1 Lab 0

Goals

The goals for this lab are:

1. Set up your webpage in order to start developing p5.js code

Modality

This is an individual lab.

Overview

In order for us to build interesting interactive web based programs, we will need to go through a few steps in order to set up your webspace and development environment (i.e. your programming tools).

First, you need to configure your student account to be able to display/run your javascript code. To do this, you will need to:

- Become comfortable with some basic unix commands
  http://www.ee.surrey.ac.uk/Teaching/Unix/
- Become comfortable transferring files between your local work space and the CSC servers using a client for either:
  (windows)http://www.thegeekstuff.com/2011/06/windows-sftp-scp-clients/
  or mac http://mac.appstorm.net/roundups/internet-roundup/top-7-free-ftp-clients-for-mac/
  or not if you directly work on the linux machines.
- Become comfortable with some basic HTML
  https://developer.mozilla.org/en-US/docs/Web/Guide/HTML/Introduction
  (or many others)

1.1 Step 1: Setting up your student webspace

The very first step in this process is set up your own personal webspace on the CSC unix machines (you only need to do this once). Please read the "Web Directory" section of: https://wiki.csc.calpoly.edu/labs/wiki/LabFAQ about setting up a www directory as it has important information. Or in brief, you will need to log into one of the lab machines (e.g. unix1.csc.calpoly.edu or read https://wiki.csc.calpoly.edu/labs/wiki/UnixLoginServers for those very interested) and then you need to create a directory named **www**. To do this, assuming you are logged into a CSC unix machine, type everything after the greater then symbol and hit return:

```
08:24am unix2 ~> cd
08:24am unix2 ~> mkdir www
```

Now to set up permission correctly so that the world can see the files you put into "www" do the following:

```
08:24am unix2 ~> chmod a+x www
08:24am unix2 ~> chmod a+r www
08:24am unix2 ~> chmod a+x .
```

1.2 Step 2: Download base folder and set up for viewing

To help you get started, we have provided a base folder with an initial webspace and p5.js script to test. Please download the zipped file "cpe123.zip" from the web http://users.csc.calpoly.edu/~zwood/teaching/csc123/2016/cpe123.zip and copy it into your www folder **or** type:

```
08:24am unix2 ~> cd www
08:24am unix2 ~> cp ~zwood/www/teaching/csc123/2016/cpe123.zip .
```

Now you need to uncompress these files and make sure the permissions are correct. Type:

```
08:24am unix2 ~> unzip cpe123.zip
08:24am unix2 ~> chmod a+r cpe123/*
```

This base file has:

- An index.html file that you need to edit - change YOUR NAME to your name - you may also want to change the background color (feel free to change "bgcolor = 333388" to whatever color you'd like - refer to https://blog.crazyegg.com/2012/07/11/website-color-palettes/ for example color codings.
- A Lab.1 html - you do not need to edit this file - it just loads the javascript code in the file lab1_example.js

As is, you should be able to test whether these files are working correctly by going to your webpage - which will have a url of the same format as: http://users.csc.calpoly.edu/~zwood/ where you replace "zwood" with your login. Confirm that this works before moving on. Ask for help if this isn't working. Otherwise, please be sure to edit the index.html file to add your name.

In general, please follow the structure of this base file for all future labs. That is keep all your files for this quarter in your cpe123 folder and edit individual Lab#.html files that refer to associated lab javascript files.

You should be now ready to write code to create your first piece of computational art.

2 Lab 1

Goals

The goals for this lab are:

1. Practicing using P5.js (note I may refer to "P5.js" and "Processing" interchangeably)

2. Practice creating shapes using P5.js

3. Understand draw order and command ordering

4. Understand the Processing/P5.js 2D coordinate systems

5. Learn about expressionism

6. Make a picture of a creature in an expressionist style

Modality

This is an individual lab.

Overview

Expressionism: "A term used to denote the use of distortion and exaggeration for emotional effect, which first surfaced in the art literature of the early twentieth century. When applied in a stylistic sense, with reference in particular to the use of intense colour, agitated brushstrokes, and disjointed space. Rather than a single style, it was a climate that affected not only the fine arts but also dance, cinema, literature and the theatre." [1]

Expressionist art typically includes exaggeration to express the artists impression and sentiment about the world. Intense colors and contrasting

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[1]http://www.artmovements.co.uk/expressionism.htm

shapes allows the artist to include bold emotional tones in response to their subject.

We will be creating a representation of a creature (real animal or fictitious but something that has bi-lateral symmetry and a face) in an expressionist style. For example, consider 'Happy Yellow Cow' by Franz Marc or please see the class pinterest board for examples of expressionist animals.

Figure 1: Example of an expressionist animal painting "Happy Yellow Cow" by Franz Marc.

Details

Task: You must create an image using P5.js of a creature. Your 'sketch' of the creature must:

- *be in a file named lab1_example.js*
- be created using at least 4 different shape types (see the list below).
- have at least 5 appendages. Examples of an appendage include: ears, legs, arms, wings, teeth, antennae, etc.
- be of size 400 by 400 pixels
- be in color.
- be expressive! Your creature must show some kind of emotion. How does your creature feel today?
- your background coloring and shapes must also be expressive (background must include at least 2 different colored components)

In addition, try to make your creature look expressive (i.e. how does your creature feel at this moment of being drawn?) and be sure to have that expression be something you feel or have recently felt.

First:! Please start by identifying what kind of animal you would like to model. Find a reference image. It can be an actual photograph of the animal you are interested in or an expressionist painting.

Next: Next, actually sketch your creature on paper (include coordinate labels to help you stay oriented). This is to help you in your reasoning

about the coordinate system. You can also use digital graph paper, see the reference at the end of this assignment. For example see Figure 1.
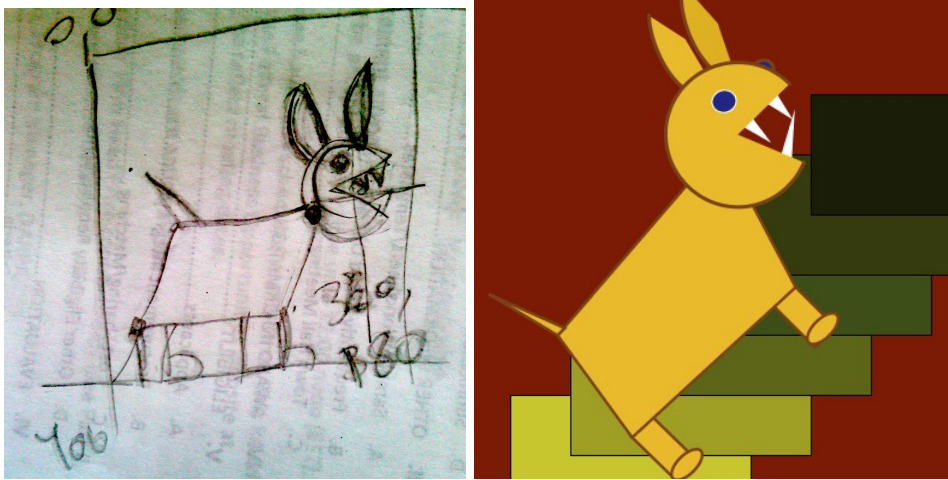

Figure 2: On the left is the initial sketch of an angry bunny. On the right is the final expressionist sketch.

Next: Write code to create the creature you have designed!

In order to do this, on your own machine, you may first need to download a text editor (that you will use to write your code with). This quarter we will all be using Sublime text http://www.sublimetext.com/.

Once you have downloaded (or found out how to run sublime on the lab machines). Create a sketch using P5.js of your creature. Do this by editing the code in lab1_example.js. Edit only within the draw function - that is:

```
function draw() {
background(128);

\\EDIT here
fill(128, 34, 56);
ellipse(310, 310, 50, 70);


}
```

Have fun!

Feedback: Show your sketch to other students and get feedback. Get more feedback! You may get help from other students if you dont know how to do something in Processing. They may not type for you.

Demo:

In order to receive credit for this lab, you must demo your sketch to your instructor or TA. For every lab, your score will be broken down 75% for meeting the technical requirements and 25% for aesthetics. This means that your sketch will be graded on how it looks - this grade is predominantly decided based on effort - i.e. did you attempt to make a visually pleasing sketch that fits the specifications or did you do the bare minimum?

Rubric for Grading

Your sketch will be graded based on:

- 25 points: creature has 4 different shapes
- 25 points: creature has at least 5 appendages
- 10 points: background is colorful and has shapes
- 15 points: color and shape is used to convey an emotion (can I tell which one?)
- 25 points: Sketch is expressive, interesting and appealing

Submitting your sketch

You must post an image of your sketch to your pinterest "123 Computational Art" board. You can do this by clicking the '+' symbol and uploading a 'pin' to your board. Please also pin your reference art. I expect that you will pin at least one source image for all labs! For full credit for any lab, I expect to see reference images.

3   Resources

You can use various tools to select the colors for your sketch (consider sampling from a real painting). For example on an Apple computer you can use the 'DigitalColor Meter'. And you might find using digital graph paper helpful. One online resource for this is: http://tommaitland.net/graphpaper/

Please explore P5.js at: https://p5js.org/

To create shapes in Processing, you have various choices. Some of them are:

1. `line(x1, y1, x2, y2)`

2. `triangle(x1, y1, x2, y2, x3, y3)`

3. `quad(x1, y1, x2, y2, x3, y3, x4, y4)`

4. `rect(x, y, width, height)`

5. `ellipse(x, y, width, height)`

6. arc(x, y, width, height, start, stop)

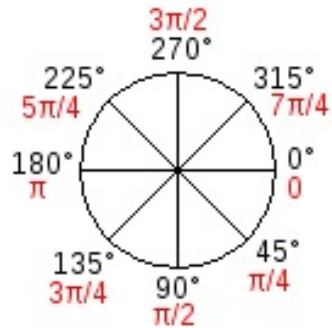**Note clockwise ordering! and remember about degrees and radians.**

Figure 3: Conversion of degrees to radians - and the 'rotation' convention in Processing.

Note that when drawing a shape you can control some of its properties. Commands that are useful are:

- smooth();

- stroke(r, g, b); or stroke(grey) or textttstroke(hexadecimal);

- strokeWeight(pixels);

- noStroke();

- fill(r, g, b); or fill(grey); or fill(hexadecimal)