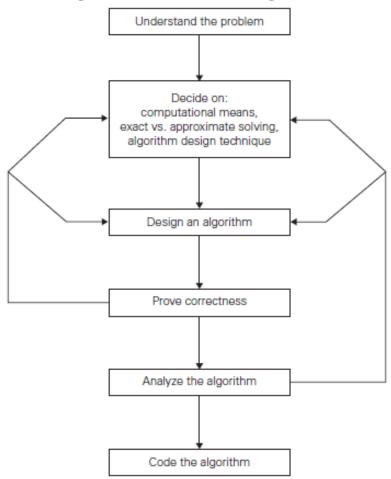


Text Book: Introduction to the Design and Analysis of Algorithms Author: Anany Levitin 2nd Edition

Fundamentals of Algorithmic Problem Solving



Understand the Problem

- Algorithms are procedural solutions to problems.
- An input to an algorithm specifies an instance of the problem the algorithm solves.
- > Boundary conditions should be clearly understood

Decide on computational means

- Sequential vs Parallel algorithm
- > Exact vs Approximation algorithm
- Data Structures + Algorithms = Programs

Design Algorithm

Specifying algorithm

- Natural Language
- Pseudo code
- > Flowchart

Correctness:

Mathematical Induction

Exact Algorithms: correct algorithm is the one that works for all legitimate inputs.

Approximate Algorithms: Error in tolerance limit

Analyzing Algorithm

- > Time vs Space efficiency
- Simplicity vs Generality

Coding the algorithm

- > Testing
- Debugging
- Code optimization