

CS 641, Haik Sahakian

Mobile Web Development

Readings and Assignments
Week 7

Readings

- ❖ *Canvas Tutorial*. Optional. A compact introductory tutorial by Zevan Rosser covering creating a canvas tag and basic drawing commands. If you're comfortable with what we did in class, you can skip this. 16 minutes.

<https://www.youtube.com/watch?v=N0BNbngr2IY>

- ❖ *SVG Tutorial on W3Schools*. The Scalable Vector Graphics element is simple to learn, and commonly used for interactive web graphics. The SVG example page towards the end of the tutorial is worth exploring in detail. It's important to be comfortable with SVG before we start using the D3 library. 1 hour.

<http://www.w3schools.com/svg/>

http://www.w3schools.com/svg/svg_examples.asp

http://www.w3schools.com/svg/tryit.asp?filename=trysvg_text2

Readings

- ❖ *The Canvas API. A quick introduction. 1 minute.*

https://developer.mozilla.org/en-US/docs/Web/API/Canvas_API

- ❖ *The Canvas HTML Object's properties and methods. There are very few. Check out useful methods like toDataURL(). 2 minutes.*

<https://developer.mozilla.org/en-US/docs/Web/API/HTMLCanvasElement>

- ❖ *The Canvas 2D methods. Here is a complete list of Canvas's drawing functions in 2D. Please browse this list before you start work on this week's assignment. You can figure out what most of the functions do just from their names. They are grouped into 14 sections like "Fill and Stroke Styles", "Paths", "Image Smoothing", and "The Canvas State" (which enables Undo functionality). 10 minutes.*

<https://developer.mozilla.org/en-US/docs/Web/API/CanvasRenderingContext2D>

Review

Check you can differentiate the seven types of web graphics we covered in class and know when to use each:

- ❖ Canvas
- ❖ SVG
- ❖ Canvas w / WebGL
- ❖ Styled DIVs
- ❖ Images
- ❖ Graphics created with D3
- ❖ Graphics created with three.js

If you're not sure about any of the above, please check out the Mobile Graphics slides from our last class on Blackboard, or research the technologies online. The W3C have a good [overview](#).

Review

Check you can implement an event handler on a web page as we covered in class. We'll be going over events in detail in our next class. For this assignment, you'll need to be comfortable listening for the following JavaScript events:

- ❖ Load and unLoad
- ❖ Click and Touch

There's excellent documentation on them at <https://developer.mozilla.org/en-US/docs/Web/Events>.

If you're not sure about writing event handlers in JavaScript, please look at the [Events](#) video in last week's readings, or research them online. W3Schools has an excellent [tutorial](#).

Assignment

- ❖ Portfolios — If you're still working on your portfolio, please try to wrap it up this weekend!
- ❖ You can make it look perfect later. We're covering a lot of new libraries in the next 3 weeks, and it'll be hard to focus on them if you're working on your portfolio.

Assignment

- ❖ Create a web page that draws graphics as the user draws on a phone's screen with their finger. The page can draw *any* kind of graphics in response to the input - it doesn't have to be a line.
- ❖ Create a toolbar on your page that allows the user to:
 - Change colors (or color schemes)
 - Change the brush type or drawing pattern type
 - Clear the drawing area
- ❖ For extra credit, add a ! button to the toolbar that draws something cool.
- ❖ The page should work on both PCs and mobile devices. If you like, you can use the page we worked on in class as a starting point. I've uploaded the examples from class to <http://webpage.pace.edu/hsahakian/examples/graphics/>.

Assignment

- ❖ Create a page showing how styling can slow down a page. Start with the page we created in class that draws a hundred or so DIVs on the page as you move the mouse. I posted my one to <http://webpage.pace.edu/hsahakian/examples/graphics/>.
- ❖ Style the page and its DIVs with images, animations, transforms, gradients, shadows, rounded corners, etc. As you add styles, view the resulting change in speed as you move the mouse to draw the DIVs.
- ❖ Try to get the page to slow to a crawl. Which styles are most expensive to performance? What CSS performance tips would you now offer to the class?
- ❖ SCSS may speed up your coding here, but using it is up to you. Those of you using browser prefixes in your CSS will definitely benefit from writing in SCSS.
- ❖ Please post two URLs on Blackboard: a version of your styled page that renders quickly, and a version that renders slowly. Come to class prepared with a performance tip for your colleagues.