Dear Participant,

Welcome to **Python Development** track of Spectrum Internship drive. "*Python is a powerful general-purpose programming language used in web development, data science, creating software prototypes, and so on"* Your internship will be basically divided into **3 phases**, each one with it's own tasks and questions. Each stage will have its own time limit.
Go through the task and the details minutely, and prepare yourselves well in advance with the resources, so at the end of the internship, you will be a person having that much of knowledge to explore other tools of python development

Welcome to the **Stage 1.**

You are provided with following **Task 1.** This task is based on some python basics which is at a very beginner level. You have to submit it by given date.

TASK 1 :

Prerequisites::
- Basic knowledge of programming concepts

Tasks:-
Solve the given questions:

1. You are given a string and you have to swap cases i.e. to convert uppercase to lowercase and vice-versa.
   Ex: inTERshiP.speCTrum.coM -> INterSHIp.SPEctRUM.COm

2. Given a number find the number of zeros in the factorial of the number.
   Ex: input : 100 -> output : 24.

3. Given an integer 'n' find all prime numbers from 1 to n.
   Ex : input : 7 -> output : 2, 3, 5, 7.

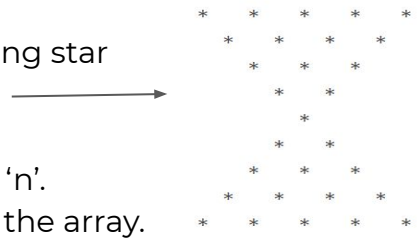
4. Given an array of integers 'a[ ]' find the greatest common divisor(GCD) of those numbers.
   Ex: a[ ] = { 16, 8, 256, 1024 } -> output : 8.

5. Perfect number is a positive number which is equal to the sum of its factors. Ex : 28 = 1 + 2 + 4 + 7 + 14. Given a number 'n' find the first n perfect numbers.
   Ex : input : 3 -> output : 6, 28, 496.

6. Given a string 's' and a string 'f', find no of times string f occurs in string s.
   Ex : input : s = 'ABABAABA', f = 'AB' -> output : 3.

7. Given an array 'a[ ]' and a value 'k', find if there is a triplet in the array whose sum is equal to the value.
   Ex : input : a[ ] = { 12, 4, 5, 19, 11 } , k = 35 ;-> output : 5, 19, 11.

8. Write a python program to display the following star pattern:



9. Given an array 'a[ ]' of integers and an integer 'n'.
   You have to print the n'th smallest integer in the array.
   Ex: input : a[ ] = { 7, 15, 3, 4, 18, 1 } , n = 2 -> output : 3.

The above tasks are to be submitted by:

Make individual python file for each question and save it as **'prgm1.py'** for 1st question and so on. Create a folder keep all the files there. Then,

1. Upload it to google drive, click Share, then click on "Change to anyone with the link", then Copy Link, and submit that link in the Dashboard.
2. Or create a public repository in Github and upload the folder there and submit the link in the dashboard.

LAST DATE OF SUBMISSION:

29/06/2021

Warm regards,
SPECTRUM, CET-B