**DNCS Python for networks and information security, 2021**

Solve the exercises and copy your solutions into this word document. Make sure you have both the source code and example screenshots of successfully running the program. Return the document with the solutions in the Teams return box.

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1)

Programmatically read the file hw\_4\_1.json.

a) print the JSON on screen indented in human readable form.

b) add a new key “Owner” to the top level of the JSON (the same level which currently has the key “SensorData”) and as its value give your first name.

c) write this new JSON to a file called hw\_4\_1\_modified.json

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2)

Let’s assume there is a table called “Students” in our dncs-db on the shared virtual machine. This table has fields “Name”, “Points” and “ChangedLast”. “Name” contains text. “Points” contains integer value from 0 to 150. “ChangedLast” contains an integer value containing epoch time stamp of the latest change to the points value.

Write a python script that queries the database for all the students and their points values and timestamps whose points values are > 49. The script prints the results on screen ordered by the points value.

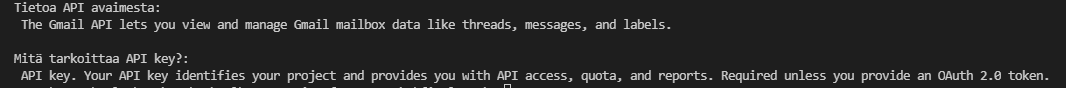
In order to test your program, you will need to create the database table, insert some data into it and print the results of the query.

3)

Write a python script that requests data from any open API, modifies the reply and prints the results on screen.

Bonus points will be granted for this exercise for using non-trivial APIs or handling the API reply in non-trivial manner.

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4)

Write a python script that prints the contents of the current directory just like “ls -l”, with the exception it never shows lines containing the substring “Esteri” in them.

Hint: Use readlines() -method on the object returned by popen(). You can parse the strings by using the string method .find() which returns first index of the substring that it finds. Check online documentation for more information.

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