# Algorithm Examples

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## 1 Introduction

This document demonstrates algorithm pseudocode.

**Algorithm 1** Binary Search

```
procedure BinarySearch(A, x, low, high)
    if low > high then
        return −1
    end if
    mid ← ⌊(low + high)/2⌋
    if A[mid] = x then
        return mid
    else if A[mid] > x then
        return BinarySearch(A, x, low, mid − 1)
    else
        return BinarySearch(A, x, mid + 1, high)
    end if
end procedure
```

**Algorithm 2** Quick Sort

```
procedure QuickSort(A, p, r)
    if p < r then
        q ← Partition(A, p, r)
        QuickSort(A, p, q − 1)
        QuickSort(A, q + 1, r)
    end if
end procedure
```

## 2 Complexity Analysis

The time complexity is $O(n \log n)$ on average.