# Algorithms

What is algorithm?

* Algorithm is a step by step instruction design to perform a specific task or solve a problem.

What is program?

* It’s implementation of algorithm(s).

Priori Analysis

* It refers to **theoretical evaluation of algorithms based on design without even implementing it.**
* Key points:
  + Done on algorithm.
  + Language independent.
  + Hardware independent.
  + Time and space function is used.

Posteriori Analysis (Empirical Testing)

* It refers to **evaluation of algorithm’s performance based on actual implementation and execution.**
* Key points:
  + Done on program.
  + Language dependent.
  + Hardware dependent.
  + Watch time and bytes.

Characteristics of an Algorithm

* **Input:**
  + Should have 0 or more inputs
* **Output:**
  + Should have atleast 1 or more outputs.
* **Definiteness:**
  + Should be cleary and precisely defined.
* **Finiteness:**
  + Should execute after finite number of steps properly.
  + Should not continue indefinitively.
* **Effectiveness:**
  + It means algorithm and algorithm’s each step is properly defined and also feasible and executable with resources available.