

PRACTICAL:20

AIM: Describe abstract class called Shape which has three subclasses say Triangle, Rectangle, Circle. Define one method area() in the abstract class and override this area() in these three subclasses to calculate for specific object i.e. area() of Triangle subclass should calculate area of triangle etc. Same for Rectangle and Circle.

Abstract keyword:

- In C++, if a class has at least one pure virtual function, then the class becomes abstract.
- Unlike C++, in Java, a separate keyword abstract is used to make a class abstract.
- A class which is declared with the abstract keyword is known as an abstract class in Java. It can have abstract and non-abstract methods (method with the body).
- An abstract class must be declared with an abstract keyword.
- It can have abstract and non-abstract methods.
- It cannot be instantiated.
- It can have constructors and static methods also.
- It can have final methods which will force the subclass not to change the body of the method.

Example of abstract class:

```
abstract class A{ }
```

Example of abstract method:

```
abstract void printStatus();
```

PROGRAM:

```
abstract class Shape
{
    abstract double area();
}

class Triangle extends Shape
{
    int height=10;
    int base=20;
    double area()
    {
        int area=(height*base)/2;
```

```
        return area;
    }
}

class Rectangle extends Shape
{
    int length=10;
    int breath=20;
    double area()
    {
        int area=length*breath;
        return area;
    }
}

class Circle extends Shape
{
    double radius=7;
    double area()
    {
        double area= 3.14 * radius * radius;
        return area;
    }
}

class P20_7059
{
    public static void main(String args[])
    {

        Circle c=new Circle();

        System.out.println("area of circle "+c.area());
    }
}
```

```
Triangle t=new Triangle();
```

```
System.out.println("area of triangle "+t.area());
```

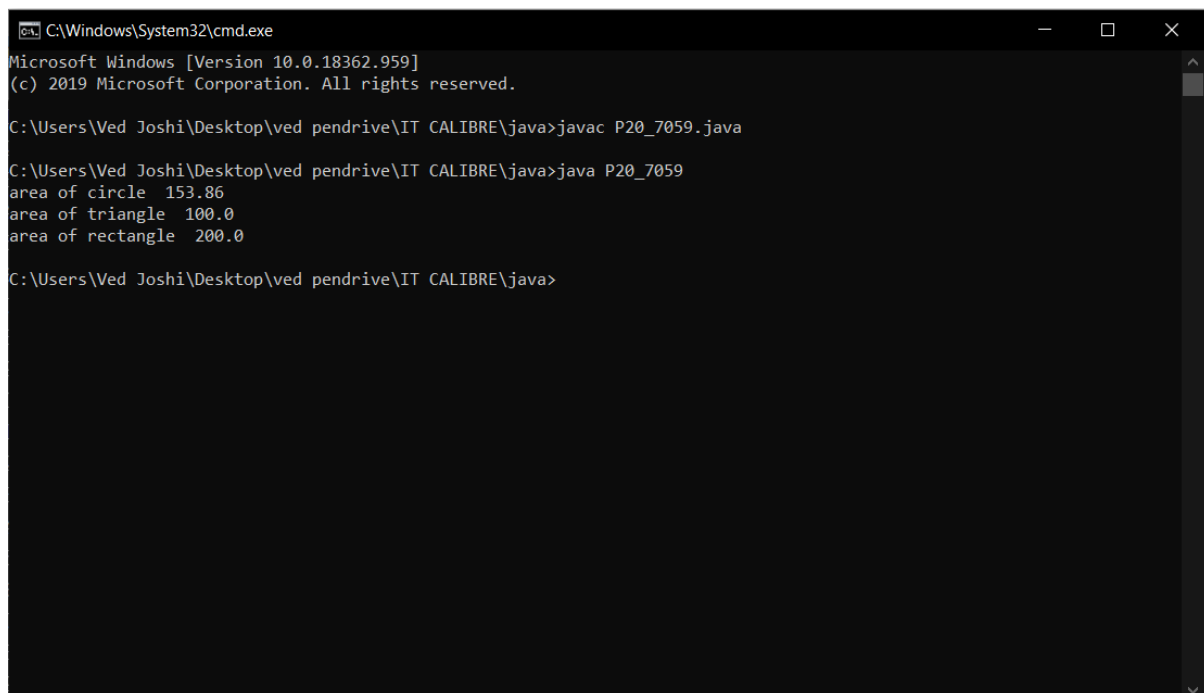
```
Rectangle r=new Rectangle();
```

```
System.out.println("area of rectangle "+r.area());
```

```
}
```

```
}
```

OUTPUT:



```
C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.18362.959]
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C:\Users\Ved Joshi\Desktop\ved pendrive\IT CALIBRE\java>javac P20_7059.java

C:\Users\Ved Joshi\Desktop\ved pendrive\IT CALIBRE\java>java P20_7059
area of circle 153.86
area of triangle 100.0
area of rectangle 200.0

C:\Users\Ved Joshi\Desktop\ved pendrive\IT CALIBRE\java>
```