Requirements

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Graded – Exercises

- Practical exercises that build on readings
- A total of three (3) exercises, with each exercise being worth 15 points
- Exercises will increase in complexity
- Exercises will align with the course readings (generally)
- Exercises may be (and are encouraged to be) discussed among students and during sessions
- Exercises are individual work

Graded – Course Participation

- One of the coolest things about information analytics is the opportunity to learn as you go
- Each week, the async sessions provide you – the student – a chance to explore the theory and practice of analytics
- A total of ten (10) weekly sessions with each week/module being worth 1 point
- Maximum points are possible if the student completes the questions and activities prior to the weekly group discussion

Graded – Course Project

- The most extensive exercise of the course
- One course project worth 35 points
  - Project proposal worth 3 points
  - Project status worth 2 points
  - Final project worth 30 points
- Aligned with overall course goal:
  - *Be able to match available analytical methodologies to the information needs of clients and users, and communicate the results in a meaningful way.*

Graded – Discussions

- Weekly discussions on topics related to information analytics
- A total of ten (10) discussion posts, with each week/discussion being worth 1 point
- Discussions emphasize collaborative learning between peers, similar to the case method
- Discussions will align with the course readings and assigned case studies (generally)
- In the weekly session, there is not “a correct answer,” but not participating is an incorrect answer

OSEMiN

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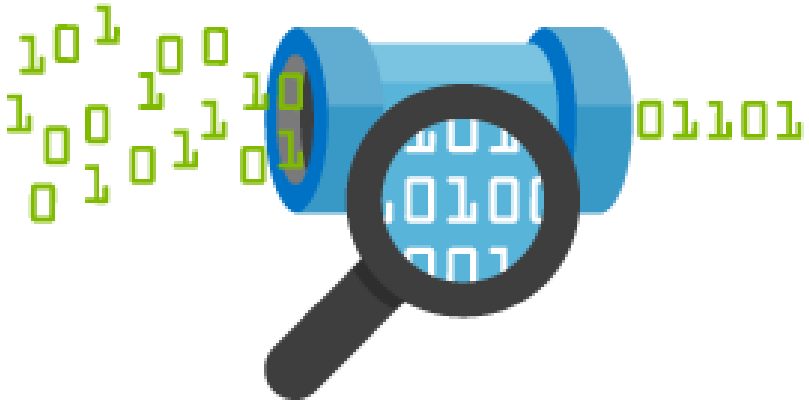
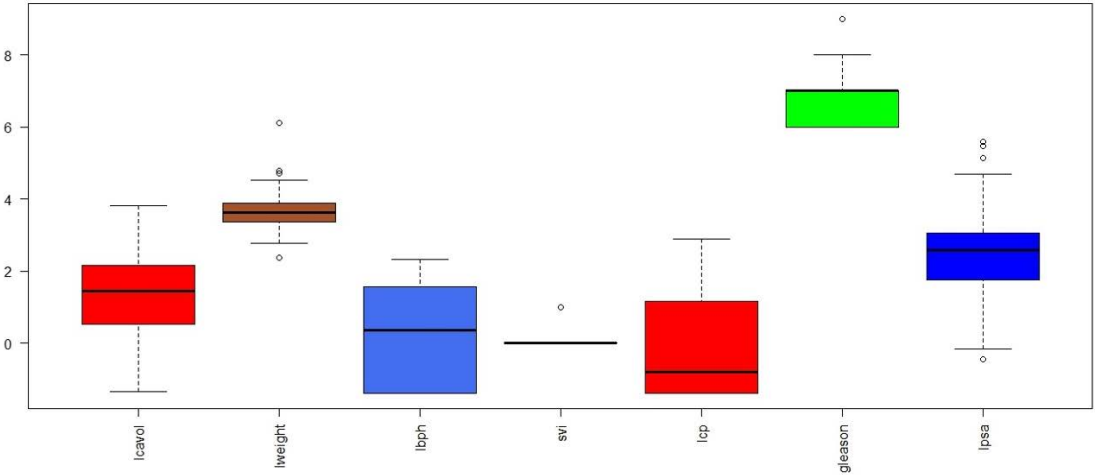
Doing Data Science

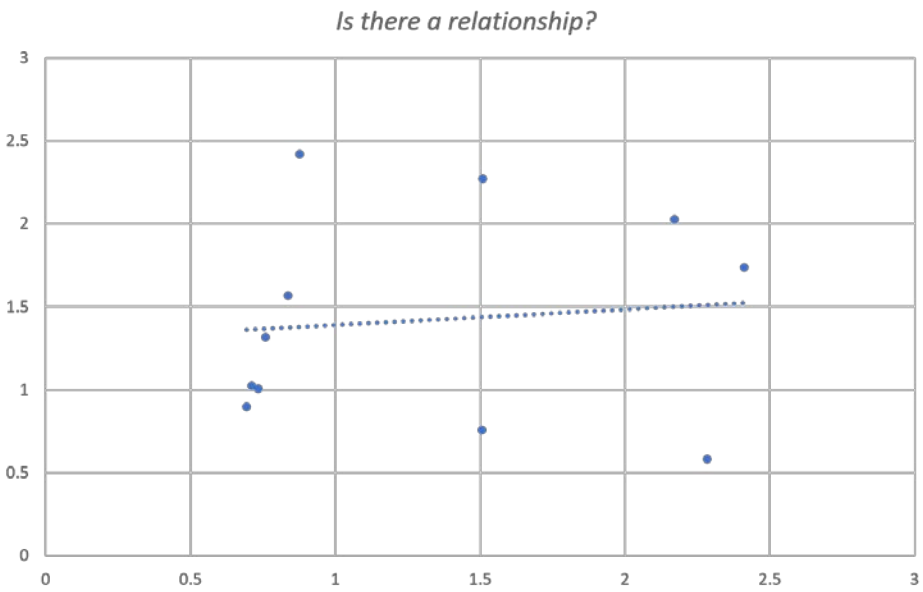
- Data analytics is an approach for turning data into information
- Frawley et al (1992) define knowledge discovery as the nontrivial extraction of information from data
- Several steps in a data analytic approach
  - Collection, preparation, **analysis**, visualization, management, and preservation
- O'Neil & Schutt (2013) describe this process as **OSEMiN**

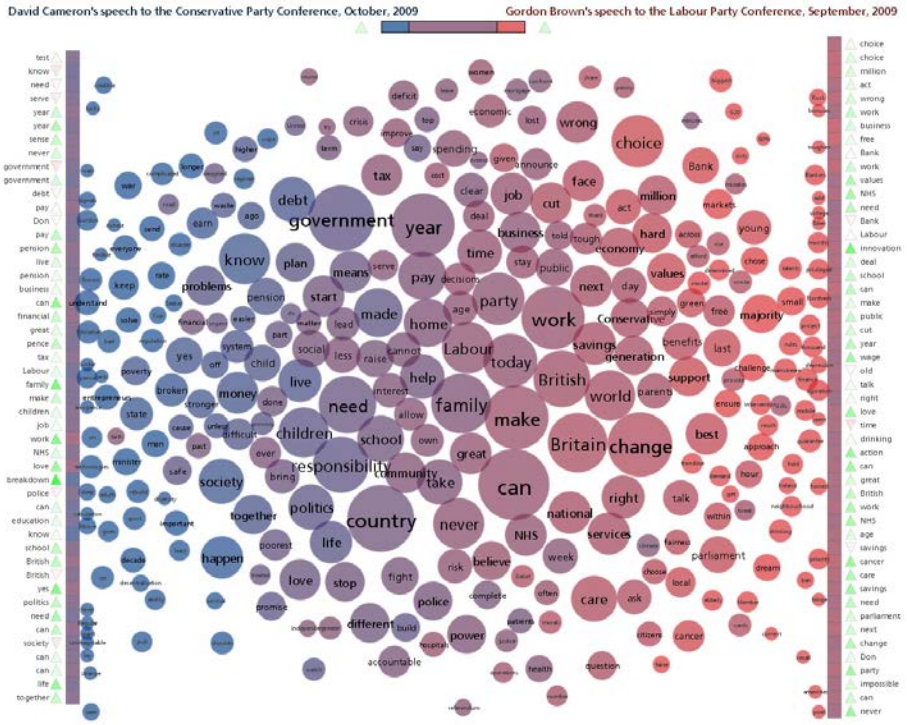
Obtain – Scrub – Explore





Model – Interpret





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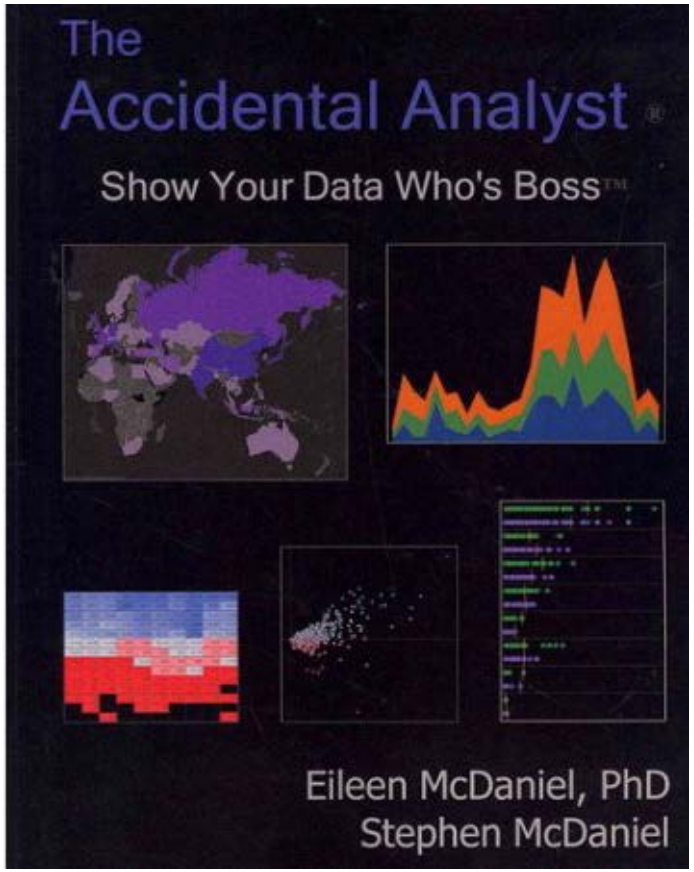
Alternatives: Knowledge Discovery

Alternatives: The 7 C's

- Choose your questions
- Collect your data
- Check out your data
- Clean up your data
- Chart your analysis
- Customize your analysis
- Communicate your results



Crawl

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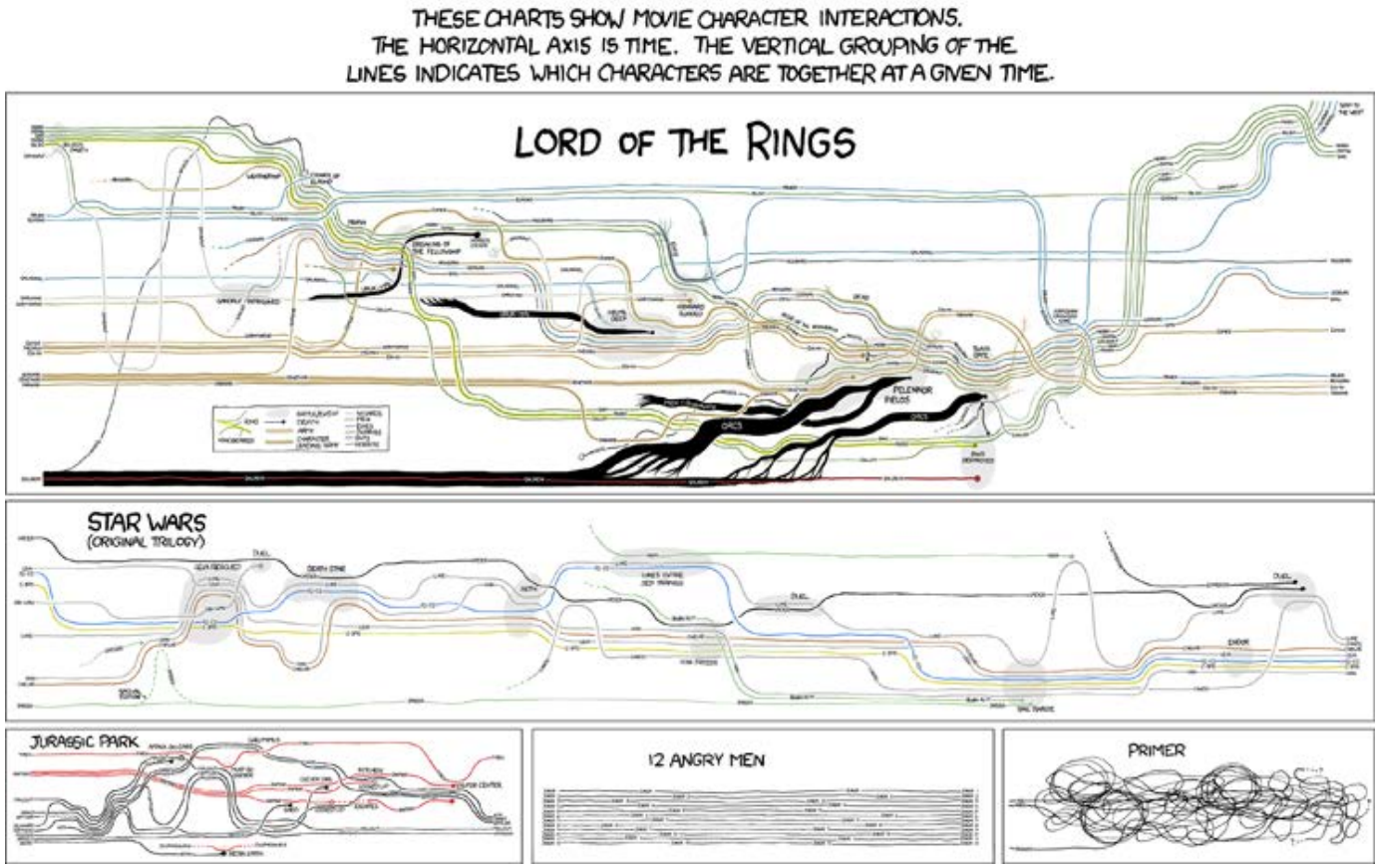
Describing



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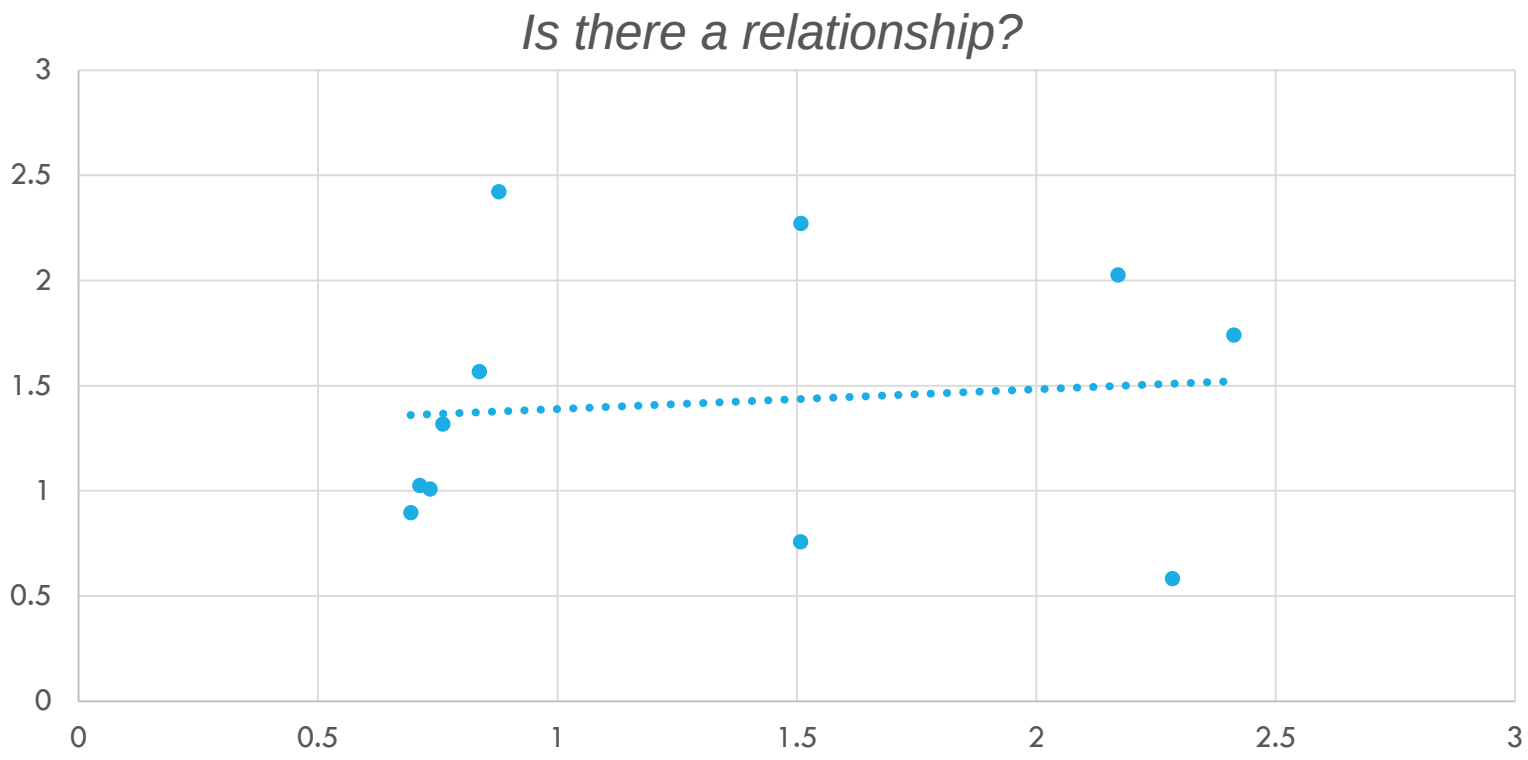
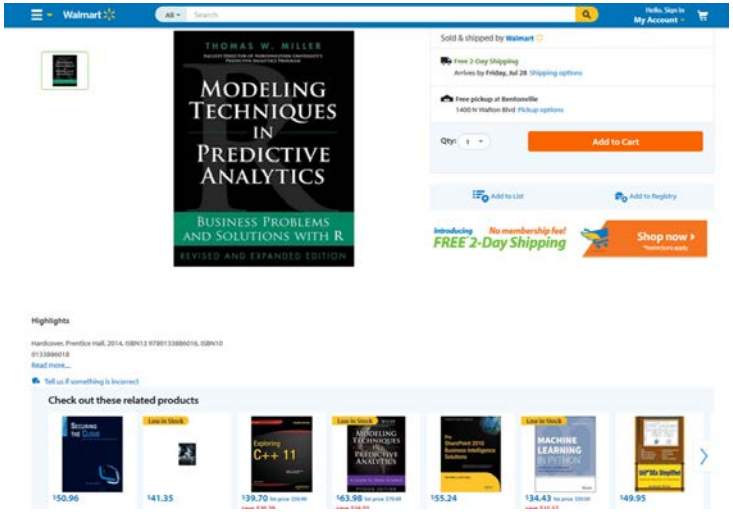
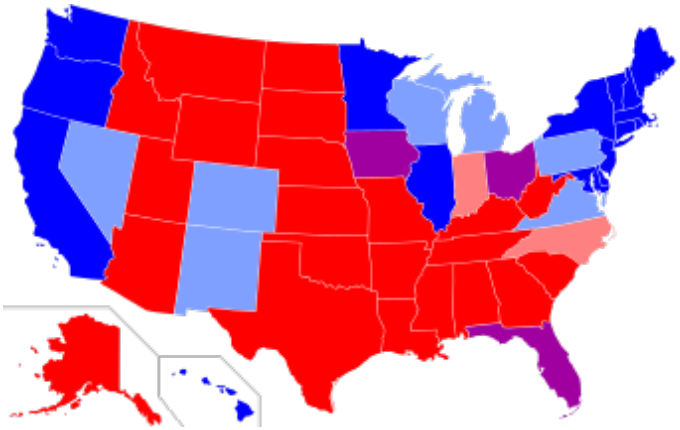
Modeling



Choosing





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Walk

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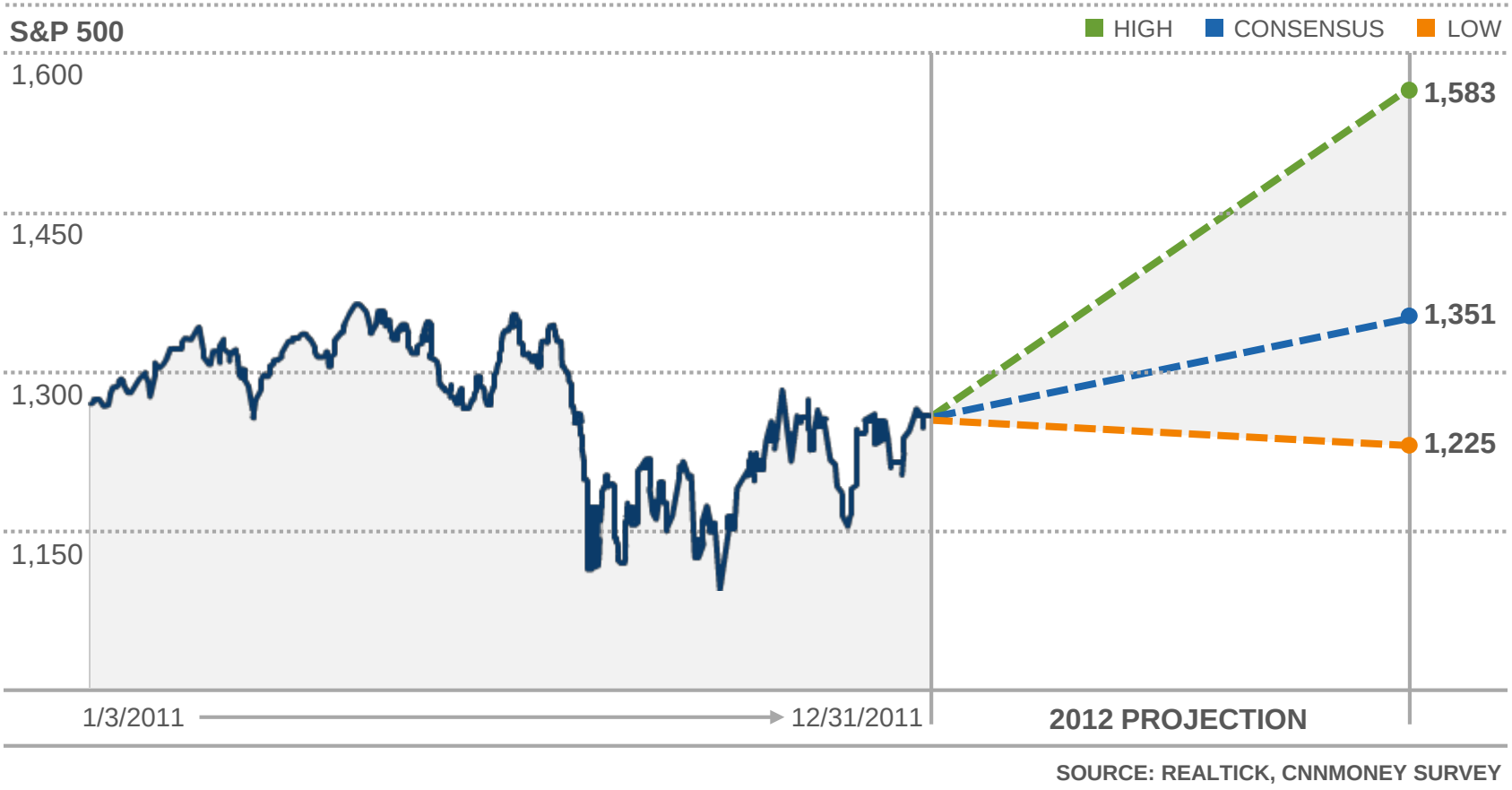
Forecasting



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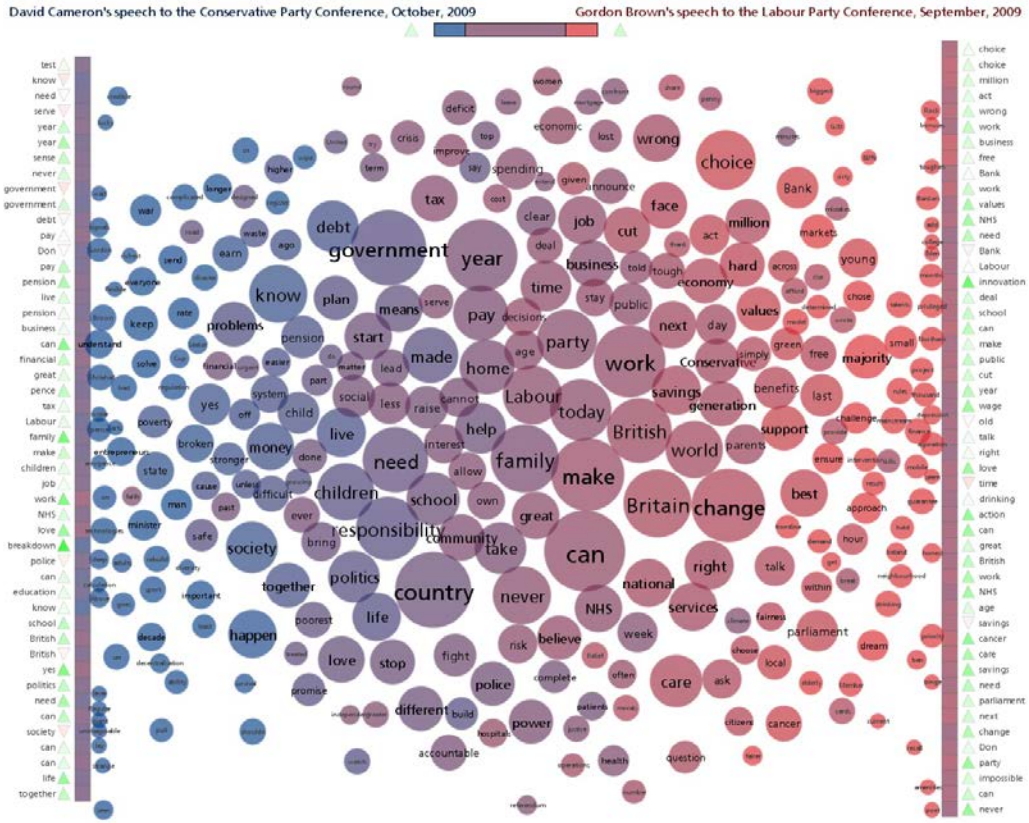
Inferring



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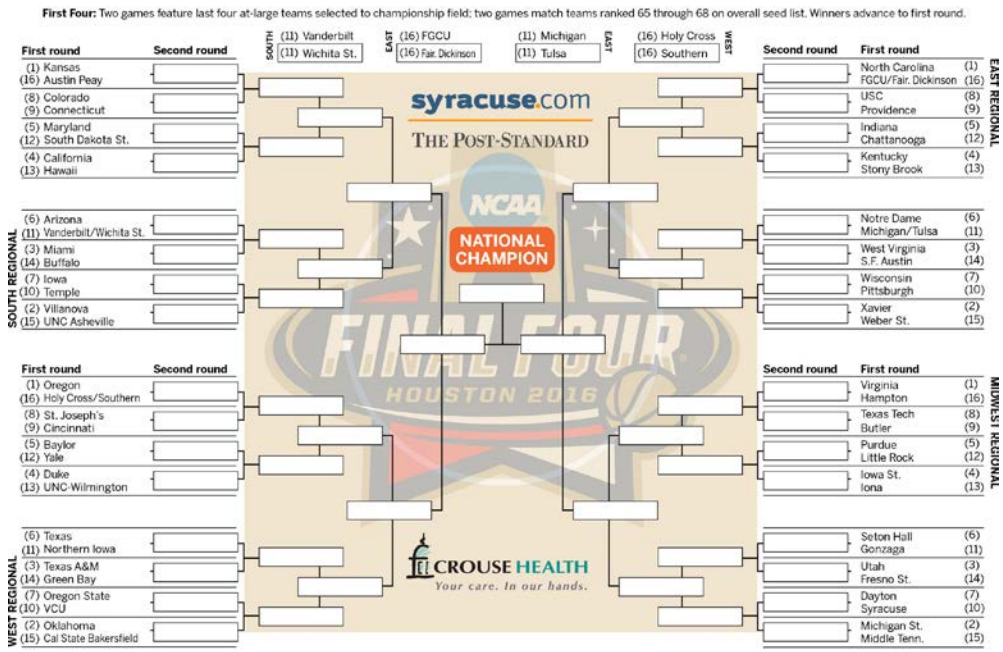
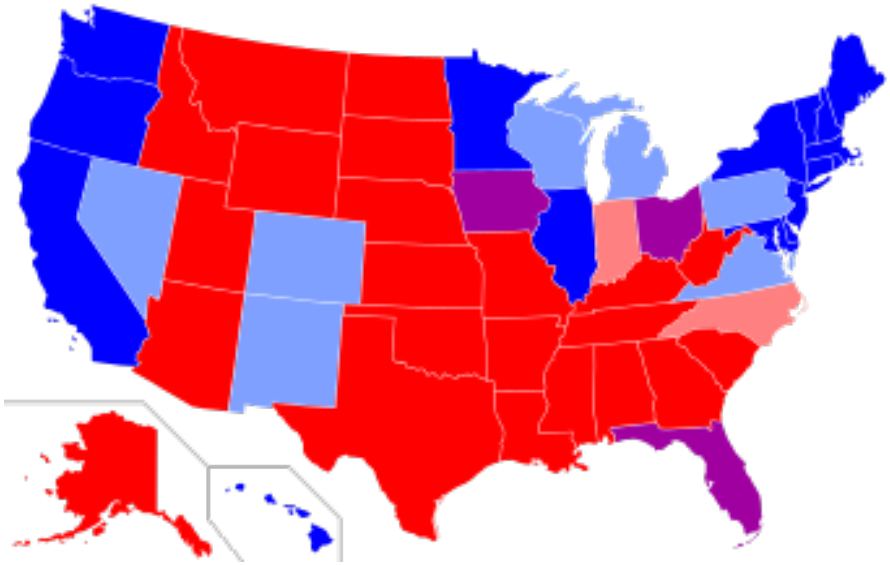
Picking





aka
choosing again

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Run

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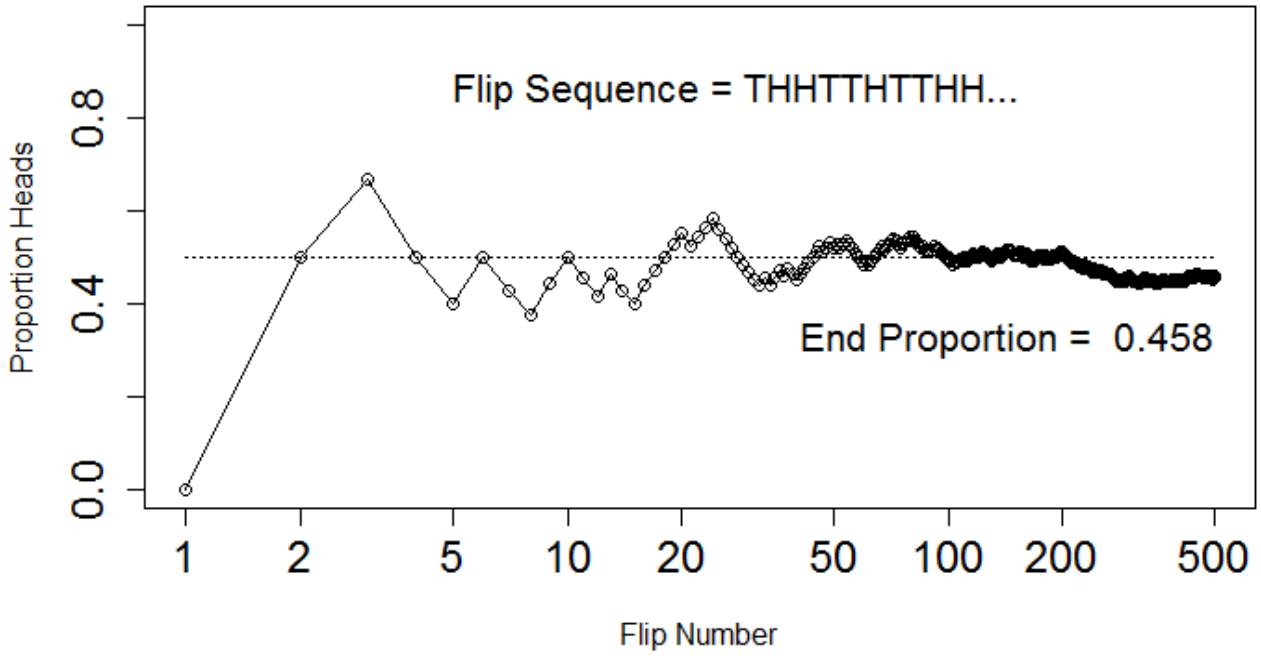
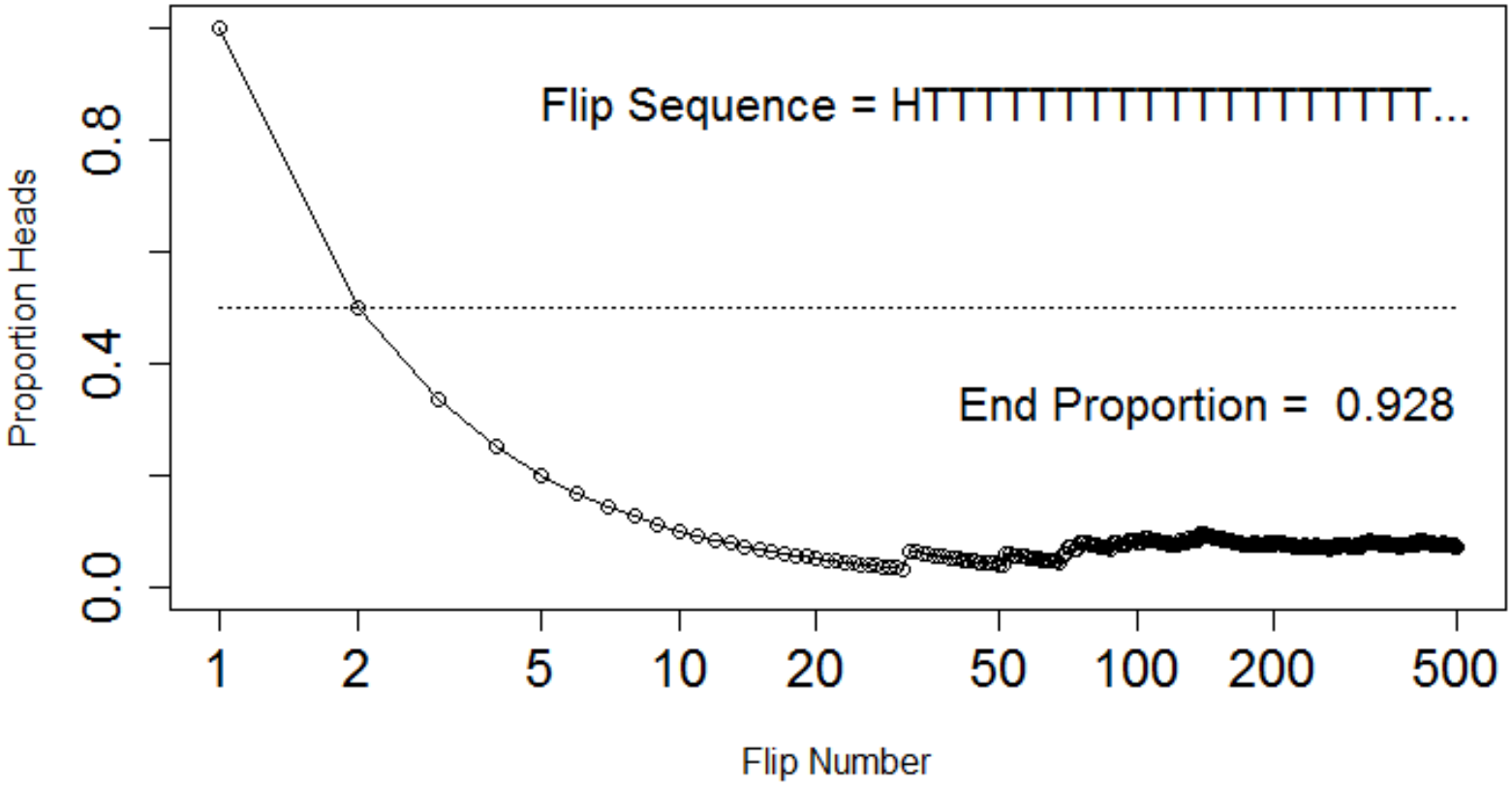
Choosing Again



$$P(A|B) = \frac{P(B|A) \times P(A)}{P(B)}$$

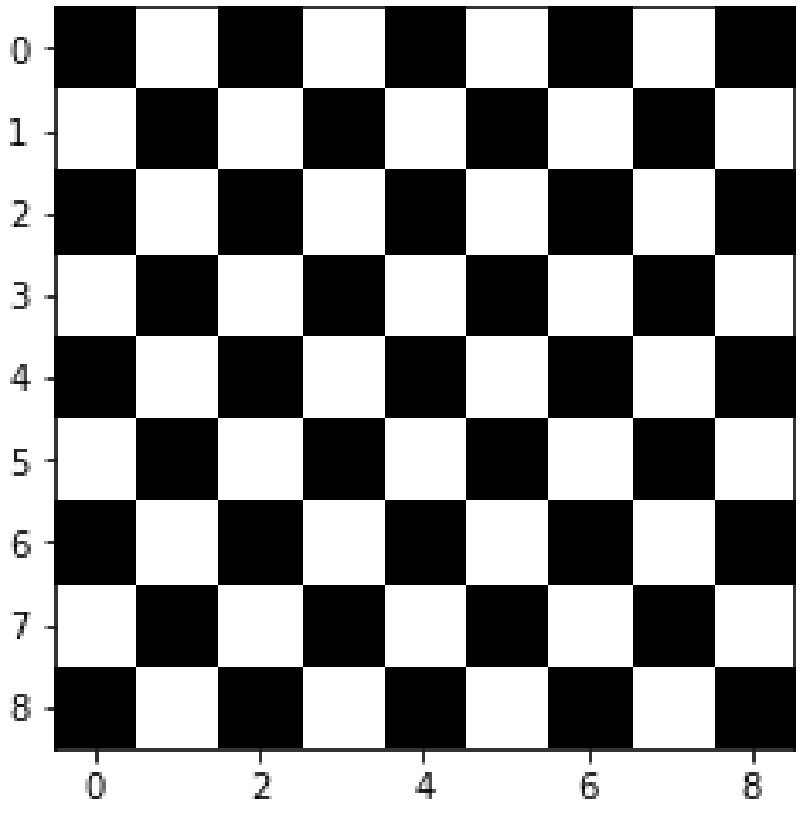
Biased Coin?

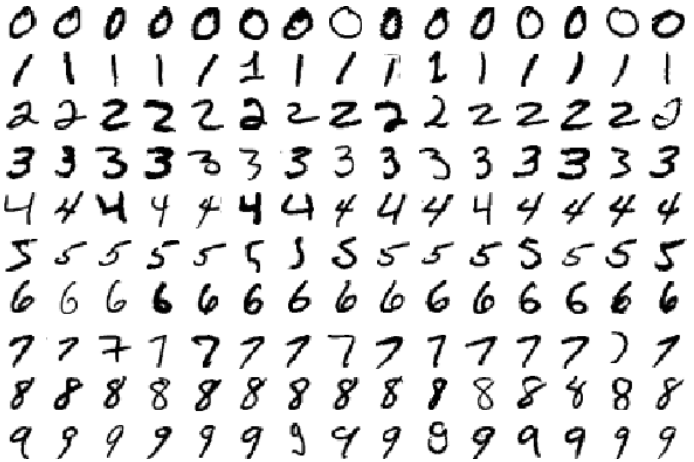

Flip Sequence = HTTTTTTTTTTTTTTTTTT...
End Proportion = 0.928
Proportion Heads
0.0
0.4
0.8
1
2
5
10
20
50
100
200
500
Flip Number

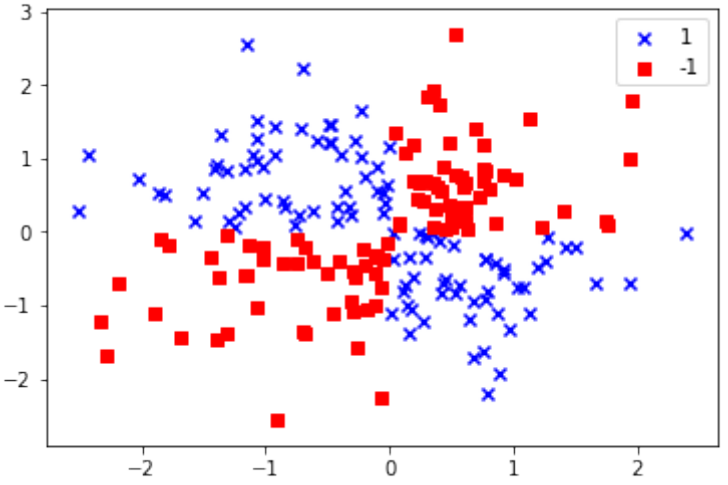
Machine Learning

Microsoft CNTK

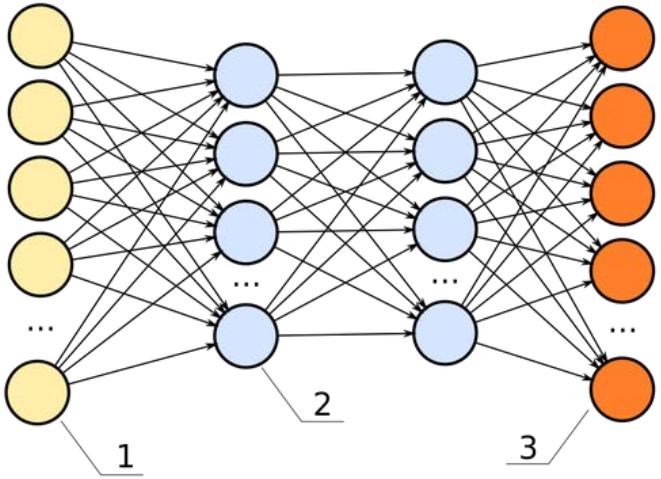
Machine Learning

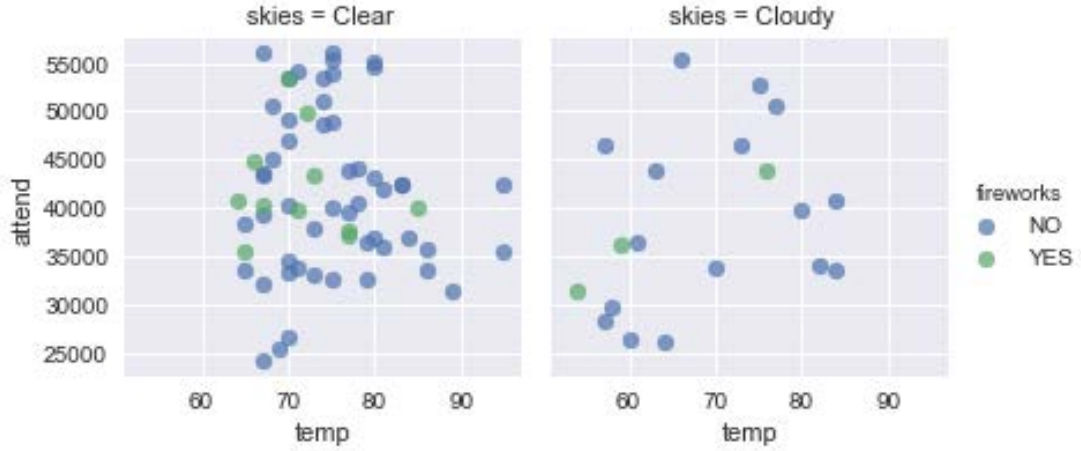


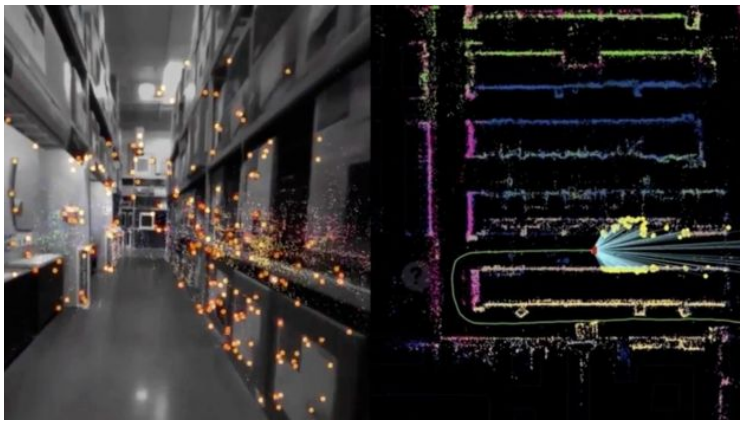




Machine Learning







Tools

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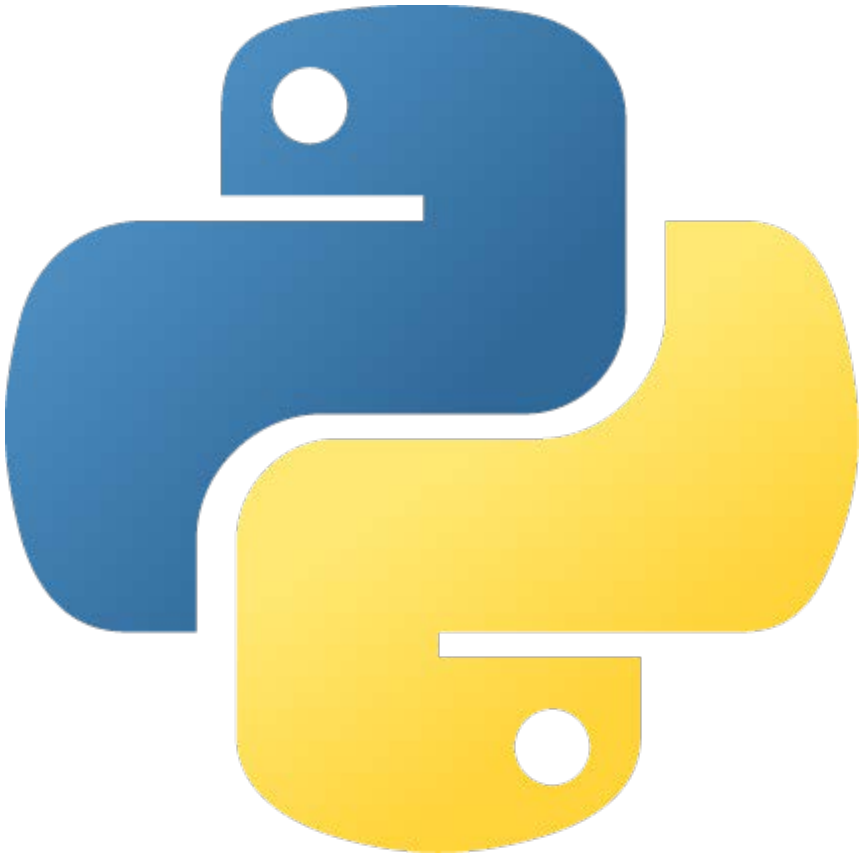
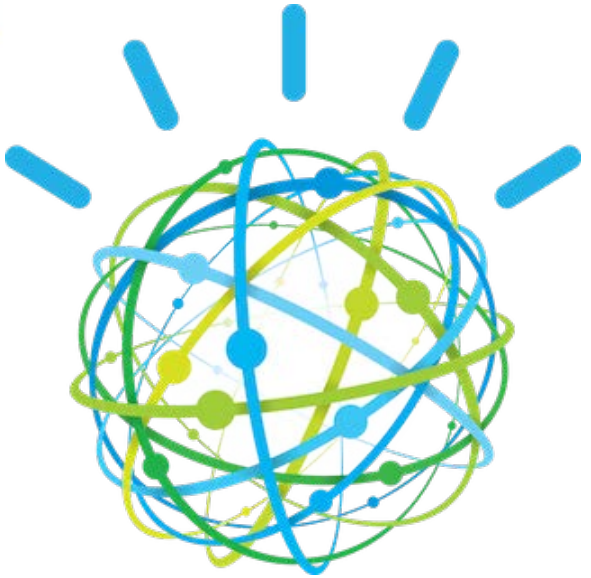
Python



Anaconda

Spark

Others