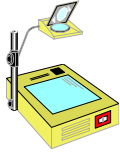




# 416/616 Game Engine Construction with C++



Introduction

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## Topics

- Introduction
- Basics
- Classes
- The SDL API
- Building a game w/ SDL
- Standard C++ Library, STL
- Inheritance
- Polymorphism
- Design patterns
- Drawing a surface
- Blitting
- sprites
- Animation
- Ai
- Exploding sprites
- Collision detection
- Sound
- Particle explosion

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## Course Objectives

- Learn the correct use of C++
- Learn Object-Oriented Programming
- Learn the Standard C++ Library
- Learn SDL
- Build a game engine
- Learn how to be a good programmer

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## Starting Point

I know no C++

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## Starting Point

I know no C++

I know a little C++

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## Starting Point

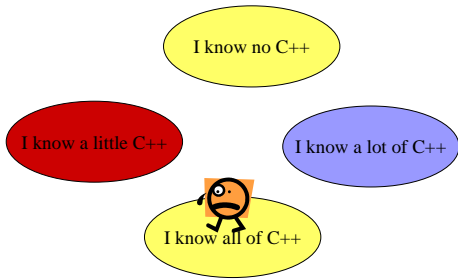
I know no C++

I know a little C++

I know a lot of C++

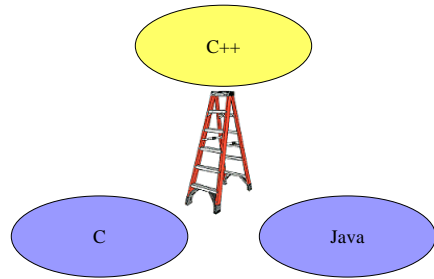
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## Starting Point



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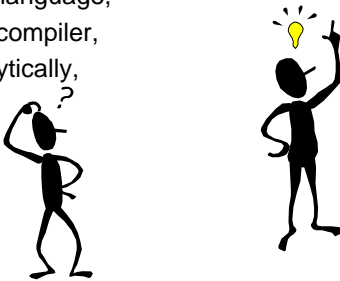
## Languages & Paradigms



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## Learn to be a good programmer:

- Know the language,
- know the compiler,
- think analytically,
- work hard



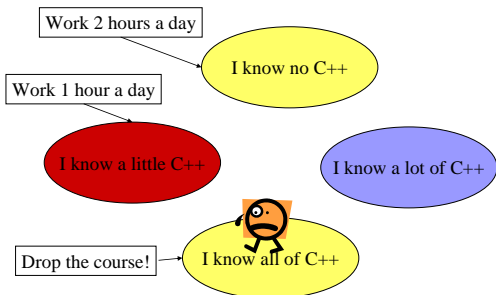
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## Programming takes practice



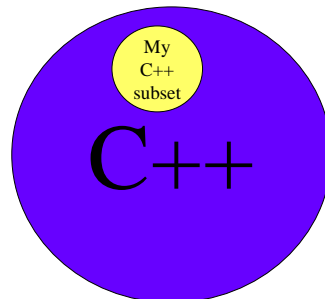
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## Write code/Compile/Execute!



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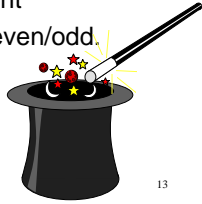
## Practitioners use a subset



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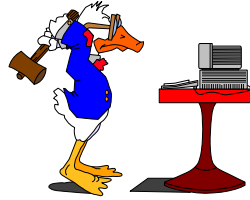
## Programming: tricks help

- Swapping 2 numbers,
- find the largest number in a list,
- convert a char digit to an int
- determine if a number is even/odd.



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## Programming can be frustrating



*If you've never been here,  
then you ain't programmed!*

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## Resources

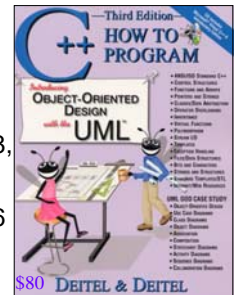
- Lecture
  - presentations
  - **demonstrations**
  - discussion
- graded assignments
- exams
- The WWW, and
- Textbooks.



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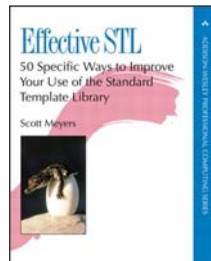
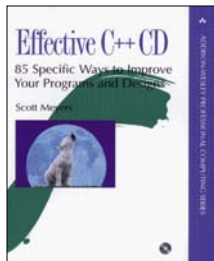
## Some will need an intro text

*C++ How to Program*  
Deitel & Deitel,  
Second Edition,  
Prentice Hall, 1998,  
1000 pages,  
ISBN: 0135289106



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## The Meyers Texts

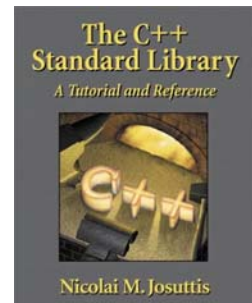


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## STL text

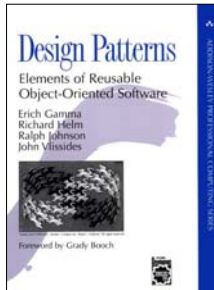
The Standard Template  
Library

Addison-Wesley



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## Design Patterns: GoF



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## 3 Kinds of Programmers

- Those who can't
- those who can without pointers
- those who can with pointers

<http://www.joelonsoftware.com/articles/fog0000000006.html>

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## Compiler

- g++ for unix or mingwin32 for Win95
  - GNU foundation
  - it's free
  - close to the standard
  - fairly complete
- others
  - VC++ 7.1, and .net
  - Dev C++



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## Summary

- This course is an unusual opportunity
- May require somework, study and dedication
  - Programming requires analytical skills
  - may have to learn new language, paradigm or skills
- You'll end up with a working knowledge of C++, knowledge of game construction and a game!

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