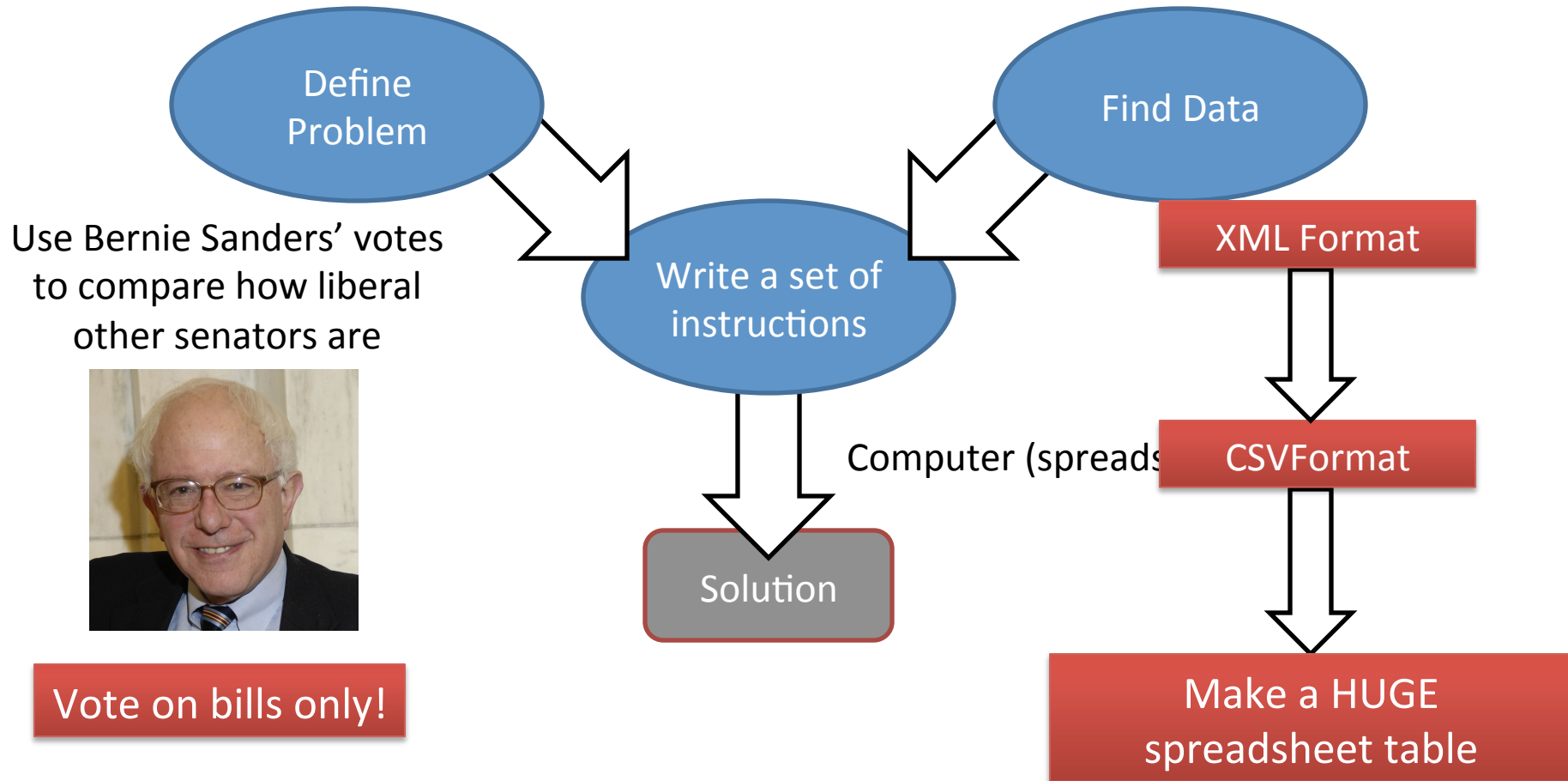


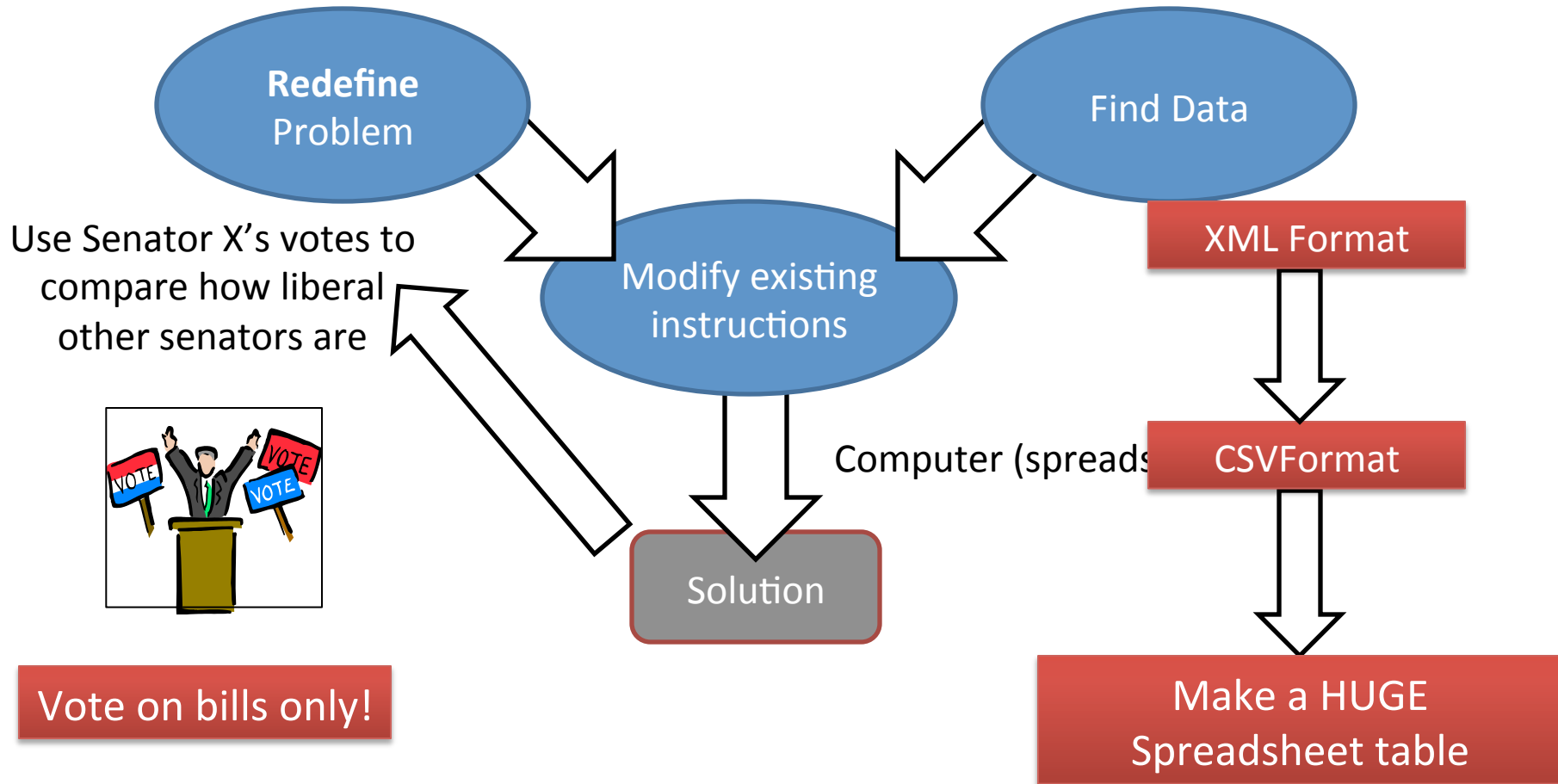
# Ranking Senators with Senator X's Votes

Sep 24, 2015

# What We've Accomplished



# New Problem



# In Activity 1-3, you'll...

- Learn new spreadsheet techniques
  - Rank relative to any senator, not just Bernie
  - Task 2 will make a nice spreadsheet that can be used by others
- 
- Start by doing Task 1 with a partner...

# Reminder about OFFSET

**OFFSET:** Returns a reference to a *range (or cell)* that is a specified number of rows and columns from a base *range (or cell)*.

`OFFSET(reference, rows, cols)`

- Go ahead and start on Part 1.

# Let's do Task 1

# After task 1

- Any questions?
- Move on to Task 2: making a spreadsheet that shows comparison results vs ANY senator, not just Sanders.

# Activity 1-3

- Task 2
  - We broke this task down into manageable pieces.
  - Nice formatting is useful
  - This spreadsheet is now useful for other people
  - It's a *generalization* of the Sanders spreadsheet, and took almost no time to create!
    - If you'd done the Sanders work by hand, redoing it for a new senator would have taken just as long



# Rankings

- Who is least like Bernie?
- What are the rankings relative to that person?
- How do they compare to the Bernie rankings?
  - Rank Bernie on your screen; get a friend to reverse-rank vs Bernie's nemesis. Compare.

# Discussion

- Is ranking relative to Sanders (or Coburn) really a measurement of liberalness? If so, why don't they give exact opposite results?
- What if we had used Warren, or some other very liberal senator, instead of Sanders? Same results? Shuffled?
- Let's look at *all* possible orderings!

# So Far

- What have we accomplished?
  - ACT1-1:
    - Imported voting data from the web
    - Filtered out rows and columns that aren't needed
    - Converted “Yea”, “Nay”, “Not Voting/Present” into numbers using nested IF statements
    - Made a pivot table to summarize these numbers

# So Far

- What have we accomplished?
  - ACT1-2:
    - Made a new sheet that converts numbers representing **individual votes** into numbers that represent **agreement with Bernie Sanders on each vote**
    - **Absolute addressing** (using the \$) was important when we wrote formulas that depended on specific rows
    - Computed a similarity/distance score between each senator and Bernie – we called it **rank**, and it could range from -1 to 1

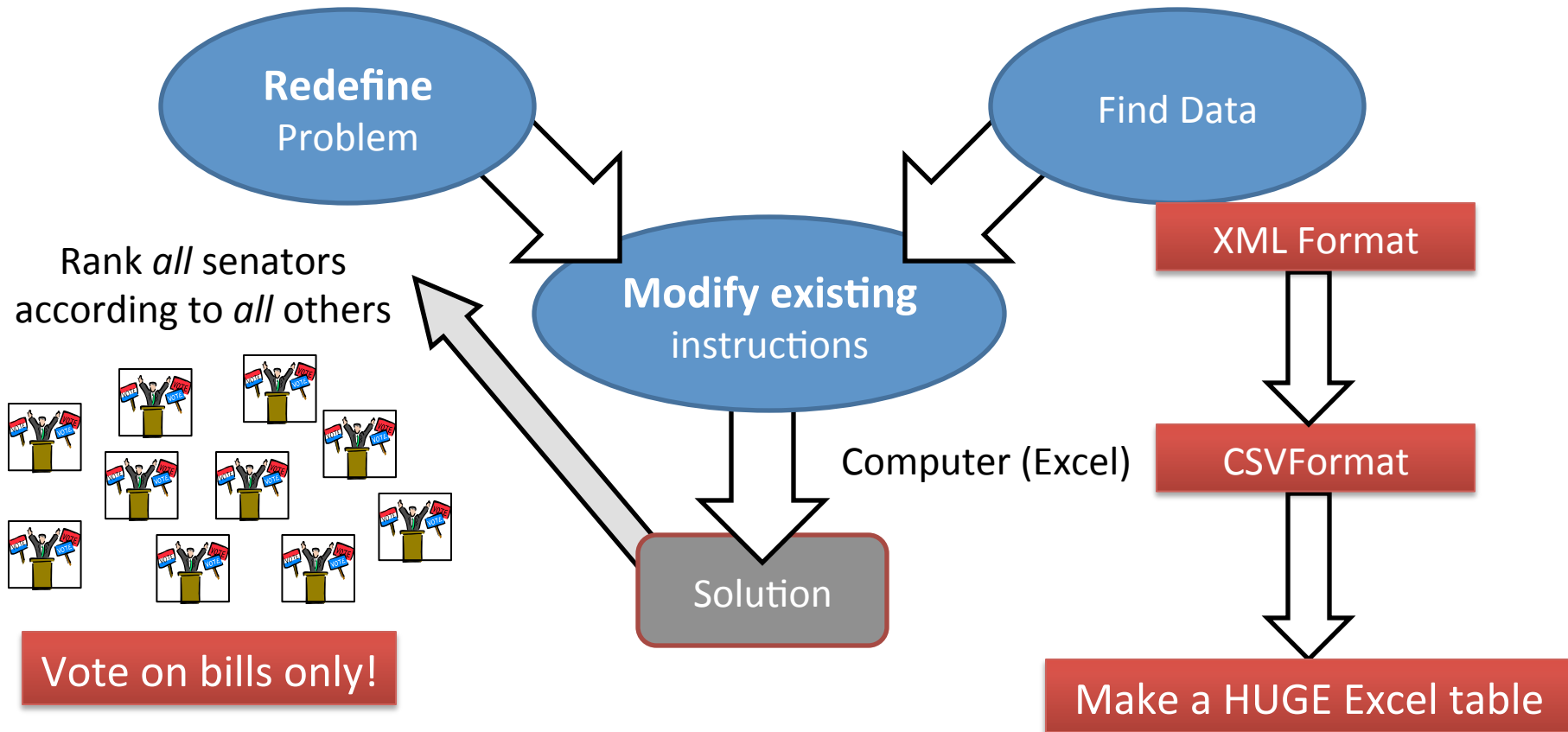
# So Far

- What have we accomplished?
  - ACT1-3:
    - Made a new sheet that converts numbers representing **individual votes** into numbers that represent **agreement with a *selected senator* on each vote**
    - The sheet is interactive; it uses **data validation** to make sure inputs like senator names exist in the table
    - **Healthy use of MATCH and OFFSET** to take the chosen senator name and find the corresponding data in the other sheets

# Next Class

- What if we want to look at how *all* senators rank compared to *all* others?

# Next Class



# Compare Every Pair in One Table

What We Have:

	1:101	1:115	1:129	1:138
Akaka	Yea	Yea	Yea	Yea
Alexander	Yea	Yea	Yea	Yea
Ayotte	Nay	Yea	Yea	Yea
Barrasso	Yea	Yea	Yea	Yea

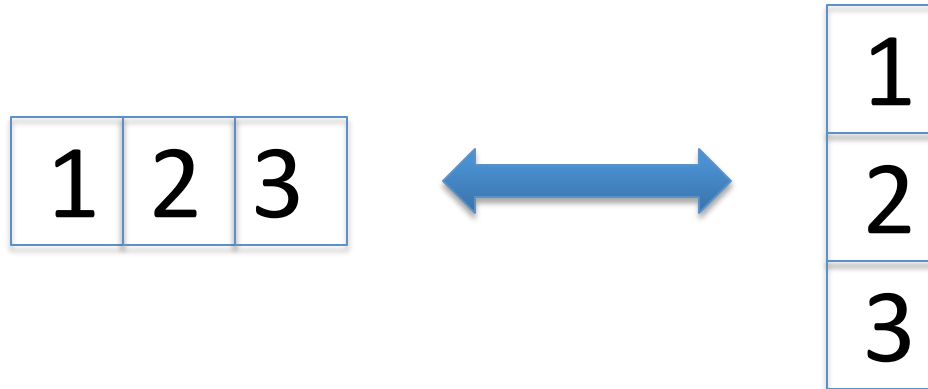
What We Want:

	Akaka	Alexander	Ayotte	Barraso
Akaka	1	0.314285714	0.085714286	0.117647059
Alexander	0.314285714	1	0.657142857	0.647058824
Ayotte	0.085714286	0.657142857	1	0.764705882
Barrasso	0.117647059	0.647058824	0.764705882	1



# Next Class

- ACT1-4: Arrays
  - Write formulas where the output is in multiple cells (e.g., *transposing* a row into a column)



- We'll see how these formulas can help us compute lots of things at once

# Next time

- Build that similarity table
- Following HW, we'll be able to build it with a much simpler method
- How can we make sense of the 10,000 items in it?