Homework 4 *(Due: Sep 20)*
Python Programming for Data Science - COSC 3360

Department of Computer Science and Electrical Engineering

Fall Semester, 2022

Exercises

*Create a **New Project** for every exercise. Take a screenshot of the source code along with its output and place the **source code** and the **screenshot** in a **zipped folder** named **LastNameFirstName_HW4***

Exercise 1

Create a **lambda** expression that computes the square root of a number (including real numbers, e.g., 3.14); the number is given as user input. Do not use the built-in function **sqrt()**, use the ** operator instead

Exercise 2

Given the following list: words = ['Anna', 'hELLo', 'rotor', 'wow', 'CS', 'kayAK', 'programming'], use the **filter()** function to filter out the non-palindrome words, i.e., your output *list* should contain **palindrome** words only

Note 1: You can use the built-in function **upper()** to convert a string to uppercase or the **round()** function to round a number

Note 2: Your algorithm should be able to cope with both odd as well as even length words, e.g., 'wow' or 'Anna'

Exercise 3

Given the following list: numbers = [23, 2, 9, 7, 14, 18, 3, 24, 16, 5, 8, 97], use the **filter()** function to filter out non-prime numbers, i.e., your output *list* should contain **Prime** numbers only

Note 1: A **Prime** number is a number that is divisible by 1 and by itself only, e.g., 2, 3, 5, 7, 11

Note 2: Do not manually hardcode any list that contains some of the **Prime** numbers and use it for comparison against the numbers list

See overleaf

Exercise 4

Ask user to enter a sentence, e.g., **Computer Science is an amazing field of study**. Pass sentence to function **str2words()** and convert the string/sentenct into words; place individual words, e.g., **'Computer'**, **'Science'**, etc. into a **list** and return **list** to *main* program (your list should contain 8 elements if the above sentence is entered). In addition, the individual words should not contain any whitespaces appended to the end of the word such as **'Science '**

Note: Do not use any built-in functions to convert a string to words

Note: Submit through **Canvas**