Divide and Conquer

Divide and conquer is a **general** algorithm design technique

- **Recursive** in nature
- Analysis can be done using **recurrence equations**

Divide and Conquer

1. ***Divide*** the problem into sub-problems that are similar to the original but smaller in size
2. ***Conquer*** the sub-problems by solving them recursively. If they are small enough, just solve them in a straightforward manner.
3. ***Combine*** the solutions to create a solution to the original problem

Analysis of D&C Algorithms

D&C algorithms result into following general recurrence relation:

$$T(n) = a\,T(n/b) + f(n)$$

No. of subproblems — *Subproblem size* — *Effort for dividing and combining*