Programming I Assignment 3

1. Leonardo Fibonacci from Pisa was one of the greatest mathematicians of the middle ages. He is perhaps most famous for the Fibonacci sequence. The Fibonacci numbers are the integer sequence 0, 1, 1, 2, 3, 5, 8, 13, 21, ..., in which each item is formed by adding the previous two. An efficient way to output a series of numbers in the sequence is to the recurrence relation $F_n = F_{n-1} + F_{n-2}$, with the first two numbers in the sequence F1 and F2 both defined as 1. Using this recurrence relation write an application that accepts N, where N>=1 from the user and displays the first N numbers in the Fibonacci sequence. The output should resemble the following;

```
<terminated> Fibonacci [Java Application] /System/
This program outputs the first N
numbers in the Fibonacci sequence
Enter N: 13
The first 13 numbers in the Fibonacci
sequence are as follows:
0 1 1 2 3 5 8 13 21 34 55 89 144
```

2. Write a program that counts the number of digits in an integer entered by the user. The program should repeatedly ask for input and displays the number of digits the input integer has. The program output should resemble the following;

```
<terminated> NumberOfDigits [Java Application] /Syst
This program counts the number of digits
in an integer entered by the user.
Enter -1 to exit

Enter Number: 4321
Number of digits in 4321 is 4
Enter Number: 12346
Number of digits in 12346 is 5
Enter Number: 4
Number of digits in 4 is 1
Enter Number: -1
Program Terminated ...
```