CS 180: Intro to C++

Announcements

- Please log in to computers at end of class to make sure account works

- Extra credit: Attend presentation on Wed at 4pm here!

Resources for this class

- Text book
- Transition guide (look for pdf on webpage)
- cplusplus. com
- Tutoring & office hours
- Not students, past or present

This course: data ① structures in ② C++

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

But — what <u>is</u> a data structure?

- Abstract container for data.

↓

- work & be correct
- easy
- secure
- speed

← longer & more work

C++ versus Python

High level versus low level.
Python   _C++_

Interpreter versus compiler.

Dynamic versus static typing

Why learn C++?

- faster
- ubiquitous
- understand low level details
- control

Comparison

Python

```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++

```cpp
 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  }
```