Welcome to Online Markets

As students are joining:

- turn off your camera and mic (turn on if you have questions).
- open the chat window.
- enable **galery view**, hide **non-video particpants**,
  enable **side-by-side mode** (under "view options")
- do the warmup exercise (answer on Canvas).

Exercise 1.1: Elevator Plan (Answer on Canvas)

- two elevators: floors 0 and 7
- three riders:
    - Alice from 1 to 4
    - Bob from 5 to 6
    - Charlie from 3 to 2
- cost 1 to move elevator each floor.

Question: Find plan for elevators to minimize total cost (and its cost)?

Remote Lecture Guidelines (details on Canvas)

When you join the lecture:

- turn off your camera and mic (turn on if you have questions).
- open the chat window.
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  enable **side-by-side mode** (under "view options")

Clarifying Questions

- The TAs will monitor the chat.
- If you are unsure of something, ask in the chat.
- The TAs will either answer on chat, or can raise the question to the instructor for you.

Interaction, Questions, and Answers

- Turn on your mic and video.
- Ask your question when called on.
- When your question has been answered, turn off your mic and video.

Lecture 1: Ride Sharing and Single-item Allocation

On Canvas: lecture notes, slides, lecture recordings.

Today:

- example: ride sharing
- paradigms: algorithm design, online algorithms, mechanism design
- first-price auction, ascending auction, second-price auction
- secretary algorithm
- secretary pricing

Next Time:

- discussion of syllabus, etc.

Exercise 1.2: Place Your Bids

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- you are bidding in two first-price auctions A and B.
- your opponents' values are uniformly random between 0 and 100.
- your values v_A and v_B are uniformly random between 0 and 100.
  (find your values on Canvas)
- your utility is your value minus your bid if you win (zero otherwise)

Question: Given your values, determine bids to place in the auction.
(Answer on Canvas)