**Worst, Average and Best Cases**

We can have three cases to analyze an algorithm:

1. The Worst case
2. The Average case
3. The Best case

**The Worst Case Analysis:**

In the worst case we calculate the upper bound on the running time of the algorithm. We must know the case which takes max time to complete the task. For example in Linear search the worst case happens when the element is not present in the array. When x is not present in the array, the function compares all the elements with the x. The worst case of the linear algorithm is Θ(n).

**The Average Case:**

In the average case we take all possible inputs and calculate the required time for all the inputs. We sum the calculated values and divide the total sum by total number of inputs.

Average Case Time =

analysis1

= analysis2

= Θ(n)

**The Best Case:**

In the best case analysis we calculate the lower bound of the running time of an algorithm. Best case of the linear search is when the element is present at first. So the time complexity of the best case of linear search os Θ(1).