This Is Not An Introduction to d3.js

Jennifer Piscionere
@jpiscionere
http://jpiscionere.github.io/

This Is An Introduction to Seeing Something That Looks Cool on the Internet and Ripping it Off

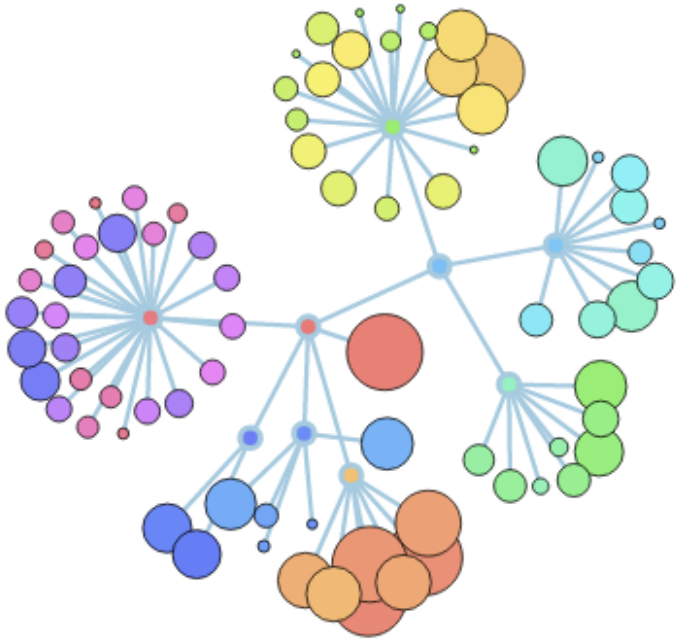
This Is An Introduction to Seeing Something That Looks Cool on the Internet and Ripping it Off

This Is An Introduction to Seeing Something That Looks Cool on the Internet and Ripping it Off

https://github.com/mbostock/d3/wiki/Gallery

You've Already Done Koalas to the Max Right?

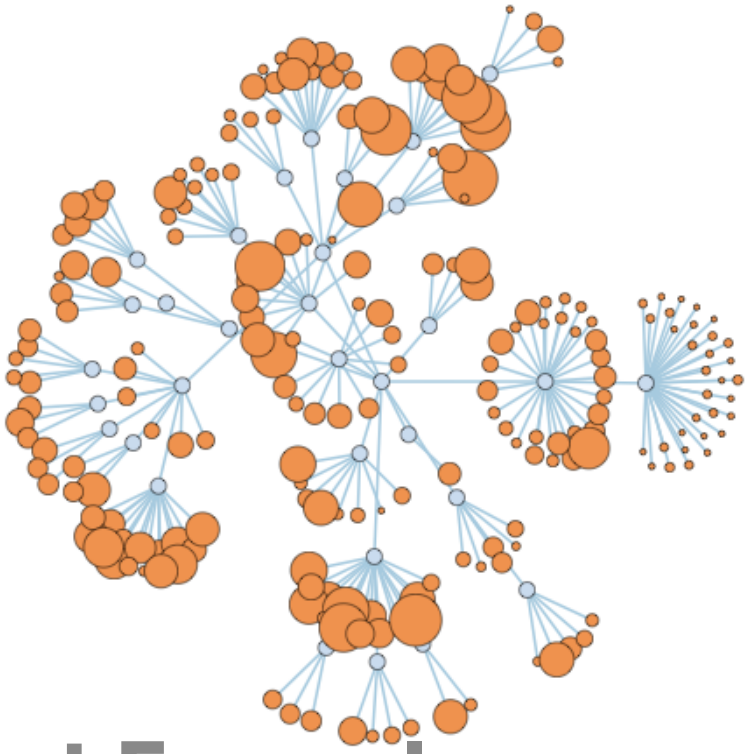
http://www.koalastothemax.com/



Final Project

MAKE YOUR OWN CODEFLOWER

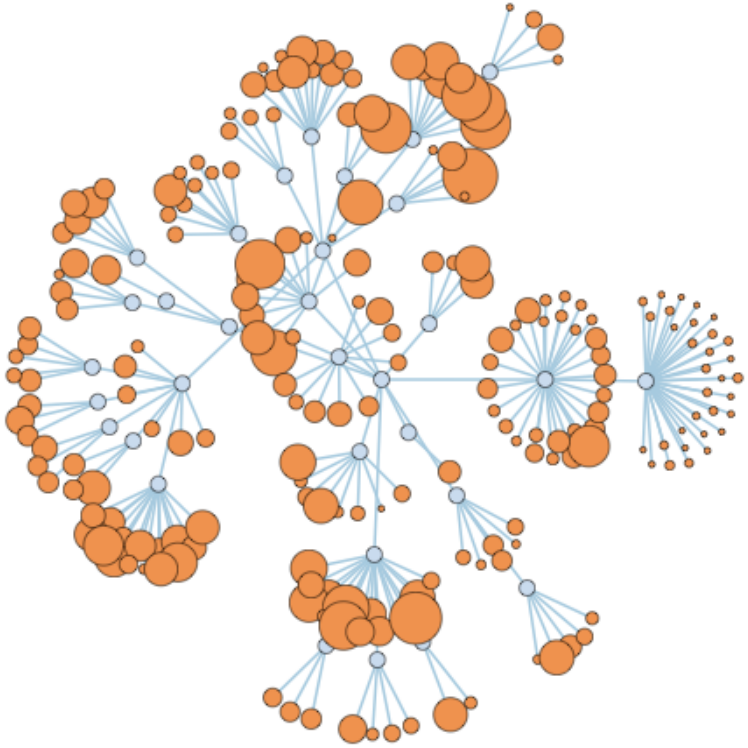
http://www.redotheweb.com/CodeFlower/



First Example

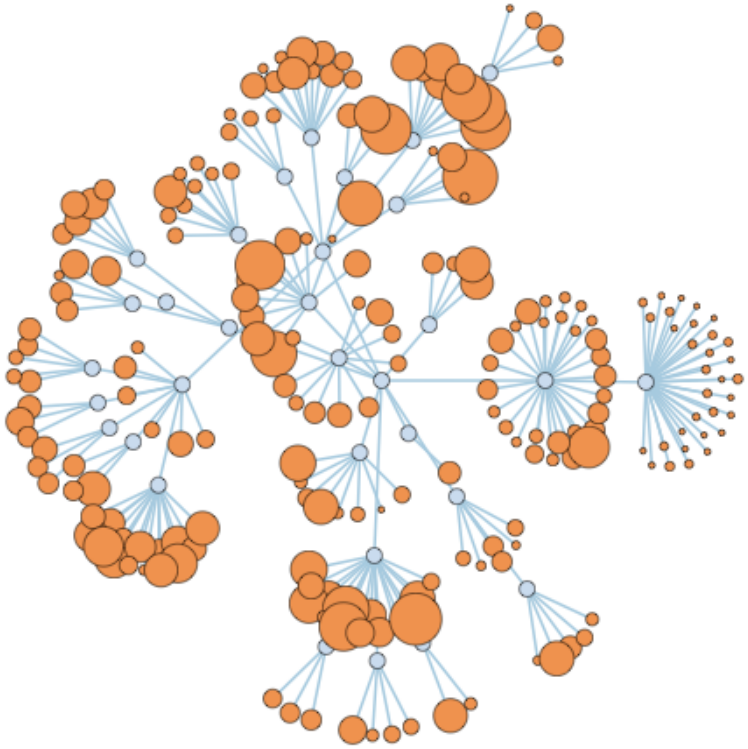
FORCE COLLAPSIBLE

http://mbostock.github.io/d3/talk/20111116/force-collapsible.html



Step the First

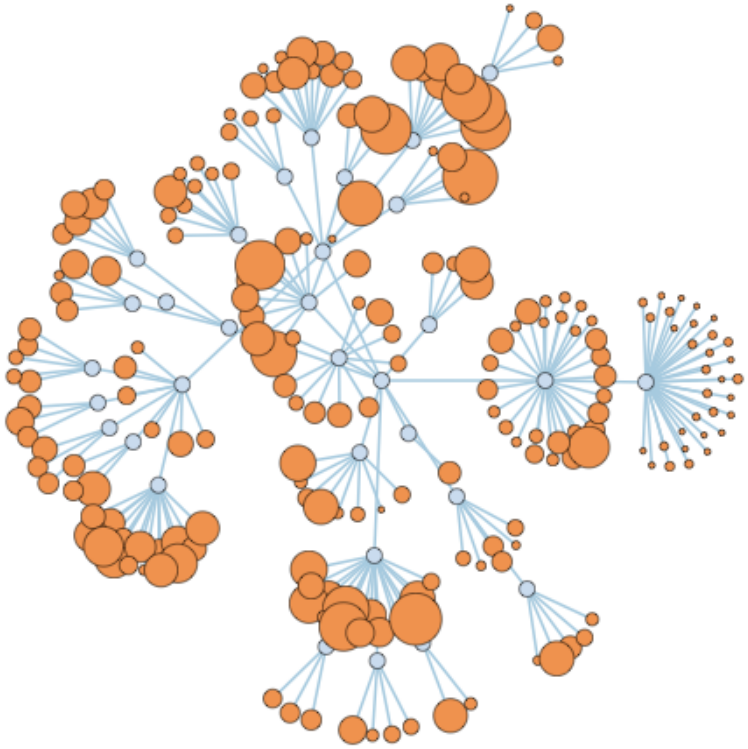
SAVE FORCE COLLAPSIBLE WEBPAGE USING FIREFOX* ON YOUR LOCAL MACHINE



Step the First

SAVE FORCE COLLAPSIBLE WEBPAGE USING FIREFOX* ON YOUR LOCAL MACHINE

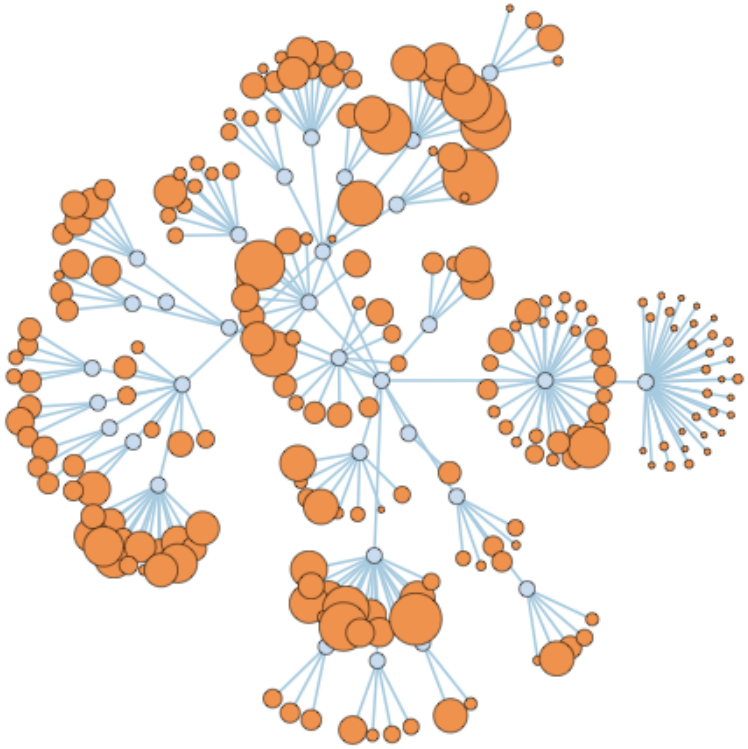
*This is non-negotiable for the time being.
OMG I KNOW chrome/safari/opera/butterfly wings interpreting html IS SO MUCH BETTER



Step the Second

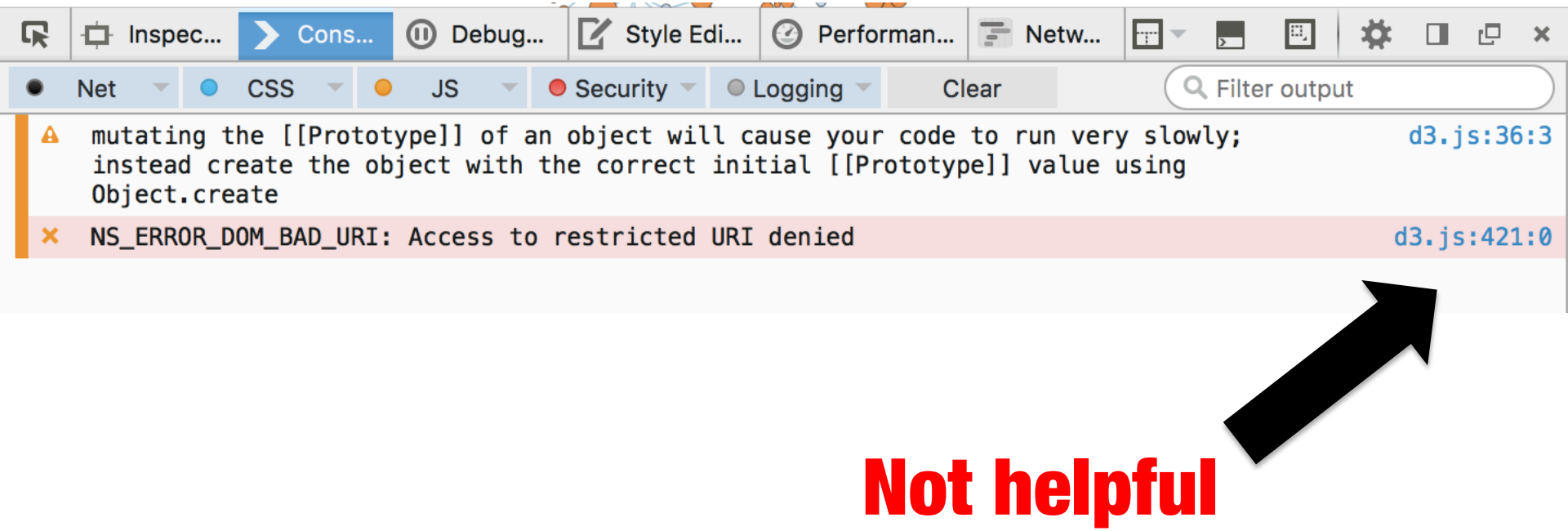
OPEN FORCE-COLLAPSIBLE.HTML USING FIREFOX

Why Doesn’t My Flower Work?



Step the Third

OPEN THE CONSOLE TO SEE THE ERRORS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Debug...
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Net
CSS
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Security
Logging
Clear
Filter output
mutating the [[Prototype]] of an object will cause your code to run very slowly; instead create the object with the correct initial [[Prototype]] value using Object.create
d3.js:36:3
NS_ERROR_DOM_BAD_URI: Access to restricted URI denied
d3.js:421:0

Not helpful

Inspec... Cons... Debug... Style Edi... Performan... Netw...

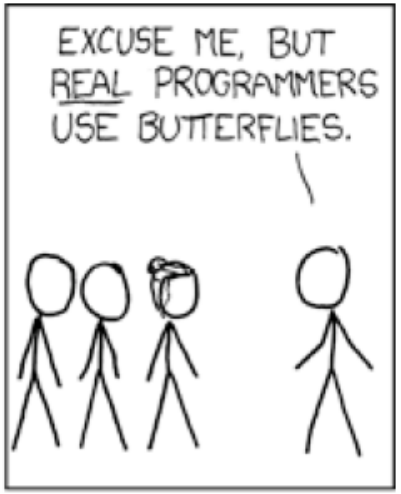
Net CSS JS Security Logging Clear Filter output

mutating the [[Prototype]] of an object will cause your code to run very slowly; instead create the object with the correct initial [[Prototype]] value using Object.create — d3.js:36:3

NS_ERROR_DOM_BAD_URI: Access to restricted URI denied — d3.js:421:0

Doctor Google Says:

This Error Means There is A Missing File



Step the Fourth

OPEN FORCE-COLLAPSIBLE.HTML
USING THE TEXT EDITOR
OF YOUR CHOICE (!!!)

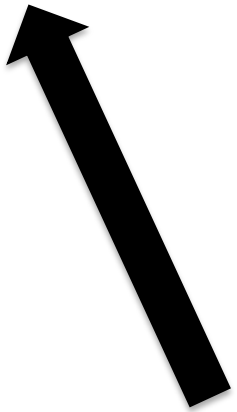
Lines 1:20 HTML / CSS / SVG

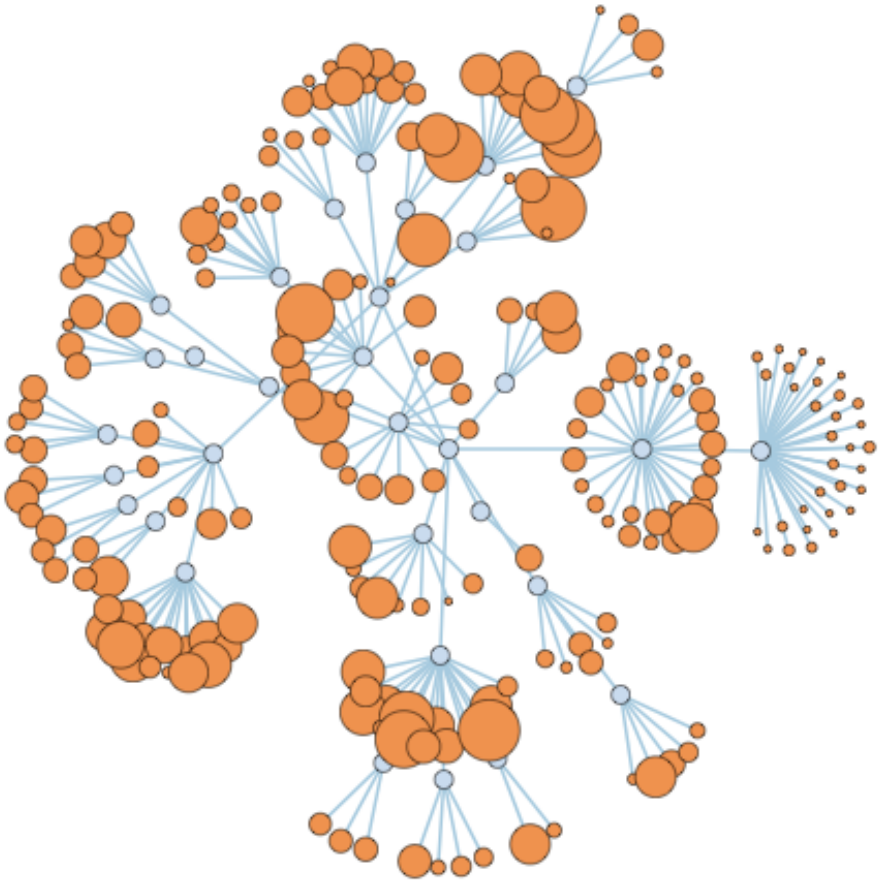
```
<!DOCTYPE html>
<html><head>
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
    <link type="text/css" rel="stylesheet" href="force-collapsible_files/style.css">
    <style type="text/css">

circle.node {
  cursor: pointer;
  stroke: #000;
  stroke-width: .5px;
}

line.link {
  fill: none;
  stroke: #9ecae1;
  stroke-width: 1.5px;
}

    </style>
  </head>
```



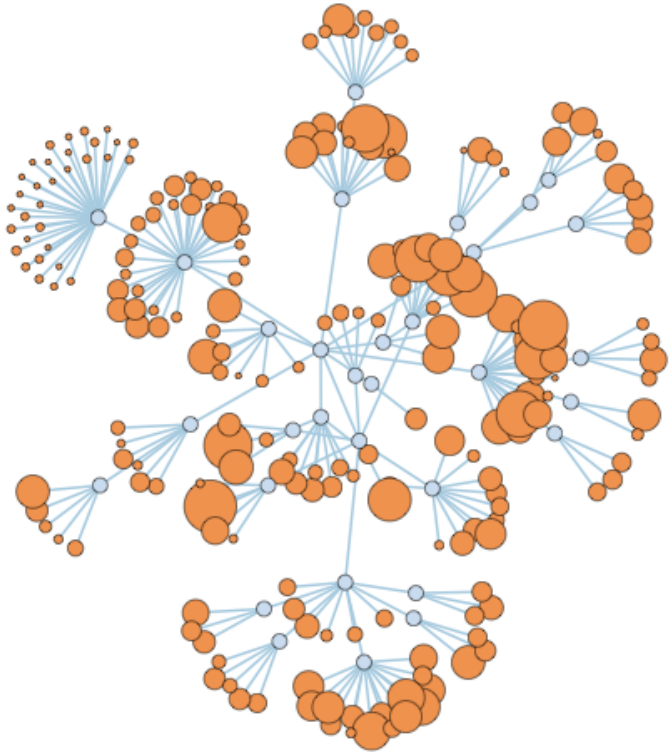


What it Says? HTML
How it Looks? CSS

Flare code size
force-directed graph

Flare code size
force-directed graph

No CSS

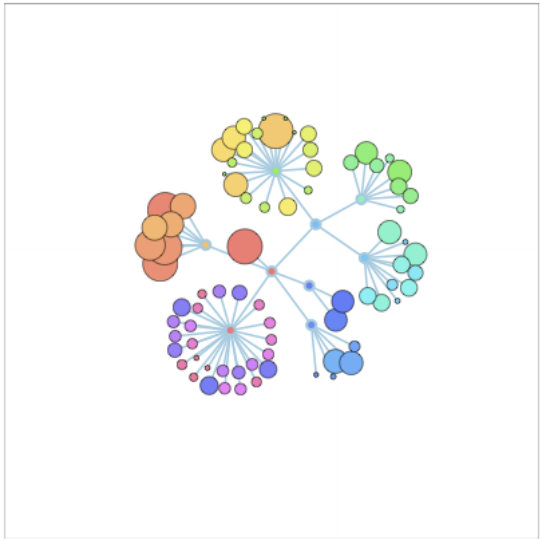


JenPi | Home | CV.pdf | New Paper | Contact | Scatter Matrix

Jennifer A. Piscionere

This website is under construction.

Check out my codeflower instead. I have a wix page with some more info.



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Like Pictionary without the t

My Website With the Style Sheets

Toggle navigation JenPi

- Home
- CV.pdf
- New Paper
- Contact
- Scatter Matrix

Jennifer A. Piscionere

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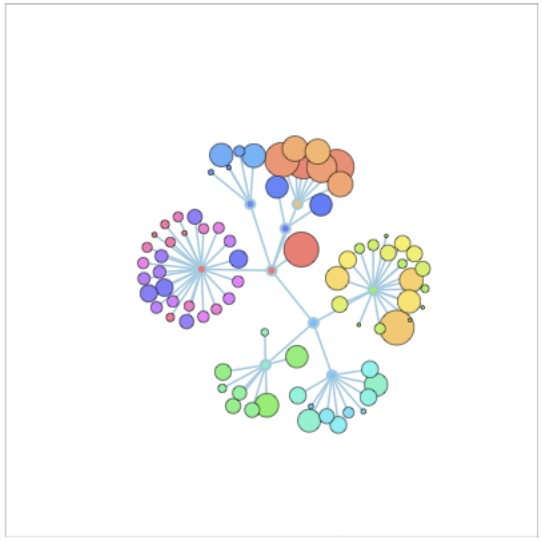

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Like Pictionary without the t

My Website Without the Style Sheets

Lines 1:20 HTML / CSS / SVG HEADER

```
<!DOCTYPE html>
<html><head>
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
    <link type="text/css" rel="stylesheet" href="force-collapsible_files/style.css">
    <style type="text/css">

circle.node {
  cursor: pointer;
  stroke: #000;
  stroke-width: .5px;
}

line.link {
  fill: none;
  stroke: #9ecae1;
  stroke-width: 1.5px;
}

    </style>
  </head>
```

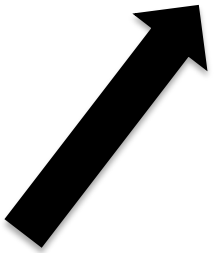
Scalable Vector Graphic "Classes"

There are Connected Circles

How those Circles Look*ish*

Lines 21:28 HTML / Loading d3 Engine

```
21  <body>
22    <h2>
23      Flare code size<br>
24      force-directed graph
25    </h2>
26    <script type="text/javascript" src="force-collapsible_files/d3.js"></script>
27    <script type="text/javascript" src="force-collapsible_files/d3_002.js"></script>
28    <script type="text/javascript" src="force-collapsible_files/d3_003.js"></script>
```



Think of it as

`import numpy`

Lines 29:144 d3 Javascript Details

```
29      <script type="text/javascript">
30
31  var w = 1280,
32      h = 800,
33      node,
34      link,
35      root;
36
37  var force = d3.layout.force()
38      .on("tick", tick)
39      .charge(function(d) { return d._children ? -d.size / 100 : -30; })
40      .linkDistance(function(d) { return d.target._children ? 80 : 30; })
41      .size([w, h - 160]);
42
43  var vis = d3.select("body").append("svg:svg")
44      .attr("width", w)
45      .attr("height", h);
46
47  d3.json("flare.json", function(json) {
48    root = json;
49    root.fixed = true;
50    root.x = w / 2;
51    root.y = h / 2 - 80;
```

Lines 29:144 d3 Javascript Details

```
55  function update() {
56    var nodes = flatten(root),
57        links = d3.layout.tree().links(nodes);
58
59    // Restart the force layout.
60    force
61        .nodes(nodes)
62        .links(links)
63        .start();
64
65    // Update the links…
66    link = vis.selectAll("line.link")
67        .data(links, function(d) { return d.target.id; });
68
69    // Enter any new links.
70    link.enter().insert("svg:line", ".node")
71        .attr("class", "link")
72        .attr("x1", function(d) { return d.source.x; })
73        .attr("y1", function(d) { return d.source.y; })
74        .attr("x2", function(d) { return d.target.x; })
75        .attr("y2", function(d) { return d.target.y; });
76
77    // Exit any old links.
78    link.exit().remove();
```

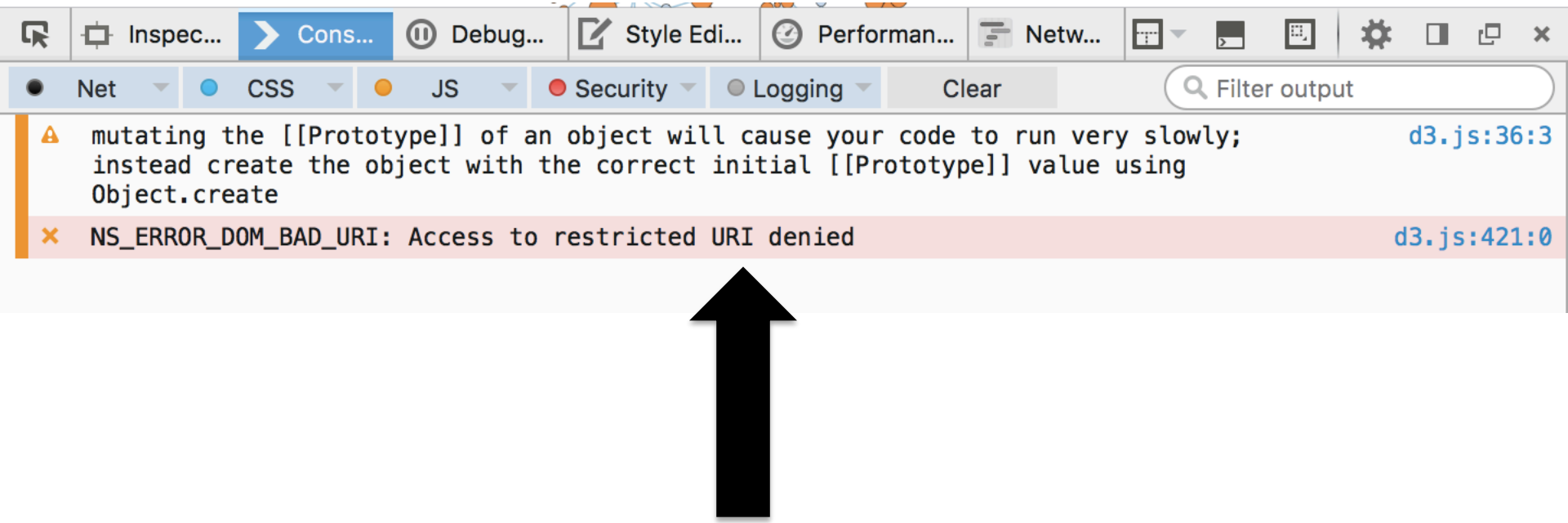
Lines 29:144 d3 Javascript Details

```
29      <script type="text/javascript">
30
31  var w = 1280,
32      h = 800,
33      node,
34      link,
35      root;
36
37  var force = d3.layout.force()
38      .on("tick", tick)
39      .charge(function(d) { return d._children ? -d.size / 100 : -30; })
40      .linkDistance(function(d) { return d.target._children ? 80 : 30; })
41      .size([w, h - 160]);
42
43  var vis = d3.select("body").append("svg:svg")
44      .attr("width", w)
45      .attr("height", h);
46
47  d3.json("flare.json", function(json) {
48    root = json;
49    root.fixed = true;
50    root.x = w / 2;
51    root.y = h / 2 - 80;
```

Why Doesn’t My Flower Work?

Why Doesn’t My Flower Work?

WHERE IS THE DATA?

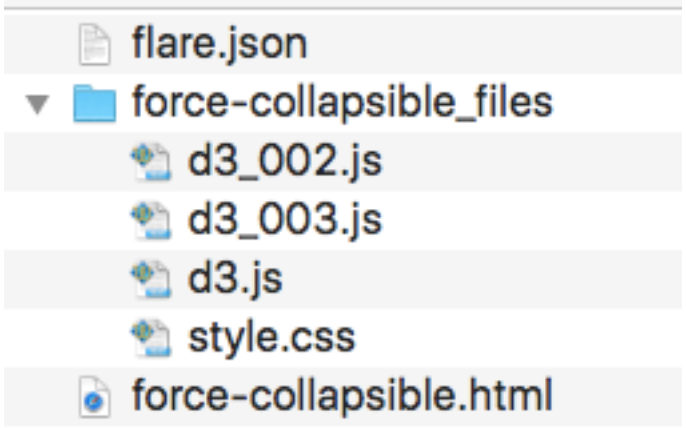


What File Was This Talking About?

Lines 29:144 d3 Javascript Magic

```
29      <script type="text/javascript">
30
31  var w = 1280,
32      h = 800,
33      node,
34      link,
35      root;
36
37  var force = d3.layout.force()
38      .on("tick", tick)
39      .charge(function(d) { return d._children ? -d.size / 100 : -30; })
40      .linkDistance(function(d) { return d.target._children ? 80 : 30; })
41      .size([w, h - 160]);
42
43  var vis = d3.select("body").append("svg:svg")
44      .attr("width", w)
45      .attr("height", h);
46
47  d3.json("flare.json", function(json) {
48    root = json;
49    root.fixed = true;
50    root.x = w / 2;
51    root.y = h / 2 - 80;
```

```
$ wget http://mbostock.github.io/d3/talk/20111116/
flare.json
```



flare.json


```
{
 "name": "flare",
 "children": [
  {
   "name": "analytics",
   "children": [
    {
     "name": "cluster",
     "children": [
      {"name": "AgglomerativeCluster", "size": 3938},
      {"name": "CommunityStructure", "size": 3812},
      {"name": "HierarchicalCluster", "size": 6714},
      {"name": "MergeEdge", "size": 743}
     ]
    },
    {
     "name": "graph",
     "children": [
      {"name": "BetweennessCentrality", "size": 3534},
      {"name": "LinkDistance", "size": 5731},
      {"name": "MaxFlowMinCut", "size": 7840},
      {"name": "ShortestPaths", "size": 5914},
      {"name": "SpanningTree", "size": 3416}
     ]
```

flare.json

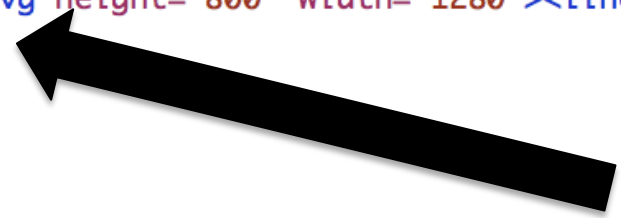
```
{
 "name": "flare",
 "children": [
  {
   "name": "analytics",
   "children": [
    {
     "name": "cluster".
     "children":
      {"name": "
      {"name": "
      {"name": "HierarchicalCluster", "size": 6714},
      {"name": "MergeEdge", "size": 743}
     ]
    },
    {
     "name": "graph",
     "children": [
      {"name": "BetweennessCentrality", "size": 3534},
      {"name": "LinkDistance", "size": 5731},
      {"name": "MaxFlowMinCut", "size": 7840},
      {"name": "ShortestPaths", "size": 5914},
      {"name": "SpanningTree", "size": 3416}
     ]
```

Code Flower of d3.js itself

Why Doesn’t My Flower Work?

Line 144: Firefox Saved A Static Page

```
129  // Returns a list of all nodes under the root.
130  function flatten(root) {
131    var nodes = [], i = 0;
132
133    function recurse(node) {
134      if (node.children) node.size = node.children.reduce(function(p, v) { return p + recurse(v);
135      if (!node.id) node.id = ++i;
136      nodes.push(node);
137      return node.size;
138    }
139
140    root.size = recurse(root);
141    return nodes;
142  }
143
144      </script><svg height="800" width="1280"><line y2="378.5247461881192" x2="726.4042609189993"
145
146
147  </body></html>
```



Delete : `<svg ... /svg>`

Why Does My Flower

STILL NOT WORK?

Same Origin Policy:

Why We Used Firefox to Run Things Locally

https://github.com/mrdoob/three.js/wiki/How-to-run-things-locally

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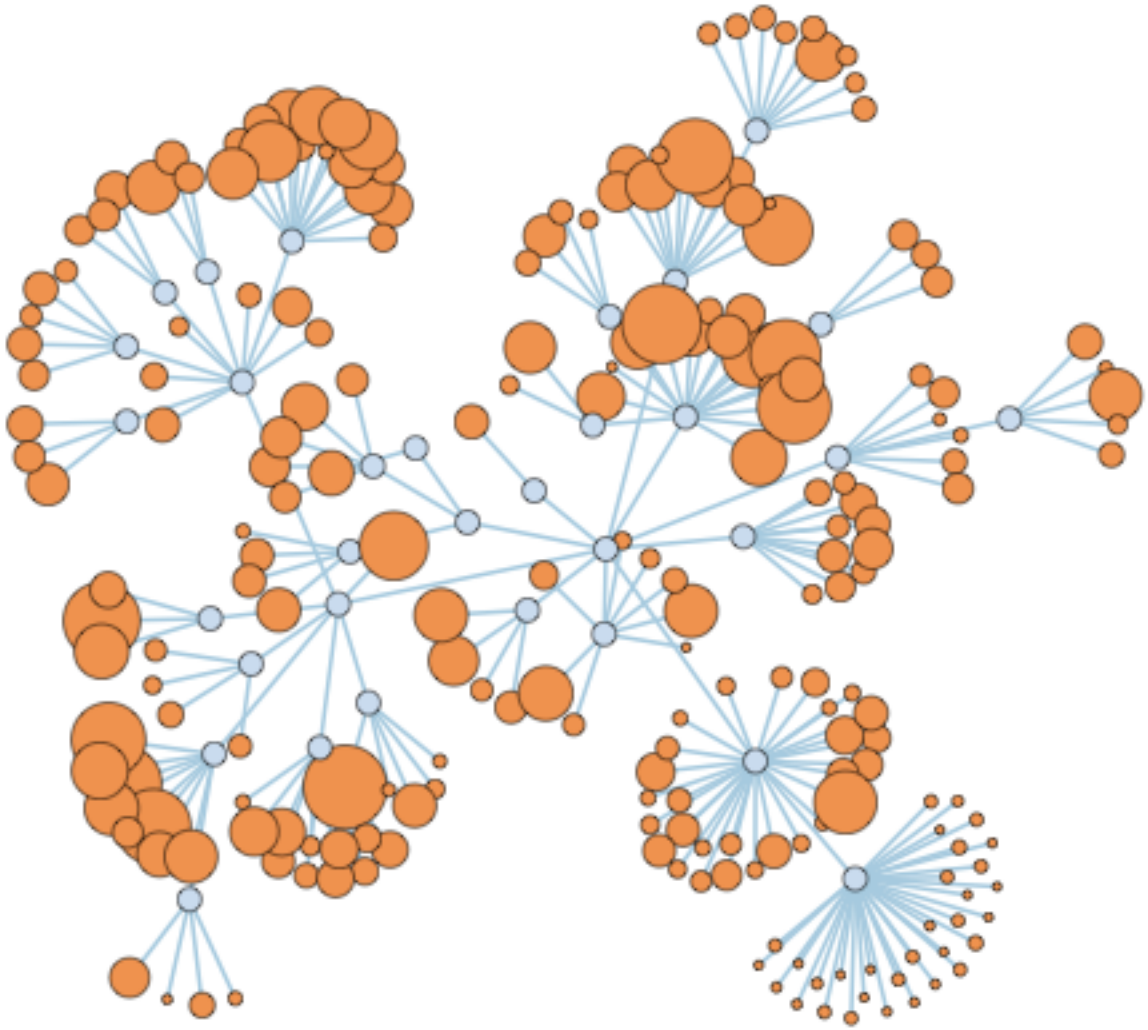
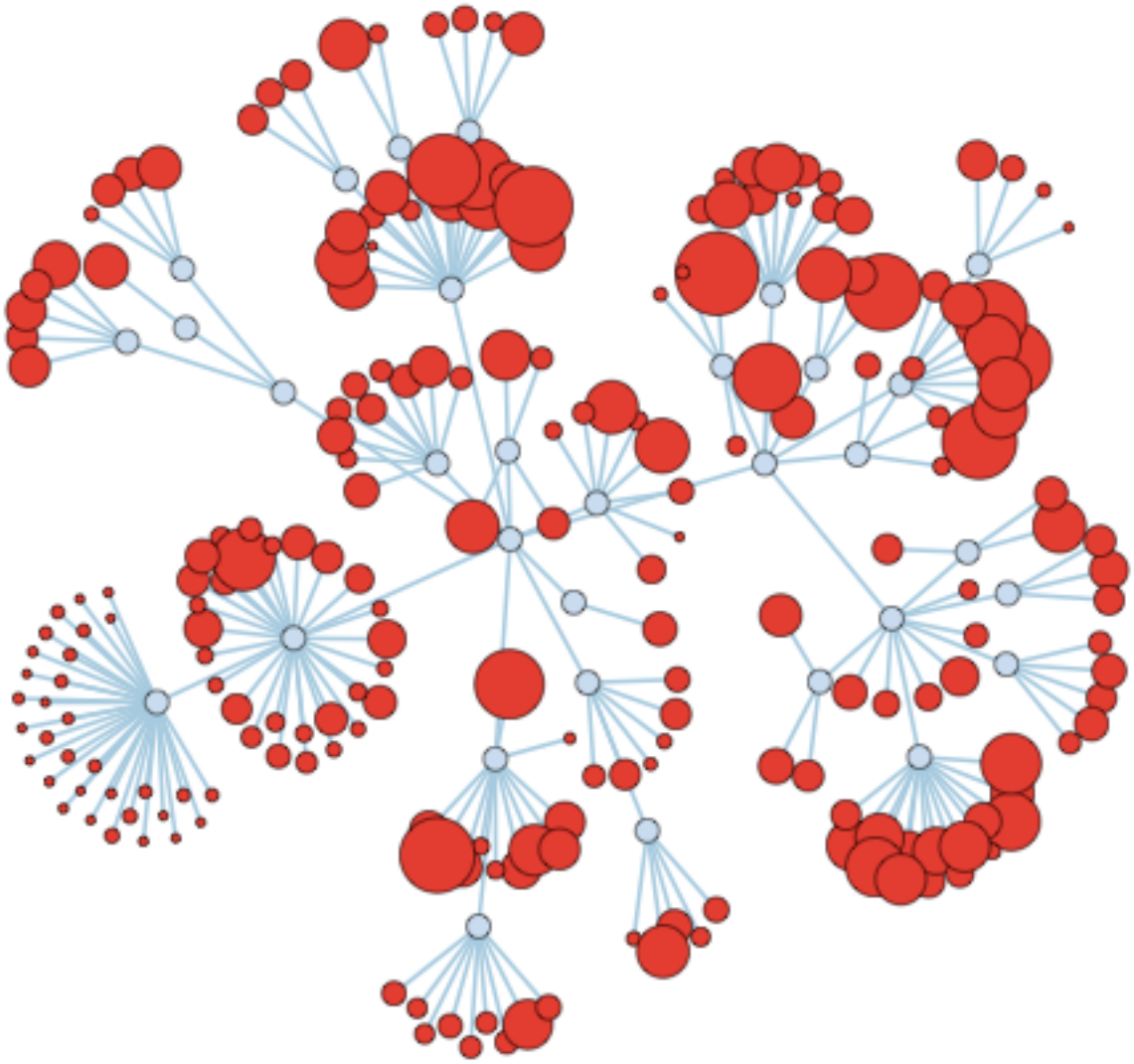
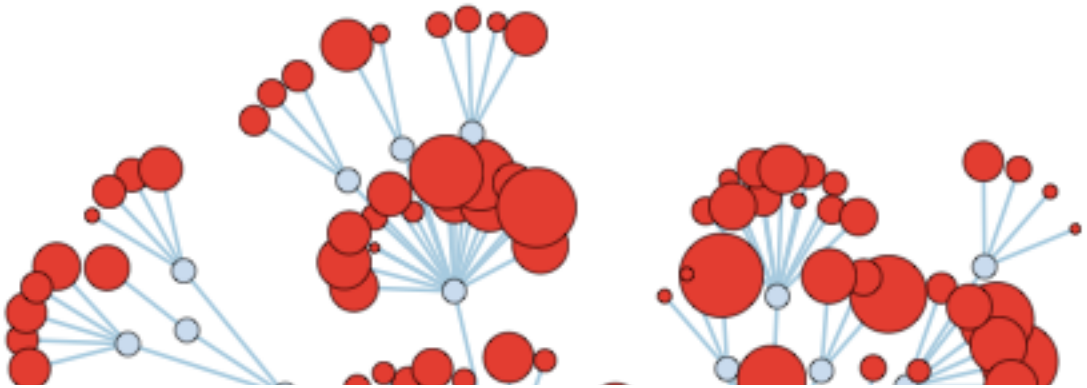
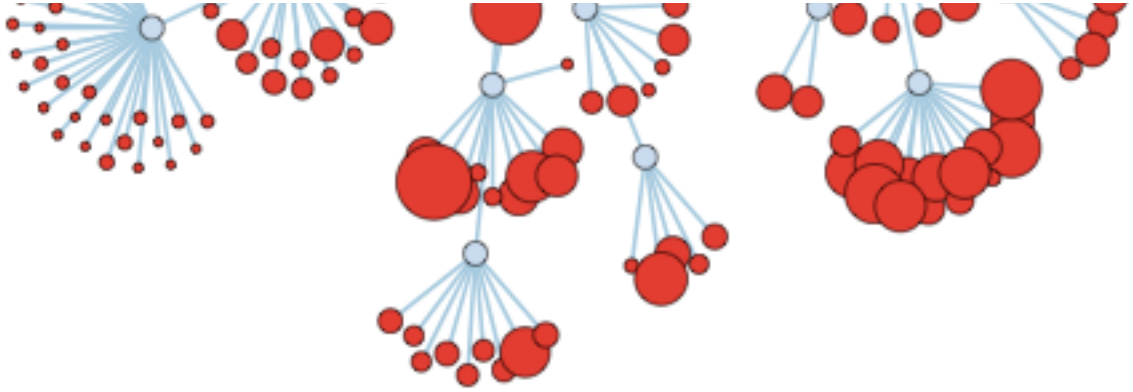
Does Everybody’s Flower Work?







```
111
112  // Color leaf nodes orange, and packages white or blue.
113  function color(d) {
114    return d._children ? "#3182bd" : d.children ? "#c6dbef" : "#F80000";
115  }
116
```



```
36
37  var force = d3.layout.force()
38      .on("tick", tick)
39      .charge(function(d) { return d._children ? -d.size / 100 : 0; })
40      .linkDistance(function(d) { return d.target._children ? 80 : 30; })
41      .size([w, h - 160]);
```

Last Step Before CODEFLOWER

ADD THE JAVASCRIPT AS AN EXTERNAL LIBRARY

```
<!DOCTYPE html>
<html><head>
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
    <link type="text/css" rel="stylesheet" href="force-collapsible_files/style.css">
    <style type="text/css">

circle.node {
  cursor: pointer;
  stroke: #000;
  stroke-width: .5px;
}

line.link {
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  stroke: #9ecae1;
  stroke-width: 1.5px;
}

    </style>
  </head>
  <body>
    <h2>
      Flare code size<br>
      force-directed graph
    </h2>
    <script type="text/javascript" src="force-collapsible_files/d3.js"></script>
    <script type="text/javascript" src="force-collapsible_files/d3_002.js"></script>
    <script type="text/javascript" src="force-collapsible_files/d3_003.js"></script>
    <script type="text/javascript" src="force-collapsible_files/new_script.js"></script>

</body></html>
```
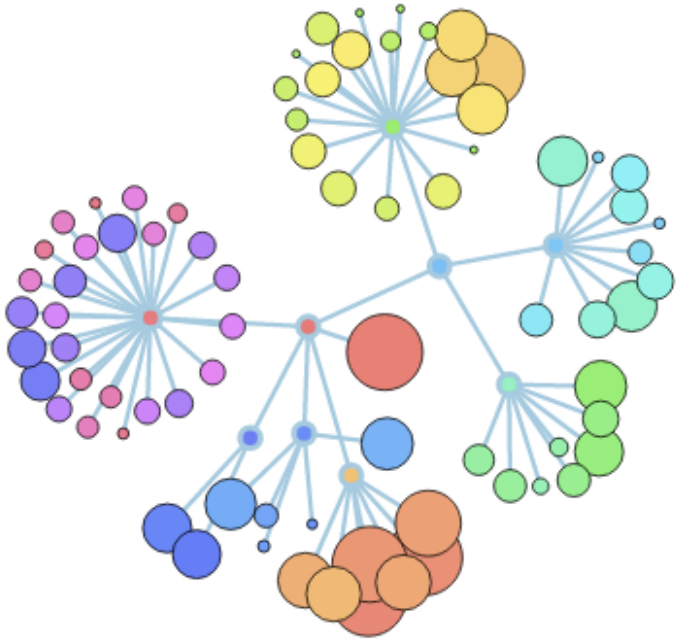
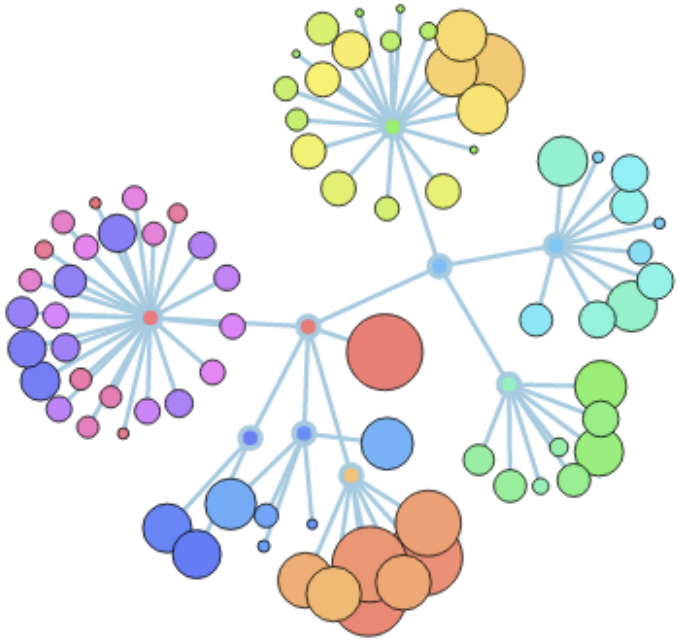



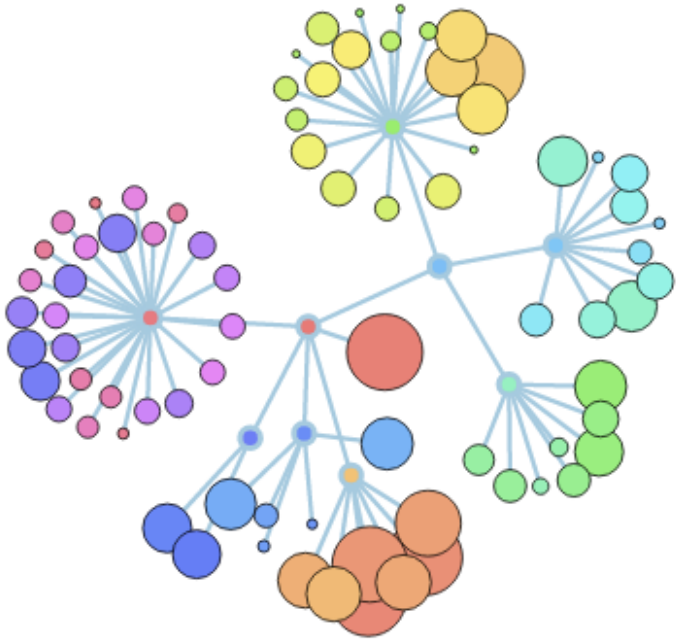
Final Project

MAKE YOUR OWN CODEFLOWER



Step the First

GO TO CODEFLOWER WEBSITE

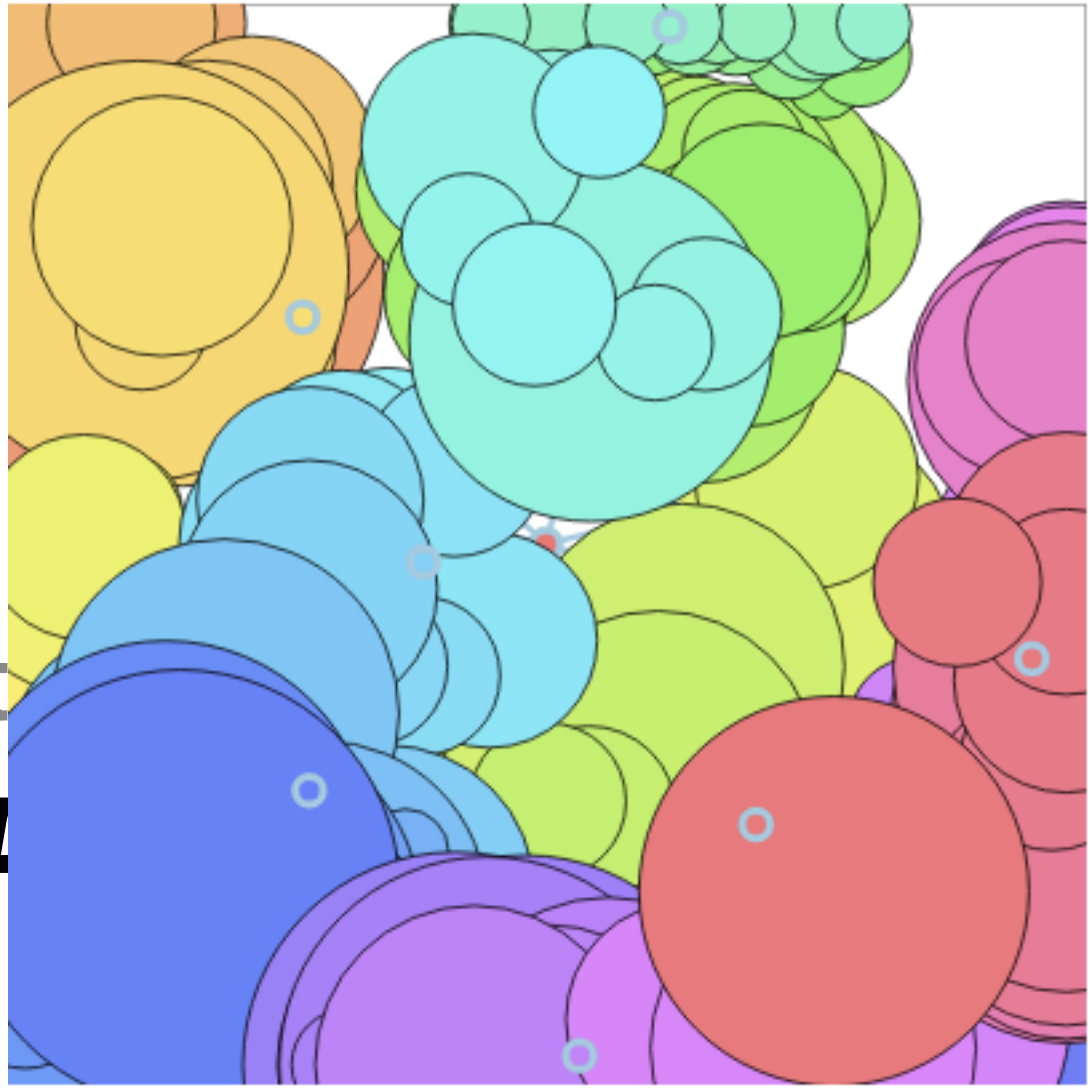


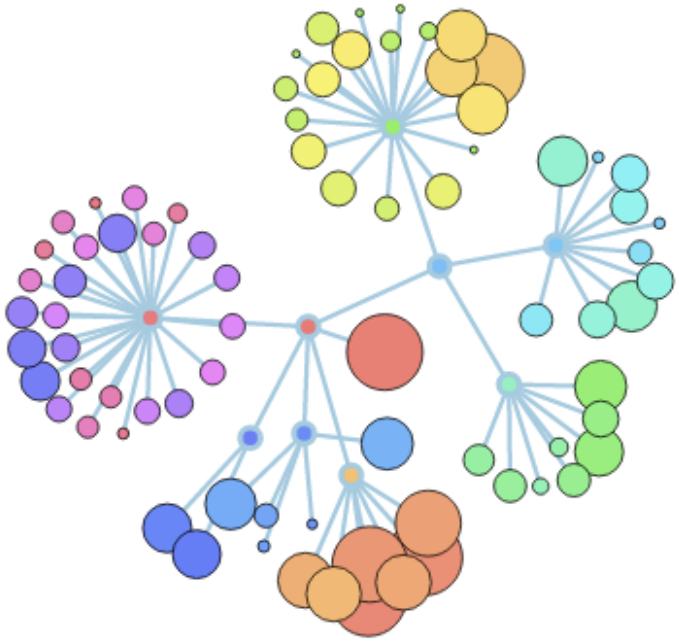
Step the Second

UPDATE USING FLARE.JSON

Step t

UPDA ON





Step the 2nd.5

USING YOUR OWN GITHUB REPO AS THE SOURCE OF DATA

1. Install cloc

```
npm install -g cloc                    # https://www.npmjs.com/package/cloc
sudo apt-get install cloc              # Debian, Ubuntu
sudo yum install cloc                  # Red Hat, Fedora
sudo pacman -S cloc                    # Arch
sudo pkg install cloc                  # FreeBSD
sudo port install cloc                 # Mac OS X with MacPorts
```

1. Install cloc

```
npm install -g cloc                  # https://www.npmjs.com/package/cloc
sudo apt-get install cloc            # Debian, Ubuntu
sudo yum install cloc                # Red Hat, Fedora
sudo pacman -S cloc                  # Arch
sudo pkg install cloc                # FreeBSD
sudo port install cloc               # Mac OS X with MacPorts
```

2. Count the Lines in Your Repo

Your Repo Here

```
# Using curl and cloc (fast, accurate)
$ curl https://nodeload.github.com/symfony/symfony/tar.gz/master | tar xvz
$ cloc symfony-master --csv --by-file --report-file=symfony.cloc
```

1. Install cloc

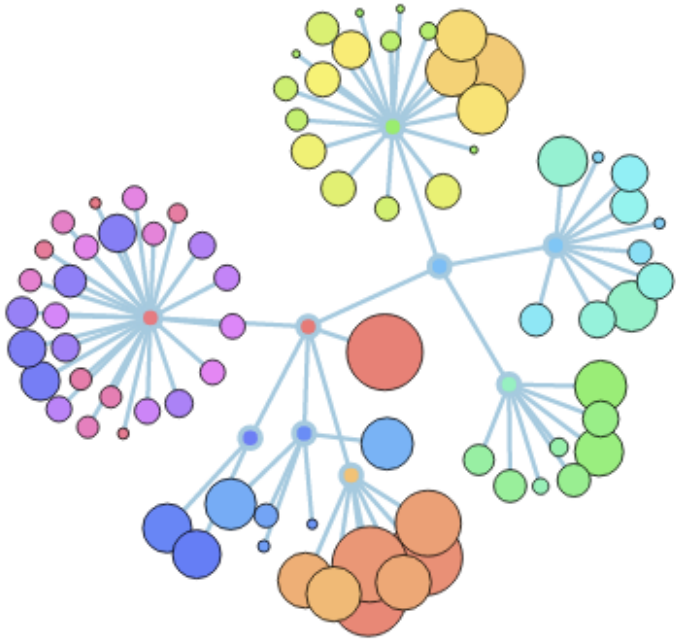
```
npm install -g cloc                    # https://www.npmjs.com/package/cloc
sudo apt-get install cloc              # Debian, Ubuntu
sudo yum install cloc                  # Red Hat, Fedora
sudo pacman -S cloc                    # Arch
sudo pkg install cloc                  # FreeBSD
sudo port install cloc                 # Mac OS X with MacPorts
```

2. Count the Lines in Your Repo

```
# Using curl and cloc (fast, accurate)
$ curl https://nodeload.github.com/symfony/symfony/tar.gz/master | tar xvz
$ cloc symfony-master --csv --by-file --report-file=symfony.cloc
```

3. Put cloc output into .json format

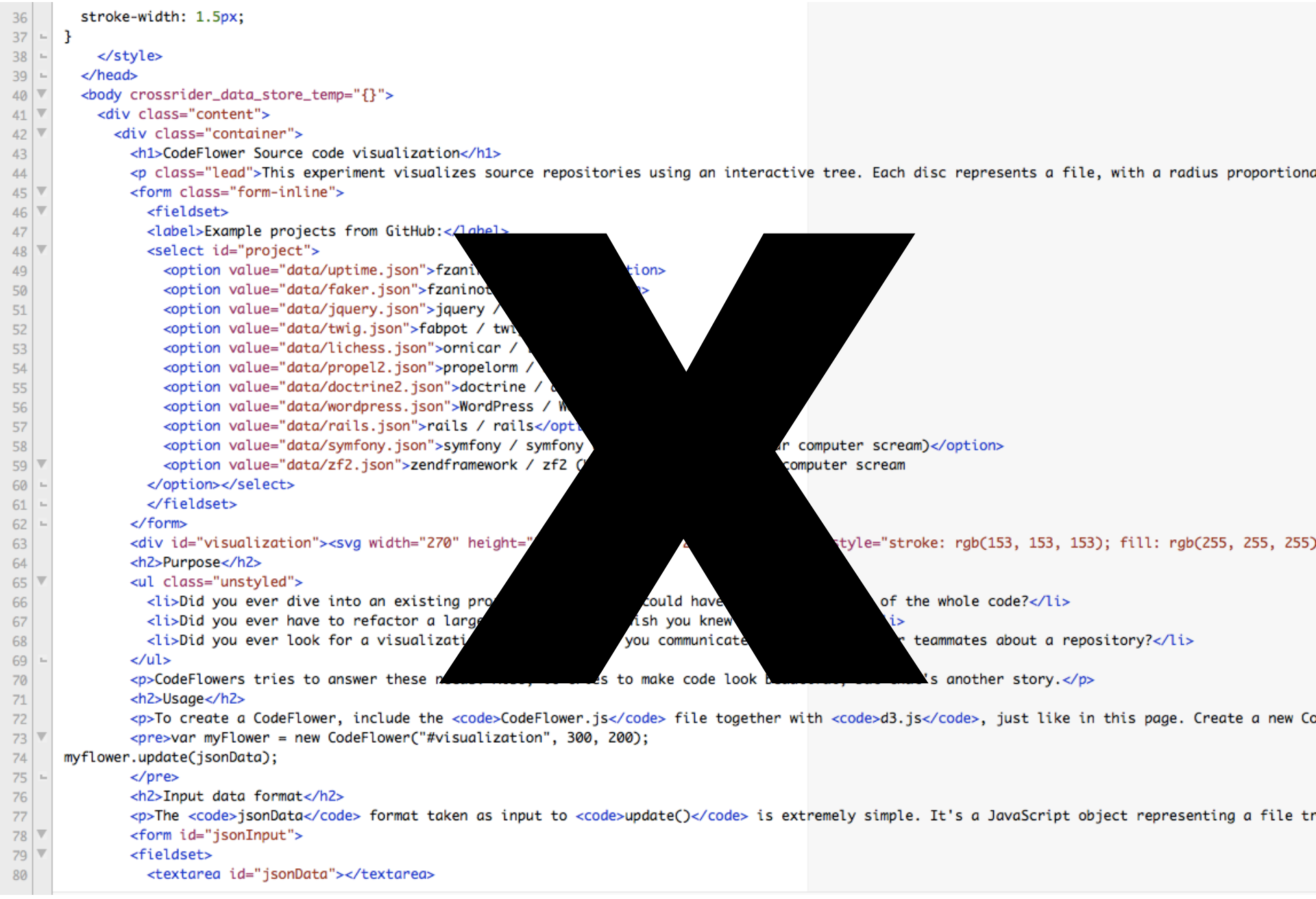
use widget on codeflower website

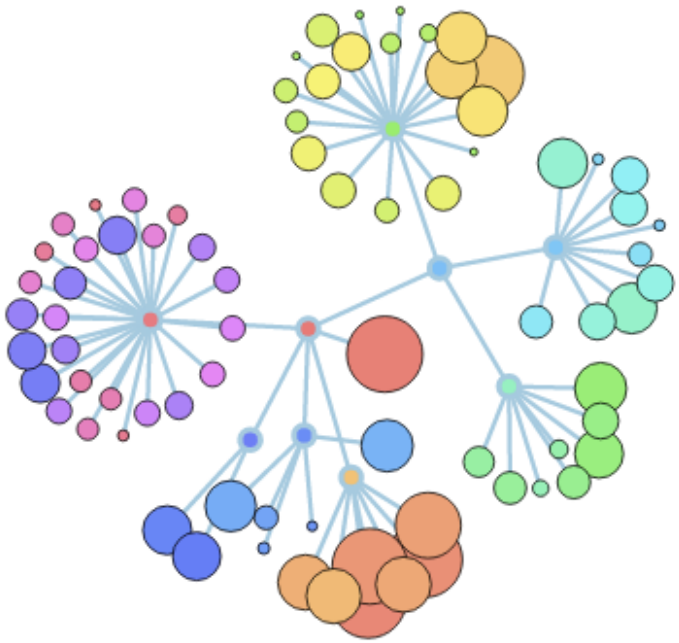


Step the Third

DOWNLOAD CODEFLOWER WEBSITE

```
  stroke-width: 1.5px;
}
    </style>
  </head>
  <body crossrider_data_store_temp="{}">
    <div class="content">
      <div class="container">
        <h1>CodeFlower Source code visualization</h1>
        <p class="lead">This experiment visualizes source repositories using an interactive tree. Each disc represents a file, with a radius proportiona
        <form class="form-inline">
          <fieldset>
          <label>Example projects from GitHub:</label>
          <select id="project">
            <option value="data/uptime.json">fzaninotto / uptime</option>
            <option value="data/faker.json">fzaninotto / faker</option>
            <option value="data/jquery.json">jquery / jquery</option>
            <option value="data/twig.json">fabpot / twig</option>
            <option value="data/lichess.json">ornicar / lila</option>
            <option value="data/propel2.json">propelorm / Propel2</option>
            <option value="data/doctrine2.json">doctrine / doctrine2</option>
            <option value="data/wordpress.json">WordPress / WordPress</option>
            <option value="data/rails.json">rails / rails</option>
            <option value="data/symfony.json">symfony / symfony (WARNING: will make your computer scream)</option>
            <option value="data/zf2.json">zendframework / zf2 (WARNING: will make your computer scream
          </option></select>
          </fieldset>
        </form>
        <div id="visualization"><svg width="270" height="270"><rect width="270" height="270" style="stroke: rgb(153, 153, 153); fill: rgb(255, 255, 255)
        <h2>Purpose</h2>
        <ul class="unstyled">
          <li>Did you ever dive into an existing project and wish you could have a bird's eye view of the whole code?</li>
          <li>Did you ever have to refactor a large application and wish you knew where to start?</li>
          <li>Did you ever look for a visualization that would help you communicate visually with your teammates about a repository?</li>
        </ul>
        <p>CodeFlowers tries to answer these needs. Also, it tries to make code look beautiful, but that's another story.</p>
        <h2>Usage</h2>
        <p>To create a CodeFlower, include the <code>CodeFlower.js</code> file together with <code>d3.js</code>, just like in this page. Create a new Co
        <pre>var myFlower = new CodeFlower("#visualization", 300, 200);
myflower.update(jsonData);
        </pre>
        <h2>Input data format</h2>
        <p>The <code>jsonData</code> format taken as input to <code>update()</code> is extremely simple. It's a JavaScript object representing a file tr
        <form id="jsonInput">
        <fieldset>
          <textarea id="jsonData"></textarea>
```



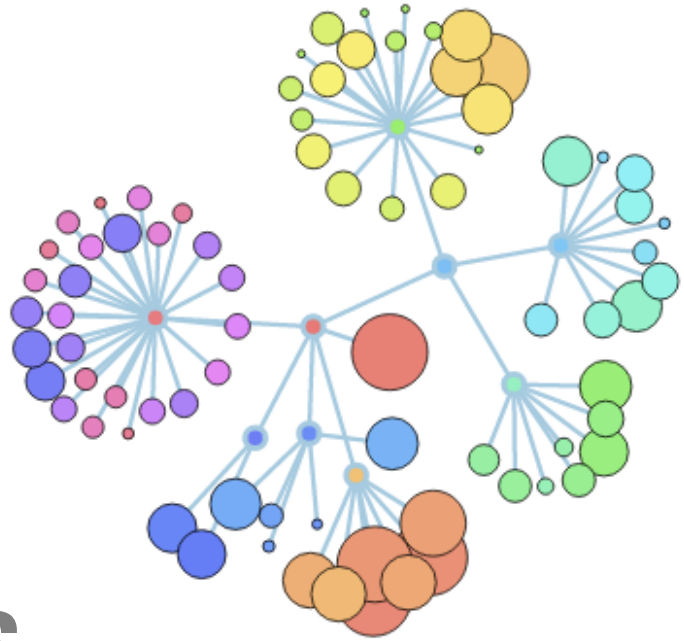


Final Project

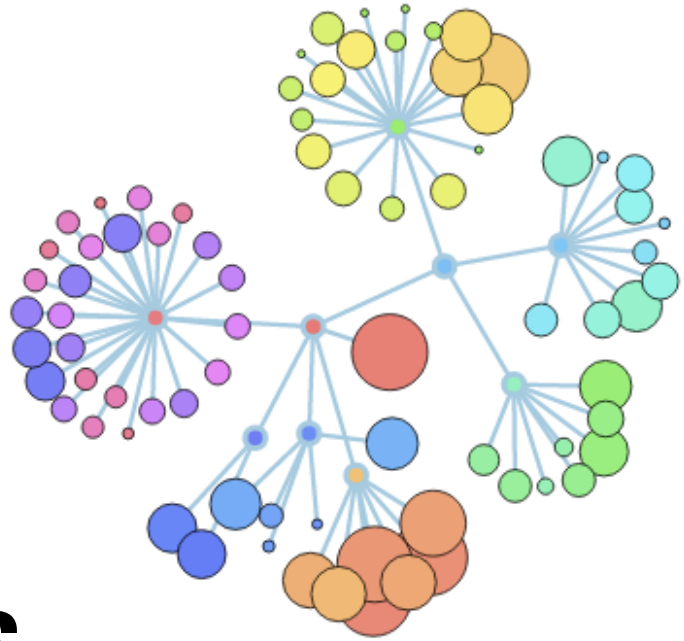
MAKE YOUR OWN CODEFLOWER

Edited html lives here:

`http://jpiscionere.github.io/code_flower_try.html`



1. **Save Website**
2. Check Dependencies
3. Check the Data Format
4. Check the html
5. Swap Out wtheta.js for flare.json



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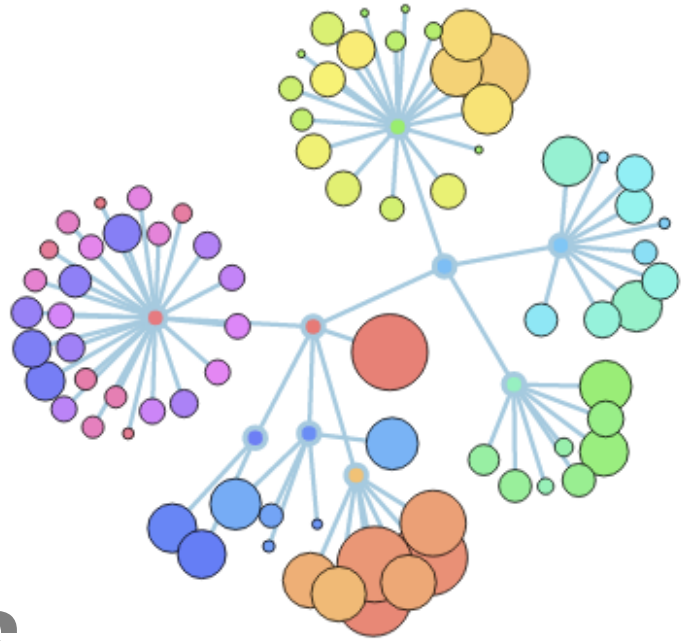

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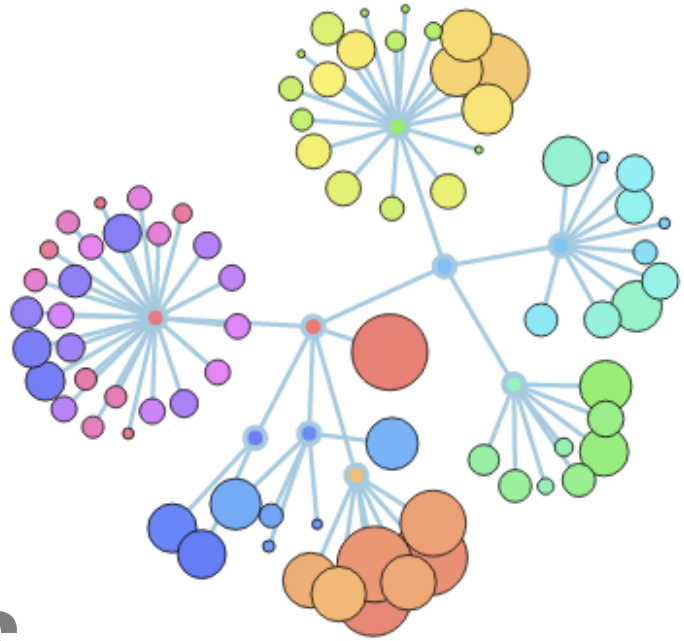

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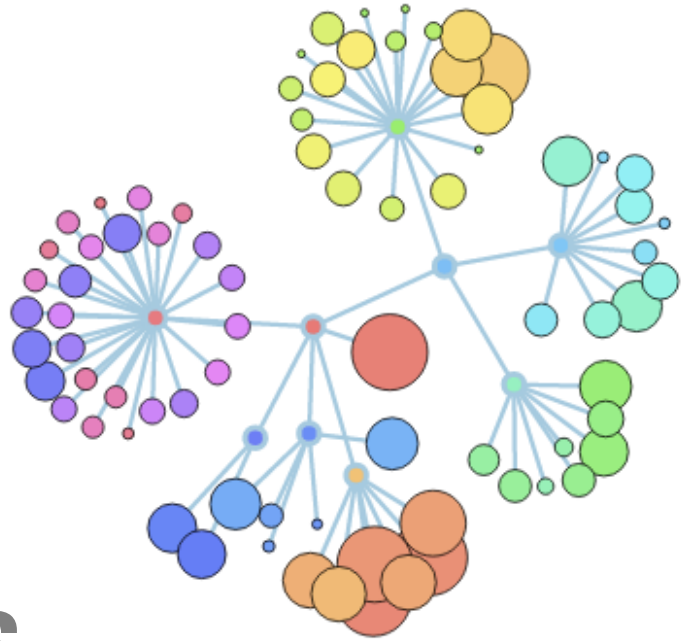

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