CS 535 Object-Oriented Programming & Design
Fall Semester, 2008
Doc 1 Introduction
Sept 2 2008

References

Wilipedia

Past CS 535 Lecture notes

Reading Assignment

Object-Oriented Design Heuristics, Chapters 1 & 2 for Thursday Sept 4

Course Overview

Course Issues

http://www.eli.sdsu.edu/courses/index.html

Crashing
Course Web Site
Wiki
Screencasts
Prerequisites
Grading
Smalltalk

Goal

Understand how to use classes & objects in code

How to create code that is:

Understandable
Modifiable
Maintainable
Reusable

Some OO Basics

Why is OO Good?

For discussion in class

Does your code achieve those properties of goodness?

Terms

Class

- A blueprint to create objects
- Includes attributes and methods that the created objects all share

Object

- Allocated region of storage
- Both the data and the instructions that operate on that data

From Wikipedia

Example

```
class Point
    def initialize(x, y)
        @x = x
        @y = y
    end

    def to_s
        "Point( #@x,#@y)"
    end
end
```

```
example = Point.new(10,5)

example.to_s
```


Ruby code. Yes I know most people don't know Ruby. There are lots of variation of syntax and semantics for classes in OO languages.

Abstraction

“Extracting the essential details about an item or group of items, while ignoring the unessential details.”

Edward Berard

“The process of identifying common patterns that have systematic variations; an abstraction represents the common pattern and provides a means for specifying which variation to use.”

Richard Gabriel

Encapsulation

Enclosing all parts of an abstraction within a container

Information Hiding

Hiding of design decisions in a computer program

Hide decisions are most likely to change,
To protect other parts of the program

Class

Represents an abstraction

Encapsulates data and operations of the abstraction

Hide design decisions/details

Not so much a definition of a class as a goal how we should use a class.

Heuristics

2.1 All data should be hidden within it class

2.8 A class should capture one and only one key abstraction

2.9 Keep related data and behavior in one place

Numbers of the heuristics are from the text Object-Oriented Design Heuristics by Riel

Assignment

Using your favorite OO programming language (Java, C++, Ruby, etc) in which class would you place the each of the following methods. Answer each independently of the other.

a. The area of intersection of two rectangles.

b. An isPalindrome method that indicates if a string is a palindrome

Reading Assignment

Object-Oriented Design Heuristics,
Chapters 1 & 2 for Thursday Sept 4

You will get a lot more out of the class on Thursday if you read the chapters before rather than after the class.