

Homework 2

cs3157 – Advanced Programming
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Out: Nov 14

Due: Nov 30, 11:59pm

Objective:

1. Learn some web based programming.
2. Create a better way of organizing url's
3. Get some practice using graphic libraries and packages.
4. Interface C and perl in a CGI framework.
5. Impress your friends and family over thanksgiving break ☺

Instructions (submission instruction on webpage):

1. Create a theory.txt file and submit it with your homework. Include all the theory answers there.
 2. Create a README.txt file with the following information in it:
 - a. A list of files and what they contain.
 - b. Any problems or experiences with the homework.
 - c. A short paragraph on what you learned from the assignment.
 3. Include all relevant files to run your assignment.
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Theory:

- 1) Explain the difference between how c and cpp handles printing to standard output.
- 2) What is gdb ? (hint: man gdb) (or info gdb)
- 3) Write 2 paragraphs of your experience of using gdb and how it was useful.

Programming Part:

In Lab-6 you had to write a program called pagesearch.c. you will need to adopt it to allow some additional functionality, and make it really impressive.

First please take a look at : <http://www.boutell.com/webthumb/>

This is a perl script which allows you to run in conjunction with some installed packages to create a thumbnail (small picture) of any webpage. I have tested it on a linux configured machine on cs, so I know it works ☺

Because it is a perl script, you will need to modify it as follows:

- 1) On the first line, make sure it is pointing to the correct perl location
- 2) It creates a .webthumb directory (with a dot in front), feel free to move it so that it exists next to your program, incase you need to delete it.

To run the script for example:

```
./webthumb http://www.cs.columbia.edu | pnmscale -ysize 300 300 |  
pnmtjpeg > thumb.jpg
```

This will create a thumb.jpg picture which is 300 by 300 and can be displayed in any browser.

Hint: before continuing, why not try to run this and make sure it works (ee thumb.jpg = will allow you to view the picture). If you have problems, you will might need to delete the .webthumb directory and stop some running processes (use the ps command to see which are running and the kill command to stop it from running)

pagesearch.c should operate in the following manner once you compile it and rename the executable pagesearch.cgi.

If no arguments are given, you should return an html page with the following elements:

1. a welcome message on top to your pagesearch program
2. a button to list all links
3. a button to add new links
4. Button to remove links (your choice how to implement it.)

Basically you want the user to add links to a file which you will save to called links.data. Each link will be saved on its own line. You are not responsible for making sure each link is unique in this assignment. When the user click on “add new links” you will generate a page with has the following elements:

1. Instruction on what they are doing (please add a link to the file http://...).
2. A text box to allow the user to type in a link
3. A submit button to give the link back to your program.

On submission the first page should be displayed.

When the user click on “list all links” on the first page you want a webpage with a list of links (they should be clickable and they should open up in a new browser). This can be done by specifying a TARGET in the <a href> tag. Please ask how to do this, if you can’t figure it out in less than 10 minutes.

NEW STUFF: You will now generate a thumbnail instead of a text link, the thumbnails should be clickable, and load in a new webpage. To do this, you will need to take the link, pass it to the webthumb script and generate a unique jpg. Ideally you should name to picture something like the link, so that you don’t need to regenerate it if you already have it saved.

Example: if you have a link to <http://www.cnn.com> you can name the picture www_cnn_com.jpg and can do a quick check before generating the thumbnail if you already have generated it in the past.

Extra Credit: layout the thumbnails so that it looks nice. For example in a table which fits into the screen.

Hints:

- 1) Use a Linux machine, since the perl script has been written for it.
- 2) Make sure that when you type ‘mozilla’ on the prompt, it doesn’t ask for a confirmation (if it does, change it so that it starts in some default mode).
- 3) You should test your code locally not over the cs domain so that you can work in linux. For example, launch a local webbrowser and run the cgi script on the same machine.
- 4) If you are working from home, make sure to use vncserver on one of the linux lab machines.

Start early and Good Luck!!