



**FEU INSTITUTE OF TECHNOLOGY**

**COLLEGE OF COMPUTER STUDIES**

# **CCS007L**

## **(COMPUTER PROGRAMMING 2)**

### **EXERCISE**

# **1**

### **User Defined Functions and Parameters**

<b>Student Name / Group Name:</b>		
<b>Members (if Group):</b>	<b>Name</b>	<b>Role</b>
<b>Section:</b>		
<b>Professor:</b>		

## **I. PROGRAM OUTCOME/S (PO) ADDRESSED BY THE LABORATORY EXERCISE**

- Analyze a complex problem and identify and define the computing requirements appropriate to its solution. [PO: B]

## **II. COURSE LEARNING OUTCOME/S (CLO)ADDRESSED BY THE LABORATORY EXERCISE**

- Understand the fundamental principles of C-string manipulations, pointer and memory allocation and structures using C++ [CLO: 1]

## **III. INTENDED LEARNING OUTCOME/S (ILO) OF THE LABORATORY EXERCISE**

At the end of this exercise, students must be able to:

- Identify User-Defined Functions
- Identify Types of User-defined Functions in C++
- Create User defined functions in a C++ program
- Understand Parameters and Arguments
- Understand Function Overloading

## **IV. BACKGROUND INFORMATION**

### **Functions:**

- Procedure, subprograms, and method
- A function may return a value (produce a value) or may perform some action without returning a value.
- Functions that do not return a value are called void functions.

### ***User defined functions***

- You can define your own functions, either in the same file as main part of your program or in a separate file so that the functions can be used by several different programs.

## V. GRADING SYSTEM/ RUBRIC

<b>Trait</b>	<b>(Excellent)</b>	<b>(Good)</b>	<b>(Fair)</b>	<b>(Poor)</b>
<b>Requirement Specification(30pts)</b>	Able to identify correctly all input and output and provide alternative. <b>(28-20pts)</b>	Able to identify correctly all input and output <b>(25-17pts)</b>	Able to identify only one input or output <b>(22-14pts)</b>	Unable to identify any input and output <b>(20-11pts)</b>
<b>Data type(20pts)</b>	Able to apply required data type or data structure and produce correct results <b>(18-20pts)</b>	Able to apply required data type or data structure and produce partially correct results <b>(15-17pts)</b>	Able to identify required data type or data structure but does apply correctly <b>(12-14pts)</b>	Unable to identify required data type <b>(9-11pts)</b>
<b>Input Validation(20pts)</b>	The program works and meets all specifications. Does exception al checking for errors and out-of- range data <b>(18-20pts)</b>	The program works and meets all specifications. Does some checking for errors and out of range data <b>(15-17pts)</b>	The program produces correct results but does not display correctly Does not check for errors and out of range data <b>(12-14pts)</b>	The program produce s incorrect results <b>(9-11pts)</b>
<b>Free from syntax, logic, and runtime errors (10pts)</b>	Unable to run program <b>(10pts)</b>	Able to run program but have logic error <b>(8-9pts)</b>	Able to run program correctly without any logic error and display inappropriate output <b>(6-7pts)</b>	Able to run program correctly without any logic error and display appropriate output <b>(5pts)</b>
<b>Delivery (10pts)</b>	The program was delivered on time <b>(10pts)</b>	The program was delivered after 5 minutes from the time required. <b>(8-9pts)</b>	The program was delivered after 10 minutes from the time required. <b>(6-7pts)</b>	The program was delivered after 15 (or more) minutes from the time required. <b>(5pts)</b>
<b>Use of Comments (10pts)</b>	Specific purpose is noted for each function, control structure, input requirements, and output results. <b>(10pts)</b>	Specific purpose is noted for each function and control structure. <b>(8-9pts)</b>	Purpose is noted for each function. <b>(6-7pts)</b>	No comments included. <b>(5pts)</b>

## VI. LABORATORY ACTIVITY

### INSTRUCTIONS:

Copy your source codes to be pasted in this document as well as a screen shot of your running output.

#### Activity 1.1 User defined Functions

The program will prompt the user to choose the operation choice (from 1 to 5). Then it asks the user to input two integer vales for the calculation

#### Example Program Output:

```
=====
                        MENU
=====

1.Add
2.Subtract
3.Multiply
4.Divide
5.Modulus
Enter your choice(1-5):1
Enter your two integer numbers:5 10

Result:15
Press y or Y to continue:y
```

#### ACTIVITY 1.2: User-defined Functions (Passing by value)

Create a program with a user-defined function that compute the area of the following polygons and circle. You are to create one user-defined function for every computation. The functions must accept parameters by reference.

- Area of square given the side.
- Area of rectangle given the length and width.
- Area of triangle given the base and height.
- Area of circle given the radius.

EXAMPLE PROGRAM OUTPUT:

<pre> ***** MENU ***** [1] - Area of square [2] - Area of rectangle [3] - Area of triangle [4] - Area of circle [5] - exit ----- Enter your choice: 1 ----- AREA OF SQUARE ----- Enter the side of the square: 10  The area is 100 sq. units </pre>	<pre> ***** MENU ***** [1] - Area of square [2] - Area of rectangle [3] - Area of triangle [4] - Area of circle [5] - exit ----- Enter your choice: 2 ----- AREA OF RECTANGLE ----- Enter the length and width of the rectangle: 20 10  The area is 200 sq. units </pre>
<pre> ***** MENU ***** [1] - Area of square [2] - Area of rectangle [3] - Area of triangle [4] - Area of circle [5] - exit ----- Enter your choice: 3 ----- AREA OF TRIANGLE ----- Enter the base and width of the height: 8 4  The area is 16 sq. units </pre>	<pre> ***** MENU ***** [1] - Area of square [2] - Area of rectangle [3] - Area of triangle [4] - Area of circle [5] - exit ----- Enter your choice: 4 ----- AREA OF CIRCLE ----- Enter the radius: 20  The area is 125.6 sq. units </pre>

```

*****
MENU
*****
[1] - Area of square
[2] - Area of rectangle
[3] - Area of triangle
[4] - Area of circle
[5] - exit
-----
Enter your choice: 5
Thank you!
Press any key to continue . . .

```

*Snip and paste your source codes here. Snip it directly from the IDE so that colors of the codes are preserved for readability. Include additional pages if necessary.*

## VII. QUESTION AND ANSWER

Briefly answer the questions below. Avoid erasures. For group activity, specify the name of GROUP MEMBER/s who answered the question. Do not forget to include the source for all NON-ORIGINAL IDEAS.

- |   |
|---|
| <ul style="list-style-type: none"><li>• What is a Function? What are the advantages of using it?</li></ul>                      |
| <ul style="list-style-type: none"><li>• What is the difference between predefined function and user defined function?</li></ul> |

## VIII. REFERENCES

- Zak, Dianne (2016). An Introduction to Programming with C++
- Deitel, Paul & Deitel, Harvey (2012). C++ How To Program, Eighth Edition
- <https://www.cprogramming.com/tutorial/lesson4.html>