Lecture 38

CSE 331

Dec 7, 2022

Final exam post

Actions ▾

Final exam post

I'll start off with some generic comments:

- The final exam will be based on all the material we will see in class up to NP-completeness of k-colorability (we'll finish that stuff by Friday, Dec 9).
    - In case you want a head-start we will cover Sections 8.1-8.4 and Section 8.7 in the textbook. For the rest the schedule page details what sections of the book we have already covered.
    - I know this does not give a huge lead time into the final exam but unfortunately the snow day means less lead time than in previous years.
- Exam will be from **12:00pm to 2:30m** on Monday, **Dec 12** in class (**Hoch 114**). Note that the exam will be for 2.5 hours and *not 3 hours* as it says on HUB.
    - Remember the deadline to request a makeup final due to exam conflict is tomorrow, Monday, Nov 28 (@432)
- **DO NOT FORGET TO BRING YOUR UB CARD TO THE** EXAM (@460)

Next are comments related to **preparing for the finals**:

1. Take a look at the sample final (@440) and spend some quality time solving it. Unlike the homeworks, it might be better to try to do this on your own. Unlike the sample mid-term, this one is an actual 331 final exam so in addition to the format, you can also gauge how hard the final exam is going to be (your final exam will be the same ballpark). However as with the sample mid-term, you make deductions about the coverage of topics at your own peril (but see points below). Once you have spent time on it on your own, take a look at the sample final solutions (@440).
2. The actual final will have the same format as the sample final: The first question will be T/F, 2nd will be T/F with justification, the rest of the three will be longer questions and will ask you to design algorithms (parts of them might be just *analyzing* an algorithm.)
3. For the T/F questions (i.e. the first two questions), anything that was covered in class or recitations or piazza is fair game. If you want to refresh your memory on what was covered, take a look at the schedule page. If you want quick summaries of (almost all) the lectures, review the lecture notes or slides or videos.
4. To get more practice for the T/F questions, review all the T/F polls on piazza (@81)
5. For the remaining 3 questions, one will be on greedy algorithms, one will be on divide and conquer algorithms and one will be on dynamic programming. However, note that Chapter 2 and 3 in the book are basic stuff and almost any question in the final could fall under the purview of those two chapters. There will be **at least** one T/F and one T/F with justification Q for the NP-complete material so y'all should definitely focus on those as well but I will not ask any "proof based" Qs on that material.
6. In previous finals, like your mid-terms, there have been questions that are either straight lifts from homeworks or are closely related and this trend will continue in the actual exam (though to a lesser extend then the mid-term). This means that you should review your homeworks (all of them) before the exam. Also make sure to review the support pages and recitation notes.
7. If you are short on time and you are prioritizing the topics to study, keep points 5 and 6 above in mind.
8. Sections in the book that were not covered at all in the class but were handed out as reading assignments or recitation notes: I can also ask any direct questions from them. In addition, it might be useful to read them to get a better feel for the material. In any case once you have read the material covered in class a couple of times, it might do your brain some good to read some different material.
9. You can bring in **two** 8.5"X11" review sheets (you can use both sides on both). Use this judiciously: they can be a very useful tool to note down some weird things you have a hard time remembering and/or noting down specific references. However, do **not** spend a lot of time preparing these sheets: they can be huge time sinks without much payoff.

Next are some suggestions for when you are **in the exam**:

1. Spend 5-10 minutes reading all of the questions in one pass; this'll let the problems germinate in your subconscious until you actually get to solving them

Bring your UB card to final

Assigned seating for final exam

Your seating for the final in Hoch 114 will be assigned (and you won't be able to sit wherever you find a spot as it was for the mid-term).

I will release more details by Saturday, Dec 10. In the meantime, two important things to remember:

- **You will HAVE to have your UB card on you during the exam**
  - A TA will come and verify that you are seated in the correct row
- To facilitate the TAs checking your UB IDs, **please keep your bag in the front of the room** (i.e. not with you).

final

Project surveys are now open

Questions?

$$Y \leq_P X$$

NRMP
National Resident Matching Program

Production Company	Slot 1	Slot 2	Slot 3	Slot 4
P_1	S_1	free	S_2	free
P_2	free	S_1	free	S_2

Production Company	Slot 1	Slot 2	Slot 3	Slot 4
P_1	S_1	free	S_2 (truncate here)	
P_2	free	S_1 (truncate here)		

Poly time steps

ANY algo for stable matching problem works!

Arbitrary Y instance

Output for Y instance

Pre-process the input

Algo for X

Post-process the output

All processing is poly-time

Implications of $Y \leq_P X$

Arbitrary Y instance

Pre-process the input

Algo for X

Post-process the output

Output for Y instance

Polynomial algo for Y

$\Rightarrow$

Polynomial algo for X

All processing is poly-time
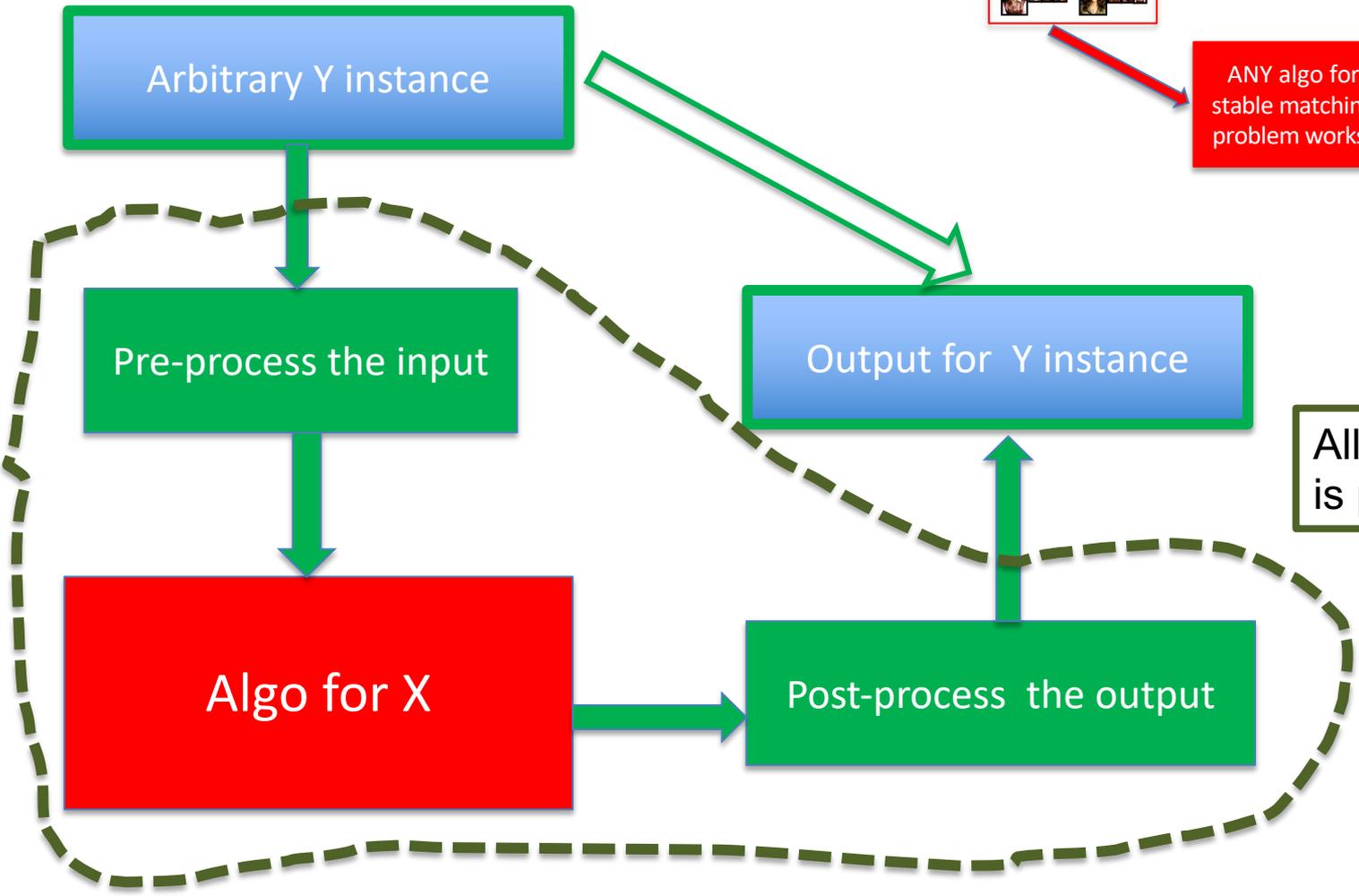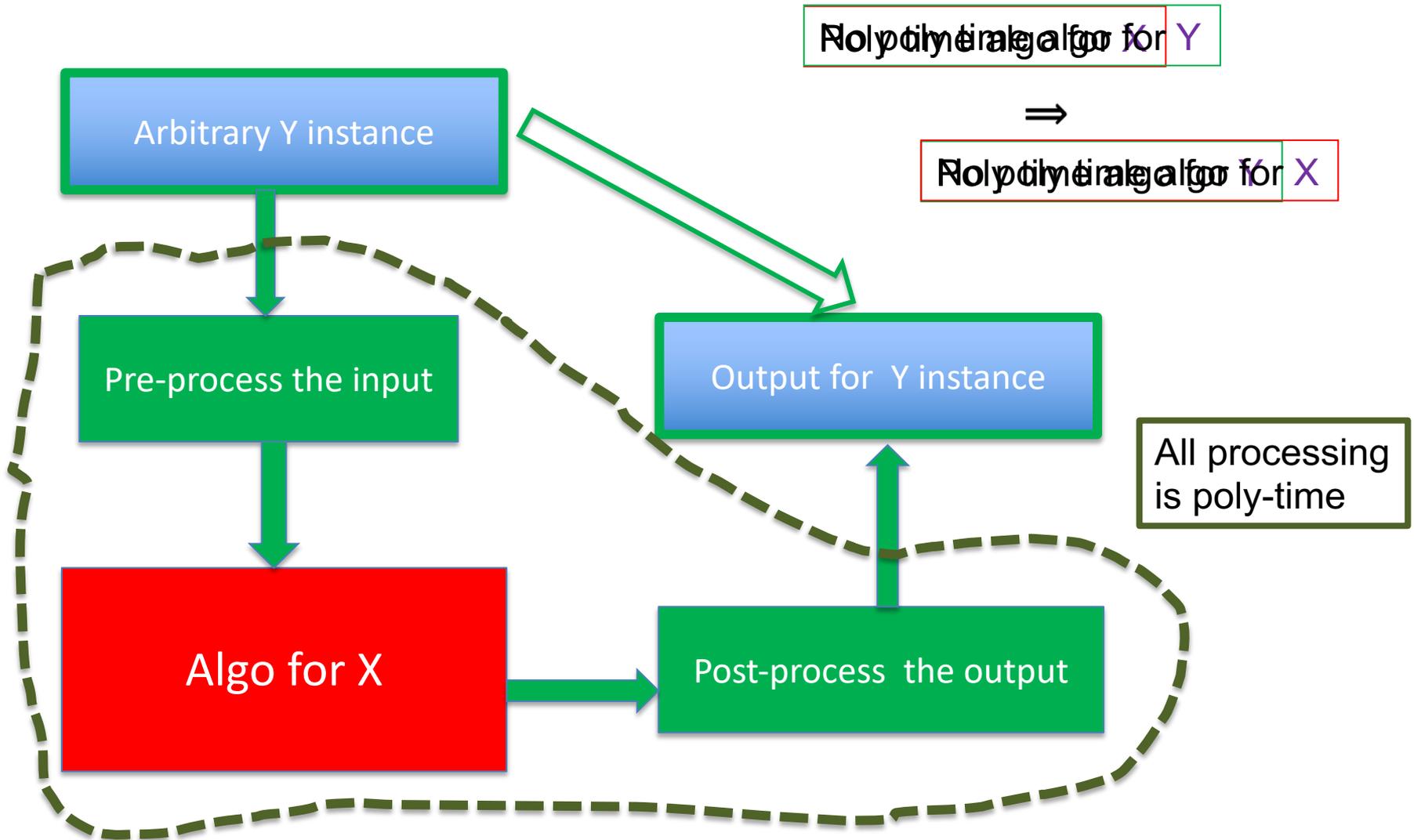
Today's agenda

Bit more on redux from 3-SAT to IS

Recap of NP-completeness

NP-completeness of k-colorability