Lecture 9: Materials, June 27th

Online Algorithms: Ski Rental Problem

1. Material for Final Exam

The exam will be open-book again. If you can understand the discussion in the class, reviewing materials is not required. However, if you want to review some, the following list can help you.

- We still assume that students can understand the discussion until midterm. A brief reviewing on materials for mid-term could be helpful.
- **Materials on Inapproximability**
  Chapter 2.2 and Chapter 16.1 of the following book:
  Williamson and Shmoys, "The Design of Approximation Algorithms", Cambridge University Press, 2010.
- **Online Algorithm (Basic Definitions)**
  Sections 1-2 of the following lecture note by Prof. Luca Trevisan:
  Trevisan, "CS261 - Optimization: Lecture 17 - Online Algorithms and Competitive Analysis", Stanford University, 2011.
- **Online Learning Algorithm**:
  Chapter 14.1 and Chapter 14.2 of the following book:
  Blum, "On-Line Algorithms in Machine Learning", Online Algorithms: The State of the Art, Fiat and Woeginger (Eds.), Lecture Notes in Computer Science Vol. 1442, Springer, 1998.
- Some students will take the exam on July 4th. The exam problem for those students will be published just after the exam.

2. Schedule from next week

July 4	Class 10
July 11	Final Examination
July 18	Class 11 - We will discuss about answers for Quiz and Final in this class. The participation to this class is totally optional.

3. Basic Definitions of Online Algorithms

Our explanation is based on the lecture note by Prof. Luca Trevisan with the following information.
Trevisan, "CS261 - Optimization: Lecture 17 - Online Algorithms and Competitive Analysis", Stanford University, 2011.

4. Optimization on Number of Servers in Data Center

Our explanation is a simplified version of the following paper.
Lin, Wierman, Andrew, Thereska, "Dynamic Right-Sizing for Power-Proportional Data Centers", IEEE/ACM Transactions on Networking (TON), Vol. 21, No. 5, 2013.