

# Joys of JavaScript!

The Data Analytics Bootcamp | 2018

# Today's Class

# Objectives

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## In today's class we'll be covering:

- JS fundamentals:

- Arrays
- Conditionals
- Loops
- Functions
- Objects

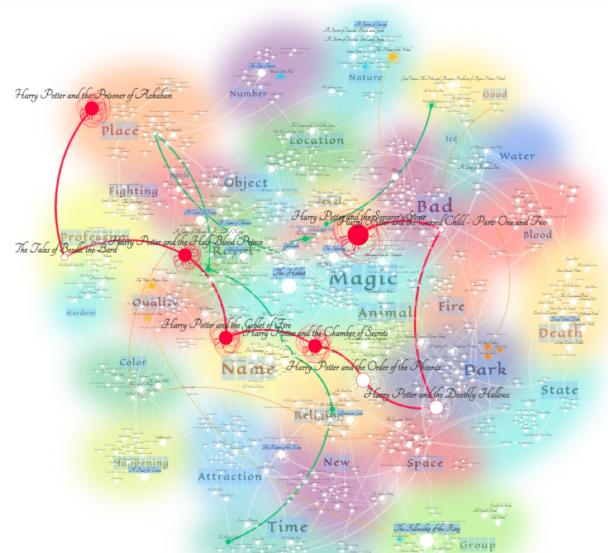
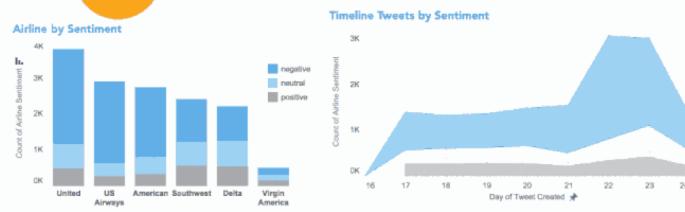
# *Why JavaScript?*

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# Why JavaScript? – Dynamic Visualizations

 U.S. Airline Twitter Sentiment: Analysis of traveler's Tweets from a week in February 2015  
Cathy Liewen, Heidi Slojewski | HCI 512 / Winter 2015

Total Tweet Count by Airline  
Click on an airline to filter the dashboard view



## Royal Constellations

A 1000 years of ancestral connections in the European royal families



### Discover the shortest path between two royals

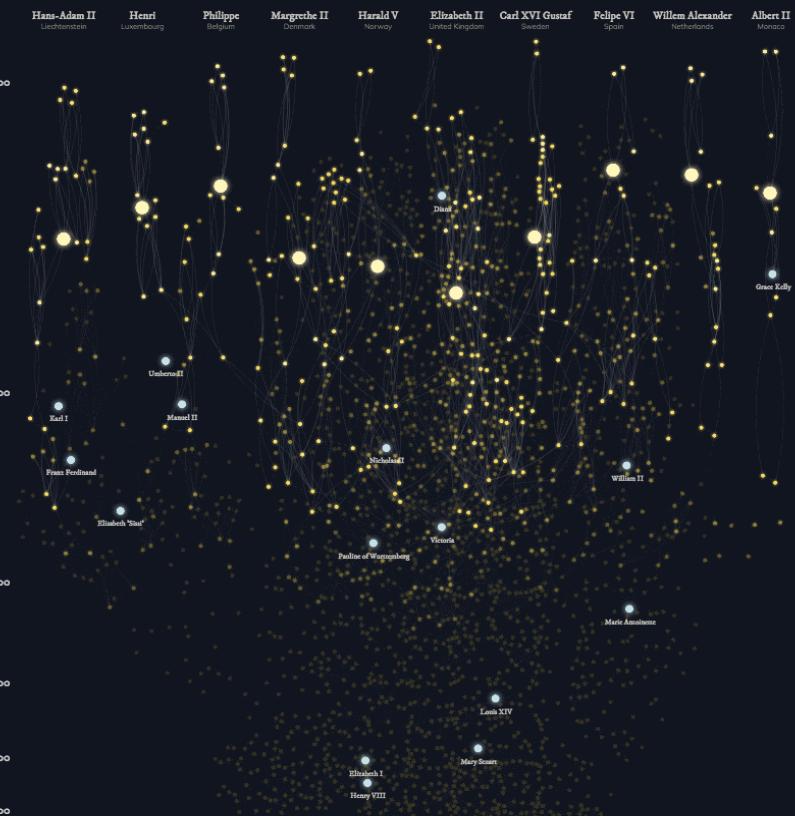
If you click on a star you will select & fix that person. By clicking on another star the visual will show you the shortest path between the two (although sometimes multiple shortest paths exist). The algorithm will then show one of these. To clear the fix on the first person, click anywhere that's not a circle.

Royal & aristocratic families are known for their fondness of marrying within their own clique. Increasing aggression between two families, creating a stronger front towards a third family, increasing territorial acquisitions, legal claim to a foreign throne through inheritance are some of the most common reasons.

This leads to very interesting & entangled family trees which the visual below tries to convey. It shows how all 10 of the current hereditary royal leaders of Europe can be connected to each other through their ancestors. We don't have to look very far back. Even the most distant royal relatives have their shared forebears born after the year 1700.

Each "star" below is a person, placed approximately on their year of birth in the vertical direction and to their closest relative who is a royal leader today in the horizontal direction. Hover over a star to see how many relatives can be connected to that person in "6-degrees of separation". For highly connected royals, such as Pauline of Württemberg, born in 1810, who is a relative of 6 current royal families, it may take a second to calculate all of connections.

This genealogy is far from complete or perfect, probably many more interconnections exist, but this peek into the history of Europe's royals shows that it's all one big (happy?) family.



# Why JavaScript? - IoT & the Cloud



# Why JavaScript? – Machine Learning in the Browser!



## Performance RNN

Conditioning  On  Off Note Density 4

Pitch Histogram

1	0	2	0	1	1	0	1	0	1	0
C	C#	D	D#	E	F	F#	G	G#	A	B
C Major	F Major	D Minor	Whole Tone	Pentatonic	Preset 1	Preset 2				

Reset RNN Save Preset 1 Save Preset 2



Performance RNN was trained in TensorFlow on MIDI from piano performances. It was then ported to run in the browser using only Javascript in the [deeplearn.js](#) environment.

deeplearn.js

Code Getting Started Examples Tutorials API Reference

Color mode: `rgb`

Activation function: `tanh`

Number of layers: 2

`z1 time`

`z2 time`

RANDOMIZE STOP

What is a CPPN?

# *How to Learn JavaScript*

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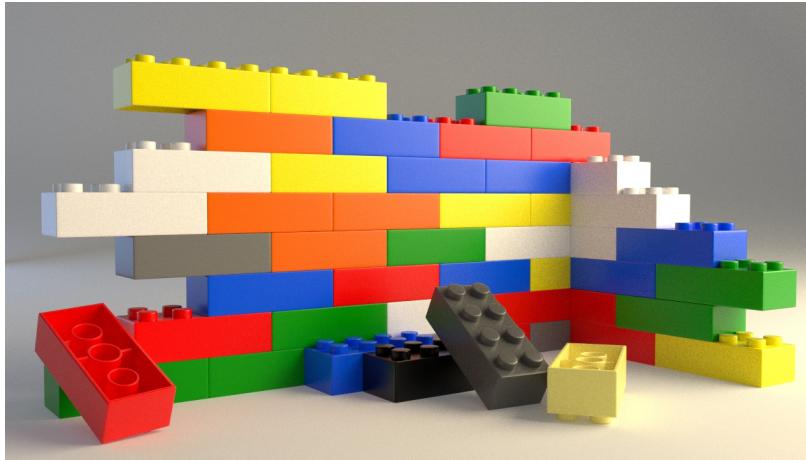
# Your Brain on JavaScript...

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# Start slow...

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# Eventually, this will be you...

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**Just don't become Lego Alderaan...  
Talk to us if you need extra help!**

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# Overall Tips

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- **Review Immediately:** We'll be building upon these concepts quickly. The firmer your grasp now, the better off you'll be.
- ***Re-do the exercises in class:*** Don't just re-read! Actually spend the time to re-do them from scratch on your own.
- **Get Help:** Come to office hours. Ask conceptual questions. Ask specific questions. Just keep asking questions!
- **Don't be Afraid:** You will get this. It will take time, but you will get this. Just keep at it. Patience will pay off.