

# *Lecture 0:* **Course Overview**

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01204212 Abstract Data Types and Problem Solving

Department of Computer Engineering  
Faculty of Engineering, Kasetsart University  
Bangkok, Thailand.



Department of  
**Computer Engineering**  
Kasetsart University



# Course Title

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- Code: 01204212
- Subject: Abstract Data Types and Problem Solving
- Section: 1
- Units: 3

# Course Information

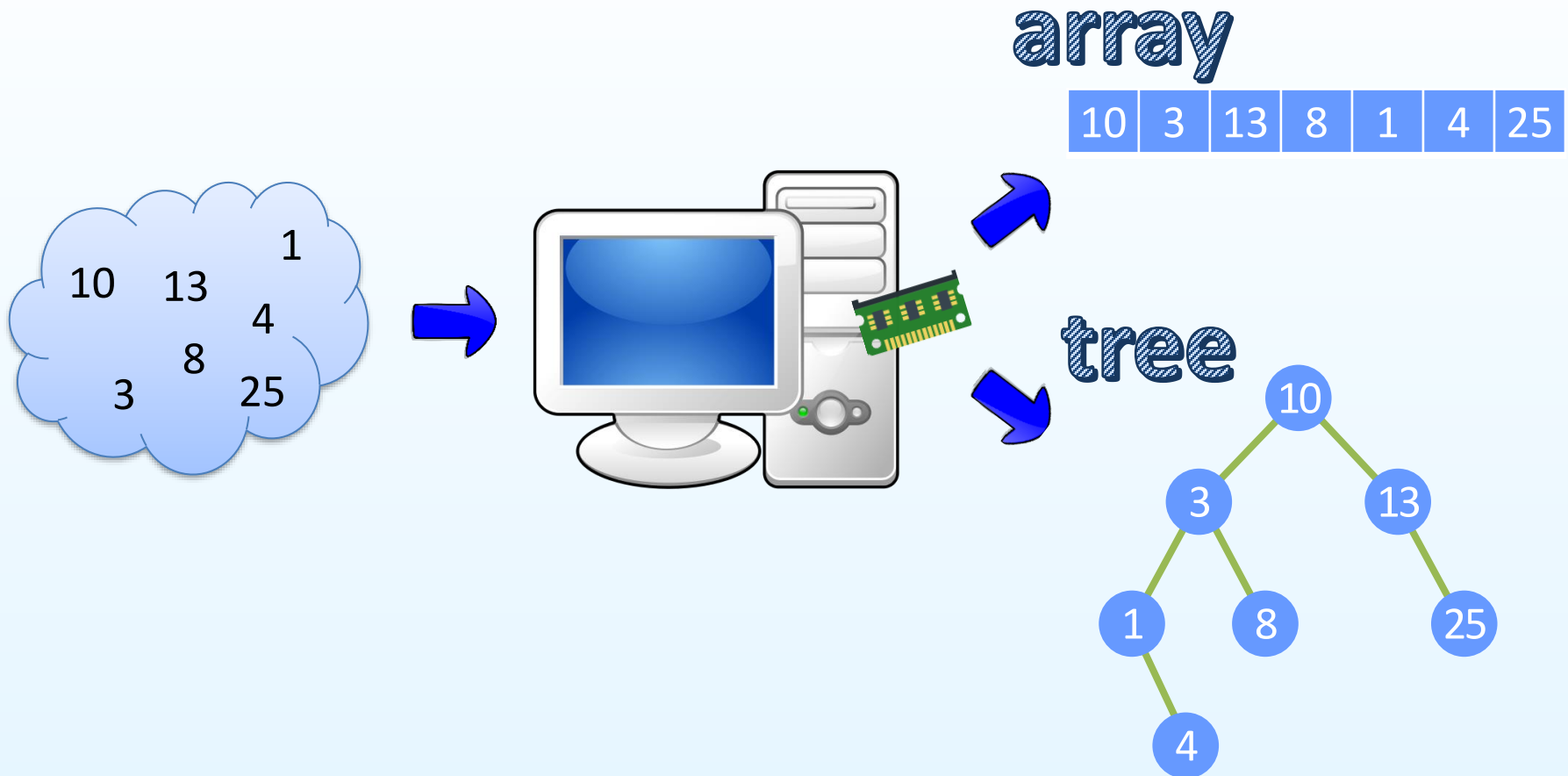
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- Instructor:
  - Assist. Prof. Bundit Manaskasemsak, D.Eng.
- Contact Info.:
  - Room E707, 7<sup>th</sup> Fl., Computer Engineering
  - Facebook group and Google Classroom
- Class Meet:
  - Tue. 13:30-16:30, @Room E202, 2<sup>nd</sup> Fl., Computer Engineering and online media
- Office Hours:
  - Mon. and Tue. 16:30-18:00 (an appointment should be first made.)
  - Any time electronically

# What is this course about?

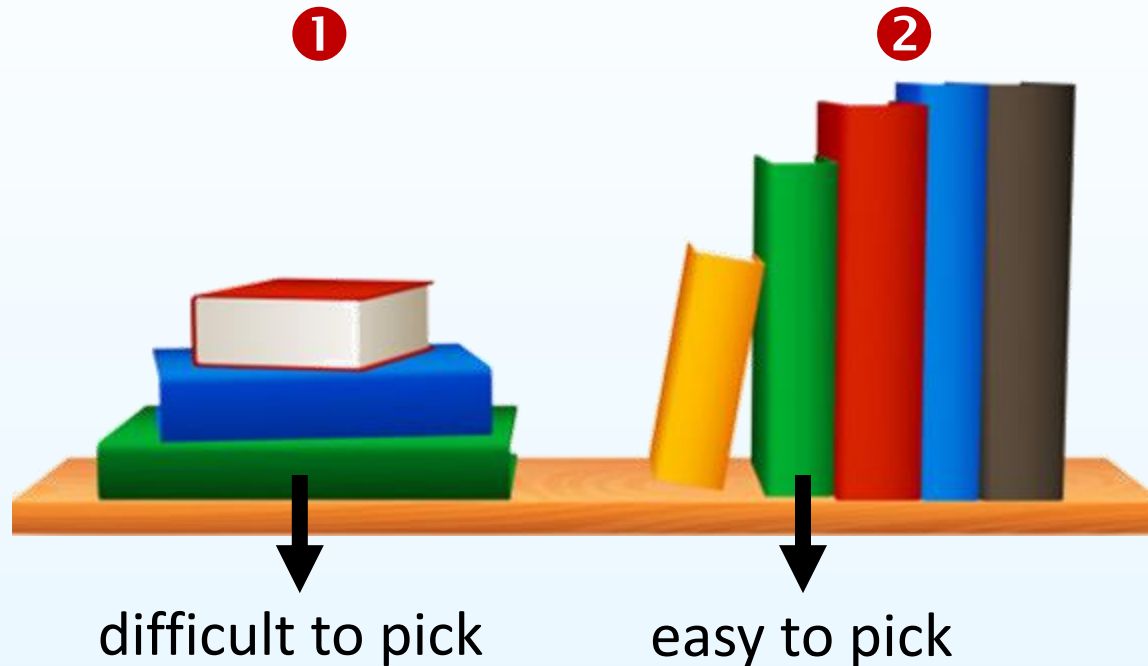


# What is this course about?



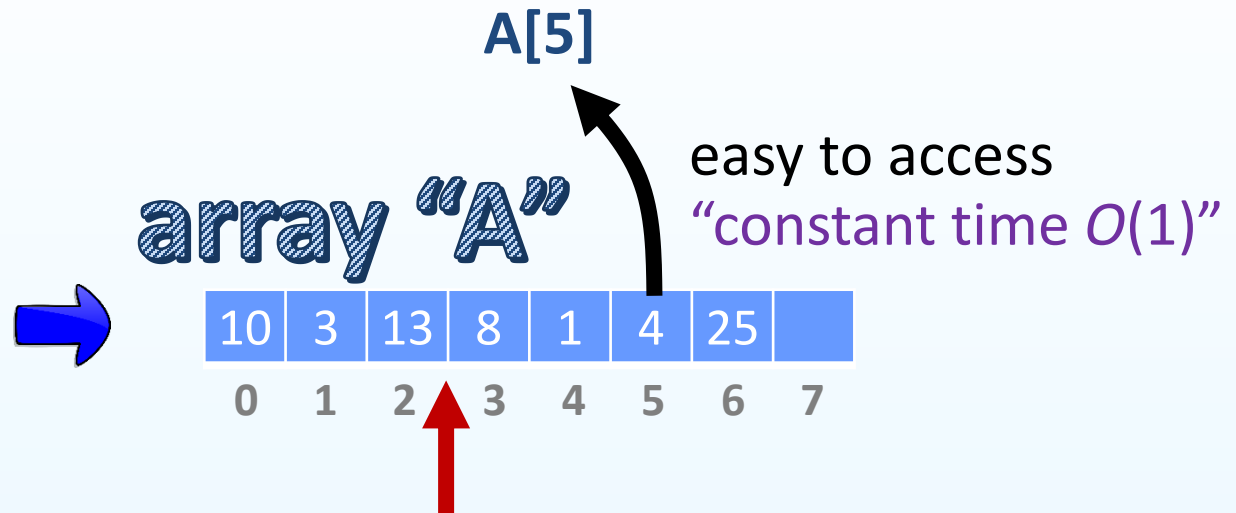
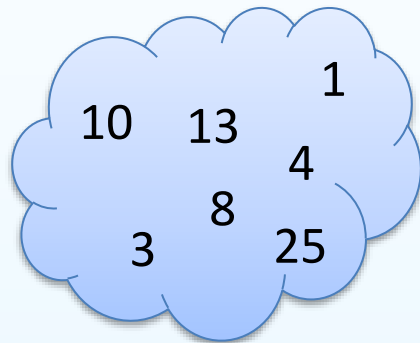
# Which data structures to be used?

Which method is better to keep books?



However, if the red book is frequently used, is the method still better? **So ...**

# Which data structures to be used?



How about inserting 15  
between 13 and 8?

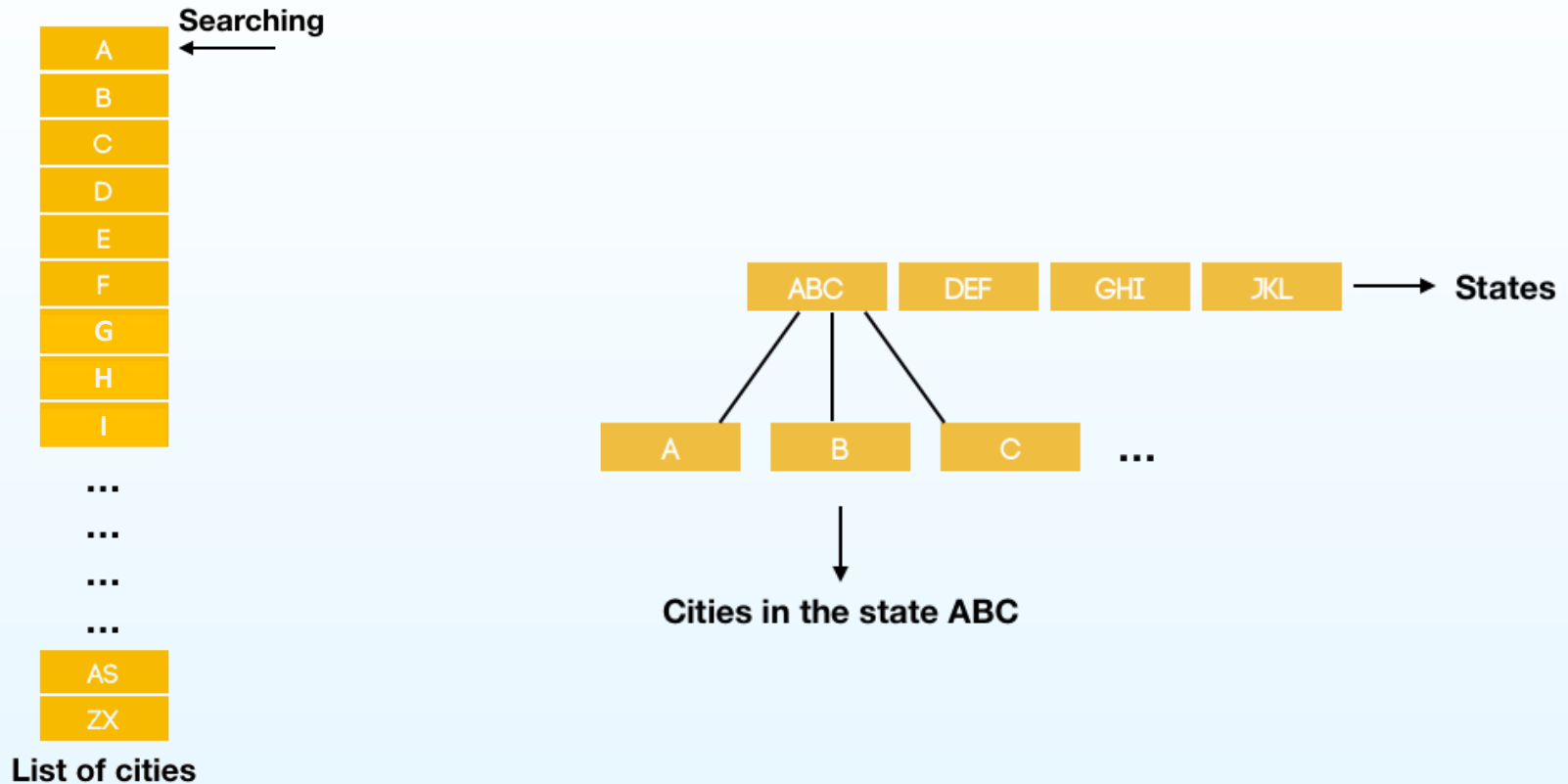
- shift the elements
- make a new array

# Which data structures to be used?

The point is that we can complete a task using **any** data structure **but** a **suitable** data structure for a task not only **reduces** the programmer's **effort** but also **saves** a lot of **computational time and space**.



# Which data structures to be used?

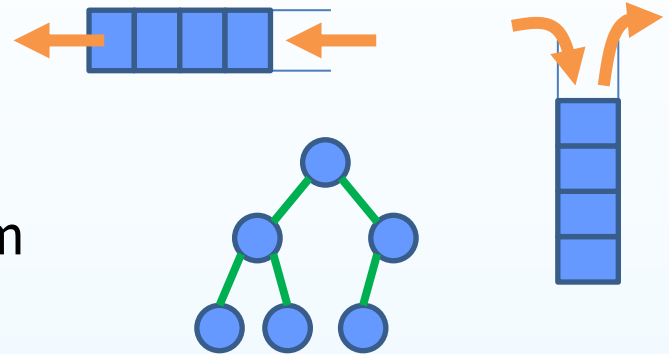


Source: <https://www.codesdope.com/course/data-structures-introduction/>

# Course Overview

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- Introduce the basic data structures used in computer software
  - Understand them
  - Analyze the algorithms that use them
  - Know when to apply them
- Practice using these data structures by writing the **C** programs



# Goals

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- You will understand:
  - Basic computer architecture and memory management
  - What the tools are for storing and processing common data
  - Which tools are appropriate for which need
- So that you will be able to
  - make good design choices as a developer, project manager, or system customer

# Course Topics

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- C Programming
- Mathematical Foundations
- Basic Algorithm Analysis
- Lists, Stacks, Queues
- Trees and Search Algorithms
- Hashing
- Sorting Algorithms
- Basic Graph Algorithms

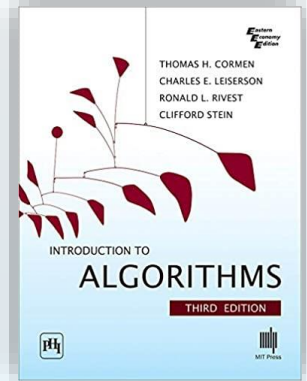
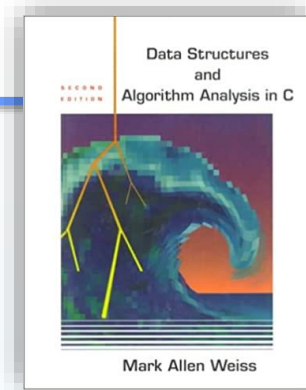
# Course Resources

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- Resources:
  - Website <https://mike.cpe.ku.ac.th/01204212/>
  - Facebook Group
  - Google Classroom + Meet
  - Check periodically for updates
- Environments:
  - Linux server
  - VI editor
  - gcc compiler

# References

- Textbooks:
  - Data Structures and Algorithm Analysis in C, M. A. Weiss, Pearson, 2<sup>nd</sup> edition, 1996.
  - Introduction to Algorithms, Cormen et al., PHI Learning, 3<sup>rd</sup> edition, 2010.
- Other references:
  - Many online media sites



# Grading

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- Class participation 5%
- Assignments 25%
- Midterm examination 30%
- Final examination 30%

Your grade is based on **overall class performance**.

# Any Question?

