Chapter 10

Trees Plus

After studying this chapter, you should be able to

* Define a self-balancing binary search tree
* Define an AVL tree and its properties
* Define the four AVL rotation operations: rotate left, rotate right, rotate left-right, and rotate right-left
* Apply the correct AVL rotation operations to an unbalanced tree to regain balance
* Implement the AVL rotation algorithms in C++
* Define a Red-Black tree and its properties
* Understand the Red-Black tree recoloring operations used to maintain its properties
* Implement the recoloring and restructuring Red-Black tree algorithms in C++
* Define a B-tree and its properties
* Understand the basics of B-tree insertion
* Explain why we might use different tree ADTs in different application domains and how they can impact performance