

Source File: lab17.asm
Input: Standard Input
Output: Standard Output
Value: 2

Write a program that uses a loop to calculate the first 12 terms of a Fibonacci number sequence. There are an infinite number of Fibonacci sequences. A Fibonacci sequence is defined as follows: Let any two integers be the first two terms of the sequence. The third term in the sequence is the sum of the first two terms, the fourth term is the sum of the second and third terms, and so on. Probably the most famous Fibonacci sequence starts with 0 and 1. The resulting sequence is

0, 1, 1, 2, 3, 5, 8, 13, 21, ...

Reserve doublewords in the `.bss` section to represent the terms in a Fibonacci sequence. Accept values for the first two terms through standard input. Use a loop to generate the next terms in the sequence. Use register dumps to show the terms of the sequence, with each term being in the `eax` register. Add an identification section as shown below to the top of your source file.

```

; Your name
; CS 3304
; Lab 17

```

A sample execution sequence is shown in Figure 1. To use the Makefile as distributed in class, add a target of `lab17` to `targetsAsmLanguage`.

```

1  newuser@csunix ~/3304/17> cp /usr/local/3304/src/Makefile .
2  newuser@csunix ~/3304/17> touch lab17.asm
3  newuser@csunix ~/3304/17> make
4  nasm -f elf32 -l lab17.lst -o lab17.o lab17.asm -I/usr/local/3304/include/ -I.
5  ld -m elf_i386 --dynamic-linker /lib/ld-linux.so.2 -o lab17 lab17.o \
6  /usr/local/3304/src/Along32.o -lc
7  newuser@csunix ~/3304/17> ./lab17
8  0
9  1
10
11  EAX=00000000 EBX=F77C8FBC ECX=F77C2BBF EDX=F77B6480
12  ESI=FFF8F1FC EDI=080481B0 EBP=00000000 ESP=FFF8F1F0
13  EIP=080481CE EFL=00000202 CF=0 SF=0 ZF=0 OF=0 AF=0 PF=0
14
15
16  EAX=00000001 EBX=F77C8FBC ECX=0000000B EDX=F77B6480
17  ESI=FFF8F1FC EDI=080481B0 EBP=00000000 ESP=FFF8F1F0
18  EIP=080481DD EFL=00000202 CF=0 SF=0 ZF=0 OF=0 AF=0 PF=0
19
20
21  EAX=00000001 EBX=F77C8FBC ECX=0000000A EDX=F77B6480
22  ESI=FFF8F1FC EDI=080481B0 EBP=00000000 ESP=FFF8F1F0
23  EIP=080481DD EFL=00000202 CF=0 SF=0 ZF=0 OF=0 AF=0 PF=0
24
25
26  EAX=00000002 EBX=F77C8FBC ECX=00000009 EDX=F77B6480
27  ESI=FFF8F1FC EDI=080481B0 EBP=00000000 ESP=FFF8F1F0
28  EIP=080481DD EFL=00000202 CF=0 SF=0 ZF=0 OF=0 AF=0 PF=0
29
30

```

Figure 1. Commands to Assemble, Link, & Run Lab 17 (Part 1 of 3)

```

31  EAX=00000003  EBX=F77C8FBC  ECX=00000008  EDX=F77B6480
32  ESI=FFF8F1FC  EDI=080481B0  EBP=00000000  ESP=FFF8F1F0
33  EIP=080481DD  EFL=00000202  CF=0  SF=0  ZF=0  OF=0  AF=0  PF=0
34
35
36  EAX=00000005  EBX=F77C8FBC  ECX=00000007  EDX=F77B6480
37  ESI=FFF8F1FC  EDI=080481B0  EBP=00000000  ESP=FFF8F1F0
38  EIP=080481DD  EFL=00000206  CF=0  SF=0  ZF=0  OF=0  AF=0  PF=1
39
40
41  EAX=00000008  EBX=F77C8FBC  ECX=00000006  EDX=F77B6480
42  ESI=FFF8F1FC  EDI=080481B0  EBP=00000000  ESP=FFF8F1F0
43  EIP=080481DD  EFL=00000206  CF=0  SF=0  ZF=0  OF=0  AF=0  PF=1
44
45
46  EAX=0000000D  EBX=F77C8FBC  ECX=00000005  EDX=F77B6480
47  ESI=FFF8F1FC  EDI=080481B0  EBP=00000000  ESP=FFF8F1F0
48  EIP=080481DD  EFL=00000202  CF=0  SF=0  ZF=0  OF=0  AF=0  PF=0
49
50
51  EAX=00000015  EBX=F77C8FBC  ECX=00000004  EDX=F77B6480
52  ESI=FFF8F1FC  EDI=080481B0  EBP=00000000  ESP=FFF8F1F0
53  EIP=080481DD  EFL=00000212  CF=0  SF=0  ZF=0  OF=0  AF=1  PF=0
54
55
56  EAX=00000022  EBX=F77C8FBC  ECX=00000003  EDX=F77B6480
57  ESI=FFF8F1FC  EDI=080481B0  EBP=00000000  ESP=FFF8F1F0
58  EIP=080481DD  EFL=00000212  CF=0  SF=0  ZF=0  OF=0  AF=1  PF=0
59
60
61  EAX=00000037  EBX=F77C8FBC  ECX=00000002  EDX=F77B6480
62  ESI=FFF8F1FC  EDI=080481B0  EBP=00000000  ESP=FFF8F1F0
63  EIP=080481DD  EFL=00000206  CF=0  SF=0  ZF=0  OF=0  AF=0  PF=1
64
65
66  EAX=00000059  EBX=F77C8FBC  ECX=00000001  EDX=F77B6480
67  ESI=FFF8F1FC  EDI=080481B0  EBP=00000000  ESP=FFF8F1F0
68  EIP=080481DD  EFL=00000202  CF=0  SF=0  ZF=0  OF=0  AF=0  PF=0
69
70  newuser@csunix ~/3304/17> ./lab17
71  0
72  -1
73
74  EAX=00000000  EBX=F7797FBC  ECX=F7791BBF  EDX=F7785480
75  ESI=FFEC79FC  EDI=080481B0  EBP=00000000  ESP=FFEC79F0
76  EIP=080481CE  EFL=00000286  CF=0  SF=1  ZF=0  OF=0  AF=0  PF=1
77
78
79  EAX=FFFFFFFF  EBX=F7797FBC  ECX=0000000B  EDX=F7785480
80  ESI=FFEC79FC  EDI=080481B0  EBP=00000000  ESP=FFEC79F0
81  EIP=080481DD  EFL=00000286  CF=0  SF=1  ZF=0  OF=0  AF=0  PF=1
82
83

```

Figure 1. Commands to Assemble, Link, & Run Lab 17 (Part 2 of 3)

```

84  EAX=FFFFFFFF EBX=F7797FBC ECX=0000000A EDX=F7785480
85  ESI=FFEC79FC EDI=080481B0 EBP=00000000 ESP=FFEC79F0
86  EIP=080481DD EFL=00000286 CF=0 SF=1 ZF=0 OF=0 AF=0 PF=1
87
88
89  EAX=FFFFFFFF EBX=F7797FBC ECX=00000009 EDX=F7785480
90  ESI=FFEC79FC EDI=080481B0 EBP=00000000 ESP=FFEC79F0
91  EIP=080481DD EFL=00000297 CF=1 SF=1 ZF=0 OF=0 AF=1 PF=1
92
93
94  EAX=FFFFFFFFD EBX=F7797FBC ECX=00000008 EDX=F7785480
95  ESI=FFEC79FC EDI=080481B0 EBP=00000000 ESP=FFEC79F0
96  EIP=080481DD EFL=00000293 CF=1 SF=1 ZF=0 OF=0 AF=1 PF=0
97
98
99  EAX=FFFFFFFFB EBX=F7797FBC ECX=00000007 EDX=F7785480
100 ESI=FFEC79FC EDI=080481B0 EBP=00000000 ESP=FFEC79F0
101 EIP=080481DD EFL=00000293 CF=1 SF=1 ZF=0 OF=0 AF=1 PF=0
102
103
104 EAX=FFFFFFFF8 EBX=F7797FBC ECX=00000006 EDX=F7785480
105 ESI=FFEC79FC EDI=080481B0 EBP=00000000 ESP=FFEC79F0
106 EIP=080481DD EFL=00000293 CF=1 SF=1 ZF=0 OF=0 AF=1 PF=0
107
108
109 EAX=FFFFFFFF3 EBX=F7797FBC ECX=00000005 EDX=F7785480
110 ESI=FFEC79FC EDI=080481B0 EBP=00000000 ESP=FFEC79F0
111 EIP=080481DD EFL=00000293 CF=1 SF=1 ZF=0 OF=0 AF=1 PF=0
112
113
114 EAX=FFFFFFE8 EBX=F7797FBC ECX=00000004 EDX=F7785480
115 ESI=FFEC79FC EDI=080481B0 EBP=00000000 ESP=FFEC79F0
116 EIP=080481DD EFL=00000287 CF=1 SF=1 ZF=0 OF=0 AF=0 PF=1
117
118
119 EAX=FFFFFFDDE EBX=F7797FBC ECX=00000003 EDX=F7785480
120 ESI=FFEC79FC EDI=080481B0 EBP=00000000 ESP=FFEC79F0
121 EIP=080481DD EFL=00000287 CF=1 SF=1 ZF=0 OF=0 AF=0 PF=1
122
123
124 EAX=FFFFFFC9 EBX=F7797FBC ECX=00000002 EDX=F7785480
125 ESI=FFEC79FC EDI=080481B0 EBP=00000000 ESP=FFEC79F0
126 EIP=080481DD EFL=00000297 CF=1 SF=1 ZF=0 OF=0 AF=1 PF=1
127
128
129 EAX=FFFFFFA7 EBX=F7797FBC ECX=00000001 EDX=F7785480
130 ESI=FFEC79FC EDI=080481B0 EBP=00000000 ESP=FFEC79F0
131 EIP=080481DD EFL=00000297 CF=1 SF=1 ZF=0 OF=0 AF=1 PF=1
132
133 newuser@csunix ~/3304/17>

```

Figure 1. Commands to Assemble, Link, & Run Lab 17 (Part 3 of 3)