CMPSCI 120
Fall 2019
Midterm Exam #2
Solution Key
Wednesday, November 20, 2019
Professor William T. Verts

<1>   15 Points – Quick Answers.   Do any 15 for full credit; do more for extra credit. Correct answers will be scored as +1, partial credit as +½, blank answers as 0, ~~and wrong answers as -1 (it is better to leave an answer blank than to guess wrong)~~.

.JPG	Which graphics file format supports millions of colors but with lossy compression?
.GIF	Which graphics file format supports a maximum 256 colors with a palette and lossless compression?
.BMP	Which graphics file format does <u>not</u> support compression?
Encryption	What do modern telnet (PuTTY, ssh) programs support that older more traditional versions did not?
FTP	Would I use a telnet program or an FTP program to move files between my local machine and the server?
NO	Yes or No: Does it matter where the **elsrv3** server is physically located?
YES	Yes or No: Can I log in to my account on **elsrv3** from multiple telnet and/or multiple ftp programs simultaneously?
YES	Yes or No: Can I FTP files to and from my account on **elsrv3** from a public WiFi site in my home town in western Oregon?
cd public_html	After I first log in, what complete UNIX command do I type to open the **public_html** folder?
444	In the command **chmod _____ Toad.gif**, what goes in the blank to set permissions to **r--r--r--** (regardless of what they are now)?
.	In the command **chmod a+r _____**, what goes in the blank to affect <u>all</u> files in the current folder, <u>regardless of extension</u>?
pwd	What UNIX command do I type to find out what folder I'm in right now?
cd ..	What UNIX command do I type to close the current folder (and go up one level in the directory tree)?
emacs index.html	What UNIX command do I type to edit the **index.html** file in the current directory folder?
logout	What UNIX command do I type to terminate my current telnet session?\
€ **€**	What is one of two ways to specify the Euro € symbol in HTML?
<INS>…</INS>	What tag should I use instead of the deprecated **<U>…</U>** tag?
<SPAN>…</SPAN>	What tag would I use to affect just the style of a few words located somewhere in the middle of a large block of text?
Cascade	What is it called when styles in a stylesheet are overridden by a local style block, and those styles are overridden by style attributes in tags?
To get to his Web site	Why did the spider cross the road?

<2>   17 Points – First, fill in code in the external style sheet file to make body backgrounds **magenta** and **H1** headings **yellow**. Next, complete the code in the HTML document to link in the style sheet. Then, add a local style definition to make **H1** headings in this document **green**. Finally, make just the "goodbye" **H1** heading **red**.

MyStyles.css (1 point each):

```
BODY { background-color:magenta                    }

H1    { color:yellow                               }
```
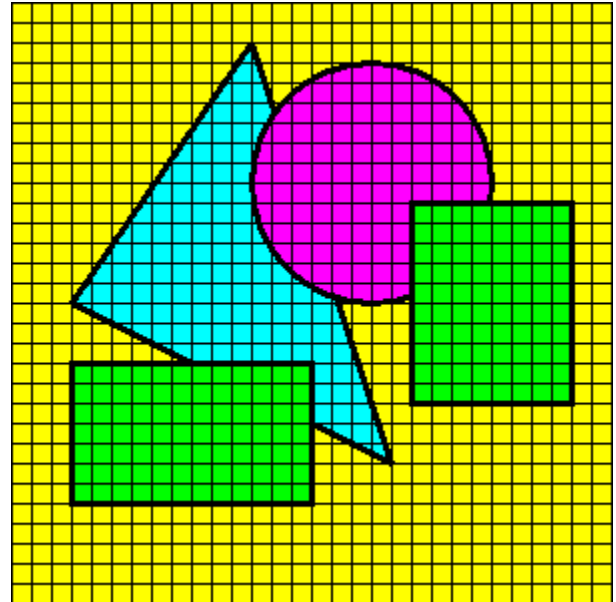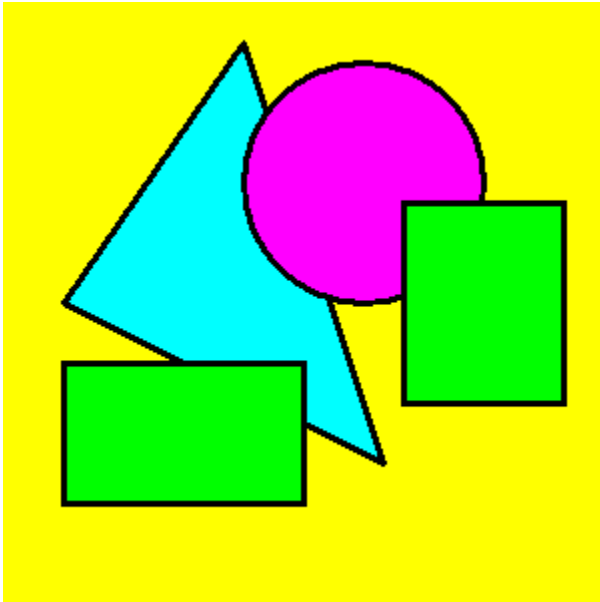
MyPage.html (5 points each, allow partial credit):

```
<!DOCTYPE html>

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

        <LINK REL="stylesheet" TYPE="text/css"

              HREF="MyStyles.css"                  >

        <STYLE TYPE="text/css">

            H1 {color:green}

        </STYLE>
    </HEAD>

    <BODY>
        <H1>Hello!</H1>

        <H1  STYLE="color:red"     >Goodbye!</H1>
    </BODY>
</HTML>
```

<3>   3 Points – (1 point each) When the Web page in problem #2 is shown on screen, what color is:
A.   …the Web page **BODY**?   **magenta**
B.   …the first **H1** heading?   **green**
C.   …the second **H1** heading?   **red**

For **all** of the remaining problems in this exam, we will be referring to the following 300×300 pixel image, shown on the left as it would appear on screen, and on the right with an overlaid grid. The gray grid (normally not shown) has a 10-pixel spacing, and all vertices are on those 10-pixel boundaries (that is, a point might be at <30,20> but not at <32,18>, for example). The image contains four objects: a magenta circle, a cyan triangle, and two <u>lime</u>-green rectangles, all on a yellow background. Remember that <0,0> is the location of the upper-left corner of the image.

<4>   10 Points – (2 points each) The image (the one on the left) can be created and saved in any of the five file types we described in class (**.BMP**, **.GIF**, **.JPG**, **.PNG**, and **.SVG**) but some file types are better than others in certain applications. For each of the file types, answer YES if it is <u>BOTH</u> appropriate for *use on the Web* <u>AND</u> for holding *this particular image*, and answer NO otherwise.

      A.   **.BMP**   **NO**   *(no uncompression means files are too big)*

      B.   **.GIF**   **YES**

      C.   **.JPG**   **NO**   *(lossy compression will corrupt smooth lines)*

      D.   **.PNG**   **YES**

      E.   **.SVG**   **YES**

<5>   20 Points – Complete the code below to describe the image as an **.SVG** file. The
        framework has been provided to you (you do <u>not</u> need a **STYLE** block). All object outlines
        (the strokes) are 3-pixels wide and are black. Hint: in addition to the four obvious objects
        in the image, the background <u>also</u> counts as a separate object, so your solution should
        contain <u>five</u> SVG graphics objects. 4 points per shape, VERY generous partial credit.

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>

<svg xmlns:svg="http://www.w3.org/2000/svg"
     xmlns="http://www.w3.org/2000/svg"
     version="1.1" x="0px" y="0px"
     width=" 300px            "
     height=" 300px           ">
     <rect       x="0"
                 y="0"
                 width="300"
                 height="300"
                 fill="yellow"/>

     <polygon    points="120,20 30,150 190,230"
                 stroke="black"
                 stroke-width="3"
                 fill="cyan"/>

     <circle     x="180"
                 y="90"
                 r="60"
                 stroke="black"
                 stroke-width="3"
                 fill="magenta"/>

     <rect       x="200"
                 y="100"
                 width="80"
                 height="100"
                 stroke="black"
                 stroke-width="3"
                 fill="lime"/>

     <rect       x="30"
                 y="180"
                 width="120"
                 height="70"
                 stroke="black"
                 stroke-width="3"
                 fill="lime"/>
</svg>
```

The points in the polygon can be in any order (triangle).

This rectangle can be right after the polygon or the circle.

<6>   20 Points – The image has now been saved to a file called **Geometry.png**. Complete the HTML code below to turn the image into a ***client-side image map***, where the circle links to **www.round.com**, both rectangles to **www.boxes.org**, the triangle to **www.three.gov**, and the background to **www.umass.edu** (for the default link you won't have any **COORDS**, so just draw a line through that one: ~~COORDS~~). NOTE: The order of the circle, triangle and rectangles is important! Look at the overlaps!

```
<IMG SRC="Geometry.png" USEMAP="#MyMap">

<MAP NAME="MyMap">

    <AREA SHAPE=" rect                                    "
          COORDS=" 30,180,150,250                         "
          HREF=" http://www.boxes.org                     ">


    <AREA SHAPE=" rect                                    "
          COORDS=" 200,100,280,200                        "
          HREF=" http://www.boxes.org                     ">


    <AREA SHAPE=" circle                                  "
          COORDS=" 180,90,60                              "
          HREF=" http://www.round.com                     ">


    <AREA SHAPE=" poly                                    "
          COORDS=" 120,20,30,150,190,230                  "
          HREF=" http://www.three.gov                     ">


    <AREA SHAPE=" default                                 "
          COORDS="                                        "
          HREF=" http://www.umass.edu                     ">
</MAP>
```

4 points per shape, remove 1 point per major problem (including order) but do not go below zero for any section.
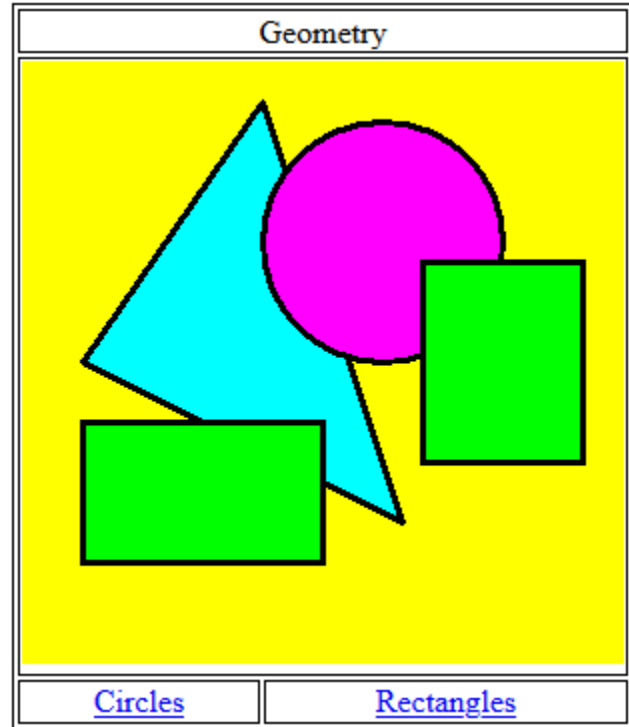
Rectangles can be in either order.
The first rectangle can be after the circle, but must be before the polygon.
The points in the triangle polygon can be in any order.
The default must be the last shape.

<7>   15 Points – In this problem you need to use the **Geometry.png** file in an ***HTML table*** with three rows and two columns, where the two columns are joined into one cell for each of the top two rows. The top cell contains only the single word Geometry, centered. The second cell contains the **Geometry.png** file. The left cell in the third row contains a link to **www.round.com** when you click on the centered word Circles, and the right cell in the third row contains a link to **www.boxes.org** when you click on the centered word Rectangles. The desired result is shown here. Complete the **STYLE** block to make sure that text is centered, and also complete the rest of the **TABLE** code to build the table as shown.

```
<STYLE TYPE="text/css">
    TABLE,TD {border 1px solid black ;  text-align:center          }
</STYLE>
```
                                                                          2 points

```
<TABLE>
    <TR>
        <TD COLSPAN="2">Geometry</TD>                              3 points
    </TR>

    <TR>
        <TD COLSPAN="2">                                          1 point
            <IMG SRC="Geometry.png">                              2 points
        </TD>                                                     1 point
    </TR>

    <TR>
        <TD>                                                      1 point
            <A HREF="http://www.round.com">Circles</A>           1 point
        </TD>                                                     1 point

        <TD>                                                      1 point
            <A HREF="http://www.boxes.org">Rectangles</A>        1 point
        </TD>                                                     1 point
    </TR>
</TABLE>
```