VIZUALIZATION TECHNOLOGIES
MINI-PROJECT 2

Draw a clock that shows your system's time in a 24-hour format (HH:mm:ss). The canvas should scale with your browser window, and so should the clock scale. The clock should be centered in vertically and horizontally.

As time progresses, each character should change in size and color. You can use a sine function to obtain smooth transitions. Each character changes in size in relation to its own center.

The above mentioned motion should also be accompanied by a "ghost" effect. Implement this by overlaying three clocks at the same time while using the blendMode(SCREEN). The desired effect can be watched in "mini-project2.mp4". Use the typeface provided. When loading the typeface make sure you do it in the "preload()" function.

Start by creating a concatenated string by using the hour(), minute(), and second() functions. Utilize the nf() function to ensure that all the numbers are padded with a zero when needed. You should split this string into an array of characters, fo which you will use the split function:

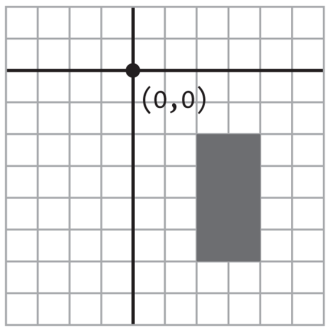
https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/String/split

Calling "hello".split("") outputs the array ["h", "e", "l", "l", "o"].

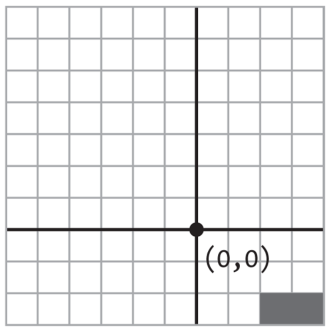
TRANSFORMATIONS: TRANSLATE, ROTATE, SCALE

These transformations change the screen coordinate system.

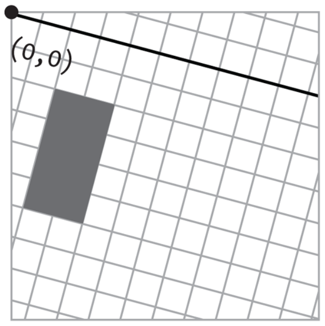
```
translate(40, 20);
rect(20, 20, 20, 40);
```



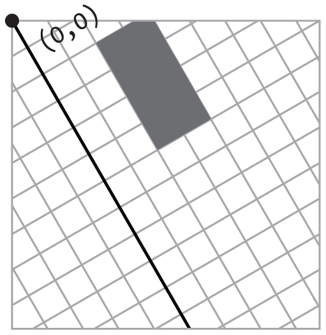
```
translate(60, 70);
rect(20, 20, 20, 40);
```



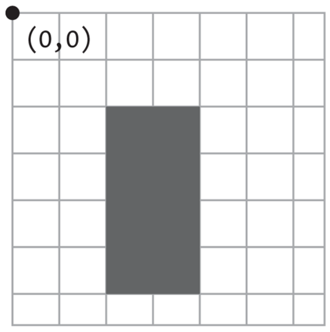
```
rotate(PI/12.0);
rect(20, 20, 20, 40);
```



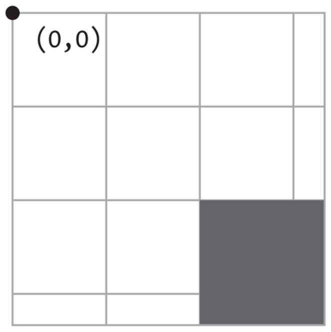
```
rotate(-PI/3);
rect(20, 20, 20, 40);
```



```
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”.