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Python and GNUPlot Basic

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Submission Guidelines for assignment

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1. In the file readme.txt in the team-name directory, which contains the contribution of each team member, roll number and references (cite where you get code/code snippets from).

2. Rename the directory team-name to actual team name instead of
E.g. Coders

3. Compress the directory to <team_name>.tar.gz
e.g. coders.tar.gz

4. Submit one assignment per team. Please.

5. For every python problem, you have to define a function in your script, make sure the name of the function is the same as defined in each problem. Use python3 available in the lab machines.

Problem 1

Given L, a list which contains a list of strings, the function concatenates all the strings occurring inside this list of lists into one single string using space as a separator.

Important: You must use lambda expression and reduce to define functions which are to be called upon. NO LOOPING ALLOWED.

Example: L = [["this","is"], ["an", "interesting", "python"], ["programming", "exercise."]]

Function Def: collapse(L)

Returns: "this is an interesting python programming exercise."

Filename: p1.py

Problem 2

Given a list L, your function should take this List L and number N as an argument. It should be able to return List of lists that are split by taking the Nth element of the input list.

Important: Has to be done using itertools

Example L = ['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j', 'k', 'l', 'm', 'n']
N = 3

Function Def: nList(L, N)

Returns: [['a', 'd', 'g', 'j', 'm'], ['b', 'e', 'h', 'k', 'n'], ['c', 'f', 'i', 'l']]

Filename: p2.py

Problem 3

Write a Python function which implements Sieve of Eratosthenes method for computing primes up to a specified number.

Important: Your code must accomplish this using a combination of Lambda functions, map,reduce and filter.

You can use at most one loop for 90% marks on this problem. Full marks only if you do it without any loop. For any more loops than one, no marks.

For N =10,

Function Def: genPrime(N)

Returns [2, 3, 5, 7]

Filename: p3.py

Problem 4

Identify the simple plot and plot the figure “Plot4.png”

What to submit?

In the folder structure itself
4.gnuplot, 4.png

Problem 5

Identify and plot the four polynomial functions as shown in figure “Plot5.png”

What to submit?

In the folder structure itself
5.gnuplot, 5.png