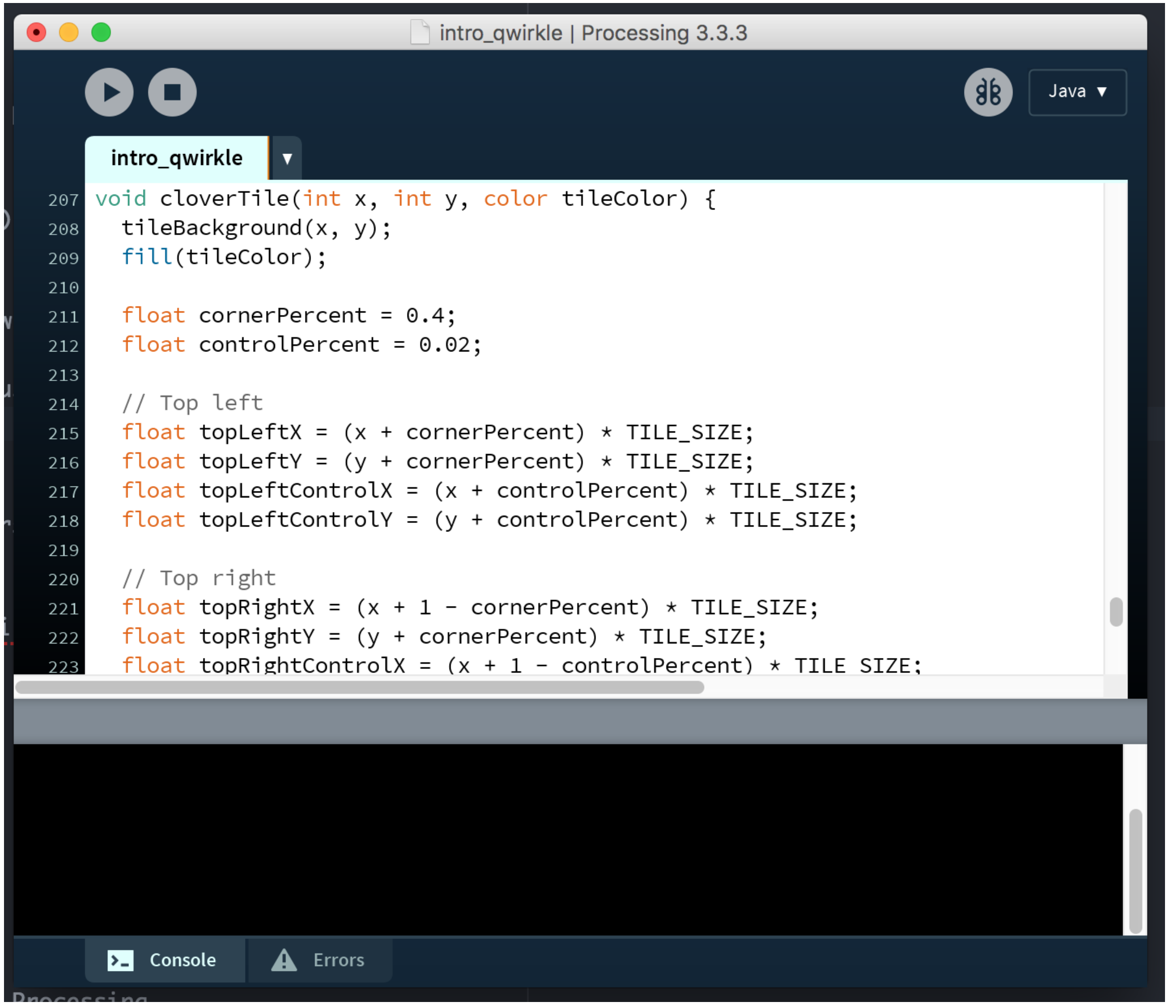
Processing, part 2: Qwirkle

Children's game

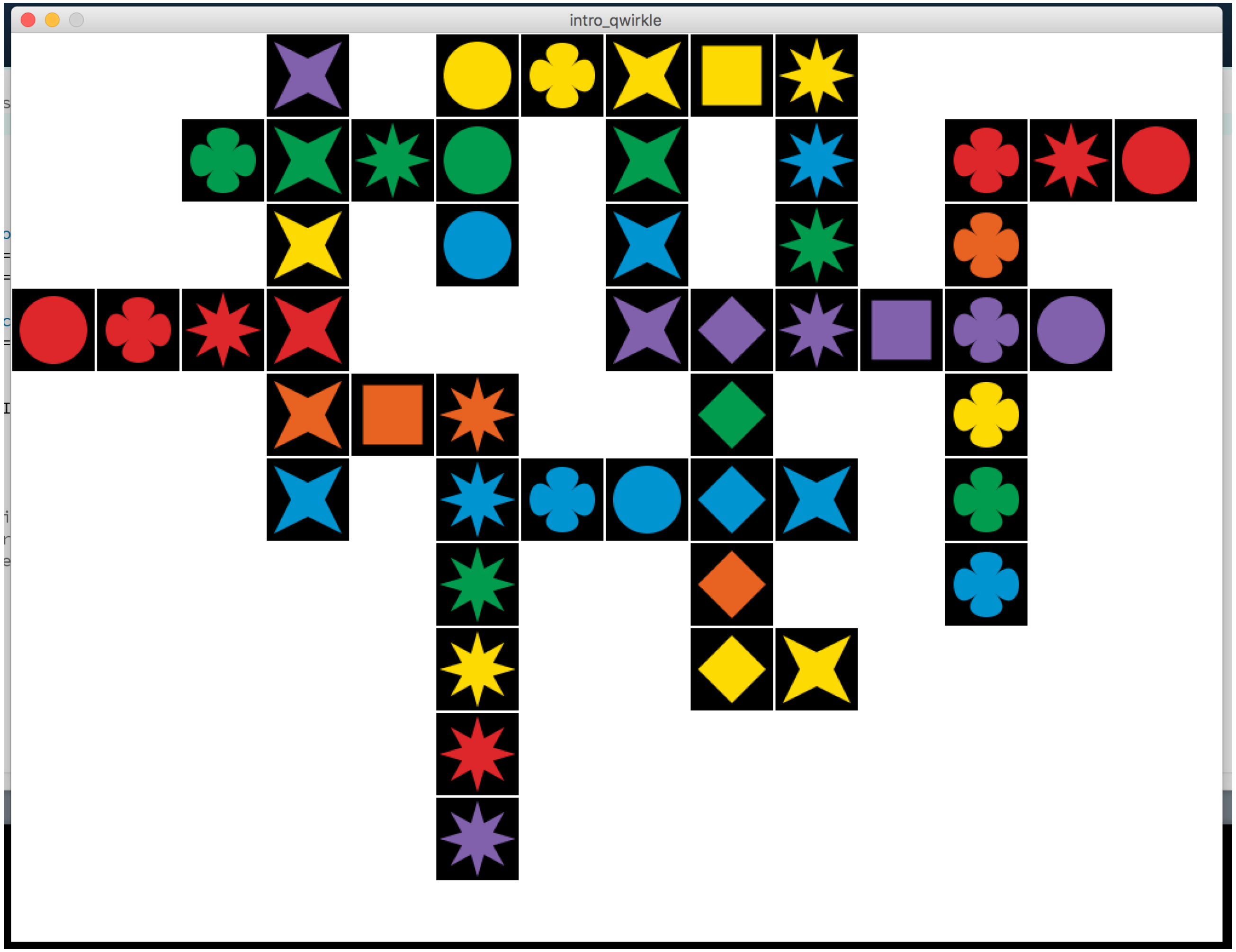
Painted wooden tiles, arranged in lines

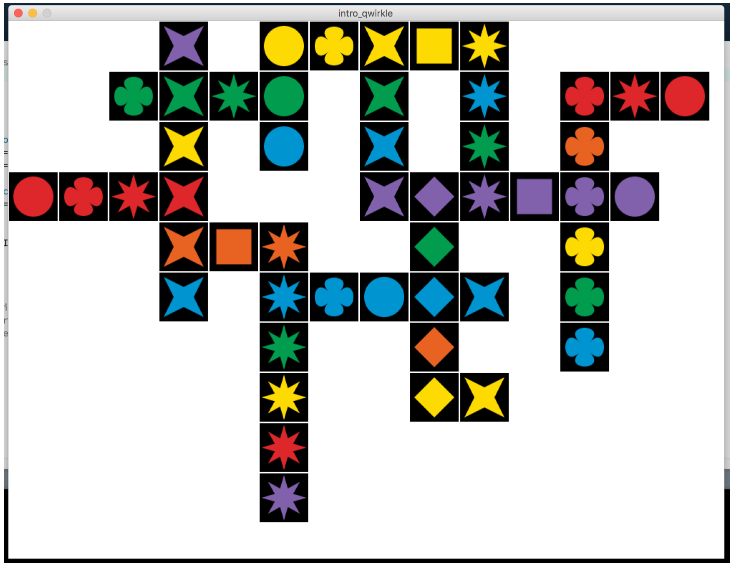
Write some code...



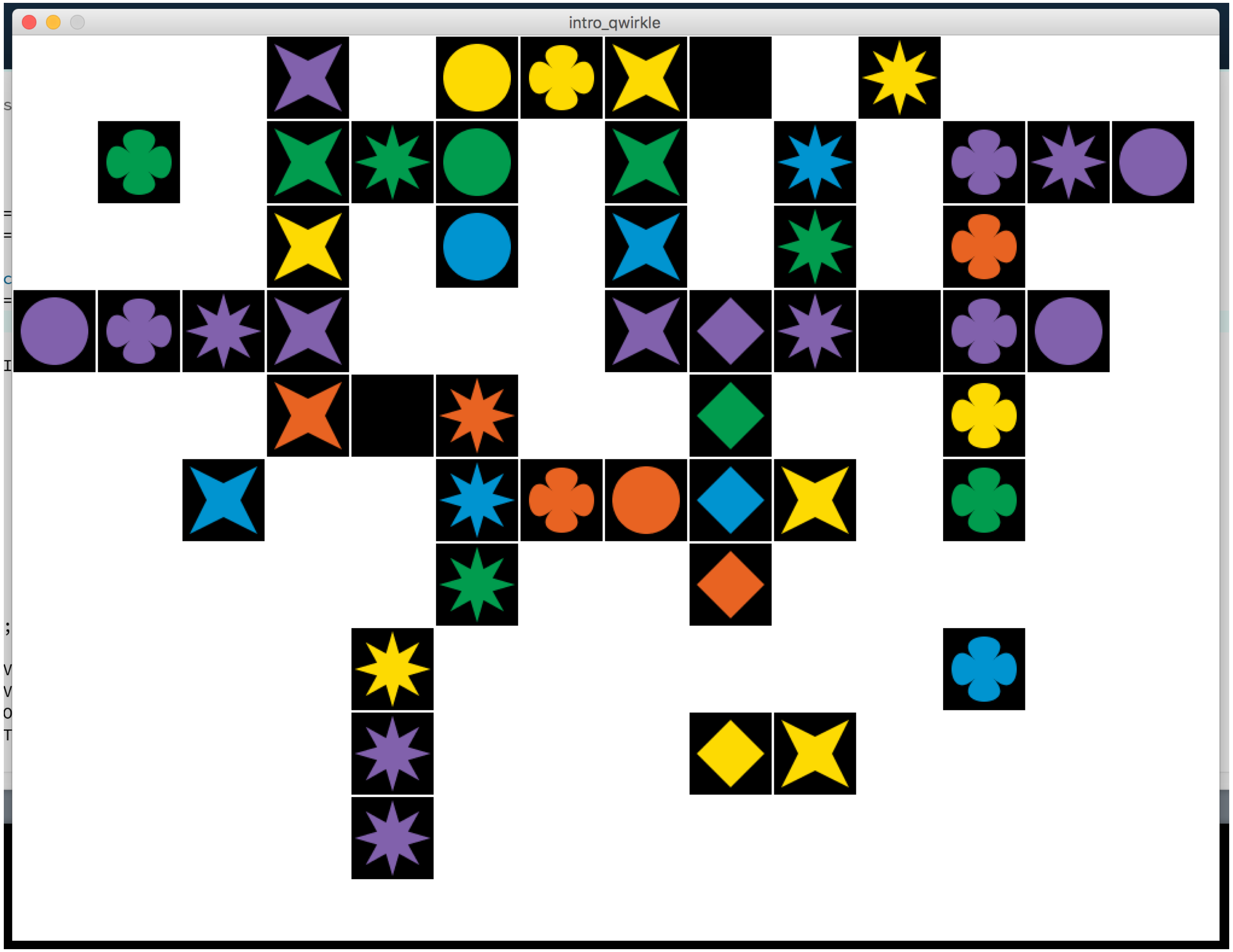
```
void cloverTile(int x, int y, color tileColor) {
  tileBackground(x, y);
  fill(tileColor);

  float cornerPercent = 0.4;
  float controlPercent = 0.02;

  // Top left
  float topLeftX = (x + cornerPercent) * TILE_SIZE;
  float topLeftY = (y + cornerPercent) * TILE_SIZE;
  float topLeftControlX = (x + controlPercent) * TILE_SIZE;
  float topLeftControlY = (y + controlPercent) * TILE_SIZE;

  // Top right
  float topRightX = (x + 1 - cornerPercent) * TILE_SIZE;
  float topRightY = (y + cornerPercent) * TILE_SIZE;
  float topRightControlX = (x + 1 - controlPercent) * TILE_SIZE;
```

Draw a Qwirkle board!




intro_qwirkle

Here is what we have to start:



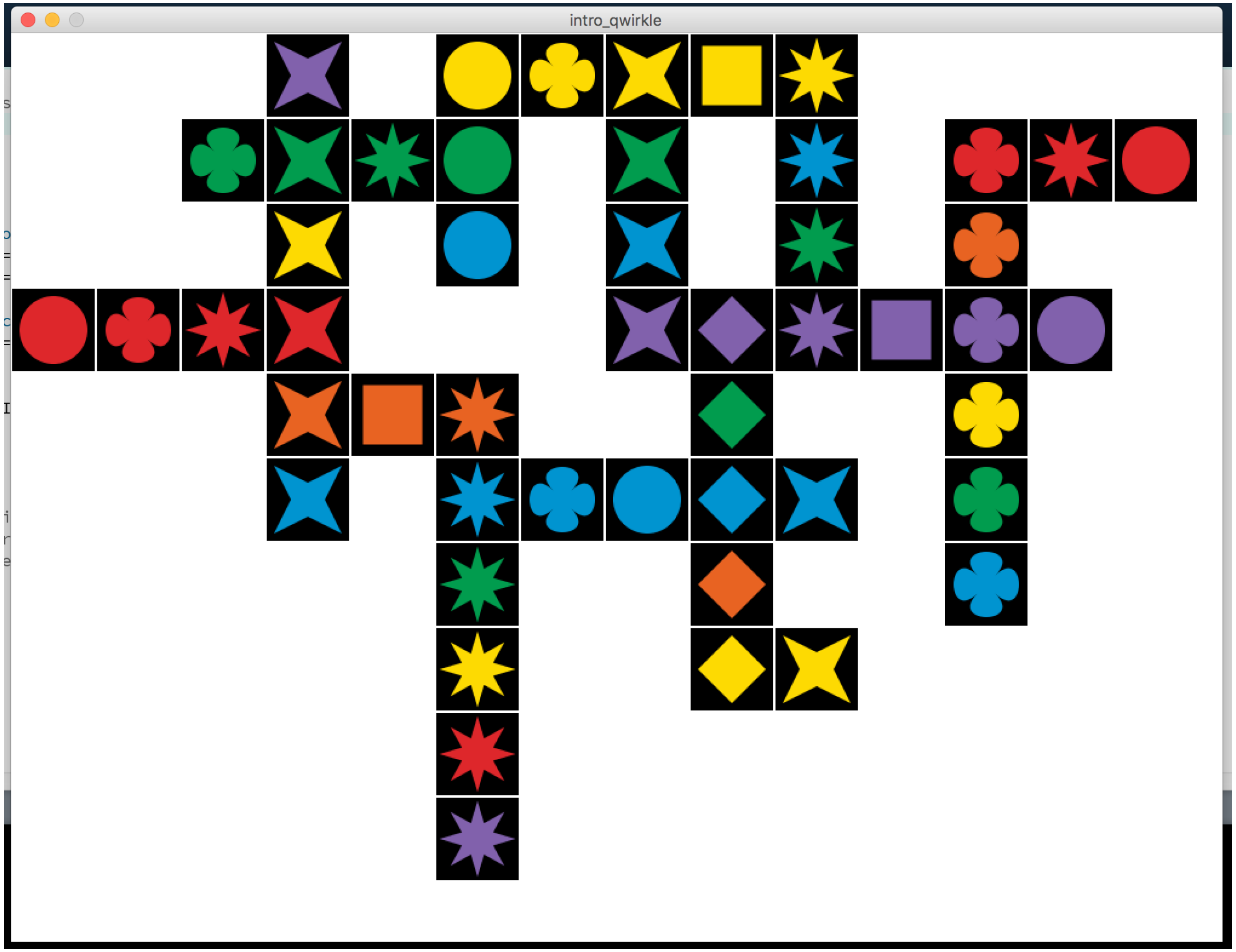
Download the starting code

1. Go to https://github.com/UtahRETC/ProgrammingIntroClass
2. Click "Clone or download"
3. Click "Download ZIP"
4. Extract contents
5. Navigate to "projects" -> "flag"

Homework Challenges

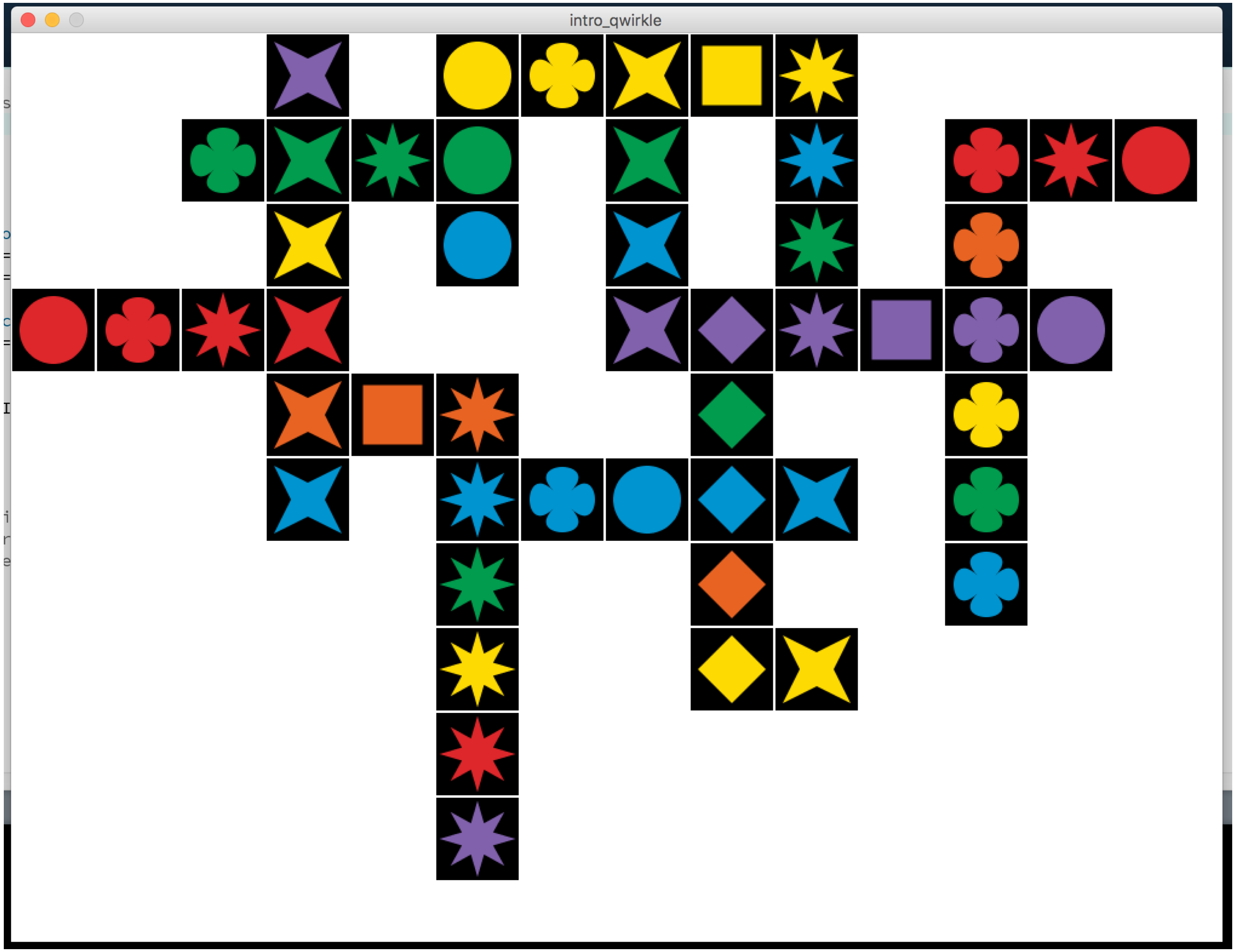
1. Put the tiles in the right places
2. Use the correct colors
3. Add the color `RED` and make the right tiles red
4. Put square tiles on the board

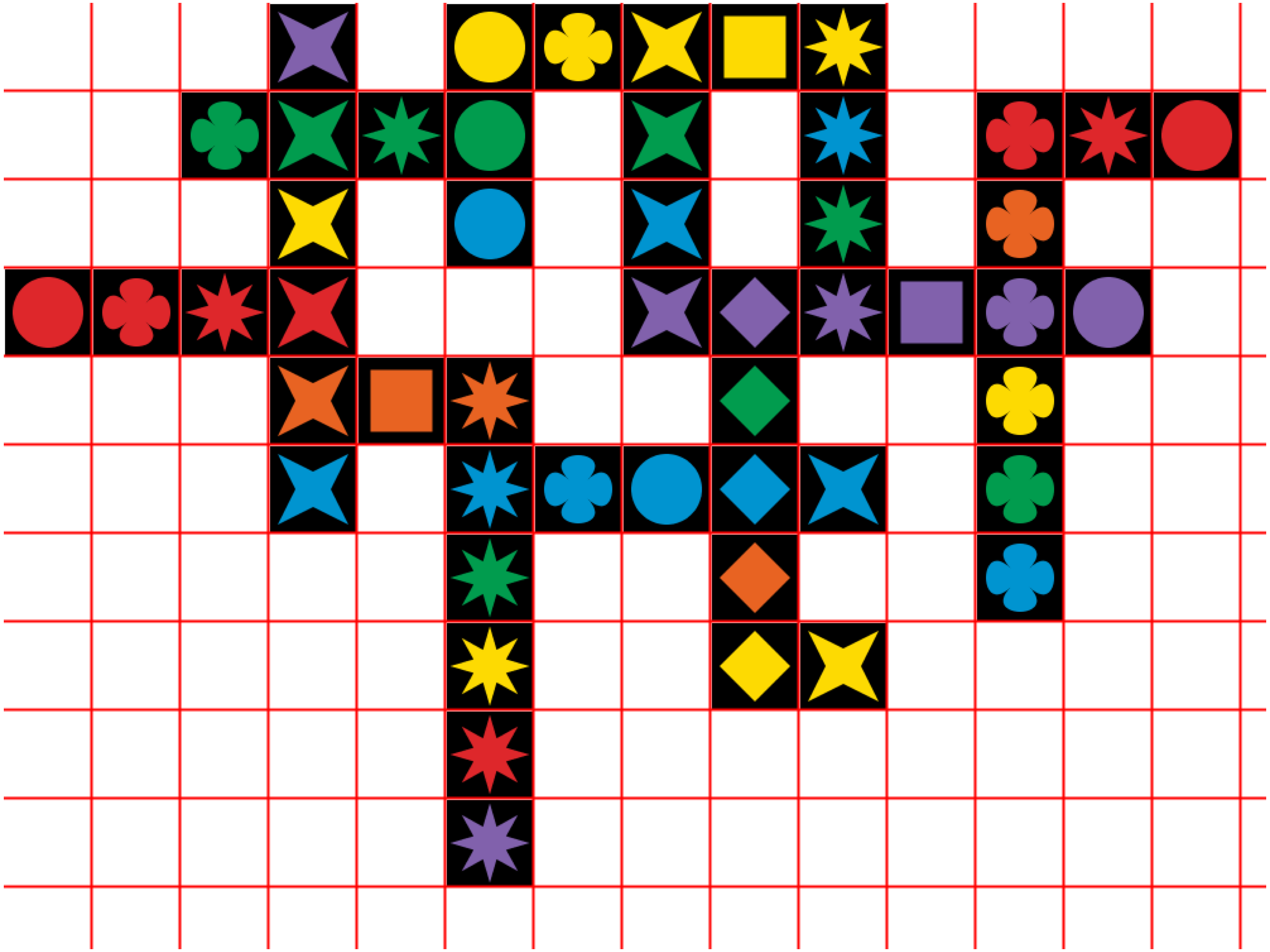
When your picture looks like this, you have completed all the challenges!

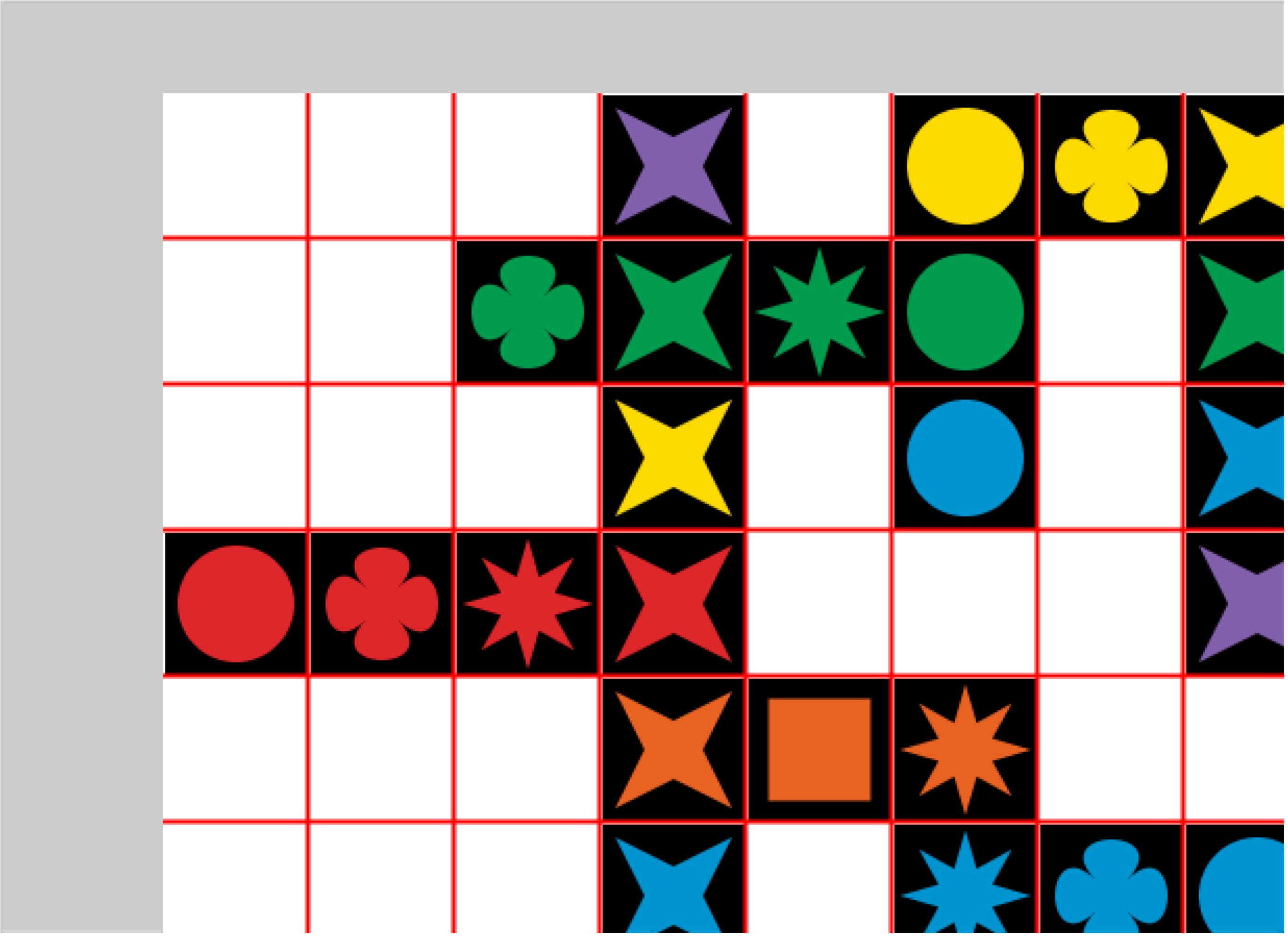


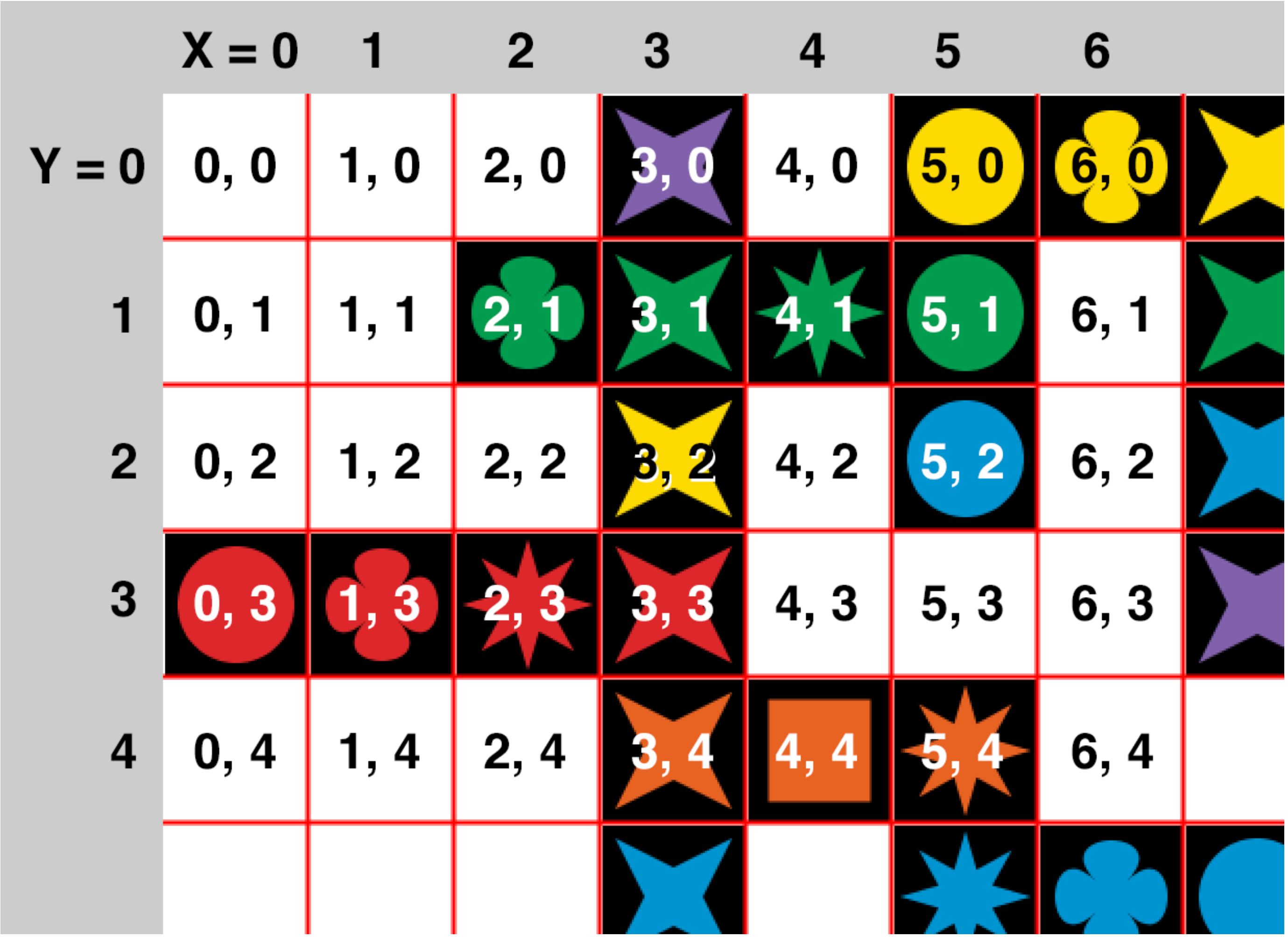
How will we do it?

Idea #1: Grid coordinates


intro_qwirkle







	X = 0	1	2	3	4	5	6
Y = 0	0, 0	1, 0	2, 0	3, 0	4, 0	5, 0	6, 0
1	0, 1	1, 1	2, 1	3, 1	4, 1	5, 1	6, 1
2	0, 2	1, 2	2, 2	3, 2	4, 2	5, 2	6, 2
3	0, 3	1, 3	2, 3	3, 3	4, 3	5, 3	6, 3
4	0, 4	1, 4	2, 4	3, 4	4, 4	5, 4	6, 4

```
starTile(4, 1, GREEN);

circleTile(5, 0, YELLOW);
```

Idea #2: Variables

Example: The `GREEN` variable saves information about color

```
// ...

final color YELLOW = color(253, 218, 2);
final color GREEN = color(1, 156, 78);
final color BLUE = color(0, 148, 208);

// ...

starTile(4, 1, GREEN);
```

Challenge: Add the color `RED` and make the right tiles red

Hint: You will define the variable like this:

```
final color RED = color(/* Put color info here */);
```

And you will use the variable like this:

```
circleTile(0, 3, RED);
```

Idea #3: Functions

We can use pre-made functions

```
rect(0, 0, 200, 400)
```

We can also make our own functions!

```
void circleTile(int x, int y, color tileColor) {
  tileBackground(x, y);
  fill(tileColor);
  float cx = (x + 0.5) * TILE_SIZE;
  float cy = (y + 0.5) * TILE_SIZE;
  float radius = TILE_SIZE * 0.8;
  ellipse(cx, cy, radius, radius);
}
```

Challenge: Put square tiles on the board

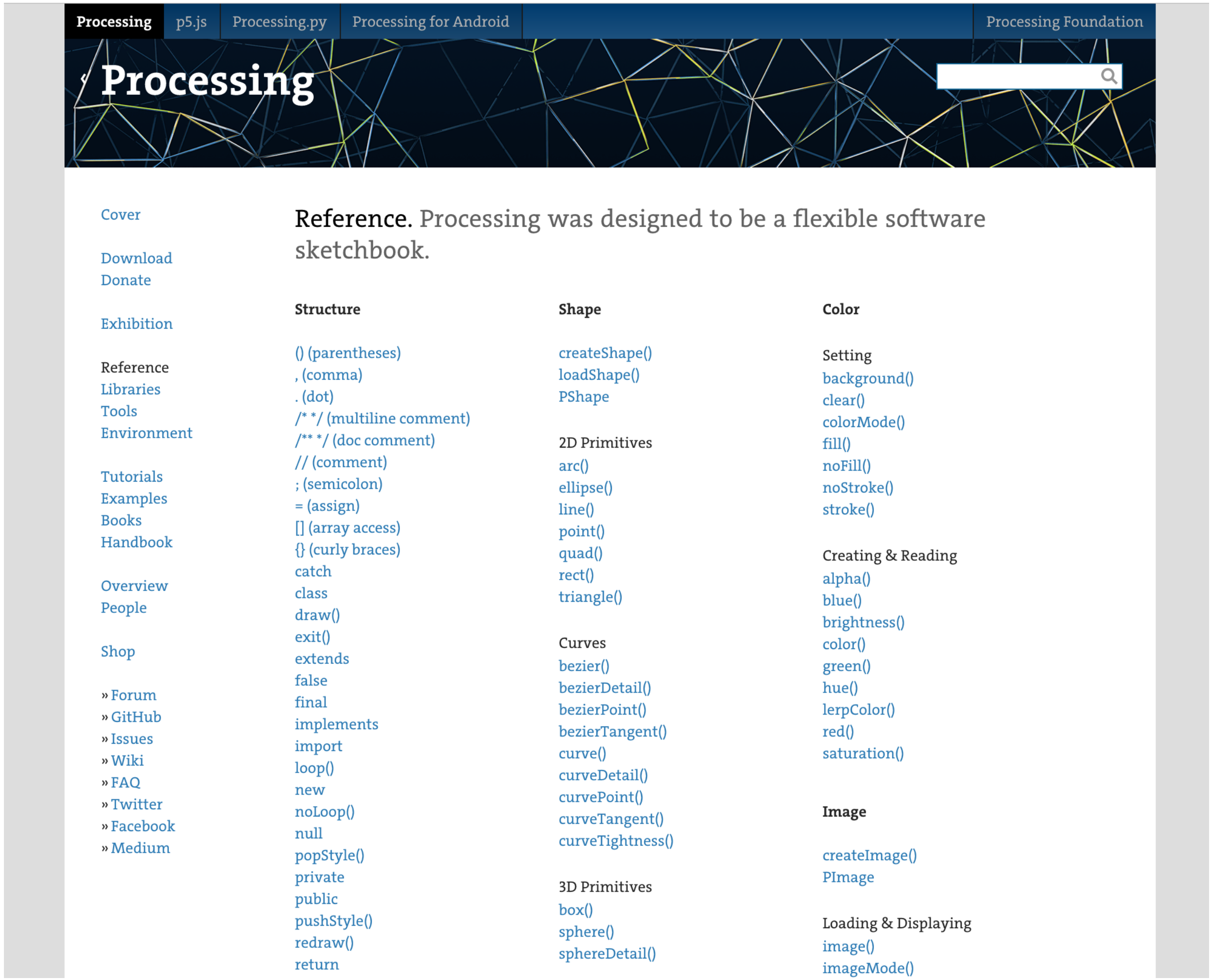
```
void squareTile(int x, int y, color tileColor) {
  tileBackground(x, y);
  fill(tileColor);

  // TODO: put your code for square tiles here!
  // Look at the circleTile function for a hint
}
```

Other ideas

- Look for patterns
- Try changing a number or a word
- Don't be afraid to make a mistake!

The Processing Reference

https://processing.org/reference/



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Reference. Processing was designed to be a flexible software sketchbook.

Structure

() (parentheses)
, (comma)
. (dot)
/* */ (multiline comment)
/** */ (doc comment)
// (comment)
; (semicolon)
= (assign)
[] (array access)
{} (curly braces)
catch
class
draw()
exit()
extends
false
final
implements
import
loop()
new
noLoop()
null
popStyle()
private
public
pushStyle()
redraw()
return

Shape

createShape()
loadShape()
PShape

2D Primitives
arc()
ellipse()
line()
point()
quad()
rect()
triangle()

Curves
bezier()
bezierDetail()
bezierPoint()
bezierTangent()
curve()
curveDetail()
curvePoint()
curveTangent()
curveTightness()

3D Primitives
box()
sphere()
sphereDetail()

Color

Setting
background()
clear()
colorMode()
fill()
noFill()
noStroke()
stroke()

Creating & Reading
alpha()
blue()
brightness()
color()
green()
hue()
lerpColor()
red()
saturation()

Image

createImage()
PImage

Loading & Displaying
image()
imageMode()

Turning in your homework:

- Email uretcjava@gmail.com
- Include your full name
- Send your code as an attachment