Interfaces & Abstract Classes

AP Computer Programming
Class Hierarchies

- When declaring objects you can use the superclass as the data type and then construct it as the subclass

Example:

```
Pen mypen = new BallPoint();
```

```
Pen                 
  |                  
  FeltTip  BallPoint  
        |               
        FinePoint
```
Interfaces

- Requires a class to implement a set of methods
- Declared as…
  - public interface Sample
- Contains…
  - A list of methods available to the clients of the class (prototypes only)
  - NO variables
Clients of an Interface

- Declared as…
  - public class TryMe implements Sample
- Contains…
  - Implementations for ALL methods in the interface
  - Additional methods if needed
  - Private data
- Note: A class can implement more than one interface at a time
- Example: Shape Interface pages 277-281
The Comparable Interface

- public int compareTo(Object other)
- Object does not implement Comparable so unless a class does you need to typecast to Comparable to use the compareTo method
- Returns one of the following:
  - Negative...if the object is less than the parameter
  - Zero...if the object and the parameter are equal
  - Positive...if the object is greater than the parameter
Abstract Classes

- Can never be instanciated…only extended
- Used to define features that all subclasses should have in common
- Declarations…
  - public abstract class Junk
  - public abstract class ThisOne implements Sample
- Examples…
  - Textbook pages 286-294