CS 1704

Introduction to Data Structures and Software Engineering

Project 4.2 Help

- Read D+D chapter 6 on web programming with CGI
  - Parameters
  - Environment Variables
  - HTML (including Forms)

How to make C++ CGI

- Very first thing output must be:
  - cout <<"Content-Type: text/html\n\n";
  - cout <<"<html><head></head><body>";
- The very last line should be:
  - cout <<"</body></html>";
- These allow the webserver to know that you are outputting html (web) content.
- Afterwards, just use cout to output everything you used to print to output.data, using a "<br>" instead of every endl;
- Rename your executable .cgi (instead of .exe)

How to view CGI

- Install Apache HTTP server on your home machine (www.apache.org) (The download page is http://httpd.apache.org/download.cgi and you want the file Win32 Binary (MSI Installer): apache_2.0.49-win32-x86-no_ssl.msi
- To test your implementation, put it and all your input files into the cgi-bin directory that Apache created. Then open a web browser and run by typing http://localhost/cgi-bin/yourexecutable.cgi

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Parameters for navigation

- Links in html:
  - Quit
- However, to pass variables from one page to the next, you want the linke to look like:
  - http://localhost/cgi-bin/youpid.exe?menuItem=quit
-

  Quit
- Looks like:

  Quit

  value of variable

  menuItem is a variable

How could you print that?

- Create some strings
  - string a = "<a href=\"";
  - string ref= "http://localhost/cgi-bin/youpid.exe?menuItem=quit";
  - string b = "\">";
  - string c = "";
- Then use cout
  - cout << a << ref << b << "Quit" << c;

Getting Parameters

- #include <cstdlib>
- There is a system variable called QUERY_STRING that has
- string parameters
        =getenv("QUERY_STRING");
    //could be: menuItem=quit
    //could be: m1=x&m2=y&m3=z
- Then parse parameters string to get commands!
    – (Anyone may post a parser to the forum)
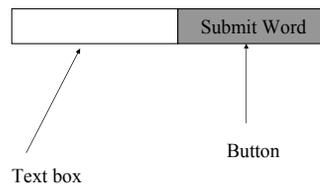   • Must cite if you use and were not the author

Using that parameter

- Use a function/parser to get the values of the parameters
        • string link=getValue(parameters, "menuItem");
    – //link will have the value "quit"
- Then do if statements:
    – if (link == "quit") { //code here}
    – else if (link == "addstudent") {//code here}
    – …
- NOTE: Your program completely runs once per interaction with the user! It completely exists each time it has printed…the quit command may just print out "goodby" for example.

Getting Data from users:
HTML Forms

- <form method="get" action="yourpid.cgi>
- <input type="text" name="word">
- <input type="submit" value="Submit Word">
- </form>
- See the name="word"? Whatever is typed into the textbox goes into a parameter variable named word!

What it (kinda) looks like.

Text box

Button

- When you push the submit button, it does a:
- yourpid.cgi?word=*whateveryoutypedin*

Getting the word

- string p=getenv("QUERY_STRING");
- say user had typed "Parrot"
- p will be: "word=Parrot"
- Just parse to get what is after "word="
- You can have more than one textbox
- However, this will make p look like:
    "word=parrot&x=y&m=z"

Rules for this project

- A parse method/function can be shared on the forum
- Any html is free to be shared on the forum
- Nothing else can be shared!!!

Demos

- +20 point bonus: April 26th, 2004
- +10 point bonus: April 28th, 2004
- +0 point bonus: April 30th, 2004
- -10 point penalty: May 3rd, 2004
- -50 point penalty: May 5th, 2004
- -130 point penalty thereafter.