Drawing with Ruby on Browser

Quipper Limited

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Content

- How to draw a picture on browser
- with Ruby 💎

DEMO

How?

1. Opal
2. P5.js
3. Small magic 🌚

Opal

Ruby to JavaScript source-to-source compiler

https://opalrb.com/

Ruby 💎✨

```ruby
class User
  attr_accessor :name

  def initialize(name)
    @name = name
  end

  def admin?
    @name == 'Admin'
  end
end

user = User.new('Bob')
puts user
puts user.admin?
```

To JavaScript 😯

```
1  /* Generated by Opal 0.11.0 */
2  (function(Opal) {
3    var self = Opal.top, $nesting = [], nil = Opal.nil, $breaker = Op
4
5    Opal.add_stubs(['$attr_accessor', '$==', '$new', '$puts', '$admin
6
7    (function($base, $super, $parent_nesting) {
8      function $User(){};
9      var self = $User = $klass($base, $super, 'User', $User);
10
11     var def = self.$$proto, $nesting = [self].concat($parent_nestin
12
13     def.name = nil;
14
15     self.$attr_accessor("name");
16
17     Opal.defn(self, '$initialize', TMP_User_initialize_1 = function
18       var self = this;
19
20       return (self.name = name)
21     }, TMP_User_initialize_1.$$arity = 1);
22     return (Opal.defn(self, '$admin?', TMP_User_admin$q_2 = functio
23       var self = this;
```

P5.js

JavaScript implementation of Processing

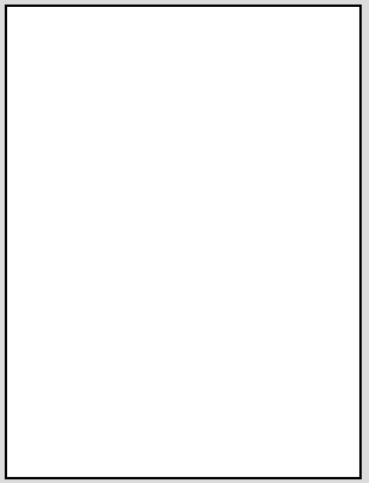
https://p5js.org/

JavaScript to a picture with canvas

sketch.js

```
function setup() {
  createCanvas(400, 400);
}

function draw() {
  background(220);
  rect(50, 100, 150, 200);
}
```

Preview



Small Magic

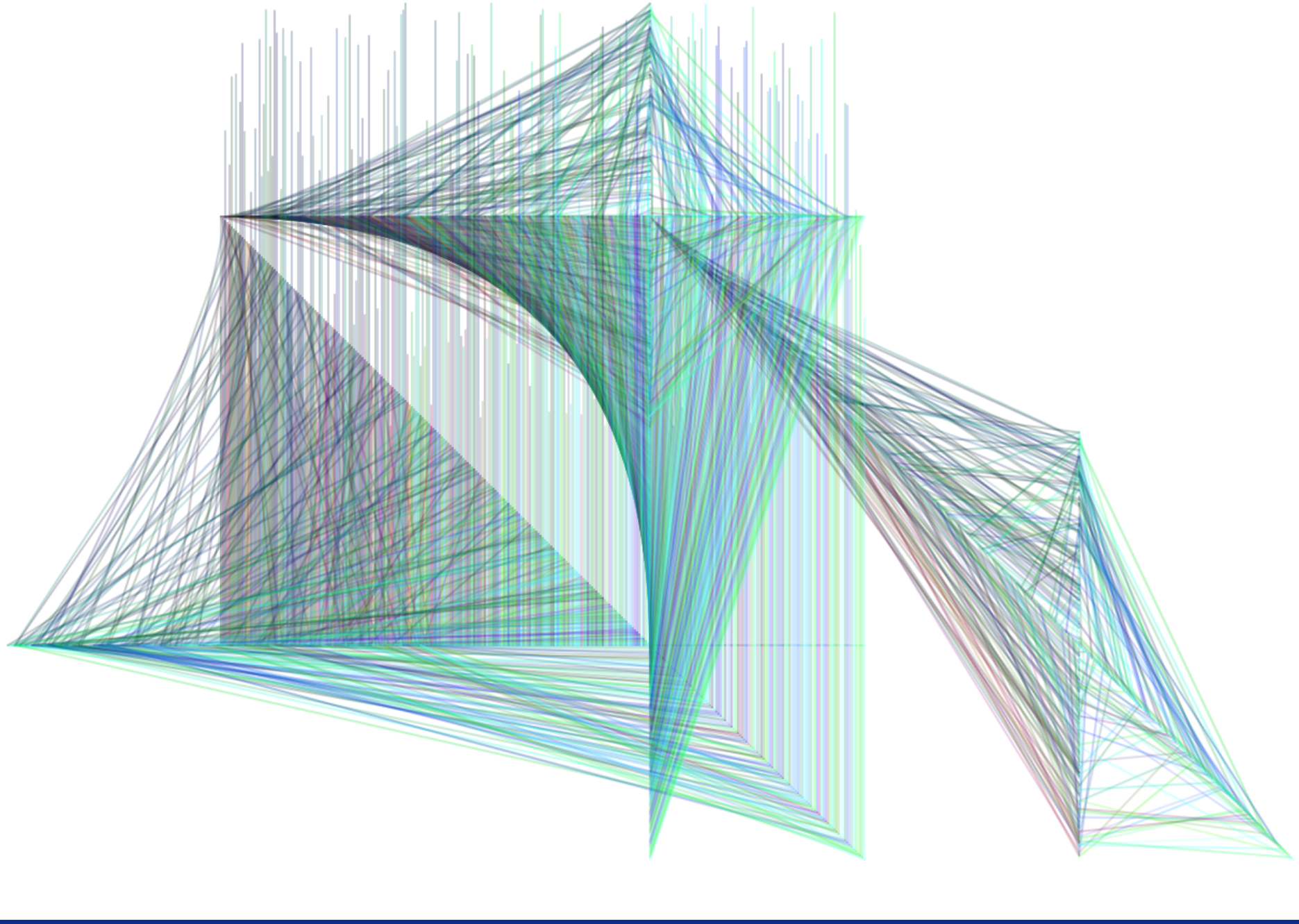
- P5.js defines its properties and functions in window
- Use %x{} to call window.someMethod from Ruby
- Use method_missing to handle all method calls

http://tkitao.hatenablog.com/entry/2015/12/19/192523

p5.rb

```ruby
module P5
  def self.method_missing(name, *args)
    %x{
      obj = window[name];
      if (typeof(obj) == 'function') {
        return window[name].apply(window, args);
      } else {
        return window[name];
      }
    }
  end

  %x{
    window.setup = function() { Opal.top.$setup(); };
    window.draw = function() { Opal.top.$draw(); };
  }
end

```

```
def setup
  P5.createCanvas(P5.windowWidth, P5.windowHeight)
  P5.frameRate(4)
end

def draw
  P5.background(255)

  (100..400).each do |i|
    r = P5.random(200)
    P5.stroke(P5.color(P5.random(r),P5.random(i),P5.random(i), 60));

    P5.line(300, r, i, 100)
    P5.line(300, i, i, 100)

    P5.line(i, i, i, 300)
    P5.line(i, i, r, 300)
    P5.line(i, r, i, 300)

    P5.line(500, r + 200, i + 200, i)
  end
end
```

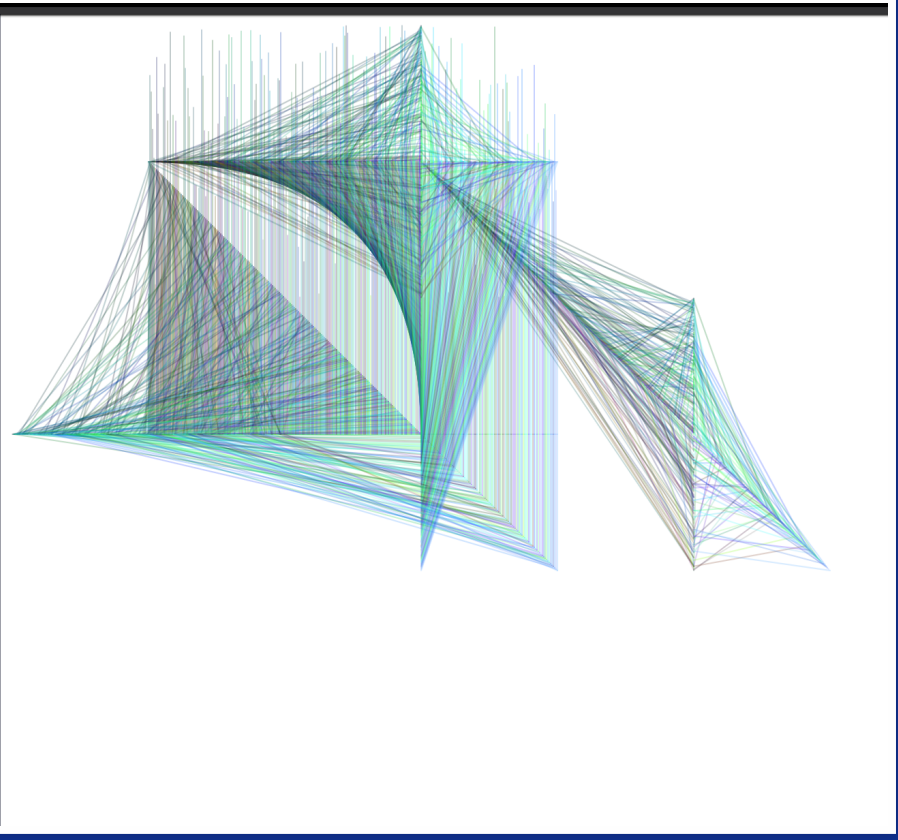


What is the very first step?

Try it on https://codepen.io/ohbarye/pen/XYjGXp

HTML

```
<script src="https://cdnjs.cloudflare.com/ajax/libs/p5.js/0.5.11/p5.min.js">
</script>
<script src="http://cdn.opalrb.com/opal/0.9.4/opal.min.js"></script>
<script src="http://cdn.opalrb.com/opal/0.9.4/opal-parser.min.js"></script>
<script>Opal.load('opal-parser');</script>
<script type="text/ruby">
  %x{console.log(window)}

  module P5
  def self.method_missing(name, *args)
    %x{
      obj = window[name];
      if (typeof(obj) == 'function') {
        return window[name].apply(window, args);
      } else {
        return window[name];
      }
    }
  end

  %x{
    window.setup = function() { Opal.top.$setup(); };
    window.draw = function() { Opal.top.$draw(); };
  }
end
```



Code Reading

(Once time permits)

https://github.com/ohbarye/ruby-processing-examples

Who?

- @ohbarye http://ohbarye.me/
- Web Developer / Engineering Manager
- Working for Quipper

7/19 (Thu) 19:30-22:00

https://techplay.jp/event/680406