National University of Sciences and Technology (NUST)
School of Electrical Engineering and Computer Science

Department of Computer Science

CS 212: Object Oriented Programming

Class: BEE-14D

Fall 2023

Lab4: Classes and Objects

Name: Irfa Farooq

CMS: 412564

Date: 2ⁿᵈ October, 2023

Time: 10:00 a.m. - 12:50 p.m. & 2:00 – 4:00 pm

Instructor: Mehreen

Tahir

Lab Engineer: Mehwish Kiran

Task 1: **Create a complex number class with attributes and behavior.**

Code:

```cpp
#include<iostream>

class Complex_numbers {
public:
    float real_p, imag_p;
public:
    void print_Complex_numbers() {
        if (imag_p >= 0) {
            std::cout << real_p << " + " << imag_p << "i" << std::endl;
        }
        else if (imag_p <= 0) {
            std::cout << real_p << imag_p << "i" << std::endl;
        }
    }
};
int main() {
    Complex_numbers Complex_1;
    Complex_1.real_p = 3.5;
    Complex_1.imag_p = 9;
    Complex_1.print_Complex_numbers();
    Complex_numbers Complex_2;
    Complex_2.real_p = 4.8;
    Complex_2.imag_p = -5;
    Complex_2.print_Complex_numbers();
}
```

Output Screenshot

Task 2: Develop a program that implements a C++ class "Student" with following data members
- • Age
- • Roll Number
- • Average
- • markSubject1
- • marksSubject2
- • marksSubject3

The class should define a method/function to calculate percentage from marks obtained in three subjects.

In your test class create objects for two students and display their average score.

Code:

```cpp
#include<iostream>

class Student {
public:
        float age, Roll_num, s_marks1, s_marks2, s_marks3;
public:
        void Average() {
                std::cout << "Average of student is: " << ((s_marks1 + s_marks2 +
s_marks3) / 300) * 100 << std::endl;
        }
};
int main() {
        Student Student1;
        Student1.age = 18;
        Student1.Roll_num = 412564;
        Student1.s_marks1 = 95;
        Student1.s_marks2 = 86;
        Student1.s_marks3 = 96;
        Student1.Average();

        Student Student2;
        Student2.age = 19;
        Student2.Roll_num = 423365;
        Student2.s_marks1 = 98;
        Student2.s_marks2 = 89;
        Student2.s_marks3 = 91;
        Student2.Average();
}
```

Output Screenshot


```
Average of student is: 92.3333
Average of student is: 92.6667

C:\Users\Lenovo\source\repos\Project1\x64\Debug\Project1.exe (process 17844) exited with code 0.
Press any key to close this window . . .
```