**Dynamic Programming**

Dynamic Porgramming deals with program optimization. Every program should be built such that it can process large inputs in the most minimal time complexity as well as the minimal space complexity. However, there is this limitation- a program cannot be both time-economic as well as space-economic, and every programmer knows this. Dynamic Porgramming tries to find the most efficient way to execute a program in the fastest way possible, i.e., it is mostly time-efficient method.

For a program utilizing the same value over and over again for various execution, it is not smart to make a recursive or looped function to calculate those frequently used values every time it is needed. For these frequently used values, it is extremely ingenious to store them in specific memory locations and call them directly when required instead of telling the program to calculate those values again. In theory, it may sound overly tedious to store the recurring values in separate memory locations instead of simply calculate those when required, but in practicality, this method is the best way of optimizing any program.

For instance, bitmasking is a method of dynamic programming which deals with program optimization in one certain way; break down the larger executions into smaller sequences of bits. The computer is more efficient in working with bits or bitwise operations. This makes a program lightweight use and faster to perform.