Week 2 howework 1- assignment

Fibonacci Series using Iterative Method

```
n = int(input("Enter the number of terms: "))
a = 0
b = 1
if n <= 0:
   print("Please enter a positive integer.")
elif n == 1:
   print("Fibonacci Series:")
   print(a)
else:
   print("Fibonacci Series:")
   for i in range(n):
      print(a, end=" ")
      a, b = b, a + b
```

Step-by-step Explanation

1) Start

The program begins from **Main**.

2) Variable Declarations

The flowchart declares these integer variables:

i → loop counter

n → number of terms to print

a → first Fibonacci number (current term)

b → second Fibonacci number (next term)

temp → temporary variable to store a + b

3) Ask the user for input

It displays: **"Enter number of terms:"**

Then it takes input and stores it in n.

4) Initialize Fibonacci starting values

Assign:

a = 0

b = 1

These are the first two Fibonacci numbers.

5) Check for invalid input (n <= 0)

Decision: **Is n <= 0?**

True: Output **"Please enter a positive integer"** and stop.

False: Continue to next decision.

6) Check if only one term is needed (n == 1)

Decision: **Is n == 1?**

True:

Output **"Fibonacci Series:"**

Output the value of a (which is 0)

End program.

False: Continue to loop (means n > 1).

7) Print heading

Output:

"Fibonacci Series:"

8) Loop from i = 1 to n

A **For loop** runs n times to print n Fibonacci numbers.

Inside the loop:

(a) Print current Fibonacci number

Output:

a & " "

This prints the value of a with a space on the same line.

(b) Calculate and update values

temp = a + b → computes next Fibonacci number

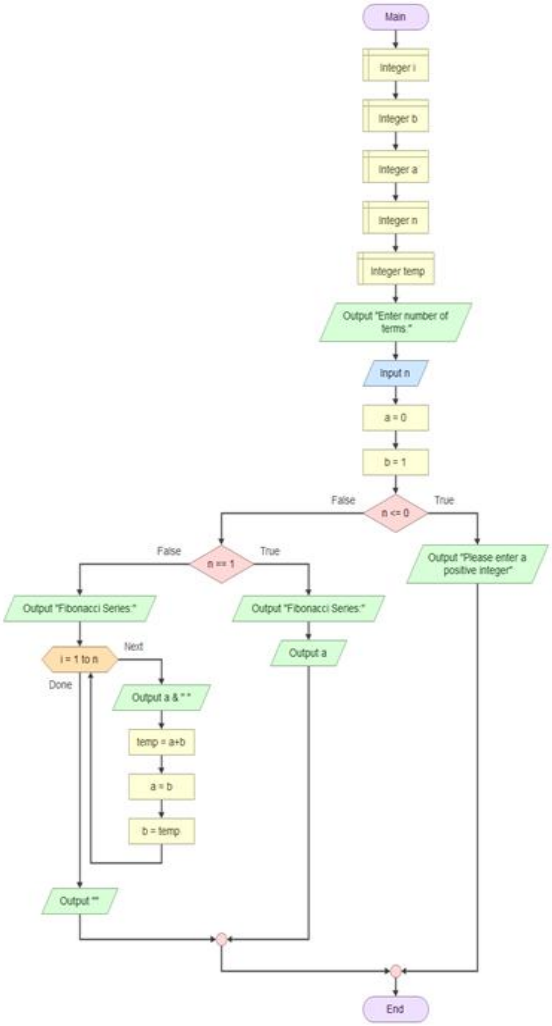
a = b → move b into a

= temp → store the new next value in b

This shifts the pair forward for the next iteration.

9) End

After the loop finishes, the program reaches **End** and stops.


Main
Integer i
Integer b
Integer a
Integer n
Integer temp
Output "Enter number of terms:"
Input n
a = 0
b = 1
False
n <= 0
True
Output "Please enter a positive integer"
False
n == 1
True
Output "Fibonacci Series:"
Output a
Output "Fibonacci Series:"
Next
i = 1 to n
Done
Output a & " "
temp = a+b
a = b
b = temp
Output ""
End