
# Applied Visualization

Chicago Data Visualization Meetup
2/24/2014

# Contents: ‘Envisualizing’ This Workshop

- **Not Your Typical D3 Intro**
- Exploring Bl.ocks.org
- I Want CSV, Not This Complicated Stuff
- D3, D3, D3
- Time to Use Your Own Data
- Moving Forward Solo

# Your Typical Intro-Tutorial Will Send You Down a Giant Rabbit-Hole

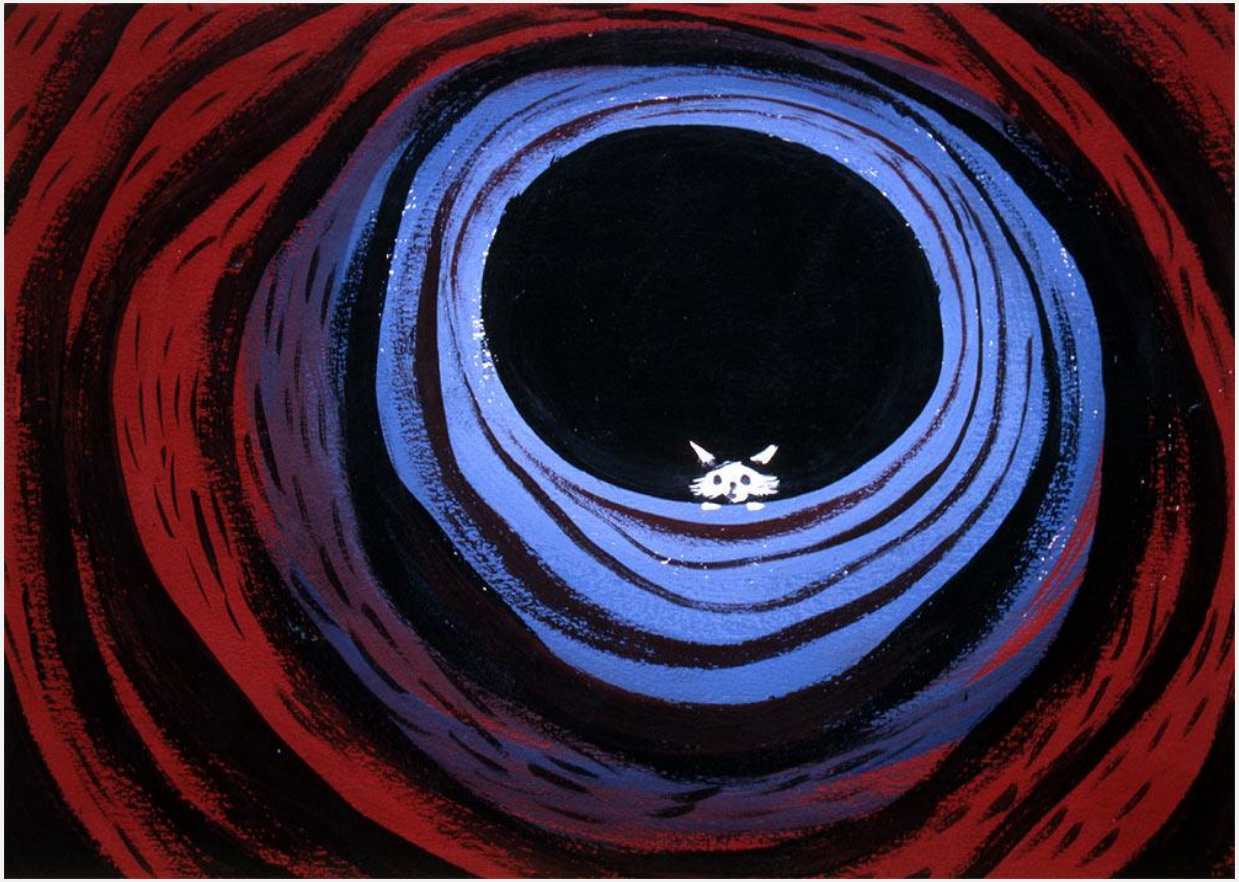
*1) I want to make awesome visualizations*

*2) Cool I should learn d3*

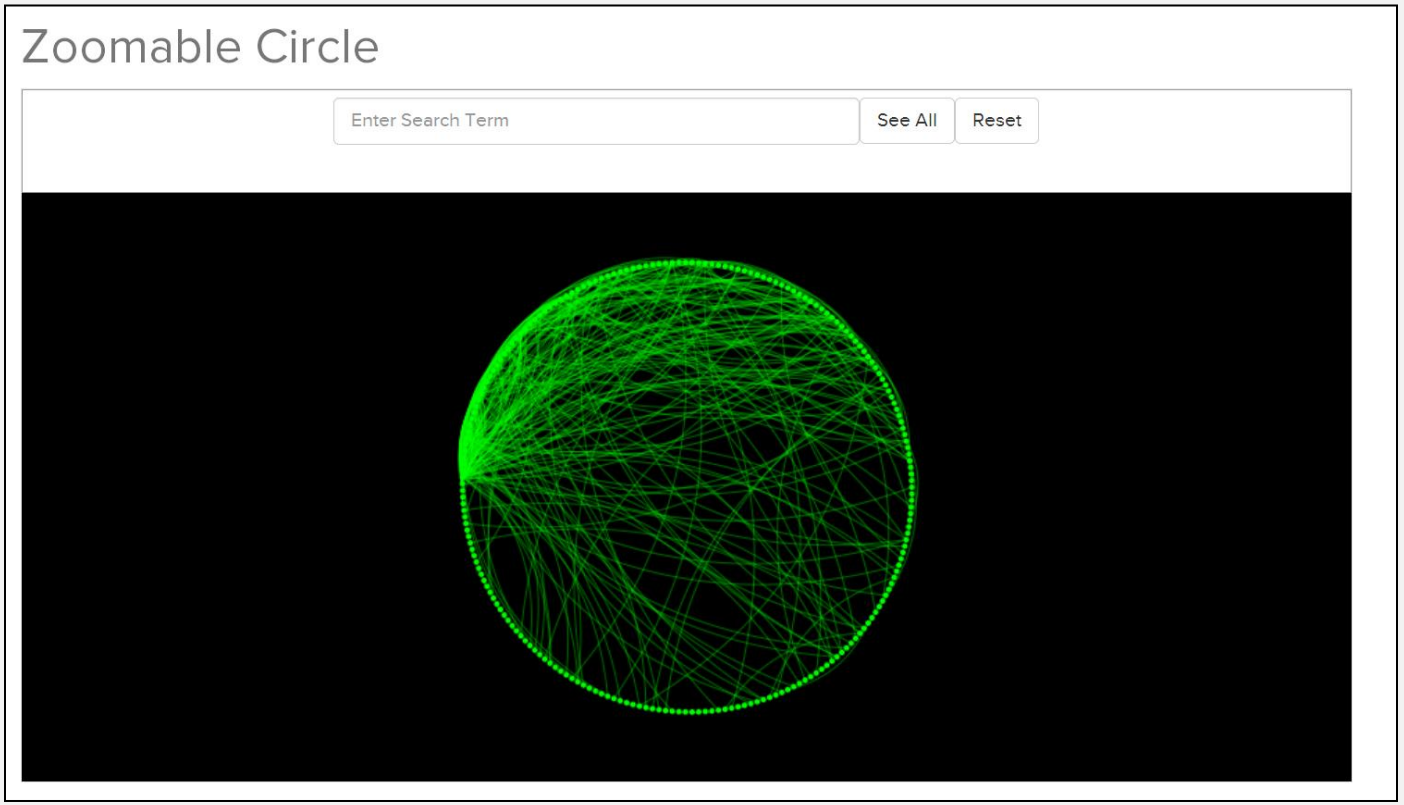
*3) No problem I just gotta figure out javascript*

*4) WHERE AM I? I JUST WANTED TO MAKE A BAR CHART!*

# Still Want to Jump In?



# But Rabbit-Holes Are Necessary – We Want Data Visualization to Have Depth




*Networks can look like Death Stars too*

Graf.ly

Make beautiful interactive graphs.

*Learning is connecting new concepts to those you already understand*

# So Let's Start With Something We Understand: *Our 'Data Safety Blanket'*

Graf.ly

Make beautiful interactive graphs.

# How We'll Learn Today

- We'll find interactive visualizations
- We'll restructure our spreadsheet data to 'populate' these visualizations
- We'll then work backwards and figure out what the visualization code is doing (and learn the basics of how d3 works)
- Finally, we'll split up into teams and try to do this stuff ourselves

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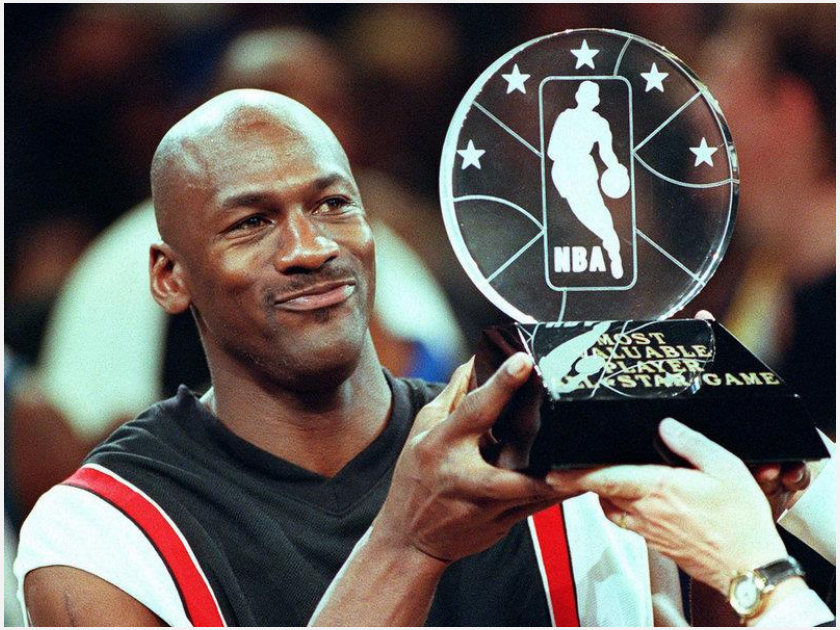
# S.A.T. QUESTION

***Michael Jordan***




Is to basketball as..

***…Mike Bostock***

Is to data viz.

# Let’s Find Visualizations on

# http://bl.ocks.org/mbostock

Graf.ly

Make beautiful interactive graphs.

# Our First Example Is Here:
# http://bl.ocks.org/mbostock/4062045

1. Create a folder (desktop is always nice). Let's call it D3DAY

2. Copy code from bl.ocks.org into a new file in D3DAY called force_v1.html

3. Copy json code directly into a new file in D3DAY called miserables.json

4. Mac/Linux: python -m SimpleHTTPServer. Windows (cmd): C:/Python27/python.exe -m SimpleHTTPServer

5. Go to localhost:8000/force_v1.html

6. It works!

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# How Does this Code Work? Follow the Money (ie the Data)

1. Console.log() to see where the data is going

2. Analyze the structure of the data

3. Difference between dictionary **{}** and list **[]** (or we can use js language if we want)

4. Change input to be csv rather than json (learn about d3.json vs. d3.csv)

5. Analyze the new structure

6. How do we convert? (answer force_v2.html)

# Optional – Use Graf.ly to convert from flat-file to nodes/links

- Sign up at [www.graf.ly](http://www.graf.ly) (shameless self-promo)

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# Did We Just Create the Most Remarkable Visualization Ever?

- Let’s try with some new data.
- Load up teams.csv into the code and see what happens. This was pulled from nba.com.
- …not ideal (see force_v3.html)

# Now We Need to Learn What the Code is Actually Doing

- Console log is key but these resources help as well:
  - Color: https://github.com/mbostock/d3/wiki/Ordinal-Scales
  - Force: https://github.com/mbostock/d3/wiki/Force-Layout
  - Data Binding: http://mbostock.github.io/d3/tutorial/circle.html

# We Need to Limit Some of the Data and Learn About Scales

- Not all connections are important. Let's add a minimum limit. Limiting is easy: just an 'If' statement.
- Scales: https://github.com/mbostock/d3/wiki/Quantitative-Scales
- Answer: force_v4.html

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# Split Into Pairs, Choose a Visualization on blocks, Build With Your Own Data

- Recommended:
  - Pie Chart: http://bl.ocks.org/mbostock/3887235
  - Bar Chart: http://bl.ocks.org/mbostock/7452541
  - Line Chart: http://bl.ocks.org/mbostock/3884955
  - Area With Brushing (extra credit): http://bl.ocks.org/mbostock/1667367
  - Parallel Coordinates (extra credit): http://bl.ocks.org/mbostock/7586334

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# Now Work Backwards With the Visualization You Created and Learn What D3 is Doing

- Axes, scales, much more on data binding, etc etc. Lots of helpers in D3 you can learn about. Here are some wonderful resources:
  - Scott Murray is the man: http://alignedleft.com/tutorials/d3/
  - http://d3noob.org is great
  - Learn from existing frameworks:
    - http://nvd3.org
    - http://code.shutterstock.com/rickshaw/
    - http://d3-generator.com/
    - http://tenxer.github.io/xcharts/
  - And so much more. Go wild!