

## 6.00 Handout, Lecture 6 (Not intended to make sense outside of lecture)

```
def solve(numLegs, numHeads):
    for numSpiders in range(0, numHeads + 1):
        for numChicks in range(0, numHeads - numSpiders + 1):
            numPigs = numHeads - numChicks - numSpiders
            totLegs = 4*numPigs + 2*numChicks + 8*numSpiders
            if totLegs == numLegs:
                return (numPigs, numChicks, numSpiders)
    return (None, None, None)

def barnYard():
    heads = int(raw_input('Enter number of heads: '))
    legs = int(raw_input('Enter number of legs: '))
    pigs, chickens, spiders = solve(legs, heads)
    if pigs == None:
        print 'There is no solution'
    else:
        print 'Number of pigs:', pigs
        print 'Number of chickens:', chickens
        print 'Number of spiders:', spiders

def findAll(numLegs, numHeads):
    solutions = []
    for numSpiders in range(0, numHeads + 1):
        for numChicks in range(0, numHeads - numSpiders + 1):
            numPigs = numHeads - numChicks - numSpiders
            totLegs = 4*numPigs + 2*numChicks + 8*numSpiders
            if totLegs == numLegs:
                solutions.append((numPigs, numChicks, numSpiders))
    return solutions

def barnYard1():
    heads = int(raw_input('Enter number of heads: '))
    legs = int(raw_input('Enter number of legs: '))
    solutions = findAll(legs, heads)
    if len(solutions) == 0:
        print 'There is no solution'
    else:
        for i in range(len(solutions)):
            print 'Solution', i
            print '  Number of pigs:', solutions[i][0]
            print '  Number of chickens:', solutions[i][1]
            print '  Number of spiders:', solutions[i][2]

def isPalindrome(s):
    """Returns True if s is a palindrome and False otherwise"""
    if len(s) <= 1:
        return True
    else:
        return s[0] == s[-1] and isPalindrome(s[1:-1])
```