

CMPSCI 120

Fall 2011

Midterm Exam #1 Solution

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<1> 20 Points – Quick Answers, 1 point each. Do any 20; do more for extra credit.

United Kingdom (Great Britain)	What does it mean when a URL ends in .uk ?
Russia, or the Russian Federation	What does it mean when a URL ends in .PΦ ? While Russia is still .ru , they are one of the first countries to use non-Roman characters in the country code, Cyrillic in this case.
Yes	Yes/No: Is the color " #99CC66 " browser safe? All RGB components are either 00, 33, 66, 99, CC, or FF .
No	Yes/No: Is the color " #99DD66 " browser safe? The green component DD is not from the browser safe set.
#9D6	What is the <u>short hex</u> equivalent to the color " #99DD66 "? When all three RGB components have the same dominant digit as non-dominant digit, the short hex version is to use one digit of each.
rgb(0, 255, 5)	How is the color " #00FF05 " encoded using the rgb function? Each component is converted into decimal. To use the percent form, divide the decimal value by 255, multiply by 100, and then round to an integer, giving rgb(0%, 100%, 2%)
cyan	What color (approx.) is shown on screen by the code " #1EF6D9 "? The color has low red (1E), but high green (F6) and high blue (D9). Other acceptable answers include aqua, turquoise, blue-green, etc., but <u>not</u> magenta or yellow (which require high red).
yellow	What named color does the HTML code " #FFFF00 " refer to? Maximum red, maximum green, no blue.
8	How many bits are in a byte?
255	What is the maximum value in <u>decimal</u> that can be stored in a byte? There are $2^8=256$ unique values storable in a byte, but one of them is zero, leaving the maximum to be $2^8-1 = 255$.
FF	What is the max value in <u>hexadecimal</u> that can be stored in a byte? $255 \div 16 = 15$ with a remainder of 15. In hex, $15=F$.
32	How many bits are in an IPv4 address? 4 bytes \times 8 bits per byte.
128	How many bits are in an IPv6 address? 8 word \times 16 bits per word.
E3	Convert the decimal number 227 into hexadecimal. $227 \div 16 = 14$ with a remainder of 3. In hex, $14=E$.

215	Convert the hexadecimal number D7 into decimal. $D \times 16 + 7 = 13 \times 16 + 7 = 208 + 7 = 215.$
CIDR	What was “classful addressing” replaced by? Classless Inter-Domain Routing
Client	When you request a Web page from the Internet, does your Web browser represent the <u>client</u> or the <u>server</u> ?
&#189;	Show an alternate way of specifying the HTML entity &frac12; (the code for the character ½). Also acceptable: <SUP>1</SUP>&fras1;<SUB>2</SUB>
$2^{16}=65536$	All UMass IPv4 addresses have the form: 128.119. ____ . ____ How many unique addresses does UMass control?
Token Ring	What kind of network has a large “loop” of computers where each machine talks only to its two immediate neighbors?
Pareidolia	What is it called when random data (either visual or audible) are perceived to have structure and pattern?
DNS	What acts as the “phone book” on the Internet, which maps URLs onto IP addresses? Domain Name Service
Router	What device “hides” a home network behind a single IP address?
Hub	What device connects several computers to a cable modem <u>without</u> hiding behind a single address (i.e., every machine’s IP is visible).
False	True/False: It costs a lot to send a single email message to millions of accounts.

<2> 10 Points – Short Answer – The Washington Redskins football team has correctly predicted the winner of every presidential election (except one) since 1936. When they play their last home game before the election, a win predicts that the incumbent party retains the White House, and a loss predicts that the challenging party will win. The Redskins lost on Monday, November 3, 2008, and the Democrats won the election the next day, extending the record to 18-1. In searching the Web, we might find a site which *demand*s that we believe the two sets of events are closely linked. Discuss the various forms of bias exhibited by that site, including the kinds of mistakes a person with poor critical thinking skills might make. How do we tell that the site is biased? How can we explain this phenomenon in an unbiased manner?

It is pretty clear that the two events have no direct cause-and-effect relationship. At best there is **correlation, but no causality**, and at worst it is pure coincidence. The site that we find which insists on the presence of causality may ignore the single case where the prediction failed, and instead concentrate on the many apparent successes. This is similar to **confirmation bias** (we remember the cases that agree with the prediction, but ignore or forget those that don't agree). We can tell the site is biased if there is uncritical insistence on the faux causality.

One explanation may be that the players are finally home to vote, as well as to play their last game before the election, and may, on average, be themselves biased whoever is currently in power in their home town (Washington, D.C.). They may feel confident about the possibility of the incumbent winning the election and thus play better, or they may feel anxiety about the possibility of the incumbent losing and thus play worse. In essence, the stated causality effect may be *exactly reversed*: an expected win by the incumbent party may cause the team to play better (high probability of winning the game), and an expected loss by the incumbent party may cause the team to play worse (lower probability of winning the game).

Of course, there may be nothing more than coincidence!

<3> 10 Points – What is written into the current document by the following JavaScript code?

```
<BODY>
  <SCRIPT TYPE="text/javascript">
    <!--
      N = 1 ;
      while (N <= 5)
      {
        document.writeln ("Item #", N, "<BR>") ;
        N = N + 1 ;
      }
    -->
  </SCRIPT>
</BODY>
```

```
Item #1<BR>
Item #2<BR>
Item #3<BR>
Item #4<BR>
Item #5<BR>
```

<4> 10 Points – Short Answer – In a document that defines a **<FRAMESET>** there is one frame defined as **<FRAME SRC="..." NAME="MAIN">**, and in another document there is a link defined as ****. What is the purpose of the string "MAIN" in these cases?

To link the target of the URL to a particular frame (clicking the link will open the page in the named frame).

<5> 50 Points – Answer the remaining questions about the HTML on the following page:

A. (5 points) What is the *apparent on-screen background color* (approximately)?

Magenta (purple, fuchsia, etc.: high red and blue, but low green)

B. (5 points) Short Answer – If the page works correctly, why won't the background color be visible?

The **Bat.jpg** image will be tiled over the window, completely obscuring the background color. The color will only be shown if the file is slow to load or does not exist or is corrupted (damaged).

C. (5 points) Mark up the first four words of the “Abstract” paragraph to be **both bold and italic**, and the second four words to be **bold** only.

D. (5 points) Between the last paragraph and the copyright line insert a tag that draws a *horizontal line* across the screen.

E. (10 points) I want to insert some new HTML between the copyright line and the `</BODY>` tag. Write that new HTML fragment so that clicking on an image called **Verts.jpg** links to **`http://www.cs.umass.edu/~verts`** (my personal site). The image file **Verts.jpg** is physically located on my site in my **images** folder, and in your HTML must be resized to exactly 200 pixels wide.

F. (10 points) I want to convert the page from old-style HTML into a form that uses CSS. In the currently empty `<STYLE>...</STYLE>` block on the next page write the code to replace any *deprecated* items with their CSS equivalents, and then strike out (draw a line through) those HTML items being replaced.

G. (5 points) Also include in the style block the directive to *fully justify* all paragraphs.

H. (5 points) In the “Conclusion” paragraph, include the **STYLE="..."** attribute to make the text of just that one paragraph red.

```
<HTML>
  <HEAD>
    <TITLE>My Spiffy Web Page</TITLE>

    <STYLE TYPE="text/css">
      H2 {text-align:center}

      BODY {background-color:#F1EEF ;
            background-image:url("Bat.jpg") }

      P {text-align:justify}
    </STYLE>
  </HEAD>

  <BODY BGCOLOR="#F1EEF" BACKGROUND="Bat.jpg">

    <CENTER><H2>Abstract</H2></CENTER>

    <P>
      <B><I>text text text text</I> text text text text</B>
      text text text text text text text text
    </P>

    <CENTER><H2>Body</H2></CENTER>

    <P>
      text text text text text text text text
      text text text text text text text text
    </P>

    <CENTER><H2 STYLE="color:red">Conclusion</H2></CENTER>

    <P>
      text text text text text text text text
      text text text text text text text text
    </P>

    <HR>

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    <A HREF="http://www.cs.umass.edu/~verts">
      <IMG SRC="http://www.cs.umass.edu/~verts/images/Verts.jpg"
        WIDTH="200">
    </A>
  </BODY>
</HTML>
```