**CS 31**

**May 11th, 2020**

**Week 6**

**Lecture #13 : C Strings**

C++ strings

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#include <string>

#include <iostream>

using namespace std;

string t = “Hello”;

string s; //empty string

for(int k=0; k!=t.size(); k++)

cout << t.at(k) << endl; //cout << t[k] << endl;

cout << t << endl;

getline(cin, s);

s=t; //s has the value Hello

s+= “!!!”; // s now has the value Hello!!!

if(t==”Hello”)

if(t<s)

C strings

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| #include <iostream> #include <cstring> //declares strcpy using namespace std; ... char t[10] = "Hello";  char s[100] = "";  for(int k = 0; t[k] != '\0'; k++)  cout << t[k] << endl;  cout << t << endl; cin.getline(s,100);   cout << strlen(s); // Analogous to x.size() for a C++ string x  // Don't overuse, not efficient strcpy(s, t); // strcpy(destination, source); strcat(s, "!!!"); // s is now Hello!!! |

s = t; //Error, won’t compile.

BAD : !!

strcpy(t, “12345678901234”); //undefined behavior

strcpy(t, “white”);

strcat(t, “board”); //undefined behavior!!!

if (strcmp(t, s) < 0) // Is t’s Hello less than s’s Hello!!!

strcmp(a,b)

negative if a comes before the string b

0 if a equals b

positive if a comes after b

if(strcmp(t, “Hello”) == 0) //true, because t is equal to Hello

C++ String : a OP b a < b a!=b a>=b

C String : strcmp(a,b) OP 0 strcmp(a,b) < 0 strcmp(a, b) !=0 strcmp(a,b) >=0

Is a equal to b?

WRONG : if(strcmp(a,b))

RIGHT : if(strcmp(a,b)==0)

Is a less than b? (for C strings)

WRONG : if (a < b) //compiles but does the wrong thing.

RIGHT : if(strcmp(a,b)<0)

double da[5];

…

cout << da; // Won’t write the five doubles in the array.

C++

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| --- |
| string a[5] = { "cat", "mouse", "eel", "ferret", "horse" } int k; for(k=0;k<5;k++){  if(a[k]=="eel')  break; } |

C

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| string pets[5] [7]= {  "cat", "mouse", "eel", "ferret", "horse" }; int k; for(k=0;k<5;k++){  if(strcmp(pets[k], "ferret") ==0)  break; } if(k<5)  cout << "You're under arrest!" << endl; cout << pets[1][2] << endl; // writes u "from mouse" cout << pets [2] << endl; // writes eel |