# Assignment No: 01

## Problem Statement:

Write a program to calculate Fibonacci numbers and find its step count.

## Conclusion:

1) Fibonacci numbers are used throughout society. It is astonishing how these sets of never-ending numbers, are used in various ways.
2) Fibonacci numbers are very unique compared to other mathematical subjects.

## Theory:

### Fibonacci numbers :

The Fibonacci sequence is a set of integers (the Fibonacci numbers) that starts with a zero, followed by a one, then by another one, and then by a series of steadily increasing numbers. The sequence follows the rule that each number is equal to the sum of the preceding two numbers.

The Fibonacci sequence begins with the following 14 integers:

0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233 ...

Each number, starting with the third, adheres to the prescribed formula. For example, the seventh number, 8, is preceded by 3 and 5, which add up to 8.

## Calculating the Fibonacci sequence:

The Fibonacci sequence can be calculated mathematically. In this approach, each number in the sequence is considered a term, which is represented by the expression $F_n$. The $_n$ reflects the number's position in the sequence, starting with zero. For example, the sixth term is referred to as $F_5$, and the seventh term is referred to as $F_6$.

Using this numbering, the Fibonacci sequence can be defined by the following three equations:

- $F_0 = 0$ (applies only to the first integer)
- $F_1 = 1$ (applies only to the second integer)
- $F_n = F_{n-1} + F_{n-2}$ (applies to all other integers)

## Important Notes on Fibonacci Numbers:

Here is a list of a few points that should be remembered while studying the Fibonacci numbers.

- The concept of Fibonacci numbers is only applicable to whole numbers and decimal numbers from a financial perspective.
- The sequence of Fibonacci numbers also applies to numbers below zero.
- The first Fibonacci number is always 0 and the second Fibonacci number is always 1.

## Conclusion:

Thus, we Studied about the calculate Fibonacci number.