

Multiples of 3 or 5

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Problem:

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:

$$1, 2, 3, 5, 8, 13, 21, 34, 55, 89, \dots \quad (1)$$

By considering the terms in the Fibonacci sequence whose values do not exceed four million, find the sum of the even-valued terms.

1 Solution

Computing the Fibonacci sequence is not a problematic mental exercise, but to do so until four million is a bit excessive. Doing this in a script is easy with a while loop, where the condition checks whether the last number is already over four million. When the loop is done, the last entry can be removed and the sequence is complete.

The process of summing the even-valued numbers in the sequence can be done as an intermediate step, as this prevents looping over the entire array yet another time.

Solution: The sum turns out to be 4613732.