

DEPARTMENT OF COMPUTER ENGINEERING
CMPE110: Fundamentals of Computing and Programming
EXPERIMENT 7

Introduction to C++ Programming: Classes - Introduction

Objectives:

- 1) Understand how to edit, compile and execute C++ computer codes.
- 2) Understand C++ programming: Basics of functions.

Part I: Study the following class problem, and show its output.
Use the following input:

```
45.0 75.0
80.0 90.0
```

```
#include<iostream>
using namespace std;
class Student{public:
    int id_no;
    float grade1;
    float grade2;
    float avg_grade;};

int main(){
// Declare student object "Student1" of type Student
    Student Student1;

// Declare student object "Student2" of type Student
    Student Student2;

// Read from the keyboard the values of grade1 and grade2 members of Student1 object
    cin>>Student1.grade1>>Student1.grade2;

// Read from the keyboard the values of grade1 and grade2 members of Student2 object
    cin>>Student2.grade1>>Student2.grade2;

// Compute and print the average grade of Student1 object
// Assume that avg_grade = (grade1+grade2)/2
    Student1.avg_grade=(Student1.grade1 + Student1.grade2) /2;
    cout<<Student1.avg_grade<<endl;

// Compute and print the average grade of Student2 object
// Assume that avg_grade = (grade1+grade2)/2
    Student2.avg_grade=(Student2.grade1 + Student2.grade2) /2;
    cout<<Student2.avg_grade<<endl;

return 0;}
```

Part II: It is required to write a C++ code to multiply two complex numbers. Complete the following code to perform the specified tasks. Note that two complex numbers can be multiplied as

$$(a+ib) \times (c+id) = (ac-bd) + i(ad+bc)$$

A sample run of the code can be

```
Enter the real and the imaginary parts of Object N1: 2 3
Enter the real and the imaginary parts of Object N2: 4 6
The value of N3 object is -10+24i
```

```
#include<iostream>
using namespace std;
class Complex{public:
    double RePart, ImPart;
};

int main()
{
    //Declare complex objects N1, N2, N3 of type Complex
    .....

    // Read the real and imaginary part members of N1 and N2 objects
    .....
    .....
    .....
    .....

    // Compute the real part member of object N3
    .....

    // Compute the imaginary part member object N3
    .....

    // Print the result of the multiplication as requested
    .....

    return 0;}

```