

# Graf.ly

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## 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

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# 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!*

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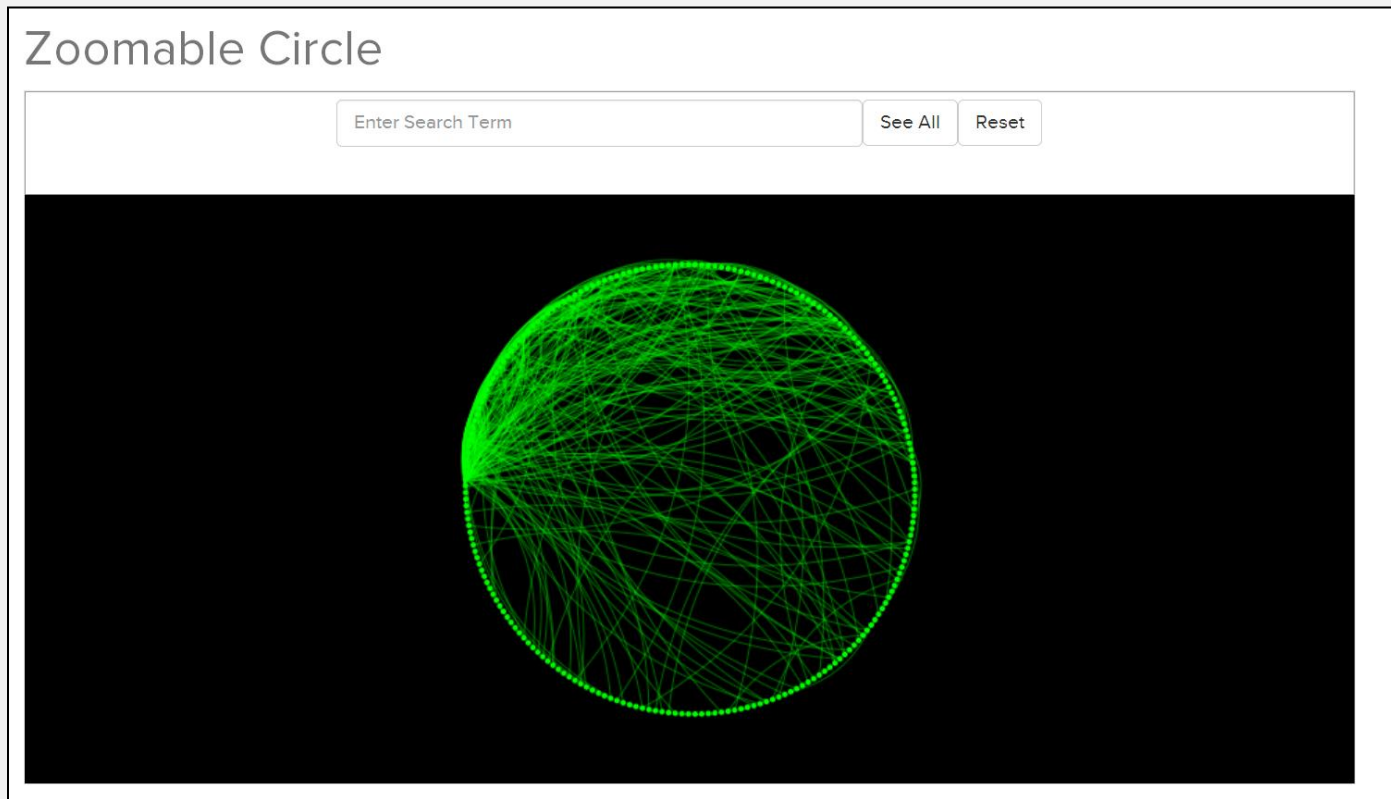
# Still Want to Jump In?



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# And That's to Be Expected – We Want Data Visualization to Have Depth



*Networks can look like Death Stars too*

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

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



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# 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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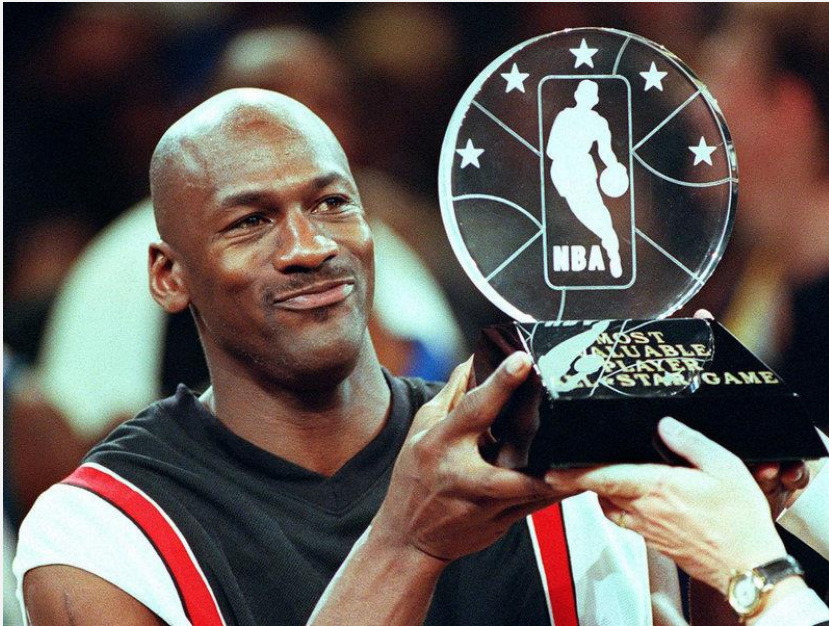
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# S.A.T. QUESTION

*Michael Jordan*



Is to basketball as..

*...Mike Bostock*



Is to data viz.

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Let's Find Visualizations on  
<http://bl.ocks.org/mbostock>

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# 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?

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

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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

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# 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>

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

- Limiting is easy, it's just an 'If' statement
- Scales: <https://github.com/mbostock/d3/wiki/Quantitative-Scales>

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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!

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