

TopGear Assignments

Python Scripting – L1

Estimated Effort: 2PDs

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Total Points: 100

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Required VDI: Python 2.7 or 3.6

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This set of assignments tests application of following features of Python

- String operations
- File operations
- Lists
- Exception handling
- Commandline arguments
- Implementation of functions

Code submitted should meet the following guidelines:

- Python version – either 2.7 or 3.6
- Code filename : as specified in each exercise
- Input filename & output filename should not be hardcoded, unless it is stated as part of the problem specification

Exercise – 1: Filename: ex1.py

Implement the function **ruler()** which takes a number (for example, 43) as argument, and produces output as shown below.

```
          1          2          3          4
1234567890123456789012345678901234567890123
```

(note: 1st row values are aligned to respective 0s of the 2nd row)

Test correctness of the function with the following values :

5, 10, 25, 51 and 80

Exercise – 2: Filename: ex2.py

Implement the function **isWhiteLine()**, which takes a string and returns TRUE if the string contains only white space & tab characters.

Making use of the above function, write a program, which should read a file given as command-line argument, and print only non-blank lines onto the standard output.

Exercise – 3: Filename: ex3.py

Implement the function **isListOfInts()**, which takes a list, and checks if the list has only "int" type values, as per the specification given below:

- The function should return True, if the list has only "int" type values, otherwise should return False.
- The function should return True, if an empty list is passed as argument.
- If the argument is not of 'list' type, then the function should throw ValueError exception, with the error message 'arg not of <list> type'
- The function should have only one return statement.

To test correctness of the function **isListOfInts()**, implement the function **testList()** which is called as shown below and should produce output as indicated.

Function call	Expected output
testList([])	[] --> True
testList([1])	[1] --> True
testList([1,2])	[1, 2] --> True
testList([0])	[0] --> True
testList(['1'])	['1'] --> False
testList([1,'a'])	[1, 'a'] --> False
testList(['a',1])	['a', 1] --> False
testList([1, 1.])	[1, 1.0] --> False
testList([1., 1.])	[1.0, 1.0] --> False
testList((1,2))	ValueError: (1, 2) - arg not of <list> type

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