Assignment 10

Laboratory 5

Constructor, Copy Constructor & Destructor

Program 1) WAP to find out area of rectangle, circle, triangle of three sides using constructor overloading.

```
#include<iostream>
#include<cmath>
using namespace std;
class area{
   public:
   area(int radius){
        cout<<"The area of circle is "<<3.15*radius*radius<<endl;
   }
   area(int length,int breadth){
        cout<<"The area of rectangle is "<<length*breadth<<endl;
   }
   area(double a,double b, double c){
        double s=(a+b+c)/2;
        double trianglearea=s*(s-a)*(s-b)*(s-c);
        cout<<"The area of triangle is "<<sqrt(trianglearea)<<endl;
   }
};
int main(){
   area a(10);
   area a1=area(10,20);
   area a2=area(24,30,18);
}
```

```
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory5$ g++ 1.cpp -o 1
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory5$ ./1
The area of circle is 315
The area of rectangle is 200
The area of triangle is 216
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory5$
```

Program 2) WAP to concatenate two strings using dynamic constructor.

```
#include <iostream>
#include<cstring>
using namespace std;
 class names {
```

```
    char *str1;    char *str2;    char *result;
public:
   names()   {
        str1 = new char[6];
        str1 = "Shyam";
        str2 = new char[6];
        str2 = "Tiwari";
        result=new char [100];
        strcpy(result,str1);
        strcat(result,str2);
   }
    void display()   {
        cout << result << endl;
   }
};
 int main(){
   names obj =  names();
   obj.display();
}
```

```
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory5$ ./1
ShyamTiwari
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory5$
```

Program 3) Design a class circle with three data members, the center of circle (x,y) and the radius. Write functions to compute the area and perimeter of the circle. Write a Boolean function to check whether the two circles touch each other.

```
#include<iostream>
#include<cmath>
using namespace std;
class circle{
   double x,y;
   double x1,y1;
   double r;
   public:
   circle(double a,double b,double a1,double b1){
        x=a;
        y=b;
        x1=a1;
        y1=b1;
        double m=(x1-x)*(x1-x);  double n=(y1-x)*(y1-y); r=sqrt(m+n);
        cout<<"The area of circle is "<<3.14*r*r<<endl;
```

```
        cout<<"The circumference of circle is "<<3.14*r*2<<endl;
    }
};
int main(){    circle c(-3,2,2,5);}
```

```
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory5$ g++ 3.cpp -o 1
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory5$ ./1
The area of circle is 153.86
The circumference of circle is 43.96
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory5$
```

Program 7) Design a class student with constructors. Write a function showstudent() that shows all attribute of a particular student

```
#include<iostream>
using namespace std;
class student{
    string name;
    int rollNo;
    string branch;
    int classes;
    public:
    student(string n,int r,string b,int c){
        name=n;
        rollNo=r;
        branch=b;
        classes=c;
    }
    void showStudent(){
        cout<<"The name of student is "<<name<<endl;
        cout<<"The student class is "<<classes<<endl;
        cout<<"The student branch is "<<branch<<endl;
        cout<<"The student rollno is "<<rollNo<<endl;
    }
};
int main(){
    student s("Shyam Tiwari",036,"CSE",10);
    s.showStudent();
}
```

```
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory5$ g++ 7.cpp -o 1
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory5$ ./1
The name of student is Shyam Tiwari
The student class is 10
The student branch is CSE
The student rollno is 30
shyam@shyam-HP-Laptop-15-da0xxx:~/Desktop/oopLAB/laboratory5$
```