**Pachete python. Interacțiune cu fișiere.**

1. **Create a text file called “hello.txt” and add the following text inside of it:  
   Python**

**Java  
Javascript**

**C/C++/C#**

**PHP  
Node.js  
Write a short program to read and display the text file**

1. **Write a short program to append the following lines to “hello.txt” (you will use a list of strings and a for-loop):  
   Go**

**Kotlin  
Swift  
Display the new contents of the file.**

1. **Write a short program that reads the “hello.txt” file and displays every other line (only odd lines).**
2. **Write a program that generates 26 text files, called `A.txt`, `B.txt`, … `Z.txt`. Each file will contain the sentences below:  
   My name is letter X.  
   I am the 24th letter of the alphabet.  
   Make sure you use the correct ending for the letter’s number (e.g. 1st, 2nd, 3rd, etc.)**
3. **Create a csv file called “students.csv” and add the following text inside of it:  
   id,fname,lname,age,grade  
   1,Maria,Popescu,31,7.5  
   2,Andrei,Ionescu,26,8.0  
   3,Adriana,Marinescu,21,7.5  
   4,Matei,Gheorghescu,42,8.5  
   5,Eusebiu,Pop,33,9.5  
   6,Ioana,Popa,29,9.0  
   Read the file using Python’s `csv` standard library, and display it in the terminal as a table, using the options for string formatting from Python:**id fname lname age grade

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1 Maria Popescu 31 7.5

2 Andrei Ionescu 26 8.0

3 Adriana Marinescu 21 7.5

4 Matei Gheorghescu 42 8.5

5 Eusebiu Pop 33 9.5

6 Ioana Popa 29 9.0

1. **Read again the information from the csv file above, store it all in a list of data, and then write a new file, called “students.json”, which will contain a valid JSON object. Use the following format for each student (and use Python’s standard JSON module):**[

{

"id": 1,

"fname": "Maria",

"lname": "Popescu",

"age": 31,

"grade": 7.5

},

...

]

1. **Create a new PyCharm project. Make sure it has a virtualenv. Install all the following packages from** [**PYPI**](https://pypi.org/)**:  
   behave  
   behave-html-formatter  
   requests**

**selenium  
webdriver-manager  
Use pip to create a `requirements.txt` file. Send your project to a colleague and ask them to install all dependencies using pip.**

**SQL**

1. **Write a SQL statement to create a table called continents, with the following columns:**
   1. **continent\_id**
   2. **continent\_name**
   3. **continent\_code – 2 letters code, use** [**this link**](https://datahub.io/core/continent-codes)
2. **Using the link above, write all SQL statements needed to add all the seven continents (INSERT).**
3. **Write a SQL statement to create a table called countries, with the following columns:**
   1. **country\_code – 2 letters code (e.g. RO, US, IT, etc)**
   2. **country\_name**
   3. **continent\_id – foreign key**
   4. **population – number**
4. **Write a few SQL statements to add some countries.** [**Here is a list of countries with their codes**](https://datahub.io/core/country-list)**. Feel free to invent or approximate their populations, and use your geography knowledge for their continent. Add at least 10 countries, as diverse as possible (INSERT). Examples:  
   – Romania, EU, 19mil  
   – USA, NA, 330mil  
   – France, EU, 70mil  
   – Hungary, EU, 9mil  
   – Canada, NA, 40mil  
   – China, AS, 1450mil  
   – Belgium, EU, 12mil  
   – Egypt, AF, 110mil  
   – Australia, OC, 25mil**
5. **Write a SQL statement to select all countries, ordered by name. Write another statement to count them all.**
6. **Write a SQL statement to select only countries with a population greater than 20 millions.**
7. **Write a SQL statement to select only countries that start with a certain letter (choose one that exists for you, e.g. C in the example above).**
8. **Write a SQL statement that groups all countries by continents, and counts them.**
9. **Write a SQL statement that groups all countries by continent, and computes the total population per continent (SUM).**
10. **Extra exercises can be found online:**[**W3Schools**](https://www.w3schools.com/mysql/exercise.asp?filename=exercise_select1)[**OneCompiler**](https://onecompiler.com/mysql)