

```

1 // Example 3.2 foi/examples/Fordemo.java
2 //
3 //
4 // Copyright 2003 Bill Campbell and Ethan Bolker
5
6 // A class illustrating the For-statement. A typical run:
7 //
8 // %> java Fordemo
9 // Enter integer: 7
10 // 7 integers starting at 0: 0 1 2 3 4 5 6
11 // First 7 Fibonacci numbers (for): 1 1 2 3 5 8 13
12 // First 7 Fibonacci numbers (while): 1 1 2 3 5 8 13
13 // 49 @'s:
14 // @@@@
15 // @@@@
16 // @@@@
17 // @@@@
18 // @@@@
19 // @@@@
20 // @@@@
21
22 public class Fordemo
23 {
24     public static void main( String[] args )
25     {
26         Terminal terminal = new Terminal(); // for input and output
27
28         // Prompt for and read a single integer.
29         int n = terminal.readInt( "Enter integer:" );
30
31         terminal.print( n + " integers starting at 0:" );
32         for ( int i = 0; i < n; i++ ) {
33             terminal.print( " " + i ); // all one line
34         }
35         terminal.println(); // the newline
36
37         // Build Fibonacci numbers 1, 1, 2, 3, 5, 8,
38         // by adding last two together to make the next
39         // Use three int variables and a loop:
40
41         int thisOne, lastOne, nextOne;
42         terminal.println( "First " + n + " Fibonacci numbers:" );
43
44         terminal.print( "for: " );
45         thisOne = 1;
46         lastOne = 1;
47         for ( int i = 1; i <= n; i++ ) {
48             terminal.print( " " + lastOne );
49             nextOne = thisOne + lastOne;
50             lastOne = thisOne;
51             thisOne = nextOne;
52         }
53         terminal.println();
54
55         // Since i is never used in the body of the previous loop
56         // we can count down to get the same output:

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57         terminal.print( "for, counting down:" );
58         thisOne = 1;
59         lastOne = 1;
60         for ( int counter = n; counter > 0; counter-- ) {
61             terminal.print( " " + lastOne );
62             nextOne = thisOne + lastOne;
63             lastOne = thisOne;
64             thisOne = nextOne;
65         }
66         terminal.println();
67
68         // Replace the for loop with a while loop
69         terminal.print( "while:" );
70         thisOne = 1;
71         lastOne = 1;
72         int i = 1;
73         while ( i <= n ) {
74             terminal.print( " " + lastOne );
75             nextOne = thisOne + lastOne;
76             lastOne = thisOne;
77             thisOne = nextOne;
78             i++;
79         }
80         terminal.println();
81
82         terminal.println( "Nested for loops: " + (n*n) + " @'s:" );
83         for ( int row = 1; row <= n; row++ ) {
84             for ( int col = 1; col <= n; col++ ) {
85                 terminal.print( " @" );
86             }
87             terminal.println();
88         }
89
90     }

```