Exercise 5

due 30.11.2017

This exercise covers Chapters 0-4 of the tutorial. Please submit your solution until 30.11., 23:59, via e-mail to `programming-l1-ws1718@ims.uni-stuttgart.de` as a **plain text** and/or Python file (which should end on `.txt` or `.py`). Please also submit in groups of **at least 3 students**, and clearly indicate the **names and immatriculation** numbers of all involved students. Submissions that do not fulfill these requirements are not accepted. Please include in your submission how much **time** it took you (roughly) to complete the exercise. Thanks!

Questions

1. Given the following piece of code, what is the value of each existing variable **after** processing lines 2, 9, 10, and 12? If a line is processed multiple times, enumerate the different times (i.e., the column "Iteration" contains a 1 for the first time a line is processed, a 2 for the second line etc.). Mark the scope of a variable in an unambiguous way (i.e., by adding "global" to global variables). You're answer should be a table looking roughly like this (it's easiest if you sort the table rows in the order they are executed):

Line	Iteration	Values
9		`l=[1,2,3]; v=? ...`
10		...
2	1	...

```
1  def f(x):
2      l = list(range(1,x))
3      s = 1
4      for e in l:
5          s = s * e
6      return(s)
7
8  l = [1,2,3]
9  v = 7
10 l.append(v)
11 for i in l:
```

```
    s = f(i)
    while s < 100:
        s = s + i * 2
    v = s
```

2. Given the following functions, can you give a short description what the functions do? The description should not be longer than one sentence, and understandable by non-programmers (e.g., your grandparents). Such a description for the first function would be 'this function adds two numbers'.

(a)
```
def f(x,y):
    return(x+y)
```

(b)
```
def f(x,y):
    a = 0
    for i in range(x,y):
        a += i
    return(a)
```

(c)
```
def f(x,y):
    r = 1
    for i in range(1,x):
        r = r*x
    return(r)
```

(d)
```
def f(x):
    return(x%2==0)
```

(e)
```
def f(x,y,z):
    return(x >= y && x <= z)
```

(f)
```
def f(x):
    if x < 0:
        return(-1 * x)
    else:
        return(x)
```

(g)
```
def f(x,y):
    z = 0
    for e in x:
        if e==y:
            z += 1
    return(z)
```