## CS180 Final Review

Ling Ding

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- Stable Matching: [week 1]
  - 01StableMatching.pdf
  - 01DemoGaleShapley.pdf
- Algorithm Analysis: [week 2&3]
  - 02AlgorithmAnalysis.pdf
- Graphs: [week 4&5] 03Graphs.pdf
  - Basic definitions and applications (P1-15)
  - Connectivity, Graph traversal (BFS, DFS) (P16-24, P33-43)
  - DAGs, Topological Ordering Algorithm (P44-51)

- Greedy Algorithms: [week 5&6]
  - Minimum Spanning Tree (MST):
    04GreedyAlgorithmsII.pdf (P21-42)
  - ▶ Prim, Krusal, Reverse-delete: (Three greedy strategies to compute MST):
    04GreedyAlgorithmsII.pdf (P43-48)
    04DemoMST.pdf (P23-66)
  - Interval Scheduling Problem:

    04GreedyAlgorithmsI.pdf (P9-15)

    04DemoEarliestFinishTimeFirst.pdf

- Divide and Conquer: [week 6]
  - ► Merge Sort:

05DivideAndConquerl.pdf (P1-13)

05DemoMerge.pdf (P1-14)

Finding Closest Pair of Points:

05DivideAndConquerl.pdf (P63-74)

- Dynamic Programming: [week 7]
  - Weighted Interval Scheduling:
    06DynamicProgrammingI.pdf (P1-18)
  - Knapsack Problem:

06DynamicProgrammingl.pdf (P31-39)

- Network Flow : [week 7&8]
  - 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*)



# Good Luck!