



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: *07NetworkFlowI.pdf (P1-10)*
 - Ford-Fulkerson algorithm: *07NetworkFlowI.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:

- *"06DynamicProgramming1.pdf" (P1-18)*

Knapsack Problem:

- *"06DynamicProgramming1.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)*

Homework and Midterm

Questions?

Thank you!