

Creative Coding

Professor Danne Woo

creativecode.dannewoo.com

ARTS 249

Fall 2019

Thursday 2:00 PM – 5:50 PM

I-Building 213

Static Visual Design

Week 01: Intro to programming, Processing and creative coding

Week 02: Forms, Shapes and Variables

Week 03: Computational Color and Export

Week 04: Repetition, Decisions and Randomization

Week 05: Functions, Classes and Typography

Week 06: Data Visualization

Week 07: Midterm Presentation

Design is relationships. That is where you start.

- Paul Rand

Basic Relationships

Format - How big is my canvas?

Shape - Rectangle? Triangle? Ellipse?

Position - Where do we place it?

Dimension - What size should it have?

Rotation - Do I turn it?

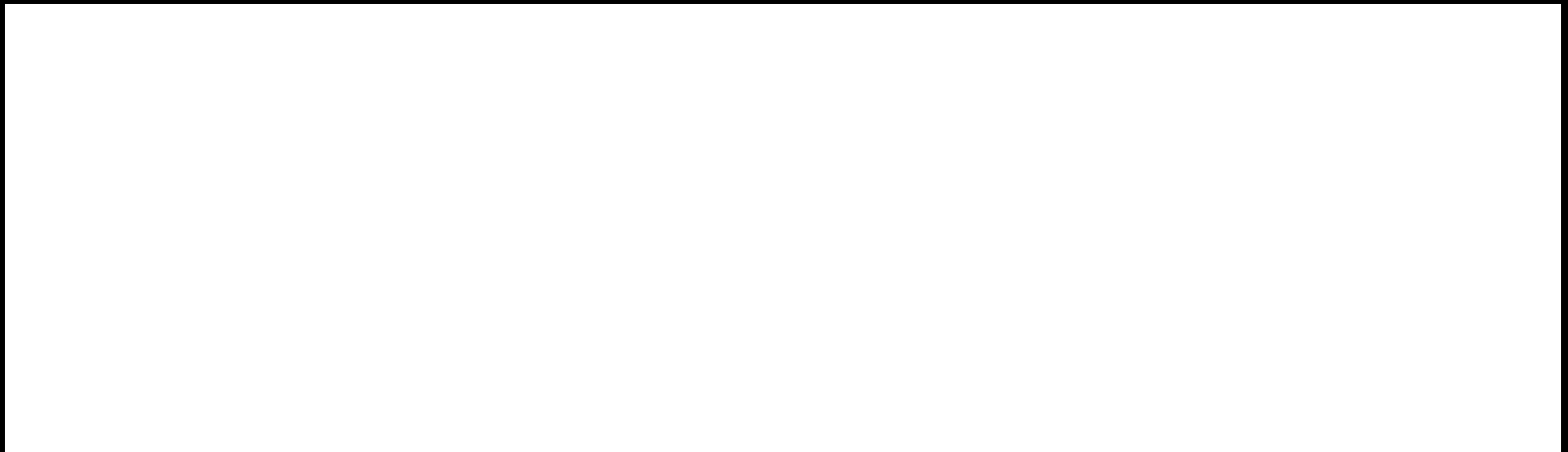
Format



Canvas



Canvas



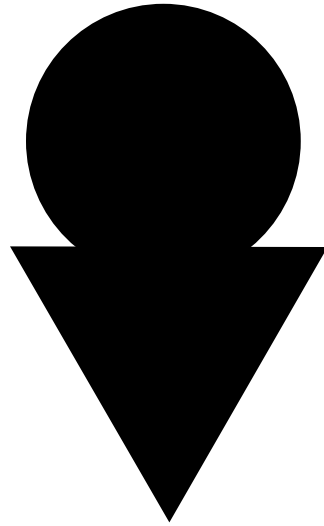
Canvas



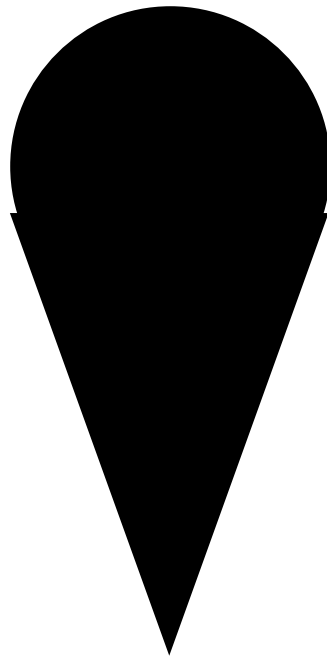
Shape



Position



Dimensions

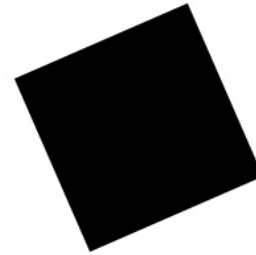


Rotation



Symbolism

Playful



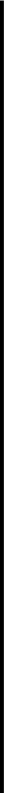
Symbolism

Heavy



Symbolism

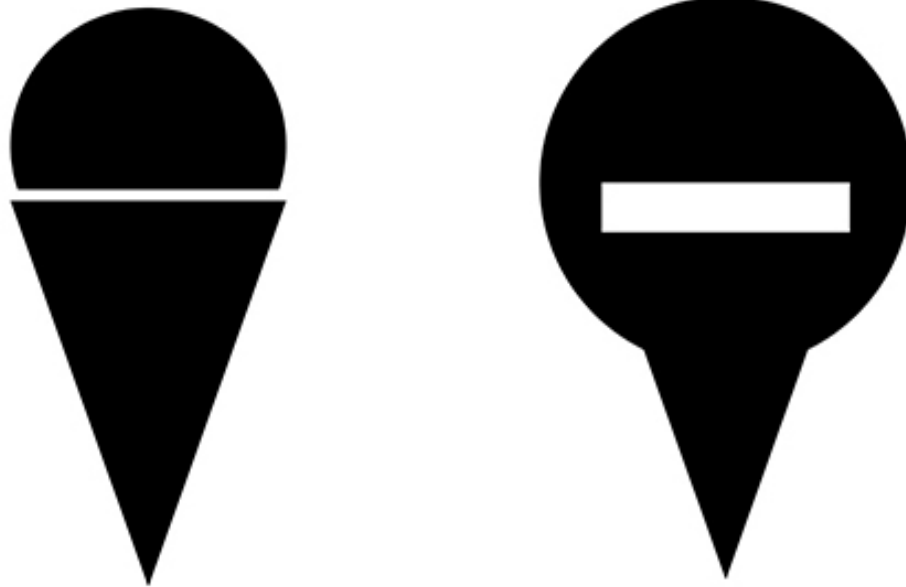
Sharp

A single vertical black line is positioned in the center of the white rectangular area, extending from the top to the bottom of the rectangle.

Symbolism

Scared

Ice Cream Cone





Shaver Edge

Shaver

edge

Shaver

edge

beethoven

tonhalle grosser saal
dienstag, den 22. februar 1955,
20.15 uhr
4. extrakonzert
der tonhalle-gesellschaft

leitung carl schuricht
solist wolfgang schneiderhan

beethoven ouverture zu «coriolan», op. 62
violinkonzert in d-dur, op. 61
siebente sinfonie in a-dur, op. 92

vorverkauf tonhalle-kasse, hug, jecklin,
kuoni
karten zu fr. 3.50 bis 9.50

entwurf: j. edler, schneiderhan, schuricht, wolfgang schneiderhan

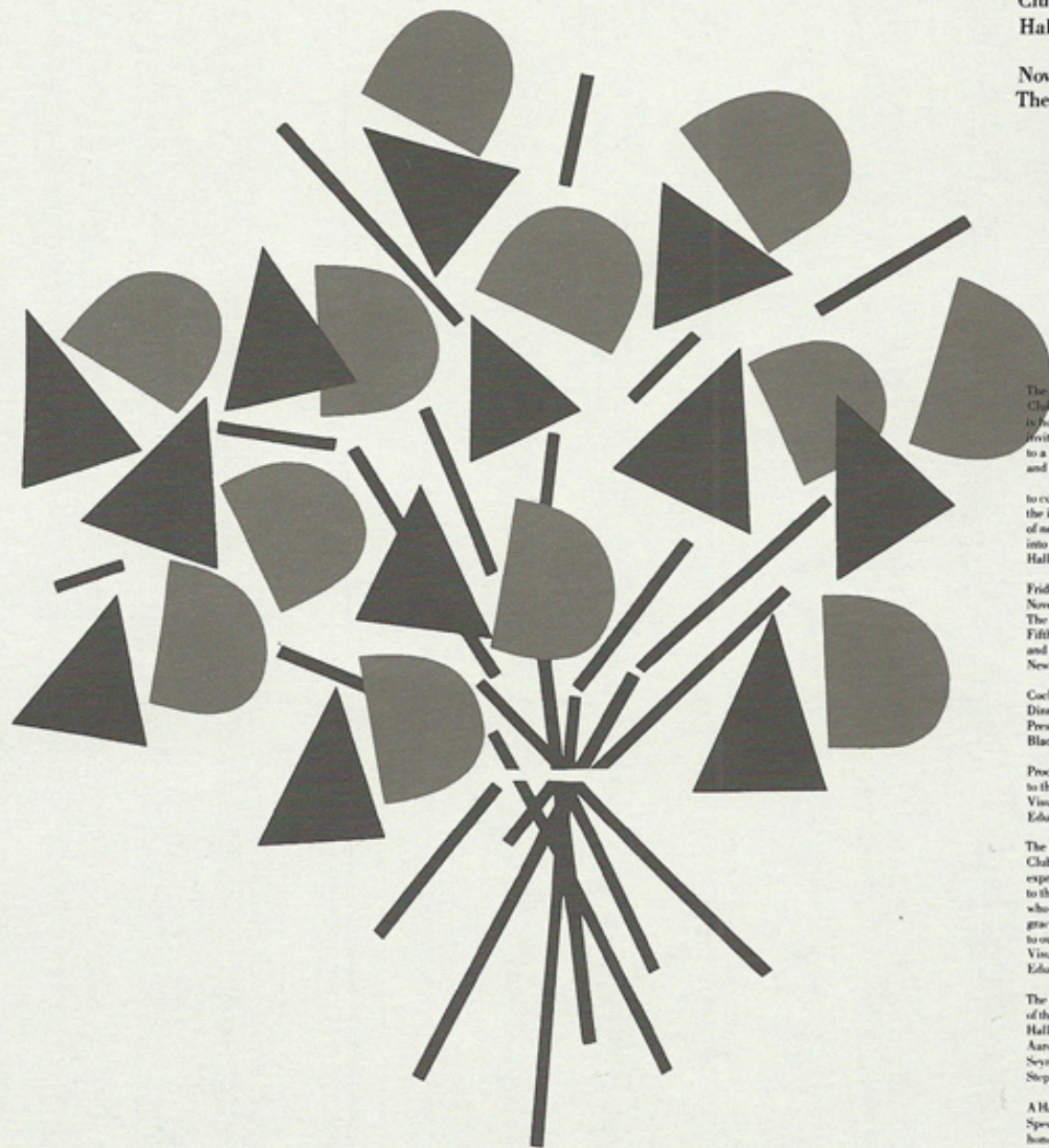
Anthologie de musique suisse

Un panorama
de la musique suisse
du 9ème siècle jusqu'à nos jours

Sur 50 disques
d'éminents artistes suisses
interprètent
257 œuvres de 142 compositeurs

Renseignements,
prospectus et vente
par votre marchand de disques

Communauté de travail
pour la diffusion
de la musique suisse



The Art Directors
Club
Hall of Fame

November 4, 1983
The Pierre

The Art Directors
Club
is honored to
invite you
to a reception
and dinner

to commemorate
the induction
of new members
into its
Hall of Fame

Friday,
November 4, 1983
The Pierre
Fifth Avenue
and 61st Street
New York City

Cocktails at 7
Dinner at 8
Presentation at 9
Black tie preferred

Proceeds will go
to the Club's
Visual Communications
Education Fund

The Art Directors
Club
expresses its gratitude
to the patrons
who have given their
gracious support
to our
Visual Communications
Education Fund

The 1983 Laureates
of the
Hall of Fame are:
Aaron Burns
Seymour Chwast
Stephen Frankfurt

A Hall of Fame
Special Award
honoring
Bill Bernbach
will be presented

and JOSEPH N. WELCH as Judge Weaver

GEORGE C. SCOTT/ORSON BEAN/RUSS BROWN/MURRAY HAMILTON/BROOKS WEST screenplay by WENDELL MAYES from the best-seller by ROBERT TRAVER photography by SAM LEAVITT produced & directed by OTTO PREMINGER/a Columbia release
▶ music by Duke Ellington ◀



© 1982 VOLKSWAGEN OF AMERICA, INC.

Think small.

Our little car isn't so much of a novelty any more.

A couple of dozen college kids don't try to squeeze inside it.

The guy at the gas station doesn't ask where the gas goes.

Nobody even stares at our shape.

In fact, some people who drive our little

flivver don't even think 32 miles to the gallon is going any great guns.

Or using five pints of oil instead of five quarts.

Or never needing anti-freeze.

Or racking up 40,000 miles on a set of tires.

That's because once you get used to

some of our economies, you don't even think about them any more.

Except when you squeeze into a small parking spot. Or renew your small insurance. Or pay a small repair bill. Or trade in your old VW for a new one.

Think it over.



Automobil-Club der Schweiz

schützt das Kind !

Hersteller: Maffei S.p.A. - Druck: Litografica e Cartoleria A.B. Zurich



Rune Madsen

Tiny Artists 4-6



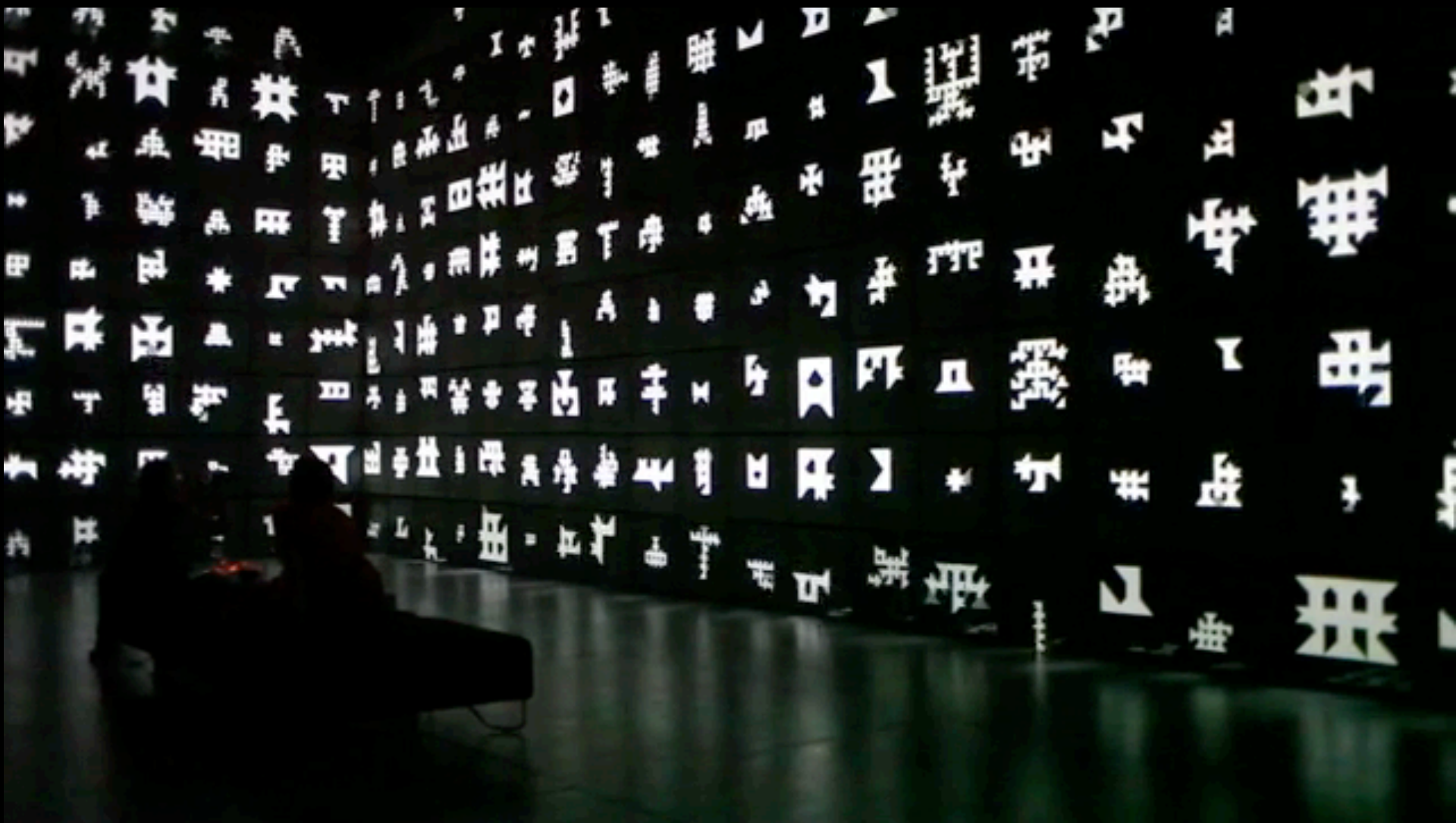
Jonathan Puckey

Delaunay Raster



Field

Communion



Basic Relationships

Format - How big is my canvas?

Shape - Rectangle? Triangle? Ellipse?

Position - Where do we place it?

Dimension - What size should it have?

Rotation - Do I turn it?



p5.js

Processing fun times JavaScript quirkiness

Home

Reference

Search the API

Download

Can't find what you're looking for? You may want to check out [p5.dom](#) or [p5.sound](#).

Start

You can download an offline version of the reference [here](#).

Reference

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[clear\(\)](#)

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[colorMode\(\)](#)

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[hue\(\)](#)

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[lerpColor\(\)](#)

[lightness\(\)](#)

[red\(\)](#)

Basic Relationships (Code)

Format - `createCanvas()`, `background()`

Shape - `point()`, `line()`, `rect()`, `ellipse()`, `triangle()`, `quad()`, `beginShape()`, `endShape()`, `vertex()`, `bezierVertex()`, `curveVertex()` also covering `ellipseMode()`, `rectMode()`, `fill()`, `noFill()`, `stroke()`, `noStroke()`, `strokeWeight()`

Position - `rect(10, 20, 10, 10)`, `translate()`, `push()`, `pop()`

Dimension - `rect(10, 20, 10, 10)`, `scale()`

Rotation - `rotate(PI)`, `radians(180)`

Variables - `var`, `width`, `height`, `displayWidth`, `displayHeight`

Processing Variables

String

String word = "Hello world!";

int (integer)

int wholeNum = 50;

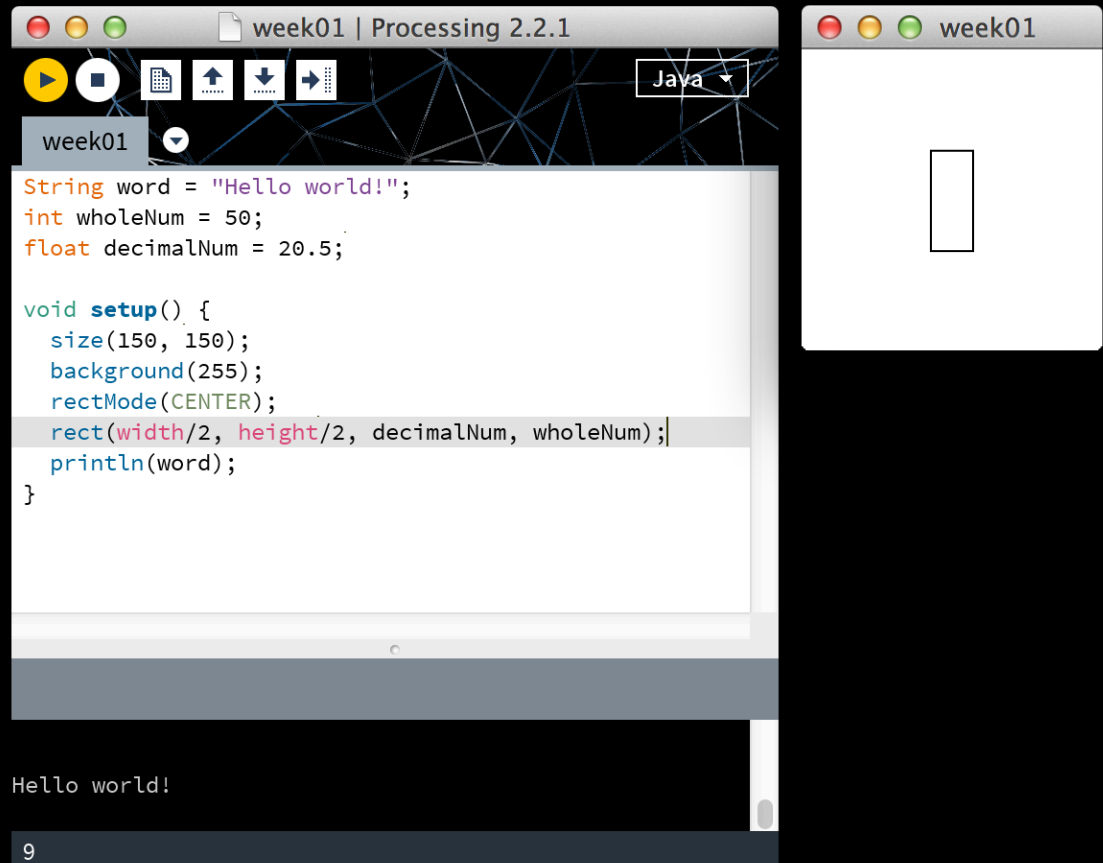
float (decimal)

float decimalNum = 20.5;

Processing Variables

width = canvas width;

height = canvas height;



p5js Variables

String

```
var word = "Hello world!";
```

int (integer)

```
var wholeNum = 50;
```

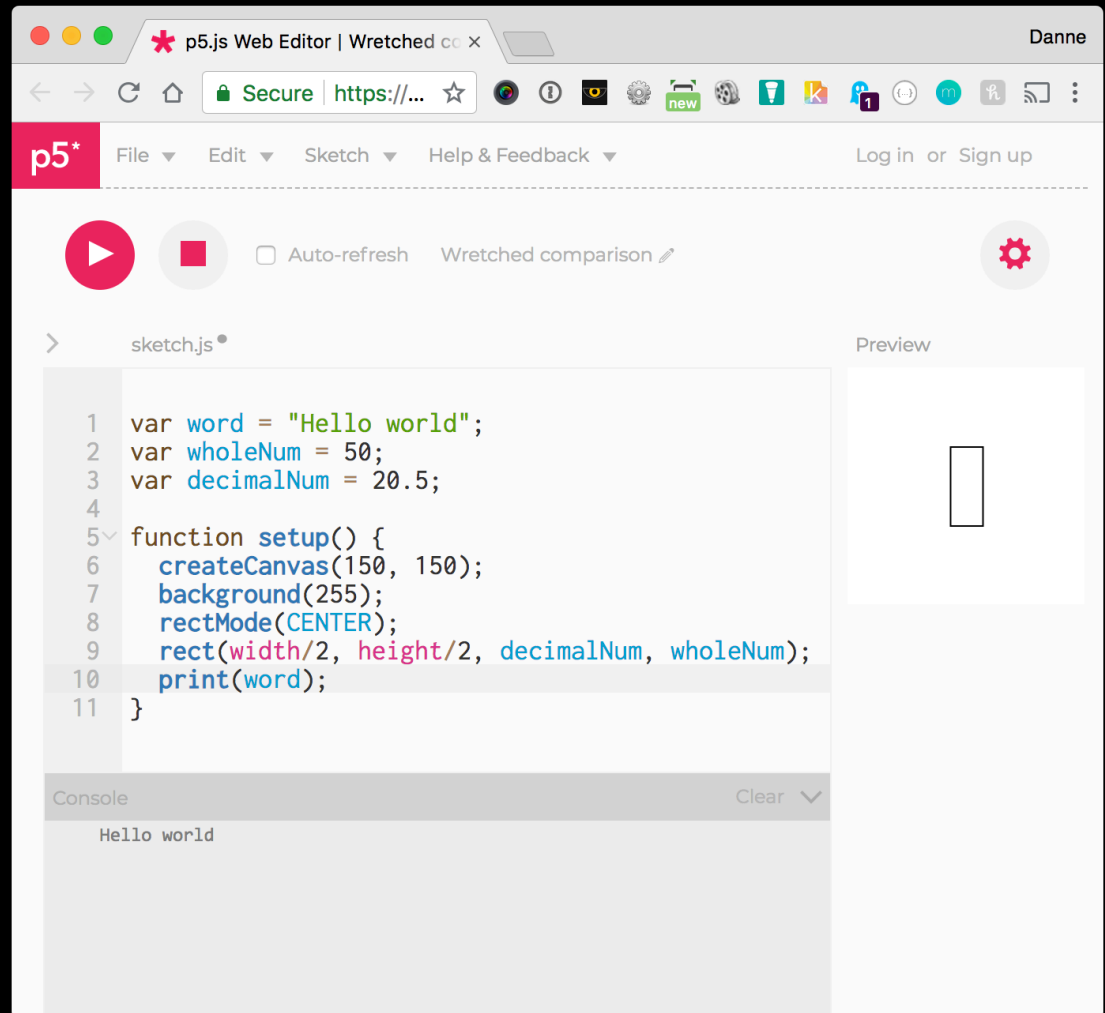
float (decimal)

```
var decimalNum = 20.5;
```

p5js Variables

```
width = canvas width;
```

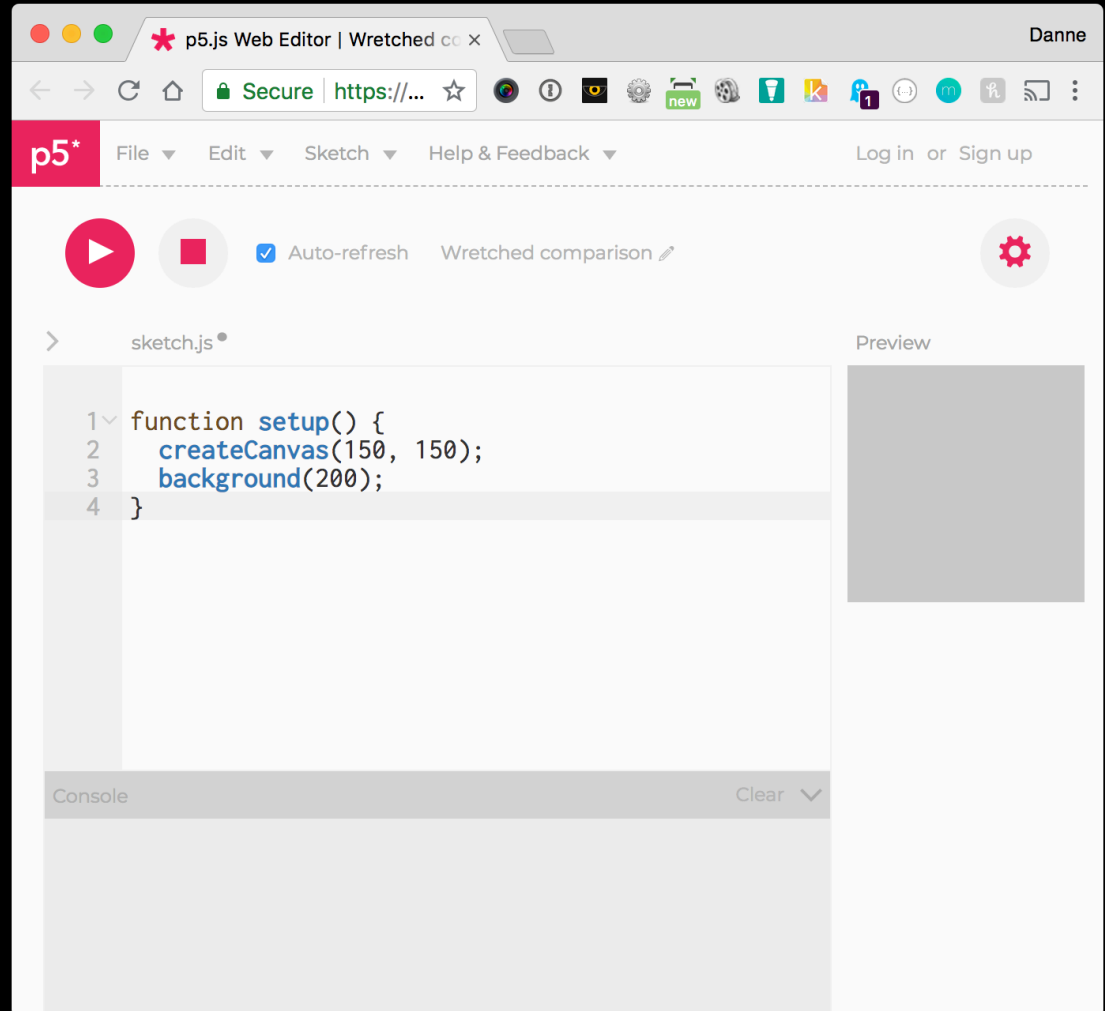
```
height = canvas height;
```



Format

createCanvas(150, 150);
createCanvas(width, height);

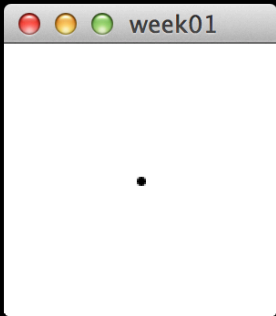
background(200);
background(color);



Shape/Position/Dimensions

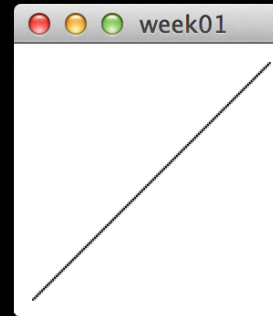
point(75, 75);

point(x, y);



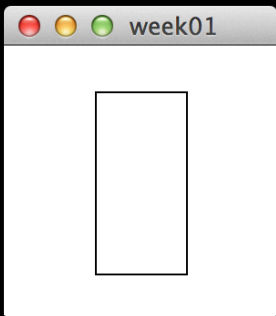
line(10, 100, 100, 10);

line(x1, y1, x2, y2);



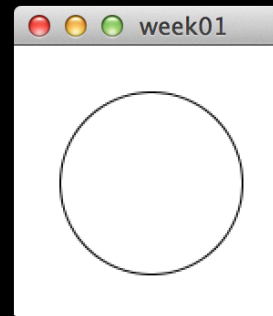
rect(50, 25, 50, 100);

rect(x, y, width, height);



ellipse(75, 75, 100, 100);

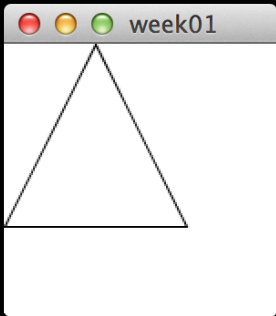
ellipse(x, y, width, height);



Shape/Position/Dimensions

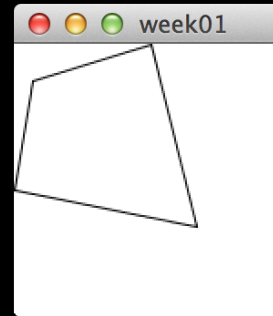
```
triangle(50, 0, 100, 100, 0, 100);
```

```
triangle(x1, y1, x2, y2, x3, y3);
```



```
quad(10, 20, 75, 0, 100, 100, 0, 80);
```

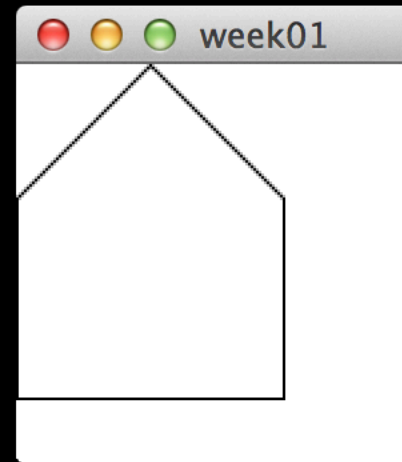
```
quad(x1, y1, x2, y2, x3, y3, x4, y4);
```



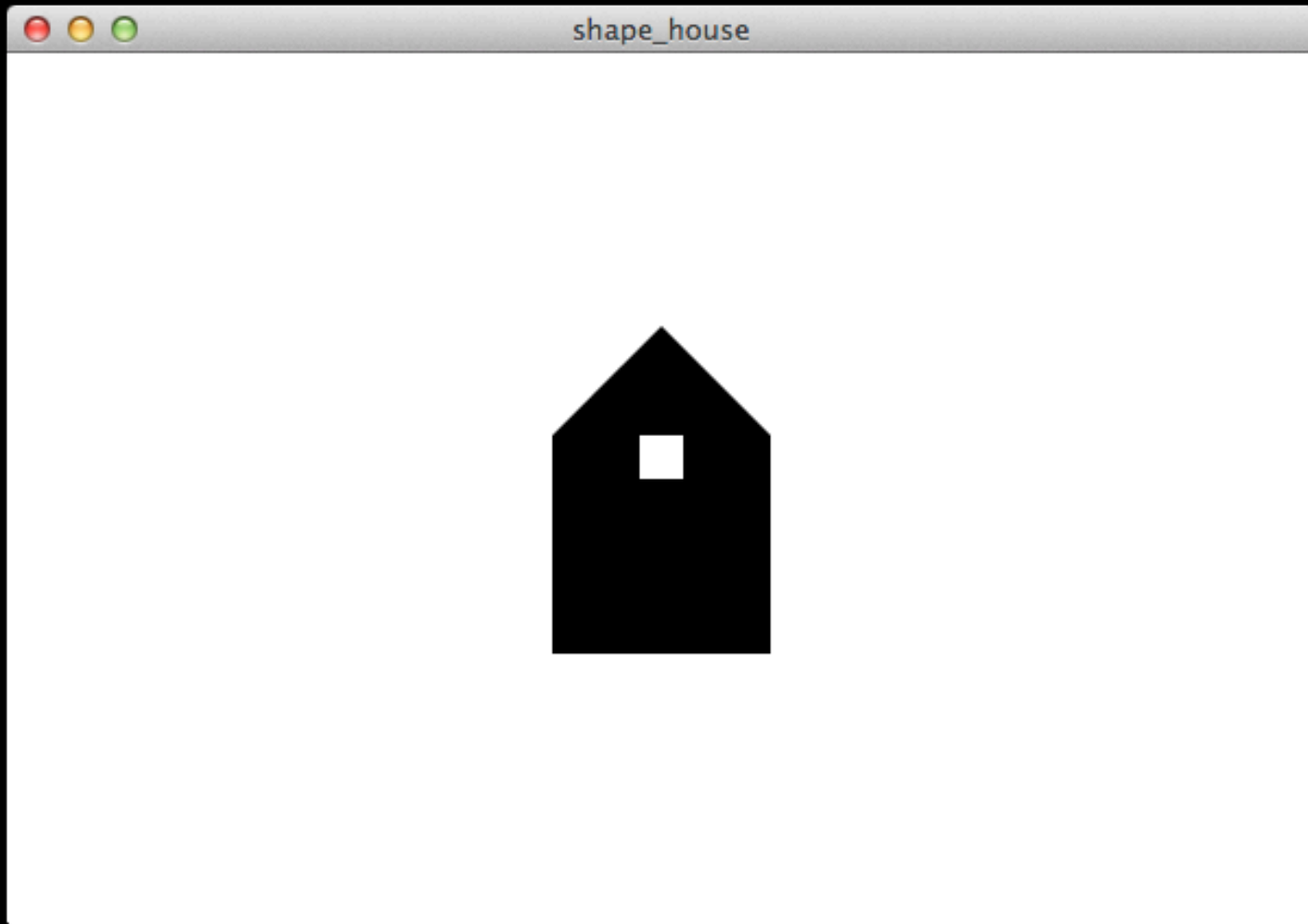
Shape/Position/Dimensions

```
beginShape();  
vertex(50, 0);  
vertex(100, 50);  
vertex(100, 125);  
vertex(0, 125);  
vertex(0, 50);  
vertex(50, 0);  
endShape();
```

```
vertex(x, y);
```



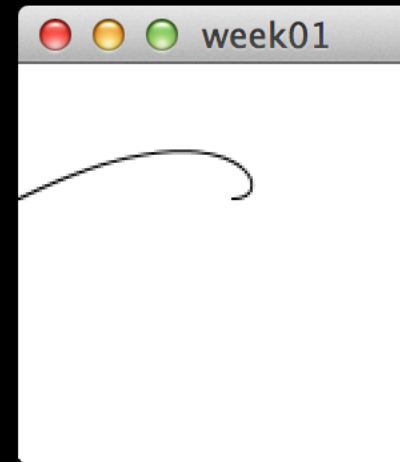
Shape/Position/Dimensions



Shape/Position/Dimensions

```
beginShape();  
vertex(0, 50);  
bezierVertex(50, 25, 75, 50, 50, 50);  
endShape();
```

```
vertex(x, y);  
bezierVertex(x1, y1, x2, y2, x3, y3);  
x1, y1 = first control point  
x2, y2 = second control point  
x3, y3 = anchor point
```



Shape/Position/Dimensions

```
beginShape();
```

```
vertex(0, 50);
```

```
bezierVertex(50, 25, 75, 50, 50, 50);
```

```
endShape();
```

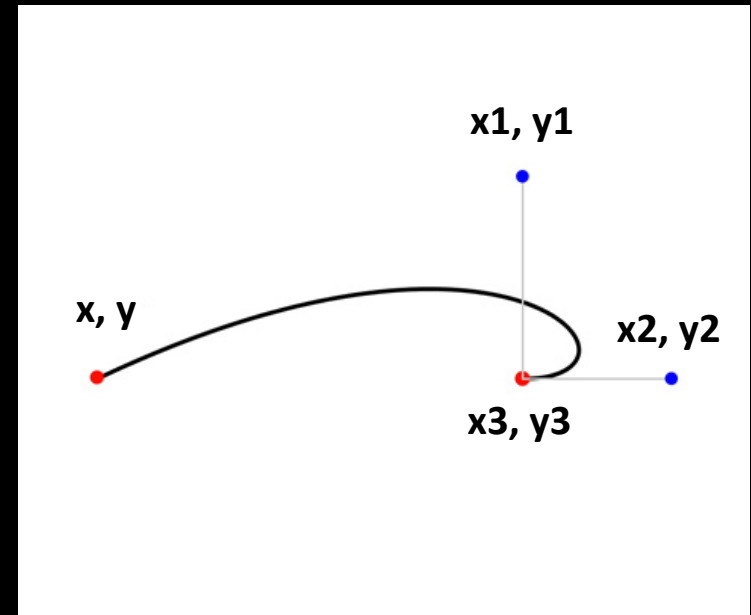
```
vertex(x, y);
```

```
bezierVertex(x1, y1, x2, y2, x3, y3);
```

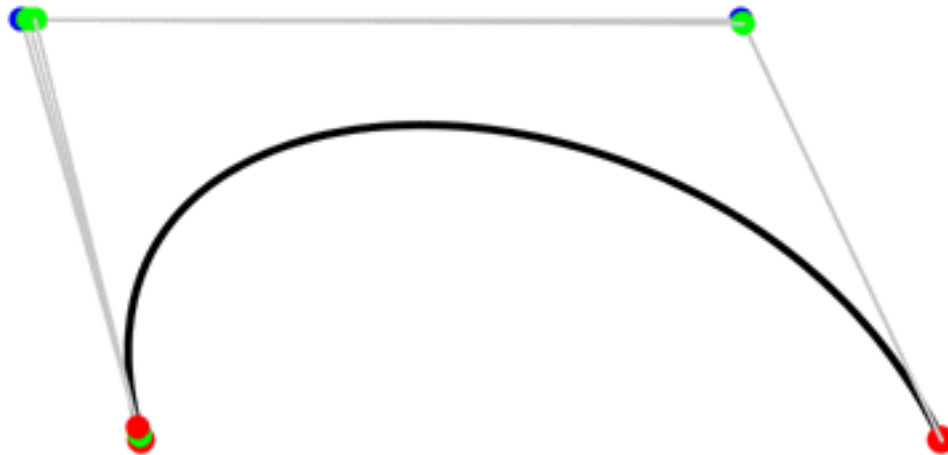
x_1, y_1 = first control point

x_2, y_2 = second control point

x_3, y_3 = anchor point

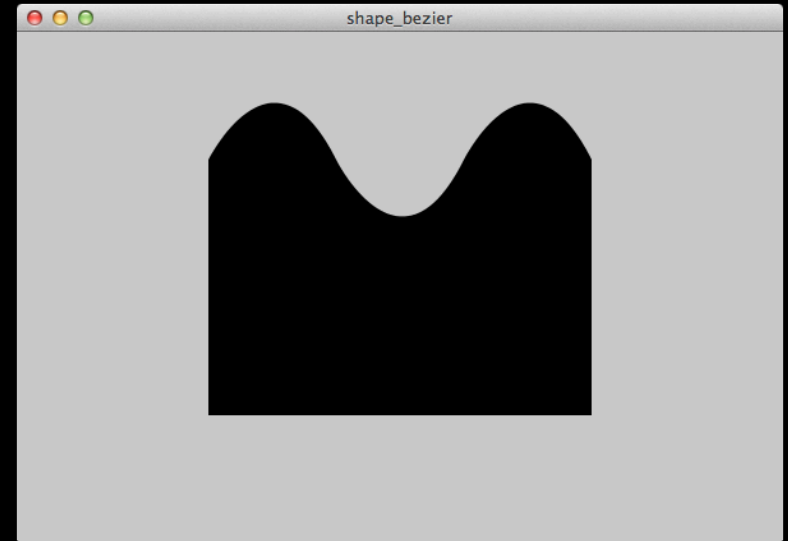


Shape/Position/Dimensions



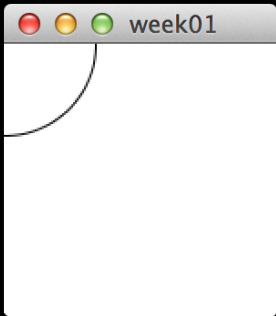
Shape/Position/Dimensions

```
translate(width/2 - 150, 0);  
beginShape();  
vertex(0, 100);  
bezierVertex(0, 100, 50, 0, 100, 100);  
bezierVertex(100, 100, 150, 200, 200, 100);  
bezierVertex(200, 100, 250, 0, 300, 100);  
vertex(300, 300);  
vertex(0, 300);  
vertex(0, 100);  
endShape();
```



Shape Modes

```
ellipseMode(CENTER);  
ellipse(0, 0, 100, 100);
```

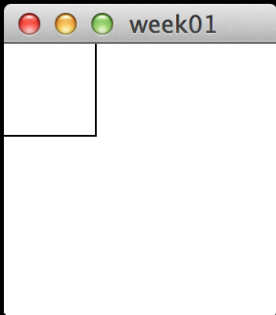


default

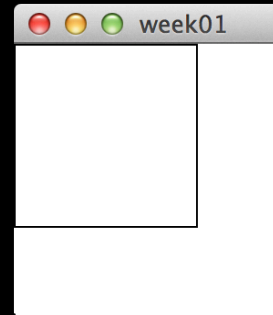
```
ellipseMode(CORNER);  
ellipse(0, 0, 100, 100);
```



```
rectMode(CENTER);  
rect(0, 0, 100, 100);
```



```
rectMode(CORNER);  
rect(0, 0, 100, 100);
```

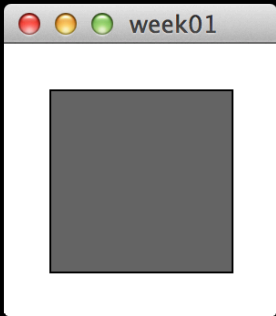


default

Shape Styles

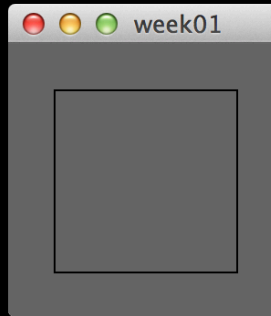
fill(100);

rect(25, 25, 100, 100);



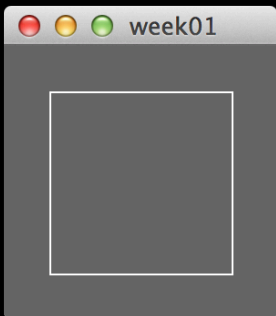
noFill();

rect(25, 25, 100, 100);



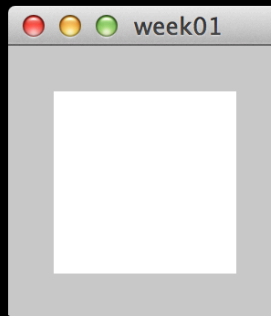
stroke(255);

rect(25, 25, 100, 100);



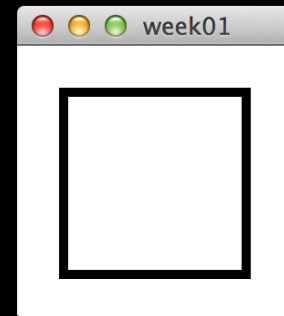
noStroke();

rect(25, 25, 100, 100);



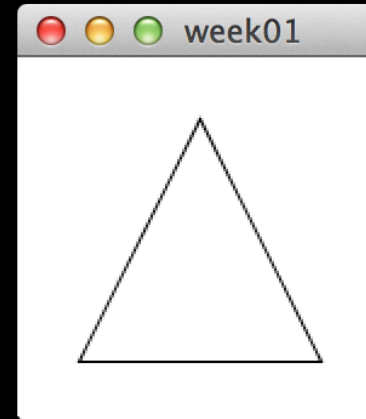
strokeWeight(5);

rect(25, 25, 100, 100);



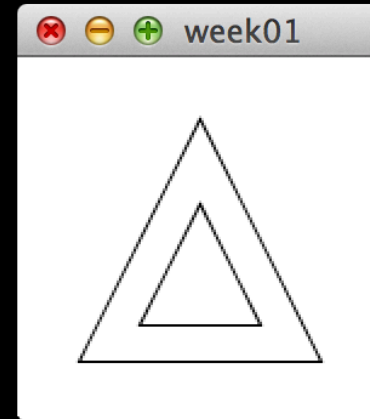
Translate 1 Shape

```
translate(25, 25);  
triangle(50, 0, 100, 100, 0, 100);  
translate(x, y);
```



Translate Multiple Shapes

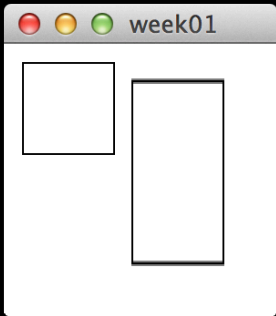
```
push();  
translate(25, 25);  
triangle(50, 0, 100, 100, 0, 100);  
pop();  
push();  
translate(50, 60);  
triangle(25, 0, 50, 50, 0, 50);  
pop();
```



Also should be used if you are rotating or scaling multiple shapes.

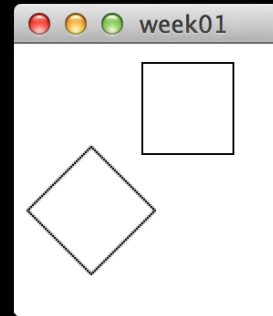
Scale and Rotate

```
rect(10, 10, 100, 100);  
scale(1, 2);  
rect(70, 10, 100, 100);  
scale(width*value, height*value);
```



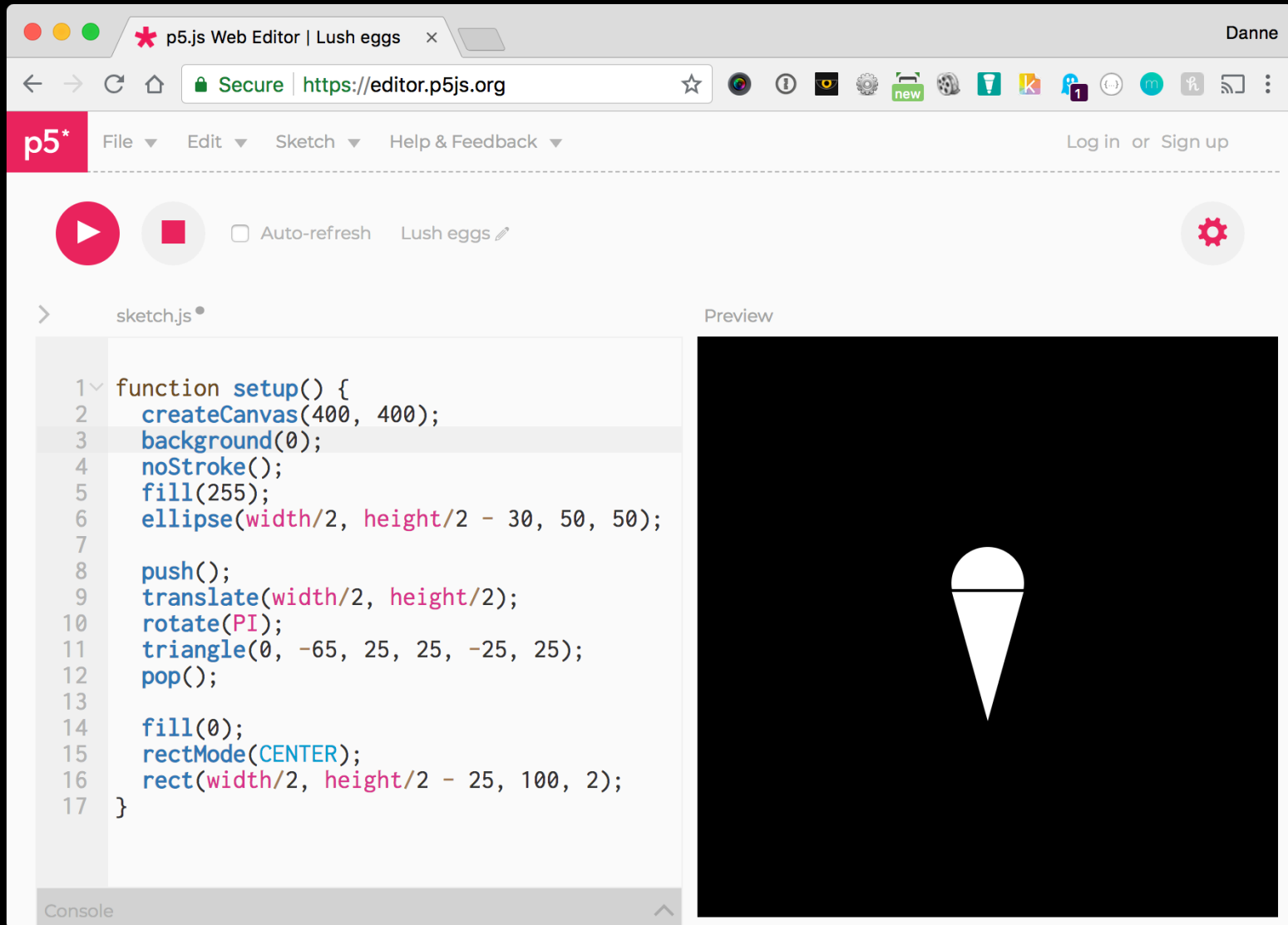
Note: Not suggested since it can distort the stroke weight and location. Rather, try changing the dimensions.

```
rect(70, 10, 50, 50);  
rotate(PI/4);  
rect(70, 10, 50, 50);  
rotate(degree);
```

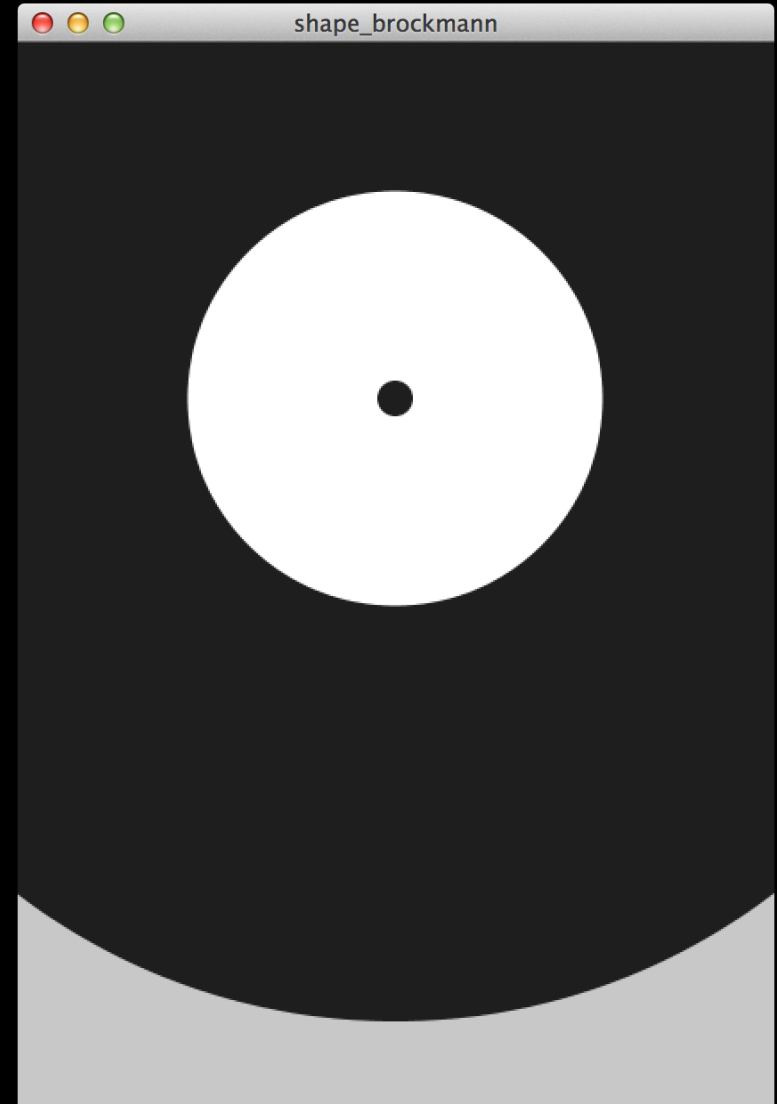


PI = 180 degrees
TWO_PI = 360 degrees
HALF_PI = 90 degrees
Rotates around 0, 0.

Ice Cream Coded



Brockmann Coded



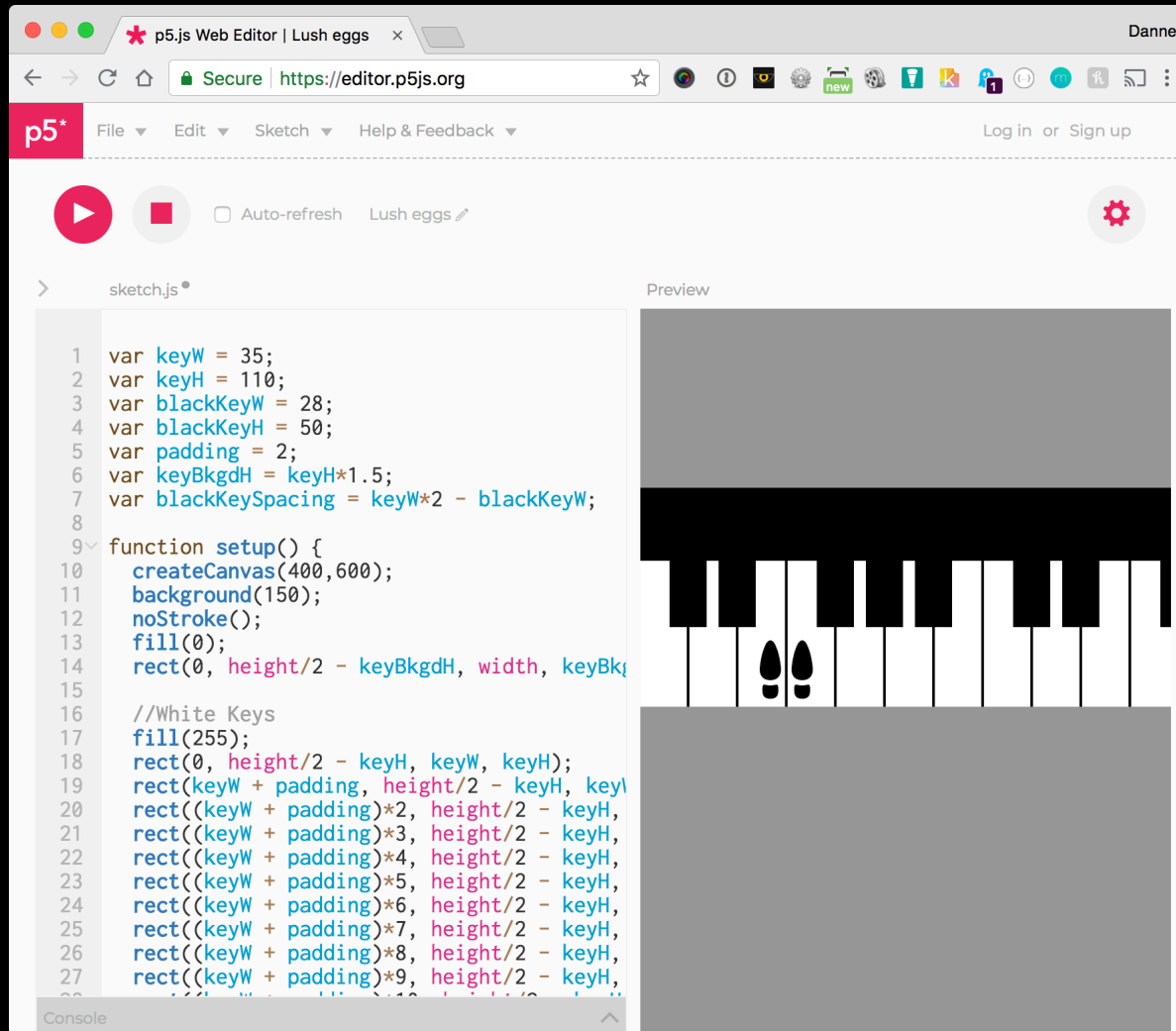
In Class/Homework

1. Use p5js and the shape functions you learned today to design a movie poster for your favorite film or TV series. You can only use grayscale color values and you may not use text.
2. Put your p5js sketch in the dropbox folder before our next class and be prepared to talk about it.

Movie Poster



Movie Poster Coded



Examples



Creative Coding

Professor Danne Woo

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creativecode.dannewoo.com