

## Programming Fundamentals *Lab*

(BS-CS-F22 Morning)

### Lab # 4

#### Instructions:

Attempt the following tasks exactly in the given order. For each task, you must create a separate file in **VSCode**.

You must complete all tasks individually. Absolutely NO collaboration is allowed.

Any traces of plagiarism/cheating would result in an “F” grade in this course.

**Indent** your code properly(There are special marks for this).

Use meaningful variable names. Use the **camelCase** notation to name variables.

Use meaningful prompt lines/labels for all input/output that is performed by your programs.

**Don't use an online compiler.**

**Submission:** Submit your lab on this email id: [BCSF20M012@pucit.edu.pk](mailto:BCSF20M012@pucit.edu.pk)

*Time: 11:59 pm Friday.*

Write C programs for the following tasks:

#### Task1

Make a C program that emulates a basic calculator. It should have addition, subtraction, multiplication, and division functions. To execute computations, the user should be able to enter two integers and an operator. For example: user input=3\*4, then output=12 using a function.

#### Task2

Create a C program that transforms numbers across number systems (for example, decimal to binary, decimal to hexadecimal). For conversion, use functions. For example: user input 3, if user say decimal to binary then output =011

### **Task3**

Create an enum to represent different user roles like ADMIN, USER, and GUEST. Then, using the provided enum, develop a C program that demonstrates how to authenticate people based on their roles. For user authentication suppose your own logic or design. For example: if user is admin then display user can DELETE, CREATE, UPDATE and other CRUD operations.

### **Task4**

Create a custom enum for various geometric shapes (for example, CIRCLE, RECTANGLE, and TRIANGLE). Create functions to compute the area and perimeter of these shapes. Create a program that will ask the user to enter the shape and then call the respective function and calculate and show the area and perimeter of various forms.

### **Task5**

Find out the lowest common factor (LCF) of two input numbers using a function.

*Best of luck!*

