**SVKM’s NMIMS**

**Mukesh Patel School of Technology Management and Engineering, Mumbai**

**Department of Electronics & Telecommunication**



**Programming for Problem Solving (Exp 10)**

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| **Program: B. Tech Data Science (1st)** | **Batch: J1** |
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**Task 1:**

**Code:**

#include <iostream>

#include <string>

using namespace std;

class student {

string name;

int roll\_no;

public:

student(string n = "", int r = 0) {

name = n;

roll\_no = r;

}

void showData() {

cout << "\nStudent Data:\nName: " << name << "\nRoll No: " << roll\_no << endl;

}

};

int main() {

student stud("John", 2);

stud.showData();

return 0;

}

**Task 2:**

**Code:**

#include <iostream>

#include <cmath>

using namespace std;

class triangle {

private:

int s1, s2, s3;

public:

triangle(int side1 = 0, int side2 = 0, int side3 = 0) {

s1 = side1;

s2 = side2;

s3 = side3;

}

int getArea() {

int s = (s1 + s2 + s3) / 2;

return sqrt(s \* (s - s1) \* (s - s2) \* (s - s3));

}

int getPerimeter() {

return s1 + s2 + s3;

}

};

int main() {

triangle t(3, 4, 5);

cout << "Area: " << t.getArea() << "\nPerimeter: " << t.getPerimeter() << endl;

return 0;

}

**Task 3:**

**Code:**

#include <iostream>

using namespace std;

class Complex {

private:

int real, imag;

public:

Complex(int r = 0, int i = 0) {

real = r;

imag = i;

}

Complex operator + (Complex const & obj) {

Complex res;

res.real = real + obj.real;

res.imag = imag + obj.imag;

return res;

}

Complex operator - (Complex const & obj) {

Complex res;

res.real = real - obj.real;

res.imag = imag - obj.imag;

return res;

}

void print() {

cout << real << " + " << imag << "i\n";

}

};

int main() {

int r1, i1, r2, i2;

cout << "Enter Complex Number 1: ";

cin >> r1 >> i1;

Complex c1(r1, i1);

cout << "Enter Complex Number 2: ";

cin >> r2 >> i2;

Complex c2(r2, i2);

cout << "\nSum: ";

(c1 + c2).print();

cout << "Difference: ";

(c1 - c2).print();

}

**Task 4:**

**Code:**

#include <iostream>

#include <string>

using namespace std;

class student {

private:

int roll\_no = 0;

string name = "";

string branch = "";

public:

void getData() {

cout << "Enter Roll No: ";

cin >> roll\_no;

cout << "Enter Name: ";

cin >> name;

cout << "Enter Branch: ";

cin >> branch;

}

void showData() {

cout << "\n\nStudent Data:\nName: " << name;

cout << "\nRoll No: " << roll\_no;

cout << "\nBranch: " << branch;

cout << endl;

}

};

int main() {

student stud;

stud.getData();

stud.showData();

return 0;

}

**Homework Questions:**

**1:**

**Class is a blueprint or a template from which an object is created. Whereas an object is an instance of the class.**

**2:**

**Access specifiers define how the members of a class can be accessed.**