

## Introduction to Algorithms

### Algorithm

To define, Algorithm is a well-defined procedure to solve a given computational problem. Mostly the problem will have certain input to work on and produce specific results/outputs as solution. In other means, there can be relation defined based on the steps mentioned in the algorithm between input and output. Algorithm is sequence of steps when followed solves the problem in defined manner.

The correctness property of an algorithm is important. For all possible valid inputs, a corresponding correct outcome is expected. Correct may mean complete solution or with acceptable error rate.

About many algorithmic problems, there are probable solutions but to make sure its correct is a challenge. Top of that to make sure it is the best is paramount. Algorithms have been studied because almost all of them have inherent practical applications. Its you who need to utilize intelligence.

Out of interest may think about problems for which no efficient solution is known so far.

Actually, there are problems for which the estimated time taken by probable solutions will be in years even for smaller data space with existing processing power and storage technologies. Actually no one knows whether efficient solution exist or not and no one could even prove it does or does not. Aspiring to have quantum computing with Qubit lay another path. This reminds me a historical event 1500s A.D., before which people of earth use to believe that sun revolves around the mother earth.

The Hollywood movie “Travelling Salesman” (2012) has picturized an important algorithmic case and also makes a point which says all such solutions are connected. Riddle!

Reference:

Book, Introduction to Algorithms – 3<sup>rd</sup> Edition by Thomas H. Cormen ...

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