Task 3: Create a Python Program to Generate Fibonacci Sequence

DESCRIPTION:

- This is the description of Task-3 of my python internship at Happieloop.
- Here, the task is to develop **Fibonacci sequence** according to the given length of sequence
- I have created a file **task3.py** and developed python code according to the requirements.
- The purpose of the program that I have implemented is to develop Fibonacci series.
- The logic of Fibonacci series is as follows:

  $$F(n)=F(n-1) + F(n-2)$$

  Where, the series starts from 0(n=1) and 0, 1(n=2)
- The default values of Fibonacci series are 0 and 1.And then the values get added up into the series according to the required length.
- I have defined a function **fibonacci_series** and developed codes in order to print the range of Fibonacci series.
- For example, If the required length of Fibonacci series is 5 then the corresponding **Fibonacci series** will be 0,1,1,2,3.
- For length-9: 0,1,1,2,3,5,8,13,21.
- For length-15:0,1,1,2,3,5,8,13,21,34,55,89,144,233,377.

- In this way the range of Fibonacci series will be printed in the console window according to the given range of length.
- I have used 3 variables **a, b, c**. And I have updated **a** and **b** variables using another variable **c** and appended the variable **a** to the list.
- The logic is:

  c = a + b
  a = b
  b = c
- Here is the code that I have implemented for printing the sequence of Fibonacci_Series.

CODE:

```
def fibonacci_series(n):
    series = []
    a = 0
    b = 1
    for i in range(n):
        series.append(a)
        c = a + b
        a = b
        b = c
    return series

n=int(input("Enter the required range: "))
if n < 0:
    print("Incorrect input")
```

```
else:
    print(fibonacci_series(n))
```

- Now let me show some of the sample inputs and corresponding outputs in different cases.

OUTPUTS:

Enter the required range: 10

[0, 1, 1, 2, 3, 5, 8, 13, 21, 34]

Enter the required range: 12

[0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89]

Enter the required range: -5

Incorrect input

Enter the required range: 15

[0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377]