

CS 635 Advanced Object-Oriented Design & Programming  
Spring Semester, 2010  
Doc 1 Introduction  
Jan 21, 2010

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# References

Object-Oriented Design Heuristics, Riel,  
Addison Wesley, 1996

# Reading

Jan 26 - Big Ball of Mud, <http://www.laputan.org/mud/mud.html>

Jan 28 - Refactoring, Chapters 1 & 2

Feb 2 - Refactoring, Chapters 3 & 4

Feb 4 - Iterators, Null Object Pattern, Visitor

# Crashing

Last Day to Drop

Feb 2

Last Day to Add

Feb 4

# Crash Policy

Rank crashers based units in SDSU transcript that apply to CS graduate degree

Provide unofficial transcript

hard copy

email

# Course Web Site

<http://www.eli.sdsu.edu/index.html>

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Lecture Notes

Assignments

Wiki

~~Mailing List~~

Course Portal

Syllabus

Reading Assignments

# Languages

Java, C++, C#, Ruby, Objective C or Smalltalk

# Preferred Languages

Java  
Smalltalk

Ruby



# C#

Programs have to run in Mono

It is your responsibility to insure this

No support

# C++ is **STRONGLY** Discouraged

I have not used C++ in over 10 years

I don't like the language

It is very difficult to grade

Each additional language make grading harder

It is extremely hard to deal with GUI assignments in C++

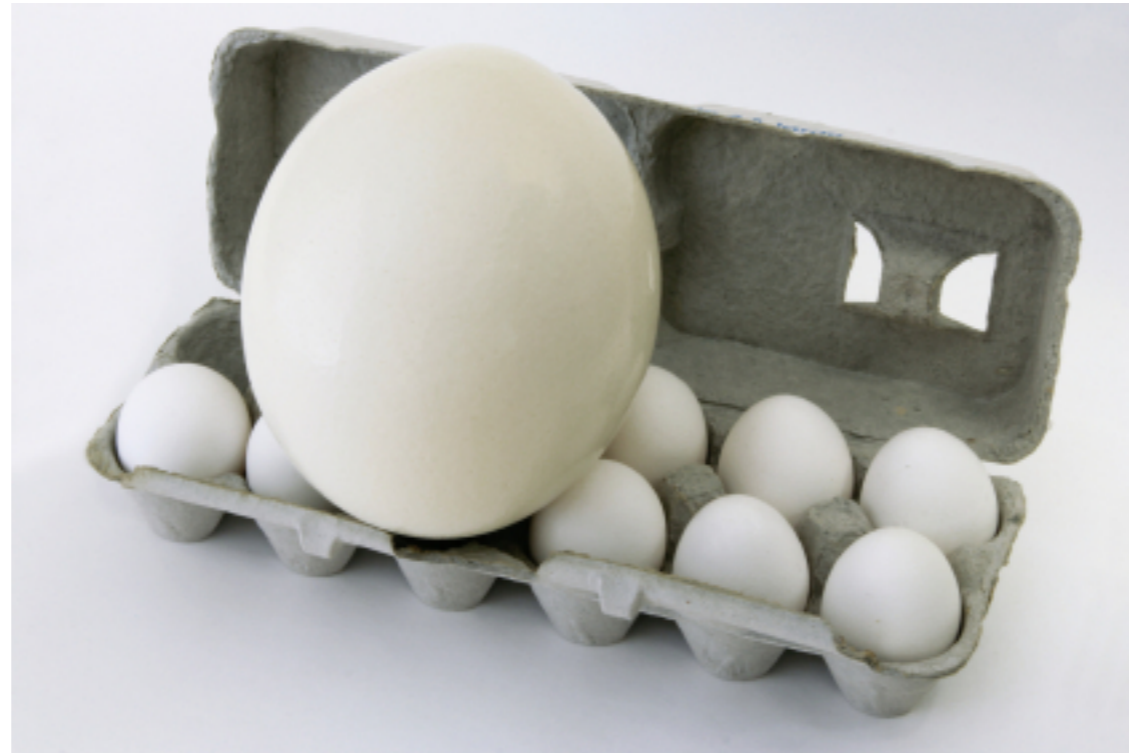
Assignments are often harder in C++

# What this course is about

Writing quality OO code  
Design Patterns  
Coupling & Cohesion

Unit Testing  
Refactoring

# Scale Changes Everything



# Review

# Define

Object  
Class

# What are the Benefits of OO

# Issues?

```
public class A {  
    public int x;  
    public int y;  
    public int z;  
}
```



# Issues?

```
class Stack
  def initialize
    @elements = Array.new
  end

  def empty?
    return @elements.empty?
  end

  def push(element)
    @elements.push(element)
  end

  def pop
    @elements.pop
    return elements
  end
end
```

# A verses B

```
public class A {  
    public int x;  
    public int y;  
    public int z;  
}
```

```
public class B {  
    private int x;  
    private int y;  
    private int z;  
  
    public int getX() { return x;}  
    public int getY() { return y;}  
    public int getZ() { return z;}  
    public void setX(int value) {x = value;}  
    public void setY(int value) {y = value;}  
    public void setZ(int value) {z = value;}  
}
```

# Heuristics

Keep related data and behavior in one place

A class should capture one and only one key abstraction

# Heuristics

Beware of classes that have many accessor methods defined in their public interface

Do not create god classes/objects in your system

Beware of classes that have too much noncommunicating behavior