

Object Oriented Programming Lab Spring 2019  
**Lab 1: Pointers-I**

### Instructions

- *Make your own file submission.cpp. Don't include our main function while submitting the file.*
  - Please read the questions carefully, read them twice even thrice to understand them completely.
  - In case of any query, please raise your hand and we will be there to solve your query.
  - Please concentrate, understand, and code. Good Luck: )
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### Task 1

Write a function named as *sumFloats* that takes four pointers to float variables as function parameters. You are required to compute sum of the first three variables that are pointed by the first three arguments and store the result at the address present in the fourth argument.

### Task 2

Write a function named as *sortArray1* which takes an array and its size as function parameters, you are required to sort the array such that odd numbers comes first and then even numbers. Odd and even values should not be reordered within their respective sub array i-e in the example given below if 4 comes before 2 in original array, it must be in the same order in sorted array.

hint: You can use another array to temporary store the values during sorting.

*Example:*

**Input:** a=4,1,3,2,5,7,9

**Output:** a=1,3,5,7,9,4,2

### Task 3

Write a function named as *sortArray2* which takes an array and its size as function parameters, you are required to sort the array such that odd numbers comes first and then even numbers. Even and Odd numbers must also be sorted in ascending order in their respective sub array. You are not allowed to use temporary array.

*Example:*

**Input:** a=4,5,3,2,1,7,9,10

**Output:** a=1,3,5,7,9,2,4,10

### Task 4

Write a function named as *reverseArray1* that takes an array of type integer and its size as function parameters. You are required to reverse the passed array.

**Example:**

Input: a=4,1,3,2,5,7,9

Output: a=9,7,5,2,3,1,4

## Task 5

Write a function named as *reverseArray2* that takes an array of type integer and its size as function parameters. You are required to reverse the passed array using pointer notation. You are not allowed to use temporary array.

## Task 6

Write a function named as *cubeRoot* that takes an integer pointer as function parameter and return its cube root value. You are required to compute the cube root of a number using pointer notation. Return the result as a float value.

## Task 7

Write a function named as *mutliplyBy2* that takes array of type double and its size of type integer as function parameters. You are required to multiply each value of a double type array with 2 using pointer notation.

Hint:double \*p in function parameter is used to store the starting address of array

## Task 8

Write a function named as *lengthOfString* which takes a string (char \*) as function argument and display it character by character. Also display starting address of the string. Also compute and return the length of above string.

## Task 9

Write a function named as *allocateMemory* that takes reference of two pointers to integers as function parameters:

1. Dynamically Allocate memory of 4 integers to each pointer inside function.
2. Store the sequential numbers starting from 1 on the allocated memory of first pointer 1,2,3,4 on first block and series starting with next number 5,6,7,8 in the next block.

## Task 10

Write a function named as *deallocateMemory* that takes two pointers to integers as function parameters and deallocates memory which was allocated in Last Task.

## Task 11

Write a function named as *createArray* which creates an array ptr of size 3 of type integer pointers, also create 3 int arrays p,q,r each of size 5. Store the starting address of each array on each index of ptr. Now print the values of arrays p,q,r by using pointer notation(ptr).