LAB 6

WEB MEDIA

What You Will Learn

- Different ways of working with color in CSS
- How to resize and crop an image in an image editor
- How to save JPG, GIF, and PNG images
- How to use the `<video>` and `<audio>` elements

Approximate Time

The exercises in this lab should take approximately 40 minutes to complete.

Fundamentals of Web Development, 3rd Ed

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Preparing Directories

The starting `lab06` folder has been provided for you (within the zip file/folder downloaded from Gumroad).

*Note: these labs use the convention of `blue background` text to indicate filenames or folder names and **`bold red`** for content to be typed in by the student.*

Common Image Tasks

Exercise 6.1 — CSS Color Functions

1. Examine `lab06-ex01.html` in a code editor.

   You will be adding style definitions within the <style> tag.

2. Modify the following styles and test.

```
.a {
   background-color: green;
}
.b {
   background-color: #008000;
}
.c {
   background-color: rgb(0, 128, 0);
}
.d {
   background-color: rgb(0, 128, 0, 0.25);
}
.e {
   background-color: rgb(0, 128, 0, 0.5);
}
.f {
   background-color: rgb(0, 128, 0, 0.75);
}
.g {
   background-color: rgb(0, 128, 0);
   opacity: 0.15;
}
```

   This demonstrates how you can specify colors using color names, hex, and using the rgb() function.

3 Change the background color as follows and test.

```
section#first {
   background-color: white;
}
```

Notice how the last four boxes, which include an opacity setting, change based on the background color.

4 Change the background color as follows and test.

```
section#first {
   background-color: black;
}
```

5 Modify the following styles and test.

```
.h1 {
   background-color: hsl(184,91%,17%);
}
.h2 {
   background-color: hsl(184,91%,25%);
}
.h3 {
   background-color: hsl(184,91%,34%);
}
.h4 {
   background-color: hsl(184,91%,55%);
}
.h5 {
   background-color: hsl(184,91%,74%);
}
.h6 {
   background-color: hsl(184,91%,87%);
}
.h7 {
   background-color: hsl(184,91%,94%);
}
```

This example illustrates how the hsl() function allows you to easily create variations on a single color.

Exercise 6.2 — CSS Gradient

1 Examine `lab06-ex02.html` in a code editor.

You will be adding style definitions within the <style> tag.

2 Modify the following style and test.

```
.a {
   background-image: linear-gradient(green, white);
}
```

3 Modify the following styles and test.

```
.b {
   background-image: linear-gradient(to top left, white, blue);
}
.c {
   background-image: linear-gradient(90deg, green 50%, orange,
                                     blue);
}
```

4 Modify the following styles and test.

```
.d {
   background-image: repeating-linear-gradient(135deg, black 0,
                              black .75em, green 0, green 2em);
   color: white;
}
.e {
   background-image: radial-gradient(circle, yellow, red);
}
```

The next set of exercises require some type of image editor. These exercises use Adobe Photoshop, but you could alternately use the free open-source program GIMP or a browser-based photo editor such as Pixlr or the Adobe Photoshop Express Editor.

Photoshop is a complex image editor from Adobe. We will only be scratching the surface of this software in order to show you how to accomplish some typical web-related tasks.

Exercise 6.3 — Resize and Crop

1. Start Photoshop and open the file `british-museum.jpg`.

   If you are not using Photoshop, you will have to adjust these instructions.

2. Use the **Zoom Tool** and click repeatedly on the image until you reach the maximum zoom (1600%). Alt-click (Cmd-click on Mac) to unzoom. Double-click on the zoom tool to return to 100%.

3. Use the **Crop Tool** to keep just a part of the image (see Figure 6.1). When finished, double-click or press Enter.

   The Crop tool allows you to select an area of an image and discard everything outside this area.

4. Press **Ctrl-Z** (or Cmd-Z on a Mac) to undo the last step. You can also use the Edit | Undo menu.

5. Press **Ctrl-Z** again to redo the crop.

6. Use the **Eyedropper Tool** and click in the image.

   This changes the current foreground color to whatever color in the image that you sampled with the Eyedropper. The current foreground color is visible in the Set Foreground Color (see Figure 6.2).

7. Double-click on the current foreground color swatch (see Figure 6.2).

   This will display the Color Picker. Notice that you can use this dialog to convert between different color models.

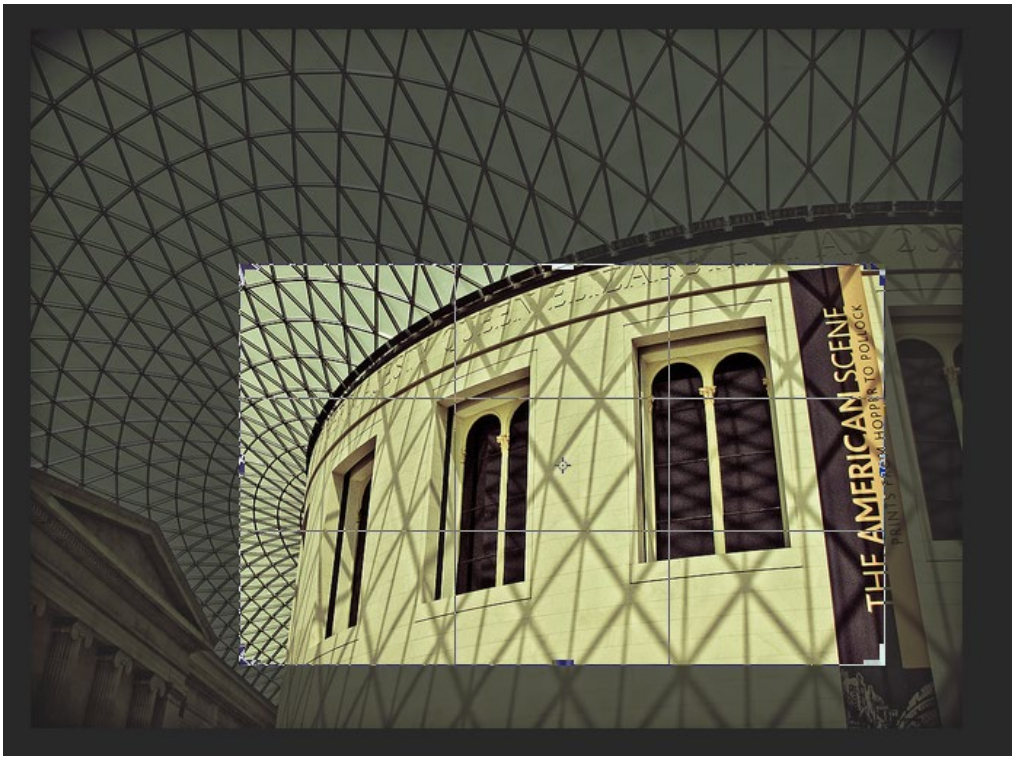

Figure 6.1 – Using the Crop Tool

Figure 6.2 – Setting the Foreground Color

8 Use the **Image | Image Size** menu command.

This dialog allows you to resize an image by specifying a different width and height.

9 Toggle the Resample Image checkbox off and on.

When Resample Image is turned on, you can resize the image by adding (or removing) pixels from the image. When Resample is turned off, then you can only change the print size of the image (essentially by changing the print resolution).

10 With Resample Image turned on, change the width to 800 pixels then click ok.

Notice that modest increases in the size of a photographic image will not have especially adverse effects on the quality.

11 Press **Ctrl-Z** (or Command-Z on a mac) repeatedly to undo/redo the resizing. Compare the quality before and after the resizing.

12 Use the **Image | Image Size** menu command and resize the image to 100 pixels wide. Click Ok.

When you are decreasing the size of an image, the loss of quality is generally not as noticeable.

13 Close the image without saving.

14 Open the file `british-museum-tiny.jpg`.

15 Use the **Image | Image Size** menu command and resize the image by setting its width to 640 pixels. Click Ok.

Notice that the quality is now very poor. Thus making a large increase in the size of an image will result in a very poor image.

16 Use the **File | Revert** menu command.

This shortcut is the equivalent of closing a file without saving and then reopening.

17 Use the **Image | Canvas Size** menu command.

This command lets you increase or decrease an image's canvas size.

18 In the Canvas Size dialog, change the width to 400 pixels, change the anchor to that shown in Figure 6.3 (this will add the pixels on the right side of the image) and then click Ok.

19 Close the image without saving.

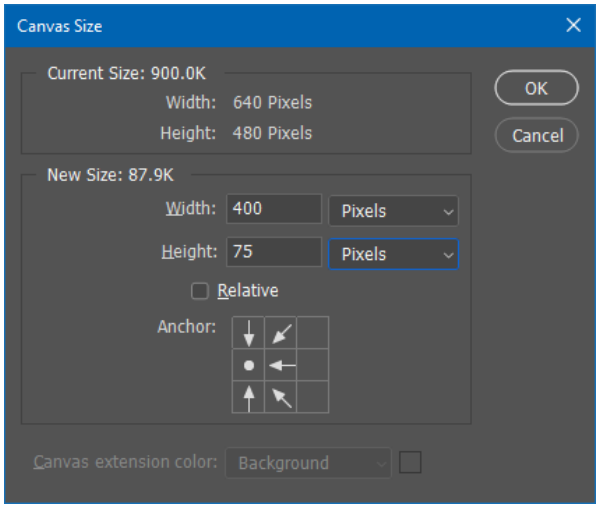

Figure 6.3 – Canvas Size dialog

Exercise 6.4 — Vector Information

1. Open the file `building-raster.jpg`.

   If you are not using Photoshop, you will have to adjust these instructions.

2. Use the **Zoom Tool** and click repeatedly on the image until you reach the maximum zoom (1600%). Alt-click to unzoom. Double-click on the zoom tool to return to 100%.

3. Close the file and then open `building-vector.eps`.

   This is a vector-based file format, and Photoshop will raster this image when it opens it.

4. In the Rasterize EPS Format dialog, specify a width of 300 pixels and then click Ok.

   Rasterizing is the process of turning vector information into pixels.

5. Use the **Zoom Tool** and zoom in the image.

   Notice that it now consists of pixels. Notice as well the checkerboard pattern: this is Photoshop's way of displaying transparent pixels.

6. Close the file then use the **File | New** menu command. In the New Dialog, set the width and height to 500 pixels then click Ok.

7. Use the **File | Place Embedded** menu command and select the file `building-vector.eps`. Click Ok.

   This places the vector file as a vector object. This object can then be resized (or transformed in other ways).

8 The vector object is now displayed within a transform rectangle. Try dragging on the handles to resize the vector object. Holding down the shift key while dragging on a corner handle will maintain the aspect ratio. You can rotate the object as well by dragging outside the transform rectangle. When finished, double click inside the rectangle.

9 Use the **Zoom Tool** and zoom in the image.

Notice that it now consists of pixels.

10 Examine the Layers windows (see Figure 6.4). Each layer in Photoshop can contain different information and can be manipulated independently of the other layers. You can click on the eye icon next to the layer name to toggle its visibility.

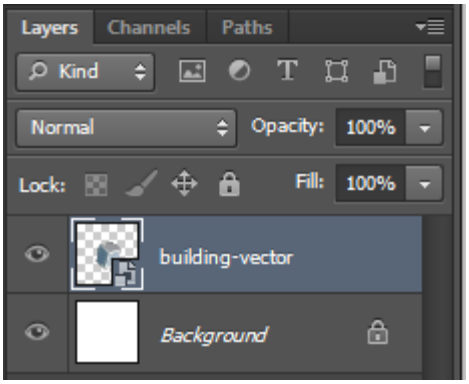

Figure 6.4 – Layers window

11 Use the **Edit | Transform | Scale** menu command. This will display the transform rectangle again. Make the building significantly larger. When done double-click.

12 Use the **Zoom Tool** and zoom in the image.

Notice that while the building still consists of pixels, Photoshop has resampled the original vector.

13 Use the **Type Tool** to add some text to the image. When you click in the image with the Text Tool, a type ribbon will be displayed just under the menu at the top of the window. This allows you to specify the font, the size, the color, and other options. Click the checkmark button when done.

Notice as well that a new layer has been created. You can now manipulate the text independently.

14 Select the **Move Tool**. This tool allows you to move pixels on the current layer (if Auto-Select check box is on, it will move whatever layer is directly below the mouse cursor).

15 Drag on the text you just entered to move it to a different part of the image.

16 Click on the building-vector layer in the Layers Window to make it the current layer. Then with the Move Tool still selected, drag the building to move it.

17 Use the **File | Save As** menu command. Save the file in Photoshop's own file format and name it `lab06-ex04.psd`. After saving it, close the file.

Saving Web Images

Exercise 6.5 — Saving a JPEG

1 Open the file `verona.tif`.

A TIF file is a lossless raster file format. TIF files are often used as a way to move graphical information from one application to another with no loss of information.

2 Use the **File | Export |Export As** menu command.

This will display the Export As dialog. This dialog can be used to create JPG, GIF, and PNG files. It also allows you to preview the file thereby allowing you to easily experiment with different settings.

3 Within the dialog, click on the 2-Up tab.

This will display both the original image and the optimized image (that is, the JPG/GIF/PNG version to be saved).

4 Click on the optimized image and then choose JPG from the format drop down (see Figure 6.5). Experiment with the different Quality settings. Notice that the dialog will show you the expected file size for those settings.

You may need to use the Zoom button that is available within the dialog to best see the visual effect of the different settings. In Figure 6.5, notice the artifacts at the boundary between the land and the sky.

5 Click the Export button. Save the file as `lab06-ex04.jpg`.

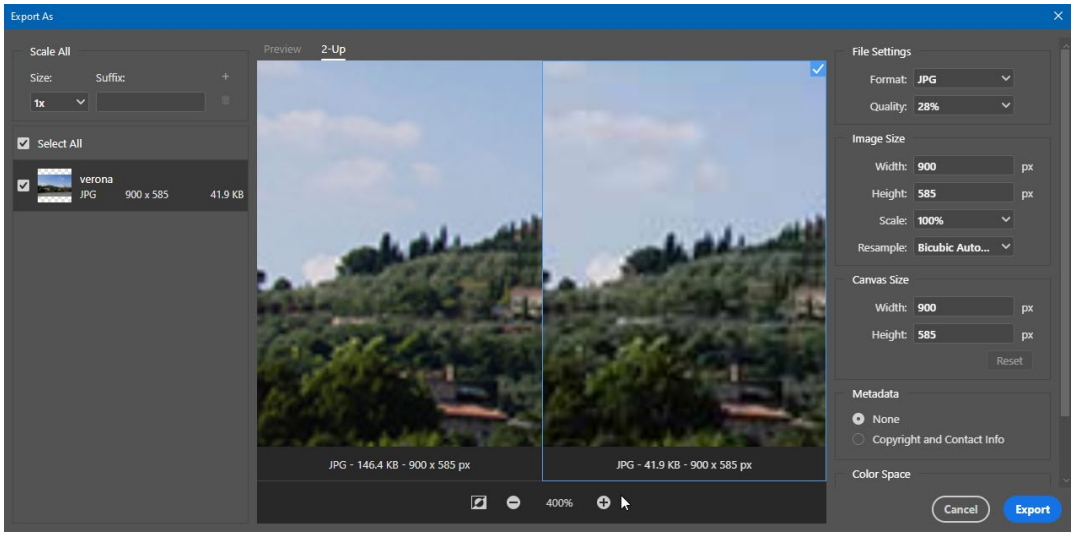

Figure 6.5 – Export As dialog

Exercise 6.6 — Saving a GIF

1. Open the file `CRM-logo.psd`.
2. Turn off the visibility of the background layer.
3. Use the **File | Export | Export As** menu command.
4. Choose GIF from the Format drop down.
5. Click the Export button. Save the file as `lab06-ex06.gif`.

Exercise 6.7 — Saving a PNG

1. Open the file `building-transparency.psd`.
2. Use the **File | Export | Export As** menu command.
3. Choose PNG from the Format drop down.
4. Click the Export button. Save the file as `lab06-ex07.png`.
5. Return to the **File | Export | Export As** dialog, and this time change the Format to GIF. Save the file as `lab06-ex07.gif`.
6. View `lab06-ex07-tester.html` in the browser. Notice the halo effects on the GIF due to the fact the GIF transparency is only 1-bit.

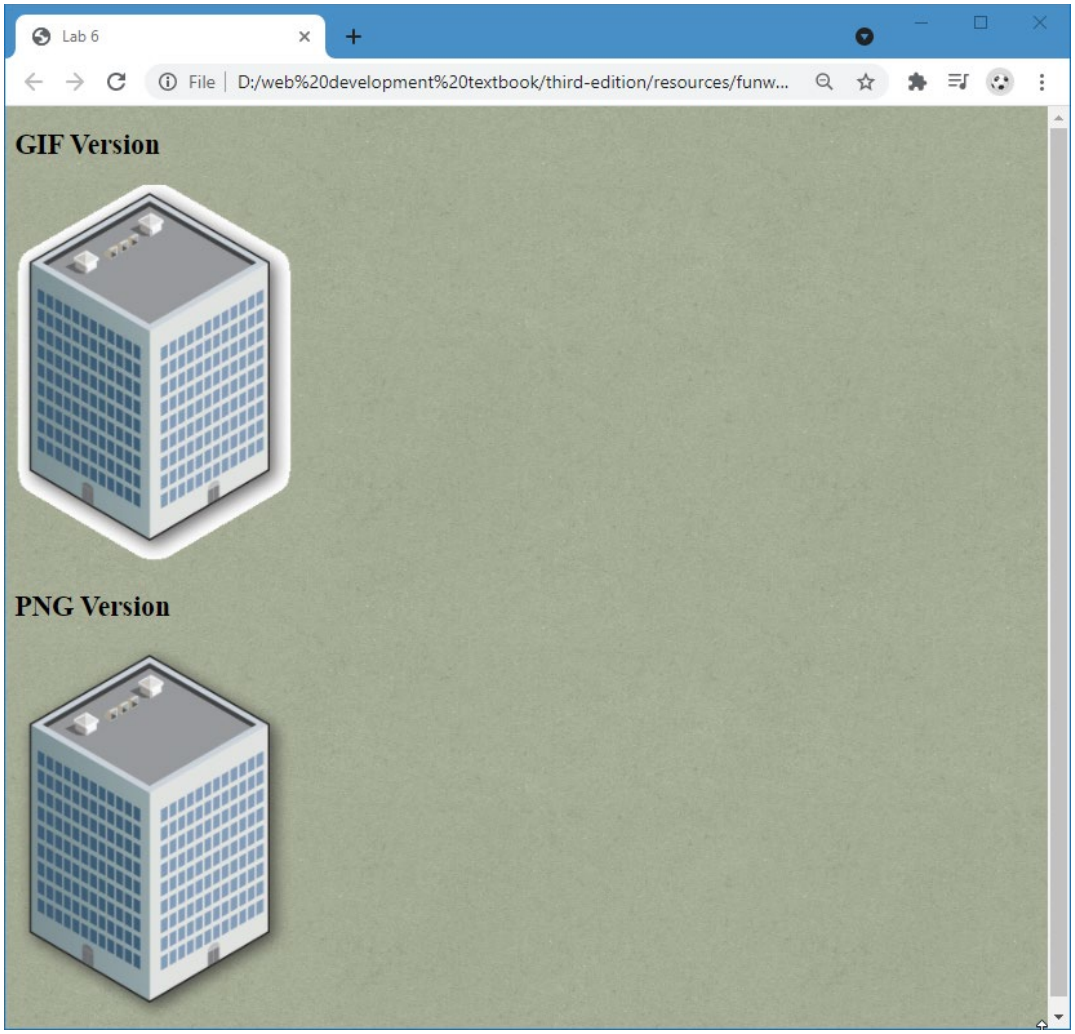

Figure 6.6 – Completed Exercise 6.7

Exercise 6.8 — Saving a SVG

1. Open the file `building-transparency.psd`.

2. Return to the **File | Export |Export As** dialog, and change the Format to SVG. Save the file as `lab06-ex08.svg`.

3. View `lab06-ex08-tester.html` in the browser.

   This may not work using Chrome.

Working with Audio and Video

Exercise 6.9 — Video and Audio Elements

1 Open and examine `lab06-ex09-audio.html`. Add the following code and test.

```
<h2>mp3</h2>
<audio src="Sochi-Edit.mp3" controls >
   Browser doesn't support the audio control
</audio>
```

2 Add the following code and test.

```
<h2>ogg</h2>
<audio controls >
   <source src="Sochi-Edit.ogg" >
   <p>Browser doesn't support the audio control</p>
</audio>
```

Notice that this step illustrates an alternative way of specifying the source.

3 Add the following code and test.

```
<h2>m4a</h2>
<audio controls >
   <source src="Sochi-Edit.m4a" >
   <p>Browser doesn't support the audio control</p>
</audio>
<h2>wav</h2>
<audio controls >
   <source src="Sochi-Edit.wav" >
   <p>Browser doesn't support the audio control</p>
</audio>
<h2>webm</h2>
<audio controls >
   <source src="Sochi-Edit.webm" >
   <p>Browser doesn't support the audio control</p>
</audio>
```

4 Add the following code and test.

```
<h2>All in one</h2>
<audio controls >
   <source src="Sochi-Edit.mp3" type="audio/mpeg">
   <source src="Sochi-Edit.ogg" type="audio/ogg">
   <source src="Sochi-Edit.m4a" type="audio/mp4">
   <source src="Sochi-Edit.wav" type="audio/wav">
   <source src="Sochi-Edit.webm" type="audio/webm">
   <p>Browser doesn't support the audio control</p>
</audio>
```

The browser will use the first source format that it supports. Notice also that MIME types are also defined.

5 Open and examine `lab06-ex09-video.html`. Add the following code and test.

```
<h2>mp4</h2>
<video id="video" poster="video-preview.jpg" controls
       width="480" height="360">
   <source src="rocky.mp4"
           type='video/mp4; codecs="avc1.42E01E, mp4a.40.2"'>
   not supported
</video>

<h2>ogg</h2>
<video id="video" poster="video-preview.jpg" controls
       width="480" height="360">
   <source src="rocky.ogv"
       type='video/ogg; codecs="theora, vorbis"'>
   not supported
</video>

<h2>WebM</h2>
<video id="video" poster="video-preview.jpg" controls
       width="480" height="360">
   <source src="rocky.webm"
       type='video/webm; codecs="vp8, vorbis"'>
   not supported
</video>
```