

STRINGS

Problem Solving with Computers-I



C++

```
#include <iostream>
using namespace std;

int main()
{
    cout << "Hola Facebook!";
    return 0;
}
```



C-Strings

Q1: How are ordinary arrays of characters and C-strings similar and how are they dissimilar?

Which of the following is not a C string?

A. `char mystr[5] = "John";`

B. `char mystr[] = "Mary";`

C. `const char *mystr = "Jill";`

D. `char mystr[4] = {'J', 'i', 'l', 'l'};`

Q2: Which of the following statements about the given code is FALSE?

```
char s1[5] = "Mark", s2[5] = "Jill";  
for (int i = 0; i <= 5; i++)  
    s1[i] = s2[i];  
if (s1 != s2) cout<<"Strings are not equal"  
s1 = "Art";
```

- A. There is an out of bound access in the for loop
- B. The entire for loop can be replaced by `s1 = s2;`
- C. Cannot compare two C-strings with `!=` or `==` operators
- D. The last assignment statement is incorrect

C String Standard Functions #include <cstring>

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

- **int strlen(char *string);**

- Returns the length not counting of `string` the null terminator

- **int strcmp(char *str1, char *str2);**

- return 0 if `str1` and `str2` are identical (how is this different from `str1 == str2`?)

- **int strcpy(char *dst, char *src);**

- copy the contents of string `src` to the memory at `dst`. The caller must ensure that `dst` has enough memory to hold the data to be copied.

- **char* strcat(char *s1, char *s2);**

- concatenate the contents of string `s2` to `s1` and returns pointer to resulting string

Q3: What is the output of the following code?

```
char s1[4] = "apple";
```

```
char s2[4] = "pineapple";
```

```
if (strcmp(s1, s2))
```

```
    cout << "Strings are not equal";
```

C strings vs. String class: What is the output of the code?

```
string s1 = "Mark";  
string s2 = "Jill";  
for (int i = 0; i <= s1.length(); i++)  
    s2[i] = s1[i];  
if (s1 == s2) s1 = "Art";  
cout<<s1<<" "<<s2<<endl;
```

- A. Mark Jill
- B. Mark Mark
- C. Art Mark
- D. Compiler error
- E. Run-time error

The C++ string class methods

```
string fruit = "Apple";  
int len = fruit.length();  
int pos= fruit.find('l');  
string part= fruit.substr(1,3);  
fruit.erase(2,3);  
fruit.insert(2,"ricot");  
fruit.replace(2,5,"ple");
```

Check out ctype for checks and conversions on characters

```
fruit[0]= tolower(fruit[0]);  
isalpha(fruit[0])
```


Lab 08: anagrams and palindromes

`bool isAnagram(string s1, string s2)`

Rats and Mice == In cat's dream

Waitress == A stew, Sir?



Why don't we pass the length of the string?

Next time

- Recursion