1000-digit Fibonacci number

Problem 25

The Fibonacci sequence is defined by the recurrence relation:

$$F_n = F_{n-1} + F_{n-2}, where F_1 = 1 and F_2 = 1.$$

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?

Solution

In [1]:
```
a, b, n =  1, 1, 2
while len(str(b)) < 1000:
    a, b, n = b, a + b, n + 1
print(n)
```

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4782
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