1. **List filtering.**

There’s a list:

*l = [1, 2, '3', 4, None, 10, 33, 'Python', -37.5]*

Implement a function that will filter only integer (int) values from this list.

Implement using all 3:

* “for” loop
* list comprehensions
* filter() + lambda

Example:

def filter\_list(l):

return # [1, 2, 4, 10, 33]

Check yourself:

filter\_list([1,2,'a','b']) == [1,2]

filter\_list([1,'a','b',0,15]) == [1,0,15]

filter\_list([1,2,'aasf','1','123',123]) == [1,2,123]

1. **IP validation.**

Write a function to validate an IP address.

Example:

def check\_ip(ip\_address):

return True/False

Check yourself

assert check\_ip('') is False

assert check\_ip('192.168.0.1') is True

assert check\_ip('0.0.0.1') is True

assert check\_ip('10.100.500.32') is False

assert check\_ip(700) is False

assert check\_ip('127.0.1') is True

1. **Working with 'csv' and 'json' structures.**

There is a file cars.csv

Use the csv library to read the contents of the file.

Convert data to json format and save to cars.json file.

Notes:

* use csv.DictReader
* use json.dump с параметром indent=2
* use context manager to create a file

Check yourself:

bash$ cat ../task\_23/cars.json

[

{

"Year": "1997",

"Make": "Ford",

"Model": "E350"

},

{

"Year": "2000",

"Make": "Mercury",

"Model": "Cougar"

},

{

"Year": "2006",

"Make": "Dacia",

"Model": "Logan"

}

]

1. **Unix `find' on Python.**

Similar to the Unix find utility, implement a module in Python to search for files and directories on a file system.

Pay attention to the find\_util script

bash$ ./find\_util /usr/ -name "\*.pyc" -type f

Where "\*.pyc" is a file name pattern in shell-pattern format

Notes:

* use os.walk
* use os.path.join
* to check the file name for matching the pattern, use fnmatch.

1. **Unix 'ls -lh' on Python.**

Similar to the ls -lh command for Unix systems, implement a module in Python that displays the contents of a directory

Notes:

* To get the contents of a directory use os.listdir
* Use os.stat to get information about each file
* Use prettytable library

1. pip install prettytable
2. Column names: Mode, Owner, Group, Size, File name