Source: https://github.com/darkprinx/100-plus-Python-programming-exercises-extended/blob/master/README.md

**1.Write a program which will find all such numbers which are divisible by 7 but are not a multiple of 5, between 2000 and 3200 (both included).The numbers obtained should be printed in a comma-separated sequence on a single line.**

**2. Write a program which can compute the factorial of a given numbers. The results should be printed in a comma-separated sequence on a single line. Suppose the following input is supplied to the program: 8 Then, the output should be:40320**

**3. With a given integral number n, write a program to generate a dictionary that contains (i, i x i) such that is an integral number between 1 and n (both included). and then the program should print the dictionary. Suppose the following input is supplied to the program: 8**

**4. Write a program which accepts a sequence of comma-separated numbers from console and generate a list and a tuple which contains every number. Suppose the following input is supplied to the program:**

**5. Define a class which has at least two methods:**

* **getString: to get a string from console input**
* **printString: to print the string in upper case.**

**Also please include simple test function to test the class methods.**

**6. Write a program that calculates and prints the value according to the given formula:**

**Q = Square root of [(2 \_ C \_ D)/H]**

**Following are the fixed values of C and H:**

**C is 50. H is 30.**

**D is the variable whose values should be input to your program in a comma-separated sequence. For example Let us assume the following comma separated input sequence is given to the program:**

**input: 100,150,180 output: 18,22,24**

**7. \_Write a program which takes 2 digits, X,Y as input and generates a 2-dimensional array. The element value in the i-th row and j-th column of the array should be i \_ j.\***

**Note: i=0,1.., X-1; j=0,1,¡­Y-1. Suppose the following inputs are given to the program: 3,5**

**Then, the output of the program should be:**

**[[0, 0, 0, 0, 0], [0, 1, 2, 3, 4], [0, 2, 4, 6, 8]]**

**8.** Write a program that accepts a comma separated sequence of words as input and prints the words in a comma-separated sequence after sorting them alphabetically.

Suppose the following input is supplied to the program:

**without,hello,bag,world → bag,hello,without,world**

**9.** Write a program that accepts sequence of lines as input and prints the lines after making all characters in the sentence capitalized.

Suppose the following input is supplied to the program:

**Hello world**

**Practice makes perfect**

**output: HELLO WORLD**

**PRACTICE MAKES PERFECT**

**10.** Write a program that accepts a sequence of whitespace separated words as input and prints the words after removing all duplicate words and sorting them alphanumerically.

Suppose the following input is supplied to the program:

**input: hello world and practice makes perfect and hello world again**

**output: again and hello makes perfect practice world**

**11.** Write a program which accepts a sequence of comma separated 4 digit binary numbers as its input and then check whether they are divisible by 5 or not. The numbers that are divisible by 5 are to be printed in a comma separated sequence.

**Input: 0100,0011,1010,1001**

**output: 1010**

**12.** Write a program, which will find all such numbers between 1000 and 3000 (both included) such that each digit of the number is an even number. The numbers obtained should be printed in a comma-separated sequence on a single line.

**13.** Write a program that accepts a sentence and calculate the number of letters and digits.

Suppose the following input is supplied to the program:

**input:hello world! 123**

**output: LETTERS 10** DIGITS 3

**14.** Write a program that accepts a sentence and calculate the number of upper case letters and lower case letters.

Suppose the following input is supplied to the program:

**Hello world! → UPPER CASE 1**

LOWER CASE 9

15. Write a program that computes the value of a+aa+aaa+aaaa with a given digit as the value of a.

Suppose the following input is supplied to the program:

9 → 11106 [ (9 + 99 + 999 + 9999) ]

**16.** Use a list comprehension to square each odd number in a list. The list is input by a sequence of comma-separated numbers. **>**Suppose the following input is supplied to the program:

**1,2,3,4,5,6,7,8,9 → 1,9,25,49,81**

**17.** Write a program that computes the net amount of a bank account based a transaction log from console input. The transaction log format is shown as following:

**D 300**

D 300

W 200 → 500

D 100

**18.** A website requires the users to input username and password to register. Write a program to check the validity of password input by users.

Following are the criteria for checking the password:

* At least 1 letter between [a-z]
* At least 1 number between [0-9]
* At least 1 letter between [A-Z]
* At least 1 character from [$#@]
* Minimum length of transaction password: 6
* Maximum length of transaction password: 12

Your program should accept a sequence of comma separated passwords and will check them according to the above criteria. Passwords that match the criteria are to be printed, each separated by a comma.

Example

If the following passwords are given as input to the program:

**ABd1234@1,a F1#,2w3E\*,2We3345 →** [**ABd1234@1**](mailto:ABd1234@1)

**19.** You are required to write a program to sort the (name, age, score) tuples by ascending order where name is string, age and score are numbers. The tuples are input by console. The sort criteria is:

* 1: Sort based on name
* 2: Then sort based on age
* 3: Then sort by score

The priority is that name > age > score.

If the following tuples are given as input to the program

**Tom,19,80**

John,20,90

Jony,17,91

Jony,17,93

Json,21,85

**output: [('John', '20', '90'), ('Jony', '17', '91'), ('Jony', '17', '93'), ('Json', '21', '85'), ('Tom', '19', '80')]**