

## Object Oriented Programming, Exercise 1 (1 point from each task)

Topics: Set up environment, increase coding routine in Python, using Git

Make a Git commit at least after every task.

Code in Python3 and follow the style guide.

1. Start by installing your preferred IDE. Then write a code that prints out Hello in order to verify that your development environment is properly set up. If you already have IDE that you like, you can skip this exercise.
2. Code a list of at least 10 items and fill it with numbers asked from user. Do the same with strings. Print out both lists. Then fill the number list with randomly generated numbers and print it out.
3. Arrange numbers in the list from smallest to largest and strings in alphabetical order and print out the lists.
4. Write a program which repeatedly reads integers until the user enters 0. Print out the number of negative integers. Use functions in your solution.
5. Add a function to the previous task that counts the number of **even integers** (= parilliset luvut in Finnish) that were among the entered.
6. Add to the previous task a function that counts the sum of the positive integers divisible by three.
7. Process with an arithmetic progression (AP) 3, 6, 9, ... . The maximum value of the AP is obtained from the user. Count the number of terms that appeared in the AP, the sum of the terms and the sum of the squared terms. Use functions in your solution.
8. Code a simple (and textual) implementation of Rock-Paper-Scissors game. Play until either you or the computer gets 3 wins. Use functions. a. Plan your game first and code piece by piece: read input from user, generate random number to get computer's choice, then check who wins and keep track of victories.
9. Code a function that *returns* a random number between 1-6 when calling it. Print out the number where the function is called (so do not print the number inside the function). Name the function properly (see style guide).
10. Write a phone book application. It should work as follows:

```
command (1 search, 2 add, 3 quit): 2
name: peter
number: 040-5466745
ok!
command (1 search, 2 add, 3 quit): 2
name: emily
number: 045-1212344
```

ok!  
command (1 search, 2 add, 3 quit): 1  
name: peter  
040-5466745  
command (1 search, 2 add, 3 quit): 1  
name: mary  
no number  
command (1 search, 2 add, 3 quit): 2  
name: peter  
number: 09-22223333  
ok!  
command (1 search, 2 add, 3 quit): 1  
name: peter  
09-22223333  
command (1 search, 2 add, 3 quit): 3  
quitting...

**Return and demo**

1. Return your test report to Itslearning by deadline.
2. Demonstrate your code to teacher on-site (24 January).

You'll find help by Googling. Also check these out:

<https://www.w3schools.com/python/default.asp>

<https://www.youtube.com/user/thenewboston>

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