

**CMPSCI 120 Fall 2008**  
**Lab #6**  
**EXTRA CREDIT**  
**Professor William T. Verts**

**Setting Up**

In this extra-credit assignment you are to create a Web page that contains a client-side image map. This assignment does not build on any earlier assignment. For this assignment you will need the tools you used in earlier assignments (PuTTY, WinSCP, Windows Notepad, and Windows Paint) or equivalent. In addition, you will need a tool to change a .GIF image into a *transparent* .GIF image (my own TransparentGIF program at will be fine for this task):

<http://www-unix.oit.umass.edu/~verts/software/software.html#TRANSPARENTGIF>

You may use other graphics packages if you feel more comfortable with them than with Windows Paint, as long as those packages can create transparent .GIF images.

**First Image: Drawing the Links**

What I want you to create first is an image to be used as a client-side image map, where five distinct regions of the image are hot-spots that link to external Web sites. Pick five of your favorite sites to use as links. The image must be exactly 600×600 pixels in size, and because it must be saved as a .GIF image it is limited to no more than 256 distinct colors (one of which will be used as the “transparent” background color).

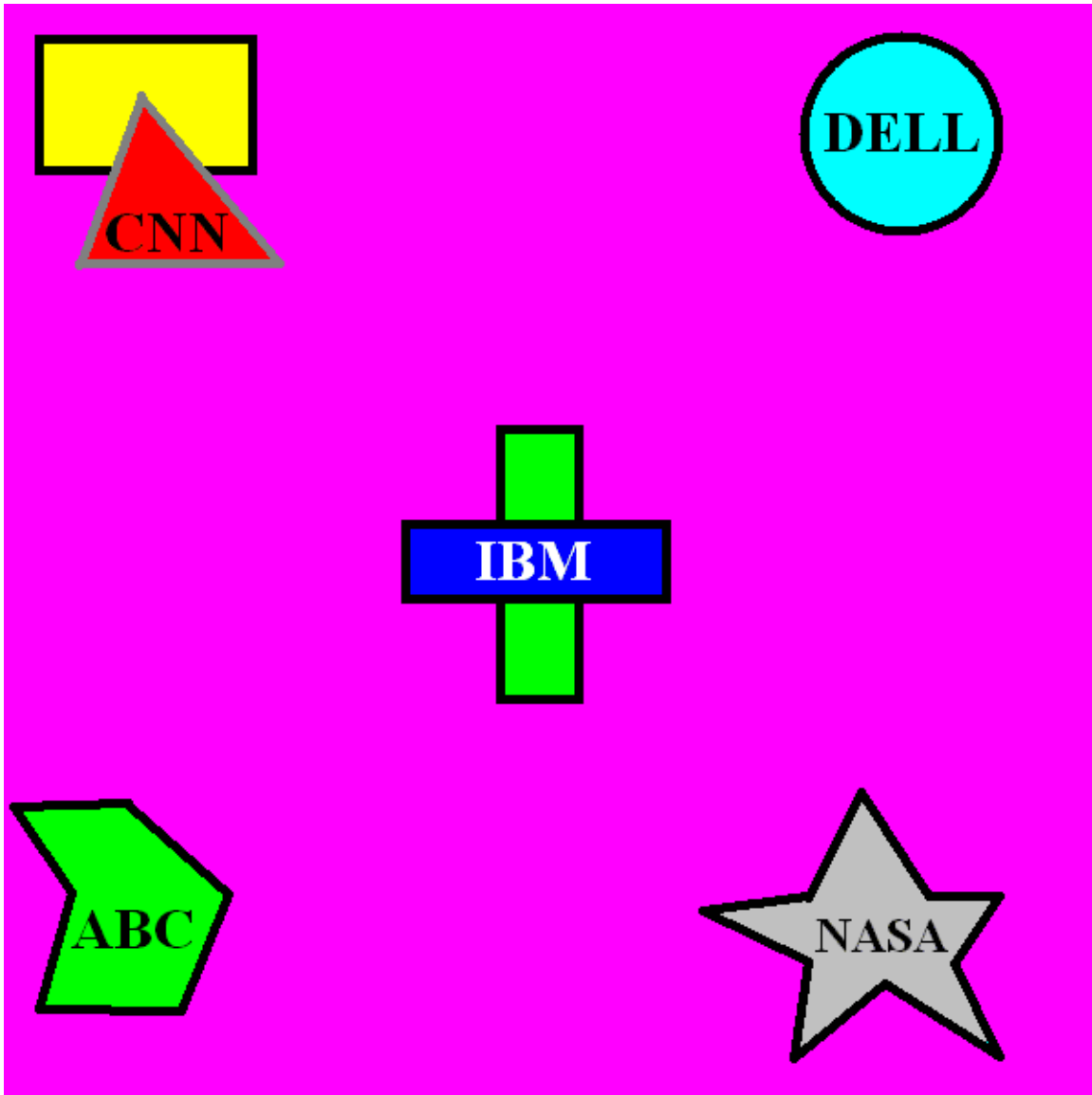
Start up Windows Paint or other bitmap graphics editor, and set the image size to exactly 600×600 pixels (points will be removed if the image is any other size). Flood-fill the image with a color that you will not use in any other part of the drawing (this is the color you will set to “transparent”). For example, if you do not expect to use magenta in your drawings then magenta would be a good background color.

Now, draw a small picture in each corner and in the middle to form five link-regions in the shape of a *quincunx* (look it up!). Each link-region must be no larger than 200×200 pixels, and must not overlap any of the other regions. In addition, the pictures you draw must either be circular and/or have a non-rectangular outer boundary (with concavities) that can only be described by irregular polygons. You are to include in each of the five pictures a descriptive name of the site used in the link.

You may draw anything you like for the five pictures (real objects, abstract geometric shapes, etc.). I am not grading on the quality of your artwork, but if possible try to make each picture appropriate to the site to which it links.

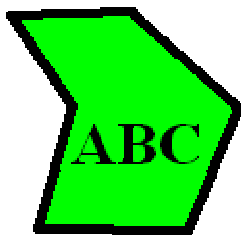
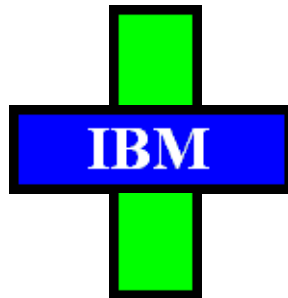
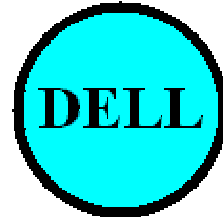
Save the image with the name **MyLinks.gif** on your disk (the file name must be as specified here or you’ll lose points – we will use that name to check the contents of the file for grading).

Here is an example of what MyLinks.gif might look like (your picture *must not* use the same diagrams or the links shown here – make up your own design). This first version shows the image with the background color visible:



Using TransparentGIF (or another graphics tool that can do the same job) set the background color of `MyLinks.gif` to “transparent”.

The next version shows the same image as before, but with the background color set to transparent. Notice that the magenta background color has vanished, leaving only the five link-regions behind:



### **Second Image: Background Pattern**

Create a new image in Windows Paint or in your favorite graphics package. This image must be exactly 8×8 pixels in size. In this image create a random “speckle” pattern of your favorite colors. Save the image as **MyPattern.gif** in the same folder as the **MyLinks.gif** image (the file name must be as specified here or you’ll lose points – we will use that name to check the contents of the file for grading).

Here is an example. The full-sized image that you create is the tiny view on the left, but a “zoomed” version is shown on the right, where each colored square represents a single pixel. **Do not use** my pattern; create your own.



### **The Basic Web Page**

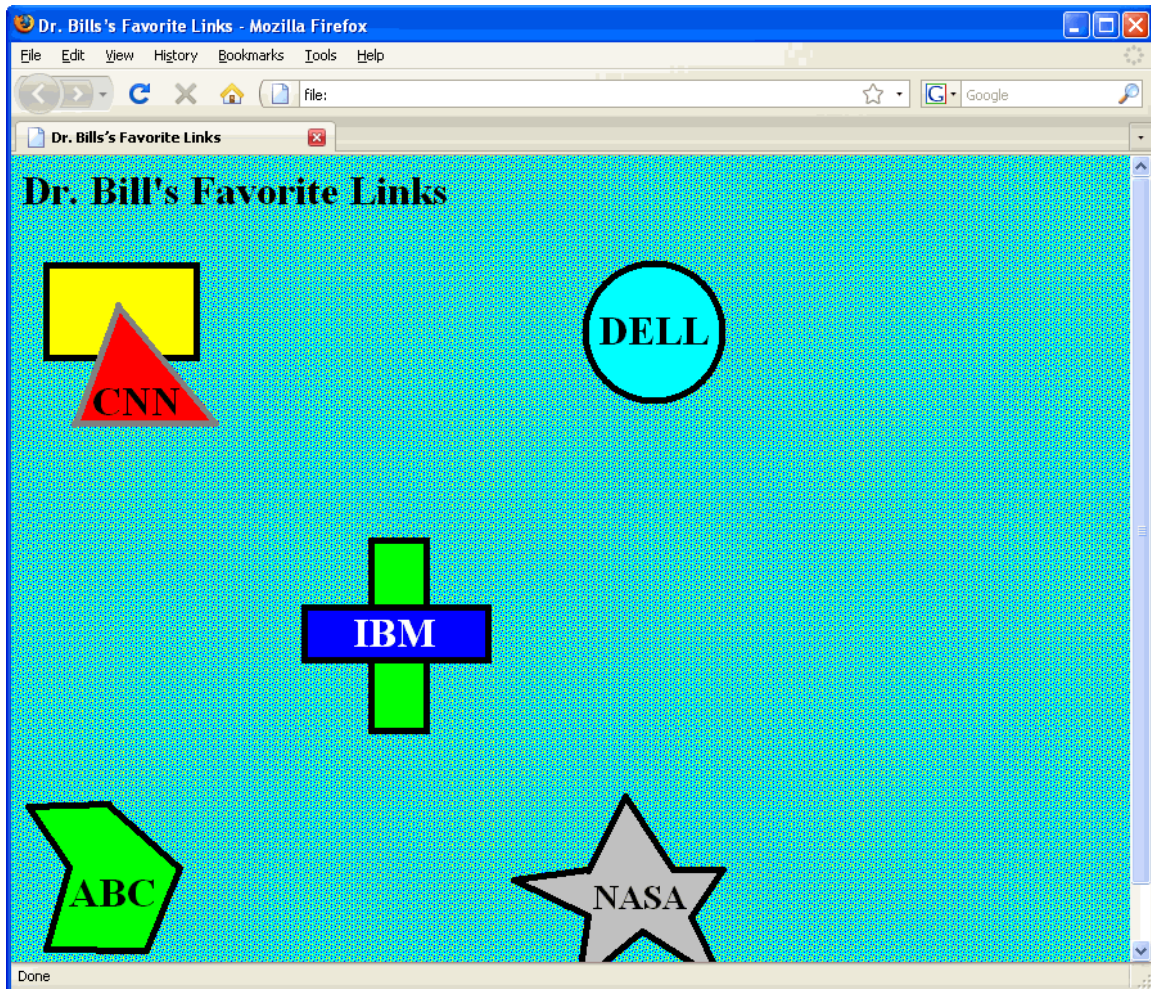
In Notepad or in your favorite text editor, create the following Web page framework, replacing the blanks with your first name, and then save it as **MyLinks.html** in the same folder as **MyLinks.gif** and **MyPattern.gif** (the file name must be as specified here or you’ll lose points – we will use that name to check the contents of the file for grading):

```
<HTML>
  <HEAD>
    <TITLE>_____ 's Favorite Links</TITLE>
  </HEAD>

  <BODY BACKGROUND="MyPattern.gif">
    <H1>_____ 's Favorite Links</H1>
    <IMG SRC="MyLinks.gif">
  </BODY>
</HTML>
```

This is an intermediate step. We will be making modifications to this file later, but at this point you should be able to tell if everything you’ve done so far is correct.

Load up your favorite browser and point it at the `MyLinks.html` file. The example files shown in this document will appear in the browser as seen below. Notice that the `MyPattern.gif` pattern file has been replicated across the width and height of the browser window, and that background pattern shows through the transparent color of the `MyLinks.gif` image.



Do not proceed until your basic page works correctly as shown here. At this point, none of the pictures in the `MyLinks.gif` image does anything (the link-regions are not yet active).

### **Building the Client Side Image Map**

The images are now complete, and the basic page looks OK.

Modify the `MyLinks.html` file to turn the image into a client side image map called `MyMap`, where each of the five pictures in the `MyLinks.gif` image links to the appropriate Web site. The background of the `MyLinks.gif` image does nothing (i.e., there is no default link for the image map).

As a reminder, here is what the basic code for a client side image map looks like, one that uses just circles and polygons (no rectangles or defaults). Note that the `SHAPE=CIRCLE` has for its three coordinates the  $x$  and  $y$  offsets of the center of the circle and the radius of the circle. Also, the `SHAPE=POLY` has coordinate pairs representing  $x$  and  $y$  of each point around the polygon, and the last pair must be a duplicate of the first pair.

```
<IMG SRC="MyLinks.gif" USEMAP="#MyMap">

<MAP NAME="MyMap">
  <AREA SHAPE=CIRCLE COORDS="x,y,r"
    HREF="http://...">

  <AREA SHAPE=POLY COORDS="x1,y1,x2,y2,...,xn,yn,x1,y1"
    HREF="http://...">
</MAP>
```

Your goal in creating the image map is to *exactly capture* the shape of each link-region in the `MyLinks.gif` image. That means that for each of the five pictures you are to capture just the outline of the link-regions, without allowing any of the background pattern to be used as part of the link. (Hint: you can use Windows Paint to find the  $\langle x,y \rangle$  coordinates of any point in the image.)

Note: if any one of the five pictures in `MyLinks.gif` contains more than one distinct polygon, or contains one or more circles in addition to one or more polygons, you are allowed to use multiple `<AREA ...>` tags to describe the complex link-regions in those pictures. You are allowed to use only `<AREA SHAPE=POLY ...>` and `<AREA SHAPE=CIRCLE ...>`. You are not allowed to use the `<AREA SHAPE=RECT ...>` variation, however.

When your `MyLinks.html` page is complete, test it in the browser on your computer. As you float the mouse over the `MyLinks.gif` image, there should be no active link in any portion of the page except in the link-regions of the five pictures, and clicking in any link-region should jump to the appropriate Web site. No portion of the background pattern should link to anything.

### **Installing the Page**

When your `MyLinks.html` page is complete, and all the pictures link to the appropriate sites, use WinSCP (or another ftp program) to copy the three files `MyLinks.html`, `MyLinks.gif`, and `MyPattern.gif` into the `public_html/cmpsci120` folder of the `elsrv3` server. Remember to ftp the Web page in Text/ASCII mode, and the two `.gif` files in binary mode.

Set the permissions to `rw-r--r--` on all three files. When everything is complete, the URL `http://elsrv3.cs.umass.edu/~____/cmpsci120/MyLinks.html` should be visible and testable on the Web (with your username in the slot).

### **What To Turn In**

When your page is correct and visible on the Web, send an email to **both** the TAs **and** to the `literacy@cs.umass.edu` account. The subject line must be set to the exact phrase **CMPSCI 120 ASSIGNMENT #6 EXTRA CREDIT**, and the body of the message must contain your name, your username, and your fully specified URL.

We will be grading the assignment based on whether or not it works, and on how closely you follow the directions. You will lose points for any or all of the following infractions: if any of the files have the wrong name, if the background pattern does not show up, if the background of the main image does not show up or is not transparent, if clicking outside of the five link-regions (i.e., on any portion of the background pattern) jumps to any site, if either of the images are the wrong sizes, and/or if you use any shape other than `SHAPE=CIRCLE` or `SHAPE=POLY` in the image map.