Experiment 3

Class and Object

Example 1)

```
#include<iostream>
using namespace std;
class myclass{
    int x;
    public:
    void set_value(int a){
        x=a;
    }
    int get_value(){
        return x;
    }
};
int main(){
    myclass obj[3];
    int k;
    for(k=0;k<3;k++){
        obj[k].set_value(k+7);
    }
    for(k=0;k<3;k++){
        cout<<obj[k].get_value()<<endl;
    }
}
```

```
PROBLEMS  DEBUG CONSOLE  TERMINAL
TERMINAL
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory3/examples$ g++ example1.cpp -o 1
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory3/examples$ ./1
7
8
9
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory3/examples$
```

Example 2)

```
#include<iostream>
using namespace std;
#define SIZE 5
class stack{
   int stck[SIZE];
   static int top;
   public:
   void push(int i){
        if(top==SIZE-1){
            cout<<"stck is full\n";
        }
        stck[++top]=i;
```

```
    }
    int pop(){
        if(top==-1){
            cout<<"Stack underflow\n";
            return 0;
        }
        return stck[top--];
    }
};
int stack::top=-1;
int main(){
    stack st;
    st.push(5);
    st.push(10);
    st.push(20);
    cout<<"Popped element is "<<st.pop()<<endl;
    cout<<"Popped element is "<<st.pop()<<endl;
    st.push(25);
    st.push(210);
    st.push(245);
    st.push(224);
    system("pause");
    return 0;
}
```

```
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory3/examples$ g++ example2.cpp -o 1
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory3/examples$ ./1
Popped element is 20
Popped element is 10
sh: 1: pause: not found
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory3/examples$
```

Focus folder in explorer (ctrl + click)

Program 1) Create a class Rectangle with member data length, breadth; and member function void setValues(int,int);void display();int area();int perimeter();

```
#include<iostream>
using namespace std;
class rectangle{
    int length;
    int breadth;
    public:
    void setData(int l,int b){
        length=l;
        breadth=b;
    }
    void display(){
  cout<<"The area of rectangle is "<<area(length,breadth)<<endl;
  cout<<"The perimeter of rectangle is "<<perimeter(length,breadth)<<endl;
```

```
    }
    int area(int l,int b){        return l*b;    }
    int perimeter(int l,int b){        return 2*(l+b);   } };
int main(){
    rectangle r;
    r.setData(5,6);
    r.display();
}
```

```
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory3/question$ g++ 1.cpp -o 1
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory3/question$ ./1
The area of rectangle is 30
The perimeter of rectangle is 22
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory3/question$
```

Program 2) Define a class Date having data members day,month and year and two member functions setData() and printData().Write a main function, create objects of Date class, set Values and print.

```
#include<iostream>
using namespace std;
class date{
    int day;    string month;    int year;
    public:
    void setDate(int d,int y,string m){
        day=d;        year=y;        month=m;
    }
    void printDate(){
        cout<<"The date is "<<day<<"/"<<month<<"/"<<year<<endl;
    }  };
int main(){
    date d;
    d.setDate(02,2001,"june");
    d.printDate();
}
```

```
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory3/question$ g++ 2.cpp -o 1
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory3/question$ ./1
The date is 2/june/2001
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory3/question$
```

Program 3) Design a class point get and set functions and class circle with point object center and radius with get and set function, findArea(); findCircum( ); and show function. The center of the circle must be a variable of a class point.

```
#include<iostream>
using namespace std;
class point{
    int x;    public:
```

```
   void get(int a){        x=a;    }
   int set(){        return x;    }    };
class circle{
   int radius;   public:
   void get(int r){        radius=r;    }
   int set(){        return radius;    }
   double findArea(){        return (3.14*radius*radius);    }
   double findCircum(){        return (3.14*radius*2);    }
   void show(){
        cout<<"The radius of circle is "<<set()<<endl;
        cout<<"The area of circle is "<<findArea()<<endl;
        cout<<"The circumference of circle is "<<findCircum()<<endl;
   }  };
int main(){
   point p;
   p.get(10);
   circle c;
   c.get(p.set());
   c.show();
}
```

```
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory3/question$ g++ 3.cpp -o 1
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory3/question$ ./1
The radius of circle is 10
The area of circle is 314
The circumference of circle is 62.8
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory3/question$
```

Program 4) WAP to display the size of the object of a student class with suitable data members.

```
#include<iostream>
using namespace std;
class student{
   string name;   int std;   int age;   int rollno;
};
int main(){
   student s;
   cout<<sizeof(s)<<endl;
}
```

```
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory3/question$ g++ 4.cpp -o 1
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory3/question$ ./1
48
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory3/question$
```

Program 5) Write a class program to implement the visibility limits of the member data and member functions using private and public keywords.

```
#include<iostream>
```

```cpp
using namespace std;
class Circle
{
   public:
        double radius;

        double  compute_area()
        {
            return 3.14*radius*radius;
        }
};
int main()
{
   Circle obj;
   obj.radius = 5.5;
   cout << "Radius is: " << obj.radius << "\n";
   cout << "Area is: " << obj.compute_area()<<endl;
   return 0;
}
```

```
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory3/question$ ./1
Radius is: 5.5
Area is: 94.985
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory3/question$
```

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