Instructions

Please complete the following questions / exercises. Some of the points are interesting and you could write a lot about them. Don't worry about that! We're not particularly concerned about the nuances or terminological perfection -- just give 1-2 sentences that hit the main idea. We'd prefer that you guess rather than look things up, but if you do look things up, please tell us where you looked. This should take 10-30 minutes.

Questions

1. What is the difference between HTTP and HTTPS?

2. What is the difference between HTTP GET and POST?

3. What is the difference between the HTTP 2xx status codes and 4xx status codes?

4. What is ajax (conceptually, what does it do)? Describe a situation where it is useful.

5. What is responsive design?

6. What is the difference between these 3 CSS rules?

```
div {background:#fff;}
#div {background:#fff;}
.div {background:#fff;}
```

7. What is the difference between these 2 uses of the <script> tag?

```
<script src="http://example.com/whatever.js"></script>
<script>var whatever = true</script>
```

8. What is the difference between these two javascript snippets?

```
var x = function() {
  return 1+1;
}();

var y = function() {
  return 1+1;
};
```

Practical

1. Write HTML/CSS to draw the following scene (inline css is fine if you want):
    a. One red box, 200x200 pixels
    b. One blue box, 200x200 pixels
    c. One green box, 100x100 pixels
    d. The green box should be centered inside the red box
    e. The red and blue boxes should not overlap

2. You have started an analytics company with the domain “hashtag-analytics.com”. You provide this tracking pixel for your customers to place on their websites. By summing the number of times the pixel was loaded, you calculate the number of visitors to each site.

```
<img src=”http://hashtag-analytics.com/12345/pixel.gif” width=”1” height=”1”/>
```

As it stands, this pixel has a problem because it will be cached by the browser.

a. Why is caching a problem for the analytics company?

b. How could you prevent browser caching? (use any technique(s) you want)

c. What will happen if the customer’s website is served over HTTPS? How could you modify the tracking pixel to fix that?

d. List some information the tracking company could collect (ex: IP address)

e. List some additional information (if any) that could be collected if a <script> tag is used instead of an <img> tag.

3. Harder!
The following image tag appears somewhere on some webpage. The rest of the page is valid HTML, but otherwise unknown.

```
<img id=”myimage” src=”http://hashtag-analytics.com/myimage.jpg” width=”300” height=”250”/>
```

Write CODE in plain javascript to do the following (jQuery is fine too, if you prefer):

Every 2 seconds:
- Check whether the image is viewable**
- If yes, write “visible” to the console (that is, window.console)
- If no, do nothing

** the image is “viewable” if any part of it appears on the screen (so if the image is entirely above or below the viewport, then the user cannot see it, so it is not considered “viewable”). You can ignore horizontal bounds checking.