

CL-1002
Programming Fundamentals
Lab # 13

Objectives:

- Practice and understanding on basic C++ programs
- Functions
- Pass by value
- Pass by reference
- Array as a function parameter

Note: Carefully read the following instructions (*Each instruction contains a weightage*)

1. First think about statement problems and then write your program.
2. Write Program in C/C++ compiler/IDE and save source file **for each program**.
3. **Do not copy from any source otherwise you will be penalized with negative marks.**
4. Complete your lab **within given Time Slot**.
5. Add your source code in this word document + Make one ZIP file of your all source codes.
6. Please submit your **Both files** with this naming convention **ROLLNO_SECTION_LABNO**.
7. Submit your lab on Google Classroom.

Problem 1:

Write a c++ program to make a simple calculator that perform +,-,*,%. Declare functions *cal_mul()*, *cal_add()*, *cal_sub()*, *cal_div()* and *disp()* function to display result. Return type of all the function is void.

Problem 2:

Write a c++ program that takes an 2d-array from user and multiply each element of array with 5 and display the array after multiplication. Write one function *take_num()* for input and function *mul_arr()* to perform multiplication. *take_num()* function call the *mul_arr()* function, another function *disp_array()* is used to display the array before and after multiplication. Return type of both functions is void.

Problem 3:

Write a C++ program that uses pass by reference to reverse a given string entered by the user.

Problem 4:

Write a C++ program that uses pass by reference to perform the following tasks:

1. Create a function to find the maximum and minimum values in an integer array entered by the user.
2. Create a function to calculate the average value of the elements in an integer array entered by the user.
3. Create a function to search for a given integer value in an integer array entered by the user, and return its index using pass by reference.

Your program should display a menu with the above options and ask the user to choose an operation. After the user chooses an operation, your program should prompt the user to enter the integer array for the chosen operation. Your program should then call the appropriate function based on the user's choice, and display the result of the operation.

Problem 5:

Write a C++ program that uses pass by reference to perform the following tasks:

1. Create a function to find the determinant of a 2x2 matrix entered by the user.
2. Create a function to find the inverse of a 2x2 matrix entered by the user.
3. Create a function to multiply a 2x2 matrix entered by the user with a scalar value entered by the user.

Your program should display a menu with the above options and ask the user to choose an operation. After the user chooses an operation, your program should prompt the user to enter a 2x2 matrix for the chosen operation. Your program should then call the appropriate function based on the user's choice, and display the result of the operation.