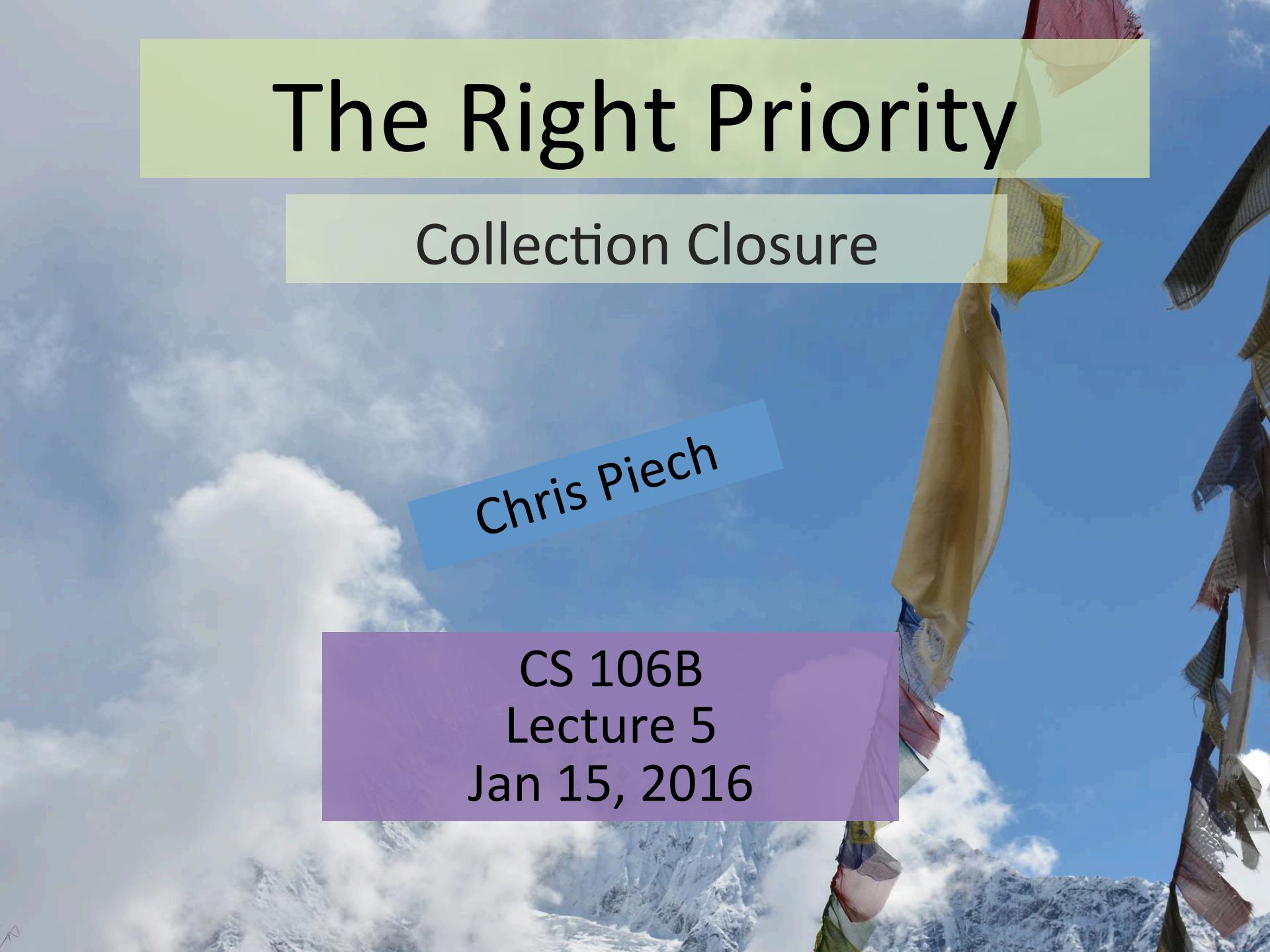


The Right Priority

Collection Closure

Chris Piech

CS 106B
Lecture 5
Jan 15, 2016



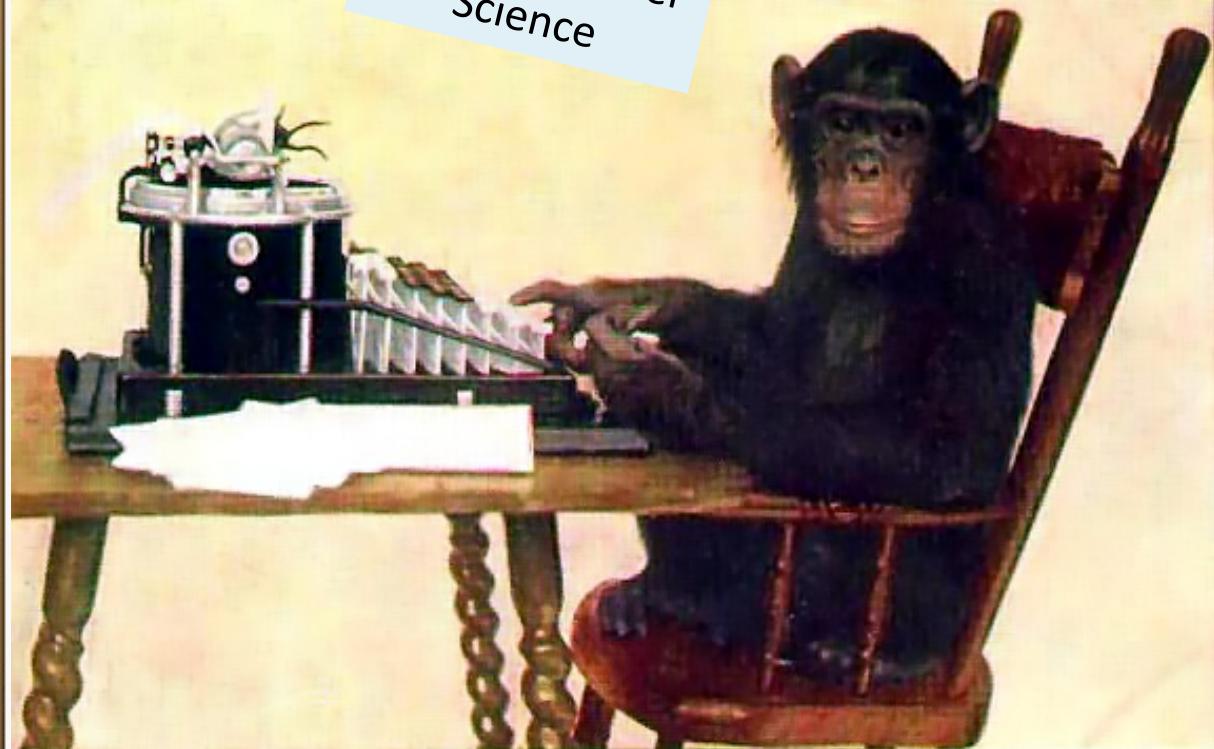
No Class Monday



Assignment 2 Serafini



*Two great ideas
from Computer
Science*



Assignment 2 Serafini

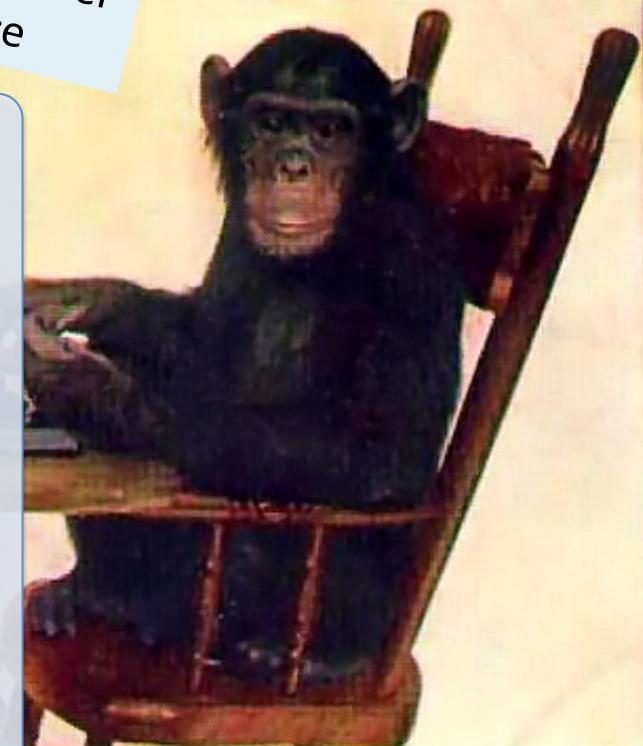
*Two great ideas
from Computer
Science*

Y.E.A.H. Hours

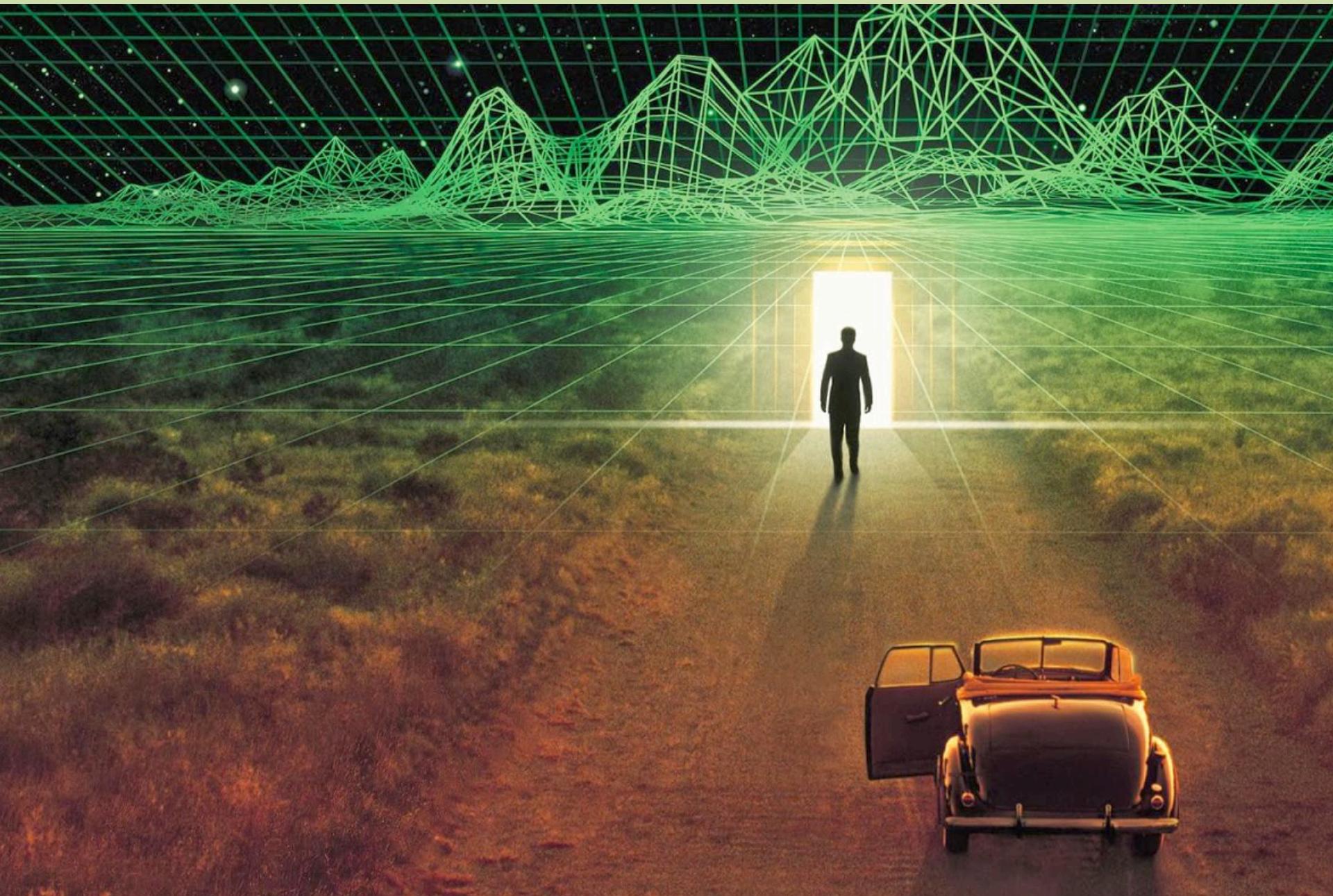
Tue, Jan 19th 5-6pm

Braun Auditorium

Will post slides



CS106B Contest



Prizes

[suspense]

100% on the Final

CS106B Contest

Two categories



Algorithmic Complexity



Creativity

CS106B Contest

Rules...

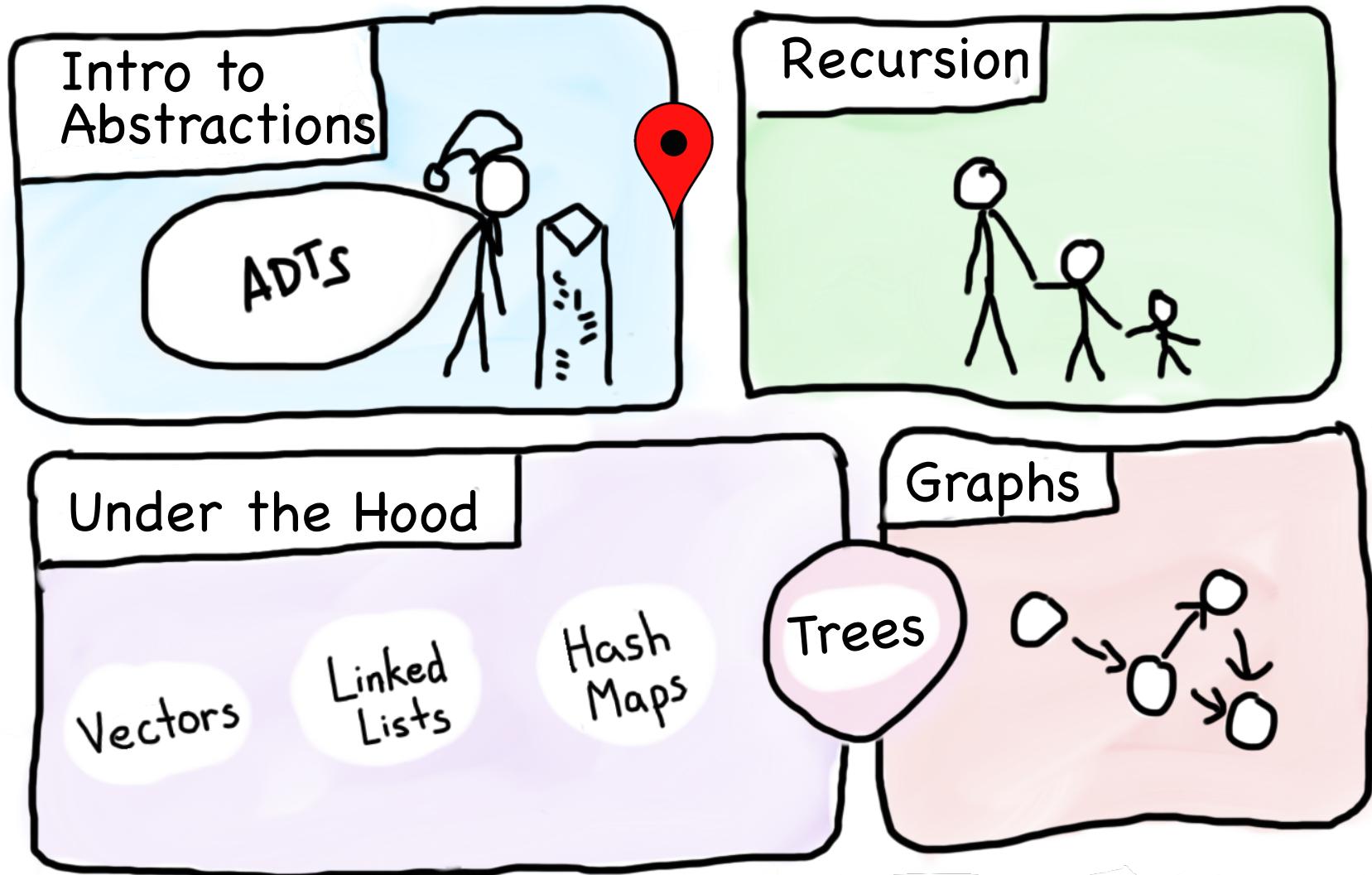
<http://web.stanford.edu/class/cs106b/assn/contest.html>

Socrative.com



Room: ACRFU4PQ3

Course Syllabus



You are here

Today's Goals

1. You are ready for Assn 2



Interesting Puzzle

Counterfeiter



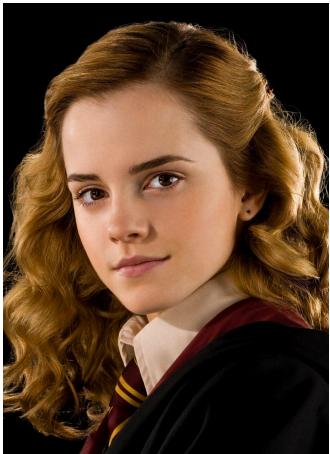
User



You (Distributor)

Interesting Puzzle

Counterfeiter



You (Distributor)

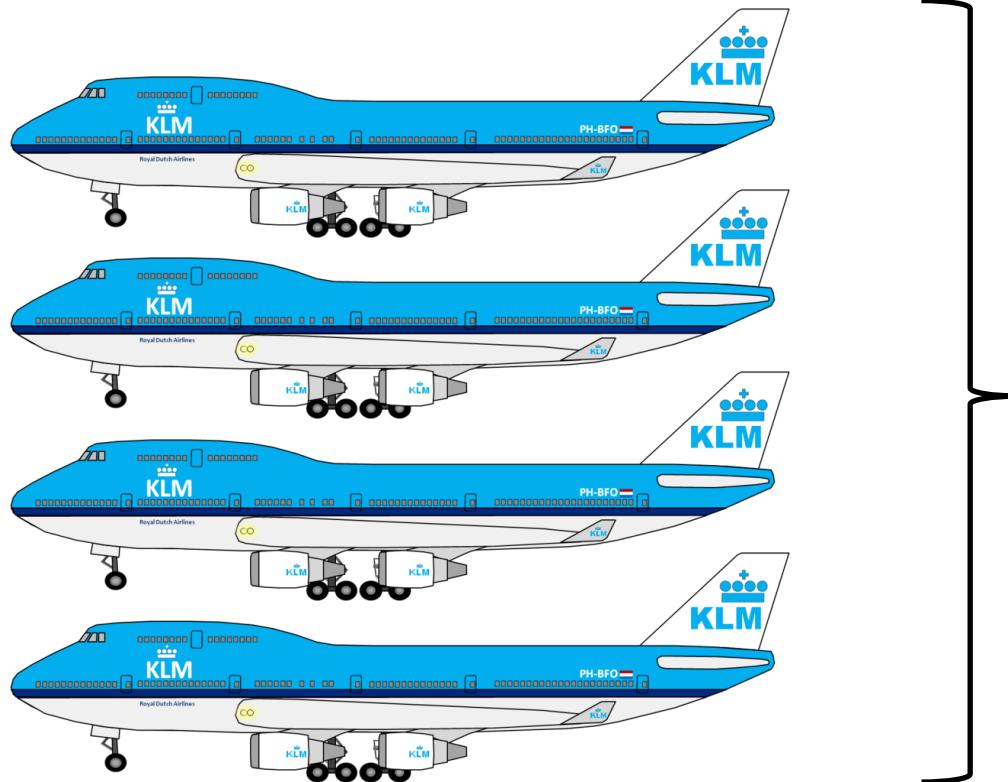


User



Fake Medicine is a Problem

700,000 deaths a year from fake malaria and tuberculosis drugs [1]

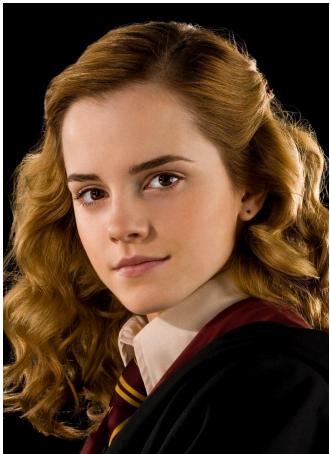


Equivalent of this
many crashes per
day

[1] <http://www.un.org/africarenewal/magazine/may-2013/counterfeit-drugs-raise-africa%20%99s-temperature>

Interesting Puzzle

Counterfeiter



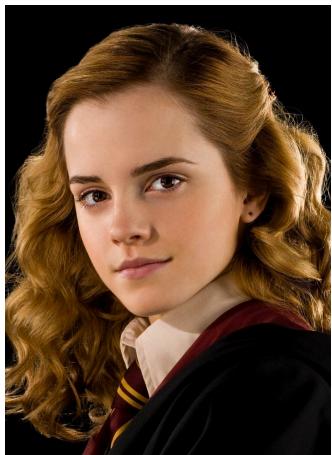
User



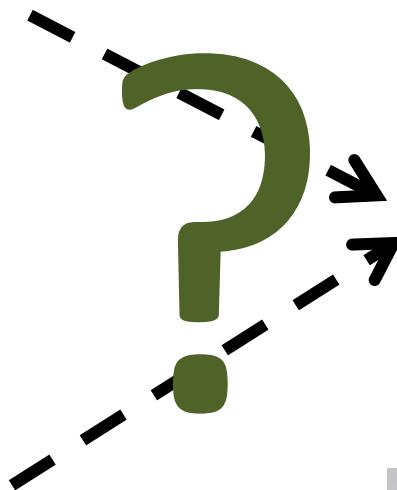
You (Distributor)

Real Life Challenge

Counterfeiter



You (Distributor)



User



M Pedigree



Bright Simons

Mpedigree Datastructure (aka ADT)

What Datastructure

- A. Vector<int>
- B. Set<int>
- C. Map<int, string>
- D. Stack<int>





Collections

Vector

Grid

Map

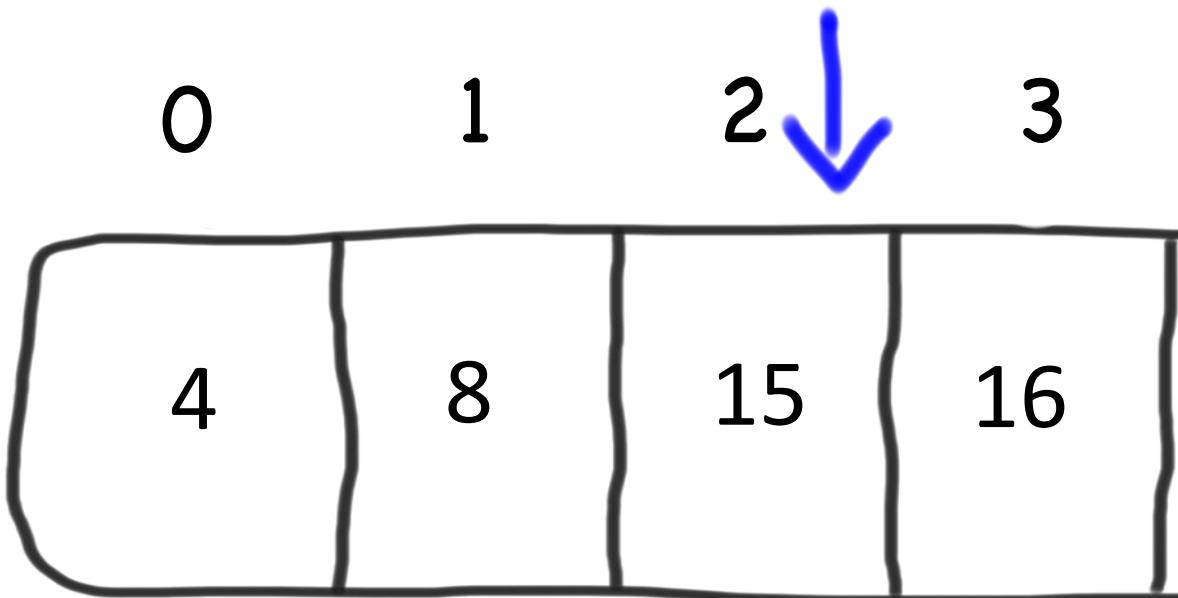
Stack

Queue

Set

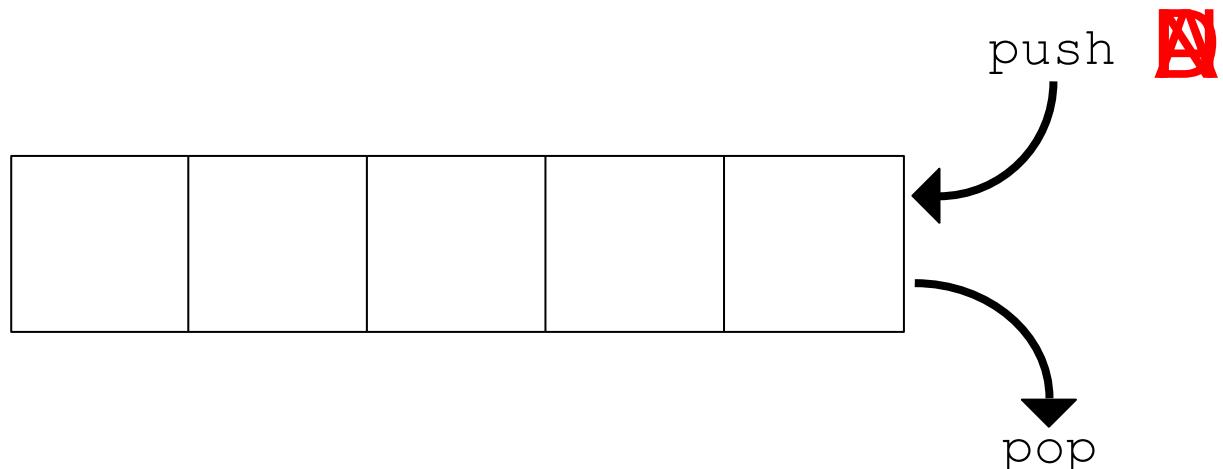
Vectors

- Can grow to any size you need.
- Supports random access.



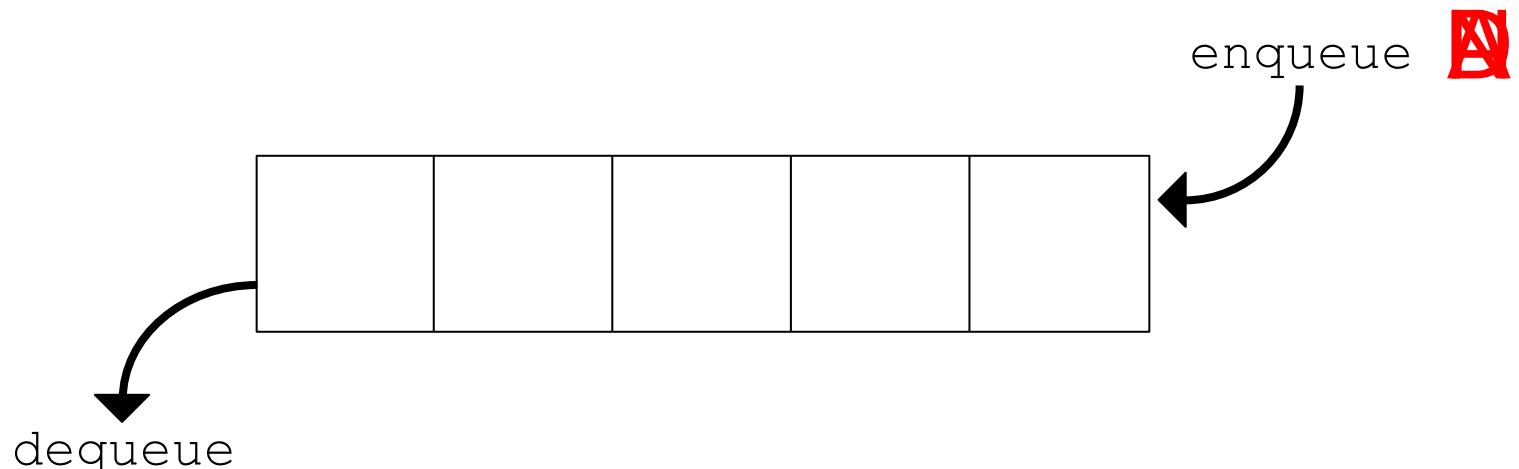
Stack

- ▶ Last in, First Out (so rude)
- ▶ Slightly faster than vector.
- ▶ Great style.



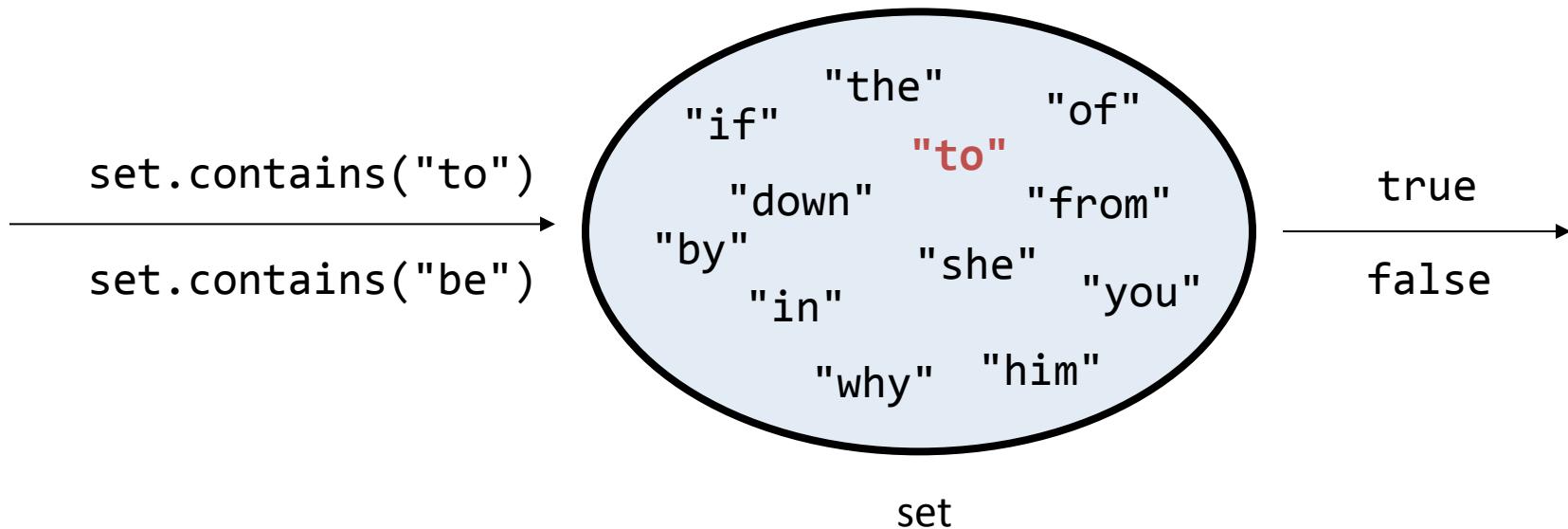
Queue

- ▶ First in, First Out (very fair)
- ▶ Slightly faster than vector.
- ▶ Great style.



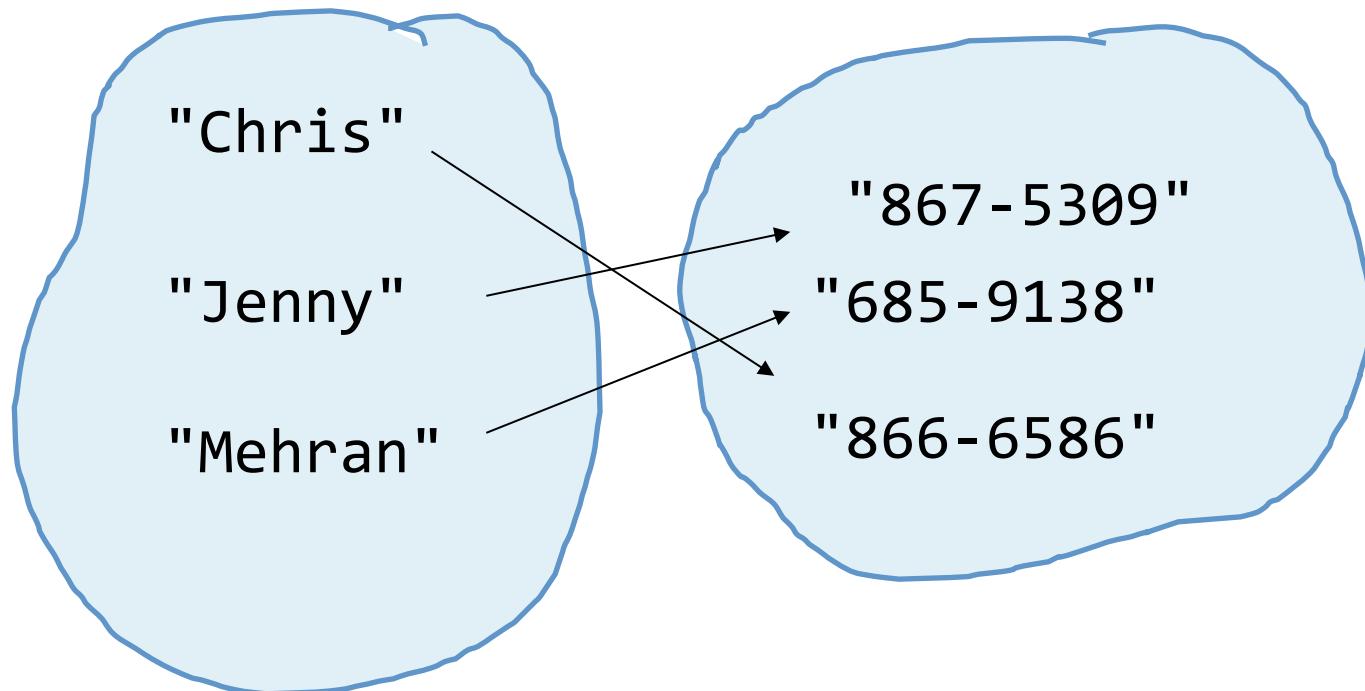
Sets

- ▶ Stores unique elements.
- ▶ Put, contains and get are all incredibly fast.
- ▶ No random access.



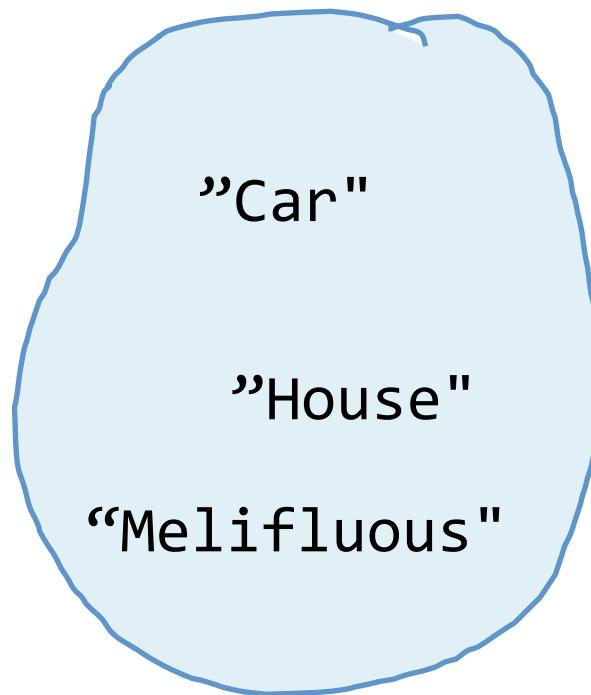
Maps

- ▶ Stores key value pairs.
- ▶ Put, contains and get are all incredibly fast.
- ▶ Can get values using keys



Lexicon

- ▶ Like a set for words.
- ▶ Convenient methods.
- ▶ Can check if prefix exists.



Collections

Vector

Grid

Map

Stack

Queue

Set

Sets, good

Maps, good

Sets + Maps, good

Anagram Exercise

Write a program to find all anagrams of a word the user types.

Type a word [Enter to quit]: scared

Anagrams of scared:

cadres

cedars

sacred

scared



What is the appropriate collection to use to solve this problem?

Hint: Use a compound collection...

Anagram Exercise

acders

{sacred, cadres,
scared, cedars}

deerssst

{stressed,
desserts}

Another Cool New Program





Waypoints for your Spaceship?

Google Search?

Store the classes that all students in
Stanford are taking?

The Value of All Variables
in a C++ Program?

Facebook Newsfeed?

Today's Goals

1. You are ready for Assn 2



A Little Bit of Slope



John Ousterhout

Thanks for the Time

