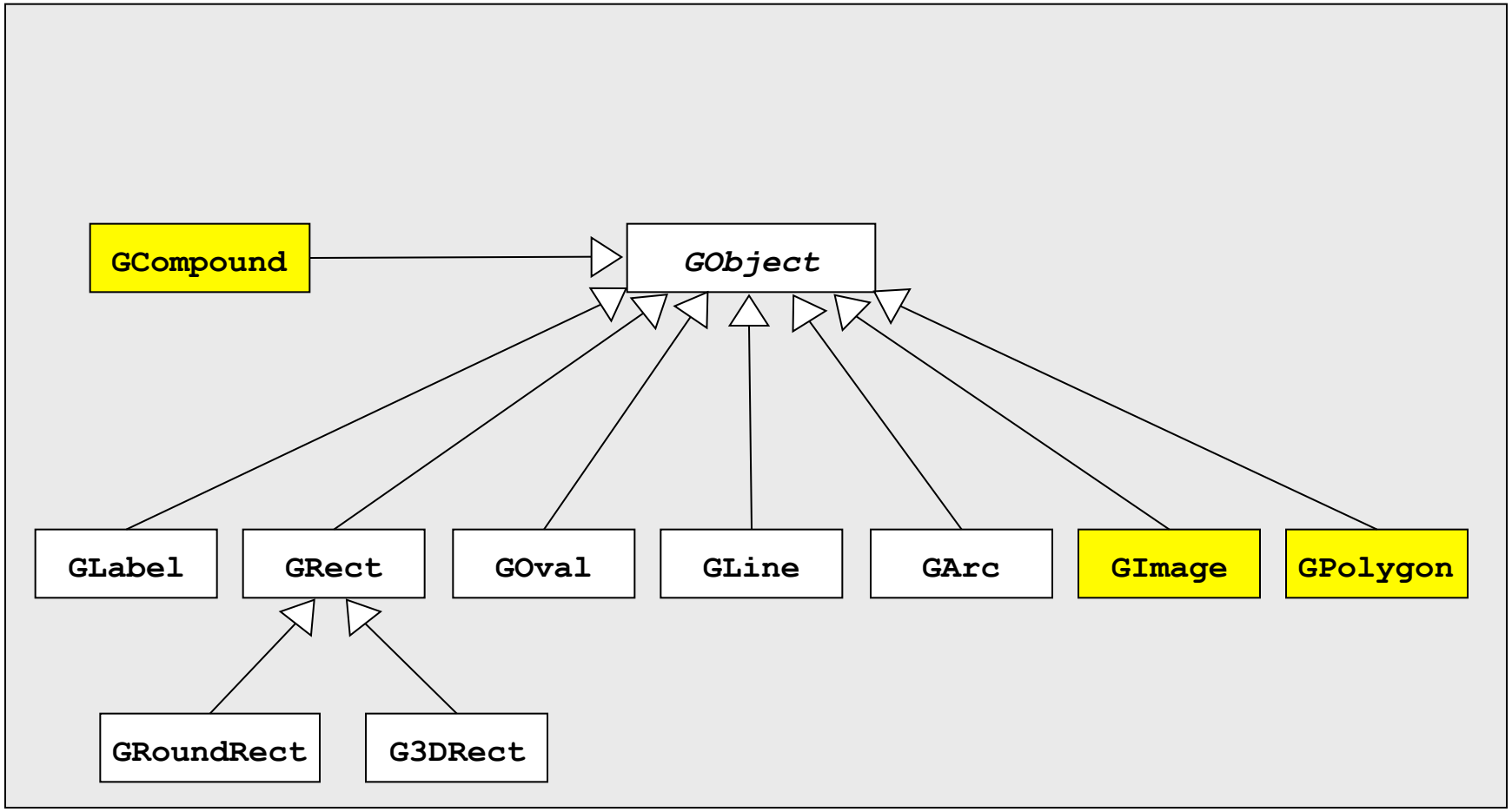
Class hierarchy of **GObject**



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The **`GImage`** Class

- **`GImage`** class is used to display an image from a file

`new GImage(`*image file*`,` *x*`,` *y*`)`**

image file: name of a file containing image

x and *y*: coordinates of upper left corner of image

- Looks for file in current project directory and then in a subdirectory named **`images`**.
- GIF (**`.gif`**) and JPEG (**`.jpg`** or **`.jpeg`**) supported

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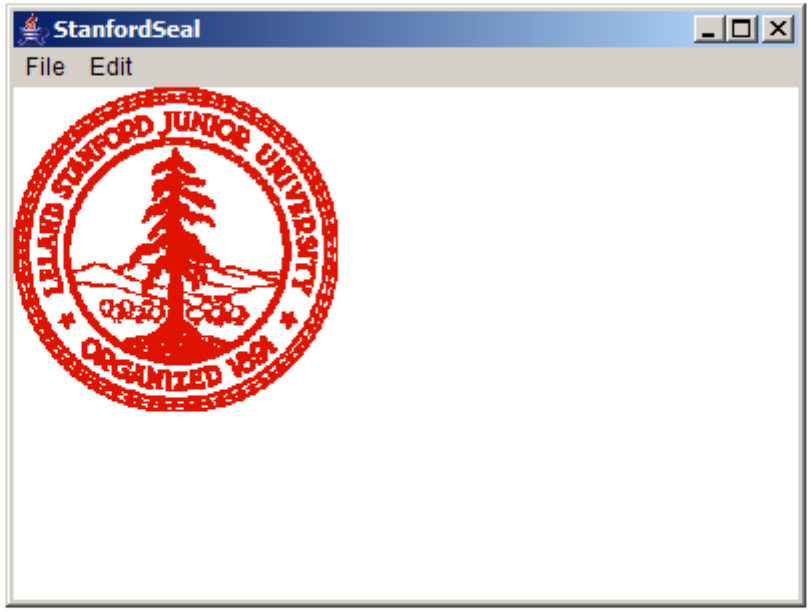
Example of the `GImage` Class

```
public void run() {
   GImage image = new GImage("StanfordSeal.gif");
   add(image, 0, 0);
}
```



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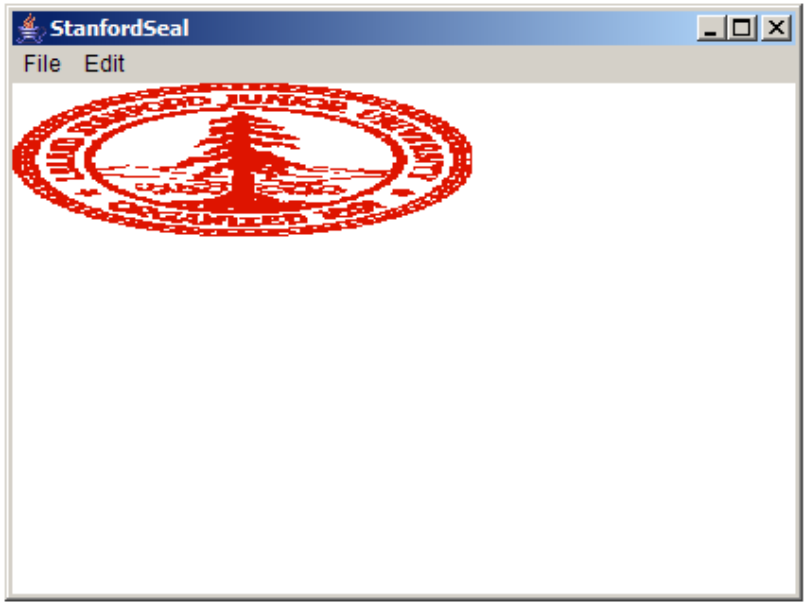
Resizing GImages

```
public void run() {
   GImage image = new GImage("StanfordSeal.gif");
   image.scale(1.5, 0.5);
   add(image, 0, 0);
}
```



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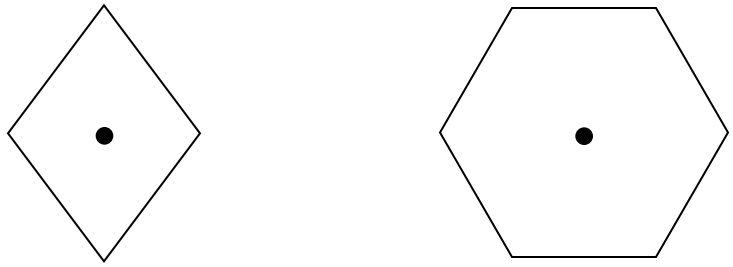
The `GPolygon` Class

- **`GPolygon`**: represent graphical objects bound by line segments.



- A **`GPolygon`** has a **reference point** that is convenient for that particular shape
- Position the vertices relative to that reference point.
- Convenient reference point is often center of object.

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Constructing a `GPolygon` Object

- Create an empty polygon
- Add vertices one at a time using **`addVertex(`***x*`, `*y*`)`**
  - *x* and *y* relative to **reference point** of polygon
- After setting initial vertex using **`addVertex(`***x*`, `*y*`)`**, can add remaining ones using:
  - **`addVertex(`***x*`, `*y*`)`** adds a new vertex relative to the reference point
  - **`addEdge(`***dx*`, `*dy*`)`** adds a new vertex relative to the preceding one
- Polygon "closed" for you
  - automatically attaches first and last vertices

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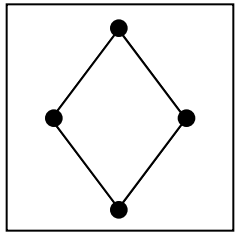
Drawing a Diamond (`addVertex`)

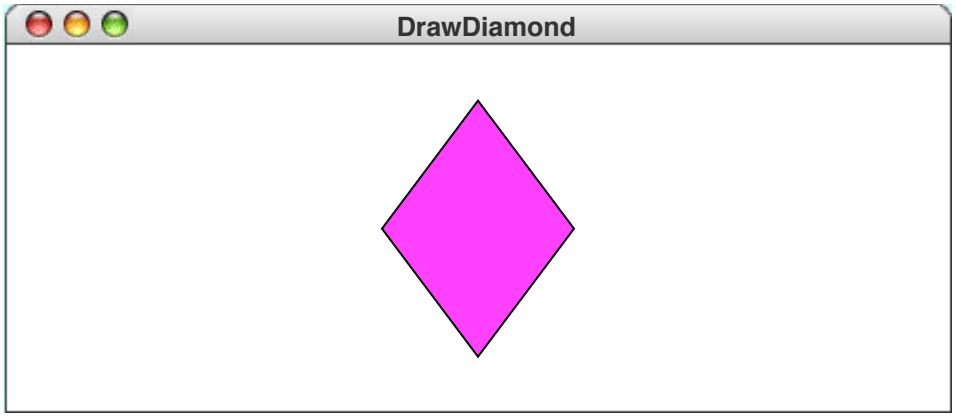
The following program draws a diamond using **`addVertex`**:

```
public void run() {
```

```
private GPolygon createDiamond(double width, double height) {
   GPolygon diamond = new GPolygon();
   diamond.addVertex(-width / 2, 0);
   diamond.addVertex(0, -height / 2);
   diamond.addVertex(width / 2, 0);
   diamond.addVertex(0, height / 2);
   return diamond;
}
```

diamond

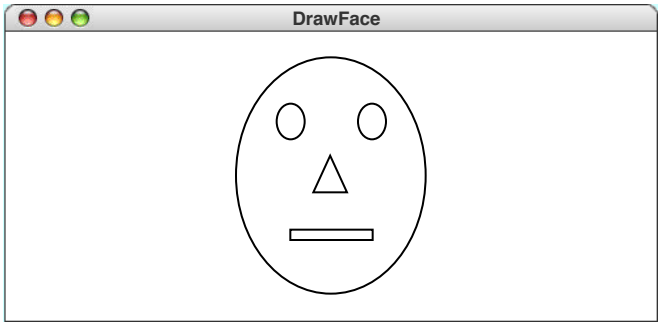




skip simulation

The `GCompound` Class

- **`GCompound`** allows for combining several graphics objects so they behave like one **`GObject`**
- Add objects to a **`GCompound`** (like it was a canvas)
- You can treat whole **`GCompound`** as one object
- Similar to **`GPolygon`**, a **`GCompound`** has a reference point that all objects are added with respect to
- When **`GCompound`** is added to canvas, it is placed relative to its reference point
- Let's draw a face:



Draw Face and Bouncing Face Examples