

Program 2: Project Euler Problems 1 and 2

“Project Euler is a series of challenging mathematical/computer programming problems that will require more than just mathematical insights to solve. Although mathematics will help you arrive at elegant and efficient methods, the use of a computer and programming skills will be required to solve most problems.”

The great thing about Project Euler problems is that they allow beginner programmers to focus on problem solving skills in order to successfully solve the problems. So it's more than just about coding!

Problem 1 (<https://projecteuler.net/problem=1>)

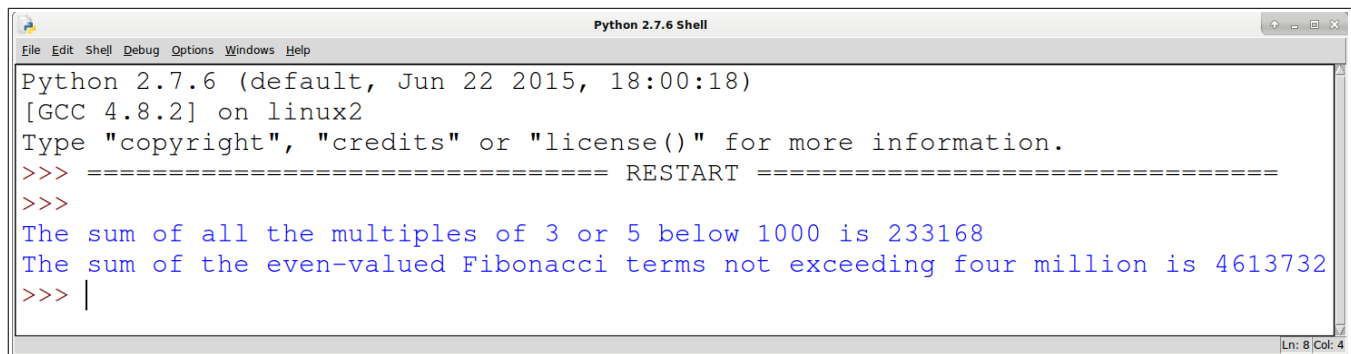
If we list all the natural numbers below 10 that are multiples of 3 or 5, we get 3, 5, 6 and 9. The sum of these multiples is 23. Find the sum of all the multiples of 3 or 5 below 1000.

Problem 2 (<https://projecteuler.net/problem=2>)

Each new term in the Fibonacci sequence is generated by adding the previous two terms. By starting with 1 and 2, the first 10 terms will be: 1, 2, 3, 5, 8, 13, 21, 34, 55, 89. By considering the terms in the Fibonacci sequence whose values do not exceed four million, find the sum of the even-valued terms.

The Project Euler web site can be accessed at: <https://projecteuler.net/>. In case you're wondering, you can find the numeric solutions to the Project Euler problems at: <https://code.google.com/p/projecteuler-solutions/wiki/ProjectEulerSolutions>. This is a useful reference to check the numeric solutions of your algorithms.

Your task is to write a **single** Python program that solves **both** problems. Here is my output in IDLE:



```
Python 2.7.6 Shell
File Edit Shell Debug Options Windows Help
Python 2.7.6 (default, Jun 22 2015, 18:00:18)
[GCC 4.8.2] on linux2
Type "copyright", "credits" or "license()" for more information.
>>> ===== RESTART =====
>>>
The sum of all the multiples of 3 or 5 below 1000 is 233168
The sum of the even-valued Fibonacci terms not exceeding four million is 4613732
>>> |
```

Homework: Project Euler Problems 1 and 2

Write a **single** Python program that correctly calculates the numeric solutions to **both** Project Euler problems 1 and 2.

Make sure to put an appropriate header at the top of your program and to appropriately comment your source code as necessary. A template that you can choose to use as a starting point will be provided to you. **Only submit your source code (i.e., a single .py file).**