| | |
|---|---|
| **Name:**<br>*(as it would appear on official course roster)* | |
| **Umail address:** **@umail.ucsb.edu** | **section** |
| **Optional: name you wish to be called**<br>**if different from name above.** | |
| **Optional: name of "homework buddy"**<br>**(leaving this blank signifies "I worked alone"** | |

**1**

**h13**

**CS16 W17**

# h13: Chapter 8: Strings

| ready? | assigned | due | points |
|---|---|---|---|
| true | Tue 03/07 03:30PM | Tue 03/14 04:30PM | 28 |

*You may collaborate on this homework with AT MOST one person, an optional "homework buddy".*

MAY ONLY BE TURNED IN IN THE LECTURE/LAB LISTED ABOVE AS THE DUE DATE,
OR IF APPLICABLE, SUBMITTED ON GRADESCOPE. There is NO MAKEUP for missed assignments;
in place of that, we drop the three lowest scores (if you have zeros, those are the three lowest scores.)

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Read Chapter 8 and the lecture notes. If you do not have a copy of the textbook yet, there is one on reserve at the library under “COMP000-STAFF - Permanent Reserve”.

**PLEASE MARK YOUR HOMEWORK CLEARLY, REGARDLESS OF IF YOU WRITE IT OUT IN INK OR PENCIL! FOR BEST RESULTS, SAVE THIS PAGE AS A PDF, THEN PRINT THE PDF.**

Please:

- **No Staples**.
- **No Paperclips**.
- **No folded down corners**.

1.(2 pts) How are ordinary arrays of characters and c-strings similar and how are they dissimilar?

**Similar: Both ordinary arrays of characters and c-strings have fixed lengths once they are declared. Both of their names can be used as pointers. Both of them cannot be assigned to other string literals or ordinary arrays of characters, while single characters in them can be reassigned.**

**Dissimilar: Ordinary arrays of characters might not have null characters, while c-strings have to use null characters to indicate the end of strings. C-strings can be processed with functions from <cstring>, while ordinary arrays of character cannot.**

2.(4 pts) What are two (2) things that are wrong with this use of a c-string (ignore why someone would write this code, focus on logic/syntax errors)?

```
char s1[5] = "Mark", s2[5] = "Jill";
for (int i = 0; i <= 5; i++)
        s1[i] = s2[i];
if (s1 != s2) s1 = "Art";
```

**Firstly, the lengths of s1 and s2 are 5, so accessing the 6th element in the for loop is illegal. Secondly, comparing s1 and s2 directly means comparing their addresses, which might not be what is expected. Thirdly, s1 cannot be reassigned to other string literal.**

3.(4 pts) What is the output of the following code?

```
char s1[4] = "abc", s2[4] = "ABC";
if (strcmp(s1, s2)) cout << "Hi!";
else cout << "Hey!";
```

Hi!

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4.(8 pts) The following code takes in a string input from the user and performs an integer multiplication, as seen in the example run here. Note that the input string will contain the asterix character (i.e. *):

```
Enter 2 integer numbers to be multiplied, like this: num1*num2: 15*3
The answer is: 45
```

Complete the missing code below that performs this task (it can be done in 2 lines, but you can use more if you like).

```
string s; int k(0);
cout << "Enter 2 integer numbers to be multiplied, like this: num1*num2: ";
cin >> s;

 int ind = s.find(‘*’);
 k = stoi( s.substr(0, ind) ) * stoi( s.substr(ind + 1) );

cout << "The answer is: " << k << endl;
```

5.(10 pts) Show the output produced when the following code (entire program not shown) is executed. You are encouraged to also try to compile this in a program to verify your results.

```
    string name = "Jeffery Tambor";

    cout << "NAME = " + name << endl;
    cout << name.length() << endl;

    name.erase(8, 6);
    cout << name << endl;
    name.append("Dean WD Morgan");
    cout << name << endl;

    name.insert(22, "@TWD");
    cout << name << endl;
    name.replace(23, 3, "The WD");
    cout << name << endl;

    cout << name.find("WD") << endl;
    cout << name.rfind("WD") << endl;
    cout << name.rfind("fery") << endl;

    for (int i = name.length(); i > 20; i--)
        cout << name[i-1];
    cout << endl;
```

```
NAME = Jeffery Tambor
14
Jeffery
Jeffery Dean WD Morgan
Jeffery Dean WD Morgan@TWD
Jeffery Dean WD Morgan@The WD
13
27
3
DW ehT@na
```