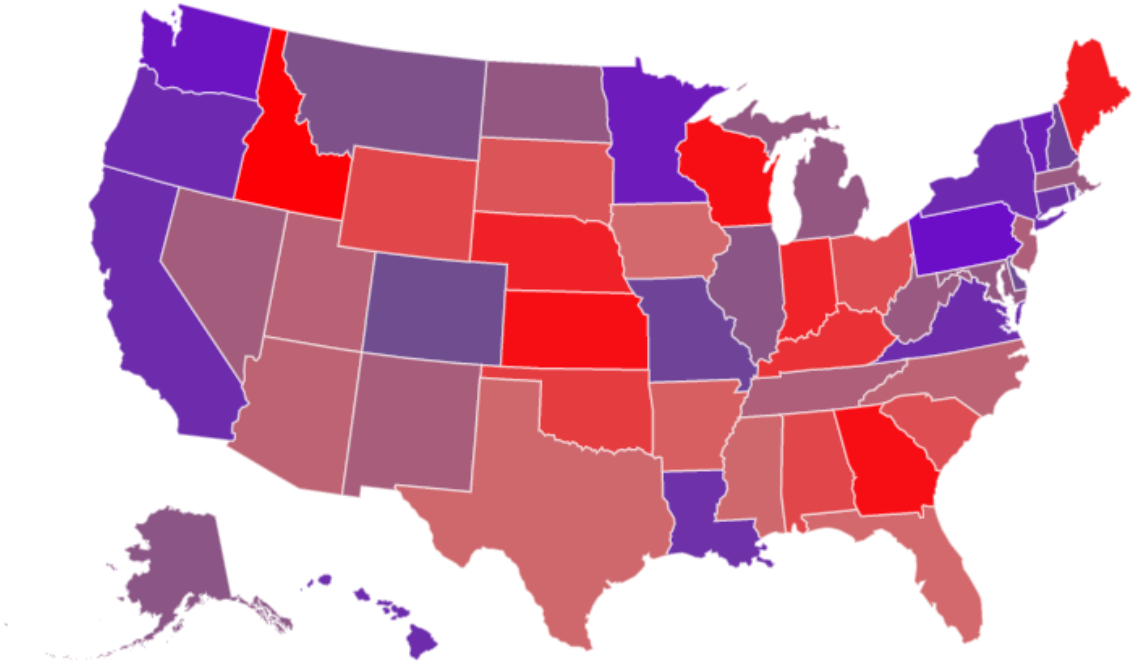
How liberal is your senator?

Feb 2 2016

How Liberal or Conservative is your governor or state?

- http://www.huffingtonpost.com/findthebest-/every-us-governor-from-mo_b_7896858.html
- Using data from OnTheIssues, InsideGov broke down the political ideology of every governor. OnTheIssues analyzes public statements, press releases, campaign platforms and voting records to score each governor's view on important issues. We then converted these scores to a single scale from -10 (most liberal) to +10 (most conservative).

Governor Ideology by State



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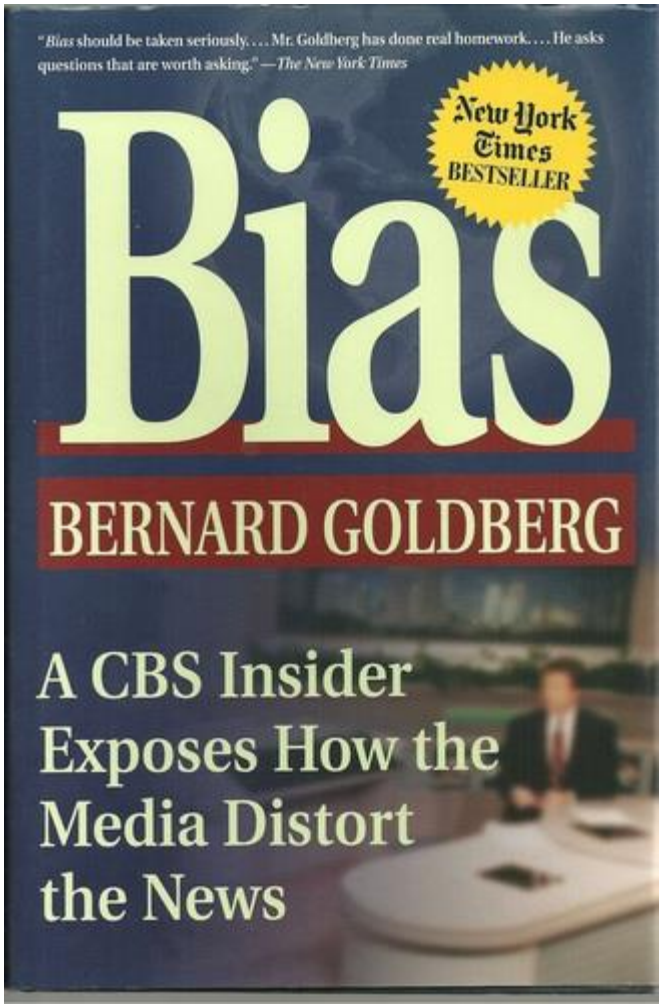
Last Class: Liberal Media Bias



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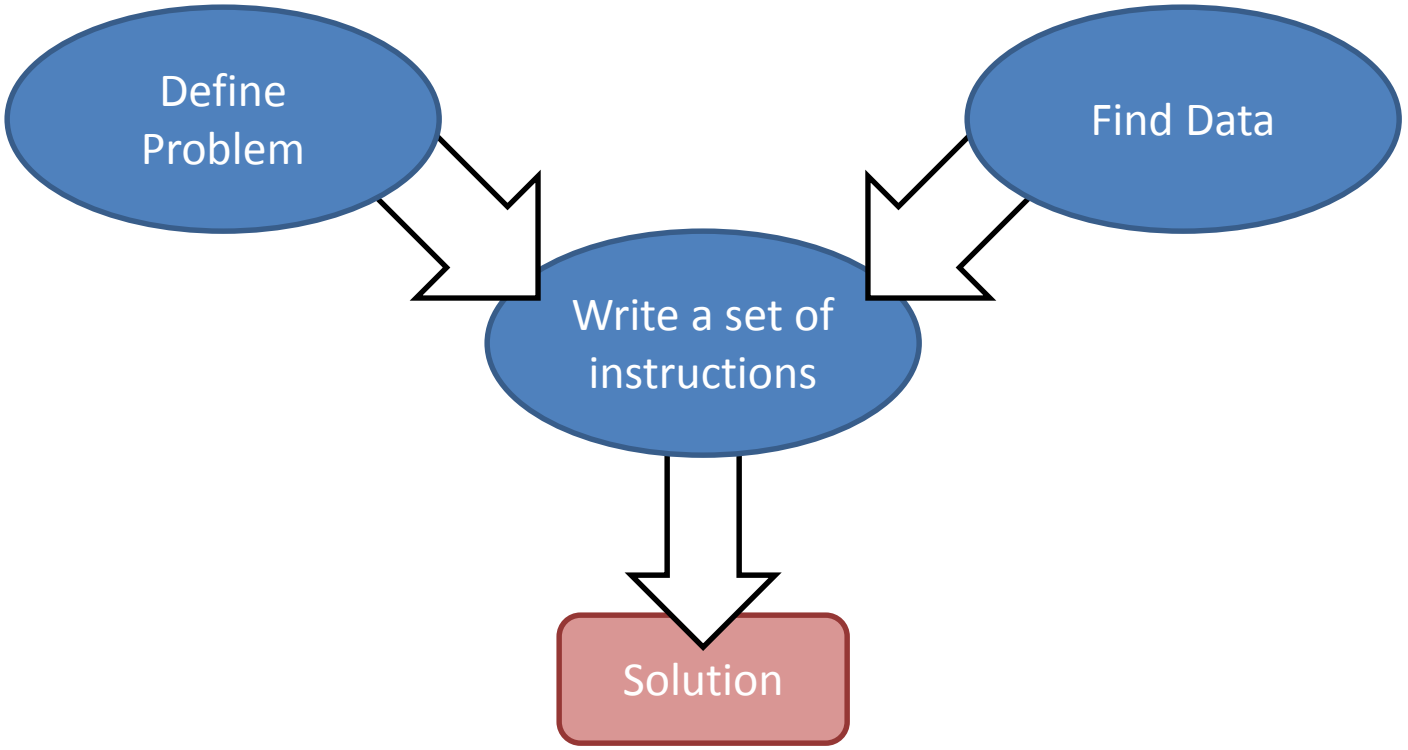
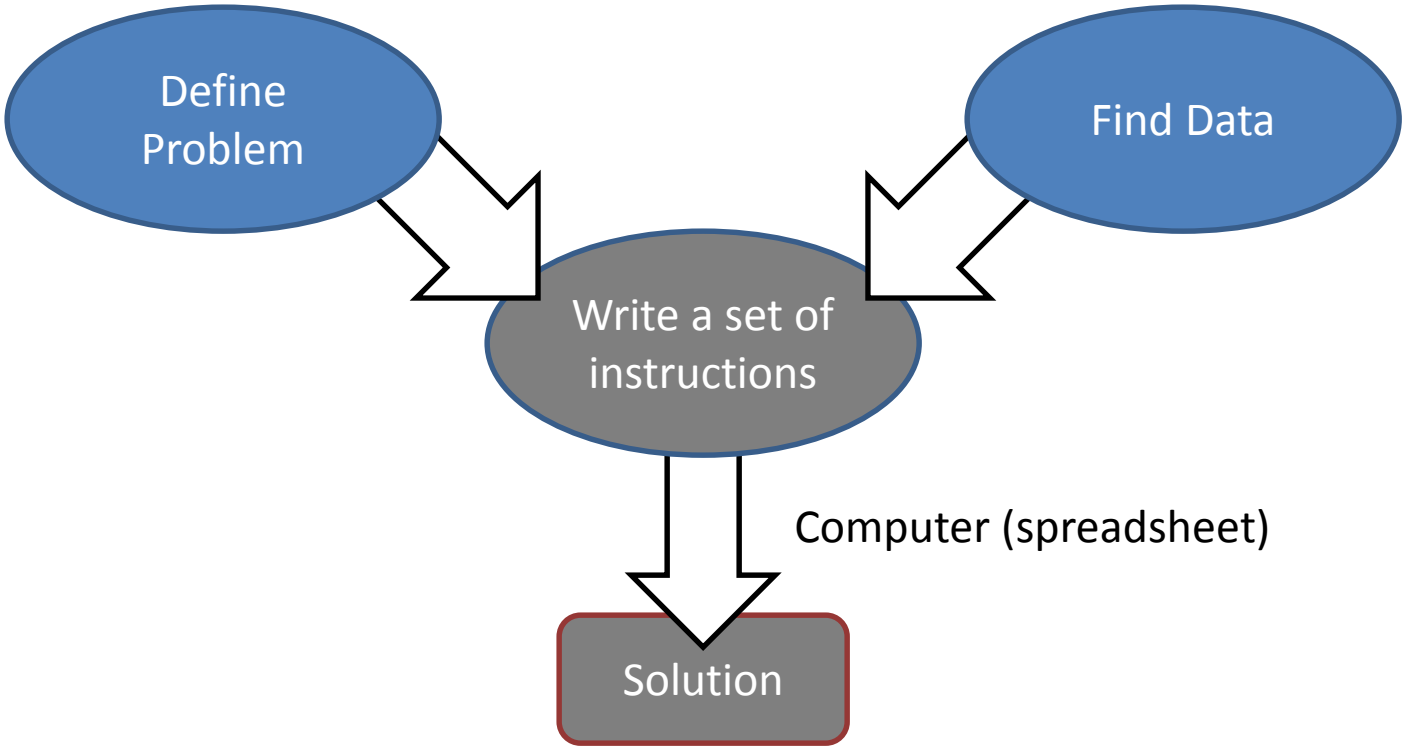


"On the Bias." Geoffrey Nunberg, on NPR's *Fresh Air*

Today's Class



Discuss

- If someone had asked you, in January, “How liberal is your senator?”, how would you have answered?
  - If you’re not really politically aware, what would you have done to help you give a confident answer?

More serious approaches?

- Liberal views expressed in speeches?
- Liberal campaign donors?
- How often the person is called “liberal”

Problem Definition

Conservatives





Liberals





Problem Definition

Conservatives

How Liberal/Conservative is

?

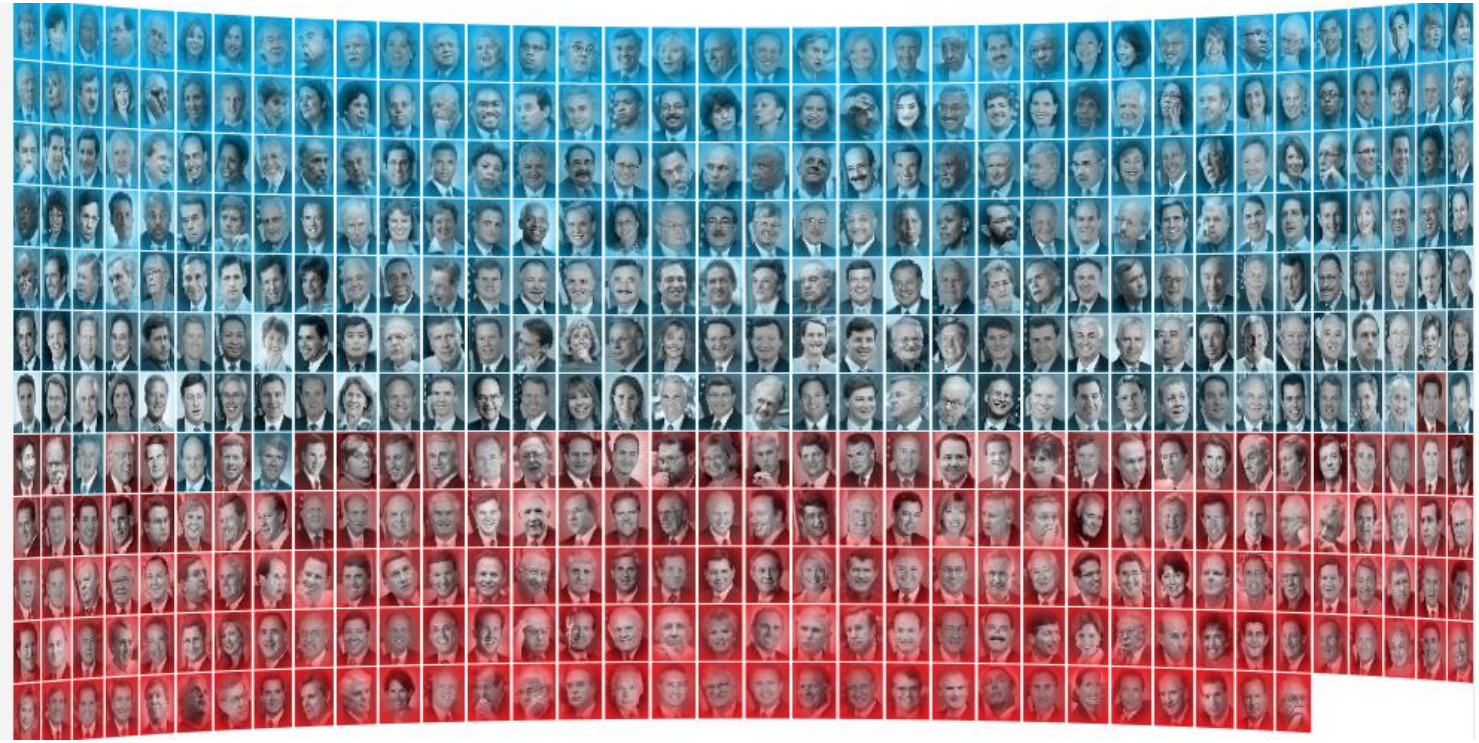
Liberals

Problem Definition

- Defining a computational problem is sometimes influenced by the availability of data.
- More on data sources later in today's class.

Problem Definition

- Consider a set of politicians
- Rank them somehow



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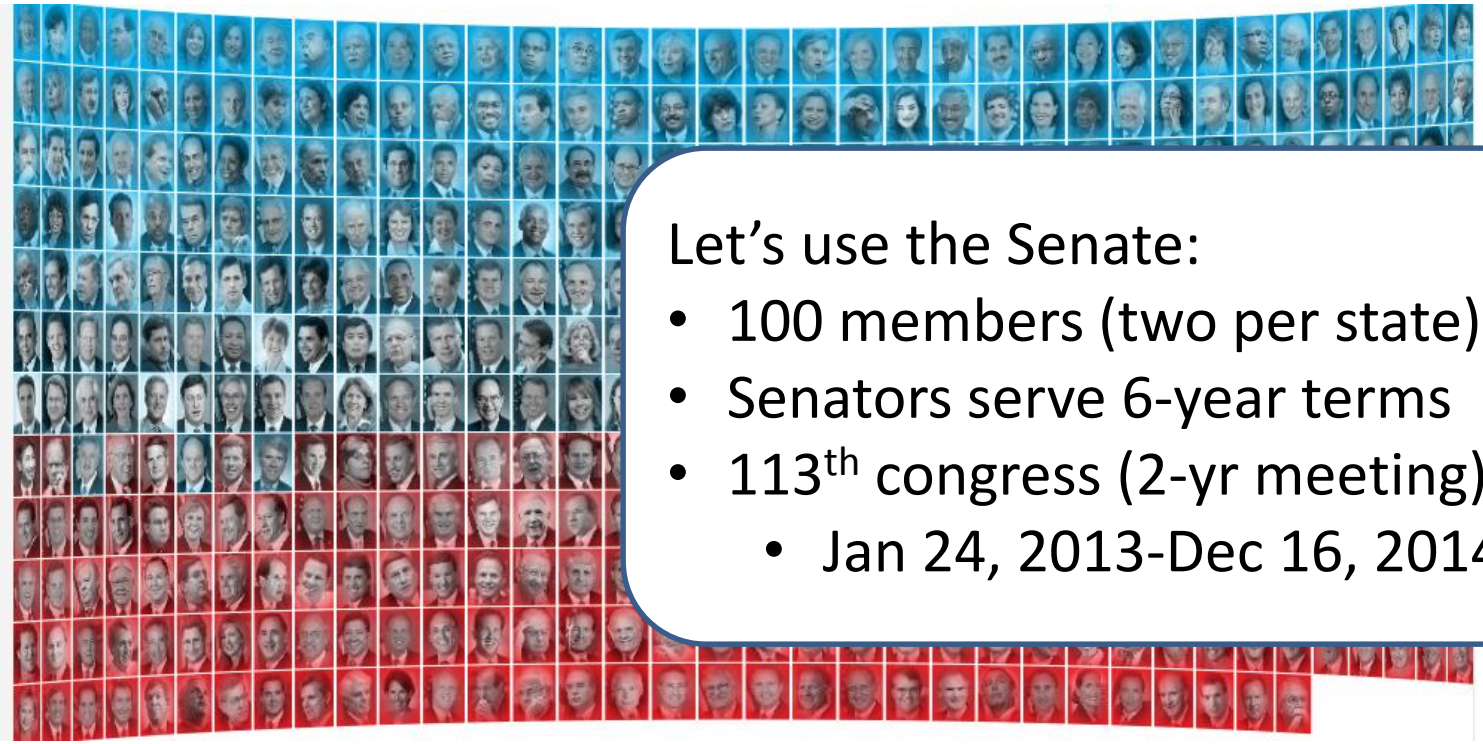

Let's use the Senate:

- 100 members (two per state)
- Senators serve 6-year terms
- 113th congress (2-yr meeting)
  - Jan 24, 2013-Dec 16, 2014

How to rank senator liberal-ness?

- Look at the votes!
- But how do we know which bills are "liberal"???
- Sidestep the issue: "judge a man by the company he keeps" (attributed to Aesop, Euripides, Jesus, Saki, ...)
  - Doesn't this just push the problem down to labelling the company?

Problem Definition

- They vote on the same bills

Senator	Bill 1	Bill 2	Bill 3	Bill 4	…
A	Yes	No	Yes	Yes	
B	No	Yes	No	Yes	
C	Yes	Yes	Yes	Yes	
D	Yes	No	Yes	Yes	
E	No	Yes	No	No	
F	Yes	No	Yes	Yes	
G	No	No	No	No	
H	No	Yes	No	No	
I	No	No	No	No	
…					

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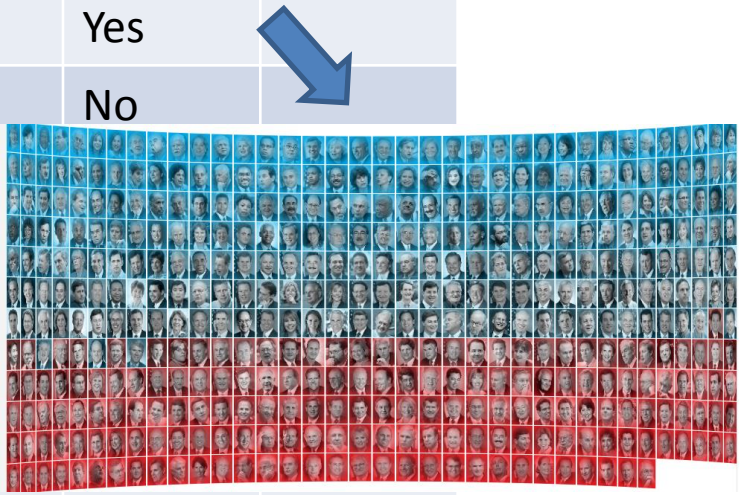

Problem Definition

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- Difficult to determine whether a single senator's voting record is "liberal" or "conservative"

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- But it's easy to compare two voting records

Problem Definition

- Difficult to determine whether a single senator's voting record is "liberal" or "conservative"
- But it's easy to compare two voting records
- So, pick a senator known to be on the end of the liberal/conservative spectrum

Problem Definition

- Idea: Pick one senator and rank relative *to that person*

Senator	Bill 1	Bill 2	Bill 3	Bill 4	…
A	Yes	No	Yes	Yes	
B	No	Yes	No	Yes	
C	Yes	Yes	Yes	Yes	
D	Yes	No	Yes	Yes	
E	No	Yes	No	No	
…					

Problem Definition

- Idea: Pick one senator and rank relative *to that person*

Senator	Bill 1	Bill 2	Bill 3	Bill 4	…
A	Yes	No	Yes	Yes	
B	Diff	Diff	Diff	Same	
C	Same	Diff	Same	Same	
D	Same	Same	Same	Same	
E	Diff	Diff	Diff	Diff	
…					

Problem Definition

- Idea: Pick one senator and rank relative *to that person*

Senator	Bill 1	Bill 2	Bill 3	Bill 4	…
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D	Same	Same	Same	Same	
E	Diff	Diff	Diff	Diff	
…					

[Most Liberal] A D C B E [Most Conservative]

Problem Definition

- Idea: Pick one senator and rank relative *to that person*

Senator	Bill 1	Bill 2	Bill 3	Bill 4	…
A	Yes	No	Yes	Yes	
B	Diff	Diff	Diff	Same	
C	Same	Diff	Same	Same	
D	Same	Same	Same	Same	
E	Diff	Diff	Diff	Diff	
…					

[Most A-like] A D C B E [Least A-like]

Problem Definition

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Claim: We can tell how liberal or conservative a senator is compared to his/her peers using their voting record.

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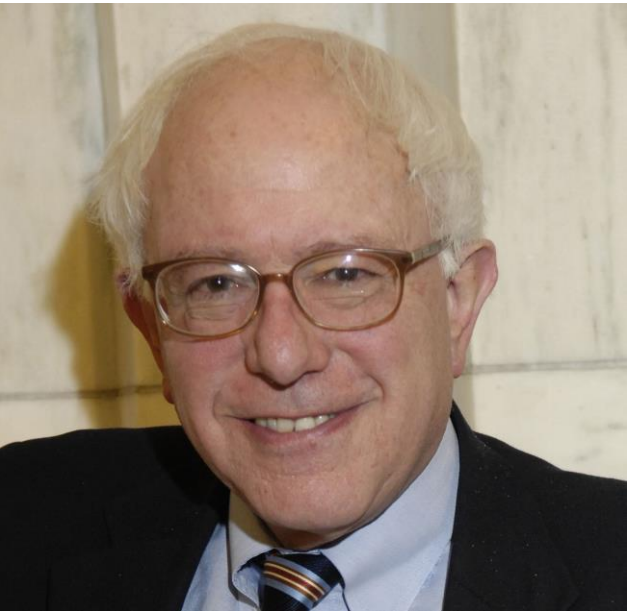
Test: Rank all senators by how similar they vote compared to a *particular* liberal senator.

The Big Question: Whom should we use?

Bernie Sanders

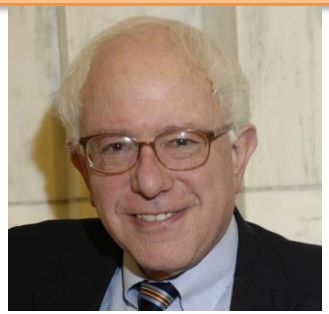


- Co-founder of Congressional Progressive Caucus
- Self-described democratic socialist[1]
- More liberal than the most conservative conservatives are conservative?

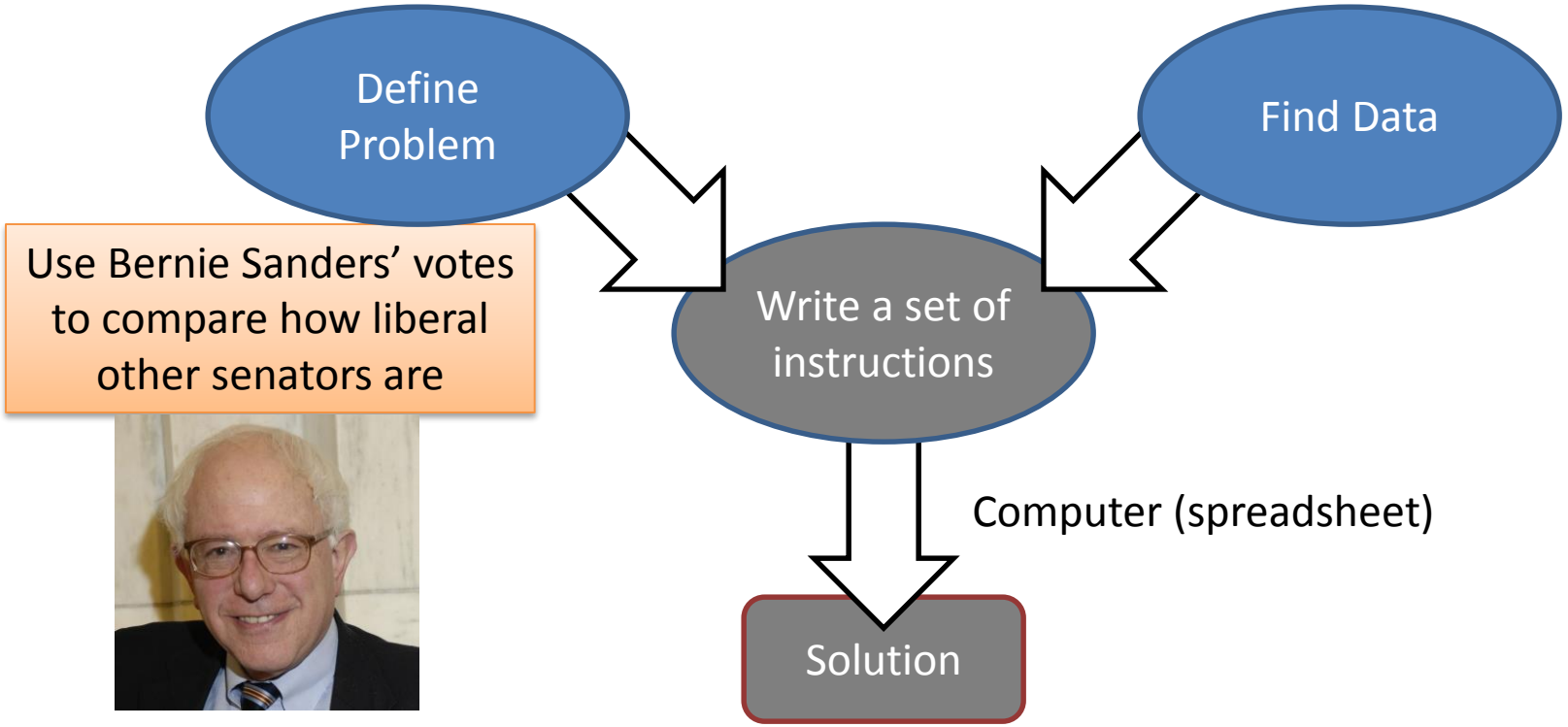
1 http://www.politico.com/news/stories/0709/25000.html

Today's Class

Use Bernie Sanders' votes to compare how liberal other senators are



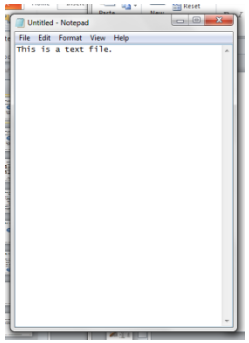
Today's Class



Let’s talk about data

Types of Data

vs.



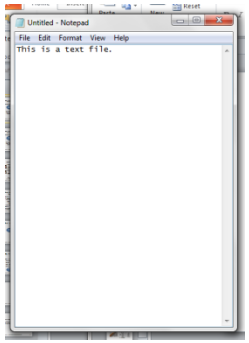
vs.

```
0101010
1010000
0101010
1001010
0101010
1001010
0100000
```

vs.

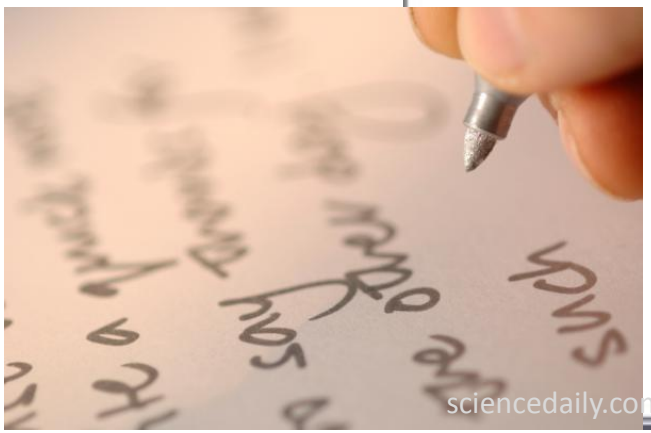
Types of Data

Human ⟷ Computer




```
0101010
1010000
0101010
1001010
0101010
1001010
0100000
```

Hard for Computers, Easy for Humans



http://networkprogramming.wordpress.com/2009/09/

Hard for Computers, Easy for Humans

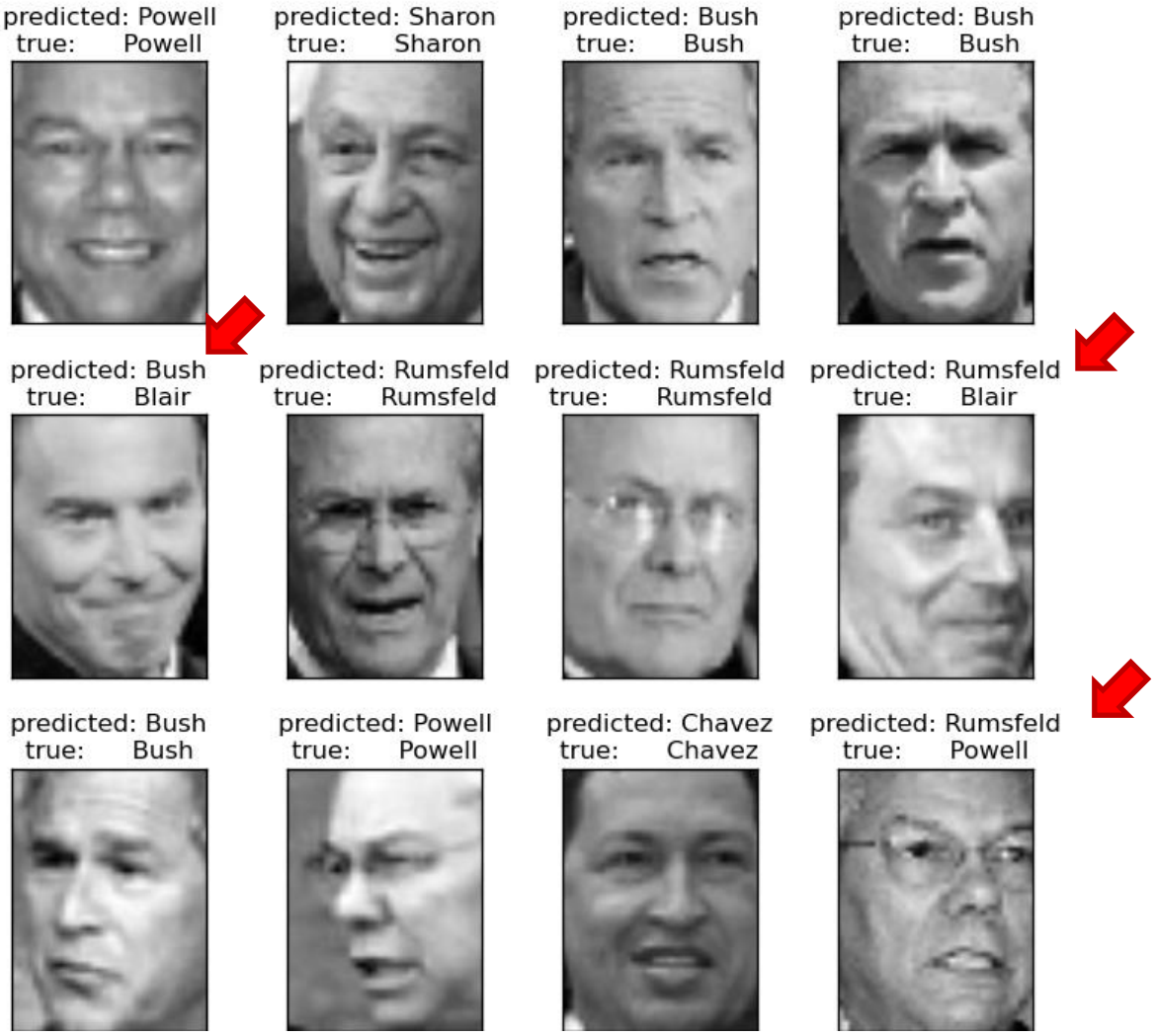
Who is it?

Donald Rumsfeld

Tony Blair

Colin Powell

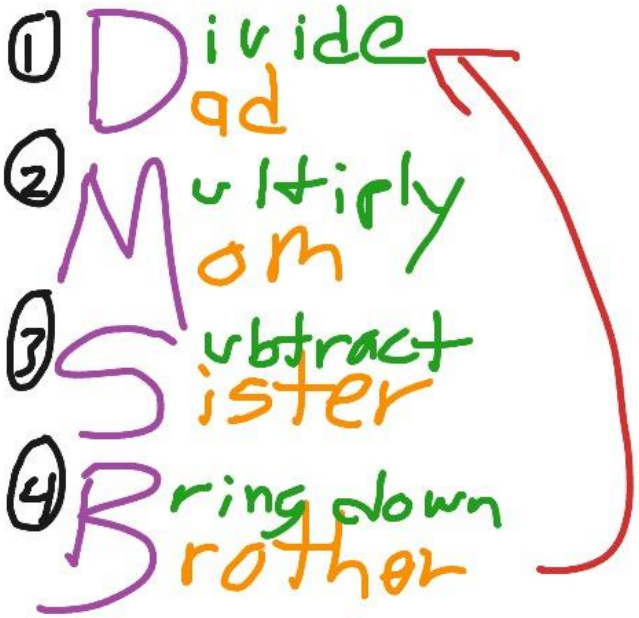
George W. Bush

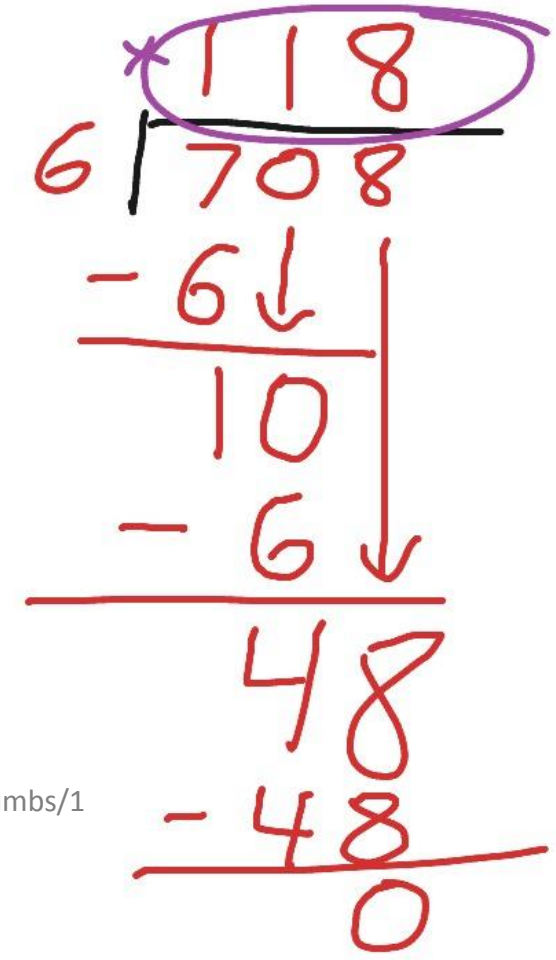


http://scikit-learn.org/0.9/auto_examples/applications/face_recognition.html

Easy for Computers, Hard for Humans

Easy for Computers, Hard for Humans





http://media.showmeapp.com/files/47263/pictures/thumbs/171969/last_thumb1330830777.jpg

Easy for Computers, Hard for Humans

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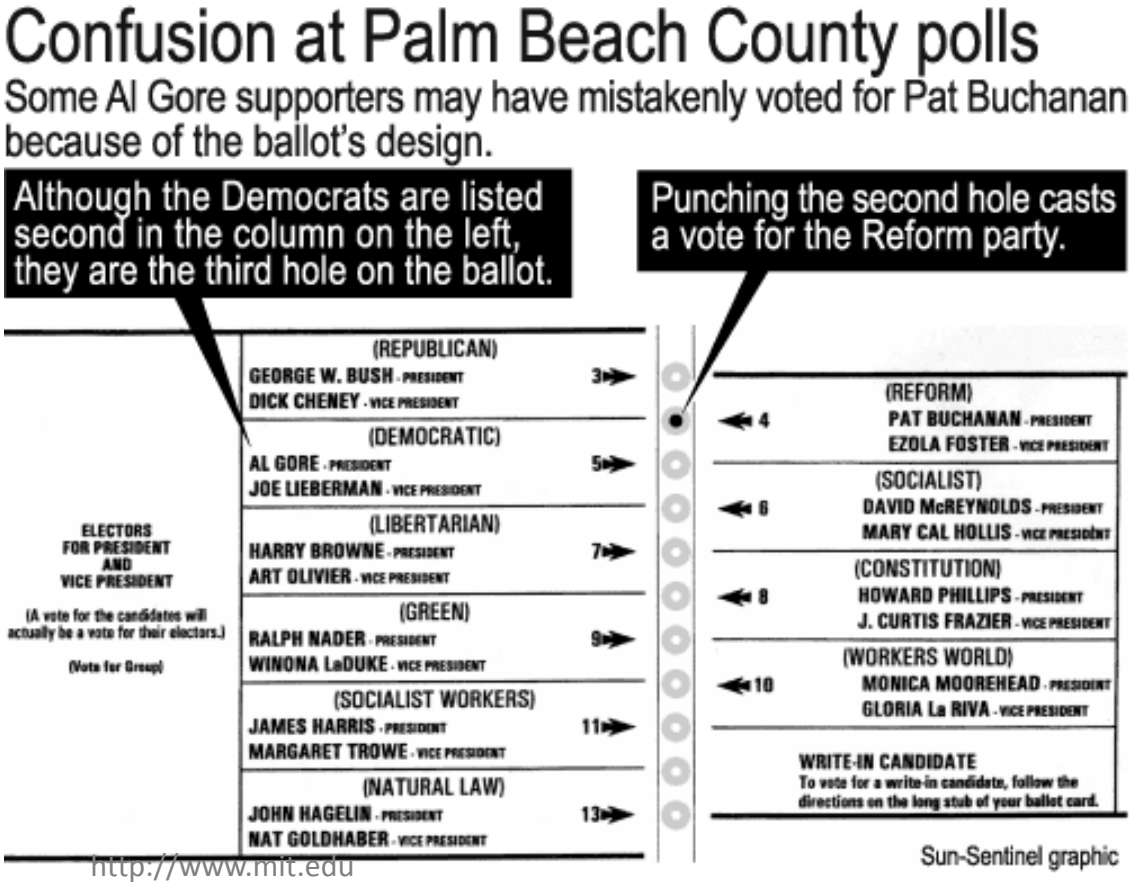
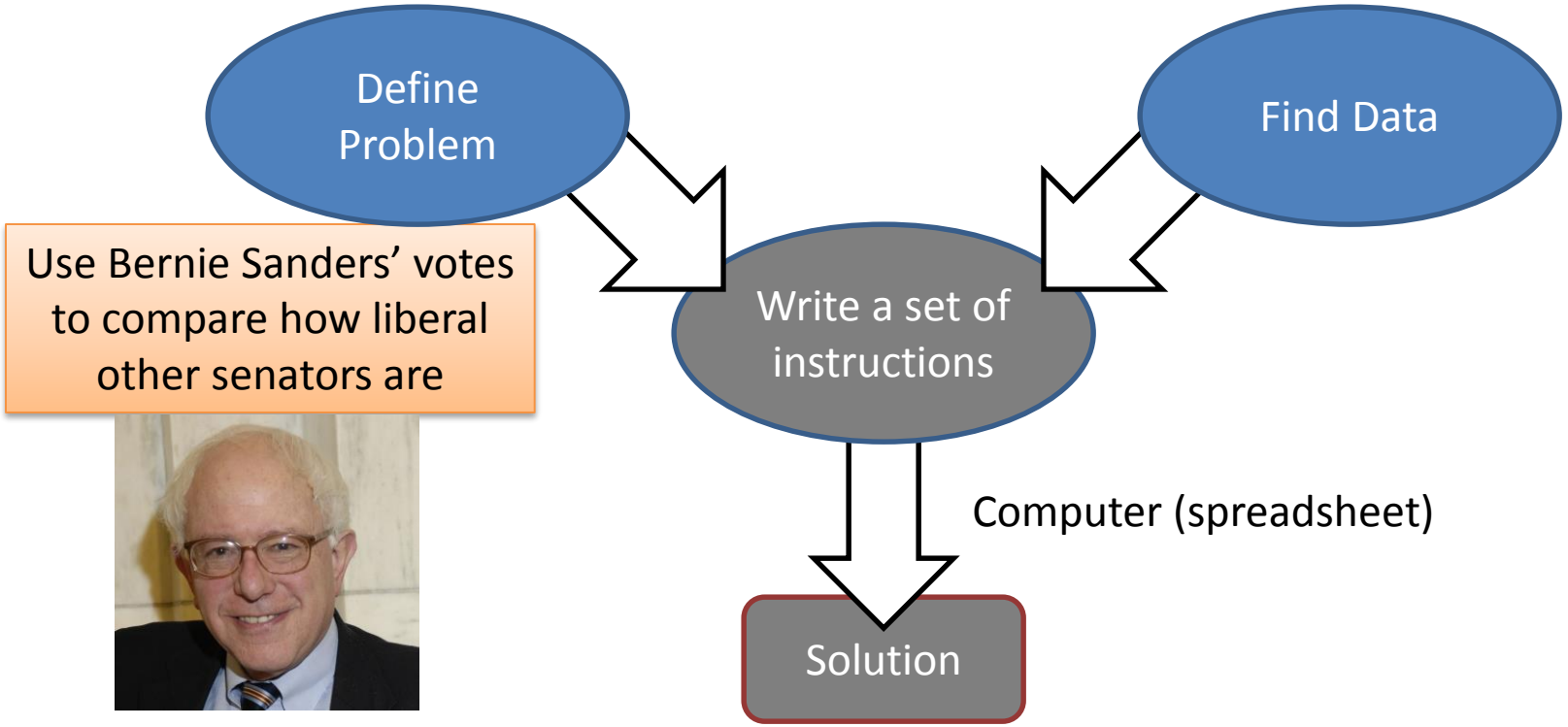


http://www.mit.edu

Horribly hard for computers

- But closed-caption data may be available...
- Example:
  - http://www.niemanlab.org/2012/12/opened-captions-turning-the-spoken-words-on-tv-screens-into-streams-of-hackable-data/

Sooooo


Define Problem
Find Data
Use Bernie Sanders' votes to compare how liberal other senators are
Write a set of instructions
Computer (spreadsheet)
Solution

Finding Data

Senator	Bill 1	Bill 2	Bill 3	Bill 4	…
A	Yes	No	Yes	Yes	
B	No	Yes	No	Yes	
C	Yes	Yes	Yes	Yes	
D	Yes	No	Yes	Yes	
E	No	Yes	No	No	
…					

This data is freely accessible and online.

URL

- “Universal Resource Locator”
- The stuff in the browser’s “Address bar”
- In our case:

```
http://www.senate.gov/legislative/LIS/roll_call_lists/roll_call_vote_cfm.cfm?congress=113&session=2&vote=00001
```

Examining the URL

http://www.senate.gov/legislative/

... It's from the senate

LIS/roll_call_lists/

... It's probably listed by senator

roll_call_vote_cfm.cfm?

... It's from the senate. "cfm" = "coldFusion markup", an Adobe product

congress=113&session=2&vote=00001

... Stuff after "?" is a "query" to a database

113th congress, 2nd session, 1st vote

Finding Data

Senator	Bill 1	Bill 2	Bill 3	Bill 4	…
A	Yes	No	Yes	Yes	
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…					

How could we fill this table out by hand?
What are the instructions?

How long will it take to make this table?

Senator	Bill 1	Bill 2	Bill 3	Bill 4	…
A	Yes	No	Yes	Yes	
B	No	Yes	No	Yes	
C	Yes	Yes	Yes	Yes	
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E	No	Yes	No	No	
…					

- **For Each** Bill:
  - Navigate to the webpage (using the URL trick)
  - **For Each** Senator**:**
    - **Record** the senator's vote

In practice...

- Could write a program to do this
  - But you don't have that skill yet
- Could get lucky and find data in another form

Fortunately, this data is already recorded online

Fortunately, this data is already recorded online

(How do you think you web browser is able to show you the vote page?)

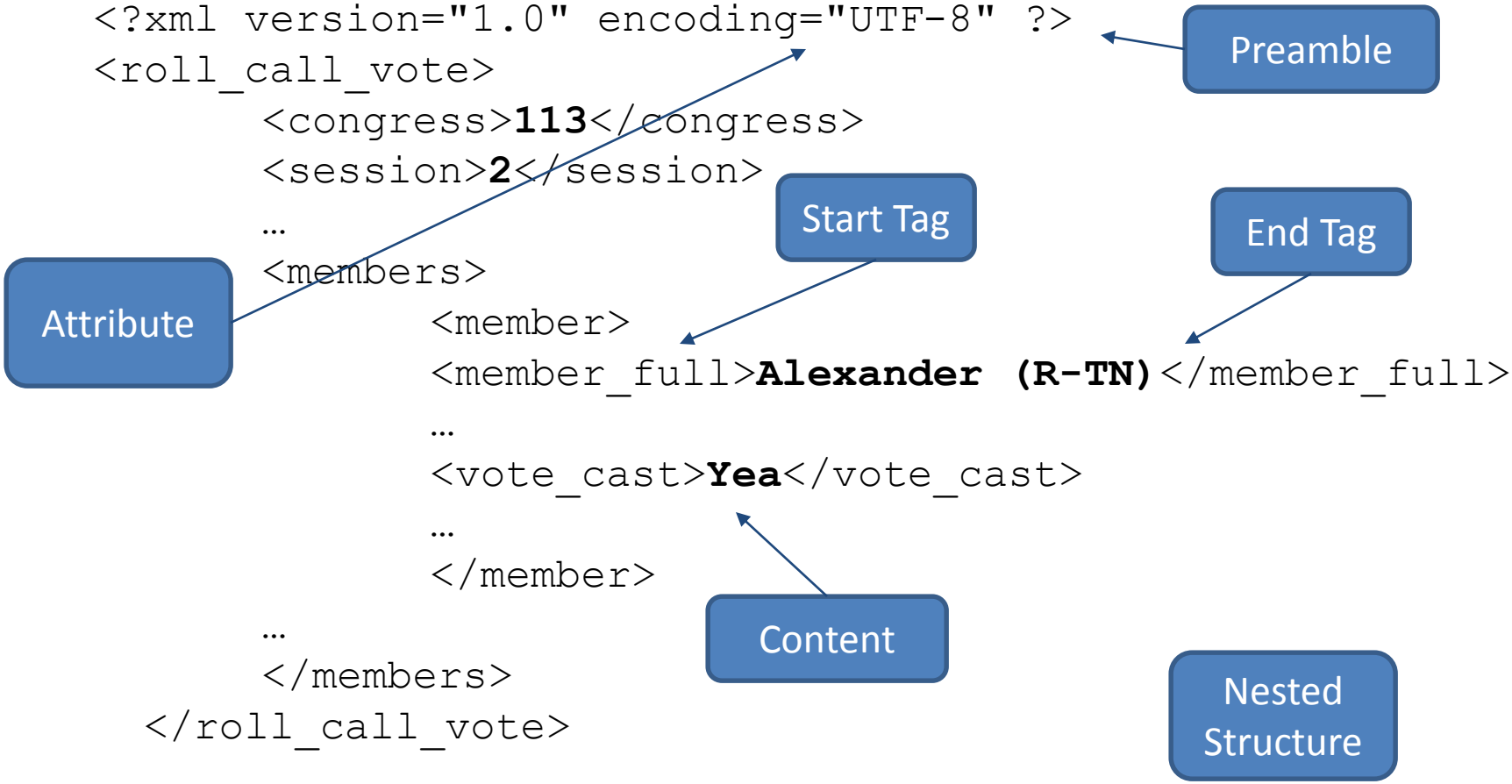
XML: E**x**tensible **M**arkup **L**anguage OK for Humans, OK for Computers

First look at the structure

XML: E**x**tensible **M**arkup **L**anguage OK for Humans, OK for Computers

```
<?xml version="1.0" encoding="UTF-8" ?>
<roll_call_vote>
      <congress>113</congress>
      <session>2</session>
      …
      <members>
            <member>
            <member_full>Alexander (R-TN)</member_full>
            …
            <vote_cast>Yea</vote_cast>
            …
            </member>
      …
      </members>
  </roll_call_vote>
```

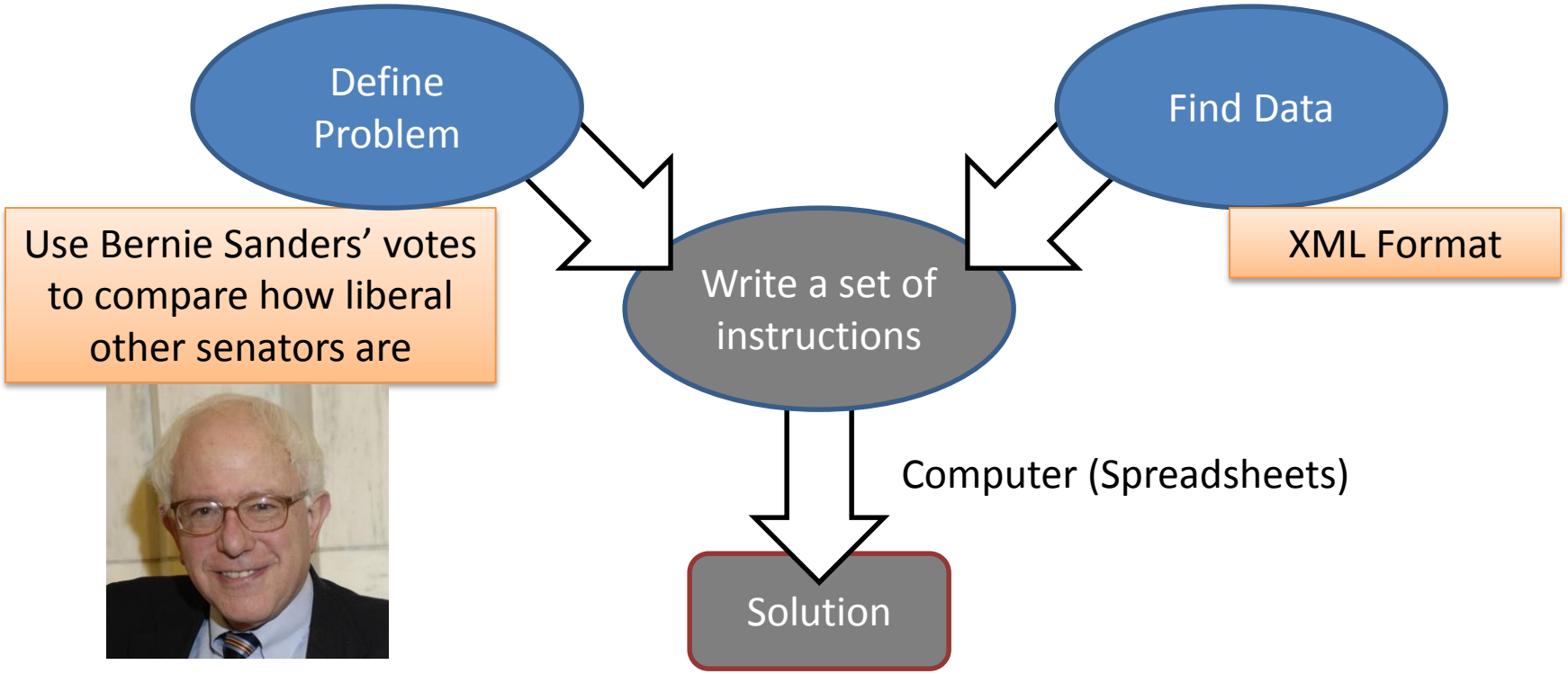
XML: E**x**tensible **M**arkup **L**anguage OK for Humans, OK for Computers



XML very widely used

All recent microsoft office programs (.pptx, .docx, ...) use it (and hide that from you).

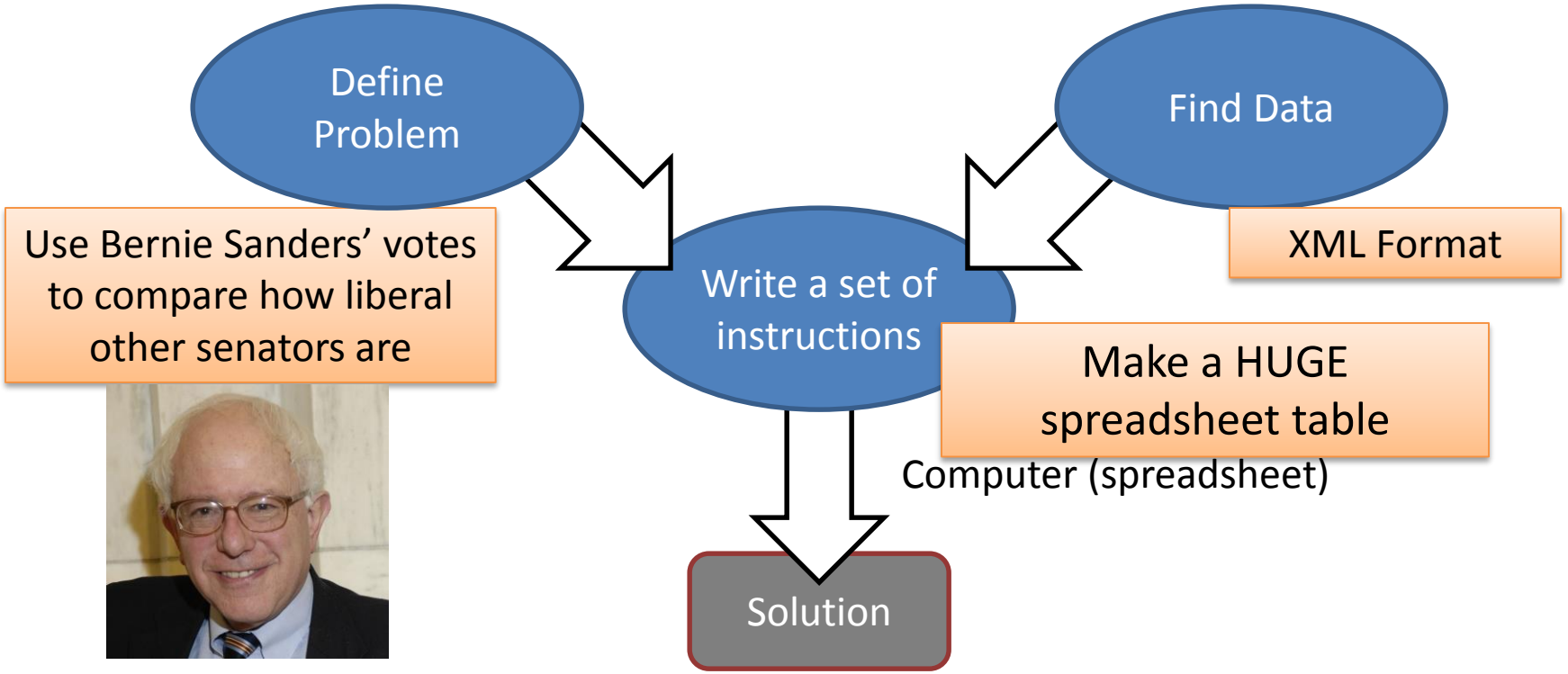
So far...


Define Problem
Find Data
Use Bernie Sanders' votes to compare how liberal other senators are
Write a set of instructions
XML Format
Computer (Spreadsheets)
Solution

Now

- On the course webpage, open up activity 1-1 (“ACT 1-1”), and do what it says.
- Work with your neighbors as you get stuck
- Ask us questions
- Don’t expect to finish!

Next Class


Define Problem
Find Data
Use Bernie Sanders' votes to compare how liberal other senators are
Write a set of instructions
XML Format
Make a HUGE spreadsheet table
Computer (spreadsheet)
Solution