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Reading Material

1.3.1 Brute Force Technique

The Brute Force Technique is a heuristic technique that tries to analyze every possible scenario. It attempts to solve a problem based on the problem statement and the viable options. Despite its simplicity in design, it can be used to solve a variety of problems.

The simplest example of this would be a sequential (linear) search of an array of elements to find a matching element in the array by looping from the first element to the last and doing a comparison at every stage to see if the matching element is found. In the worst-case scenario, we will be searching the entire array to find our match.

Another popular usage of the Brute force technique is in attempting to crack a password by repeatedly trying numerous possible combinations to eventually arrive at the correct password. This was also possible because of advances in processing power of computers Luckily, software systems and applications have now built in other means of safeguards to protect users against such brute force attacks.

1.3.2 Divide and Conquer Technique

In the Divide and Conquer technique the given problem is divided into smaller problems, each of comparable size, and somewhat like the original problem. These sub-problems are solved separately and the solutions for these sub-problems are then put together to arrive at the solution for original problem. In subsequent chapters in this guide we will see some examples of algorithms that are based on the Divide and Conquer technique.

1.3.3 Decrease and Conquer Technique

The Decrease and Conquer technique works by reducing the problem to a smaller size by a factor, solving the smaller problem and extending the solution to arrive at the solution to the larger problem.

A very common example is that of a person playing a game of cards. In the game of cards, a player gets 13 cards that are usually kept in the sorted order in his hand for ease. The player takes one card at a time from the pile on the table and arranges it into the correct position in his hand. To locate the correct position for the picked card, he compares it with each card in the hand typically starting from the left.

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