The objective of this lab is to:

Understand and practice const data members, const member functions, pointer to objects and array of objects.

Instructions!

1. Please follow the dress code before coming to the lab. Keep your student identity cards with you.
2. This is an individual lab, you are strictly **NOT** allowed to discuss your solutions with your fellow colleagues, even not allowed asking how is he/she is doing, it may result in negative marking. You can **ONLY** discuss with your TAs or with me.
1. Strictly follow good coding conventions (commenting, meaningful variable and functions names, properly indented and modular code.
2. Save your work frequently. Make a habit of pressing **CTRL+S** after every line of code you write.
3. Beware of memory leaks and dangling pointers.
4. Create separate class header file (.h) and class definition file (.cpp) for each task.
5. Make member function `const` where appropriate.

Task 01: [10 Marks]

1. In a software company, an employee is considered to be working at least 40 hours a week. If the employee worked more than 40 hours then the extra hours will be paid on overtime basis. Each employee has an hourly pay rate according to his/her designation. An employee's salary can be calculated by the employee's hourly pay rate, and the number of hours worked. Where regular hours are paid according to the hourly pay rate and extra hours are paid at 1.5 times the hourly rate. For example, if an employee whose hourlyPayRate is Rs. 100 per hour has worked for 52 hours a week then his weekly salary will Rs. 11,800 (40 hours paid at the rate of Rs. 100 and 12 hours paid at the rate of Rs. 150). Design a class *Employee* that has data members to store the data of an employee.

```
class Employee
 {
 private:
       int EmployeeId;
       string name;
       string designation;
       int hourlyPayRate;
       int numberOfHoursWorked;
       const int WEEKLY_WORKING_HOURS;

 public:

       //a default constructor.
       // a parametrized constructor.
       // a destructor.
       // appropriate accessors and mutators.
       int calculateMonthlySalary();
       int calculateWeeklySalary();    // reset the counter to 0.
       int calculateOverTime(); // return the counter value.

 };
```

In the *main( )* function create some Employee objects to demonstrate your working.

Task 02: [15 Marks]

Create a class *Box*:

```
class Box
{
private:
	int length;
	int width;
	int height;

public:

	// Implement appropriate constructors, destructor, getter and setter functions.
	int getVolume();
};
```

Implement appropriate constructors, destructor, getter and setter functions. Using length, width and height compute and return the volume of the box from *getVolume* function.

In *main( )* function create an array of user given length to store *Box* objects. Populate the array with user given specification of Boxes. Then sort the array in asecding order according to the volume of the boxes stored in the array. Implement a global function to sort the array.

```
void sortArray(Box* boxArray, const int size);
```

Call this function in *main( )* to demonstrate its working.