

EXERCISE-6

6. Write a c program of find Fibonacci series using recursion.

AIM: To write a C program to generate the Fibonacci series using recursion.

Algorithm:

1. Start the program.
2. Define a recursive function fibonacci(n):
 - If $n == 0$, return 0.
 - If $n == 1$, return 1.
 - Else, return $\text{fibonacci}(n - 1) + \text{fibonacci}(n - 2)$.
3. In main, input the number of terms n.
4. Use a loop to call fibonacci(i) for all terms from 0 to n - 1 and print them.
5. End the program.

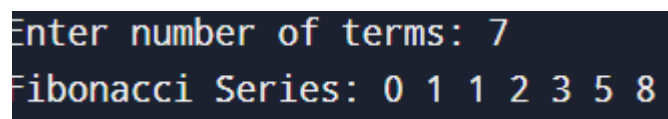
Program Code:

```
#include <stdio.h>

int fibonacci(int n) {
    if (n == 0)
        return 0;
    else if (n == 1)
        return 1;
    else
        return fibonacci(n - 1) + fibonacci(n - 2);
}
```

```
}  
  
int main() {  
    int n;  
    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++) {  
        printf("%d ", fibonacci(i));  
    }  
    printf("\n");  
    return 0;  
}
```

Input and Output:

A screenshot of a terminal window with a dark background. The first line shows the prompt 'Enter number of terms: 7' where '7' is the user input. The second line shows the output 'Fibonacci Series: 0 1 1 2 3 5 8'.

Result:

The program successfully generates the Fibonacci series using a recursive function.

