Lab 2: Some simple scripts with loops

Task 1:
Extend the code below by inserting the missing elements, which will make the program calculate the average fuel consumption per 100 km and the cost of one kilometre:

```
litres = float(input("How many litres did the car use? "))
kilometres = float(input("How many kilometres has the car travelled? "))
price = float(input("How much was a litre of fuel? "))
:
:
print("Average fuel consumption:", consumption, "l/100km")
print("The cost of one kilometre:", cost1km,  "PLN")
```

For the input data: 10l, 200km, 5PLN, the program should calculate the results: 5l/100km, 0.25 PLN/km

Task 2: (if – else)
Your team is developing a web browser in Python! Your task is to check whether the operation of downloading the file to the disk has a chance to be successful or whether it is doomed to failure due to insufficient disk space. Use the following variables:
`diskSize` - a numeric variable (e.g. with a value of 100) indicating the size of the disk in GB,
`diskSizeUsed` - a numerical variable (e.g. with a value of 50) indicating the amount of used disk space in GB,
`fileSize` - a numerical variable (indicating size of the downloaded file in GB) - this value you should get from the user.
Write the script using the `if` command, which will display the message "File download completed successfully" if there is enough free space on the disk. If the file is too large, a message about insufficient disk space should be displayed.

Task 3: (if – elif – else)
Write a program that will take two integer values from the user. Check which value is greater and display the appropriate message, e.g. for values 4 and 6, display: 4 < 6, and for values 4 and 4 display: 4 == 4, and so on.
<u>Hint:</u> one possible syntax for the print function is `print('%i > %i' % (a, b))`

Task 4:
Write a program that checks whether the number given by the user is even or odd. As a result, a message with relevant information should appear. Try to use 3 different ways of checking it. (e.g. if not, logic operator).

Task 5:
Write a script that display the following string of values:

    0 1 2 3 4 5 6 7 8

using:
- for
- while
- for loops supported by a list that will contain the above-mentioned values

Hint: a list in Python is defined as for example: `l = [0,1,2,3,4,5,6,7,8]`. Use name of the list instead a function `range`.

Task 6:
Write a script that display a string of values: 9 7 5 3 1, using `for` loop in 3 different ways (a list of values, range function, range function with step. As a result, 3 strings of values should appear on the screen, each in separate line.

Hint 1: in Python you can use a method `reverse()` as: `a.reverse()`, where a is a list of values.

Hint 2: extended version of range function contain 3 parameters and looks like: `range(min, max, step)`, where step can be positive or negative number.

Task 7:
Using `for` loop in at least 2 different ways, display please a string of values presented below:

    1 a
    1 b
    1 c
    2 a
    2 b
    2 c
    3 a
    3 b
    3 c

As a result, 3 such strings should appear on the screen with a blank line between each of them.

Hint 1: Use 2 different lists of values and 2 `for` loops. A list can contain letters, numbers, strings of values (letters and numbers which are mixed). If you want to have letters or strings in the list, the syntax is: `b = ['a', 'b', 'c']`.

Hint 2: Use one list with mixed values.

Hint 3: Use another one way to achieve a goal. There could be a string like `'abc'` in function `for`. That means, the control variable in `for` loop takes separately each letter from the string.