Week 5

Data Structures

Week 5

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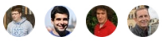
Binary Search Trees



In this module we study binary search trees, which are a data structure for doing searches on dynamically changing ordered sets. You will learn about many of the difficulties in accomplishing this task and the ways in which we can overcome them. In order to do this you will need to learn the basic structure of binary search trees, how to insert and delete without destroying this structure, and how to ensure that the tree remains balanced.

Less

Learning Objectives

- Describe how balanced binary search trees work
- Analyze the running time of operations with binary search trees
- List the capabilities of binary search trees
- Compare balanced binary search trees with arrays and lists

Less

Coursera Lab Sandbox BETA

- Easily launch Coursera's preconfigured environment for C++, Java, and Python 3 programming
- Get access to all dependencies (libraries and packages) for VSCode—no local software installation required
- Practice C++, Java, and Python 3 programming, run test cases, and work on assignments from your browser

Open Lab Sandbox

Binary Search Trees

Video: Introduction 7 min Resume

Video: Search Trees 5 min

Video: Basic Operations 10 min

Video: Balance 5 min

Reading: Slides and External References 10 min

AVL Trees

Video: AVL Trees 5 min

Video: AVL Tree Implementation 9 min

Video: Split and Merge 9 min

Reading: Slides and External References 10 min

Practice Quiz: Binary Search Trees 4 questions