Encoding using string :

Encoding of chromosomes is the first step in solving the problem and it depends entirely on the problem heavily. The process of representing the solution in the form of a string of bits that conveys the necessary information. just as in a chromosome, each gene controls a particular characteristics of the individual, similarly, each bit in the string represents a characteristics of the solution.

Encoding Methods :

- **Binary Encoding** : Most common methods of encoding. Chromosomes are string of 1s and 0s and each position in the chromosome represents a particular characteristics of the problem.

Chromosome A	10110010110011100101
Chromosome B	11111110000000011111

- **Permutation Encoding** : Useful in ordering such as the Travelling Salesman Problem (TSP). In TSP, every chromosome is a string of numbers, each of which represents a city to be visited.

Chromosome A	1 5 3 2 6 4 7 9 8
Chromosome B	8 5 6 7 2 3 1 4 9

- **Value Encoding** : Used in problems where complicated values, such as real numbers, are used and where binary encoding would not suffice. Good for some problems, nut often necessary to develop some specific crossover and mutation techniques for these chromosomes.

Chromosome A	1.235 5.323 0.454 2.321 2.454
Chromosome B	(left), (back), (left), (right), (forward)