

Programming Fundamentals LAB – BSDSF21

(Both Morning and Afternoon)

Lab 07 – 25-02-2022

YOU may USE Command Prompt to interpret and execute all the PYTHON programs. Use of any IDE, except **Mu Editor** is not allowed for this LAB, despite you are expert. Unless and until you convinced me in personal capacity.

You must test these functions created for following tasks with various appropriate call from main functions.

Tasks 1 (10 each)

1. Write function to return the count of vowels in a string passed as its only parameter.
2. Write a function to verify a string passed as its only parameter is composed of digits only. The function named **isNumber(s)** return a Boolean value according.
3. Write a function **noTabs(s)** to return another string with all tab characters (**\t**) replaced with a sequence of 3 spaces.
4. Write a function **properCase(s, N)** to return another string which is in proper case of **s**. Here, we need to capitalize all alphabet in a string with appears after spaces or full stop, and also need to un capitalize all other alphabets appeared in the string.

Tasks 2 (6 each)

You are provided **vector3** UDT, understand it create a comprehensive UDT for rational numbers. Rational number are pair of integers **p, q** where **q ≠ 0**. to search knowledge / formulae required to solve the following questions. The comprehensive UDT for rational numbers must include the following functionalities, along with class definition:

1. Create rational number from one and two integers
2. Simplification of rational number
3. Conversion to the string form => (p, q)
4. Unary minus operation and reciprocal of rational number
5. Binary addition and subtraction operations
6. Binary multiplication and division operations
7. Binary conditional operations
8. Conversions to other appropriate data type
9. Conversions from other appropriate data type
10. Conversion from an appropriate string

Note: The function must the Exception whenever required.

For practice, you can do the similar task for a 2 X 2 matrix UDT.

Thanks, for your patience