What We Have Covered So Far

- Introduction to Java
  - Basic Data Type
  - Basic Control Structure
  - OOP Concept
  - GUI
Java Basics

- Data type
  - Primitive data types (what are they??)
- Operators
  - Similar to C/C++
- Variables
  - automatic vs. static
- Scoping
  - Block vs. Class
Data encapsulation in *objects*:
- data (attributes)
- methods (behaviors)

Objects hide information:
- *private* data/methods
- *public* interfaces

Member methods
- Constructor
- Accessor
- Mutator
- Finalizer
Java: Object-Oriented Programming

- Inheritance:
  - Advantage
  - superclasses and subclasses
  - Is-A, Has-A??

- Polymorphism:
  - abstract and concrete classes

- Dynamic binding
  - The exact type of an objected is determined at run time.
Sample Questions

- Which of the following is not a superclass/subclass relationship?
  A. Ford/Taurus.
  B. University/Brown University.
  C. Sailboat/Tugboat.
  D. Country/USA.

- This keyword ___ allows a subclass to access a superclass method even when the subclass has overridden the superclass method?

- Failure to prefix the superclass method name with the keyword super and a dot (.) separator when referencing the superclass’s method causes a(n) ________.
  A. compile-time error.
  B. syntax error.
  C. infinite recursion.
  D. runtime error.

- *Set* methods are also commonly called ________ methods and *get* methods are also commonly called ________ methods.
Multiple “Inheritance”

- Abstract Class
- Thread Object
- Event Object

- Is-A
- Inheritance
- Polymorphism

My new Object

- Difference??
- Interfaces

- extends
- implements
Sample Questions

● A(n) ____ class cannot be instantiated.

● An interface may contain:
  A. private static data and public abstract methods.
  B. only public abstract methods.
  C. public static final data and public abstract methods.
  D. private static data and public final methods.

● Which of the following is not possible?
  A. A class that implements two interfaces.
  B. A class that inherits from two classes.
  C. A class that inherits from one class, and implements an interface.
  D. All of the above are possible.
Java: Basic GUI Components

- Swing
  - What is it?
  - Advantages
- Event handling
- Inner classes and anonymous inner classes
  - Know the names
A Java Screen Layout

- Frame → JFrame
- Menu Bar (optional)
- Content Pane

- Layout Managers
- Panels
- GUI Components
Sample Questions

- Together, the appearance and the way in which the user interacts with the application are known as that application’s _____.
  - a. abstract window toolkit.
  - b. look-and-feel.
  - c. swing factor.
  - d. All of the above.

- Which pair of words does not complete the sentence below correctly? A _______ is a _______.
  - c. JComponent, Container.
  - d. Component, Object.

- Which layout manager is the default for JFrame?
Exception Handling

- What is exception handling?
- When to use exception handling?
- Try-catch-finally
- Assertion
Sample Questions

- When an exception occurs it is said to have been _____
- When an unchecked exception occurs in a method but is not caught:
  a. the method-call stack is “unwound.”
  b. the method terminates.
  c. all local variables in that method go out of scope.
  d. All of the above.
- After a finally block has finished executing (and there are no exceptions to be handled):
  a. control proceeds to the first statement after the finally block.
  b. control returns to the throw point.
  c. the application exits.
  d. control proceeds to the first statement after the last catch block.
Multi-Threading

- Life Cycle of a Thread
- Thread Scheduling
- Thread Synchronization
- Producer/Consumer
- Multi-threading with GUI
  - SwingWorker
The preferred means of creating multithreaded Java applications is by implementing the ________ interface.

Calling a Thread's ________ invokes the corresponding Runnable object's run method to perform a task.

When a thread obtains the monitor lock on an object, then determines that it cannot continue with its task on that object until some condition is satisfied, the thread can call Object method ________;