Week 9

Write and run your programs with IDLE editor. Submit finished programs to CodeGrade. Note that some tasks have several steps (A, B, C, …) in CodeGrade.

IMPORTANT: End each input-command string with a newline symbol \n. For example:
`variable = input("Some text:\n")`

Task 1. Write a function `employee_dictionary(dict_list)`, which asks from the user the name of the worker, his worplace and age. The function creates from these values a dictionary and appends it to the `dict_list`. Note that `dict_list` is a (mutable) list, so you do **not** need to return it.

Write a main program calling this function. In the beginning, the list of workers is empty. The program should also ask first how many employees the user wants to add.

Write also a function `print_work_info(dict_list)`, which prints the information about all the workers according to the example below.

Example run 1.

```
How many employees do you want to add?:
3
Enter worker's name:
John Lennon
Enter worker's workplace:
Beatles
Enter worker's age:
83
Enter worker's name:
Keith Richards
Enter worker's workplace:
Rolling Stones
Enter worker's age:
79
Enter worker's name:
Grace Slick
Enter worker's workplace:
Jefferson Aiplane
Enter worker's age:
84
List of Employees:
Name: John Lennon, Workplace: Beatles, Age: 83
Name: Keith Richards, Workplace: Rolling Stones, Age: 79
Name: Grace Slick, Workplace: Jefferson Aiplane, Age: 84
```

Task 2. Your task is to deal with the data of Titanic passengers. We have an existing CSV file containing the details of all passengers aboard the infamous Titanic cruise on 15 April 1912. You can read more about Titanic from Wikipedia: https://en.wikipedia.org/wiki/Titanic.

The `file titanic.csv` is available fully only in CodeGrade. In Moodle you can find the file `titanic_sample.csv`, which contains the first 15 rows of the file. Your task is to find the (a) number of male passengers, (b) the number of female passengers, (c) the average age of all passengers (rounded to the closest integer), and (d) the age of the oldest passenger (as an integer). Note that the age of some passengers is missing. In such a case, you just ignore these rows.

Example run 1.

```
The number of male passengers: XXX
The number of female passengers: XXX
The average age of passengers: XXX
The age of the oldest passenger: XXX
```

Task 3: The file `students.json` is available (only) in CodeGrade. It contains JSON items looking like this:

```
{
    "id": 13,
    "name": "Ethan Davis",
    "age": 18,
    "grade": "B",
    "courses": ["Math", "Physics", "Chemistry"]
}
```

These JSON items are packed inside a list.

Write a python program which imports this JSON file and answers to these questions according to the Example run.

(a) Print the students whose age is 19.
(b) Print the students whose first name ends with the letter "a". The names of the students are given in the form: `firstname lastname`.
(c) Print students who study `'Math'`.

Note that the example below contains only a partial answer.

Example run 1.

```
Students who are 19 years old:
 - - -
Student ID: 62, Name: Aria Smith, Age: 19

Students whose name end with 'a':
Student ID: 6, Name: Sophia Anderson
 - - -
Student ID: 62, Name: Aria Smith

Students who study math:
Student ID: 1, Name: John Smith
 - - -
Student ID: 61, Name: Oliver Wilson
```

Note that the red dashed lines denote that lines are removed.

`Task 4.` In this task you need to prepare and submit two files and please **make sure** that you use this names. The file `person.py` is a module which contains the definition of the `class Person`. The objects of this class have the ***attributes*** name and age. The class has three ***methods*** which are:

- `__init__(self, name, age):` which creates a new person object.
- `introduce(self):` which prints the person's name and age to the screen as demonstrated at the example run below.
- `celebrate_birthday(self):` which increases the age of this person by one.

Then write a program `Ex4.py`, which first imports the module `person`. Then you need to create to two persons whose names are Valtteri and Kimi. Their ages are 34 and 44, respectively. Then you let these persons to introduce themselves. Because Kimi's birthday is 17th October, you call `celebrate_birthday()` method with the person whose name is Kimi and let this person introduce himself again.

```
My name is Valtteri, and I am 34 years old.
My name is Kimi, and I am 44 years old.
My name is Kimi, and I am 45 years old.
```