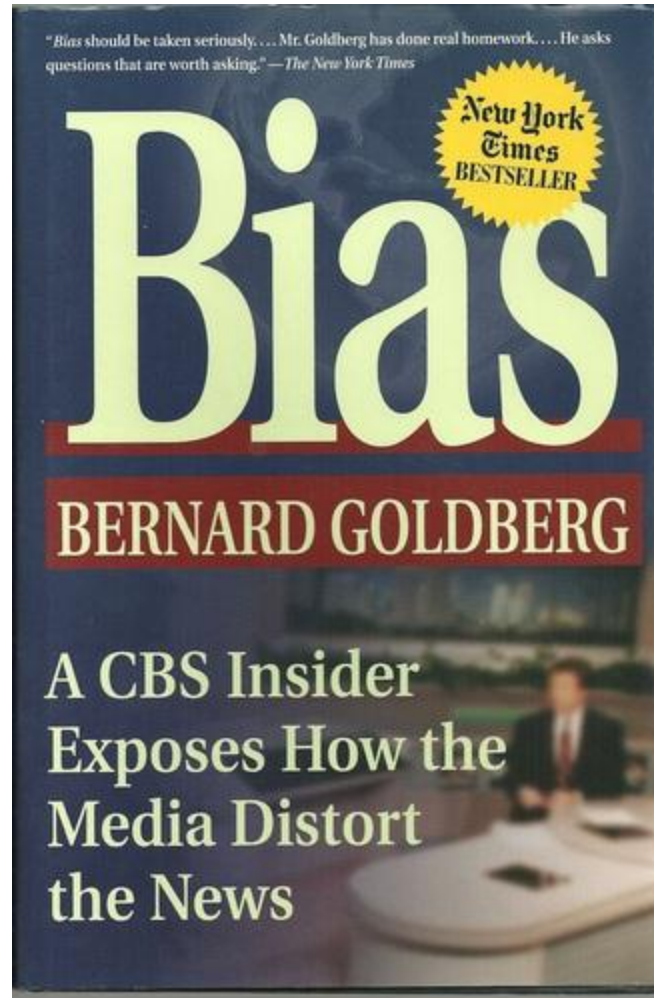


# Voting Patterns

Jan 31, 2012

# Last Class: Liberal Media Bias





# Last Class: Liberal Media Bias

## **Newt nixes reporter as debate host**





Post Staff Writer

*Last Updated: 3:51 AM, January 31, 2012*

*Posted: 11:01 PM, January 30, 2012*

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   More  Print

Republican candidate Newt Gingrich, if he gets the nomination, says he'll refuse any debates with a reporter as the moderator.

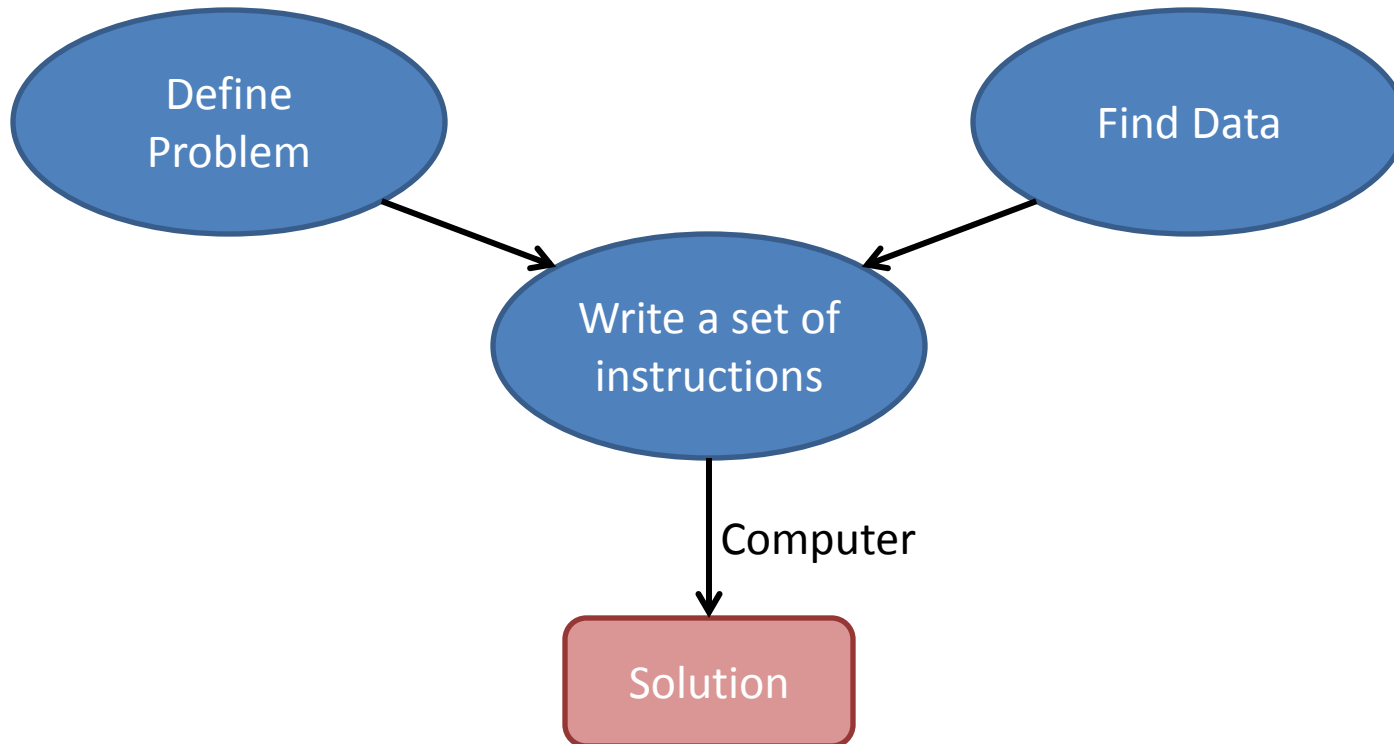
Gingrich, who got a lot support for his now-famous dressing down of CNN reporter John King in the South Carolina debates, suggests that most reporters are secret Obama supporters anyway.

"As your nominee, I will not accept debates in the fall in which the reporters are the moderators," he said yesterday at a rally in Pensacola, Fla.

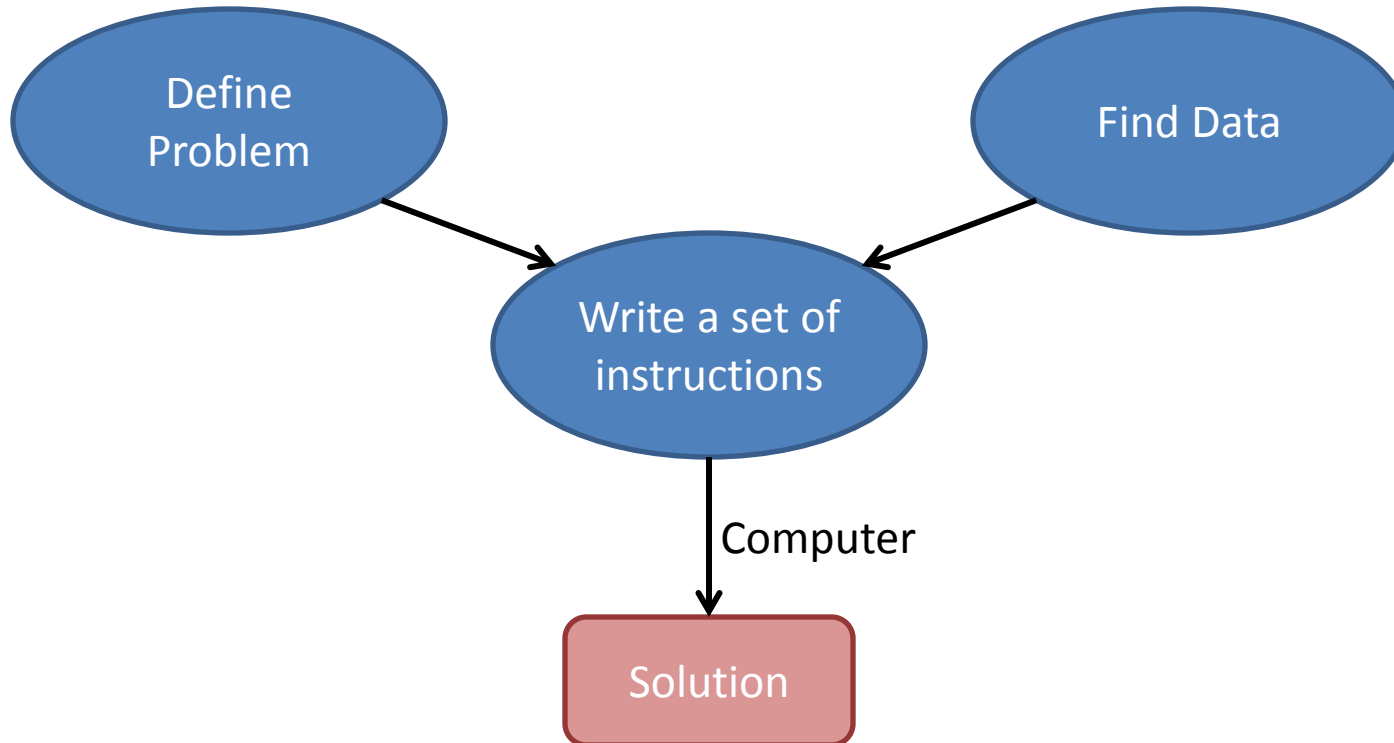
"We don't need to have a second Obama person at the debate."

The audience at the South Carolina debate two weeks ago gave Gingrich a standing ovation after he scolded the CNN anchor for asking a question about his sex life. That stand-out TV moment was credited with giving Gingrich an easy win two days later in the state's primary election.

# Last Class

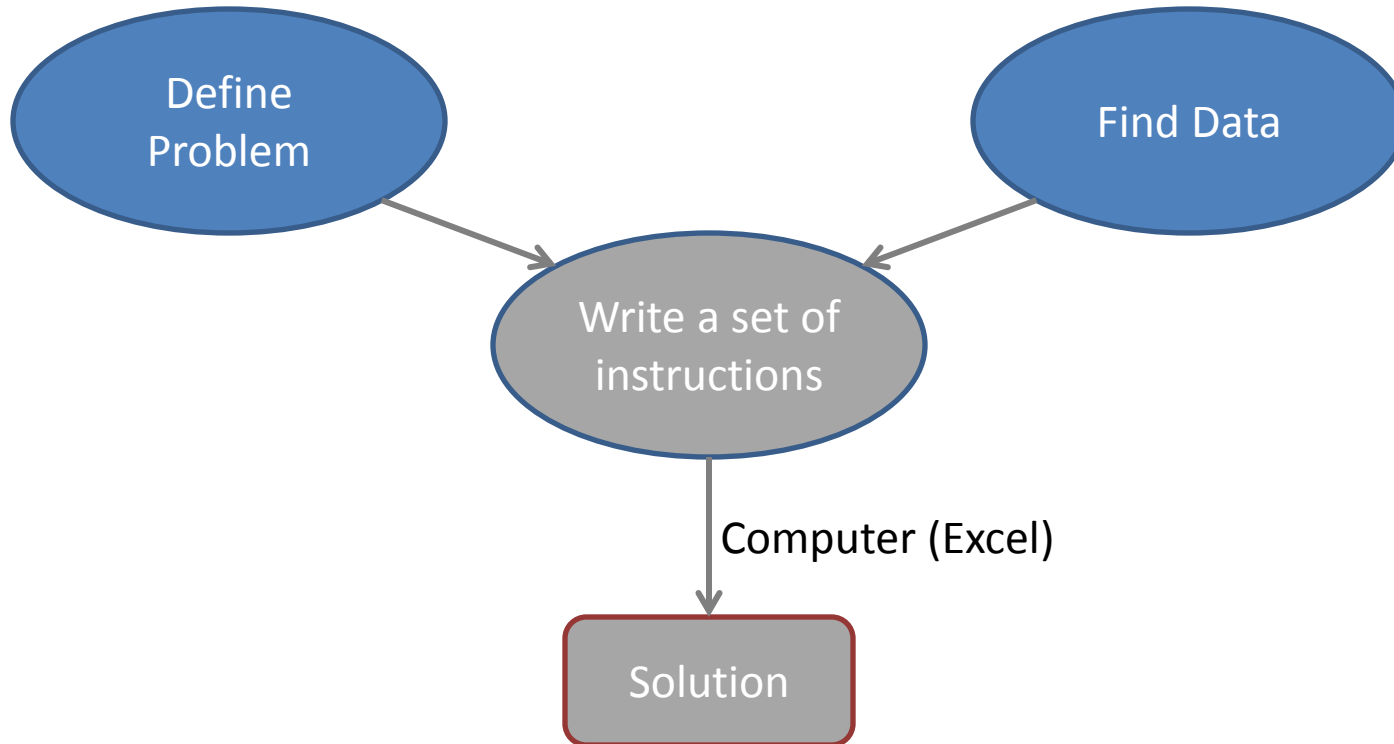


# Last Class



“On the Bias.” Geoffrey Nunberg, on NPR’s *Fresh Air*

# Today's Class



# Problem Definition

## Conservatives



## Liberals

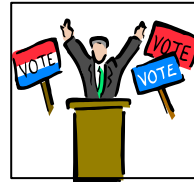


# Problem Definition

## Conservatives



How Liberal/Conservative is



?

## Liberals

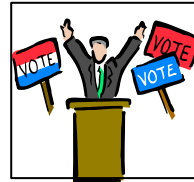


# Problem Definition

## Conservatives

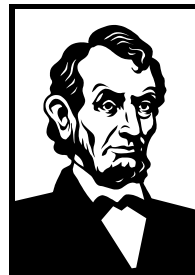


How Liberal/Conservative is



?

How Liberal/Conservative was



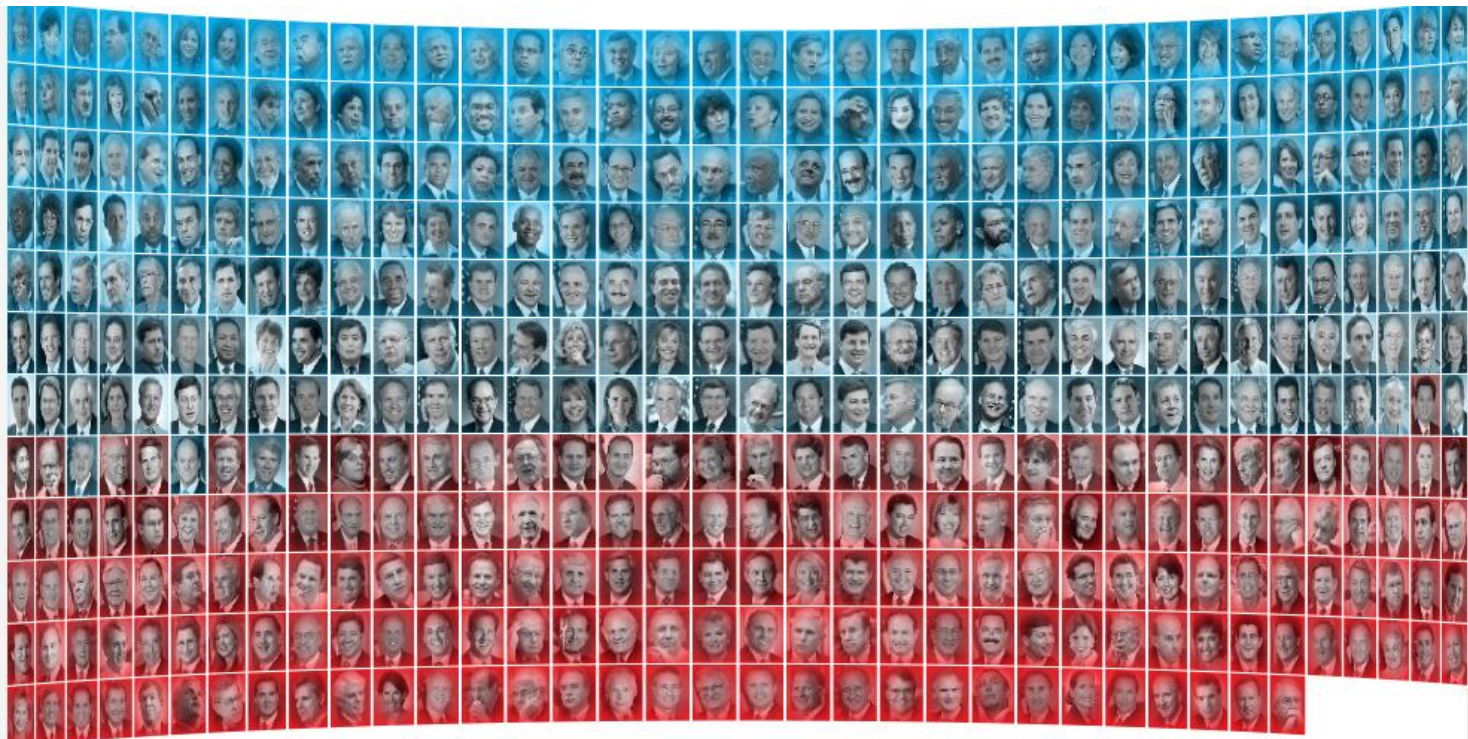
?

## Liberals



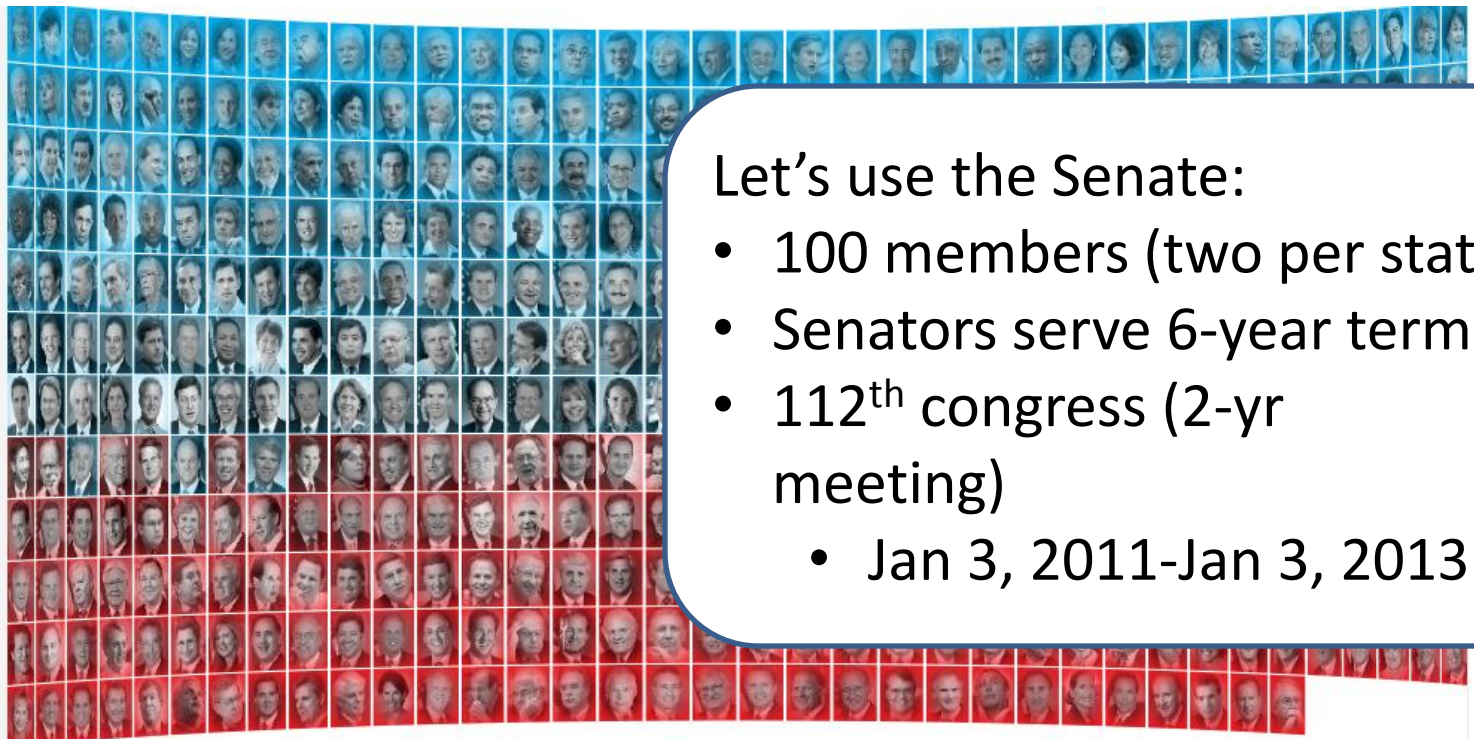
# Problem Definition

- Consider a *set* of politicians
- *Rank* them somehow



# Problem Definition

- Consider a *set* of politicians
- *Rank* them somehow




Let's use the Senate:

- 100 members (two per state)
- Senators serve 6-year terms
- 112<sup>th</sup> congress (2-yr meeting)
  - Jan 3, 2011-Jan 3, 2013

# Problem Definition

- They vote on the *same* bills

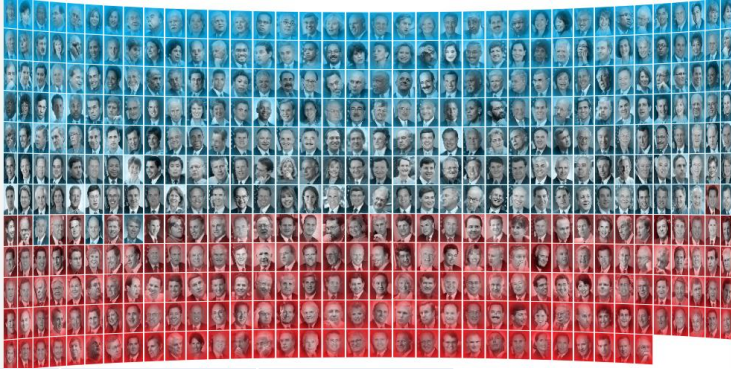


Senator	Bill 1	Bill 2	Bill 3	Bill 4	...
A	Yes	No	Yes	Yes	
B	No	Yes	No	Yes	
C	Yes	Yes	Yes	Yes	
D	Yes	No	Yes	Yes	
E	No	Yes	No	No	
F	Yes	No	Yes	Yes	
G	No	No	No	No	
H	No	Yes	No	No	
I	No	No	No	No	
...					

# 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		
G	No	No	No		
H	No	Yes	No		
I	No	No	No		
...					



# Problem Definition


- Idea: Pick one senator and rank *relative to them*



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	
...					

# Problem Definition


- Idea: Pick one senator and rank *relative to them*



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 them*



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 Liberal]

A D C B E

[Most Conservative]

# Problem Definition

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

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

# Problem Definition

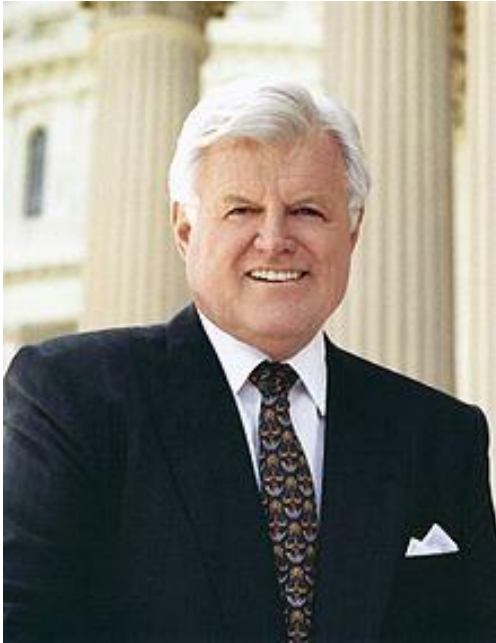
**Claim:** We can tell how liberal or conservative a senator is compared to his/her peers using their voting record.

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

**The Big Question:** Who do we use?

# Ted Kennedy

My Justification:

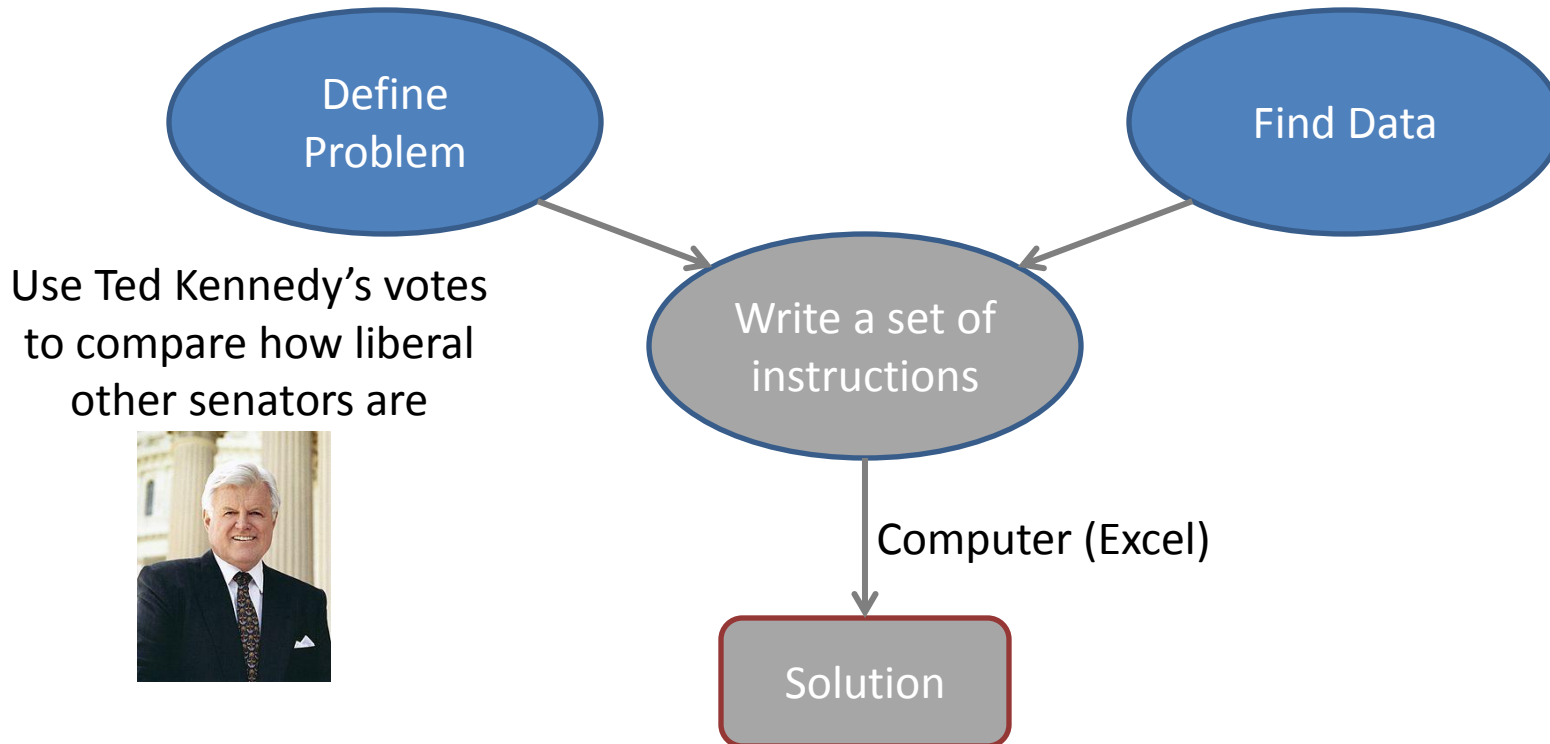


- **Liberal Legend:** “Perhaps because it was impossible, Kennedy never tried to shake his image as a liberal titan to admirers and a left-wing caricature to detractors”

Babington, Charles (May 17, 2008). "[Kennedy: liberal legend, able legislator](#)". *USA Today*

- Served almost 47 years

# Today's Class

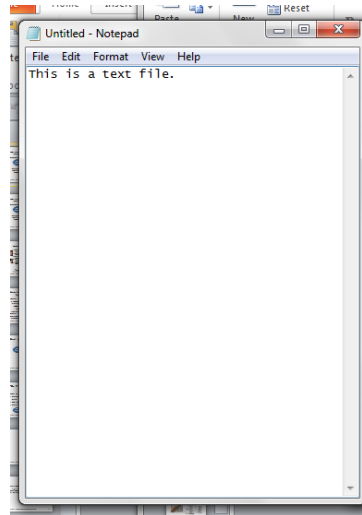


# Break

# Types of Data



VS.

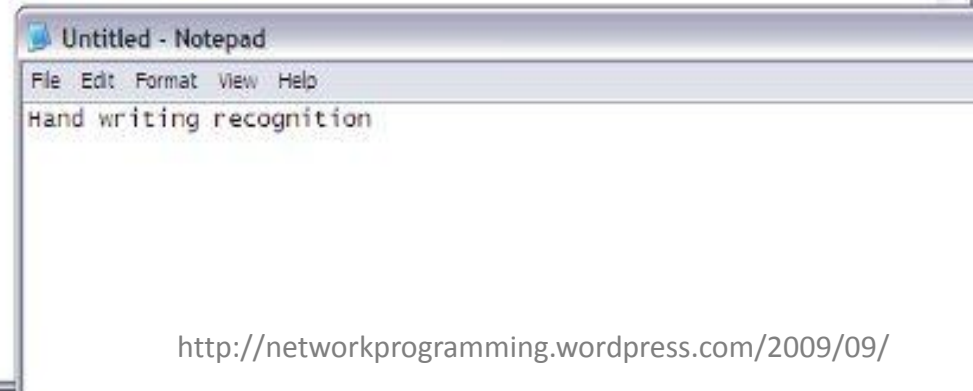
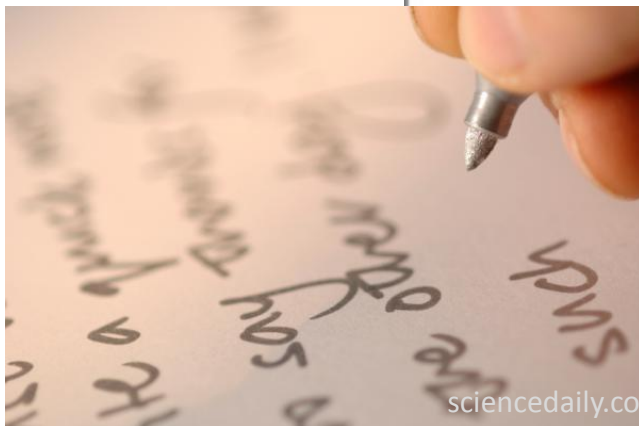
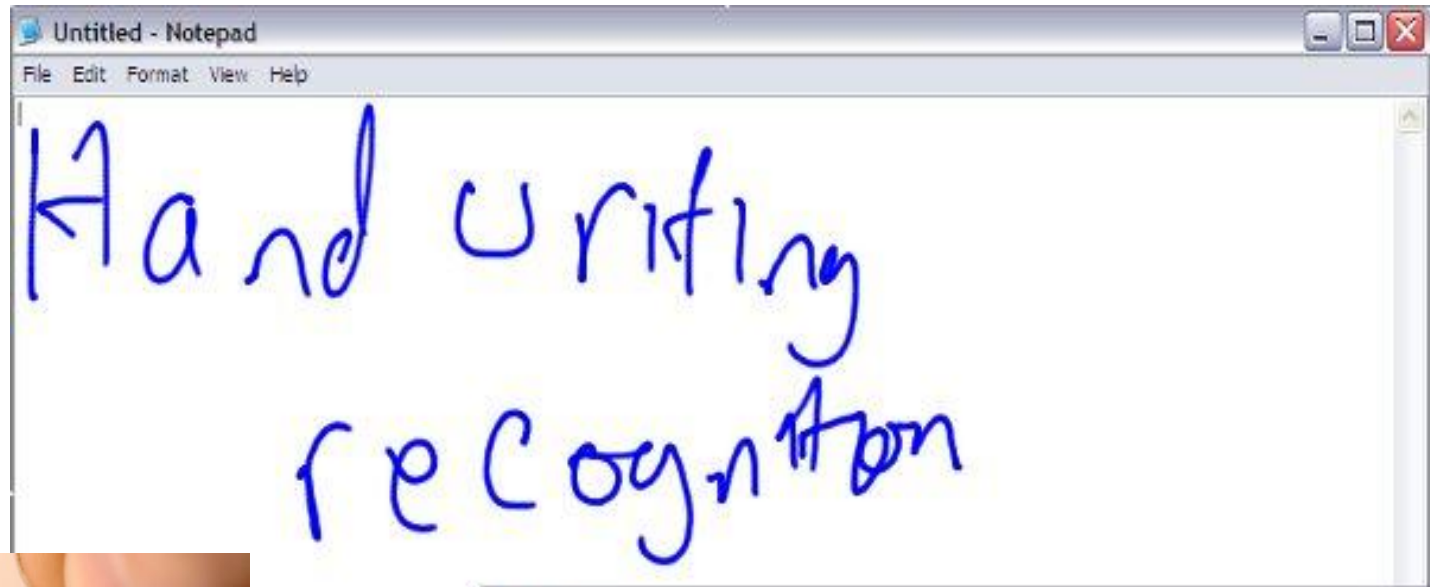


VS.

```
0101010101  
0000010101  
0100101100  
1010101010  
1001100101  
0101010100  
1010101001  
0100100000
```

# Hard for Computers, Easy for Humans

# Hard for Computers, Easy for Humans



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

# Hard for Computers, Easy for Humans

## Photo Classification

**20 *labeled* photos each of:**

Gerhard\_Schroeder

Donald\_Rumsfeld

Tony\_Blair

Colin\_Powell

George\_W\_Bush

Given an unlabeled  
photo, can we figure  
out *who* it is?

[http://scikit-learn.org/0.9/auto\\_examples/applications/face\\_recognition.html](http://scikit-learn.org/0.9/auto_examples/applications/face_recognition.html)

# Hard for Computers, Easy for Humans



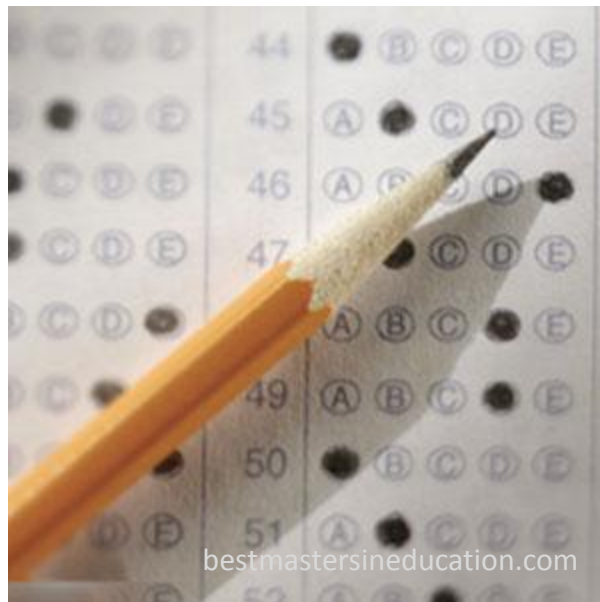
**Who is it?**

Gerhard\_Schroeder  
Donald\_Rumsfeld  
Tony\_Blair  
Colin\_Powell  
George\_W\_Bush

[http://scikit-learn.org/0.9/auto\\_examples/applications/face\\_recognition.html](http://scikit-learn.org/0.9/auto_examples/applications/face_recognition.html)

# Easy for Computers, Hard for Humans

# Easy for Computers, Hard for Humans



bestmastersineducation.com

## Confusion at Palm Beach County polls

Some Al Gore supporters may have mistakenly voted for Pat Buchanan because of the ballot's design.

Although the Democrats are listed second in the column on the left, they are the third hole on the ballot.

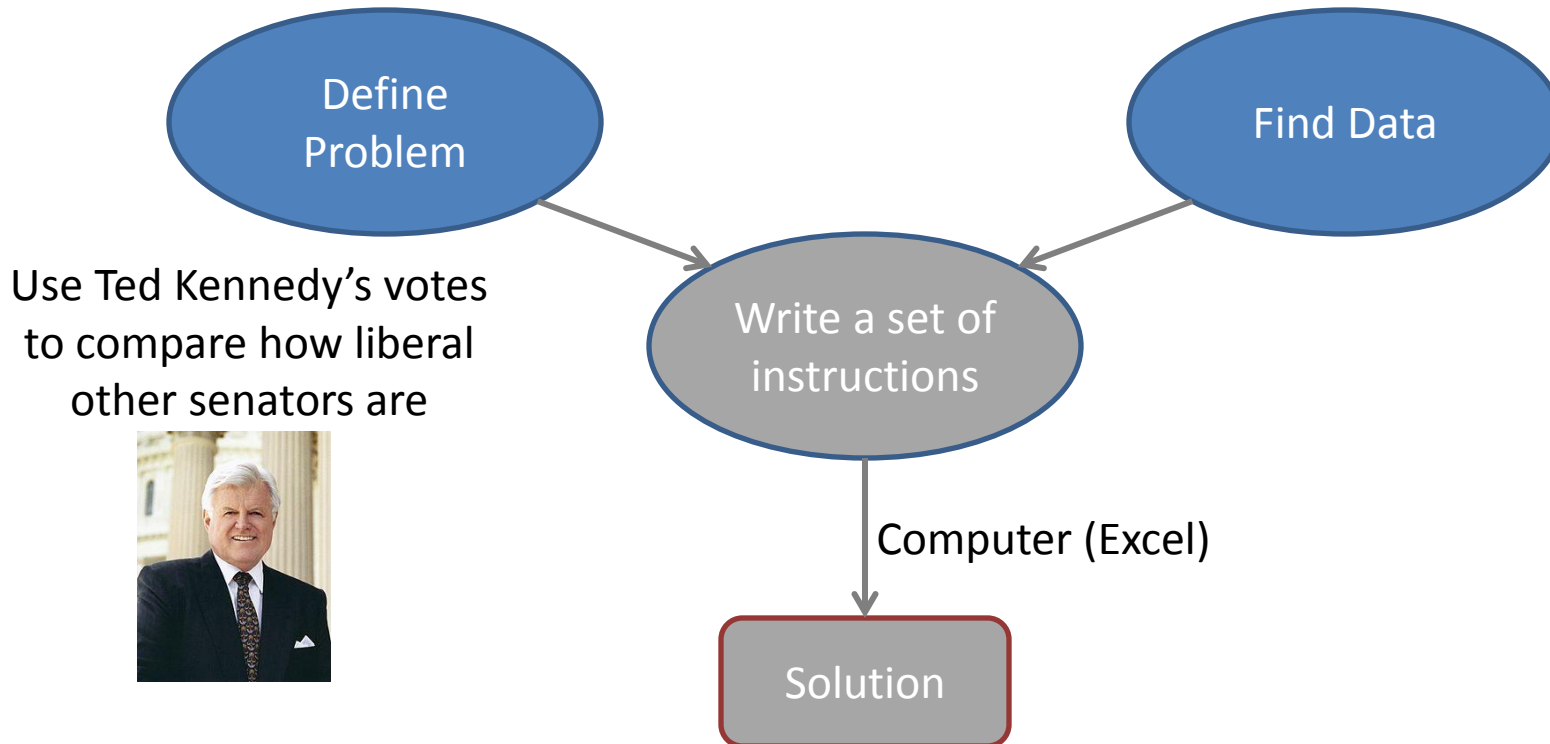
Punching the second hole casts a vote for the Reform party.

ELECTORS FOR PRESIDENT AND VICE PRESIDENT <small>(A vote for the candidates will actually be a vote for their electors.) (Vote for Group)</small>	(REPUBLICAN)	3		
	GEORGE W. BUSH - PRESIDENT DICK CHENEY - VICE PRESIDENT			
	(DEMOCRATIC)	5	← 4	(REFORM) PAT BUCHANAN - PRESIDENT EZOLA FOSTER - VICE PRESIDENT
	AL GORE - PRESIDENT JOE LIEBERMAN - VICE PRESIDENT			
	(LIBERTARIAN)	7	← 6	(SOCIALIST) DAVID McREYNOLDS - PRESIDENT MARY CAL HOLLIS - VICE PRESIDENT
	HARRY BROWNE - PRESIDENT ART OLIVIER - VICE PRESIDENT			
	(GREEN)	9	← 8	(CONSTITUTION) HOWARD PHILLIPS - PRESIDENT J. CURTIS FRAZIER - VICE PRESIDENT
	RALPH NADER - PRESIDENT WINONA LaDUKE - VICE PRESIDENT			
	(SOCIALIST WORKERS)	11	← 10	(WORKERS WORLD) MONICA MOOREHEAD - PRESIDENT GLORIA La RIVA - VICE PRESIDENT
	JAMES HARRIS - PRESIDENT MARGARET TROWE - VICE PRESIDENT			
	(NATURAL LAW)	13		
	JOHN HAGELIN - PRESIDENT NAT GOLDHABER - VICE PRESIDENT			
				WRITE-IN CANDIDATE <small>To vote for a write-in candidate, follow the directions on the long stub of your ballot card.</small>

<http://www.mit.edu>

Sun-Sentinel graphic

# Today's Class



# Finding Data



Senator	Bill 1	Bill 2	Bill 3	Bill 4	...
Kennedy	Yes	No	Yes	Yes	
B	Diff	Diff	Diff	Same	
C	Same	Diff	Same	Same	
D	Same	Same	Same	Same	
E	Diff	Diff	Diff	Diff	
...					

This data is freely accessible and online – find it.

# Finding Data



Senator	Bill 1	Bill 2	Bill 3	Bill 4	...
Kennedy	Yes	No	Yes	Yes	
B	Diff	Diff	Diff	Same	
C	Same	Diff	Same	Same	
D	Same	Same	Same	Same	
E	Diff	Diff	Diff	Diff	
...					

What can we determine from the *url*?

# How long will it take to make this table?



Senator	Bill 1	Bill 2	Bill 3	Bill 4	...
Kennedy	Yes	No	Yes	Yes	
B	Diff	Diff	Diff	Same	
C	Same	Diff	Same	Same	
D	Same	Same	Same	Same	
E	Diff	Diff	Diff	Diff	
...					

Write a set of instructions

# How long will it take to make this table?



Senator	Bill 1	Bill 2	Bill 3	Bill 4	...
Kennedy	Yes	No	Yes	Yes	
B	Diff	Diff	Diff	Same	
C	Same	Diff	Same	Same	
D	Same	Same	Same	Same	
E	Diff	Diff	Diff	Diff	
...					

- **For Each Bill:**
  - Navigate to the webpage (using the url trick)
  - **For Each Senator:**
    - **Record** their vote

# Break

# XML: Extensible Markup Language

## OK for Humans, OK for Computers

First look at the structure

# XML: Extensible Markup Language

## OK for Humans, OK for Computers

```
<?xml version="1.0" encoding="UTF-8" ?>
<roll_call_vote>
  <congress>107</congress>
  <session>1</session>
  ...
  <members>
    <member>
      <member_full>Akaka (D-HI)</member_full>
      ...
      <vote_cast>Yea</vote_cast>
      ...
    </member>
    ...
  </members>
</roll_call_vote>
```

# XML: Extensible Markup Language

## OK for Humans, OK for Computers

```
<?xml version="1.0" encoding="UTF-8" ?>
<roll_call_vote>
  <congress>107</congress>
  <session>1</session>
  ...
  <members>
    <member>
      <member_full>Akaka (D-HI)</member_full>
      ...
      <vote_cast>Yea</vote_cast>
      ...
    </member>
    ...
  </members>
</roll_call_vote>
```

The diagram illustrates the structure of the XML code. Callouts in blue boxes point to specific parts of the code:

- Preamble**: Points to the XML declaration: `<?xml version="1.0" encoding="UTF-8" ?>`
- Start Tag**: Points to the opening tag: `<member>`
- End Tag**: Points to the closing tag: `</member_full>`
- Content**: Points to the text content inside the tag: `Akaka (D-HI)`
- Nested Structure**: Points to the `<members>` container, which contains multiple `<member>` elements.
- Attributes**: Points to the `version="1.0"` and `encoding="UTF-8"` attributes in the preamble.

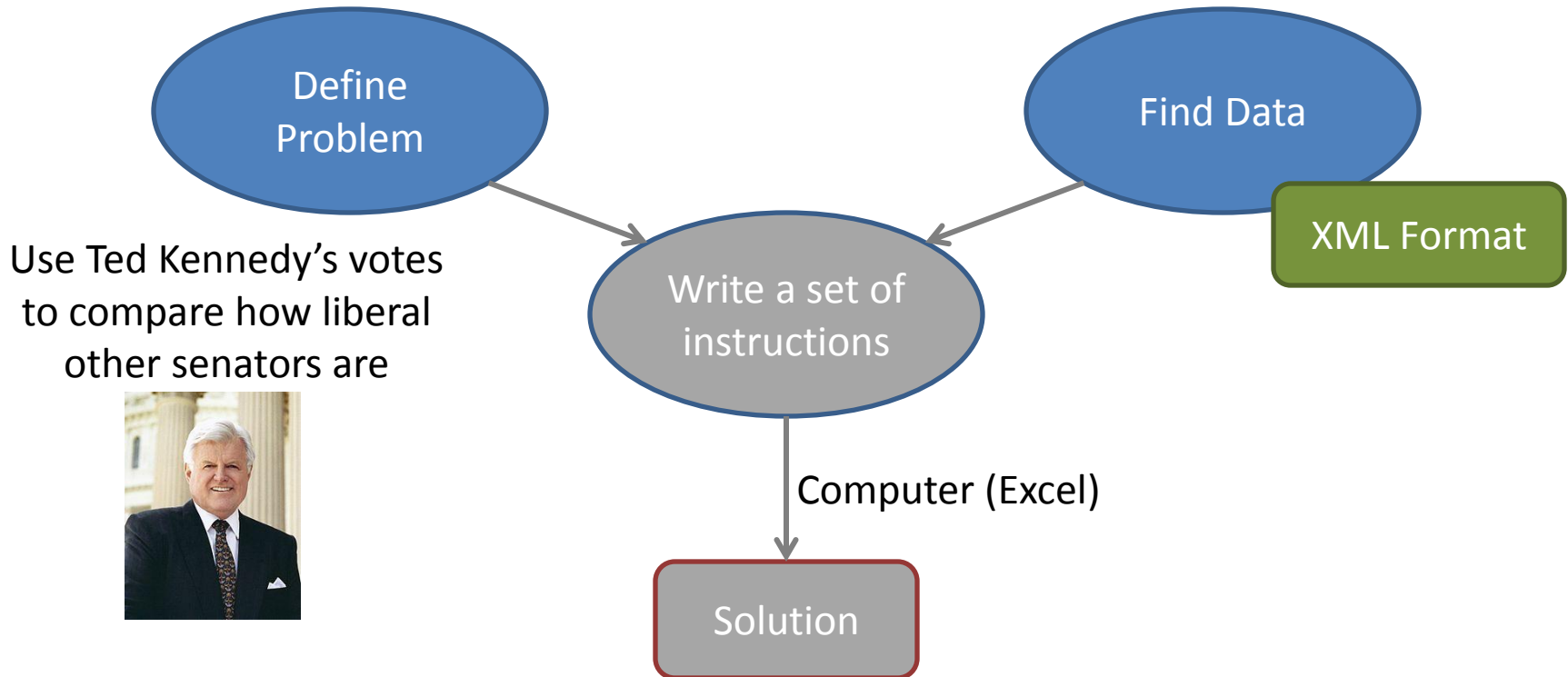
# XML in Surprising Places

Why the 'X' in .docx? .pptx? .xlsx?

# XML in Surprising Places

- Open up Word, write a sentence.
  - Change the color, the style, the font, etc.
- Save the document.
  - It's actually a *zipped* XML file.
- Change the extension to `name.docx.zip`
- Right click & select “Extract To `name.docx/`”
- Open `word/document.xml` and try to find the sentence you wrote.

# Today's Class



# Next Class

