EXERCISE-4

4.Write a c program to find Fibonacci series eithout recursion.

AIM: To write a C program to generate the Fibonacci series without using recursion.

Algorithm:

1. Start the program.
2. Input the number of terms n.
3. Initialize the first two terms: a = 0, b = 1.
4. Print the first two terms.
5. Use a loop from i = 2 to n - 1:
    - Calculate next = a + b.
    - Print next.
    - Update values: a = b, b = next.
6. End the program**.**

Program Code:

```
#include <stdio.h>

int main() {
   int n, a = 0, b = 1, next;

   printf("Enter number of terms: ");
   scanf("%d", &n);
```

```
    if (n <= 0) {
        printf("Please enter a positive number.\n");
        return 0;
    }

    printf("Fibonacci Series: ");

    for (int i = 0; i < n; i++) {
        if (i == 0) {
            printf("%d ", a);
        } else if (i == 1) {
            printf("%d ", b);
        } else {
            next = a + b;
            printf("%d ", next);
            a = b;
            b = next;
        }
    }

    printf("\n");
    return 0;
}
```

Input and Output:

```
Enter number of terms: 8
Fibonacci Series: 0 1 1 2 3 5 8 13
```

Result:

The program successfully generates the Fibonacci series for the specified number of terms using an iterative method (without recursion).