# CLRS for Dummies

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# Preface

This is a book for dummies who can understand Introduction to Algorithms by CLRS

# Chapter 1

# The Role of Algorithms

## 1.1   Definitions

## Algorithms

**Algorithm** is a procedure used to solve a computational problem.   An algorithm takes some value as **input** and produce some value as **output**.

Example: the **sorting problem**
   **input** : A sequence of $n$ numbers $< a_1, a_2 \ldots a_n >$
   **Output** : The sequence ordered from lowest to highest $< a'_1, a'_2 \ldots a_n >$

Such sequence of inputs is called **instance** of the problem.
An algorithm is **correct** and **solve** the problem if for every input instance it ends with the correct output.
**Sorting** is the only computational problem we can solve with algorithms, every problem we see is some sort of sorting.

# Data Structures

A **data structure** is a way to store and organize data that facilitate access and modification.

# Complexity