SHAPE, TEXT AND IMAGE CLASSES

MAKE COMPLETE SENSE IF YOU ARE BUILDING AN IMAGE EDITING APP

LET'S SAY YOU ARE WRITING A SIMPLE IMAGE EDITING TOOL, SOMETHING LIKE MS-PAINT

THESE ARE THE BASIC TYPES THAT YOUR PROGRAM WILL DEAL WITH..

- **SHAPES** — CIRCLES, ELLIPSES, RECTANGLES, SQUARES
- **TEXT**
- **IMAGES** — PHOTOGRAPHS FROM YOUR HARD DISK OR INSTAGRAM OR WHEREVER

THESE BASIC TYPES MAKE MUCH MORE SENSE IN THIS CONTEXT THAN USING FILES, LISTS, DICTIONARIES..

OF COURSE THESE SHAPE, IMAGE AND TEXT CLASSES WILL CONTAIN MEMBER VARIABLES THAT ARE STRINGS, LISTS, FILES, DICTIONARIES ETC

Shapes are similar in many ways - they have areas and outlines

```java
public class Rectangle {

    private double length;
    private double breadth;

    public Rectangle(double length, double breadth) {
        this.length = length;
        this.breadth = breadth;
    }

    public double getArea() {
        return length * breadth;
    }

    public double getOutline() {
        return 2 * (length + breadth);
    }
}
```

```java
public class Square {

    private double length;

    public Square(double length) {
        this.length = length;
    }

    public double getArea() {
        return length * length;
    }

    public double getOutline() {
        return 2 * (length + length);
    }
}
```

```java
public class Circle {

    private double radius;

    public Circle(double radius) {
        this.radius = radius;
    }

    public double getArea() {
        return 3.14 * radius * radius;
    }

    public double getOutline() {
        return 2 * 3.14 * radius;
    }
}
```

"IS-A" : INHERITANCE

CIRCLES ARE SHAPES

RECTANGLES ARE SHAPES

SQUARES ARE RECTANGLES,
(AND SHAPES TOO)

HAVE CIRCLE AND RECTANGLE INHERIT FROM SHAPE, AND SQUARE INHERIT FROM RECTANGLE

SHAPES ALL HAVE OUTLINES AND AREAS

IT MAKES NO SENSE TO WRITE THE SAME CODE AGAIN AND AGAIN FOR EACH TYPE OF SHAPE..

..SO DON'T!

CLASSES CAN INHERIT FROM OTHER CLASSES

A CIRCLE AND RECTANGLE WILL HAVE A VERSION OF ALL THE MEMBER VARIABLES AND METHODS THAT EXIST INSIDE A SHAPE