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Homework #6

**Problem Statement:**

The goals of the programming assignment, homework #6, was to implement the usage of classes and create a program that is able to lookup, process, and add IP addresses and website URL’s. The user enters a specific choice character which would lead to filling a table full of IP’s and URL’s from a file, adding their own file or looking up a URL/IP given the opposite from the table. Normal inputs to the program are functions for the specific actions used in the class, for loops to help fill the array and travel through the array and if statements to properly return true in the functions. The program properly adds or lookups IP addresses and website URL’s based off what is in the array. It required error checking for if the location of ‘numentries’ was 0, as well as converting to uppercase on the choices entered. My partner and I also implemented the bonus, which was checking to make sure the IP or URL given was a valid one based off certain standards provided.

**Design:**

We used a series of for loops and nested if statements to properly find the URL or IP that is being searched for in the array and also implemented several switch statements to help identify what should be executed based off the choice the user enters. We used a string compare to lookup the IP or URL given the opposite, which is done by comparing two strings and returning a 0 if they are the same. This function had no cons to, because it executed it properly every time. The string compare functions has a pro of being very simple and easy to follow.

**Implementation:**

Our implementation process was to work at a steady pace and section off the areas that were required. We started by placing comments on what was required of us and then slowly working out each section until it compiled. Our development timeline was rather quick. Although, it required a bit of error checking for the special cases.

**Testing:**

We tested this program using random IP addresses and URLs that were very easy to remember when adding and looking up. We then tested for the bonus portion, which was testing to make sure the IP or URL being entered is a valid one. Special cases we tested included the error for having 0 numentries, entering an invalid IP/URL, and testing if it would return “Nonexistent” if the program couldn’t locate a fake IP/URL associated with the one the user entered.

**Conclusions:**

The programming project was a success. It improved both of our programming experience immensely. The project took less than four hours to code the entire thing including the lookup IP/URL using the string compare and then a little bit extra time used to complete the bonus portion of the assignment.

**Typescript:**

Script started on Thu 16 Apr 2015 11:56:40 PM CDT

]0;csce\_user@cscuser-VirtualBox: ~csce\_user@cscuser-VirtualBox:~$ cd csce/hw6

]0;csce\_user@cscuser-VirtualBox: ~/csce/hw6csce\_user@cscuser-VirtualBox:~/csce/hw6$ make

g++ useDNS.o DNS.o -o hw6

]0;csce\_user@cscuser-VirtualBox: ~/csce/hw6csce\_user@cscuser-VirtualBox:~/csce/hw6$ make clean

rm \*.o hw6

]0;csce\_user@cscuser-VirtualBox: ~/csce/hw6csce\_user@cscuser-VirtualBox:~/csce/hw6$ make

g++ -Wall -c useDNS.cpp

g++ -Wall -c DNS.cpp

g++ useDNS.o DNS.o -o hw6

]0;csce\_user@cscuser-VirtualBox: ~/csce/hw6csce\_user@cscuser-VirtualBox:~/csce/hw6$ ./hw6

Welcome. Please follow instructions below.

Enter 'F' to fill the lookup table from a file

'A' to add an entry to the lookup table

'U' to find a URL for a given IP address

'I' to find an IP address for a given URL

'P' to print the contents of the lookup table

'Q' to quit the program

Selection: f

Would you like to use the default filename, 'list.txt', or would you like to you enter a new filename?

Please enter a D for [D]efault or an N for [N]ew:

d

The file has been successfully read and arrays have been filled.

Your request was completed. Would you like to continue?

Enter Q to [Q]uit or C to [C]ontinue

c

Welcome. Please follow instructions below.

Enter 'F' to fill the lookup table from a file

'A' to add an entry to the lookup table

'U' to find a URL for a given IP address

'I' to find an IP address for a given URL

'P' to print the contents of the lookup table

'Q' to quit the program

Selection: a

This is the option to add a website to the table.

Please enter the IP Address:

12345

This IP Address is invalid. Please try again.

An IP Address must be between 7 and 15 characters, contain exactly three periods and contain only digits and (3) periods.

192.1968 68.1.1

Please enter the website URL:

www.goooogle.com

This website URL is valid.

The website has been successfully added.

Your request was completed. Would you like to continue?

Enter Q to [Q]uit or C to [C]ontinue

c

Welcome. Please follow instructions below.

Enter 'F' to fill the lookup table from a file

'A' to add an entry to the lookup table

'U' to find a URL for a given IP address

'I' to find an IP address for a given URL

'P' to print the contents of the lookup table

'Q' to quit the program

Selection: p

74.125.239.104 www.google.com

192.0.79.33 www.hackaday.com

130.184.5.181 www.uark.edu

140.147.249.7 www.loc.gov

130.184.98.31 www.csce.uark.edu

192.168.1.1 www.goooogle.com

Your request was completed. Would you like to continue?

Enter Q to [Q]uit or C to [C]ontinue

c

Welcome. Please follow instructions below.

Enter 'F' to fill the lookup table from a file

'A' to add an entry to the lookup table

'U' to find a URL for a given IP address

'I' to find an IP address for a given URL

'P' to print the contents of the lookup table

'Q' to quit the program

Selection: i

Please enter the website for the IP Address you want to find:

www.google.com

/nThe IP Address is 74.125.239.104

Your request was completed. Would you like to continue?

Enter Q to [Q]uit or C to [C]ontinue

q

Goodbye.

]0;csce\_user@cscuser-VirtualBox: ~/csce/hw6csce\_user@cscuser-VirtualBox:~/csce/hw6$ exit

exit

Script done on Thu 16 Apr 2015 11:57:41 PM CDT