CS180 Discussion 1B Week 8: Dynamic Programming, Network Flow

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Announcements

■ HW5 due:

- 11:59PM Sunday, Aug 15, 2021 (Submit via CCLE-Gradescope)
- No late submission is allowed.

■ Final:

- **■** 10AM Mon (Aug 16, 2021) ~ 10AM Tue (Aug 17, 2021).
- Submit via CCLE-Gradescope (Same as homework and mid-term). No late submission is allowed.
- All contents up to the lecture on Monday, August 9th, 2021.
- NOT included: Lecture on Wed, Aug 11, 2021 (the last lecture of this quarter)
- Ask questions live during regular Monday lecture zoom meeting call: 10AM Mon, Aug 16, 2021. (Or via email directly to Prof. Mark Burgin afterwards.)

Outline

- Dynamic Programming
 - Weighted Interval Scheduling: 06DynamicProgrammingI.pdf (P1-18)
 - ► Knapsack Problem: *06DynamicProgrammingI.pdf* (*P31-39*)
- Network Flow
 - Max-flow and min-cut Problems: 07NetworkFlowl.pdf (P1-10)
 - Ford-Fulkerson algorithm: *07NetworkFlowl.pdf* (*P11-23*)
 - ► Max-flow min-cut theorem : *07NetworkFlowI.pdf* (*P24-36*)
 - Demo (Ford-Fulkerson algorithm): 07DemoFordFulkerson.pdf
 - Bipartite matching : 07NetworkFlowII.pdf (P1-21)
- Homework and Midterm
- **■**Q&A

Dynamic Programming

See separate slides:

Weighted Interval Scheduling:

- "06DynamicProgrammingI.pdf" (P1-18)

Knapsack Problem:

- "06DynamicProgrammingI.pdf" (P31-39)

Network Flow

See separate slides:

Max-flow and min-cut Problems:

- "07NetworkFlowI.pdf" (P1-10)

Ford-Fulkerson algorithm:

- "07NetworkFlowI.pdf" (P11-23), "07DemoFordFulkerson.pdf"

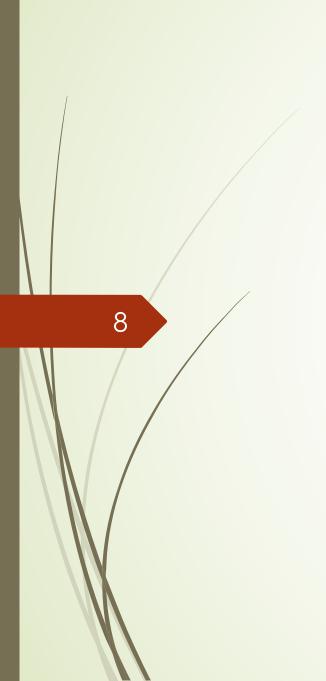
Max-flow min-cut theorem:

- "07NetworkFlowI.pdf" (24-36)

Bipartite matching:

- "07NetworkFlowII.pdf" (P1-21)

Questions?



Thank you!