

Homework 7 (Max Points:100)

Due Date: March 18 by 11:59 pm EST

Instructions: Each response should be in a .py file. Submit all your code to

<https://submittity.cs.rpi.edu>

Answer the following questions:

1. Consider a nested list for example: [['a', 'b', 'c'], ['d', 'e', 'f'], ['g', 'h']]. Write a program that prints all the letters in the list as a single string for example 'abcdefgh' in this case. **(30 points)**. *Hint: Write a nested for loop.*

2. Write a function to check if a number is perfect or not.

“In number theory, a perfect number is a positive integer that is equal to the sum of its proper positive divisors, that is, the sum of its positive divisors excluding the number itself (also known as its aliquot sum). Equivalently, a perfect number is a number that is half the sum of all of its positive divisors (including itself). For example : The first perfect number is 6, because 1, 2, and 3 are its proper positive divisors, and $1 + 2 + 3 = 6$. Equivalently, the number 6 is equal to half the sum of all its positive divisors: $(1 + 2 + 3 + 6) / 2 = 6$. The next perfect number is $28 = 1 + 2 + 4 + 7 + 14$.” This explanation is taken from Wikipedia. **(40 points)**

3. Write a Python function that takes a list and returns a new list with unique elements of the first list. **(30 points)**

Test Cases

Sample List : [1,2,3,3,3,3,4,5]

Unique List : [1, 2, 3, 4, 5]