Experiment 3

Class and Object

Program 8) Create a class called student which contains protected attributes such as stud_name, stud_rollno and stud_branch. Provide an appropriate method to take user input to initialize these attributes and display the details regarding 5 students of a class.

```
#include<iostream>
using namespace std;
class student{
   string studName;    int studRollno;    string studBranch;
   public:
   void set(string name,int roll,string branch){
        studName=name;        studRollno=roll;        studBranch=branch;
   }
   void show(){
        cout<<"stud name is "<<studName<<endl;
        cout<<"The student name is "<<studName<<endl;
        cout<<"The student roll no is "<<studRollno<<endl;
        cout<<"The student branch is "<<studBranch<<endl;
   }
};
int main(){
   string sName, sBranch;    int roll;        student s;
   for(int i=0;i<5;i++){
        cout<<"enter student name ";        cin>>sName;
        cout<<"enter student roll no ";        cin>>roll;
        cout<<"enter student branch ";        cin>>sBranch;
        cout<<sName;
        s.set(sName,roll,sBranch);
   }
   cout<<"entered data of student is\n\n";
   for(int j=0;j<5;j++){
        s.show();
   }
}
```

```
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory3/question$ g++ 8.cpp -o 1
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory3/question$ ./1
enter student name Shyam
enter student roll no 36
enter student branch cse
enter student name murari
enter student roll no 21
enter student branch cse
enter student name krishna
enter student roll no 11
enter student branch cse
enter student name ankesh
enter student roll no 06
enter student branch cse
enter student name Shyam Tiwari
enter student roll no enter student branch entered data of student is

stud name is Shyam
The student name is Shyam
The student roll no is 0
The student branch is cse
stud name is Shyam
The student name is Shyam
The student roll no is 0
The student branch is cse
stud name is Shyam
The student name is Shyam
The student roll no is 0
The student branch is cse
stud name is Shyam
The student name is Shyam
The student roll no is 0
The student branch is cse
stud name is Shyam
The student name is Shyam
The student roll no is 0
The student branch is cse
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/la
```

Program 9) Create a class area which contains a method called findArea. Write down the appropriate code to create the object named as circle and rectangle of the above class and implement function overloading to calculate area of the rectangle and area of a circle based upon user input.

```
#include<iostream>
using namespace std;
class area{
   public:
   int findArea(int l,int b){        return (l*b);    }
   double findArea(int r){        return (3.14*r*r);    }
};
int main(){
   area circle;
   area rectangle;
   int c=circle.findArea(10);
   int r=rectangle.findArea(2,4);
   cout<<"The area of circle is "<<c<<endl;
   cout<<"The area of rectangle is "<<r<<endl;
}
```

```
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory3/question$ g++ 9.cpp -o 1
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory3/question$ ./1
The area of circle is 314
The area of rectangle is 8
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory3/question$
```

Program 12) Write a program to create a class Complex and implement the addition of the two Complex number using the following prototypes
Complex add(comlex c);
Complex add(complex c1,complex c2);

```
#include<iostream>
using namespace std;
class complex{
   private:
   int a;
   int b;
   public:
   void set_data(int x,int y){        a=x;        b=y;    }
   void show_data(){        cout<<"a= "<<a<<" b= "<<b<<endl;    }
   complex add(complex c){        complex temp;        temp.a=a+c.a;
        temp.b=b+c.b;        return temp;    }
   complex add(complex c1,complex c2){        complex temp;
        temp.a=c1.a+c2.a;        temp.b=c1.b+c2.b;        return temp;    }
};
int main(){
   complex c1,c2,c3,c4;
   c1.set_data(3,4);
   c2.set_data(5,6);
   c3=c1.add(c2);
   c3.show_data();
   c4=c1.add(c1,c3);
   c4.show_data();
}
```

```
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory3/question$ g++ 12.cpp -o 1
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory3/question$ ./1
a= 8 b= 10
a= 11 b= 14
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory3/question$
```

Submitted By :- Shyam Tiwari
Signature :-
Date:-