

**Goals of the project:** To self investigate in depth any problem involving algorithm design (with or without randomness).

**Deliverables at the end of the semester:** A 5-10 page survey paper or report, and a 30-minute presentation to the instructor.

**Project timeline:** Information about your team, project topic, and a preliminary literature survey is due by March 15. Project presentations will be held tentatively in the last two weeks of the semester. The final report will be due on the date of your presentation.

**Some suggested kinds of projects:**

- **Survey:** Choose a topic involving algorithm design, preferably one that is related to topics we have discussed in class. Pick a few papers related to this topic and perform a survey, attempting to make new connections between different results or elucidate previously known ones.
- **Original theoretical research:** Pick an unsolved algorithmic problem and solve it, or improve upon an existing result.
- **Impirical investigation of algorithmic or randomness-based techniques:** Pick a problem involving algorithm design or randomness, and investigate through actual implementation the tradeoffs of various algorithmic choices. Explain your observations and attempt to prove what works and why.

**What to do for this homework:**

- Form a team and select a project topic. For ideas, refer to my post on Piazza.
- (Optional) Make an appointment with me to discuss potential topics.
- Do a preliminary literature survey, and make a plan for what you intend to accomplish.
- Turn in a half to one page writeup on your project: a description of the problem/topic, your goals, and the references you will consult.