University of Central Punjab

**Faculty of Information Technology**

# Object Oriented Programming

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| **Lab 06** | |  |
| **Topic** | Classes in C++ |
| **Objective** | The basic purpose of this lab is to revise some preliminary concepts of C++ that has been covered in the course of Introduction to Computing and Programming Fundamentals. Its objective is to recall previously learned basic concepts like revision of arrays, functions and pointers. |
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**Instructions:**

* Indent your code.
* Comment your code.
* Use meaningful variable names.
* Plan your code carefully on a piece of paper before you implement it.
* Name of the program should be same as the task name. i.e. the first program should be Task\_1.cpp

**Students are required to complete the following tasks in lab timings.**

**Task 1:**

Define a class **Car** having attributes

* name (char \*)
* model (char\* )
* noOfDoor (int\*)

Now do the following operations on the above-mentioned class:

* 1. Write **default constructor, parameterized constructor, and copy constructor.**
  2. Write separate setter functions for each attribute to set value (**with no memory leakage**).
  3. Write separate getter functions for each attribute to get value.
  4. Write a **destructor** (with an output statement to check the lifetime scope of the object)**.**
  5. Write a **display**() function to display attributes of class Car on screen.

Now write the main function to declare different objects of class Cat. Then call the display function against every object to see the information stored.

**Task 2:**

Define a class **Employee** having attributes

* name (char \*)
* hourly\_pay\_rate (float\*)
* working\_hours(int\*)

Now do the following operations on above-mentioned class:

1. Write **default constructor, parameterized constructor and copy constructor.**
2. Write separate setter functions for each attribute to set value (**with no memory leakage**).
3. Write separate getter functions for each attribute to get value.
4. Write a **destructor** (with an output statement to check the lifetime scope of object)**.**
5. Write a **display**() function to display attributes of class Employee on screen.
6. Write an AddSal() function, which adds $10 to the salary of the employee if it is less than $500
7. Write an “AddWork()” function, which adds $5 to the salary of the employee if the number of hours of work per day is more than 6 hours.

**Task 3:**

Write a C++ program to create a complex number class. Write getter setter, constructor, destructor, and all overloaded operators needed to run the given driver code.

class complex

{

private:

int real;

int imag;

public:

//All functions that are needed.

};

int main()

{

complex c1(5,7); // for complex numbers, such as 5+7i

complex c2(5); // for numbers without imaginary part as 5 + 0i

complex c3();

complex c4();

c3 = c1+c2;

c4 = c1-c2;

c5 = c3\*c4;

c6 = c4/c5;

return 0;

}