CSC 150
PRELAB #10 – cStrings

Purpose:

1. Work with strings as an array of characters
2. Work with C-style strings (cStrings) and string functions.

I – Strings

1. Given the following:

```
#define _CRT_SECURE_NO_DEPRECATE
#define _CRT_NONSTDC_NO_DEPRECATE
#include <iostream>
#include <cstring>
using namespace std;

int main()
{
   char str1[10] = "Hello";
   char str2[10] = "";            //no space between quotes
   char str3[20] = "World!";
   int length;
   int cmp;
   int j;
   //insert code segments here
   return 0;
}
```

What is the output if you substitute the following after the variable declarations in main? Indicate if there is an invalid statement or compiler error.

a. length = strlen(str1);
   cout << length;

output 5

b. length = strlen(str2);
   cout << length;

output 0

c. length = strlen("CSC150");
   cout << length;

output 6

d. for (j = 0; j < strlen(str1); j++)
      cout << str1[j];

output Hello

e. str2 = str1;
   cout << str2;

output build fail

f. strcpy(str2, str1);
   cout << str2;

output Hello

g. strcpy(str1, str3);
   cout << str3;

output World

h. strcpy(str2, "String 2");
   cout << str2;

output String 2

i. strncpy(str2, str1, 3);
   cout << str2;

output Hel

j. strncpy(str3, str1, 3);
   cout << str3;

output Hello

k. strncpy(str2, "String 2", 3);
cout << str2;

output str

has error

l. strcat (str1, str3);
cout << str1;

output HelloWorld

m. strcat (str3, str1);
cout << str3;

output WorldHello

n. strcat (str2, "String 2");
cout << str3;

output World

o. strncat (str1, str3, 3);
cout << str1;

output Hello wor

p. strncat (str3, str1, 2);
cout << str3;

output World!

q. strncat (str3, “String 2”, 7);
cout << str3;

output WorldStrin

r. cmp = strcmp (str1, str3);
cout << cmp;

output -1

s. cmp = strcmp (str3, str1);
cout << cmp;

output 1

t. cmp = strcmp (str1, “Hello”);
cout << cmp;

output 0

u. cmp = strcmp (str1, “hello”);
cout << cmp;

output -1

v. strcpy (str2, "Hello2");
cmp = strncmp (str1, str2, 5);
cout << cmp;

output 0

w. cmp = strncmp (str1, str3, 3);
cout << cmp;

output -1

x. cmp = strncmp (str3, "Word", 3);
cout << cmp;

output 0

y. cmp = stricmp (str3, "World!");
cout << cmp;

output -33

z. cmp = stricmp (str3, "world!");
cout << cmp;

output - 33

aa. str3 = strtoupper ("world!");
cout << str3;

output builderror

bb. strlwr (str3);
cout << str3;

output World

2. Given the following:

```
#define _CRT_SECURE_NO_DEPRECATE
#define _CRT_NONSTDC_NO_DEPRECATE
#include <iostream>
#include <cstring>
using namespace std;
int main()
{
   char str1[10];

   cin >> str1;
   cout << str1;
   return 0;
}
```

What happens if the following values are entered?

a. hello

answer hello

b. thisisaverrryverrylongsentence

answer thisisaverrryverrylongsentence and a debug error

Why do you get this answer?

the array only holds 10 characters

c. hi mom

answer hi

3. Given the following

```
#define _CRT_SECURE_NO_DEPRECATE
#define _CRT_NONSTDC_NO_DEPRECATE
#include <iostream>
#include <cstring>
using namespace std;
int main()
{
   char str1[] = "First";
   char str2[20] = "This is a test";

   strcat(str1, str2);
   cout << str1;
   return 0;
}
```

What happens when you run this program and why?

First This is a test

Overflow error

4. Use the <cstring> library and character array string functions.
Complete the program program below that allows the user to enter two short phrases. In a separate function, combine the two phrases into one single string, ensuring that only as much of the two phrases as will fit is copied into the destination. Be sure to place a space between the two source strings in the destination. Write your function in such a way it will correctly work for any length of source strings, even the case where all of the first source will not fit in the destination.

Append your code to the end of this prelab file.

A sample run of this program should look like this:
(User input in ***bold italics***)

```
   .
Enter your first phrase (24 or fewer characters: the quick brown fox
Enter your second phrase (24 or fewer characters: jumps over the lazy dog

String1: the quick brown fox
String2: jumps over the lazy dog
Combined string: the quick brown fox jumps over the lazy
```

Source file: prelab12.cpp

```
#define _CRT_SECURE_NO_DEPRECATE
#define _CRT_NONSTDC_NO_DEPRECATE
#include <iostream>
#include <cstring>
using namespace std;

//prototype here

int main()
{
	char str1[25] = "";
	char str2[25] = "";
	char str3[40] = "";  //note this is not twice the size of str1 or str2

	cout << "Enter your first phrase (24 or fewer characters: ";
	//write input statement for str1

	cout << "Enter your second phrase (24 or fewer characters: ";
	//write input statement for str2

	build_big_string( str3,40, str1, str2 ); //note order of arguments

	cout << endl << endl;

	cout << "String1: " << str1 << endl;
	cout << "String2: " << str2 << endl;
	cout << "Combined string: " << endl;

	return 0;
}

//function definition here
```