4- Birthday Cake Candles

Algorithm Pseudo-code

```
function birthdayCakeCandles(arr):
    max ← arr[0]
    counter ← 0

   // Find the maximum value in the array
    for i:= 1 to length(arr)-1 do:
    {
        if arr[i] > max:
            max ← arr[i]
    }

   // Count how many times the maximum value appears in the array
    for i:=0 to length(arr)-1 do:
    {
        if arr[i] == max:
            counter = counter + 1
    }

    return counter
```

Algorithm Analysis

First for loop analysis t_A:

$$\sum_{i=1}^{n} 1 = n - 1 + 1 = n$$

Complexity:

$$O(n)$$

Second for loop analysis t_B:

$$\sum_{i=0}^{n} 1 = n - 0 + 1 = n + 1 \approx n$$

Complexity:

$$O(n)$$

Final Result:

Sequencing

$$t_A + t_B = \max(t_A, t_B)$$

$$O(n) + O(n) = O(n)$$

Best Case : $\Omega(n)$

Worst Case: $O(n)$

Average Case: $\theta(n)$