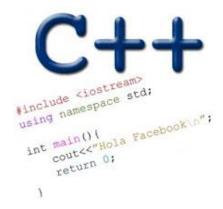
C STRINGS

Problem Solving with Computers-I



const

- const double pi = 3.141592654;
- int maxWithPointers1(int *x, int *y);
- int maxWithPointers2(const int *x, const int *y);

What are C Strings?

- They have the type char *
- Almost like an array of characters, with one key difference
- Shorthand:
 - Instead of writing char $*s = \{'H', 'e', 'l', 'l', 'o', '\setminus 0'\};$
 - You can write char *s = "Hello"; just like for C++ strings

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'};
```

C String Standard Functions #include <cstring>

- 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?)
- char* 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 onto the end of s1 and returns pointer to resulting string (therefore it returns s1)
 - s1 better have had enough space

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) s1 = "Art";</pre>
```

- A. There is an out of bounds access in the for loop
- B. The entire for loop can be replaced by s1 = s2;
- C. In the if statement, the logic for comparing two strings is incorrect.
- D. The body of the if statement is incorrect: cannot change the base address of an array

Q3: What is the output of the following code?

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

- A. Hi!
- B. Hey!
- C. Compiler error
- D. Runtime error

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;</pre>
```

- 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])
```