

Tutorial 6

1. The following program calculates the Fibonacci value given a number (let say 50).

```
def fibonacci(n):  
    """Recursive fibonacci that remembers previous values"""  
    if n not in fibo_dict:  
        # recursive case, store in the dict  
        fibo_dict[n] = fibonacci(n-1) + fibonacci(n-2)  
    return fibo_dict[n]  
  
# global fibonacci dictionary.  
fibo_dict = {}  
  
# enter the base cases  
fibo_dict[0] = 1  
fibo_dict[1] = 1  
  
fibo_val = input("Calculate what Fibonacci value:")  
print("Fibonnaci value of", fibo_val, "is",  
      fibonacci(int(fibo_val)))
```

Rewrite the program using generator function. Use the following template:

```
def fibo_generator():  
    .  
    .  
    .  
  
fibo_generator_object = fibo_generator()  
  
print(next(fibo_generator_object))  
print(next(fibo_generator_object))  
  
for . . . . . :  
    print(next(fibo_generator_object), end=', ')
```

Sample output:

```
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,
```

2. Write a unit converter program, which receives its arguments from the command line. Assume that only below conversions are supported
 - a. Gram to Pound (1 Gram = 0.00220462 Pound)
Pound to Gram
 - b. Metre to Inch (1 Metre = 39.3701 Inch)
Inch to Metre

For example

```
C:\Users\user\.spyder-py3>python temp.py -gramtopound 1.0
1.0 gram is 0.00220462 pound.

C:\Users\user\.spyder-py3>python temp.py -poundtogram 1.0
1.0 pound is 453.592 gram
```