COMPSCI 530: Design and Analysis of Algorithms	DATE
Lecture #	
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1 Overview

Give a *short* overview of what was covered in the previous lecture if we are continuing with the same broad topic. Then, give a short overview of the main topics we will cover in this lecture.

2 TopicA

Describe the problem crisply, followed by the results that we develop. If you feel the need to further subdivide the contents of this section to improve its organization, use subsections and paragraphs as shown below.

2.1 Subtopic

In this subsection, we give ....

Lemma 1. *Here goes the statement of the lemma.*

Proof. Give a proof of the above lemma. Lemmas are technical statements that are used in proving theorems. For an example, see below. □

Theorem 2. *Here goes the statement of the theorem.*

Proof. Give a proof of the theorem (perhaps using Lemma 1). Theorems are typically proved by using one or more lemmas, and represent the final statement that you are trying to make in this topic. E.g., Algorithm A has a running time of $O(n^2)$ is a theorem, but Subroutine B in Algorithm A has a running time of $O(n)$ is a lemma. □

Corollary 3. *Here goes the statement of the corollary.*

Proof. Give a proof of the corollary (perhaps using Theorem 2). Corollaries are consequences of theorems. □

Fact 4. *Here goes a fact. Facts are statements for which a proof was not furnished in lecture. So you do not need to provide a proof either.*

Definition 1. *Here goes a definition.*

Remark 1. *Here goes a remark.*

Example 1. Here is an example. Note that for examples, you can choose the numbering scheme. In particular, use incremental numbering only if you are giving multiple examples for the same thing. If you are giving only one example for anything, always call it Example 1.

Mathematical formatting. You will be required to use a lot of mathematical formatting. A few examples:

$$(a-b)^2 = a^2 - 2ab + b^2. \tag{1}$$

$$\begin{aligned} (a-b)^2 &\geq 0 && (2) \\ \Rightarrow \quad a^2+b^2 &\geq 2ab. && (3) \end{aligned}$$

As far as possible, avoid inserting mathematical equations (or complicated expressions) inline.

3 TopicB

(If several topics were covered in the lecture, use additional sections.) In this section, we will describe a topic which is different from that in Section 2.

References. You should be accurate with references. E.g., you may need to cite a book by Cormen *et al* [CLRS01] or a journal article by Klein and Ravi [KR95] or a conference paper by Karger [Kar93]. Follow the convention given for bibtex entries in the scribe-notes-ref.bib file. The same file should be used for all lectures. To avoid repeated entries, use lexicographical ordering on the names of the authors.

4 Summary

Give a short summary of the topics that we covered in this lecture.

References

[CLRS01] T. H. Cormen, C. E. Leiserson, R. L. Rivest, and C. Stein. *Introduction to Algorithms*. MIT Press, 2001.

[Kar93] David R. Karger. Global min-cuts in rnc, and other ramifications of a simple min-cut algorithm. In *ACM-SIAM Symposium on Discrete Algorithms*, pages 21–30, 1993.

[KR95] Philip N. Klein and R. Ravi. A nearly best-possible approximation algorithm for node-weighted steiner trees. *J. Algorithms*, 19(1):104–115, 1995.