

Fibonacci

Programming Assignment # 1

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X86 Assembly Language
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Test Plan and TestCases

Test Case Number	Input Values	Expected output
1	-1	That number was out of range, try again.
2	50	That number was out of range, try again.
3	10	0 1 1 2 3 5 8 13 21 34

Appendix A: Test Log

Test Case Number	Input Values	Date &Time	Actual Output	Result
1	-1	11/22/18 02:52 pm	That number was out of range, try again.	Pass
2	50	11/22/18 02:52 pm	That number was out of range, try again.	Pass
3	10	11/22/18 02:52 pm	0 1 1 2 3 5 8 13 21 34	Pass

```
Fibonacci Numbers by , Allen
What's your name? Allen
Hi, Allen
How many Fibonacci numbers should I display?
Enter an integer in the range [1..47]: -1

That number was out of range, try again.
How many Fibonacci numbers should I display?
Enter an integer in the range [1..47]: 50

That number was out of range, try again.
How many Fibonacci numbers should I display?
Enter an integer in the range [1..47]: 10

0 1 1 2 3
5 8 13 21 34
Goodbye, Allen
```

Appendix B: Source Code

```
; .386

Include \masm32\include\Irvine32.inc
Includelib \masm32\lib\Irvine32.lib
includelib \masm32\lib\Kernel32.lib
includelib \masm32\lib\User32.lib

.data
num DWORD 0
tmp DWORD 0
str_1 BYTE "Fibonacci Numbers by , Allen",0
str_2 BYTE "What's your name? ",0
str_3 BYTE "HI, ",0
str_4 BYTE "How many Fibonacci numbers should I display?",0
str_5 BYTE "Enter an integer in the range [1..47]: ",0
str_6 BYTE "That number was out of range, try again.",0
str_7 BYTE "    ",0
str_8 BYTE "Goodbye, ",0
N BYTE 10 DUP(?)

.code
main PROC
L1: ; print info
    call Clrscr
    mov edx,OFFSET str_1
    call WriteString
    call CrLf
    mov edx,OFFSET str_2
    call WriteString
    mov edx,OFFSET N
    mov ecx,10
    call readString
    mov edx,OFFSET str_3
    call WriteString
    mov edx,OFFSET N
    call WriteString
```

```

    call Crlf
L2: ; chack range
    mov edx,OFFSET str_4
    call WriteString
    call Crlf
    mov edx,OFFSET str_5
    call WriteString
    call readint
    call Crlf
    cmp eax,1
    jl L3
    cmp eax,47
    jg L3
    mov ecx,eax
    mov num,0
    mov eax,0
    mov ebx,1
    jmp L4
L3: ; print error messenge
    mov edx,OFFSET str_6
    call WriteString
    call crlf
    jmp L2
L4: ; print fibonacci
    call pf
    call WriteDec
    mov tmp,eax
    mov eax,ebx
    add ebx,tmp
    inc num
    Loop L4
L5: ; print goodbye
    call crlf
    mov edx,OFFSET str_8
    call WriteString
    mov edx,OFFSET N

```

```
    call WriteString
    call CrLf
    exit
main ENDP

pf PROC uses eax ebx edx ; print 3 blank or wrap
La:
    xor edx,edx
    mov eax,num
    mov ebx,5
    div ebx
    cmp edx,0
    je Lb
    mov edx,OFFSET str_7
    call WriteString
    jmp Lc
Lb:
    cmp eax,0
    je Lc
    call CrLf
Lc:
    ret
pf ENDP

END main
```