

PFI lecture Algorithms

- How do we define the concept of algorithm?
 - It is an informal notion
 - A recipe
 - A process or set of rules to be followed in calculation or problem solving
 - A finite set of instructions, which can be mechanically carried out, and always terminates

PFI lecture Algorithms

- Concerns in studying algorithms:
 - Common problems
 - Understand the problem that an algorithm tries to solve
 - Correctness of the algorithm
 - Efficiency of the algorithm
 - Can we improve the efficiency?
 - Is this the best that we can do?
 - Are there problems for which we do not have algorithms to solve?

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- Algorithms related to arrays
 - Searching an array
 - Is a given value showed up in an array?
 - Largest value
 - Smallest value
 - Sorting the values in an array
 - Selection sort
 - Insertion sort
 - Bubble sort

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- View an algorithm as consisting of sub tasks
- Use of functions for sub tasks in implementing an algorithm
- Specify an array by array name, the left and right indices for the functions
- Translate algorithm idea to code