CL-103

Computer Programming

Lab # 10 Sec B

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| Objectives:  * Operator overloading * Friend function |

**Note: Carefully read the following instructions (***Each instruction contains weightage***)**

1. There must be a block of comments at start of every question's code; the block should contain brief description about functionality of code
2. Proper indentation of code is essential
3. Variable name should be meaningful
4. Make a Microsoft Word file and past all of your C++ code with screenshot of outputs in MS word.
5. First think about statement problems and then write/draw your logic on copy.
6. After copy pencil work, code the problem statement on MS Studio C++ compiler.
7. At the end when you done your today lab tasks, attached only MS word file and make your submission on slate.
8. Late and email submission is not accepted. All tasks must be submitted during the lab time.

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| **Problem 1: (operator overloading using friend function)** |

Define a class Employee, it should have name, salary as its members. Overload the += operator to add an object of the said class and an integer. It would increment the salary of the calling object by that amount of the integer.

**Note:** The overloaded operator shouldn’t be a member of the class Employee.

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| **Problem 2: (Overloading stream insertion, stream extraction operators** **using friend function)** |

Suppose that you have a Point class which represents any point with (x, y) coordinates. Where X, Y are both integers in this class. You will overload some operators to work with object of this class. You have to overload the operator as a friend function.

The operators are:

- (+=) operator, to add an integer value to(X, Y) values.

- (==) operator, to test if two points are equal or not.

- (!) Operator, to swap (X, Y) values to be (Y, X).

- (/) operator, to find the distance between two points.

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| **Problem 3: (operator overloading using friend function)** |

Create a class matrix which stores a matrix of integers of given size. Write a necessary member functions. Overload the following operators as friend function

+ Adds two matrices and stores in the third.

== Function exits if both matrices are not of the same order.

(Use dynamic memory allocation)

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| **Problem 4: (Binary operator overloading using friend function)** |

Create a class **Rational** to represent a Rational number. Perform the Basic Arithmetic operations: Addition, Subtraction, Multiplication and Division for Two Rational Numbers.

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| **Problem 5: (Unary operator overloading using friend function)** |

Write a class Factorial to overload ! operator using friend function to find factorial of an integer object. Write a driver program to test your class. Show input and output results on console.

**Good Luck! ☺**

**You are done with your exercise(s), attached all files and make your submission in slate [MS-word + program files+Screenshot].**