

CSL 857: Randomized Algorithms

Instructor: Ragesh Jaiswal
CSE, IIT Delhi

Administrative stuff

Administrative stuff

- Instructor:
 - Ragesh Jaiswal
 - *Office*: 515, Bharti Building
 - *Email*: rjaiswal@cse.iitd.ac.in
- Send email to set up a meeting with me.

Administrative stuff

- **Lectures:**
 - *Location:* TBD
 - *Time:* TBD.

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- **Grading Scheme:**

- Homeworks: 3 homeworks, 10 points each.
- Minor 1 and 2: 20 points each.
- Major: 30 points (Take home).

- Policy on cheating:

- Anyone found using unfair means in the course will receive an **F** grade.
- You must write the homework solution on your own.

- Audit pass grade:

- **C** and better.

Administrative stuff

- Books:
 - *Randomized Algorithms* by Rajeev Motwani and Prabhakar Raghavan.
 - I will be closely following this book for the course. So, try to get access to a copy of this book.
 - *Probability and Computing* by Michael Mitzenmacher and Eli Upfal.
- Course webpage:
 - www.cse.iitd.ac.in/~rjaiswal/2012/csl857
 - The page will contain course information, references, homework problems, tutorial problems and announcements. Please check this page regularly.

Introduction

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- Randomized algorithms: Algorithms that have additional *random* input bits.
- Why study randomized algorithms?
 - Simplifies deterministic algorithms.
 - Efficient randomized algorithm for certain problems for which no deterministic algorithms are known.
 - May be used to break symmetry in distributed settings.

Introduction

- What you should expect to learn in the course:
 - Techniques for using randomness to design algorithms for various problems.
 - Techniques for analyzing randomized algorithms.
 - Other issues: How do we get true randomness? Is $P=BPP$ or in other words, does randomness really help?
 - Some topics:
 - Lovasz Local Lemma
 - Random walks and Markov chains.
 - Primality testing
 - Hash functions
 - Derandomization

End
