

Lecture 3

CSE 331

Sep 1, 2023

Participate on Piazza

PIAZZA CSE 331 - Q & A Resources Statistics - Manage Class Atri Rudra

LIVE Q&A Drafts mid-term final grading lectures office_hours notation_alert proof_alert project recitation diversity piazza logistics algorithms support_pages more

Unread Updated Unresolved Following Ban User Console · Poll History: disable history

New Post

Search or add a post...

Show Actions

▼ PINNED

- Private Search for Teammates! 8/7/23

▼ TODAY

- Instr If you plan to use C++ for pr... 12:08 PM
- Instr TA office hours 12:06 PM

▼ LAST WEEK

- Instr Welcome to CSE 331! Friday

▼ WEEK 8/6 - 8/12

- Welcome to Piazza! 8/7/23

TA office hours

Please select all the time slots below that you will be able to attend (even if for part of the time) for TA office hours. If you do not have preference for in-person vs. virtual please pick BOTH options (but if you have a strong preference please pick the in-peron or virtual option). Recall that homeworks are due on Tuesdays at 11:30pm.

We will pick the top 32 choices at the end of Thursday (subject to TA availability) for the TA office hours.

Please note that the **TA office hours start Tuesday of 2nd week of class (i.e. from Tue, Sep 6).**

- Mondays, 9-10am (in-person)
- Mondays, 9-10am (virtual)
- Mondays, 10-11am (in-person)
- Mondays, 10-11am (virtual)
- Mondays, 12-1pm (in-person)
- Mondays, 12-1pm (virtual)
- Mondays, 1-2pm (in-person)
- Mondays, 1-2pm (virtual)
- Mondays, 2-3pm (in-person)

Average Response Time: N/A Special Mentions: There are no special mentions at this time. Online Now | This Week: 2 | 78

<https://piazza.com/buffalo/fall2023/cse331/>

Read the syllabus CAREFULLY!

Syllabus Quiz

Options

[View handin history](#)

[Download handout](#)

 Due: **December 12th 2023, 1:29 pm EST (UTC -05:00)**

 Last day to handin: **December 12th 2023, 1:29 pm EST (UTC -05:00)**

No graded material will be handed back until you pass the syllabus quiz!

Academic Integrity

Question 1: Sharing my answers to this syllabus quiz with other 331 students

- Is OK if I do it to help out a friend
- It does not matter since there is no grade attached with it
- Is an academic integrity violation and should not be done
- Is an academic integrity violation but I can take the chance

Question 2: Penalty for academic violation in CSE 331 is an automatic

- warning and a chance to make-up
- [A zero in the assignment AND a letter grade reduction (for first violation across all CSE courses) and an F in the course (for 2nd violation across all CSE courses)] OR [If ChatGPT is involved then an F in the course]
- A zero in the corresponding assignment and nothing else

Q1 on HW 0 will be graded as usual

note @24 🔒 ★ 🔒 stop following 6 views Actions

HW 0 is out

Here is the direct link to the HW 0 page:
<http://www-student.cse.buffalo.edu/~atri/cse331/fall23/hws/hw0/index.html>

Couple of things to note:

- Autolab will not start accepting HW 0 submissions until 11:45pm tonight
- You should also be able to get to the HW0 page from the "Homeworks" dropdown menu from the top navbar.
 - Heads up you might need to (force) reload the 331 webpage and/or clear recent history in case the HW 0 link does not appear directly in the navbar.

homework0

Edit good note | 0

Updated 28 minutes ago by Atri Rudra

Please do keep on asking Qs!

The only bad question is the one that is not asked!

TA office hours

Finalized by Monday

Details will be posted on piazza



OH next week
dedicated to help
with proofs

Two comments on Programming

Programming is worth about 15% of your final grade

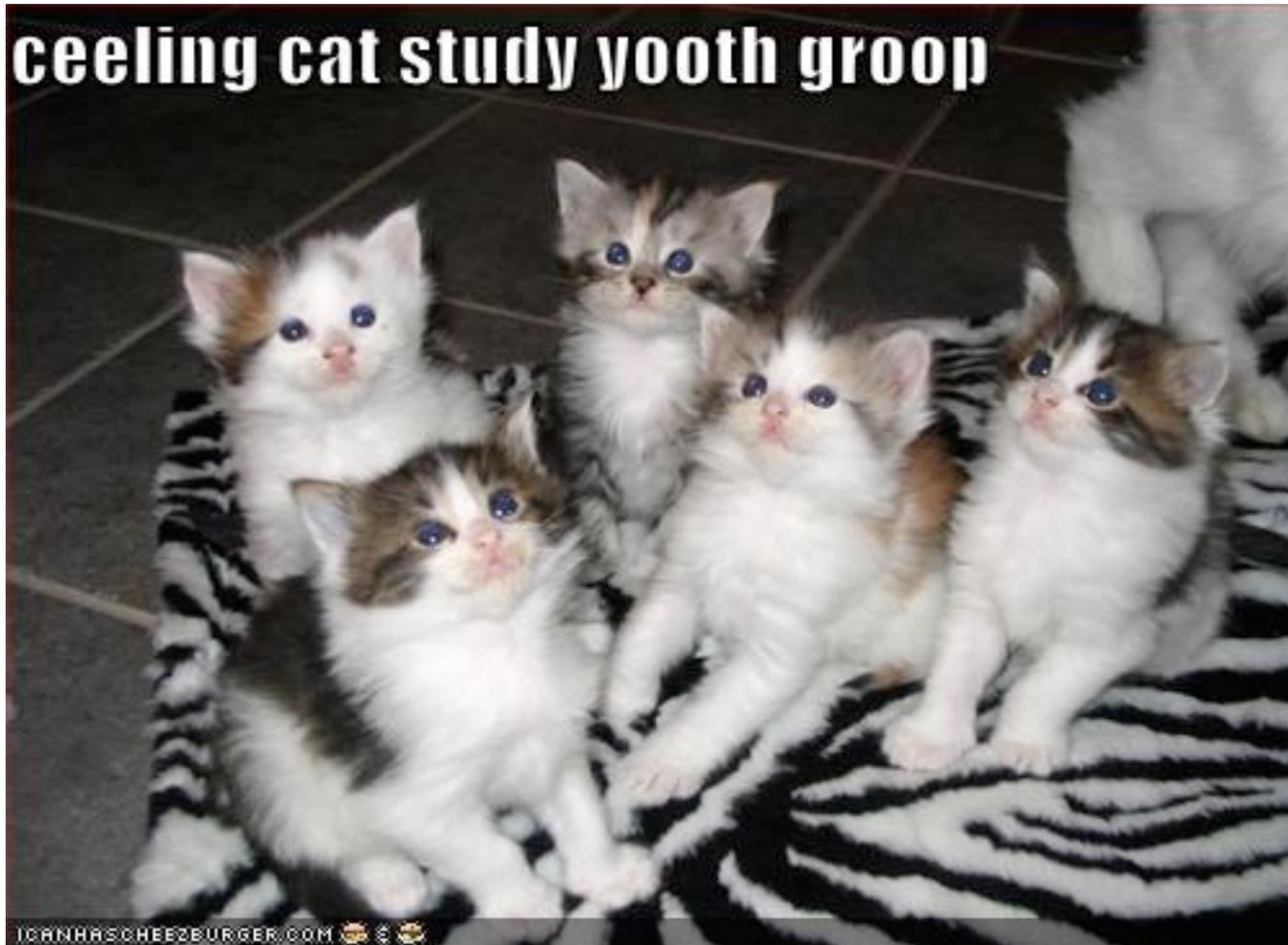
Algorithm design/proofs are worth about 80% of your final grade

Invest your time wisely

Questions/Comments?



Remember: Stick with your group



Common solution: Let's build an app for that!

The screenshot shows the Street Bump website interface. At the top, there is a dark green header with the 'STREET BUMP' logo on the left, 'About' in the center, and 'Sign In' on the right. The main content area is divided into two columns. The left column features a section titled 'Where's Street Bump being used?' with a sub-header '549 trips, 37,016 bumps, 0 potholes filled, and 0 roadway problems identified'. Below this is a map of Truro, NS, with a red starburst overlay containing the text 'Potential issues?'. The map shows a grid of streets with a 'STREET BUMP' icon and a green square marker. The right column features a section titled 'What's Street Bump?' with a green background. It contains a paragraph describing the project as a crowd-sourcing initiative for neighborhood improvement. Below the text is a 3D isometric illustration of a street grid with houses and trees, overlaid with a 'Street Bump' logo and various icons like a heart, a clock, and a play button. At the bottom of this section are buttons for 'Download on the App Store' and 'Learn More'. At the very bottom of the page, there is a link: 'Want to use Street Bump to improve your community? [Contact Us](#)'.

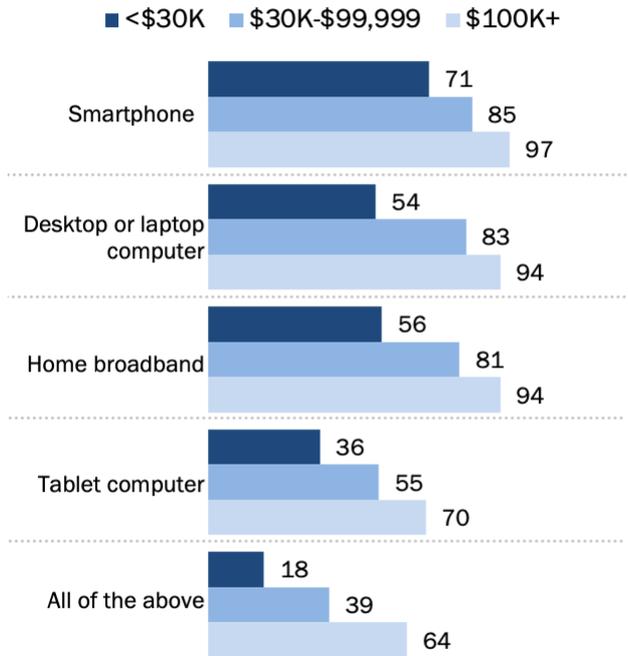
The smartphone blind-spot

Many of us in CSE assume that “everyone” has smartphones

More generally, we assume “everyone” has access to the Internet

Lower-income Americans have lower levels of technology adoption

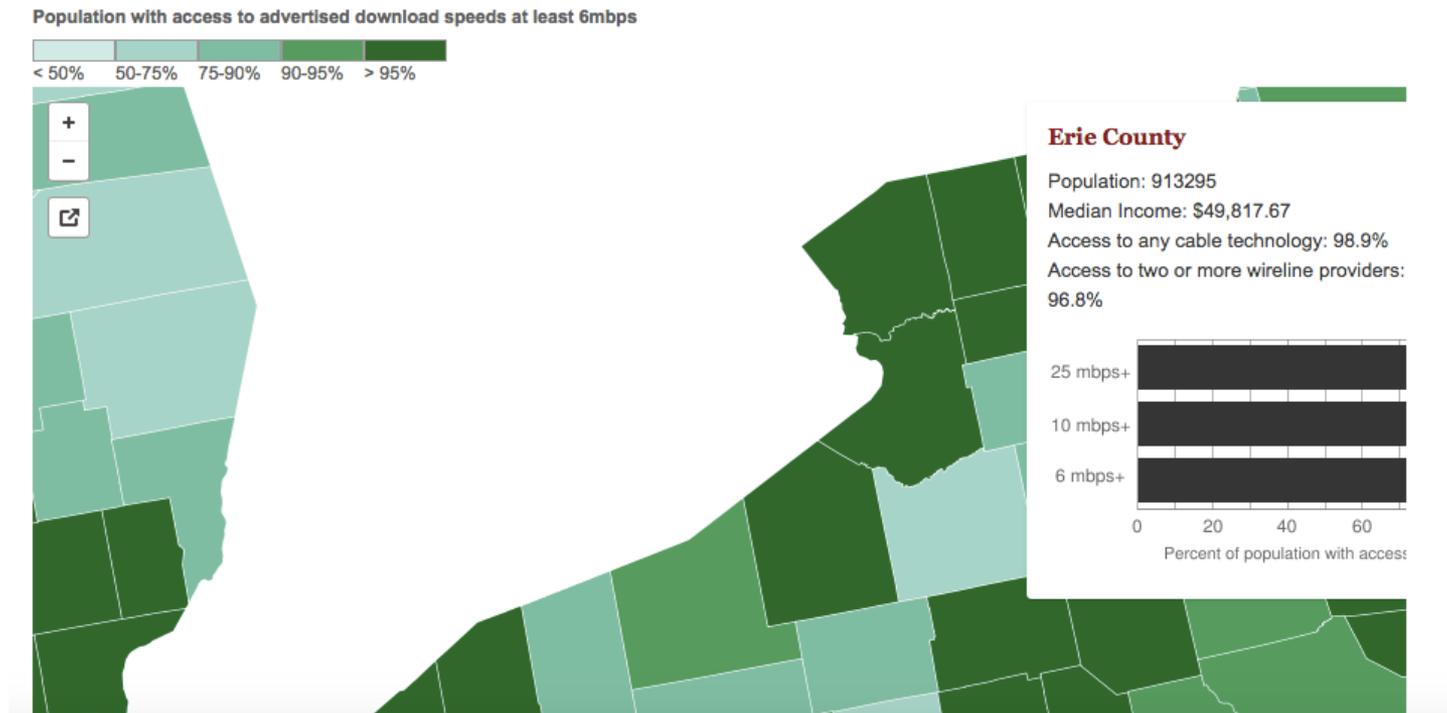
% of U.S. adults who say they have the following ...



Note: Respondents who did not give an answer are not shown.
Source: Survey conducted Jan. 8-Feb. 7, 2019.

PEW RESEARCH CENTER

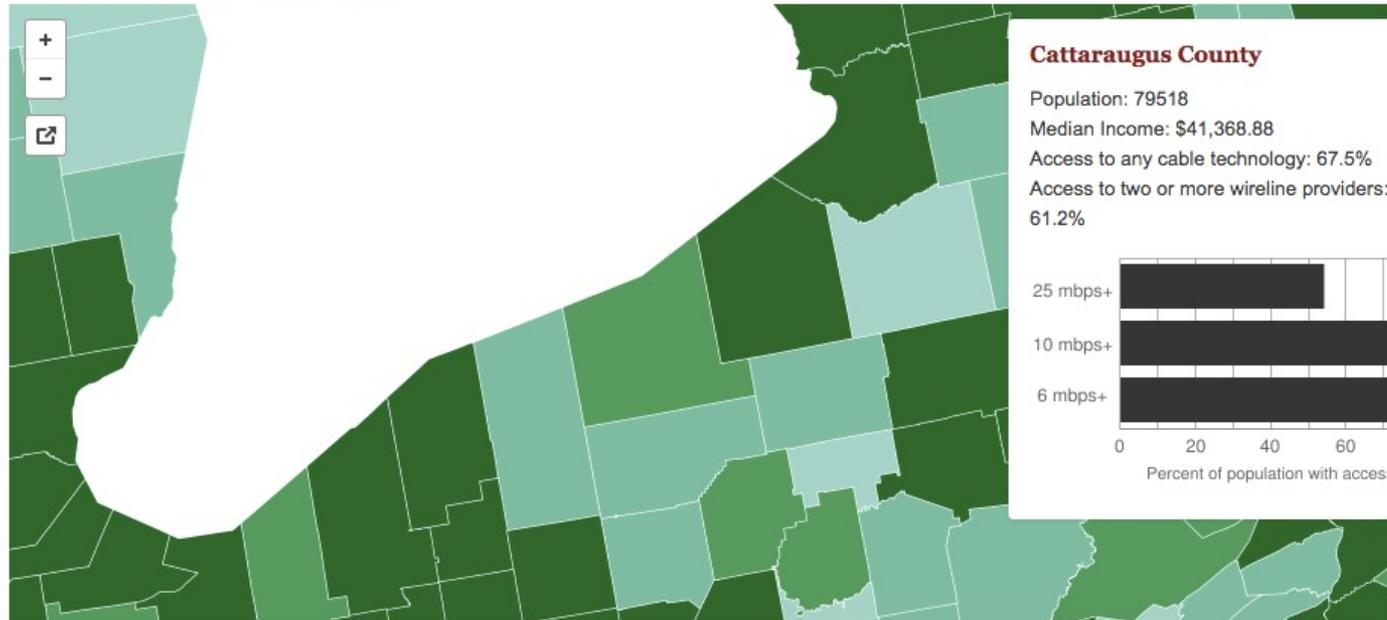
Erie county is reasonably good



<http://www.governing.com/gov-data/broadband-speeds-availability.html>

One county over

Population with access to advertised download speeds at least 6mbps

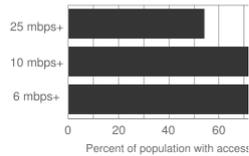


<http://www.governing.com/gov-data/broadband-speeds-availability.html>

Make broadband more available

Cattaraugus County

Population: 79518
Median Income: \$41,368.88
Access to any cable technology: 67.5%
Access to two or more wireline providers: 61.2%

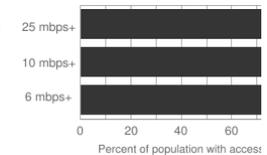


Say you are tasked to come up with the infrastructure

BOTH technical and societal issues

Erie County

Population: 913295
Median Income: \$49,817.67
Access to any cable technology: 98.9%
Access to two or more wireline providers: 96.8%



Make broadband more available

Input requirements

Where are the customers located?
What are the bandwidth requirements?
How is the input represented?

What objective are we optimizing?
How should the connections be configured?

Output requirements

Problem Definition

Where should we lay down the physical stuff?
What algorithm should be use to do this?

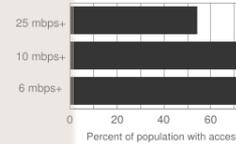
Algorithm Design

Implement the scheme

How should we do testing and maintenance?

Cattaraugus County

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Is Internet a right?

Environmental factors

Security/Privacy

Where is funding coming from?

Income inequality in population

Get regulatory approval

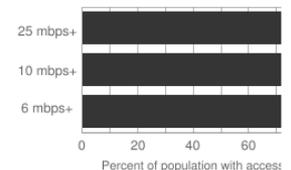
Hire people

Get access to physical space

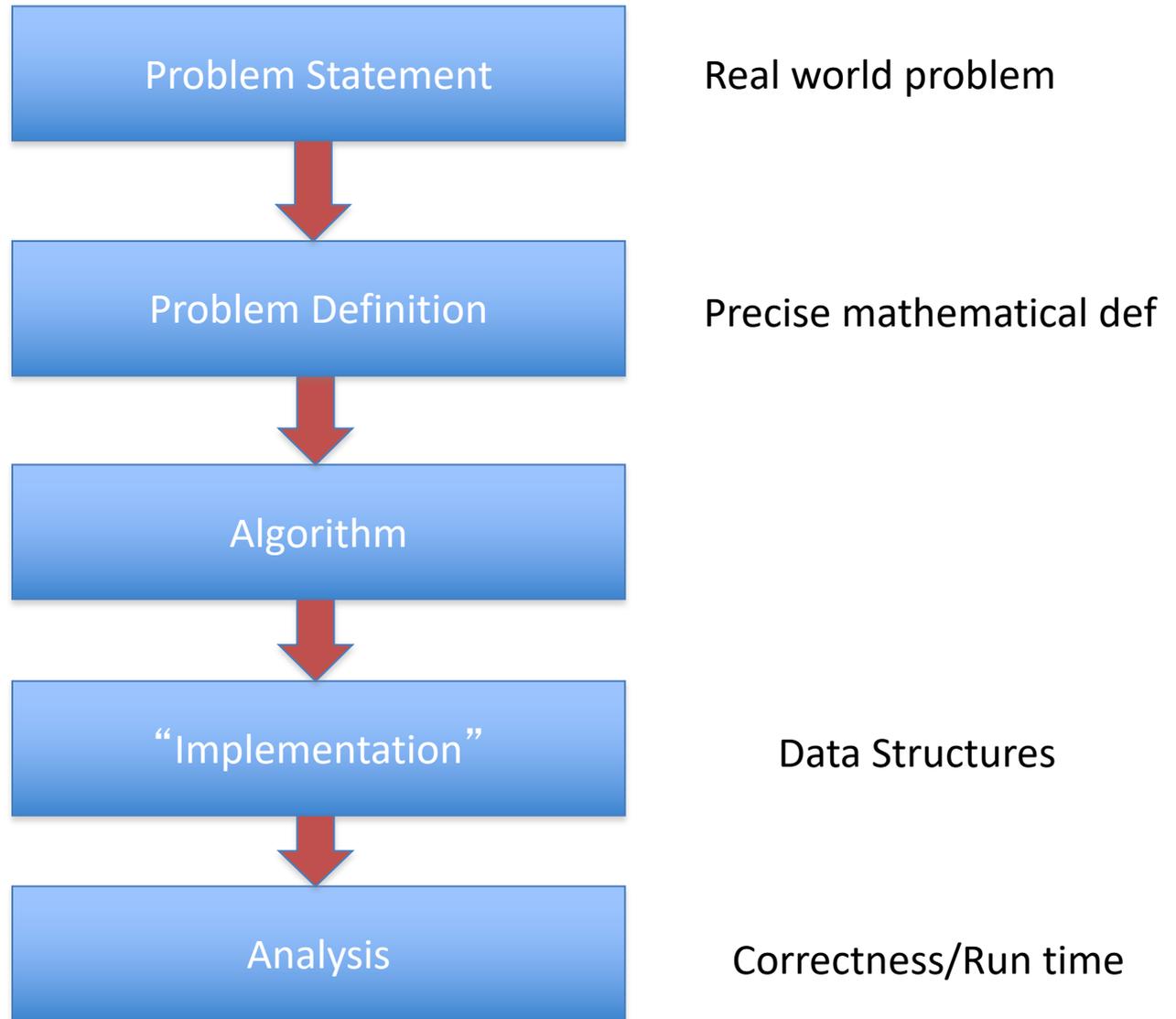
Outreach

Erie County

Population: 913295
Median Income: \$49,817.67
Access to any cable technology: 98.9%
Access to two or more wireline providers: 96.8%



Main Steps in Algorithm Design



National Resident Matching

Preparing for #Match2018?

**Frequently
Asked
Question**

**An NRMP ID is
NOT Required for
Submitting Your
Applications**

[>> Learn more](#)

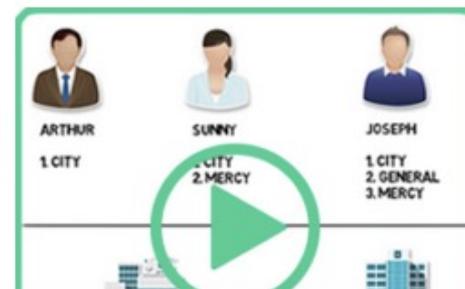
WHAT'S HAPPENING

- Check the Eligibility of Applicants
- Registration Open for Adolescent Medicine, Medical Toxicology, and Headache Medicine
- Timely Residency Applicant Resources
- Registration Open for Colon & Rectal Surgery, Medical Genetics, Sleep Medicine, and Spinal Cord Injury

[READ MORE](#)



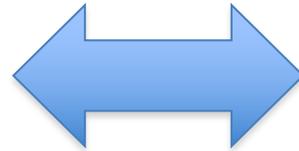
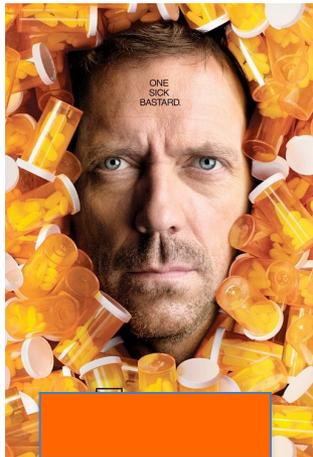
VIDEO: The Match Process for Applicants



(Screen) Docs are coming to BUF



Bailey (Grey's Anatomy)



Buffalo General



Millard Filmore (Gates Circle)

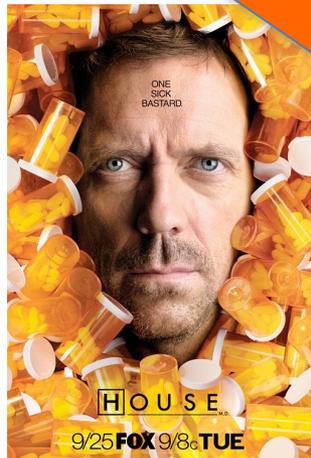


Millard Filmore (Suburban)

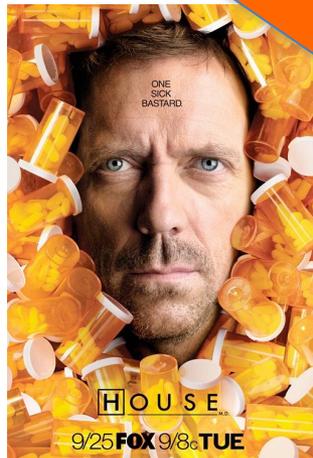


JD (Scrubs)

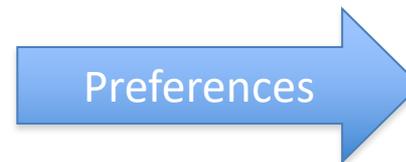
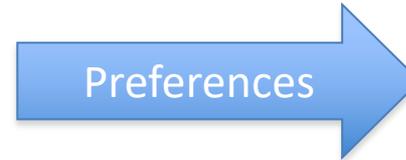
What can go wrong?



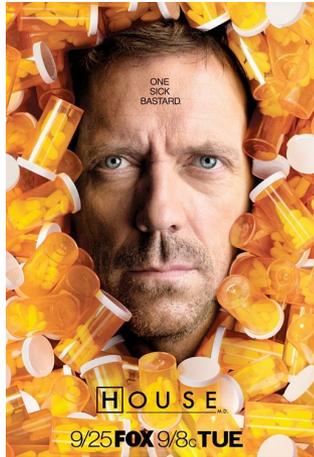
The situation is unstable!



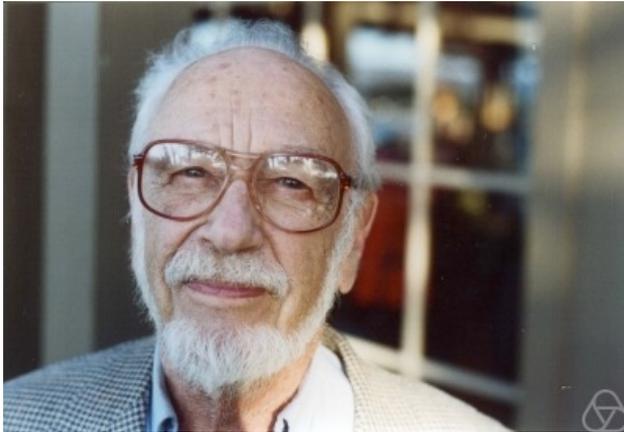
What happens in real life



NRMP plays matchmaker



Stable Matching Problem



David Gale



Lloyd Shapley*