Midterm Review

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CMPT166
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Topics in object-oriented design

- Classes, inheritance, polymorphism
- UML diagrams: class diagram, inheritance chart
- Interfaces
- Abstract super-classes
- Access modifiers
- Other modifiers: static, final
- Java language syntax
  - Strings, arrays
  - Constructors

Topics in Swing

- Swing classes, components

- JPanel and JFrame

- Making a basic Swing program:
  - main(), createAndShowGUI(), constructor

- Common Swing widgets: buttons, textboxes
  - Layout concepts

- Event handling; delegate classes

- Graphics: paint() / paintComponent(), drawing functions

Topics in file I/O

- **File**

- **Streams**: input / output

- Kinds of streams: **character**, **byte**, **object**-based

- **Serialization**
  - How to make a **class** serializable
  - How to **read**/**write** a serializable object

- **Serial** access vs. **random**-access files

Quiz 1

- Explain what the JDK and JRE are and contrast them.

- Explain what an applet is.

- How are comments done in Java? (both ways)

- Each box in a UML class diagram has three sections. What are they?

- What is method overloading?

- Write a complete command-line Java program that prints "Hello World!".

  - Doc-comments not necessary

Quiz 2

- In Java, what does final mean when applied to:
    - (a) attributes, (b) methods, (c) classes?
- Name and give a short description of each of the eight primitive Java types
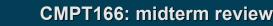- Write a short bit of Java code encoding these relationships:
    - "fido is a Dog."
    - "A Dog is a kind of Mammal."
    - "Every Mammal has a Heart."
    - "Any Dog can bark()."

Quiz3

- Given:

    public class Ferrari extends Car {}

    Car sentra = new Car();

    Ferrari f430 = new Ferrari();

    which of the following are legal, and why?   [6]
    (a) sentra = f430   (b) f430 = (Ferrari) sentra
    (c) sentra = f430; f430 = (Ferrari) sentra

- Contrast abstract superclasses with interfaces   [4]

- Contrast JFrames with JPanels   [4]

- Pseudocode a simple event-based Swing program as a subclass of either JFrame or JPanel   [6]

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Quiz 4

- Describe the MVC design pattern in your own words, including an example.

- Describe at least two drawing methods in the java.awt.Graphics API, including parameters.

- In graphics, what is the clip region?

- What information does a File object hold in Java?

- Tell me everything you know about serialization in Java