

# 1. What is Algorithm

# What is Algorithm?

- Tool to solve a well-defined computational problem.
- Computation problem
  - Can be defined by input and output.
- Algorithm is a sequence of computational steps that transforms input into output.



# Example of Problem

- Problem
  - Sorting
- Input
  - A sequence of numbers (e.g., 25, 17, 52, 36, 11)
- Output
  - Permutation of input numbers in non-decreasing order (11, 17, 25, 36, 52)

# Why Study Algorithms

- Learning algorithms for specific problems
- Training algorithmic (procedural) thinking
- Leveling up abstraction
  - Intellectual abstraction
  - Important element in research and development

# Algorithmic Thinking

1. Learn algorithms for specific problems.
2. By 1, train algorithmic (procedural) thinking.
3. By 1 and 2, make building blocks to solve other problems in the future.



# Algorithm includes Data Structures

- Prerequisite
  - Computer Programming, Data Structures
- Data Structures
  - Like parts or modules for car manufacturing





**Thank you**

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