

CS 180: Intro to C++

Note Title

8/29/2011

Announcements

- Syllabus

- Lab on Friday this week

- Code: 80386

Resources for this class

- Text book

- Transition guide (look for pdf on
webpage)

- cplusplus.com

- Tutoring & office hours

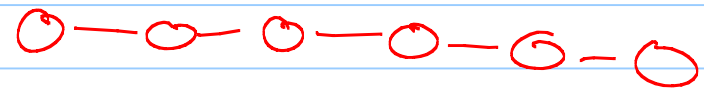
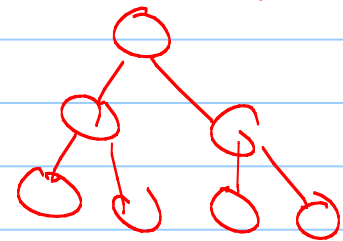
This course: data structures in C++

First, C++. (More on that next.)

But — what is a data structure?

store data : container

Ex: -tree
-list
-stack
⋮



C++ versus Python

High level versus low level.
python C++

Interpreter versus compiler.
on the fly

↳ 2 steps: compile
run
(C++)

Dynamic versus static typing

python
x = 5
x = "hello"

C++
int x;
x = 5;

~~x = "hello";~~

Why learn C++?

- faster

★ - ubiquitous : every where!

- understand low level details

- control

Comparison

Python

```
1 def gcd(u, v):
2     # we will use Euclid's algorithm
3     # for computing the GCD
4     while v != 0:
5         r = u % v    # compute remainder
6         u = v
7         v = r
8     return u
9
10 if __name__ == '__main__':
11     a = int(raw_input('First value: '))
12     b = int(raw_input('Second value: '))
13     print 'gcd: ', gcd(a,b)
```

C++

```
1 #include <iostream>
2 using namespace std;
3
4 int gcd(int u, int v) {
5     /* We will use Euclid's algorithm
6     for computing the GCD */
7     int r;
8     while (v != 0) {
9         r = u % v;    // compute remainder
10        u = v;
11        v = r;
12    }
13    return u;
14 }
15
16 int main() {
17     int a, b;
18     cout << "First value: ";
19     cin >> a;
20     cout << "Second value: ";
21     cin >> b;
22     cout << "gcd: " << gcd(a,b) << endl;
23     return 0;
24 }
```