# Object Oriented Programming

## 05 - Programming Exercises
## Pointers and Arrays

**Program each of the following tasks in your C++ compiler. Keep compiling and executing even after writing a single line of code.**

### Task 1

Write a program that performs the following tasks!

1. Declare float variables named **f** and **t** and initialize them with **2.5** and **8.9** respectively.
2. Declare pointer variables **ptrF** and **ptrT** and initialize them with the addresses of **f** and **t** respectively.

Now print the following information:

1. The address of **f** and the value of **f**.
2. The address of **ptrF**, value of **ptrF** and the value of memory location where it points to.
3. The address of **t** and the value of **t**.

The address of **ptrT**, value of **ptrT** and the value of memory location where it points to.

### Task 02

Implement the following function named ***sumByPointer*** that accepts three pointers to integer.

```
void sumByPointer(int* ptrA, int* ptrB, int* ptrR);
```

The function should calculate the sum of the contents of memory locations pointed by first two pointers *(ptrA and ptrB)* and store the sum in third *(ptrR)*. The function should not display anything.

In **main** function asks the user to input two integers and then passes them to ***sumByPointer*** function. The result of addition should be displayed on the screen. No calculations should be performed in the **main** function.

### Task 03

Implement the following function named ***arrayByPointer*** that accepts a pointer to double and an integer to hold the size.

```
void arrayByPointer(double* ptrArray, int size);
```

The parameters ***ptrArray*** and ***size*** hold the starting address and the size of an array respectively.

The function should display the memory address of each array location along with its contents clearly. You are not allowed to use subscript operator [ ] in ***arrayByPointer*** function.

In the **main** function declare an array of size 10. Fill the array with arbitrary values and then pass it to ***arrayByPointer*** function along with its **size**.

### Task 04

Implement the following function named ***getEvenOddSum*** that accepts a pointer to integer and an integer to hold the size. The function accepts two additional pointers to integers to store the sum of even and odd elements in the array.

```
void getEvenOddSum(int* ptrArray, int size, int* ptrEvenSum, int* ptrOddSum);
```

The parameters ***ptrArray*** and ***size*** hold the starting address and the size of an array respectively.

The function calculates the sum of even and odd numbers exist in the array pointed by ***ptrArray*** and places them to the memory locations pointed by parameters ***ptrEvenSum*** and ***ptrOddSum*** respectively. *The function should not display anything.*

In the **main** function declare an array of size 10. Fill the array with arbitrary values and then pass it to ***getEvenOddSum*** function along with its **size**. Display the sum of even and odd numbers clearly on the screen. The **main** function should not perform any calculations.

☺ ☺ ☺ **Being a student is easy. Learning requires actual work.** ☺ ☺ ☺