C++ VS. JAVA

A Review of Object-Oriented Programming

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TERMINOLOGY: JAVA VS. C++

JAVA
- Object-Oriented Only
- Class
- Object, instance
- Instance variable / field
- Method

C++
- Hybrid: Object-Oriented and Procedural
- Class
- Object, instance
- Data member / member variable
- Member function
- Outside of a class: function, variable
CLASSES AND OBJECTS

- Object-oriented programs define classes
- Classes are instantiated to make objects
- Think of a class as a cookie cutter and objects as the cookies
- Classes specify data and operations, objects provide storage or memory for data
- Classes and objects *encapsulate* data and the operations that use the data
- A constructor is a method/function that builds an object (initializes data object data)
- Both Java and C++ use the dot operator to access class features
- C++ also use the arrow operator to access class features
EXAMPLES

• Foo myFoo1 = new Foo(5);    // Java
• Foo* myFoo2 = new Foo(5);    // C++
• Foo myFoo3(5);             // C++

• myFoo1.doSomthing();       // Java
• myfoo2->doSomthing();      // C++
• myFoo3.doSomthing();       // C++, looks like Java
double[] scores = new double[8];

double scores[8];
double* scores = new double[8];
JAVA ARRAYS VS C++ ARRAYS

• An array in Java is an instance of an unnamed class
  • It has a length attribute or instance field
  • scores.length

• An array in C++ is a primitive type (it is NOT an object)
  • scores.length