

Eric Rasmusen

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Homework: The Fibonacci Sequence Code

The Fibonacci Sequence is the sequence of numbers 0, 1, 1, 2, 3, 5, 8, 13, 21, ...

In math notation, it can be written as $x_1, x_2, x_3, \dots$, where $x_1 = 0$, $x_2 = 1$, and $x_i = x_{i-2} + x_{i-1}$.

Here is how to program Python to show the first 100 numbers. Go to codabrainy.com to input the code.

```
#October 31, 2022
# Python 3
# Code for printing the Fibonacci Sequence
#Eric Rasmusen

end = 100

fibonacci = [ item*item  for item in range(0, end+1)]

#Here is the essence of the program, which does the real work.

fibonacci[0] =0
fibonacci[1] = 1

for item in range(2,  end+1):
    fibonacci[item] = fibonacci[item-2] + fibonacci[item-1]

print ("The first", end, "Fibonacci numbers are", fibonacci)
```

Here is what the output from that code looks like:

The first 100 Fibonacci numbers are [0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, 610, 987, 1597, 2584, 4181, 6765, 10946, 17711, 28657, 46368, 75025, 121393, 196418, 317811, 514229, 832040, 1346269, 2178309, 3524578, 5702887, 9227465, 14930352, 24157817, 39088169, 63245986, 102334155, 165580141, 267914296, 433494437, 701408733, 1134903170, 1836311903, 2971215073, 4807526976, 7778742049, 12586269025, 20365011074, 32951280099, 53316291173, 86267571272, 139583862445, 225851433717, 365435296162, 591286729879, 956722026041, 1548008755920, 2504730781961, 4052739537881, 6557470319842, 10610209857723, 17167680177565, 27777890035288, 44945570212853, 72723460248141, 117669030460994, 190392490709135, 308061521170129, 498454011879264, 806515533049393, 1304969544928657, 2111485077978050, 3416454622906707, 5527939700884757, 8944394323791464, 14472334024676221, 23416728348467685, 37889062373143906, 61305790721611591, 99194853094755497, 160500643816367088, 259695496911122585, 420196140727489673, 679891637638612258, 1100087778366101931, 1779979416004714189, 2880067194370816120, 4660046610375530309, 7540113804746346429, 12200160415121876738, 19740274219868223, 31940434634990099905, 51680708854858323072, 83621143489848422977, 135301852344706746049, 218922995834555169026, 354224848179261915075] .