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 contains only the method printArea( ) that prints the area of the given shape.

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Q. Develop a java program to create abstract class named Shape that contains two integers and an empty method named printArea(). Provide 3 classes named Rectangle, triangle, 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.Scanner;
abstract class Shape {
  int a,b;
  abstract void printArea();
  }
class Rectangle extends Shape
 {
   void printArea()
   {
     double area;
     area = a*b;
     System.out.println("The area of rectangle is"
                  +area);
   }
}
class Triangle extends Shape
 {
   void printArea()
   {
     double area;
     area = 0.5*a*b;
     System.out.println("The area of triangle is"
                  +area);  }
}
```

```
class Circle extends Shape{
  void printArea(){
  double area;
  area = 3.14*a*a;
  System.out.println("The area of the
   circle is "+area);
  }
}

class Area{
  public static void main(String args[])
  {
   Rectangle r= new Rectangle();
   Triangle t = new Triangle();
   Circle c = new Circle();
   Scanner ss = new Scanner(System.in);
   while(true){
    System.out.println("choose the shape
    whose area is to be calculated:");
    System.out.println("1.Rectangle \n2.
    Triangle \n3 circle \n4.Exit");
    int n= ss.nextInt();
    switch(n)
    {
     case1:
        System.out.println("Enter length
    and breadth of rectangle");
     r.a = ss.nextInt();
     r.b = ss.nextInt();
     r.printArea();
     break;
```

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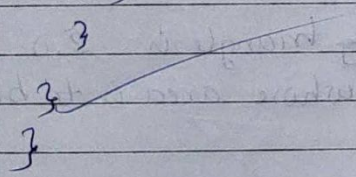
```
case 2:
System.out.println("Enter base and height
    of triangle ");
t.a = ss.nextInt();
t.b = ss.nextInt();
t.printArea();
break;

case 3:
System.out.println("Enter radius of
circle ");
c.a = ss.nextInt();
c.printArea();
break;

case 4: System.exit(0);

default:
System.out.println("Wrong choice!!");
}
}
}
}
```



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Output

Choose the shape ~~we~~ whose area is to be calculated:

1. Rectangle
2. Triangle
3. Circle
4. Exit

1

Enter length and breadth of rectangle

2 3

The area of Rectangle is 6.0

Choose the shape whose area is to be calculated:

1. Rectangle
2. Triangle
3. Circle
4. Exit

2

Enter the base and height of triangle

2 3

The area of ~~trig~~ triangle is 3.0

Choose the shape whose area is to be calculated:

1. Rectangle
2. Triangle
3. Circle
4. Exit

3

Enter the radius of circle

4

The area of circle is 50.24

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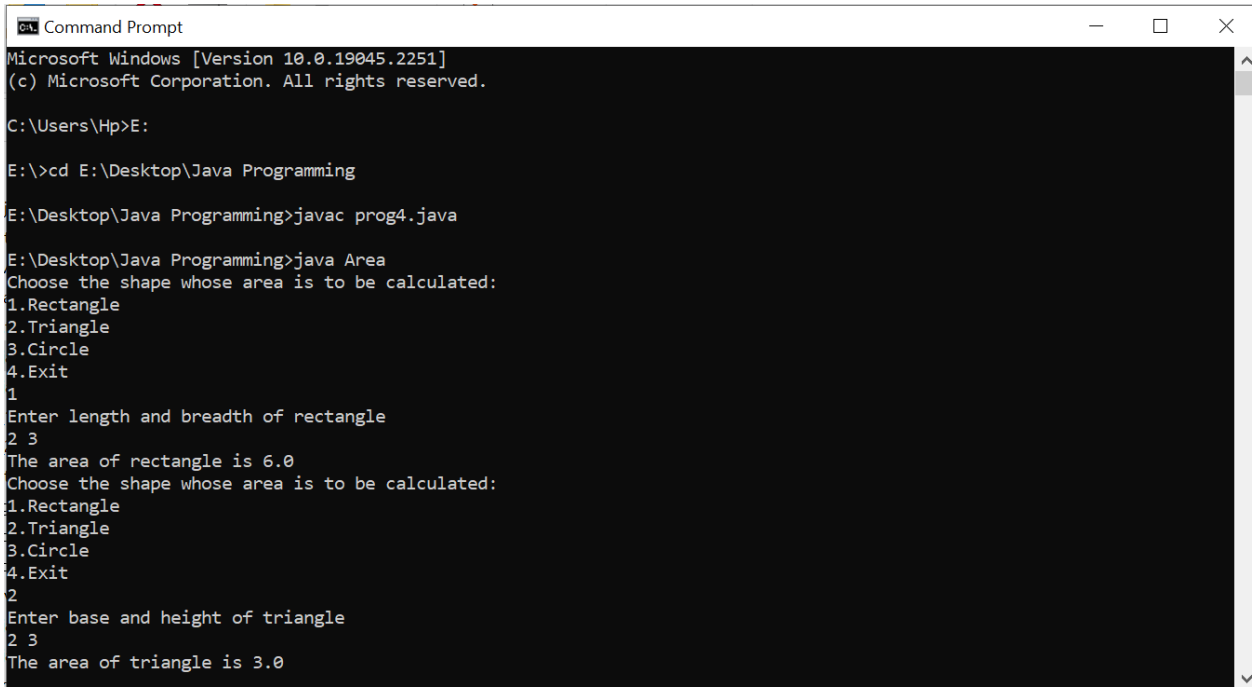
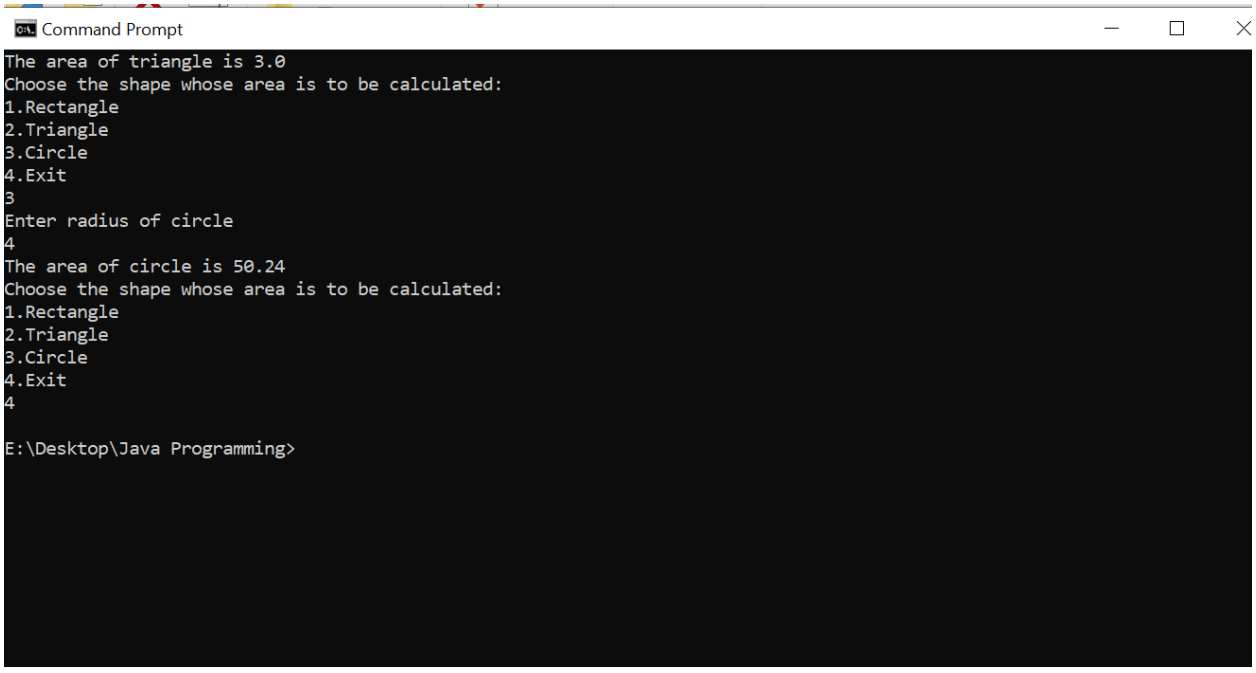
Choose the shape whose area is to be calculated :

1. Rectangle
2. Triangle
3. Circle
4. Exit

4

Output:


Command Prompt
Microsoft Windows [Version 10.0.19045.2251]
(c) Microsoft Corporation. All rights reserved.
C:\Users\Hp>E:
E:\>cd E:\Desktop\Java Programming
E:\Desktop\Java Programming>javac prog4.java
E:\Desktop\Java Programming>java Area
Choose the shape whose area is to be calculated:
1.Rectangle
2.Triangle
3.Circle
4.Exit
1
Enter length and breadth of rectangle
2 3
The area of rectangle is 6.0
Choose the shape whose area is to be calculated:
1.Rectangle
2.Triangle
3.Circle
4.Exit
2
Enter base and height of triangle
2 3
The area of triangle is 3.0


Command Prompt
The area of triangle is 3.0
Choose the shape whose area is to be calculated:
1.Rectangle
2.Triangle
3.Circle
4.Exit
3
Enter radius of circle
4
The area of circle is 50.24
Choose the shape whose area is to be calculated:
1.Rectangle
2.Triangle
3.Circle
4.Exit
4
E:\Desktop\Java Programming>