Comp 150: Computer Programming I
Python Programs from Lab 02

def sort3():
    # get three integers
    a, b, c = input("Enter three numbers: ")
    # sort from low to high
    if a > b:
        a, b = b, a
        # assert a <= b
    if b > c:
        b, c = c, b
        # assert a <= c and b <= c
    if a > b:
        a, b = b, a
        # assert a <= b <= c
    # display integers in order
    print a, b, c

def twoPts():
    # get coordinates for two points
    x1, y1 = input("Enter the coordinates for a point: ")
    x2, y2 = input("Enter the coordinates for a second point: ")
    # compute midpoint, slope and distance
    midPtX, midPtY = (x1+x2)/2.0, (y1+y2)/2.0
    slope = (y2 - y1)/(x2 - x1)
    distance = ((x2 - x1)**2 + (y2 - y1)**2)**(0.5)
    # display results
    print "Midpoint =", midPtX, midPtY
    print "Slope =", slope
    print "Distance =", distance

def tempTable():
    # print column headers
    print "Celsius Fahrenheit"
    # compute and print table
    for i in range(11):
        Celsius = 10 * i
        Fahrenheit = Celsius * (9.0/5.0) + 32.0
        print Celsius, Fahrenheit
def futVal2():
    # get input
    principle = input("Enter the principle: ")
    rate = input("Enter the annual interest rate: ")
    numYrs = input("Enter the number of years: ")
    period = input("Enter the number of compounding periods: ")

    # compute future value
    for i in range(numYrs * period):
        principle = principle * (1.0 + rate/period)

    # display results
    print "The value in", numYrs, "years is", principle

def divisor():
    # get integer
    n = input("Enter an integer > 1: ")

    # determine smallest non-trivial divisor
    k = 2
    while n % k != 0:
        k = k + 1

    # print results
    print "The smallest divisor is", k

def fibonacci():
def hailstone():
    # print program banner
    print
    print "The Hailstone Sequence"
    print
    # get initial value
    k = input("Enter an integer: ")
    # initialize count of number of items in sequence
    count = 0
    # run sequence printing the values
    print
    while k != 1:
        print k,
        count = count + 1
        if k % 2 != 0:
            k = 3*k + 1
        else:
            k = k/2
        print k            # print final value of k
    count = count + 1     # include final value in count
    # display count
    print
    print "There were", count, "numbers in the sequence"
    print