

CMPSC 2323: Internet Programming

Introduction to HTML and Web Pages (cont.): Lets' continue our study of HTML by seeing how to add the following features to a web page.

1. Create a *hyperlink* (*link* for short).
2. Insert an image.

Template: Let's start by copying the template HTML code in `template.htm` to a file named `Exercise3.htm`. The HTML code we discuss in this lesson will be added to file `Exercise3.htm` which you will submit to Blackboard when you complete the lesson. The due date will be posted on Blackboard and announced in class.

Change the template HTML code so that is looks as follows.

```
<html>
<!-- CMPSC 2323
      Exercise 3
      Mary Smith -->
<head>
<title> Exercise 3 </title>
CMPSC 2323 <br>
Exercise 3 <br>
Mary Smith <br>
</head>
<body>
</body>
</html>
```

Replace Mary Smith, everywhere it occurs, with *your* first and last name.

Hyperlink: A *hyperlink* (*link* for short) is something that can be placed on a web page that enables you to go to a location or destination. If you click the left mouse button on a link, you are redirected to a location defined by the link.

An *anchor* tag of the form `` and matching end tag `` are used to define a hyperlink (link) on a web page. What "location" specifies is a location to go to when you click on the link and examples of what it can be are given below.

The important attribute of an anchor tag is the `href` (hyperlink reference) attribute, which indicates the link's location or destination. An anchor tag can have other attributes but the `href` attribute will be the one we are most interested in.

By default a hyperlink (*link* for short) will appear as follows in many web browsers.

- An *unvisited* link is underlined and [blue](#).
- A *visited* link is underlined and [purple](#).
- An *active* link is underlined and [red](#).

An unvisited link is one that has not been clicked. Clicking the link, results in visiting the location determined by the link.

The text that is displayed on the web page to refer to the hyperlink is placed between the begin tag `` and end tag ``. The text displayed on the web page is what someone sees and uses to go to the location specified by the link. Let's see an example of a link. The following HTML code specifies a hyperlink.

HTML Hyperlink Code: The following HTML code specifies a hyperlink.

```
<a href="http://www.ecok.edu">East Central University</a>
```

In the example above, the location is `http://www.ecok.edu` and is placed between double quotes. This location happens to be an *external* location, not necessarily located on the computer where the web page is created. The text `East Central University` is what is *seen* on the web page resulting from the HTML code. The location `http://www.ecok.edu` is not displayed in the web page

The text `East Central University` is initially underlined, colored blue and is displayed as [East Central University](#) on the web page. Displayed as underlined and blue indicates that the link has not been visited (selected or clicked) yet. Clicking the link, redirects you to a web page at a location determined by the value of the `href` attribute, namely, `http://www.ecok.edu` in this case. After you are done visiting the location, *e.g.*, website, if you return to *your* web page the link will now look like [East Central University](#), *i.e.*, the link is colored purple but still underlined. The color purple indicates that the link has been visited at least once.

Add the following text, as a paragraph in the body (inside the matching tags `<body>` and `</body>`) of the HTML code in file `Exercise3.htm`. Note that the paragraph contains a two hyperlinks.

```
<p>
The town of Ada, Oklahoma is home to
<a href="http://www.ecok.edu">East Central University</a>
(ECU for short) which is an institution of higher education
established in 1909. ECU is located approximately 85 miles
south of <a href="http://www.okc.gov">Oklahoma City</a>
which is the most populated city in Oklahoma.
</p>
```

After adding the above HTML code to your web page, *reload* the web page to see what it looks like. Click on each of the two hyperlinks and observe what happens. Now is a good time to save file `Exercise3.htm`.

Hyperlinks to a Local Folder and Local File: A hyperlink doesn't necessarily have to be an external location such as `http://www.ecok.edu`. It can also be the location of a file or folder on *your* computer. For example, the following HTML code specifies a local folder on the computer where the HTML code for file `Exercise3.htm` was created.

```
<a href="/home/joe/ECU/CScourses/CMPSC_2323/Chapter1">Local Folder</a>
```

Here the link displayed on the web page would look like [Local Folder](#) and clicking the link takes you to the folder.

The location specified by the `href` attribute above is how a pathname is written in Linux because this is the operating system used on the computer where the folder is located. Exactly what is placed between the double quotes for the `href` location of a *local* file or folder will depend on the operating system used on the computer that references the file or folder. For example, on a computer using Microsoft Windows® the pathname for folder `Webpages` might look as follows.

```
<a href="C:\Users\santmyer\Documents\Santmyer\WebPages\">Local Folder</a>
```

As before, the link displayed on the web page would look like [Local Folder](#) and clicking the link takes you to the folder

`C:\Users\santmyer\Documents\Santmyer\WebPages\`

on the computer where the web page exists under Microsoft Windows®. This is how the location of the local folder is specified if the *Internet Explorer* web browser is used.

For our course, the way local files and folders are specified under *Linux* using *Mozilla Firefox* will be emphasized. Examples, using Microsoft Windows® and Internet Explorer® are mentioned but not emphasized and you will have to read more about these cases.

To see how a local folder and file are accessed from a web page, use a text editor to create a small file named `Phrases.txt` and type the following text in the file.

```
The cat is on the mat.  
Jack and Jill went up the hill to fetch a pail of water.  
Mary had a little lamb.  
Once upon a time.
```

Save file `Phrases.txt` in the same folder where the file `Exercise3.htm` is located and close the file. Files `Phrases.txt` and `Exercise3.htm` were created and saved in the following folder (next page) by the instructor.

`/home/joe/ECU/CScourses/CMPSC_2323/Chapter1`

The location where *you* save file `Phrases.txt` will be *different* because it depends on your login account and the computer you are using, and of course, whether or not you are using Linux. The portion of the above pathname, namely,

`/home/joe`

is the login directory for the instructor on the computer being used. This will be *your* login directory on the computer you are using. Type `echo $HOME` to see your login Linux directory.

To see how a local folder and file are accessed from a web page, add a second paragraph to your web page.

If you are using *Mozilla Firefox* to display your web page under Linux, the second paragraph should look similar to the following HTML code.

```
<p>
The following folder
<a href="/home/joe/ECU/CScourses/CMPSC_2323/Chapter1">Local Folder</a>
was created on my computer. The following file
<a href="/home/joe/ECU/CScourses/CMPSC_2323/Chapter1/Phrases.txt">Local File</a>
was also created on my computer.
</p>
```

With this paragraph added, lets see what the web page looks like and what happens when the links that access the local folder and local file are selected.

A screen shot of the web page with the second paragraph added above is shown on the next page. The local folder can be accessed with the link [Local Folder](#) and the local file can be accessed with the link [Local File](#).

Click the link [Local Folder](#) and you see what is displayed on the second screen shot shown on the next page. Note that in the second screen shot you see

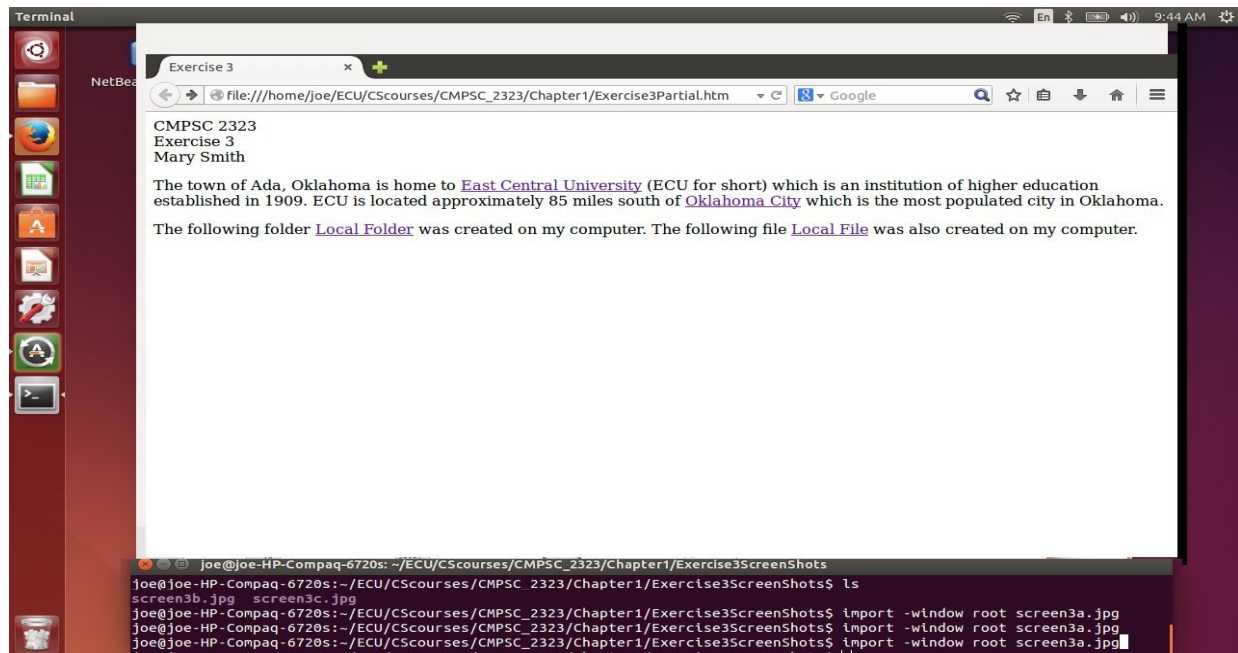
`file:///home/joe/ECU/CScourses/CMPSC_2323/Chapter1`

displayed in the Mozilla Firefox browser above the web page. Depending on the computer you are using, this can be another way to specify the location of a local folder or file. That is,

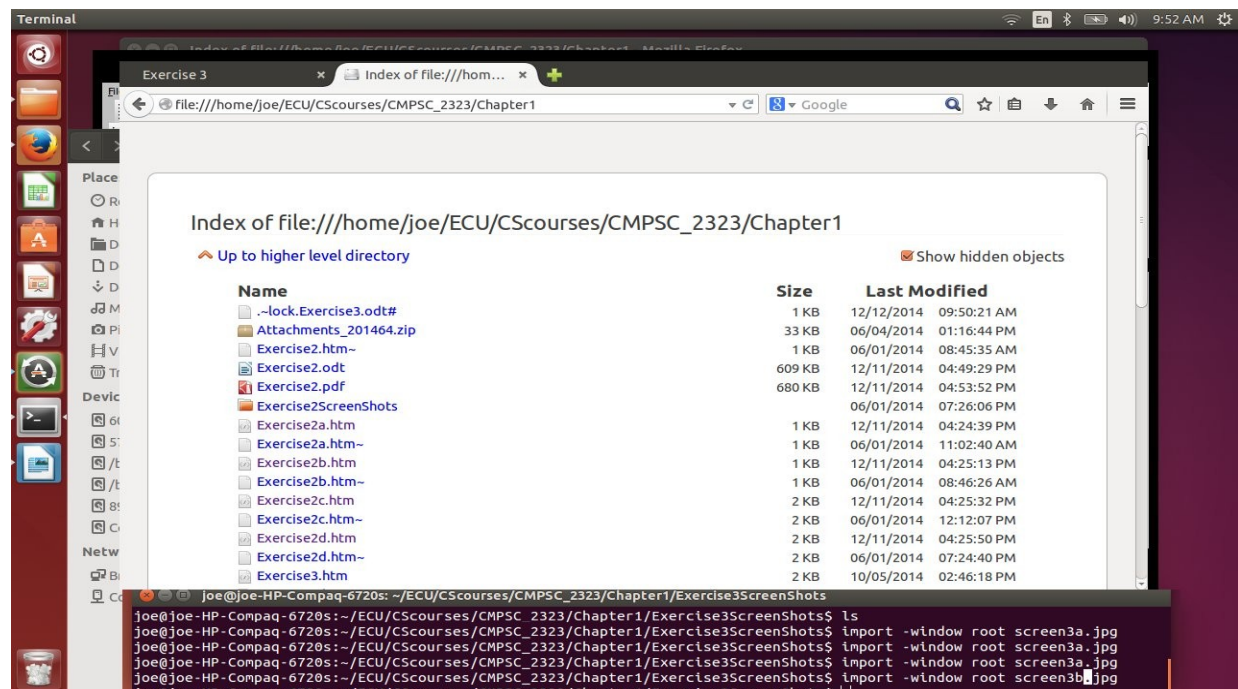
```
<a href="/home/joe/ECU/CScourses/CMPSC_2323/Chapter1">Local Folder</a>
```

can sometimes be written as follows, depending on the computer and environment.

```
<a href="file:///home/joe/ECU/CScourses/CMPSC_2323/Chapter1">Local Folder</a>
```

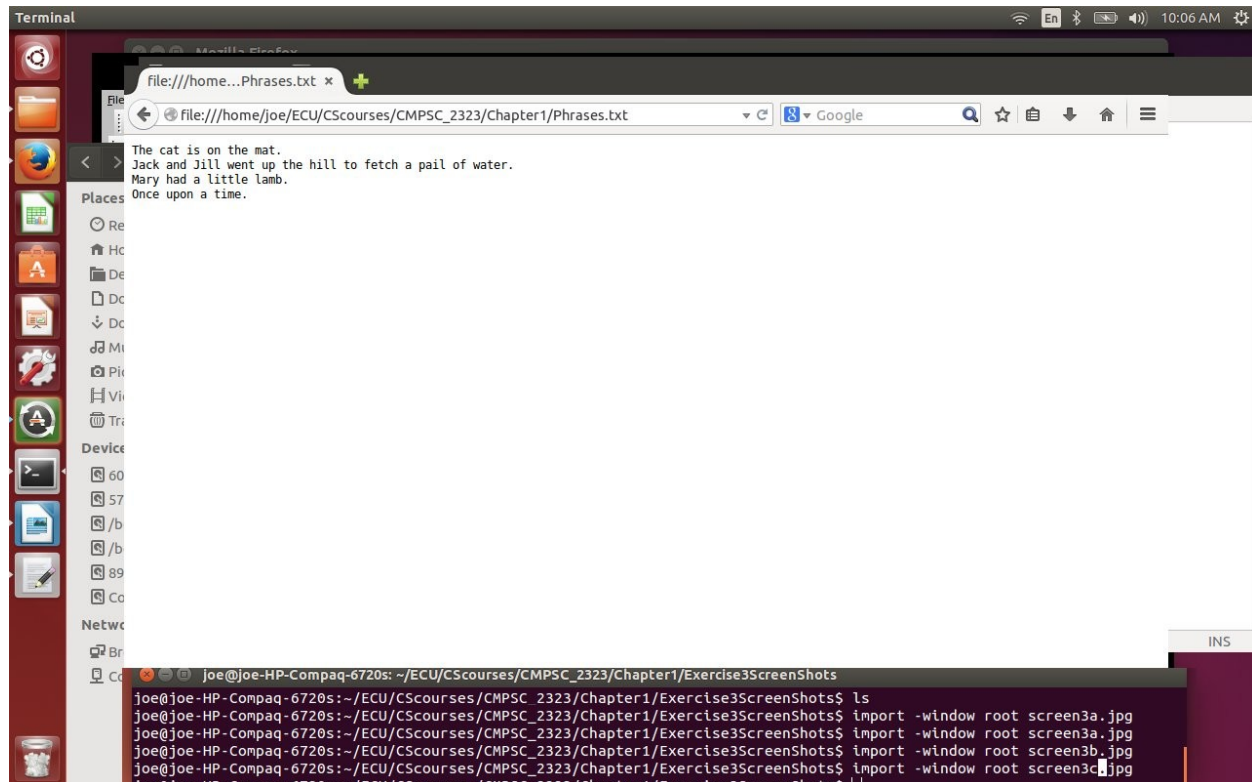


Exercise 3 Web Page with Links to Local Folder and File



Web Page Displayed by Selecting the [Local Folder](#) Link

Click the link [Local File](#) and you see what is displayed in the screen shot below.



Web Page Displayed by Selecting the [Local File](#) Link

Note that in the above screen shot you see

```
file:///home/joe/ECU/CScourses/CMPSC_2323/Chapter1/Phrases.txt
```

displayed in Mozilla Firefox above the web page. Depending on the computer you are using, this can be another way to specify the location of a local folder or file. That is,

```
<a href="/home/joe/ECU/CScourses/CMPSC_2323/Chapter1/Phrases.txt">Local File</a>
```

can sometimes be written as follows, depending on the computer and environment.

```
<a href="file:///home/joe/ECU/CScourses/CMPSC_2323/Chapter1/Phrases.txt">Local File</a>
```

As mentioned above, this course is primarily illustrating web pages using Mozilla Firefox under Linux.

If you are using Microsoft Windows® and Internet Explorer® to display your web page, the second paragraph would look similar to the following HTML code.

```
<p>
The following folder
<a href="C:\Users\santmyer\Documents\Santmyer\WebPages\">
  Local Folder
</a>
was created on my computer. The following file
<a href="C:\Users\santmyer\Documents\Santmyer\WebPages\Phrases.txt">
  Local File
</a>
was also created on my computer.
</p>
```

After adding the second paragraph, *save* your HTML file `Exercise3.htm` and *reload* your web page to see what it looks like. Also, click the links [Local Folder](#) and [Local File](#). The web pages you see should look like the screen shots of the web pages shown above.

Now is a good time to save your HTML file `Exercise3.htm`.

Insert an Image: Many web pages contain images. To insert an image in a web page with HTML use the `img` tag which has the following general form.

```

```

The `src` attribute specifies the image to insert. The location of the image is where the image is coming from. The `alt` attribute specifies alternate text to display in case the image cannot be displayed. The `img` tag, like the `br` tag, has no matching end tag.

Let's add an image to the web page. Several images have been put in Blackboard that you can download to complete exercise 3. In Blackboard the images are located in a folder named `Web Exercise 3 Images`. Go to this folder in Blackboard and copy the 3 images from that folder to your computer in a location of your choice. For example, I put the images in the folder

```
/home/joe/ECU/CScourses/CMPSC_2323/Chapter1/Exercise3Images
```

on my laptop computer, where the location is specified how *Mozilla Firefox* expects to find the images. Another way to specify the same folder in HTML is

```
file:///home/joe/ECU/CScourses/CMPSC_2323/Chapter1/Exercise3Images
```

where the location is an alternative way to indicate where *Mozilla Firefox* expects to find the images. Its the same folder, expressed in two different ways, based on the web browser used to display the web page.

To be consistent (and hopefully make it easier to understand) I will refer to that folder as

```
/home/joe/ECU/CScourses/CMPSC_2323/Chapter1/Exercise3Images
```

in the following discussion and use *Mozilla Firefox* to display the web page. What is mentioned below will apply to your web page but the local file where you put the images will be *different*. Simply replace

`/home/joe/ECU/CScourses/CMPSC_2323/Chapter1/Exercise3Images`

with the folder where you put the images on *your* computer. Just keep in mind that the location is expressed differently, depending on the web browser you are using.

Add a third paragraph to your web page that contains the following HTML code shown below.

```
<p>
The classic smiley face looks like this.

It is often accompanied by the phrase "Have a nice day".
</p>
```

In the above HTML code, `smiley.jpeg` is the name of a file that contains the image. In this case the image file `smiley.jpeg` is in the folder

`/home/joe/ECU/CScourses/CMPSC_2323/Chapter1/Exercise3Images`

The folder where you put image file `smiley.jpeg` on your computer might be different. The image file `smiley.jpeg` is a so-called JPEG file which is a certain type of format used to store images and pictures. Sometimes the file name extension is `jpg` rather than `jpeg`. There are other image formats such as GIF, PNG, *etc.*

Now add the following fourth paragraph that contains two more images for your HTML code.

```
<p>
The following roller coaster

looks fun to ride. <br> <br>
The following volcano is having a spectacular eruption!

<br> <br>
Here is what you see when an image cannot be displayed. <br>

</p>
```

In the above HTML code, `roller_coaster.gif` is the name of a file that contains another image. In this case the image file `roller_coaster.gif` is in the folder

`/home/joe/ECU/CScourses/CMPSC_2323/Chapter1/Exercise3Images`

The folder where you put image file `roller_coaster.gif` on your computer will be different. The image file `roller_coaster.gif` is a so-called GIF file which is a certain type of format used to store images and pictures. Note that the image contains *animation*. You can see a roller coaster ride taking place in the image.

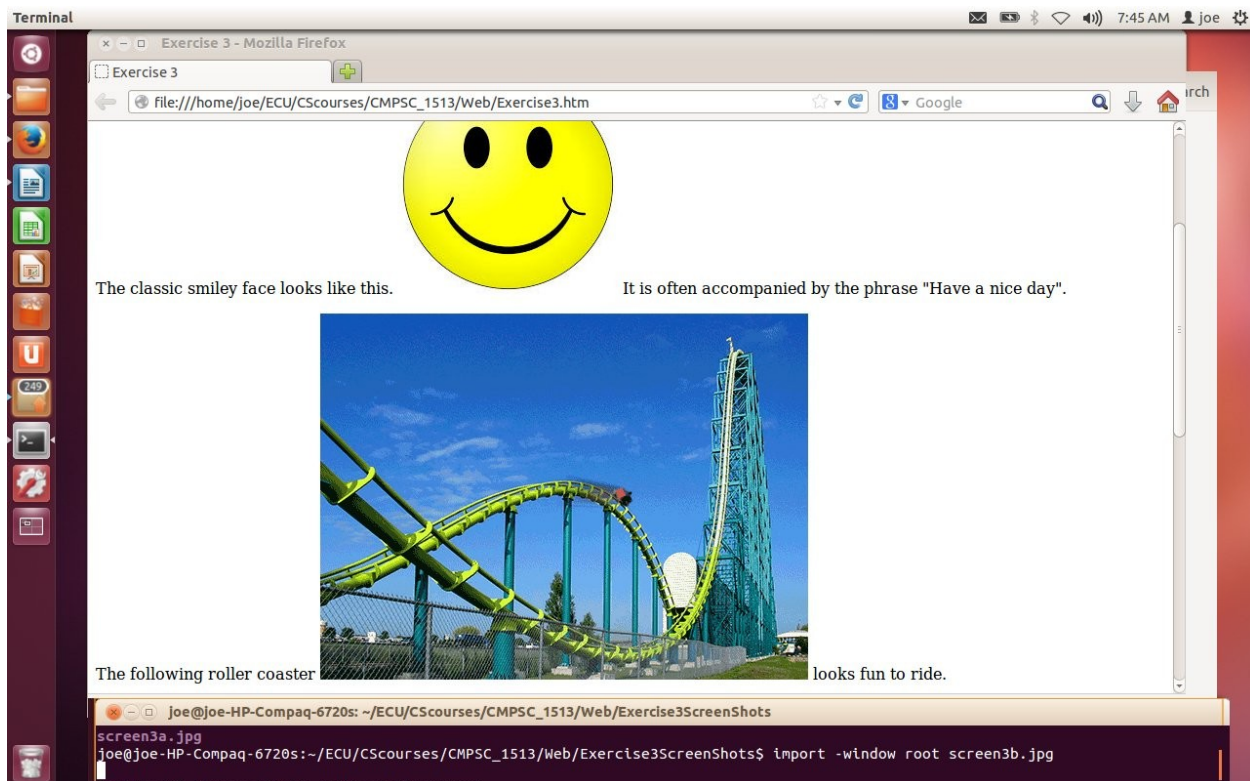
In the above HTML code, `volcano.png` is the name of a file that contains another image. In this case the image file `volcano.png` is in the folder

`/home/joe/ECU/CScourses/CMPSC_2323/Chapter1/Exercise3Images`

The folder where you put image file `volcano.png` on your computer will be different. The image file `volcano.png` is a so-called PNG file which is a certain type of format used to store images and pictures.

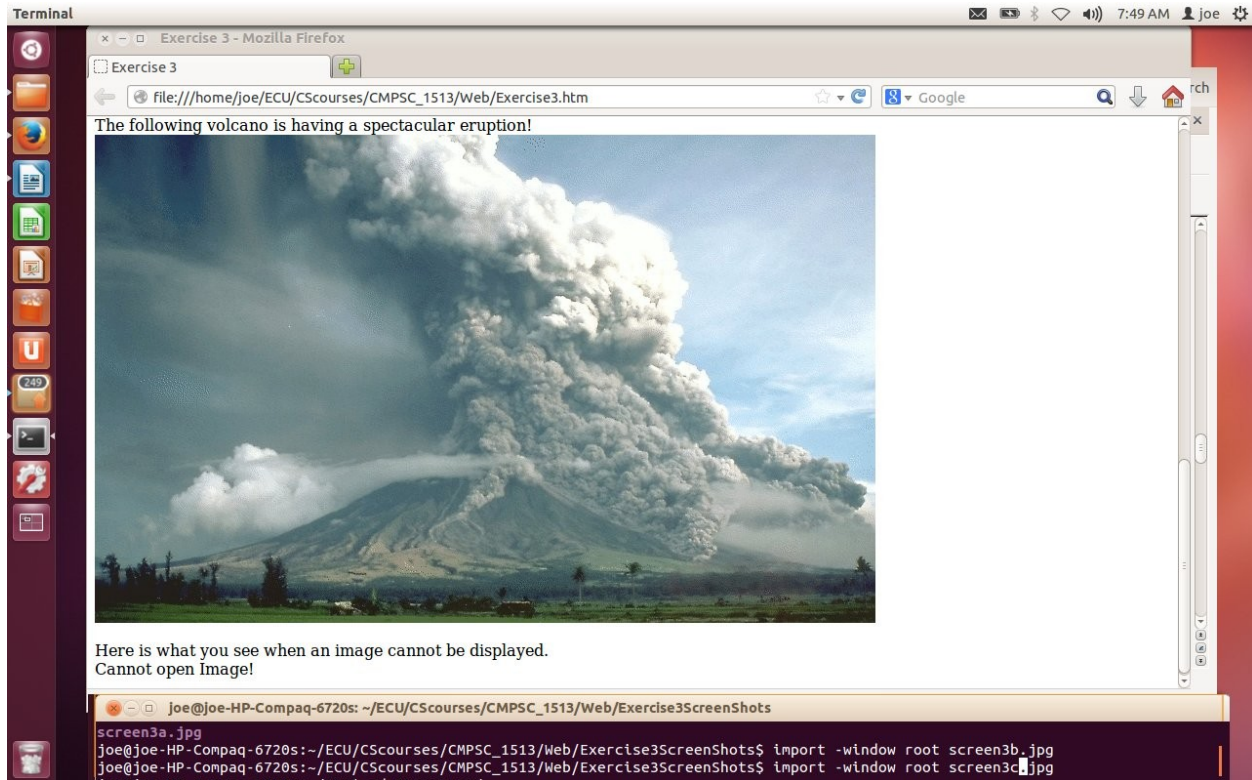
In the above HTML code, `junk.jpg` is the name of a file that does not exist! In this case there is no image file named `junk.jpg` and the text `Cannot open Image!` is displayed instead of an image.

Now is a good time to reload your web page to see what it looks like. It should look like the screen shots below and on the following page.



Exercise 3 Web Page with First and Second Images

Now is a good time to save your HTML code in file `Exercise3.htm`. If your web page looks like the screen shots and you have completed writing your HTML code then submit file `Exercise3.htm` to Blackboard.



Exercise 3 Web Page with Third Image

Submit Exercise 3 to Blackboard (15 points)

Exercise 3 (15 points): Exercise 3 is worth 15 points. Submit file `Exercise3.htm` for grading on or before the day exercise 3 is due. The due date for exercise 3 will be posted on Blackboard and announced in class.