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 transform input into output.

Example of Problem

- Problem
  - Sorting

- Input
  - A sequence of numbers
  - Input instance: 25, 17, 52, 36, 11

- Output
  - Permutation of input numbers in non-decreasing order
  - Output for the instance: 11, 17, 25, 36, 52

Why Study Algorithms

- Learning algorithms for specific problems

- Training algorithmic (procedural) thinking

- Leveling up abstraction

  – Intellectual abstraction

  – Important element to tackle complex and hard problems 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