Programming In Processing
Class #6: 4/2/08

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Numbers are in bold, names are in *italics*, & strings are underlined.

How do we change our coordinate axes?

Up till now, we've been using the same set of axes the whole time. (0,0) is the upper left; as you increase xStart, you move right, and as you increase yStart, you move down. But we can change how those work!

```
resetMatrix();
```

This will undo all changes to your coordinate axes.

```
scale(scaleFactor);
```

This will make your coordinate axes bigger by a factor of scaleFactor. If you call `scale(2);` each of the pixels will be twice as long and twice as wide as before.

```
translate(xShift, yShift);
```

This will move the center of your coordinate axes right by xShift and down by yShift; think of them as xStart and yStart for your axes. If you have a window of size (500, 500) and you call

```
translate(250, 250);
```

the top left of your window is now at -250, -250, since you've moved your axes down and to the right by 250.

```
rotate(rotateFactor);
```

This is the trickiest one to work with. It will turn your coordinate axes by the number of radians you specify.

- If **rotateFactor** = PI/4, your axes rotate 45 degrees.
- If **rotateFactor** = PI/2, your axes rotate 90 degrees.

How do we invert colors?
If this is the color you're starting with:

```
color start = color(red, green, blue);
```

… then this is the inverted color:

```
color invert = color(255-red, 255-green, 255-blue);
```

How do we get information from the keyboard?
You can use the keyPressed boolean in your draw() method like this:

```
if (keyPressed){
     … // this will happen as long as a key is pressed
}
```

Alternatively, you can use the void keyPressed() method like this:

```
void keyPressed(){
     switch (key) {
          case ('a'):
               // whatever you put here will happen once
               // for each time 'a' is pressed
               break;
          case ('m'):
               // whatever you put here happens once
               // for each time 'm' is pressed
               break;
          default:
               // this happens if a key is pressed
               // that you didn't specify an action for.
               // …you don't need to have 'default'!
               break;
     }
}
```

Here are the characters you can use in your case statements:

1) all of the letter keys → `case ('a'):`
2) all of the number keys → `case ('4'):`
3) BACKSPACE, TAB, and ENTER. → `case (TAB):`