Project_Euler_025

February 4, 2018

1 Project Euler Problem 25

The Fibonacci sequence is defined by the recurrence relation:

```
F(n) = F(n1) + F(n2), where F(1) = 1 and F(2) = 1.
```

Hence the first 12 terms will be:

```
F(1) = 1
F(2) = 1
F(3) = 2
F(4) = 3
F(5) = 5
F(6) = 8
F(7) = 13
F(8) = 21
F(9) = 34
F(10) = 55
F(11) = 89
F(12) = 144
```

The 12th term, F(12), is the first term to contain three digits.
What is the index of the first term in the Fibonacci sequence to contain 1000 digits?

```
In [6]: fiblist = [1,1]
        while len(str(fiblist[-1])) < 1000:
            fiblist.append(fiblist[-1]+fiblist[-2])
            if len(str(fiblist[-1])) == 1000:
                print("The index of the first 1000-digit " +
                      "term is {}."
                      .format(len(fiblist)))
```

```
The index of the first 1000-digit term is 4782.
```