

What is an algorithm?

An algorithm is a sequence of steps to solve a particular problem.

Properties of algorithm:

Each & every instruction should be precise & unambiguous

Each & every instruction should be performed in finite time

It should terminate after finite time

After the algo termination the desired result must be obtained

It should be programming language independent

Analysis of algorithm:

Analysis is a process of comparing two algo w.r.t time, space & other factors

If problem contain more than one solⁿ then we will find out better algo based on following parameter

Time Complexity

Space Complexity

Time Complexity:

The amount of time required by the algo is called time complexity.

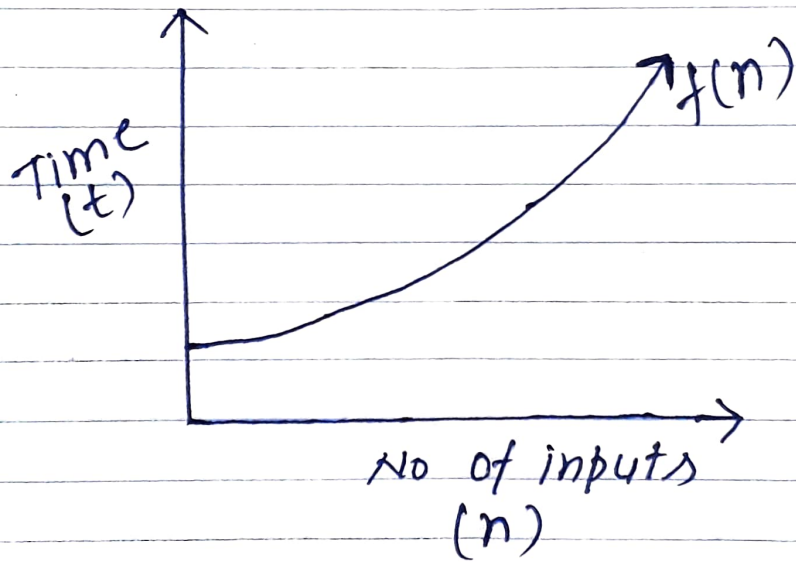
Space Complexity:

The amount of space/memory required by the algo is called space complexity.



Rate of Growth?

The rate at which running time increases as a function of input is called rate of growth.



Types of Analysis:

To analyze the given algorithm we need to know on what inputs is taking less time (performing well) and on what inputs the algorithm is taking huge time.

So based on inputs, there are three types of analysis

- **Worst Case:**
 - Define the input for which the algo takes huge time
 - Input is the one for which the algo runs the slower
- **Best Case:**
 - Define the input for which the algo takes lowest time
 - Input is the one for which the algo runs the fastest
- **Average Case:**
 - Define the input for which the algo takes neither huge time or nor lowest time.