' button should read the value from the input textbox and add that many randomly generated people to the end of the array. If the textbox is empty or does not contain a number, display an error using the alert function.
    - The 'Reverse Adults/Children button should change all adults into children and vice versa by flipping the Boolean for each person.
    - The Add Children Between Adults' button should add a new randomly generated child in between any two adults that are next to each other in the array.
    - The 'Remove Adults button should simply remove all adults, leaving the array only containing children.
    - The last thing each of these function should do is call the draw() function to redraw the canvas.

Screenshots
When page opens.

Assignment 6

Add More People	
Reverse Adults/Children	
Add Children Between Adults	
Remove Adults	

After adding 5 people.

Assignment 6

Add More People	5
Reverse Adults/Children	
Add Children Between Adults	
Remove Adults	

After Reversing Adults/Children

Assignment 6

Add More People	5
Reverse Adults/Children	
Add Children Between Adults	
Remove Adults	

After Adding Children Between Adults

Assignment 6

Add More People
Reverse Adults/Children
Add Children Between Adults
Remove Adults

5

After Removing Adults

Assignment 6

Add More People
Reverse Adults/Children
Add Children Between Adults
Remove Adults

5
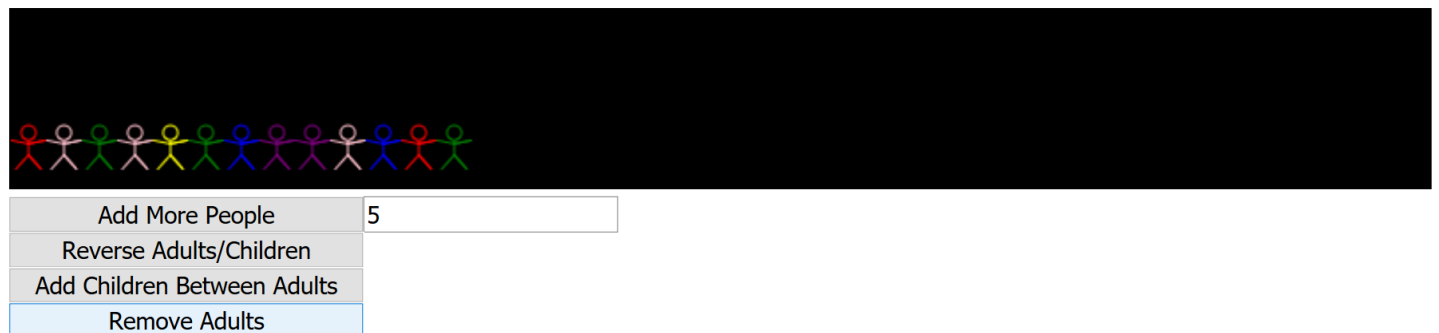
Submissions
 a) Submit to D2L ONE zip/archive file containing the files from this assignment.
 b) If you do not zip your files, you will be penalized 2 marks.

Grading

Marks will be assigned as follows:
 • 4 marks for proper indentation and good code quality
 • 2 marks for implementing randomInteger
 • 4 marks for the setup function
 • 2 marks for the draw function
 • 2 marks for the buttons' event handlers