CompSci 101
Introduction to Computer Science

March 3, 2015
Prof. Rodger
Announcements

• Reading and RQ 12 for next time
• Assignment 5 due Thursday
• APT 5 due today, APT 6 due March 17
Set Operations from pictures
bit.ly/101S15-0303-01

Question: Which operation does the red represent?

A)  
B)  
C)  
D)  
E)
Problems — snarf setExample.py

- Given a list of strings that have the **name of a course** (one word), followed by **last names** of people in the course:
  - Convert list into lists of strings of names for each course
  - Find total number of people taking any course
  - Find number of people taking just one course

["econ101 Abroms Curtson Williams Smith", "history230 Black Wrigley Smith", ... ]
Data for example

[“compsci101 Smith Ye Li Lin Abroms Black“, 
“math101 Green Wei Lin Williams DeLong Noell, Ye, Smith”,
“econ101 Abroms Curtson Williams Smith”,
“french1 Wills Wrigley Olson Lee”,
"history230 Black Wrigley Smith” ]
People Taking both Math And CompSci
Part 1 — processList

Given a list of strings that have the name of a course (one word), followed by last names of people in the course:

– Convert list into lists of strings of names for each course

[
"econ101 Abroms Curtson Williams Smith",
"history230 Black Wrigley Smith",
...
]

[['Abroms', 'Curtson', 'Williams', 'Smith'],
['Black', 'Wrigley', 'Smith', ...]]
Part 2 — peopleTakingCourses
bit.ly/S15-0303-03

• Given a list of lists of names, each list represents the people in one course:
  – Find total number of people taking any course

• Small Example

  
  [['Abroms', 'Curtson', 'Williams', 'Smith'], ['Black', 'Wrigley', 'Smith']]

  Answer is 6 unique names
People taking Courses - Union

ECON101
- Curtson
- Williams

COMPSCI101
- Abroms
- Li

MATH101
- Ye
- Lin
- Green
- Noell
- Wei
- Yavatkar
- Delong

HISTORY230
- Wrigley

FRENCH1
- Wills
- Lee
- Olson

Total Number Is 17 unique names

compsci101 spring15
Next, find the number of people taking just one course
Union all sets
But French1

ECON101

Curtson
Williams

COMPSCI101

Abroms
Li

MATH101

Ye
Lin

Green
Noell

Wei
Delong

Yavatkar

FRENCH1

Wrigley

Wills
Lee
Olson

HISTORY230

Smith

Black

Li

Wrigley

Li

Olson
To solve this problem

• First let’s write a helper function
Part 3 — unionAllSetsButMe
bit.ly/101S15-0303-04

- Given example, a list of sets of strings, and the index of one of the sets, return the union of all the sets but that one

example = [set(["a", "b", "c"]), set(["b", "c", "d", "g"]), set(["e", "d", "a"])]

unionAllSetsButMe(example,1) is

set(["a", "b", "c", "e", "d"])

Part 4 — peopleTakingOnlyOneCourse

bit.ly/101S15-0303-05

• Given a list of lists of strings of names representing people from courses
  – Find number of people taking just one course

[[‘Abroms’, ‘Curtson’, ‘Williams’, ‘Smith’],

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APT - UniqueZoo

• How do you solve this problem?
• How is it similar to the problem we just solved
Example Data for UniqueZoo

["zebra bear fox elephant","bear crocodile fox","rhino elephant crocodile kangaroo","elephant bear"]
UniqueZoo – two zoos have unique animals