IEOR E4601: Dynamic Pricing and Revenue Management
Lecture 5: Booking limits with multiple fare classes

1 Study Guide

By the end of this lecture, you should be able to

1. Define fully the multi-class booking problem, including variables and decisions.
2. Write down the dynamic programming equations for the problem.
3. Use the dynamic programming equations to solve for the optimal booking levels.
4. Write down the characterization of optimal solutions.

2 Set up

- There are C identical seats.
- Multiple fares $p_1 \geq p_2 \geq \ldots \geq p_K$.
- Demand D_j F_j, f_j for class j is independent of demand for all other classes.
- Order of arrival of the classes is $K, K-1, \ldots, 1$.
- We want to determine the number of seats y_j to reserve for classes $1, \ldots, j$.

3 Dynamic-programming formulation

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4 Characterization of optimal solutions

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5 Worked example

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