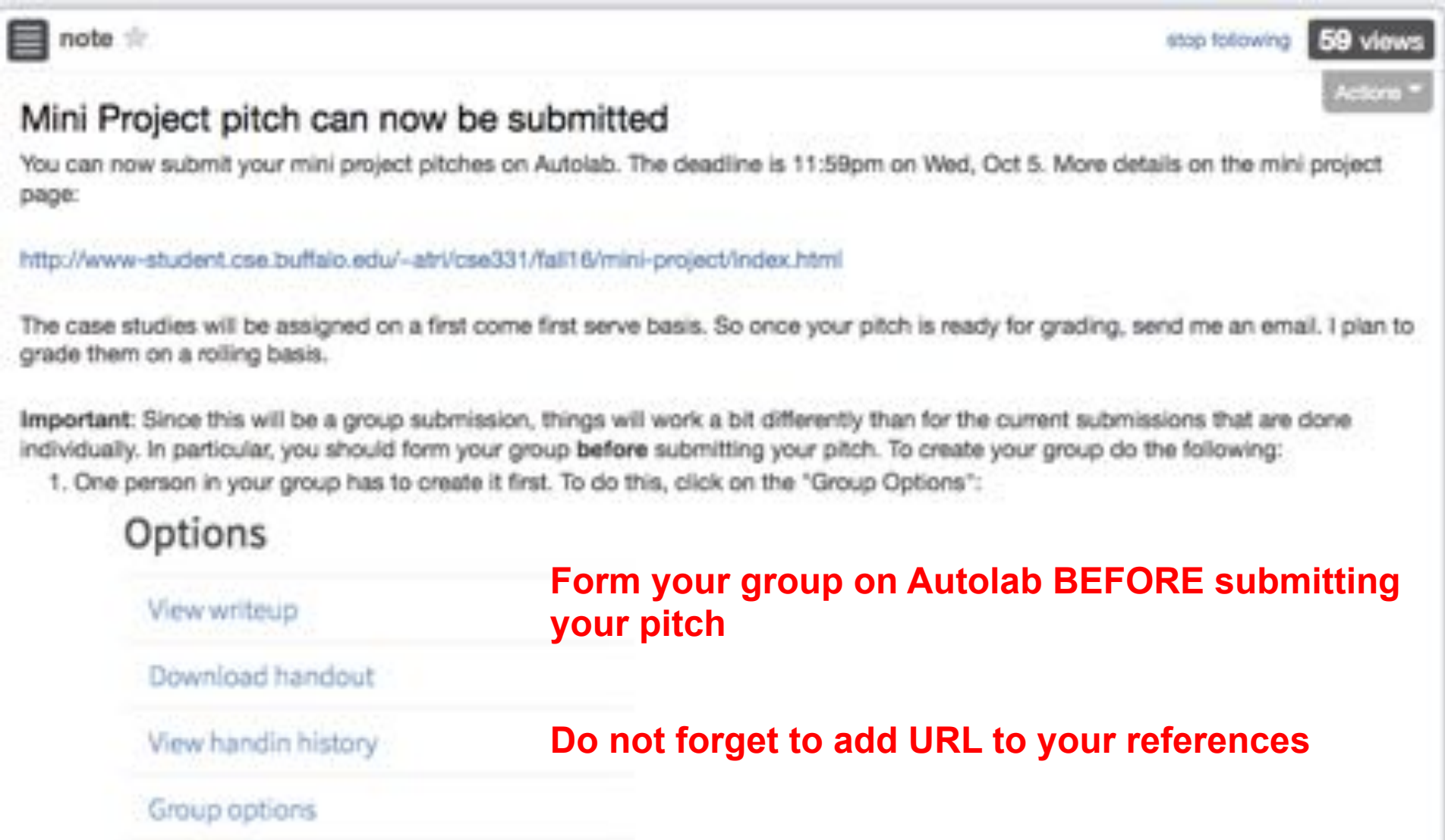


Lecture 16

CSE 331

Oct 5, 2016

Mini Project Pitch due TODAY



The image is a screenshot of a course announcement page. At the top left, there is a menu icon and the word "note" with a star icon. At the top right, there are buttons for "stop following" and "59 views", along with an "Actions" dropdown menu. The main heading is "Mini Project pitch can now be submitted". Below this, a paragraph states that mini project pitches can be submitted on Autolab until 11:59pm on Wednesday, October 5. A URL is provided: <http://www-student.cse.buffalo.edu/~atri/cse331/fall16/mini-project/index.html>. Another paragraph explains that case studies will be assigned on a first-come, first-serve basis and that pitches should be submitted on a rolling basis. An "Important" section follows, stating that submissions are group-based and that groups must be formed before submitting. A numbered list starts with "1. One person in your group has to create it first. To do this, click on the 'Group Options':". Below this list is a section titled "Options" with four links: "View writeup", "Download handout", "View handin history", and "Group options".

note ☆

stop following 59 views

Actions

Mini Project pitch can now be submitted

You can now submit your mini project pitches on Autolab. The deadline is 11:59pm on Wed, Oct 5. More details on the mini project page:

<http://www-student.cse.buffalo.edu/~atri/cse331/fall16/mini-project/index.html>

The case studies will be assigned on a first come first serve basis. So once your pitch is ready for grading, send me an email. I plan to grade them on a rolling basis.

Important: Since this will be a group submission, things will work a bit differently than for the current submissions that are done individually. In particular, you should form your group **before** submitting your pitch. To create your group do the following:

1. One person in your group has to create it first. To do this, click on the "Group Options":

Options

- View writeup
- Download handout
- View handin history
- Group options

Form your group on Autolab BEFORE submitting your pitch

Do not forget to add URL to your references

Quiz 1 on Monday

note stop following 23 views

Quiz 1 on Monday, Oct 10

The first quiz will be from 1-1:10pm in class on **Monday, October 10**. We will have a 5 mins break after the quiz and the lecture will start at 1:15pm.

We will hand out the quiz paper at 12:55pm but you will **NOT** be allowed to open the quiz to see the actual questions till 1pm. However, you can use those 5 minutes to go over the instructions and get yourself in the zone.

There will be two T/F with justification questions (like those in the sample mid term 1: @358.)
#pin

quiz1

edit - good note | 0 Updated 45 minutes ago by Alri Radra

My OH canceled today

note ☆ stop following 5 views Actions

My office hours today

Hi all,

Due to unavoidable circumstances, I have to cancel my office hour today. Adhish will be doing an extra office hour from 2-3pm today so there will not be any reduction in the total number of office hours available to you guys this week.

Due to the same unavoidable circumstances, I'll be slower in responding to emails etc. today, so in particular:

(*) I might not be able to grade pitches submitted before the deadline today. So apologies if I said that I'll get back to you before the deadline;

(*) If you need to send an email make sure it is sent to cse-331-staff@buffalo.edu and not just me so that all the TAs also get the email and can get back to you on this.

Today's lecture is on and I'll see you guys there (but I'll have to leave right after at 1:50pm).

--atri
#pin

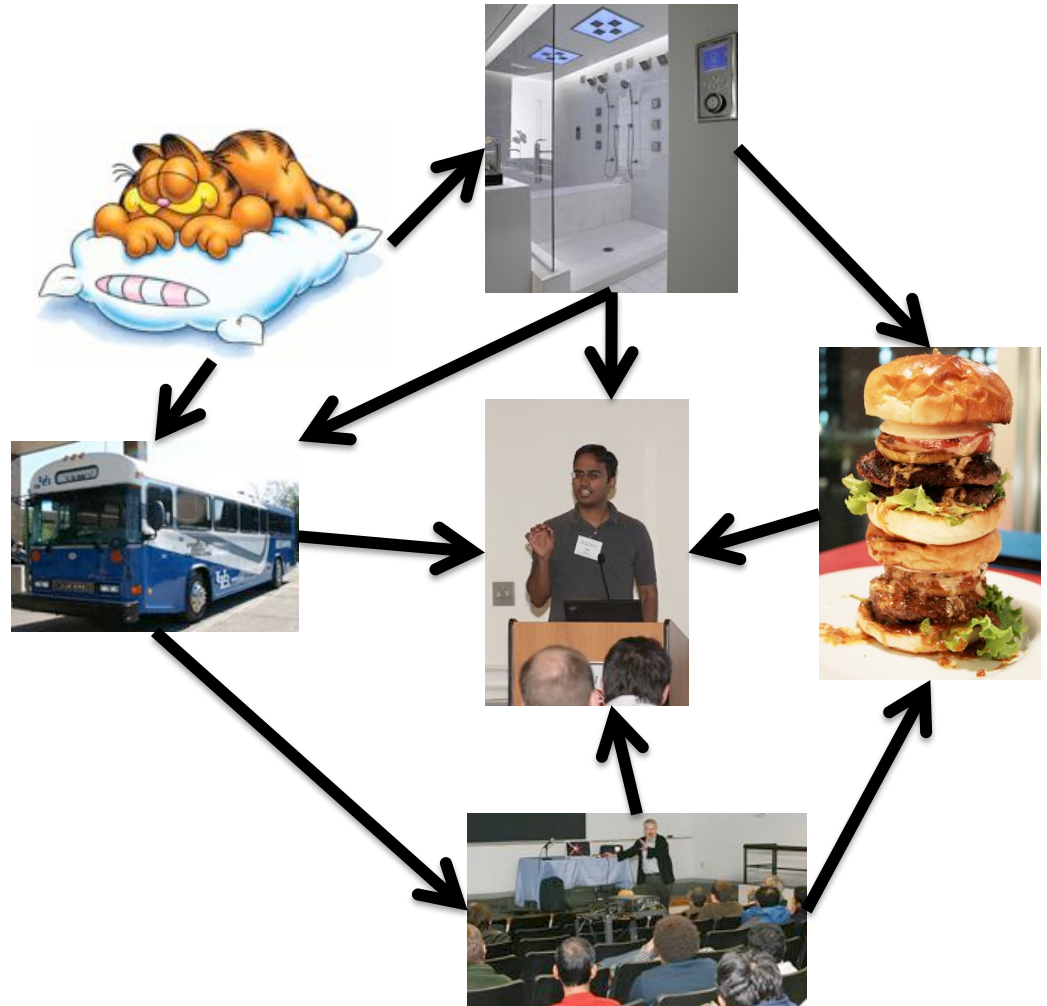
[office_hours](#) [lectures](#)

[edit](#) good note 0 Updated Just now by Atri Rautra

Directed Acyclic Graph (DAG)

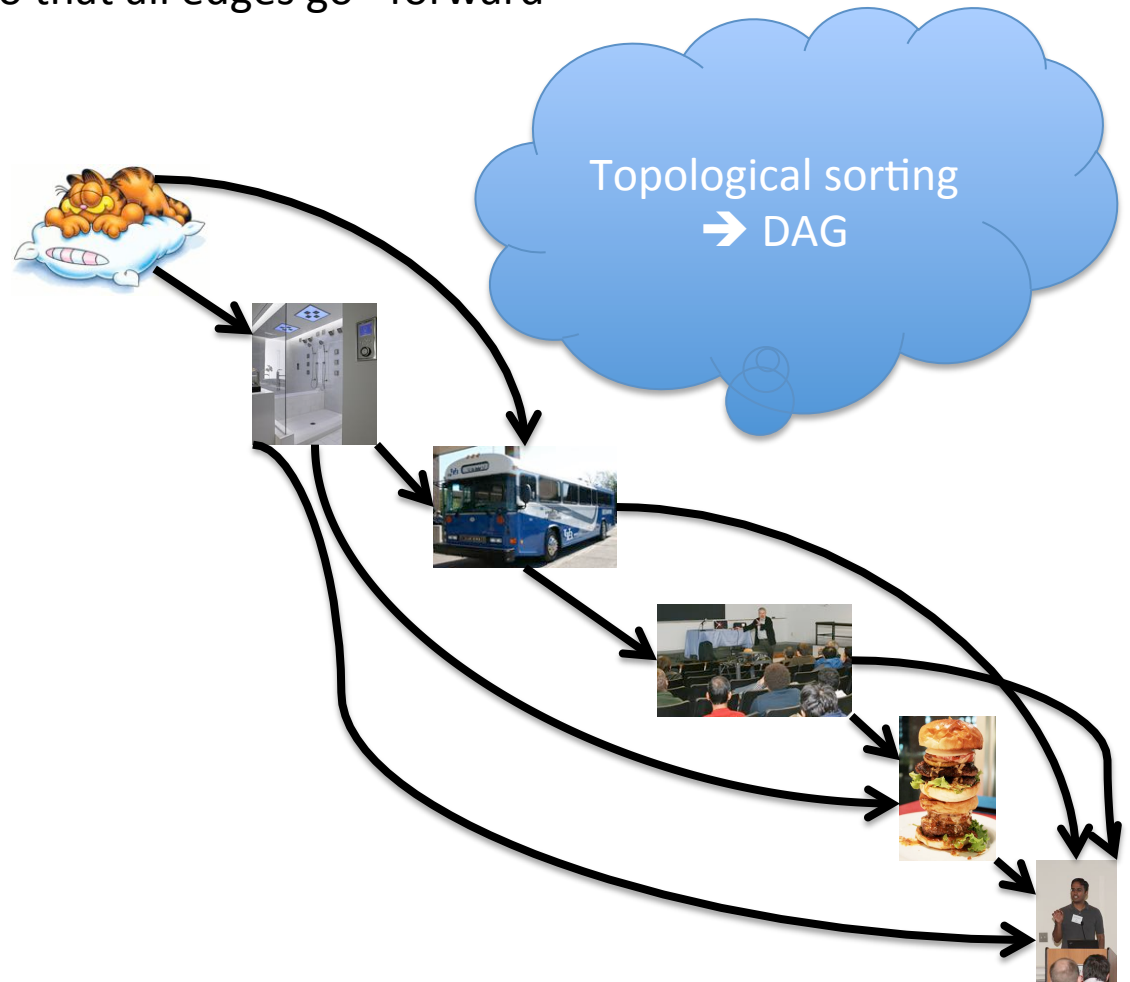
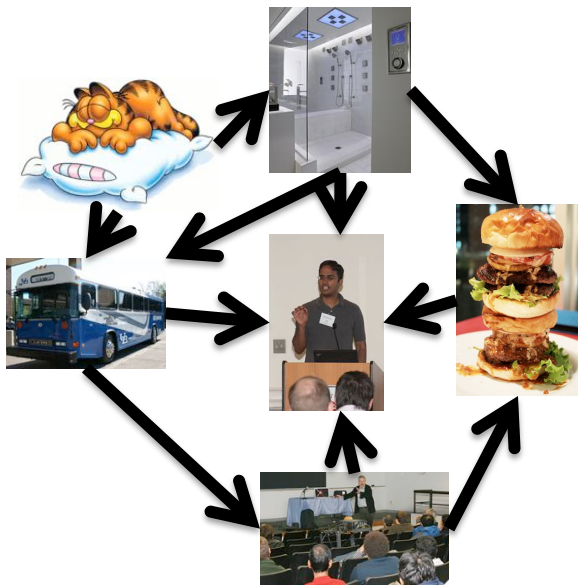
No directed cycles

Precedence relationships are consistent



Topological Sorting of a DAG

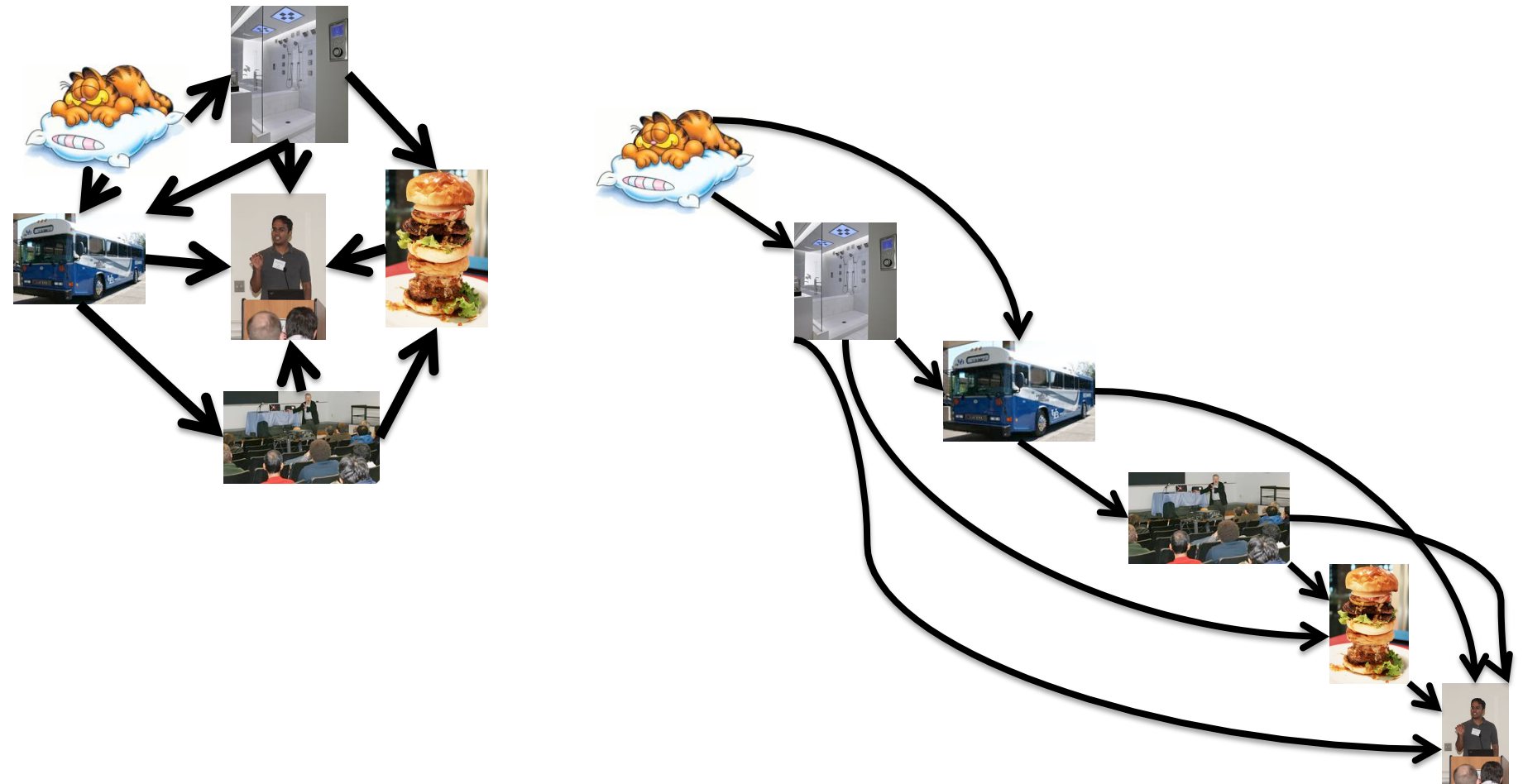
Order the vertices so that all edges go “forward”



TopOrd($G=(V,E)$)

1. If $|V| = \{u\}$, return u
2. Let w be a node with no incoming edges
3. Let G' be $G \setminus \{w\}$
4. Return w ; TopOrd(G')

Run of TopOrd algorithm



Today's agenda

Prove Lemma 2

Run time analysis of TopOrd

Greedy algorithms

Mid-term material

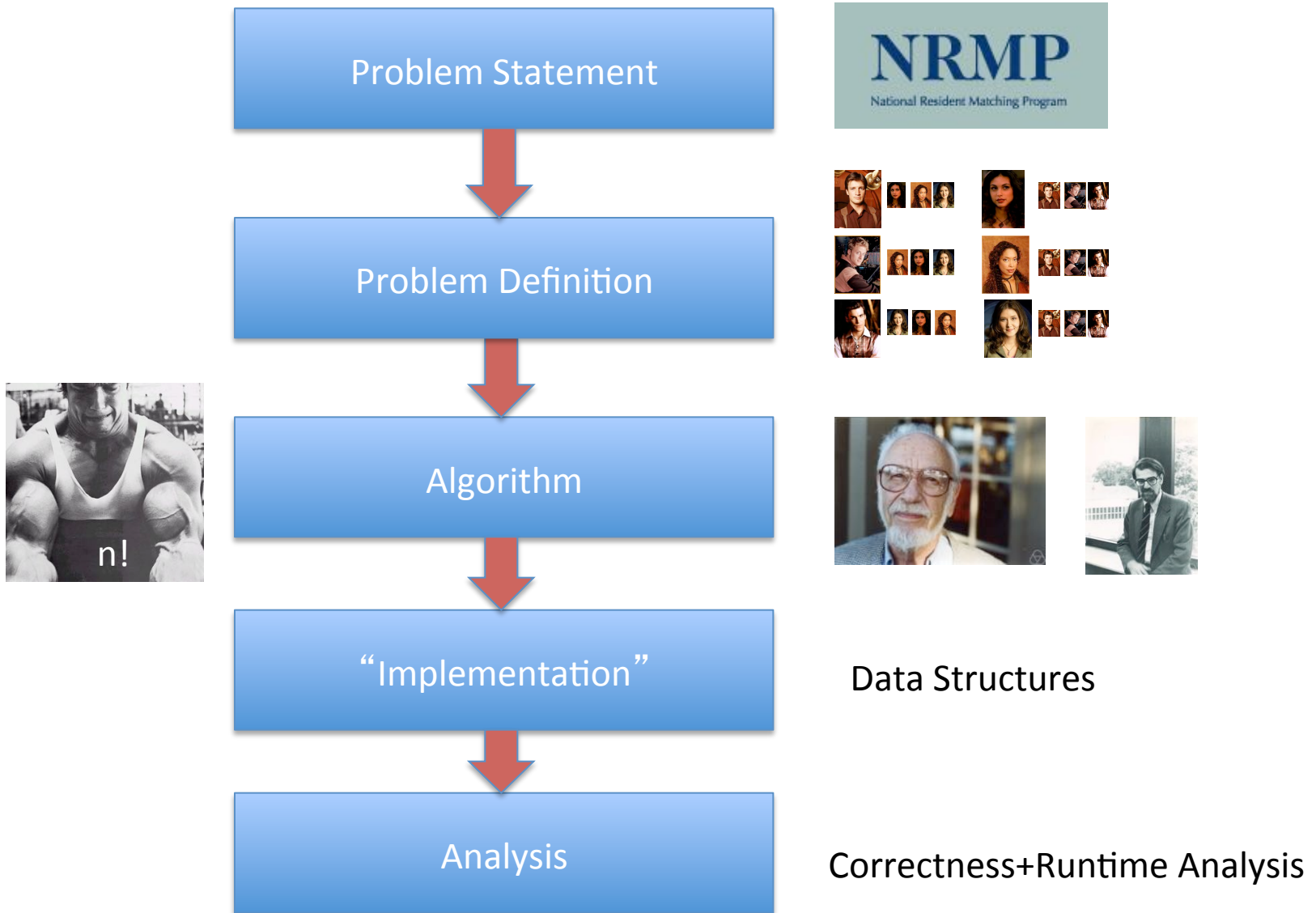
Everything we have covered so far (essentially Chaps 1-3 except Sec 1.2)

See piazza post on how to prepare for the mid-terms

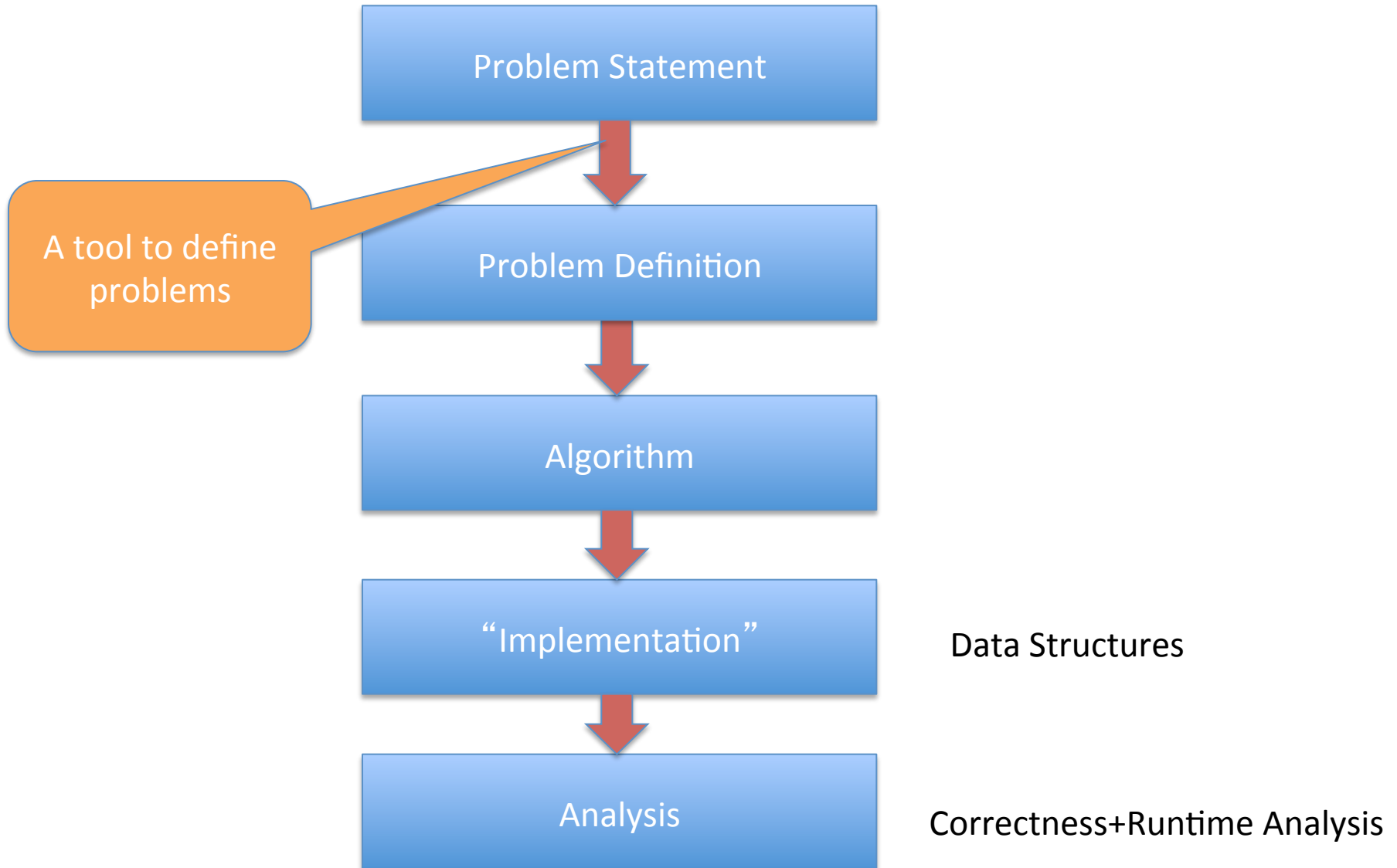
Questions?



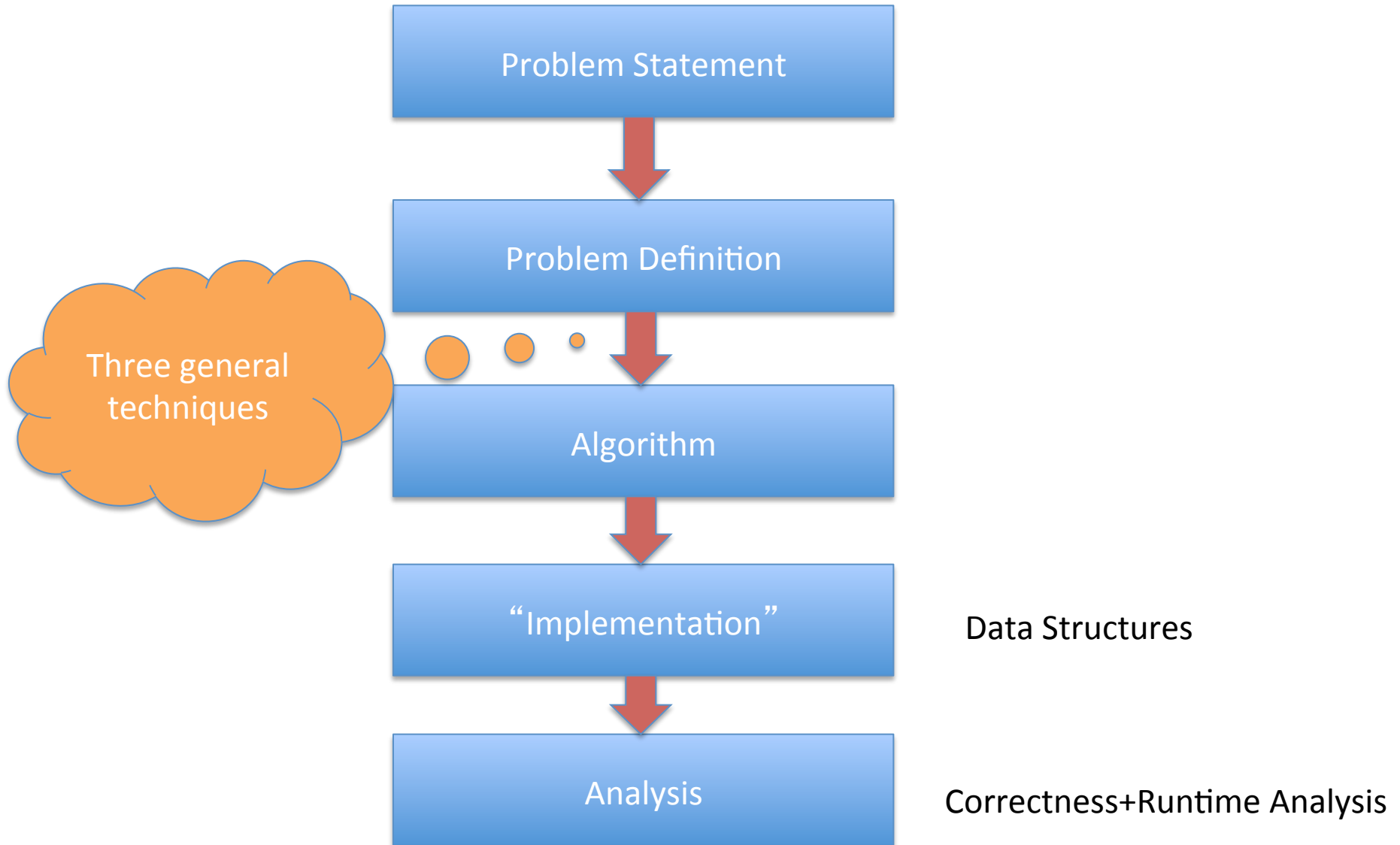
Main Steps in Algorithm Design



Where do graphs fit in?



Rest of the course



Greedy algorithms

Build the final solution piece by piece

Being short sighted on each piece

Never undo a decision

Know when you see it



End of Semester blues

Can only do one thing at any day: what is the maximum number of tasks that you can do?



Write up a term paper

Party!

Exam study

Homework

331 HW

Project

Monday

Tuesday

Wednesday

Thursday

Friday

Greedy solve your blues!

Arrange tasks in some order and iteratively pick non-overlapping tasks



Write up a term paper

Party!

Exam study

331 HW

Project

Monday

Tuesday

Wednesday

Thursday

Friday

Ordering is crucial

Order by starting time



Write up a term paper

Party!

Exam study

331 HW

Project

Algo = 1

Monday

Tuesday

Wednesday

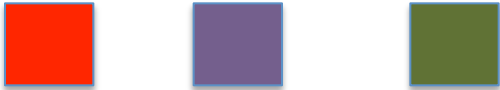
Thursday

Friday



Another attempt

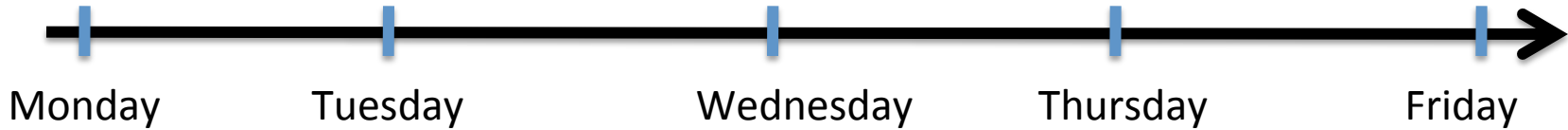
Order by duration



Ordering by least conflicts doesn't work



Algo = 1



The final algorithm

Order tasks by their END time



Write up a term paper

Party!

Exam study

331 HW

Project

Monday

Tuesday

Wednesday

Thursday

Friday



Questions?



Rest of today's agenda

Prove the correctness of the algorithm