



Department of Computer Science and Engineering
PES University, Bangalore, India

Lecture Notes

Python for Computational Problem Solving

UE23CS151A

Lecture #69
Problem solving using Generators

By,
Prof. Priyanka S
Assistant Professor
Dept. of CSE, PESU

Verified by,
Prof. Sindhu R Pai,
Anchor, PCPS – 2023
Assistant Professor
Dept. of CSE, PESU

Many Thanks to
Dr. Shylaja S S (Director, CCBD and CDSAML Research Centers, Former
Chairperson, CSE, PES University)
Prof. Chitra G M (Asst. Prof, Dept. of CSE, PCPS Anchor – 2022)

Problems on Generators:

Solutions are available in this link:

https://drive.google.com/file/d/1wXNf0_f_R6SyADEEInO8A7QPHSNMrgm7/view?usp=drive_link

1. Create a generator program that yields cubes of numbers from 1 to n. Accept n from the user. Test the generator function.
2. Create a generator function that generates the square root, cube roots of numbers from 1 to n as a tuple.
3. Create a generator function that generates all prime numbers between two given numbers.
4. Creates a generator function that generates all prime factors of a given number.
5. Implement a generator function that generates the running average of a sequence of numbers.

The running average (or cumulative average) is the average of a sequence of numbers that is updated incrementally as new numbers are added to the sequence. It allows you to compute the average without having to recompute it from scratch every time a new number is added.

Sample collection is 10, 20, 30,40

1. After 1st number (10):

$$\text{Running Average} = \frac{10}{1} = 10$$

2. After 2nd number (20):

$$\text{Running Average} = \frac{10 + 20}{2} = 15$$

3. After 3rd number (30):

$$\text{Running Average} = \frac{10 + 20 + 30}{3} = 20$$

4. After 4th number (40):

$$\text{Running Average} = \frac{10 + 20 + 30 + 40}{4} = 25$$

6. Implement a generator function that generates all permutations of a given list of elements.
7. Implement a generator that yields all possible combinations of a given list of elements. Input the length of combination required.
8. Create a generator function that generates the next palindrome number after a given number.

- END -