CS 535 Object-Oriented Programming & Design
Fall Semester, 2010
Doc 1 Introduction
Aug 31, 2010

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References

Wikipedia

Past CS 535 Lecture notes

Reading Assignment

Object-Oriented Design Heuristics, Chapters 1 & 2 for Thursday Sept 2
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?
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
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
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
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. A method that computes the area of a circle.

b. A reverse method that reverses the order of the characters in a string.

c. A method that computes the checksum of a sequence of bits.
You will get a lot more out of the class on Thursday if you read the chapters before rather than after the class.