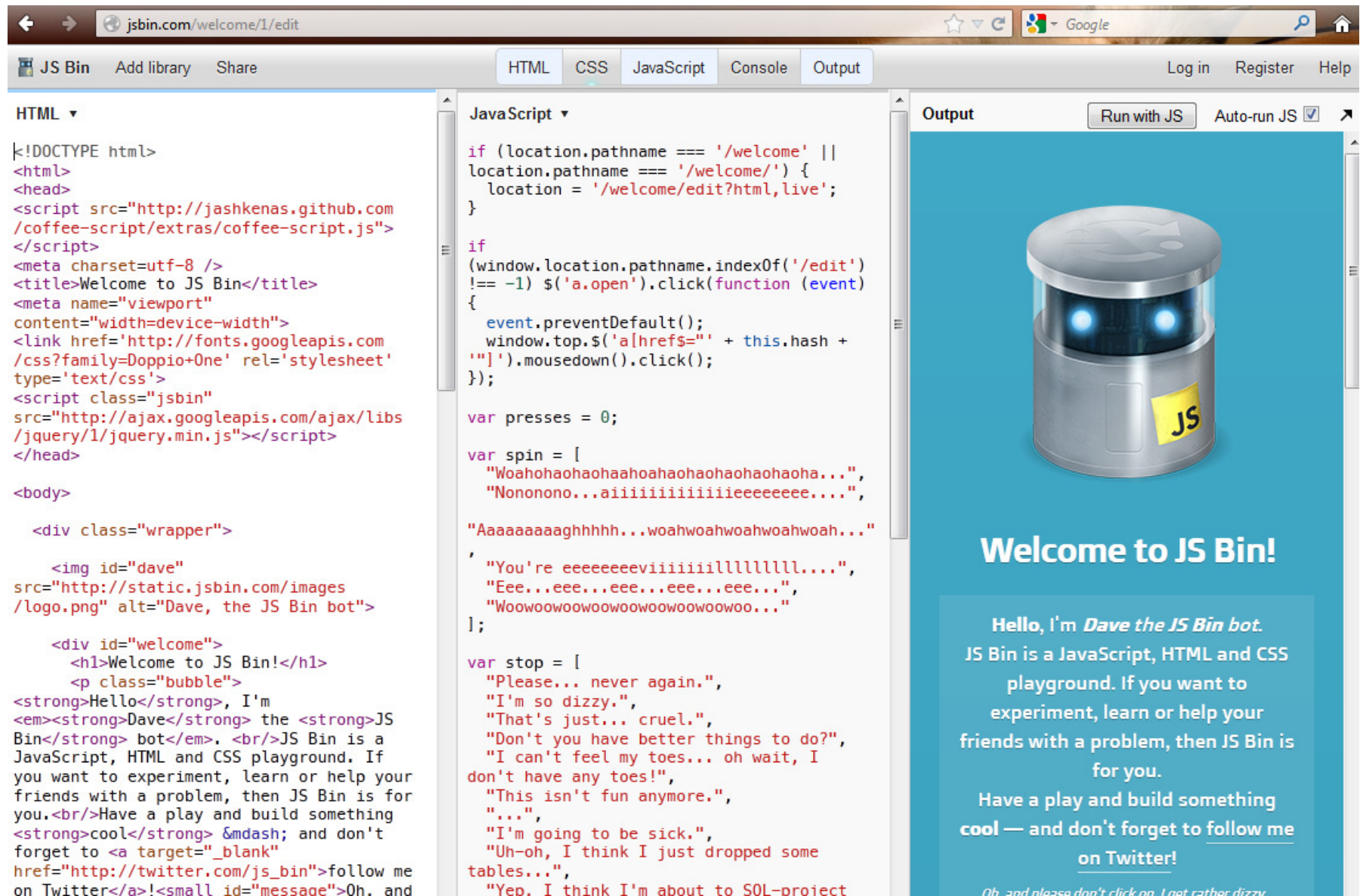


<http://jsbin.com/welcome>

JavaScript



The screenshot shows the jsbin.com website interface. The top navigation bar includes "JS Bin", "Add library", "Share", "HTML", "CSS", "JavaScript", "Console", and "Output". The "JavaScript" tab is selected. The "Output" panel shows a blue background with a silver robot head and the text "Welcome to JS Bin!".

```
HTML
<!DOCTYPE html>
<html>
<head>
<script src="http://jashkenas.github.com/coffee-script/extras/coffee-script.js">
</script>
<meta charset=utf-8 />
<title>Welcome to JS Bin</title>
<meta name="viewport" content="width=device-width">
<link href='http://fonts.googleapis.com/css?family=Doppio+One' rel='stylesheet' type='text/css'>
<script class="jsbin" src="http://ajax.googleapis.com/ajax/libs/jquery/1/jquery.min.js"></script>
</head>
<body>
<div class="wrapper">

<div id="welcome">
<h1>Welcome to JS Bin!</h1>
<p class="bubble">
<strong>Hello</strong>, I'm <em><strong>Dave</strong> the <strong>JS Bin</strong> bot</em>. <br/>JS Bin is a JavaScript, HTML and CSS playground. If you want to experiment, learn or help your friends with a problem, then JS Bin is for you.<br/>Have a play and build something <strong>cool</strong> &mdash; and don't forget to <a target="_blank" href="http://twitter.com/js_bin">follow me on Twitter</a>!<small id="message">Oh, and
```

```
JavaScript
if (location.pathname === '/welcome' || location.pathname === '/welcome/') {
  location = '/welcome/edit?html,live';
}

if (window.location.pathname.indexOf('/edit') !== -1) $('a.open').click(function (event) {
  event.preventDefault();
  window.top.$('a[href$="' + this.hash + ""']).mousedown().click();
});

var presses = 0;

var spin = [
  "Woahohaohaohaohaohaohaohaohaoha...",
  "Nononono...aiiiiiiiiiiiiiieeeeeee...",
  "Aaaaaaaaaaghhhh...woahwoahwoahwoah...",
  "You're eeeeeeeviiiiiiilllllllll...",
  "Eee...eee...eee...eee...eee...",
  "Woowooowooowooowooowooowoo..."
];

var stop = [
  "Please... never again.",
  "I'm so dizzy.",
  "That's just... cruel.",
  "Don't you have better things to do?",
  "I can't feel my toes... oh wait, I don't have any toes!",
  "This isn't fun anymore.",
  "...",
  "I'm going to be sick.",
  "Uh-oh, I think I just dropped some tables...",
  "Yep. I think I'm about to SOL-project
```

```
Output
Welcome to JS Bin!

Hello, I'm Dave the JS Bin bot.
JS Bin is a JavaScript, HTML and CSS playground. If you want to experiment, learn or help your friends with a problem, then JS Bin is for you.
Have a play and build something cool — and don't forget to follow me on Twitter!

Oh, and please don't click on Last rather dizzy
```

JavaScript

CODE TO DRAW A RED SQUARE:

```
var canvas = document.getElementById("canvas");  
var c = canvas.getContext("2d");  
c.fillStyle = 'red';  
c.fillRect(x_1, x_2, y_1, y_2);
```

```
<html>  
<body>  
<canvas id="canvas"></canvas>  
<script>  
  var example = document.getElementById('canvas');  
  var context = example.getContext('2d');  
  context.fillStyle = 'red';  
  context.fillRect(30, 30, 50, 50);  
</script>  
</body>  
</html>
```

Here's what that looks like:



JavaScript ▾

```
var canvas = document.getElementById("canvas");
var c = canvas.getContext("2d");

var centerX = canvas.width / 2;

var corners = [
  {x:0,y:0},
  {x:canvas.width,y:0},
  {x:canvas.width,y:canvas.height},
  {x:0,y:canvas.height},

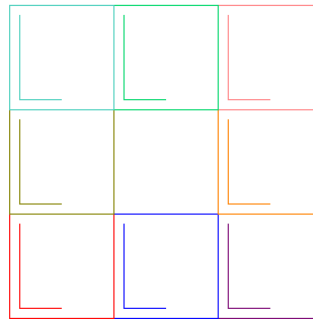
  {x:centerX,y:0},
  {x:centerX,y:canvas.height},
  {x:0,y:centerX},
  {x:centerX,y:centerX}
];

var i, randomCorner, randomIndex;
var x = 0;
var y = 0;

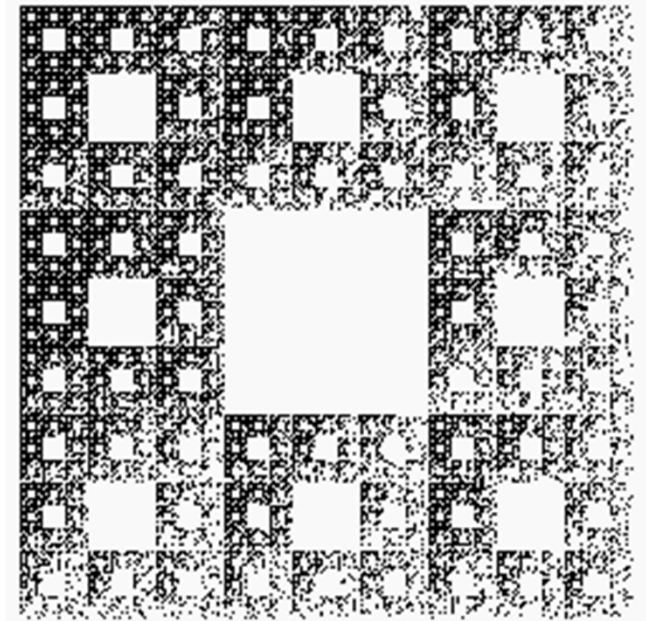
var numIterations = 500000;

for(i = 0; i < numIterations; i++){
  c.fillRect(Math.floor(x),Math.floor(y),1,1);

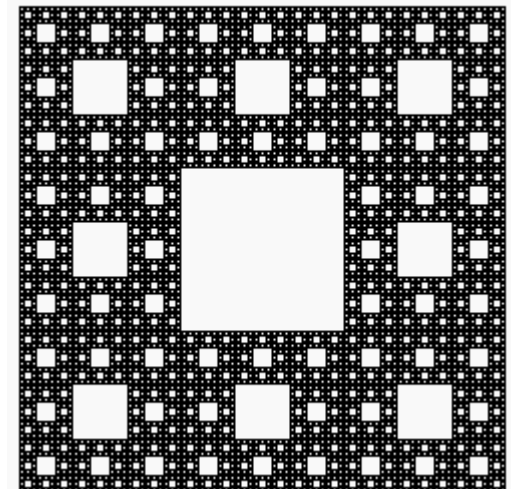
  randomIndex = Math.floor(Math.random() * corners.length);
  randomCorner = corners[randomIndex];
  x = (randomCorner.x - x) * 2 / 3 + x;
  y = (randomCorner.y - y) * 2 / 3 + y;
}
```



Goal:



Output



Rotation

$$\begin{bmatrix} x' \\ y' \end{bmatrix} = \begin{bmatrix} \cos \theta & -\sin \theta \\ \sin \theta & \cos \theta \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix}$$

Shearing

$$\begin{bmatrix} x' \\ y' \end{bmatrix} = \begin{bmatrix} 1 & k \\ 0 & 1 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix}$$

Scaling

$$\begin{bmatrix} x' \\ y' \end{bmatrix} = \begin{bmatrix} s_x & 0 \\ 0 & s_y \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix}$$

So, how would you
apply more than one
transformation?

```

var canvas = document.getElementById("canvas");
var c = canvas.getContext("2d");
var centerX = canvas.width / 2;
var centerY = canvas.height / 2;
var copy = [
  {a:0,b:0,c:0,d:.480,e:21,f:30.5},
  {a:.797,b:.074,c:-.07,d:.827,e:2,f:66.5},
  {a:.283,b:-.283,c:.283,d:.283,e:6.5,f:32},
  {a:-.283,b:.283,c:.283,d:.283,e:32.5,f:30.5}
];

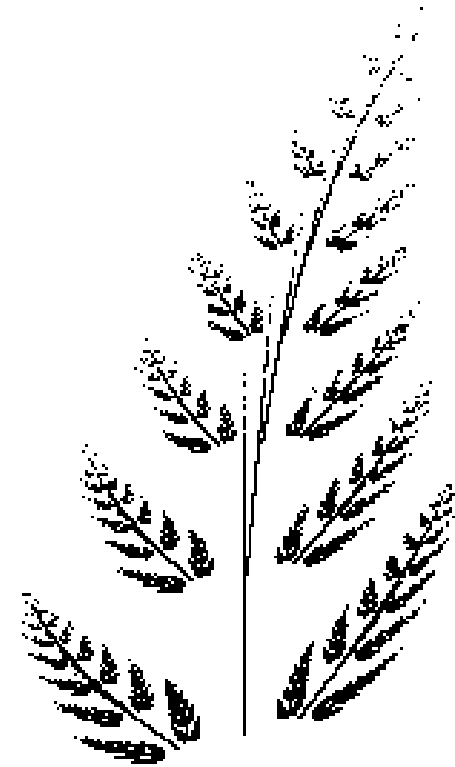
var i, randomCorner, randomIndex;
var x = canvas.width / 2;
var y = canvas.height / 2;
var numIterations = 500000;

for(i = 0; i < numIterations; i++){
  c.fillRect(Math.floor(x),Math.floor(y),1,1);

  randomIndex = Math.floor(Math.random() * copy.length);
  randomCopy = copy[randomIndex];
  x = (randomCopy.a * x) + (randomCopy.b * y) + randomCopy.e;
  y = (randomCopy.c * x) + (randomCopy.d * y) + randomCopy.f;
}

// Note: this code is set up for multiplication a 2x2 matrix (a,b,c,d) and then addition to a 1x2 vector (e,f):
// [a b] [x] + [e]
// [c d] [y]   [f]

```





Q: Is JavaScript just for designing images?

A: No, I just haven't shown you anything interactive...

...yet

<http://jsbin.com/otonuz/4/edit>

Note: download and use Google Chrome as your Web browser.