Anyone have any general questions?

- Not about the PSA, we'll get to that!
  Sort of (you guys got an extension)!
logistics

● New Office Hour Room (hopefully)
  ○ B240A - same old basement, just a few doors down

● Grading
  ○ Not grader specific
  ○ TAs/Prof develop test cases and **STRICT** grading guidelines
    ■ Testing is automated as much as possible
    ■ graders MUST follow these guidelines
What is a class?

What is inheritance?

What is a subclass?

What is a superclass?
classes, inheritance, polymorphism

Oh my!

- When a class extends another class, it inherits all the non-private members/methods of that class
  - ignore package access for now

- polymorphism (conceptually) is when a subclass retains its own characteristics when used as its superclass
wait what? polymorphism

class Foo{ String toString(){return "foo";}}

class Bar extends Foo{String toString(){return "bar";}}

Foo bar=new Bar();
System.out.println(bar);

>bar

Muppet Example
Java GUI (Graphical User Interface) History

- **AWT**
  - Old version java GUI, used native OS parts
  - portability issues
    - (one OS handles things differently than other)

- **Swing**
  - newer version java GUI. builds on top of AWT
  - handles most parts of the GUI in native Java
    - uses AWT for minimal set of functionality
    - more portable
  - Originally slow, but now, not so bad
  - What you're working with in PSA5
There aint no thing like Java Swing

- JFrame = Window
- JPanel = Something to draw on
  - override paintComponent(Graphics g) in your subclass to change what a panel displays when displayed
  - paintComponent(Graphics g) is called when your JPanel is painted
    - if you added it to a JFrame, the JFrame will eventually call this for you
What this means is that

- `GraphicLetter_cs8szz1` is a `GraphicLetter`
  - So what should be returned in `makeCopy()`?
- `GraphicLetter` is a `JPanel`
- Transitively, `GraphicLetter_cs8szz1` is a `JPanel`
Why do we call super.paintComponent(Graphics g)

- Needed to set things up since we don't know everything our parent class did BEFORE it started drawing.
- If we *did* know everything, we could do it ourself,
  - easier to ask mom (ie your parent class)

TO THE CODE!
Almost all real programs start on paper in some shape or form.
This means actual pen and paper!

TO THE CODE!

ForEachTest.java
Have a good weekend

WHAT ARE YOU DOING?
POSTING HOMEWORK ANSWERS ON THE INTERNET.

WHAT FOR?
UNLIKE HOLLYWOOD AND THE RECORDING INDUSTRY, I VIEW ONLINE COPYING AS A GOOD THING.

SOON, THROUGH THE MAGIC OF PEER-TO-PEER FILE SHARING, KIDS THE WORLD OVER WILL HAVE READY-TO-USE SOLUTIONS TO EVERY QUESTION IN MY TEXTBOOKS! AND THERE'S NOT A THING TEACHERS CAN DO TO STOP IT.

ISN'T IT GREAT?!

THIS IS SO UNLIKE YOU, JASON.

USUALLY YOU'RE FREAKISHLY COMPETITIVE ABOUT YOUR GRADES.

NOW SO?

YOU MISUNDERSTAND—THESE AREN'T THE CORRECT ANSWERS.