LAB PROGRAM-4

Develop a Java program to create an abstract class named Shape
that contains two integers and an empty method named printArea( ). Provide
three classes named Rectangle, Triangle and Circle such that each one of the
classes extends the class Shape. Each one of the classes contain only the
method printArea( ) that prints the area of the given shape.

```
import java.util.*;

abstract class shape{

      double a,b;

      abstract void printarea();

}


class triangle extends shape{

       void getdata(double x,double y)

       { a=x;b=y; }

       void printarea()

       {

        double area=0.5*a*b;

        System.out.println("Area of triangle= "+area);

       }

}
```

```
class rectangle extends shape{
        void getdata(double x,double y)
        { a=x;b=y; }
        void printarea()
        {double area=a*b;
         System.out.println("Area of rectangle= "+area);
        }
}
class circle extends shape{
        void getdata(double x)
        { a=x; }
        void printarea()
        { double area=3.142*a*a;
         System.out.println("Area of circle= "+area);
        }
}


class abstarea{
 public static void main(String args[])
 {
  int ch;
  shape si;
  Scanner sc=new Scanner(System.in);
  rectangle r=new rectangle();
```

```
  triangle t=new triangle();

  circle c=new circle();

  System.out.println("1. Area of rectangle\n2. Area of triangle\n3.Area of
circle\nEnter your choice");

  ch=sc.nextInt();

  switch(ch)

  {
   case 1: System.out.println("Enter length and breadth: ");

          double l=sc.nextDouble();

          double b=sc.nextDouble();

          r.getdata(l,b);

          r.printarea();

          break;

   case 2: System.out.println("Enter base and height: ");

          double b1=sc.nextDouble();

          double h=sc.nextDouble();

          t.getdata(b1,h);

          t.printarea();

          break;

   case 3: System.out.println("Enter radius: ");

          double r1=sc.nextDouble();

          c.getdata(r1);

          c.printarea();

          break;
```

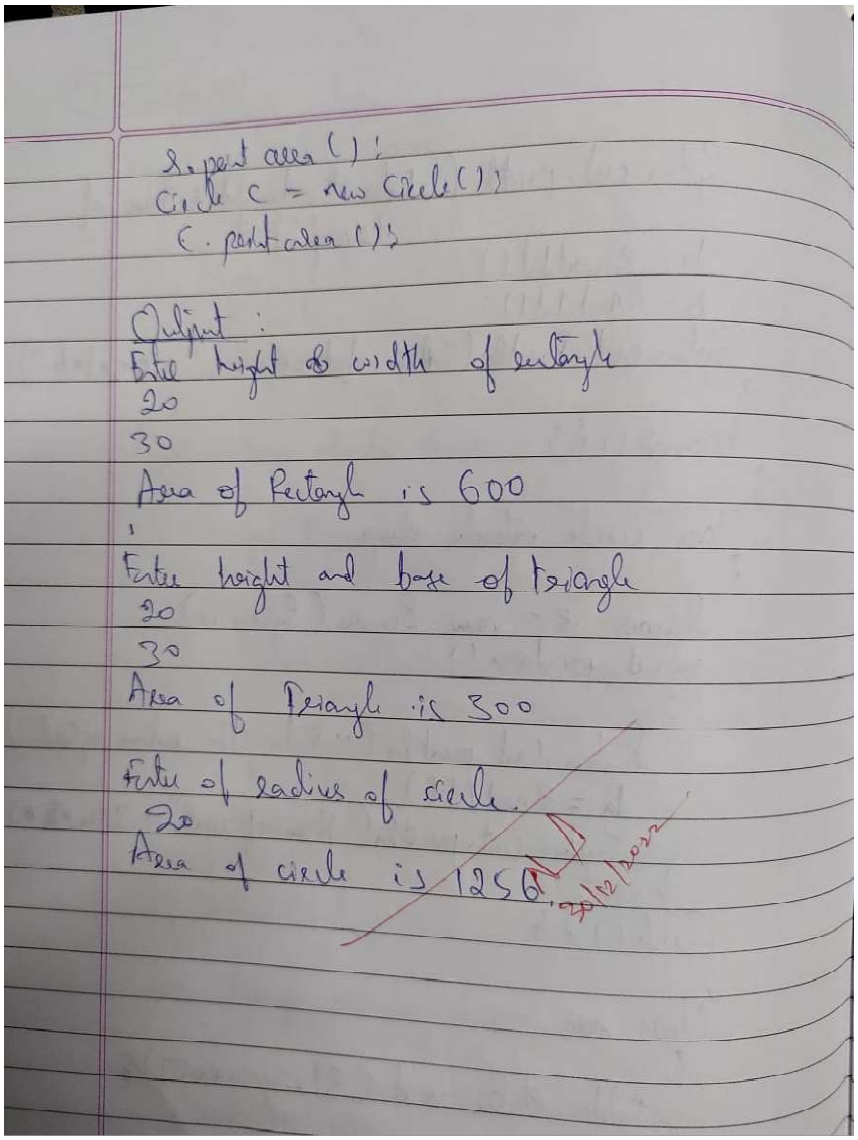
```
    default: System.out.println("Invalid input");
   }
  }
}
```

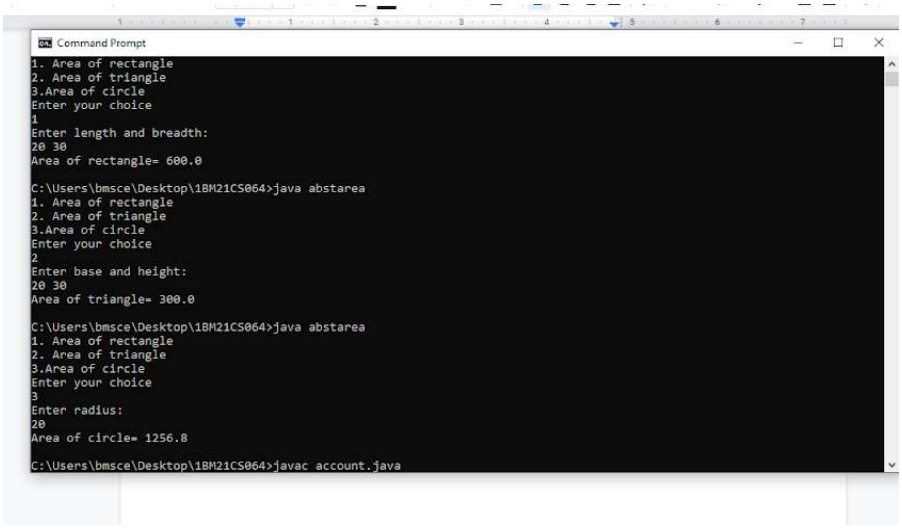
Program - 4

Abstract class

```
import java.util.Scanner;
abstract class shape
{
    shape() { }
    int h, b;
    abstract void print area();
}
Class rectangle extends shape
{
    Scanner s = new Scanner(System.in);
    void print area()
    {
        System.out.println("Enter height & width of
                                    rectangle");
        h = s.nextInt();
        b = s.nextInt()
        System.out.println("Area of rectangle "+b*h);
    }
    rectangle() { }
}
Class triangle extends shape
{
    Scanner s = new Scanner(System.in);
    void print area()
```

```
{
System.out.println("Enter the height & base of
                    triangle");
  h = s.nextInt();
  b = s.nextInt();
System.out.println("Area of triangle is" + 0.5*b*h);
}
triangle(){}
}
Class circle extends shape
{
  Scanner s = new Scanner(System.in)
  void parvara()
    {
      System.Out.println("Enter the radius of circle");
      r = s.nextInt();
      System.Out.println("Area of circle" + 3.14*r*r);
    }
  Circle(){}
}
Class main
{
  Public static void (String xx[])
  {
    Rectangle r = new Rectangle();
```


S.perf area ();
Circle c = new Circle ();
c. perf area ();
Output :
Enter height & width of rectangle
20
30
Area of Rectangle is 600
Enter height and base of Triangle
20
30
Area of Triangle is 300
Enter of radius of circle.
20
Area of circle is 1256.
3.14*20*20


Command Prompt
1. Area of rectangle
2. Area of triangle
3.Area of circle
Enter your choice
1
Enter length and breadth:
20 30
Area of rectangle= 600.0
C:\Users\bmsce\Desktop\1BM21CS064>java abstarea
1. Area of rectangle
2. Area of triangle
3.Area of circle
Enter your choice
2
Enter base and height:
20 30
Area of triangle= 300.0
C:\Users\bmsce\Desktop\1BM21CS064>java abstarea
1. Area of rectangle
2. Area of triangle
3.Area of circle
Enter your choice
3
Enter radius:
20
Area of circle= 1256.8
C:\Users\bmsce\Desktop\1BM21CS064>javac account.java