

Homework 3

Regular deadline April 14th 11:59pm

Late deadline April 16th 11:59 pm

Note: For this homework you are only allowed to use concepts and functions taught in the class. For example you are NOT allowed to use `set()` , `intersection()` etc For taking the input lists you can use `.split()` to get the individual numbers.

Q1. 30 points

Given two lists of numbers output the numbers which are in both lists.

Note: You may assume no numbers are repeated within a single list

Sample output:

Please enter a list of numbers:

1 5 2 3

Please enter a second list of numbers:

5 6 1

The numbers in both lists are: 1 5

Q2. 30 points

Given two lists of numbers output the numbers which are in one list or the other.

Sample output:

Please enter a list of numbers:

1 5 2 3 1 3

Please enter a second list of numbers:

5 6 1

The numbers in one list or the other are: 1 5 2 3 6

Q3. 40 points

Take a string from the user and output if it a valid variable name. A variable name is valid if it contains only alphabets, numbers and the underscore character. Additionally it can not start with a number

Sample output I:

Please enter a variable name: abc_123

abc123 is valid

Sample output II:

Please enter a variable name: 1ab

1ab is not valid

Sample output III:

Please enter a variable name: abc__d

abc__d is valid

Sample output IV:

Please enter a variable name: abc%\$d

Abc%\$d is not valid

Q4. Extra credit 30 points

You are given n and a list of numbers which contain the numbers 1 through n with one of them repeated. Output which number is repeated without using .count()

Note: for this question checking if a number j is in a list lst twice by using the `lst.count(j) == 2` is not allowed. You have to write your own code to perform this check if you intend to use it

An additional 20 points if you can do this using a single loop

Sample output I:

Please enter n: 5

Please enter the list: 1 2 5 4 3 3

The repeated number is 3

Sample output II:

Please enter n: 4

Please enter the list: 2 3 4 1 2

The repeated number is 2

Sample output III:

Please enter n: 7

Please enter the list: 5 4 7 3 1 2 6 3

The repeated number is 3