CS 129 HW9 Interfaces

This program is designed to utilize interfaces. If you complete it without interfaces, you'll lose credit (33%), and it will probably be pretty hard to do. You can (and should) use extends as well, but you don't have to.

Create three different kinds of Marbles:

- Swirl – a color blended with white
- Solid – one color
- Striped – a color with black stripes

These Marbles draw as circles to the screen. Create 25 of them, randomly generated with equal odds, in random places around the display. Drawing code for Stripe and Swirl is provided on the next page.

Marbles have the following features:

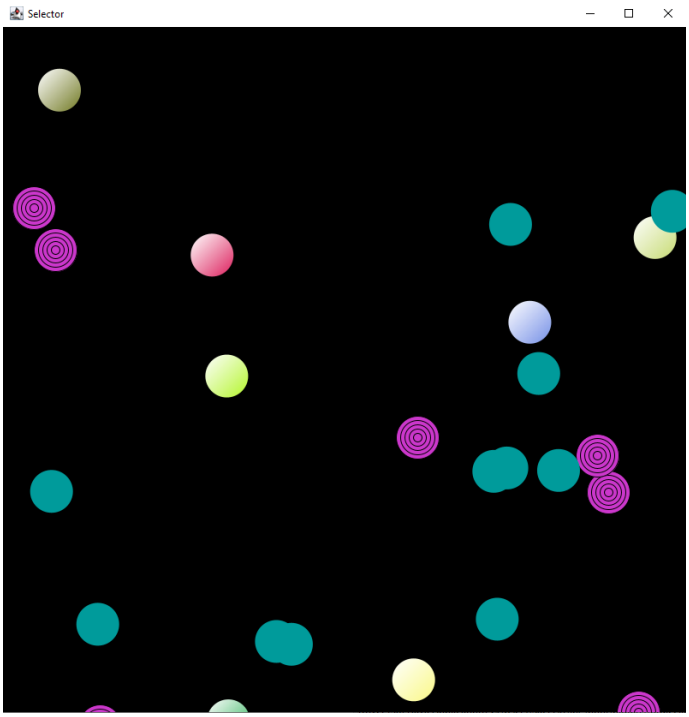
- Solid marbles are clickable: They start as (0, 150, 150) as their color, and **gain 5 green and 5 blue** each time they are clicked, up to the max (0, 255, 255)
- Striped marbles are moveable: When you press the w, a, s, or d keys, they all **move** up, left, down, or right respectively by a **random** range from 0 to 5 units.
- Swirl marbles are moveable and clickable: They change to a **random color** when clicked. You can click and drag them to move them around. When you press the w, a, s, or d keys, they all move up, left, down, or right respectively by **exactly** 5 units.

Extra credit (15%) Draw a box on the screen somewhere: this box holds Marbles. If a Swirl or Striped marble finds itself inside this box, it goes inside, and is no longer visible. Hitting the "f" key prints the color of all Marbles in the box to the console. Solid kinds of Marbles do nothing.

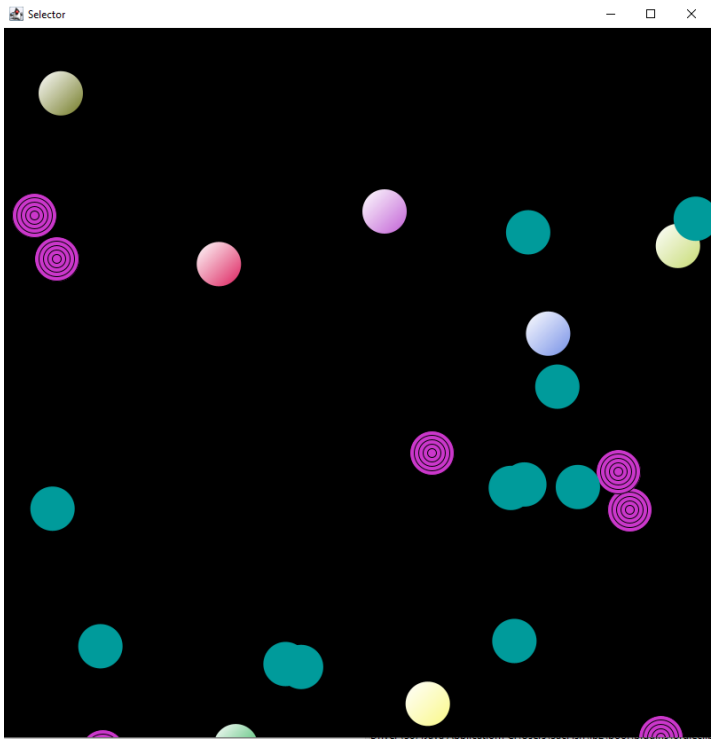
Extra credit (up to 5%) for exceptional documentation.

```
//Stripe
public void draw(Graphics2D g) {
           g.setColor(color);
           g.fill(display);
           g.setColor(Color.black);
           for (int i = 0; i < 10; i++) {
                     g.drawOval((int) (display.x + i * 5), (int) (display.y + i * 5), (int) (display.width - i * 10),
                                         (int) (display.height - i * 10));
           }
}


//Swirl
public void draw(Graphics2D g) {
           GradientPaint gradient = new GradientPaint((int) display.x, (int) display.y, Color.WHITE,
                               (int) (display.x + display.width), (int) (display.y + display.height), color);
           g.setPaint(gradient);
           g.fill(display);
}


//I suggest you end up with something like this (note that not all arrays will be full)...
Marble[] marbles = new Marble[25];
Drawable[] drawable = new Drawable[25];
Moveable[] moveable = new Moveable[25];
int nextMoveable = 0;
Clickable[] clickable = new Clickable[25];
int nextClickable = 0;

Moveable drag;
```

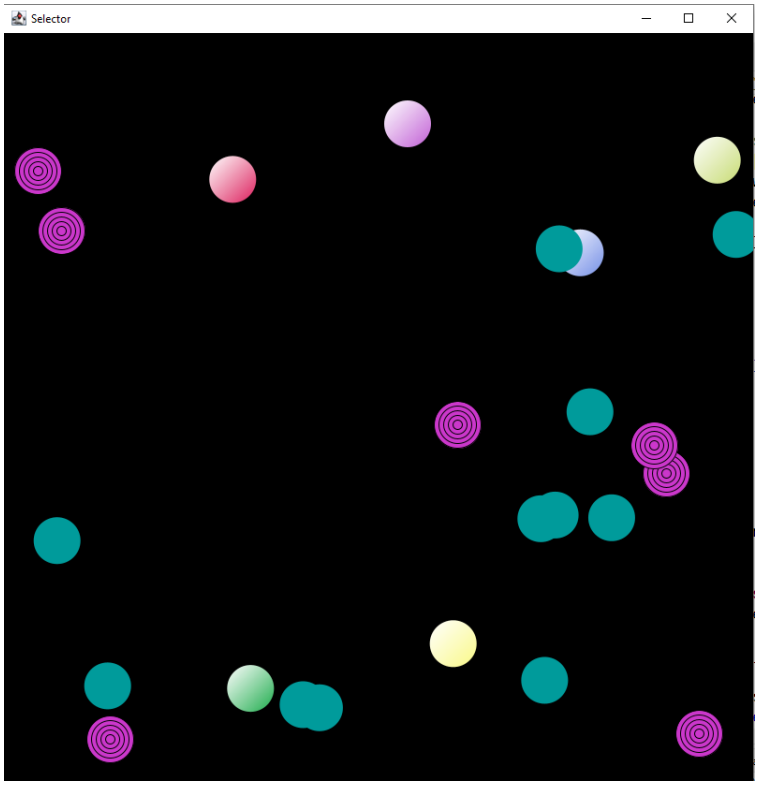
Start



Clicked and dragged a Swirl around (now purple, near the center)



Held “w” for a while, various Marbles moved



Clicked a Solid a bunch of times (left side)