

CS 338: Graphical User Interfaces

Assignment 2

Deadline

Due Friday, November 18, 11:59pm

Submit electronically on Drexel Learn. You must include a **self-assessment form** with your submission.

Goals

This assignment asks you to build a user interface for the web. In recent lectures, you learned about HTML and CSS. In this assignment, you will combine these skills to build a complete, albeit small, web-page. In part 1, you may choose the topic and much of the content, but it must follow the design specifications. The design of the website is specified below, and you will go through the process of using HTML, CSS and Javascript to implement it. You **should not use any additional frameworks or toolkits** (e.g. JQuery, AngularJS, Backbone, etc.). You must test your website on **two** browsers from this list: **Firefox, Chrome, Safari, Opera**.

Resources

There are numerous resources on the web for learning HTML, CSS, and JavaScript. There are several listed on the Resources tab of the course webpage:

<http://cci.drexel.edu/faculty/esolovey/courses/CS338-F16/resources.html>

In particular, you may find these useful:

About CSS Selectors: http://www.w3schools.com/cssref/css_selectors.asp

Try out different CSS Selectors: <http://www.w3schools.com/cssref/tryysel.asp>

CSS Tutorial: <http://www.w3schools.com/css/default.asp>

HTML & CSS Lessons: <https://www.codecademy.com/learn/web>

You may use any development environment that you would like. The most basic requirement is that you have a text editor. We recommend Sublime Text. However, there are many others: Notepad++ (Windows), TextWrangler, vi, emacs, etc.

All of the browsers listed above have developer tools that can help you debug your code. For example, in Chrome, you would select View->Developer->Developer Tools. It is highly recommended that you explore the options for the browser.

Preliminary Work

1. Create an account on the Code Academy website, if you do not already have one.
<https://www.codecademy.com>
2. Find the course called HTML & CSS <https://www.codecademy.com/learn/web>

3. Complete the lesson on **CSS Selectors**.
4. Complete the Lesson called "Draw With Javascript" Parts 1-8:
<https://www.codecademy.com/en/courses/web-beginner-en-SWM11/0/1>
5. You are welcome to try the other lessons, but for this assignment, please complete these lessons. It will step you through many examples to learn the different ways that you can take advantage of CSS and Canvas to style and draw on your webpage.

Final Application Example

CS 338 Assignment 2 - Part 1

Erin T. Solovey

I am a professor of computer Science at Drexel University.

I have taught the following courses:

- CS338 Graphical User Interfaces
- CS530 Developing User Interfaces
- CS680 Brain-Computer Interaction

	2014	2015	2016
CS338 Graphical User Interfaces	Winter	Winter	Winter Fall
CS530 Developing User Interfaces	Fall	-	Spring
CS680 Brain-Computer Interaction	Spring	-	-

CS 338 Assignment 2 - Part 2

Enter the information for the line:

Start point, x-coordinate:
10

Start point, y-coordinate:
10

End point, x-coordinate:
500

End point, y-coordinate:
500

Color: Red

Draw Line

Clear Canvas

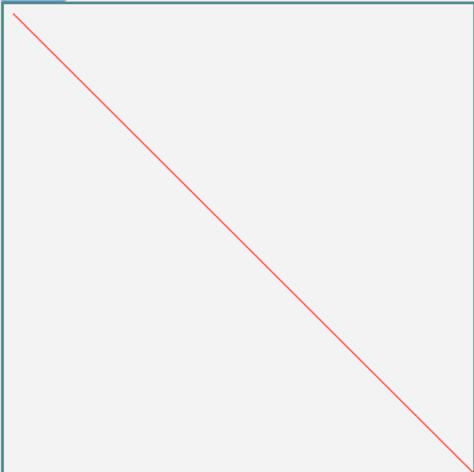


Figure 1. And example of the completed user interface. The content and some aspects of the style may vary in your page.

Provided Files

We have provided you with CS338-Asst2.zip.

This contains the following:

- A2.html – The HTML file for the assignment.
- A2.css – the file where you will set up your user interface CSS code
- A2.js – the file where you will write Javascript code.

You will start with these files, and edit them as appropriate to complete the assignment.

Part 1: Basic Layout & Style

This part does not require any interactive functionality. You will just be creating the Layout to look similar to the figure. You will do this in **A2.html** and **A2.css**.

Start by familiarizing yourself with A2.html in the browser and the HTML code. Then decide on a topic that you would like the webpage to be on. It can be about anything! It just has to include the elements described below.

1. Make sure your name is at the top of both files in the designated area.
2. In A2.html, give the page a **<title>** and add a **heading** to the page that includes your name (similar to “Erin T. Solovey” in example)
3. In A2.html, add some text to the **<body>** of the page that provides an introduction to your page. (e.g. I am a professor of computer science...)”)
4. The introduction must also contain a list with at least three items. (See example.)
5. Add a table with at least three rows and three columns. The table should have headers for each column and each row. (See example, but content should be something interesting to you).
6. In A2.html, set up the style sheet to link to A2.css.
7. Use this style sheet (A2.css) to update the look and feel of your assignment web page. You can change all parts of the CSS and add new sections as you see fit. You must do the following:
 - a. Change the body text color, background color of the page
 - b. Style the table so that the heading row looks different from other rows
 - c. In addition, every other row should have a different background color (i.e. even rows should look different from odd rows)
 - d. Add other styling as you see fit to make the table look nice and readable

Interactive Drawing User Interface

In this part, we will build from the work in the previous section.

Here are the tasks that are required:

1. In the HTML, create the structure of the elements for Part 2:
 - a. Create a form that includes four text fields. The text fields should allow a user to enter the x and y coordinates of the start and end of a line.

- b. Create a dropdown with eight choices. The dropdown list should contain the names of several colors: Red, Orange, Yellow, Green, Blue, Purple, Black, White.
 - c. Add a button that correctly submits the user-entered info.
 - d. Add a canvas element to the page below the table. The canvas should be 500x500px.
 - e. Add a button that will be used to clear the canvas.
 2. In the CSS, update the style of the Part 2 elements as follows:
 - a. Create a border around the canvas.
 - b. Style the input area for the canvas to have a border and background that separates it from the rest of the page.
 - c. For the text input area labels, make the font bold and italic.
 - d. When the user hovers or focuses on the input fields, make the input fields change their background color
 - e. The submit button should have a border and should change color when the user hovers over it.
 3. Enter your full name in the title and the heading of A2.js as in the previous section.
 4. In A2.html, add the event handler for the user input button to call the drawLine() function
 5. In A2.jx, fill in the **drawLine()** function to draw a line based on the user input:
 - a. Get canvas and context
 - b. Set the start and end coordinates based on user input
 - c. Set the line color based on user input
 - d. Draw the line from start coordinate to end coordinates with correct line color
 6. In A2.html, add the event handler for the clear canvas button to call the clearCanvas() function
 7. In A2.js, fill in the clearCanvas() function to clear the drawing area:
 - a. First get the canvas and the context
 - b. Use clearRect with canvas.width and canvas.height to clear enter canvas

Additional Notes

No error checking is necessary. Please follow all instructions carefully to make grading easier; failure to follow them will result in a lower grade. Your program will be graded on Firefox and/or Chrome, and thus you are strongly encouraged to test your program on two browsers (e.g. Firefox, Chrome, Safari, Opera etc.) to ensure that the grader will see the same UI and functionality that you're seeing on your system.

Documentation

It is expected that all code written for this assignment is properly commented. Please document each function you write/modify, especially in places where you have made particular choices about data structures and/or algorithms to employ. Also, please add an identification header to every file with the following format:

Your Name
Your-Email
CS338:GUI, Assignment [#]

Collaboration

This is an **individual** assignment. This means that all code should be your own, other than the code we provide. While it is okay to discuss the assignment with classmates, you may not view other students' code. Similarly, you should not let classmates view your code. Your submission should include a list of all people that you discussed the assignment with. If you did not collaborate with anyone, you should state that you did not discuss the assignment at all with anyone. This should appear in the submission comments on Drexel Learn. For more details, please see the course policies on the syllabus.

Submission

Please zip your project files, and submit this package as an attachment for Assignment 2 on Drexel Learn. (A link to Drexel Learn is on the left sidebar of the main course home page.) This should include A2.html, A2.css, A2.js. In addition, it should include any other pages or files that you created and any additional HTML, CSS, etc. files that you have created.

Along with your submission, **you should provide the following information in the submission comments:**

Self-rating: [0: *no functionality* 1: *partial functionality* 2: *fully functioning as expected*]

The grading for your program will break down roughly as follows:

- **Clean, logical visual layout:** [0 1 2]
- **Part 1 Page Structure (HTML):** [0 1 2]
- **Part 1 Page Style (CSS):** [0 1 2]
- **Part 2: Page Structure (HTML):** [0 1 2]
- **Part 2: Page CSS:** [0 1 2]
- **Adding lines:** [0 1 2]
- **Clearing canvas:** [0 1 2]
- **Proper graphics drawing:** [0 1 2]

Collaboration Statement: [Indicate collaborators as described above]
