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/*
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Class:BE-4
Batch : R4
Lab Assignment No: 01
Title: Write a program non-recursive and recursive program to calculate
Fibonacci numbers and
analyze their time and space complexity.
*/

//Non-Recursive code (Part-1)
#include<iostream>
using namespace std;

int main()
{
      int n,a=0,b=1,fib;
      cout<<"Enter length of series"<<endl;
      cin>>n;
      if(n<=1)
      {
            return n;
      }
      while(a<n)
      {
            cout<<a<<endl;
            fib=a+b;
            a=b;
            b=fib;
      }
      return 0;
}
/*
Output :
Enter length of series
10
0
1
1
2
3
5
8
*/
//Non-Recursive code (Part-2)

/*
#include <iostream>
using namespace std;
int fibbonacci(int n) {
   if(n == 0)
   {
      return 0;
   }
   else if(n == 1)
   {
      return 1;
   }
```

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   else
   {
      return (fibbonacci(n-1) + fibbonacci(n-2));
   }
}
int main()
{
    int n;
    cout<<"Enter length for fibonacci series";
    cin>>n;
    printf("Fibbonacci of %d: " , n);
    for(int i = 0; i < n ; i++)
    {
        printf("%d ",fibbonacci(i));
    }
    return 0;
}
//Output :
Enter length for fibonacci series10
Fibbonacci of 10: 0 1 1 2 3 5 8 13 21 34
*/
```