

## **Programming and Data Structures with Python Lab**

### **Lab6. Implementation of Map, Filter and Reduce Functions**

Reference: <https://ocw.mit.edu/ans7870/6/6.005/s16/classes/25-map-filter-reduce/>

**Question1.** Write a program to implement MAP function. Find the square root of a list of numbers [1, 2, 4, 6] using map and sqrt functions. Check the answer against your user defined function **mymap()**.

**Question2.** Write a program to implement FILTER function. Filter all upper case letters in a list ['x', 'Y', '2', '3', 'Z', 'b'] using filter function. Check the answer against your user define function **myfilter()**.

**Question3.** Write a program to create a lambda function that takes two characters and concatenates them. Now, apply this function inside REDUCE function that will reduce the list of characters ['a', 'b', 'c', d] with the intial value 'x'.

**Question4.** Imagine an accounting routine used in a book shop. It works on a list with sublists, which look like this:

Order No	Book Title and Author	Quantity	Price per Item
34587	Learning Python, Mark Lutz	4	40.95
98762	Programming Python, Mark Lutz	5	56.80
77226	Head First Python, Paul Barry	3	32.95
88112	Einführung in Python3, Bernd Klein	3	24.99

Write a Python program, which returns a list with 2-tuples. Each tuple consists of an order number and the product of the price per items and the quantity. The product should be decreased by RS 10 if the value of the order is smaller than RS 100.00. Write a Python program using **lambda** and **map** functions.