

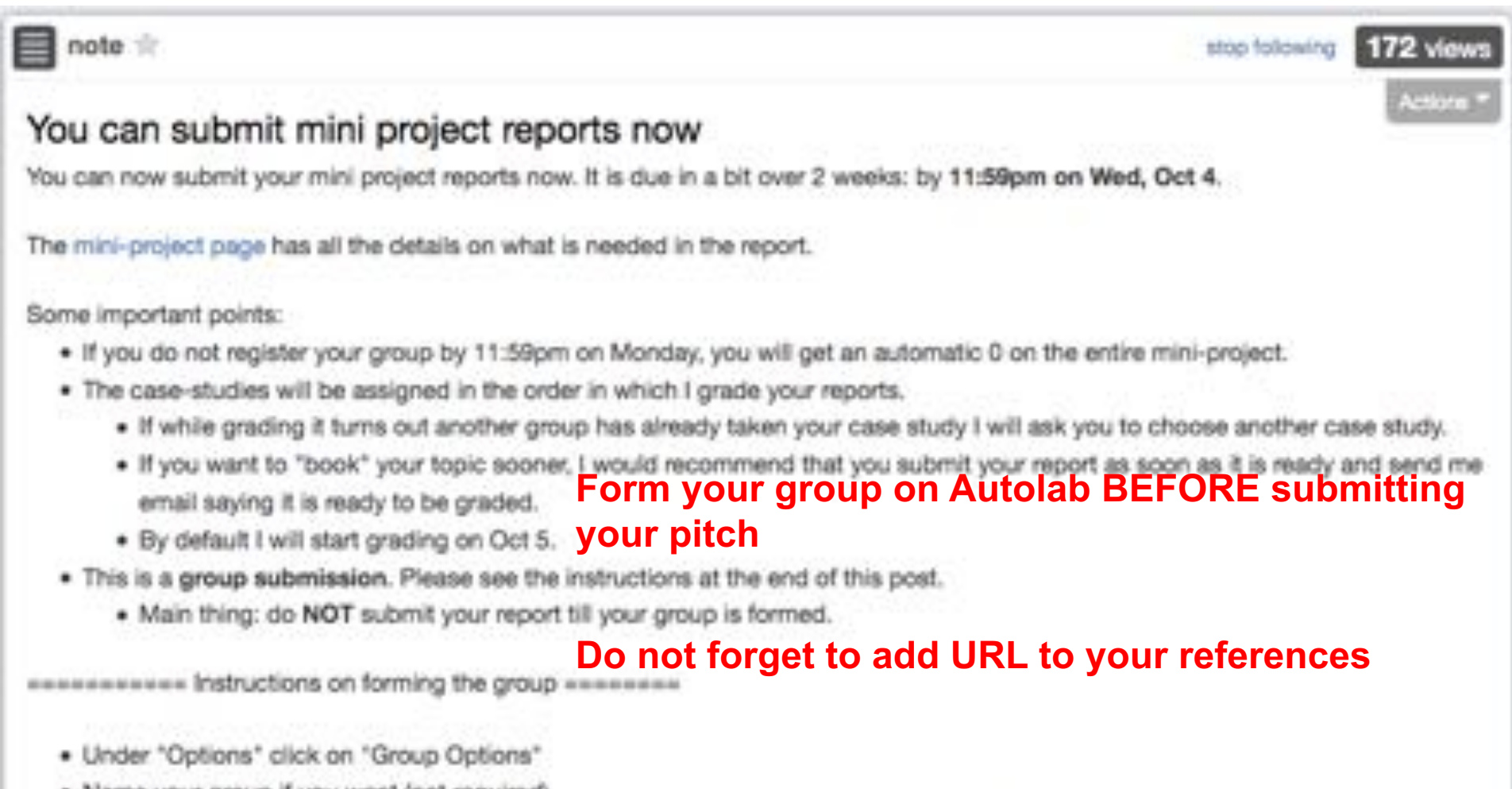
Lecture 16

CSE 331

Oct 4, 2017

Mini Project Pitch due TODAY

Some of the chosen algorithm are now up!



The screenshot shows a note titled "note" with a star icon. In the top right corner, it says "stop following" and "172 views". Below the title, the main text reads: "You can submit mini project reports now. You can now submit your mini project reports now. It is due in a bit over 2 weeks: by 11:59pm on Wed, Oct 4. The mini-project page has all the details on what is needed in the report. Some important points: • If you do not register your group by 11:59pm on Monday, you will get an automatic 0 on the entire mini-project. • The case-studies will be assigned in the order in which I grade your reports. • If while grading it turns out another group has already taken your case study I will ask you to choose another case study. • If you want to 'book' your topic sooner, I would recommend that you submit your report as soon as it is ready and send me email saying it is ready to be graded. • By default I will start grading on Oct 5. • This is a group submission. Please see the instructions at the end of this post. • Main thing: do NOT submit your report till your group is formed. ***** Instructions on forming the group ***** • Under 'Options' click on 'Group Options'".

stop following 172 views

note ☆

You can submit mini project reports now

You can now submit your mini project reports now. It is due in a bit over 2 weeks: by 11:59pm on Wed, Oct 4.

The [mini-project page](#) has all the details on what is needed in the report.

Some important points:

- If you do not register your group by 11:59pm on Monday, you will get an automatic 0 on the entire mini-project.
- The case-studies will be assigned in the order in which I grade your reports.
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 - If you want to "book" your topic sooner, I would recommend that you submit your report as soon as it is ready and send me email saying it is ready to be graded.
 - By default I will start grading on Oct 5.
- This is a **group submission**. Please see the instructions at the end of this post.
 - Main thing: do **NOT** submit your report till your group is formed.

***** Instructions on forming the group *****

- Under "Options" click on "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 3 views

Quiz 1 on Monday, Oct 9

The first quiz will be from 1-1:10pm in class on **Monday, October 9**. 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: [@373](#))

#pin

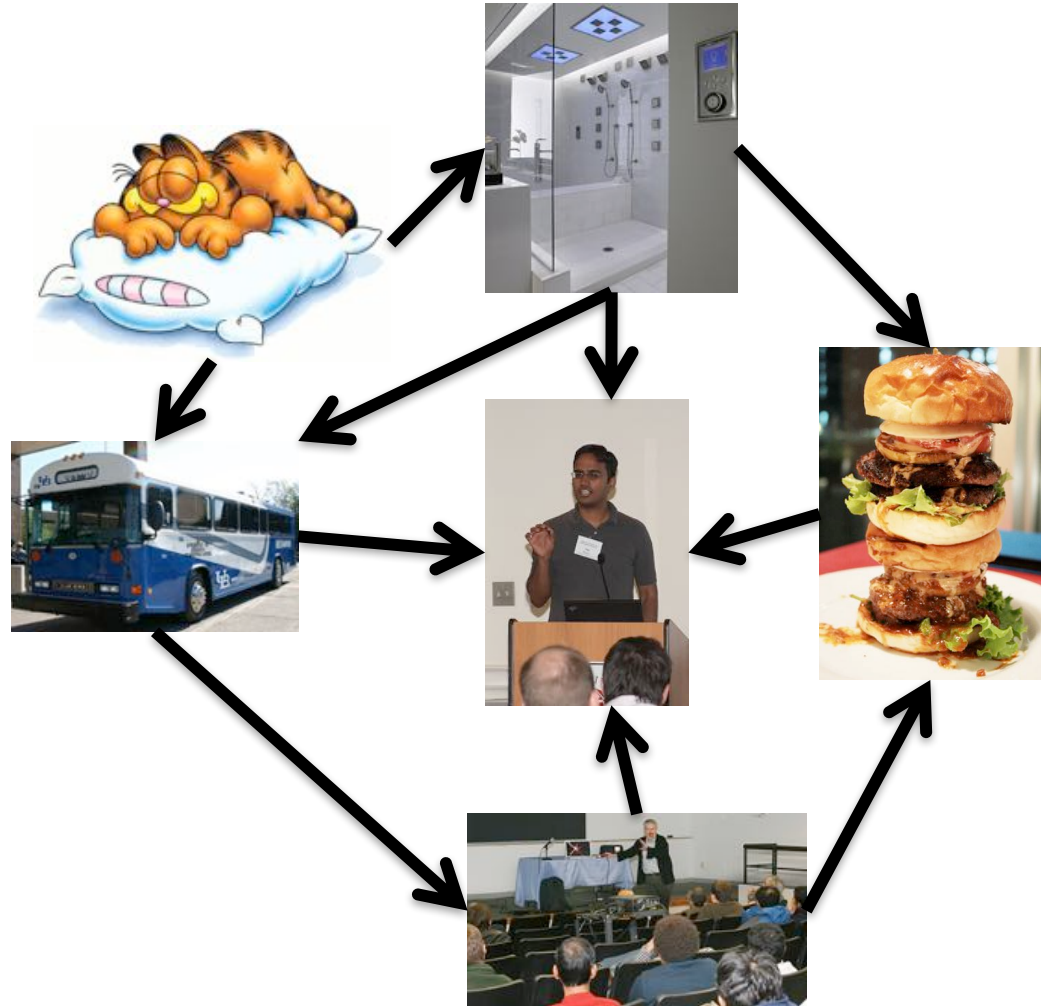
[quiz](#)

[edit](#) good note | 0 Updated 10 minutes ago by Atri Fluxus

Directed Acyclic Graph (DAG)

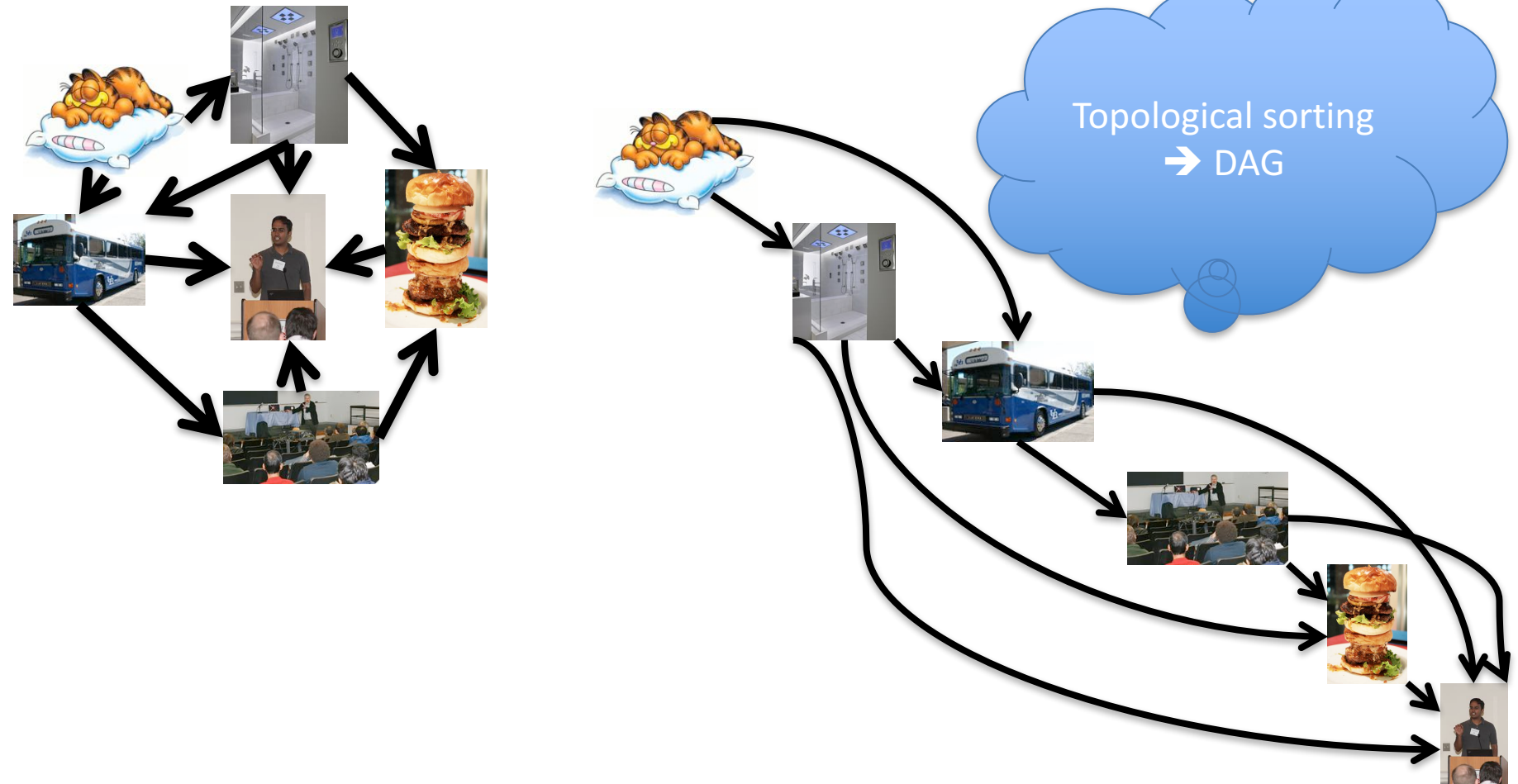
No directed cycles

Precedence relationships are consistent



Topological Sorting of a DAG

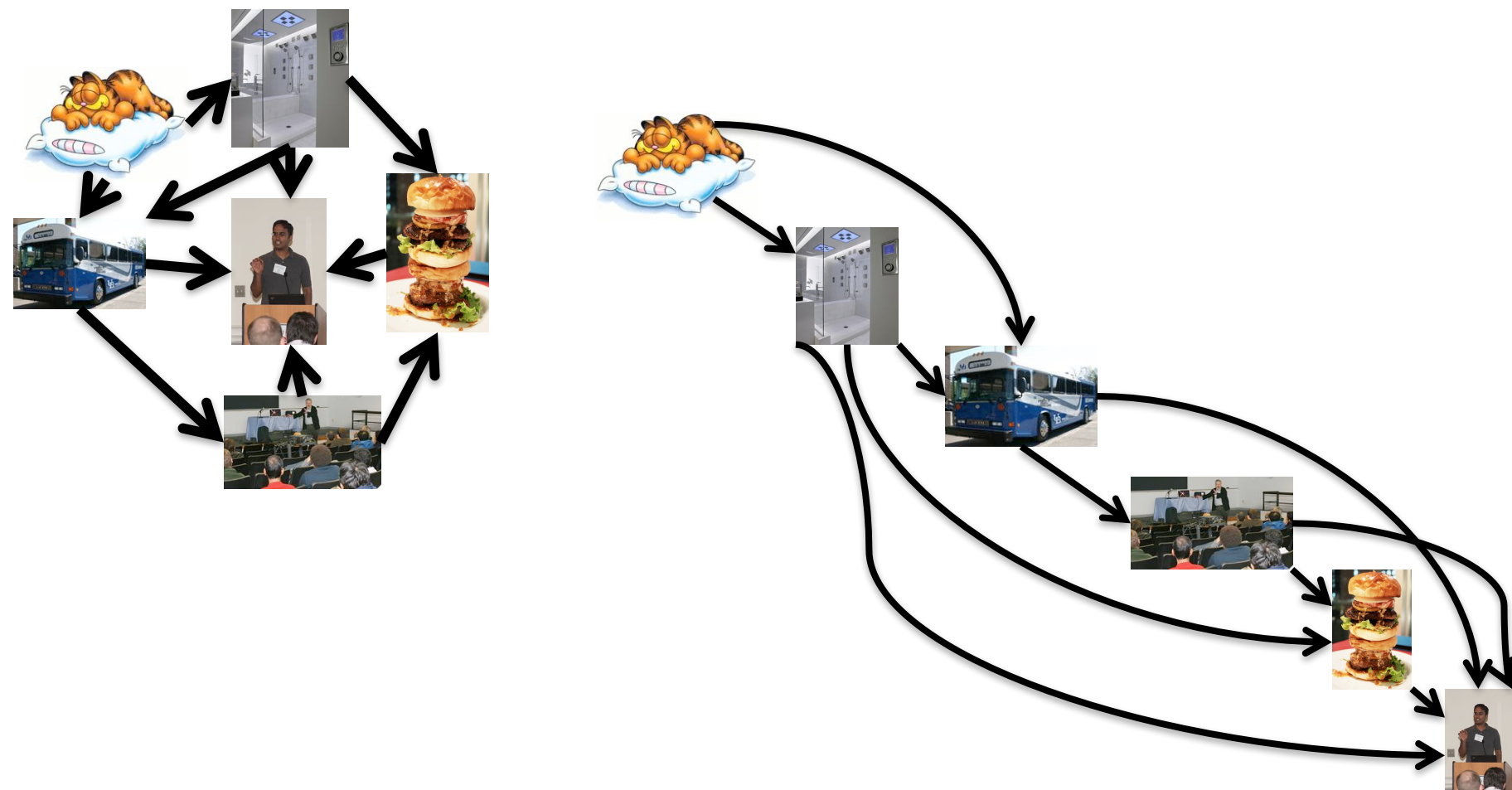
Order the vertices so that all edges go “forward”



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 3

Run time analysis of TopOrd

Greedy algorithms

Mid-term material

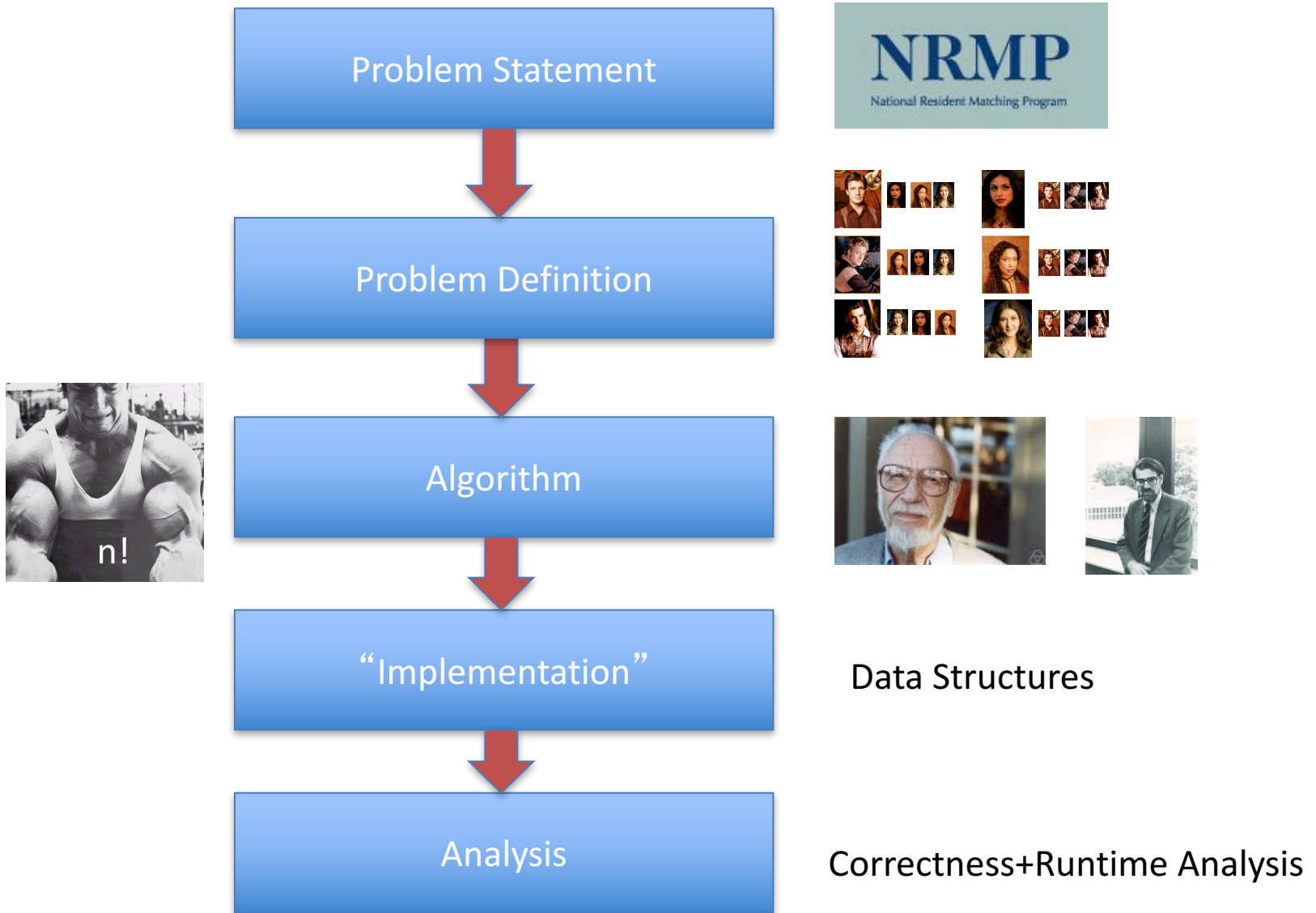
Everything we have covered so far (essentially Chaps 1-3 except Sec 1.2)

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

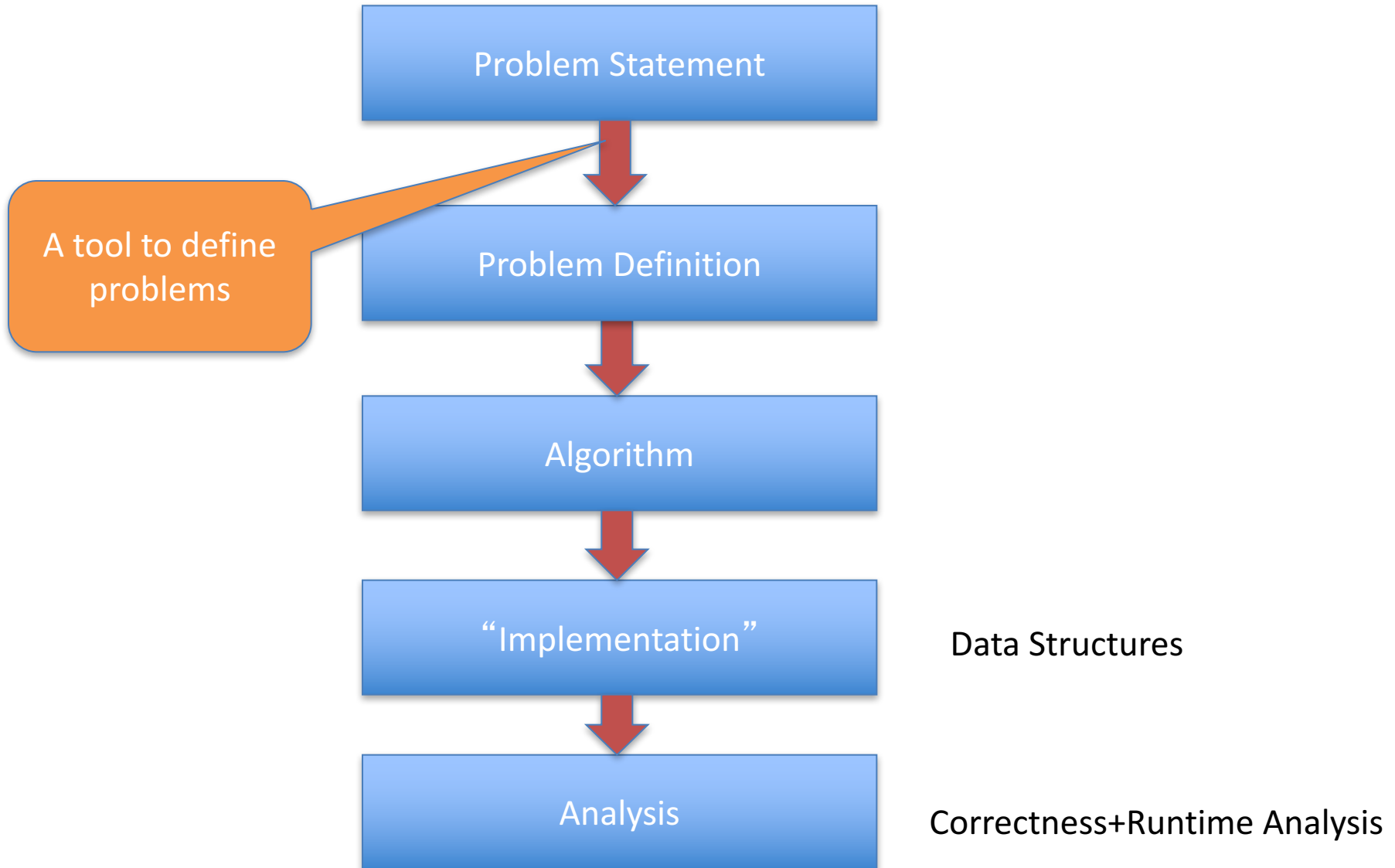
Questions?



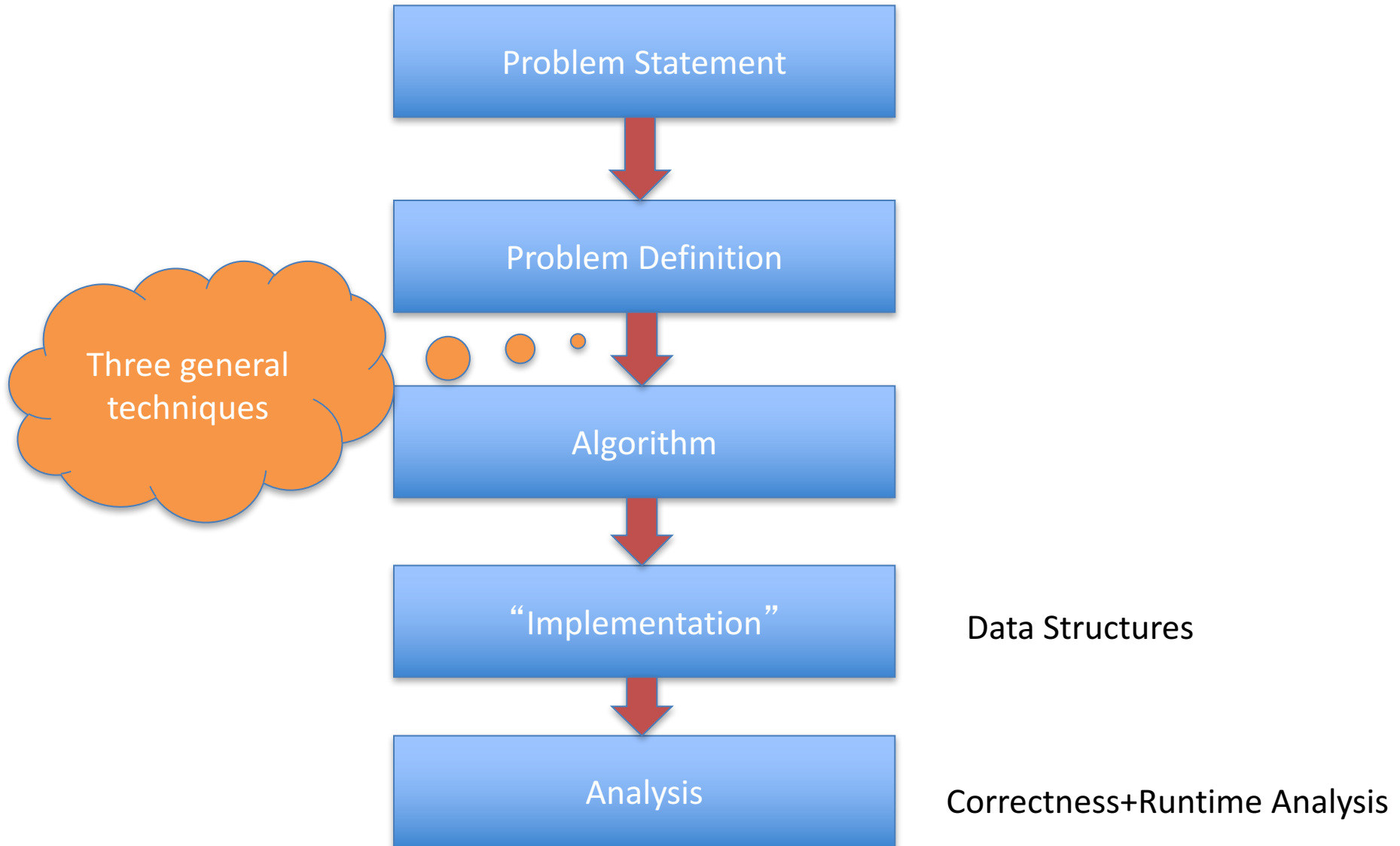
Main Steps in Algorithm Design



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

Greedily 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

Algo = 1

Project

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

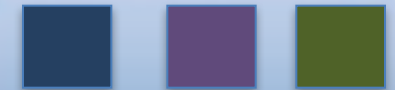
Monday

Tuesday

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Friday



Questions?



Rest of today's agenda

Prove the correctness of the algorithm