# Lab 4 Feedback

- We need some work on functions
- Follow examples and instructions



# Example Doc String

```
def sumList(listOfNumbers):
    """
    Pre: listOfNumbers is a list of numbers.
    Post: returns the sum of the numbers in the list.
    """
```

- Says what the function does
  - Any preconditions
  - Any postconditions

## Testing Functions

```
def main():
    myList = [1, 1, 1, 1]
    result = sumList(myList)

    print(myList, "sums up to", result)
    test.testEqual( sumList(myList), 4 )

    # add additional tests, so that can run
    # the program (once) and see the results.
```

- How did the programmatic testing compare to our "typical" testing – getting user input?



## Refactoring: Displaying Fibonacci Sequence

What part of this code needs to go into the function?
What is the input to the function?
What is the output from the function?

```
prevNum2 = 0
prevNum = 1

print(prevNum2)
print(prevNum)

for i in range(13) :
   fibNum = prevNum + prevNum2
   print(fibNum)
   prevNum2 = prevNum
   prevNum = fibNum
```

## Doc String for Fibonacci Sequence Function

- How should we describe this function?
  - What is a good precondition for the function?

```
def displayFibonacciSequence(numInSequence):
    """


    """
```



## Doc String for Fibonacci Sequence Function

- How should we describe this function?
  - What is a good precondition for the function?

```
def displayFibonacciSequence(numInSequence):
    """
    Pre: numInSequence must be greater than 1
    Post: displays the first <numInSequence> values
          in the Fibonacci sequence
    """
```

Does not mention user input – does not require user input.

# Molecular Weight

- Given number of hydrogen, oxygen, carbon atoms, return the molecular weight

```
def calcMolecularWeight( hAtoms, oAtoms, mAtoms ):
    ... # calculation ...

    return weight
```



# Molecular Weight

- Given number of hydrogen, oxygen, carbon atoms, return the molecular weight

```
def main():
    # get user input …
    weight = calcMolecularWeight(...)
    print("The weight is", weight)
```

# Review

```
print("This program generates the letter grade from the
numeric grade.”)

numGrade = float(input("Enter the numeric score: "))

if numGrade >= 90:
    letterGrade = "A"
else:
    if numGrade >= 80:
        letterGrade = "B"
    else:
        if numGrade >= 70:
            letterGrade = "C"
        else:
            …

print("You got a", letterGrade)
```

Separation of concerns:
Calculation is separate from display



# Lab 5 Overview

- Function practice
- Conditionals
- More building blocks to draw from
  - Break problem into smaller pieces
  - Think, write your algorithm outline, write a few lines of code, then try them out.