

MA/CSSE 473

Day 14



Knuth Interview

Brute Force

Divide and Conquer

MA/CSSE 473 Day 14

- HW 6 due Monday
- Exam 1: Tuesday, September 30
- **Student Questions**
- Knuth Interview
- Brute force algorithms
- Divide and Conquer



Donald Knuth Interview

- What did you get out of the interview?
- What questions would you ask Donald Knuth if you had the chance?



What is the brute force approach to

1. Calculate the n^{th} Fibonacci number?
2. Compute the n^{th} power of an integer?
3. Search for a particular value in a sorted array?
4. Sort an array?
5. Search for a substring of a string?
6. Find the maximum contiguous subsequence? in an array of integers?
7. Find the largest element in a Binary Search Tree?
8. Find the two closest points among N points in the plane?
9. Find the convex hull of a set of points in the plane?
10. Find the shortest path from vertex A to vertex B in a weighted graph?
11. Solve the traveling salesman problem?
12. Solve the knapsack problem?
13. Solve the assignment problem?
14. Solve the $n \times n$ non-attacking chess queens problem?
15. Other problems that you can think of?



Divide-and-conquer algorithms

- Definition
- Examples seen prior to this course or so far in this course

