**Tree Based Algorithms**

**Document Id 33**

**Concepts**

* **Search Operations**
* **Binary search and Hash tables**
* **Binary and AVL trees**

**Section 1 Search Algorithms**

**Learning Objectives**

* Binary search
* Hash table

**Guided Learning Tasks**

Implement a Binary search

Implement a Hash table

Lab 1 Practical Application of a Binary search

Lab 1 Solution

**Section 2 Binary Trees**

**Learning Objectives**

* Binary Tree
* Binary Search Tree
* Tree recursion

**Guided Learning Tasks**

Implement a Binary Search Tree

Binary Tree recursion

Lab 2 Practical Extend the Binary Tree API

Lab 2 Solution

**Section 3 Avl Trees**

**Learning Objectives**

* **Balance condition**
* **Rotation**

**Guided Learning Tasks**

Implement a Avl Tree

Sub Trees and Paths

Lab 3 Practical Calculate Paths

Lab 3 Solution