## Solutions

sort.py

```
import time
import random

def printNumbers(numbers):
    for number in numbers:
        print "#" * number
    print "\n" * 3


def insertSort(l):
    for i in range(1,len(l)):
        while i > 0 and l[i] <= l[i-1]:
            l[i], l[i-1] = l[i-1], l[i]
            i = i - 1
        printNumbers(l)
        time.sleep(0.5)
    return l

insertSort(random.sample(xrange(100),32))
```

solutions.py

```
import random


# Uebungsblatt 1

# 1.2.1
def incr(x):
    return x+1
# 1.2.3
def leapYear(year):
    if year % 4 != 0:
        return False
    elif (year % 100 == 0) and (year % 400 != 0):
        return False
    else:
        return True
# 1.3.2
def printNumbers():
    i=25
    while (i>0):
        print(i)
        i = i-1
# 1.3.3
```

```
def printFib(n):
    fibn=0
    fibm=1
    if n == 0:
        print(fibn)
    elif n == 1:
        print(fibn)
        print(fibm)
    else:
        print(fibn)
        print(fibm)
    for i in range(n-2):
        aux = fibm
        fibm = fibn + fibm
        fibn = aux
        print(fibm)
# Uebungsblatt 2

# 2.1.1
def sub(listA, listB):
    listC = []
    for i in listA:
        if i not in listB:
            listC.append(i)
    return listC

# 2.1.2
def getMin(listA):
    if listA == []:
        return None
    else:
        min = listA[0]
        for i in listA:
            if i < min:
                min = i
        return min

# 2.2.1
def add(tupelA, tupelB):
    x = tupelA[0] + tupelB[0]
    y = tupelA[1] + tupelB[1]
    return (x,y)

# 3.1
def printContactInfo(phonebook, name):
    if name in phonebook:
        print(phonebook[name])
    else:
        print("No such name!")
```

```
def printAllContacts(phonebook):
    keys = phonebook.keys();
    for i in keys:
        print(i + ": " + str(phonebook[i]))









# Uebungsblatt 3

#3.1.1
def generatePassword(characters, length):
    password = ""
    for i in range(length):
        randomNumber = random.randint(0, len(characters)-1)
        password += characters[randomNumber]
    return password


#Tests

#print(incr(4))
#print(leapYear(4))
#printNumbers()
#printFib(6)
#print(sub([1,2,3],[2,3]))
#print(getMin([4,2,3,5,]))
#print(add((1,2),(3,4)))
#printContactInfo({"muster":10233, "huber":19233}, "no")
#printAllContacts({"muster":10233, "huber":19233})
#print(generatePassword("abcdefg12345", 5))
```

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