Object Oriented Paradigm
Lab 04 Topic(s): Setters and Getters, Constructors (Default, Parameterized, Over loaded) and Delegation Constructor.

IMPORTANT INSTRUCTIONS:

Please keep in mind the following points while coding. Violating any of these will result in credit deduction.

- Create Default, Parameterized, overloaded & delegation constructors whether mentioned or not.
- Create Setters and Getters for all attributes.
- Follow the appropriate naming conventions as explained in class.
- Submit your files following the submission format explained in class.

Question No. 01

Create a class for complex numbers. A complex number has two parts, one REAL and one IMAGINARY (use both as pointers). Write functions to add, subtract and multiply two complex numbers. Write another function that increments the complex number by adding 1 to its real and imaginary part.

Hint: For addition, subtraction and multiplication, pass an object to the function.

Question No. 02

A class named Employee holds information of the employee comprising of Employee Code, Name, Date of Birth and Date of Joining. Write a driver program to create at least three objects of employee dynamically and enter some data into it (you may create more than 3 objects, however, at least three of them must be dynamic). Display the names and count of those employees who are older than 30 years.

Question No. 03

Define a class Car that has the following private attributes.

- name (pointer to a character array)
- manufacturer (pointer to a character array)
- color (pointer to a character array)
- year (integer)

Now write the following operations for the class:

- Write the default, parameterized.
- Write separate setter functions for each attribute to set their value.
- Write separate getter functions for each attribute to get their value.
- Write a 'display' function to display the car data on the screen.

Now do following operation in main function:

- Write a main function to create an object car1 of Car class using parameterized constructor.
- Create another object car2 of Car class using default constructor and copy car1 values to car2 object to it.
- Display values of all attributes of car2 using getter methods.
- Change the color of car1 and see its effects on color of car2.