

Name: _____

ID: _____

Midterm

CS193C, Summer 2014, Young

Please print out this page and sign the Honor Code Statement. Turn in the Honor Code statement at next Tuesday's Lecture, or slip it under my office door (Gates 194). SCPD students may FAX it to (650) 723-6092.

As we've discussed, you have four hours to complete this exam and get it online for submission. Please get it online by 10:30pm. Make sure your files are up at 10:30pm, when we run our program which copies from the students' directories to ours, if your files aren't yet you can expect to receive a 0. Do not change the files after 10:30pm for any reason.

Follow the same submission procedure as for the homeworks. In this case use the subdirectory in your CS193C labeled "**midterm**".

This test is open book, open note. You may use the Internet to access reference material, but may **not** communicate with anyone in any way (electronic or otherwise) other than the CS193C teaching staff.

The Stanford Honor Code

1. The Honor Code is an undertaking of the students, individually and collectively:
 - a. that they will not give or receive aid in examinations; that they will not give or receive unpermitted aid in class work, in the preparation of reports, or in any other work that is to be used by the instructor as the basis of grading;
 - b. that they will do their share and take an active part in seeing to it that others as well as themselves uphold the spirit and letter of the Honor Code.
2. The faculty on its part manifests its confidence in the honor of its students by refraining from proctoring examinations and from taking unusual and unreasonable precautions to prevent the forms of dishonesty mentioned above. The faculty will also avoid, as far as practicable, academic procedures that create temptations to violate the Honor Code.
3. While the faculty alone has the right and obligation to set academic requirements, the students and faculty will work together to establish optimal conditions for honorable academic work

I accept the letter and the spirit of the Stanford University Honor Code. I swear that I have not given or received unpermitted aid on this exam, and I have taken an active part in stopping any violations of the Honor Code which I see on this exam.

Signed: _____

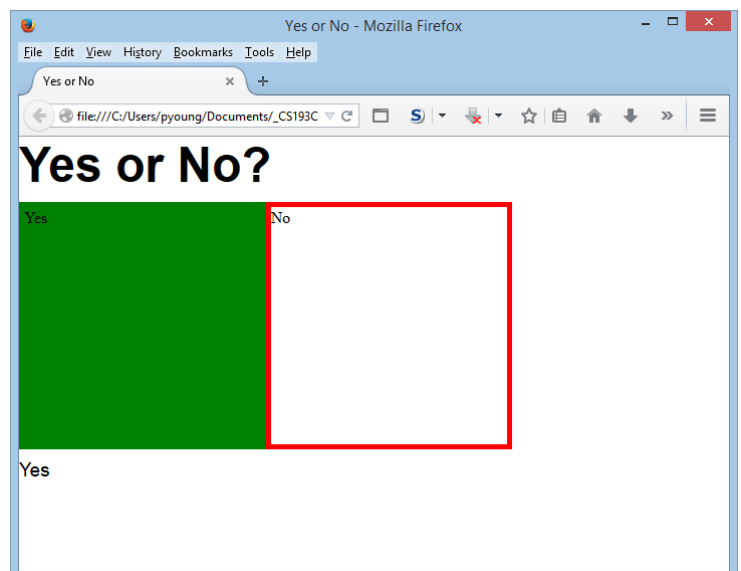
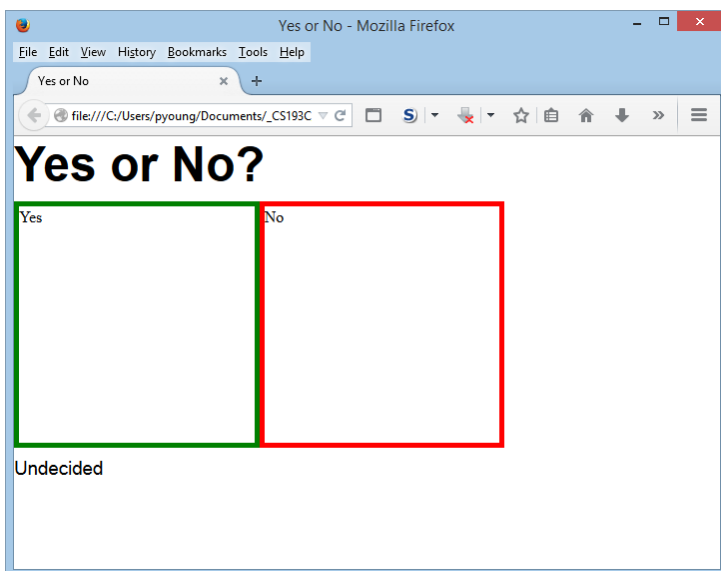
Instructions

- **Make absolutely sure you turn everything in on time. Do not turn in your exam late.**
- **We will be testing your exam solutions in either Firefox or Chrome, your choice.** If you want us to test in a specific browser add a paragraph at the bottom of each webpage telling us which browser you want us to use.
- If desired you may use the convenience innerHTML property along with any other techniques which are supported by most web browsers, even if they are not part of the official W3C standard.
- Make sure everything validates.
- You may not use Dreamweaver or other WYSIWYG editors.
- All code must be developed from scratch – this means you may not copy directly from code you find on the Internet.
- Check Piazza. If someone sends me something that I think everyone should know, we'll post it on Piazza – hopefully this won't be necessary.
- If we do not provide values for items you need, any reasonable value is acceptable. For example you may make up your own alt values for images or set widths and heights as desired when they are not specified in the problem statement.
- TA Victoria Flores came up with the idea of having a histogram problem. However, the final problem formulation, the writeup, and any errors or incorrect estimations on difficulty are entirely my doing.
- Both problems are worth the same amount of points.

Yes or No

Store this problem under the file name yes-no.html. You *may* include separate JavaScript and CSS files if desired. We don't care what the names of these support files are, but make sure they're in the same midterm directory as your yes-no.html file.

For this problem we'll develop a simple webpage which allows a user to express their opinion on a yes/no question. To keep things simple, we'll skip the actual submission required to vote and instead simply provide a mechanism to allow the user to select an option, see which option they select, and change their option if desired. Here's what the webpage looks like initially (at left) and after choosing the "yes" option (at right):



When the user clicks within the Yes square the *decision text* below the squares changes to “Yes” and the background of the “Yes” square turns to green, if a “No” vote had previously been registered the “No” square returns to a white background. When the user clicks within the “No” square the decision text below the squares changes to “No”, the “No” square gets a red background, and if the “Yes” square background was green, it returns to white. Finally if the user clicks anywhere on the page other than within the “Yes” or “No” squares, the text below the squares is set to “Undecided” and the background of both the squares is reset to white.

Both the “yes” and “no” squares should have widths which are 1/3rd that of the web browser window’s interior width. Note this is the width of the squares themselves and does not include any border, padding, or margin that they may have around them.

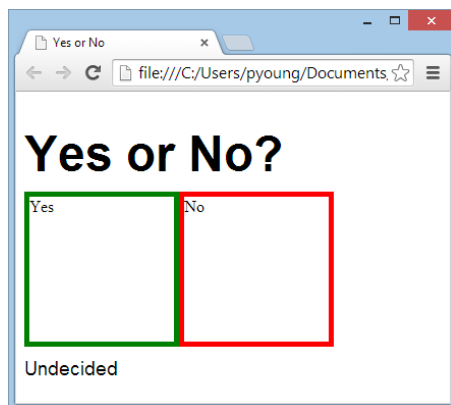
When the browser window resizes, the squares should resize so that they are each still 1/3rd the width of the window. They should also remain perfect squares, so their heights should match their width.

Your solution does not have to be a pixel-perfect recreation, but in addition to the behavior described above it should meet the following guidelines.

- The main “Yes or No?” heading and the actual decision text “Yes”, “No”, “Undecided” should be sans-serif (any sans-serif font is acceptable).
- The text within the squares should use a serif font. Mine is the default webpage font.
- The Yes and No squares should have a 5 pixel wide green or red border and no padding.

Some specific items which you do not need to worry about.

- The exact spacing between each of the sections doesn’t matter, just make sure the main heading always appears on the top, with the two squares below it, and the decision text below that.
- The exact size of the text doesn’t matter, although the heading text should be largest followed in size by the “decision text”, with the “Yes” and “No” labels in the squares the smallest. If you want it to match mine, I used 36pt for the heading, 14pt for the decision text, and left the squares with the default size text.
- We don’t care if you have a thin left margin, that’s the default and you would need to do some kind of override or reset to get rid of it. It’s fine if the heading, the squares, and the undecided have a thin margin on their left looking something like this.

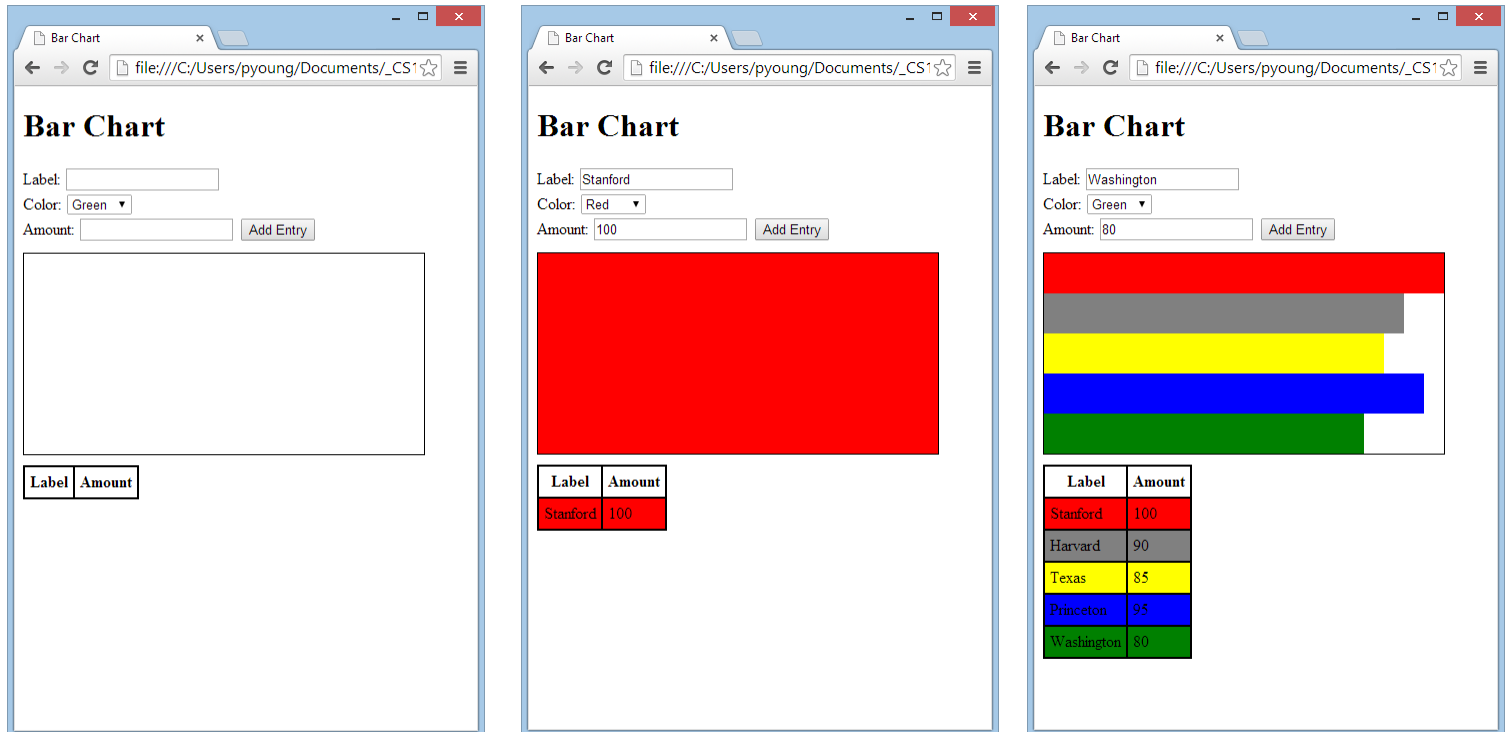


- You may assume that we always leave the web browser window wide enough and tall enough to display the contents comfortably. Don’t worry about what happens when the window is too short to show all three elements.

Bar Chart

Store this problem under the file name chart.html. You *may* include separate JavaScript and CSS files if desired. We don't care what the names of these support files are, but make sure they're in the same midterm directory as your chart.html file.

For this problem we'll create a webpage that creates a bar chart. Here's what your webpage should look like, with the initial webpage on the left, the webpage after adding a single entry in the middle, and the webpage after five entries on the right.



The webpage consists of three major parts: 1) a form allowing the user to enter a label, a color, and an amount; 2) an area used to draw the bars for our chart; and 3) a table displaying the entries in our chart. Here's a closeup of the form:

Label:

Color:

Amount:

The color pulldown should include the following standard HTML colors: Green, Blue, Gray, Red, Silver, Yellow. Note that the form elements do not need to be lined up, you can leave it ragged as shown.

When the user enters data in the form and clicks on "Add Entry",

1. Create a corresponding bar in the drawing area. The user will enter an amount between 0 and 100 (we don't care about what happens if the user enters a non-number, a number less than 0, or a number greater than 100, assume these won't happen). 100 means the bar goes all the way across the drawing area, 0 means the bar will be invisible (although it will still take vertical space), an amount between 0-100 will create a bar proportional to the amount entered.

The color of the bar will be determined by the user's color selection.

The height of the bar will be determined by the number of bars displayed. The bars displayed should always take up the entire height of the display area, with heights changing as new bars are added and all bars having the same height.

2. Below the display area, add the new entry to the table below. Each entry should include a “Label” and an “Amount” and the background of that entry’s row should match the user’s color selection. Here’s a closeup of the table after our five data entries. Note that “Label” and “Amount” are both in bold and are centered in their respective columns.

Label	Amount
Stanford	100
Harvard	90
Texas	85
Princeton	95
Washington	80

Your solution does not have to be a pixel-perfect recreation of my screenshots. There are a number of different ways to get this problem working. For example, the drawing can be done with absolute positioning or using standard placement. We don’t care how you get it done. But do make sure the “Bar Chart” heading shows up at the top of the page, followed by the entry form below it, followed by the drawing area below, and then finally below that the table of entries at the bottom.

Here are some additional notes:

- The drawing area should be fixed at 400 pixels wide by 200 pixels tall with a 1 pixel black border around it.
- Don’t worry about the user entering a number smaller than 0 or greater than 100, or entering a non-number in the amount field.
- Don’t worry about the user using the same label twice or using the same color twice. We don’t care what your behavior is in these cases.
- We aren’t concerned with spacing or padding in the table, although do make sure that your table cells do have borders.
- We aren’t concerned about margins of each of the elements, in fact, if your left margins are a bit uneven or the vertical spacing between the four main items isn’t even that’s okay.
- In contrast to the last problem, we are **not** concerned with your pages’ behavior as the web browser window changes size.