Psudocode:

Set up registers for the base numbers as well as the amount we are going to need

call function

Counter to count until we reach 20 prints

Print the first number

Print a new line

Print the second number

Print a new line

Loop for all of the numbers

Add the two numbers together and store in new variable

Print out the new number

Move the past numbers to their new places

Print out a new line

Add 1 to counter and check if the counter has been reached. If not, restart loop

End program

Screenshot of code:

```
# Program header
# fibbo.s

.data
    nLine:    .asciiz "\n"

# code section
.text
.globl main

main:
    #Set up registers for the base numbers as well as the amount we are going to need
    li $s0, 0
    li $s1, 1
    li $s2, 20
    la $s4, nLine

    #call function
    jal func

    #end program
    li $v0, 10
    syscall
```

```
func:
    #counter until we reach 20 prints
    li $t0, 0

    #Print first number
    la $a0, 0
    li $v0, 1
    syscall
    add $t0, $t0, 1

    #print out new line
    move $a0, $s4
    li $v0, 4
    syscall

    #print second number
    la $a0, 1
    li $v0, 1
    syscall
    add $t0, $t0, 1

    #print out new line
    move $a0, $s4
    li $v0, 4
    syscall

    #loop to run through all numbers
    loop:
        #add the numbers to get next number
        add $s3, $s0, $s1

        #print out new number
        move $a0, $s3
        li $v0, 1
        syscall

        #move the past numbers to the new numbers
        move $s0, $s1
        move $s1, $a0

        #print out new line
        move $a0, $s4
        li $v0, 4
        syscall

        #add to iterator and check if it is still in range
        add $t0, $t0, 1
        blt $t0, $s2, loop

    jr $ra
```
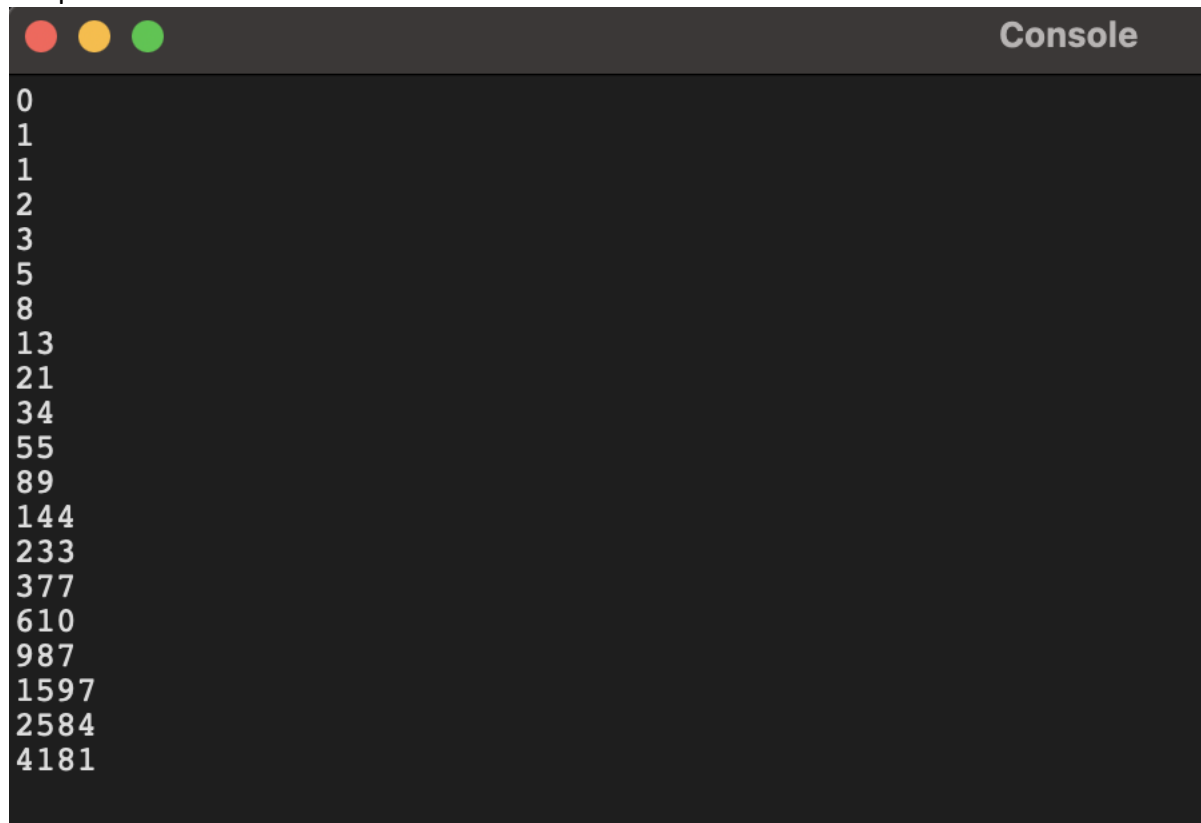
Output:

```
Console
0
1
1
2
3
5
8
13
21
34
55
89
144
233
377
610
987
1597
2584
4181
```