

**Distributed: 10/23/2014**

**Due: 11/20/2014 -- demo during class time**

*Using HTML, CSS and Javascript, create a web drawing application.*

*Give the user a 512 X 512 drawing surface. Each element is 4 X 4 pixels. The drawing area should be surrounded with a border.*

*The “pen” is an imaginary pen in the position given by the cursor. The user sets the color of the ‘pen’ by clicking on a color in a palette of pen color.*

*When the pen is down, the user will be able to mark the drawing surface. To draw a (curvy) line, press and hold down the mouse button while moving the mouse.*

*Give the user a palette with a choice of 8 colors for the pen. The default color is ‘black’.*

*Give the user a choice of 8 colors for the background. The default color is ‘white’.*

*The user can change the background color at any time. When the user changes the background color, the entire background on the drawing surface is given the new color.*

*The user can change the pen color at any time. When the pen color changes, only the newly marked locations will have the new color – previously marked locations will not change to reflect the new pen color.*

*Display the state of the pen near the color palette. The state of the pen has two pieces of information: (1) the current pen color, (2) the current pen position (up or down). The style and format of the display of the state of the pen is left to your design aesthetic.*

*Extra credit functionality:*

- Give the user the ability to draw straight lines (you could use left mouse button together with alt or control or command button).
- Give the user a palette of brush strokes. A brush stroke is an 4 X 4 template:
  - Horizontal, vertical, diagonal left, diagonal right.
  - Note – this functionality must be reflected in the state of the pen information.
- Give the user the ability to ‘fill’ an enclosed area. Background color changes will not affect a fill color.
- Give the user to ability to choose and position clip art (hint – limit the user choice of clip art to what you provide).

*Other extra credit functionality is acceptable`.*

*Important!*

- You may not use <table> to implement any part of this assignment. The use of <div> is recommended.
- You may use HTML5 canvas to implement this assignment. The size of the pen remains 4X4 pixels. However, those who use HTML5 canvas must also implement at least one piece of extra credit functionality (from the explicit list given above).
- Do not use any deprecated HTML (e.g., <center>)
- You cannot cannibalize web code for this. You may, of course, examine code from the web to get ideas. You may cannibalize code from class or the Dionisio text.
- You must work independently. This is not a group project.
- Any assistance you give another is strictly limited to locating and identifying bugs in the code. You can tell your colleague what is wrong. You cannot tell him how to do it right.
- You must document the code and use good, readable style.
- CSS and Javascript may be any combination of internal, external or inline.

*Grade based on:*

Meets specs:	75%
Coding style / elegance:	15%
Demo, walk-thru, on-the-fly changes:	10%

You will be giving your demo at the teacher station. You must demo to get any credit.

*Extra credit is given for additional functionality.*

*Development advice (do these in order):*

1. Spend an hour tinkering with HTML5 canvas to see if you want to use it.
2. If you're using <div>s, start with 128 X 128 surface with elements sized 8 X 8 pixels.
3. Do not think about color until you can do the basic drawing:
  - a. First make a responsive drawing -- be able to click or hover over any location obtaining the location of that location (via alert() or whatever).
  - b. Get your mouse to work drawing black dot on white background – i.e., single click marks.
  - c. Get the mouse to draw lines by holding the mouse button down.

4. Get the background color working first, then get the pen color working. You may need to go back and twiddle the background color function – but it will be easier to do a first implementation in the order: background, pen.