



- HW03 : about MVC

- Do not ask questions about grades on Piazza, instead, email is best.

- Midterm sample solutions:

- Q1:

- good solution involves max-heap
- build a max heap $K=200$ of 200 movies
- For each movie, i , compare that to the first element in the heap.
- $O(n) * O(K) = O(n \log K)$

- Q2:

- Average : $\Theta(\log n)$
- Worst : $\Theta(n)$

- Q4:

- $\Theta(n * m)$
- $\Theta(1)$
- $\Theta(\log n)$
- $\Theta(n^2)$
- $\Theta(n^2)$

- Q5:

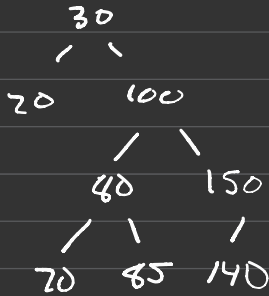
- $\Theta(n)$
- $\Theta(1)$
- $\Theta(1)$

- Q7:

- post order : 15 30 36 35 55 78 58 45

- Q8:

- a.



- Q9: (Max heap question)

• array rep : 150 20 110 70 36 70 80

b. After Max heap rep : 80 120 110 90 36 70 150
40 120 110 90 36 70
120 80 110 70 36 70

Divide + Conquer : break up problem into non-overlapping subproblem, solve problems independently, then combine solutions. (Ex. Merge Sort)

Recursion : calls itself

Dynamic programming : break up problem into a series of subproblems, and build up solutions to larger & larger subproblems