VISUALIZATION TECHNOLOGIES
MINI-PROJECT 3

Using the source: http://databank.worldbank.org/data/home.aspx, download the GDP growth (annual %) for all countries available from 2000 to 2017.

Create a layout to display all the countries: this may be a grid, or it may use the packed circles layout. Each country should display its own time series. You should choose a way to display the time series, knowing that several ways are suitable (e.g. line chart, bar chart, a sequence of circles, etc.).

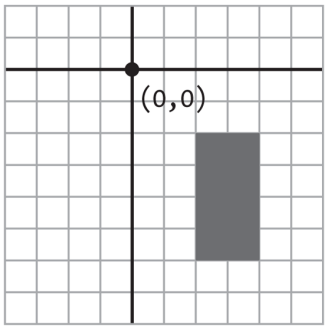
In order to implement this, create an array inside each country that holds its GDP growth values.

```
values[2000] = 2.12;
values[2001] = 3.44;
…
```

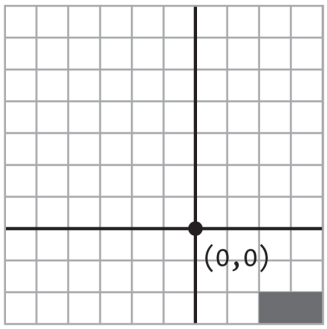
TRANSFORMATIONS: TRANSLATE, ROTATE, SCALE

These transformations change the screen coordinate system.

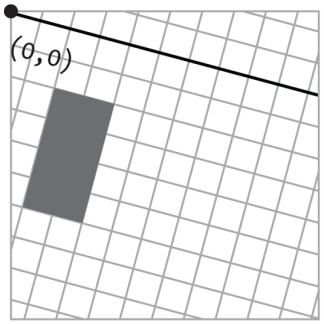
```
translate(40, 20);
rect(20, 20, 20, 40);
```



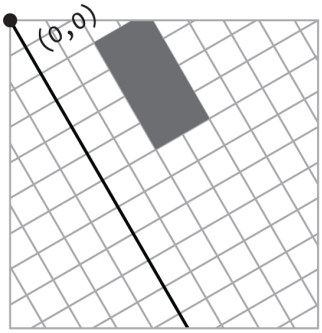

```
translate(60, 70);
rect(20, 20, 20, 40);
```



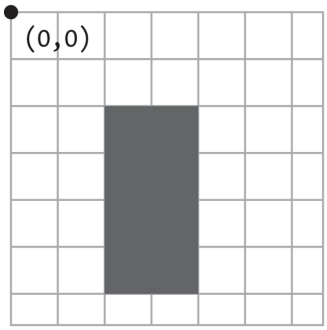

```
rotate(PI/12.0);
rect(20, 20, 20, 40);
```



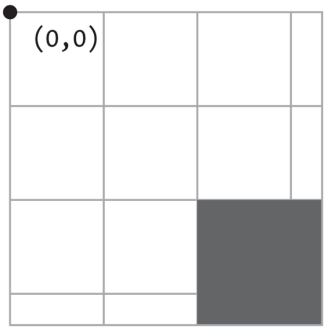

```
rotate(-PI/3);
rect(20, 20, 20, 40);
```




```
scale(1.5);
rect(20, 20, 20, 40);
```




```
scale(3);
rect(20, 20, 20, 40);
```



These transformations are cumulative. For example, if translate(0, 20) is called twice, that would be the same as calling translate(0, 40) once. It is possible to undo transformations by inverting then. For example rotate(PI/6) can be undone by a rotate(-PI/6) if called before any other transformations. In a similar way, a scale(2) can be undone by a scale(0.5). The order in which transformations are applied is important. A translate(width/2, height/2) followed by a rotate(PI/6) is different from a rotate(PI/6) followed by a translate(width/2, height/2). Test this. You should also consult Chapter 6 of “Make: Getting Started with p5.js”.

Assignment in class

By using translations and rotations, obtain a similar effect to the one in a1.mp4. You should also use rectMode(CORNER) and rectMode(CENTER).

The push() and pop() functions isolate the effects of transformations so that they do not affect drawing and other transformation calls. When push() is called, a copy of the current coordinate system is stored in memory, which is restored when pop() is called.

ASSIGNMENT 5

By using translations and rotations, as well as the push() and pop() functions, replicate the effect seen in a2.mp4.

READING FOR NEXT CLASS

Read chapter 7 of “Make: Getting Started with p5.js”.