**Master data structures and algorithms with C++**

**Day-1 Assignment**

1. **What is the time complexity of the following code?**

    int a = 0;

    for (int i = 0; i < n; i++)

    {

        for (int j = n; j > i; j--)

        {

            a = a + i + j;

        }

    }

**Soln:**

Time complexity of Outer loop= O(n)

Time complexity of Inner loop= O(n)

Time complexity For the whole code= O(n2)

1. **What is the time complexity of the following code?**

   int count = 0;

   for (int i = 1; i <= n; i = i \* 2)

       {

for (int j = 1; j <= i; j ++)

    {

count = count + 1;

                }

       }

**Soln:**

Time complexity of Outer loop= O(logn)

Time complexity of Inner loop= O(n2)

Time complexity for the Whole code= O(n)

1. **Find the best case, average case and the worst case of Linear Search Algorithm.**

**Soln:**

Worst case=O(n)

Best case=O(1)

Average case=O((1+n)/2)=O(n)