DAY 1 Assignemnt:-

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;

}

}

Answer:

The outer for loop has a complexity of O(n).

And the time complexity of inner loop is O(n).

Because the inner for loop executes for n times asper outer for loop.

So the time complexity of the above code would be O(n2).

2) 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;

}

}

Answer

The outer for loop stops iterating when i attains the value of n where i increases its value at the rate of multiple of 2

But the overall time complexity of the above code turns out to be O(n).

3) Find the best case, average case and the worst case of Linear Search Algorithm.

Answer

The time complexity in the best case scenario of linear search is 0(1).

Where as the average case and worst case time complexity is 0(n).