```
import java.util.*;
class Shape
{
 int a,b;
}
 class rec extends Shape
 {
      rec(int x,int y)
      {
       a=x;b=y;
      }
     public double area()
     {
       return (a*b);
     }
     public double peri()
     {
        return (2*(a+b));
     }
 }
 class sqr extends Shape
 {
  sqr(int x)
  {
   a=x;
  }
  public double area()
  {
   return (a*a);
  }
  public double peri()
  {
   return (4*a);
  }
 }
 class ellipse extends Shape
 {
  ellipse(int x,int y)
  {
   a=x;b=y;
  }
  public double area()
  {
   return (3.14*a*b);
  }
  public double peri()
  {
   float z;
   z=(a*a+b*b)/2;

   return (2*3.14*Math.sqrt(z));
  }
```

```
}
 class cir extends Shape
{
 cir(int x)
 {
  a=x;
 }
 public double area()
 {
  return (a*3.14*a);
 }
 public double peri()
 {
  return (2*3.14*a);
 }
}

 class Shapes
 {

    public static void main(String args[])
    {
      int m,n,ch,l=1;
            double area=0,peri=0;
            Scanner scan=new Scanner(System.in);
            while(l==1)
            {
            System.out.print("Menu \n1.rectangle 2.circle 3.Ellipse 4.square
5.exit");
            System.out.print("\nenter your choice: ");
            ch=scan.nextInt();
            switch(ch)
            {
             case 1:System.out.print("\nEnter the length and breadth: ");
                        m=scan.nextInt();
                                    n=scan.nextInt();
                                    rec sh=new rec(m,n);
                                    area=sh.area();
                                    peri=sh.peri();
                                    break;
                  case 4:System.out.print("\nEnter the side: ");
                        m=scan.nextInt();

                                    sqr sh1=new sqr(m);
                                    area=sh1.area();
                                    peri=sh1.peri();
                                    break;
                  case 3:System.out.print("\nEnter the major and minor axis: ");
                        m=scan.nextInt();
                                    n=scan.nextInt();
                                    ellipse sh2=new ellipse(m,n);
                                    area=sh2.area();
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                        peri=sh2.peri();
                        break;
            case 2:System.out.print("\nEnter the radius ");
                   m=scan.nextInt();

                        cir sh3=new cir(m);
                        area=sh3.area();
                        peri=sh3.peri();
                        break;
            case 5:System.exit(0);
    }
        System.out.println("area  :"+area);
        System.out.println("perimeter  :"+peri);
        }
       }
 }
```

```
Menu
1.rectangle 2.circle 3.Ellipse 4.square 5.exit
enter your choice: 1

Enter the length and breadth: 2
3
area  :6.0
perimeter  :10.0
Menu
1.rectangle 2.circle 3.Ellipse 4.square 5.exit
enter your choice: 2

Enter the radius 2
area  :12.56
perimeter  :12.56
Menu
1.rectangle 2.circle 3.Ellipse 4.square 5.exit
enter your choice: 3

Enter the major and minor axis: 2
3
area  :18.84
perimeter  :15.382795584678357
Menu
1.rectangle 2.circle 3.Ellipse 4.square 5.exit
enter your choice: 4

Enter the side: 2
area  :4.0
perimeter  :8.0
Menu
1.rectangle 2.circle 3.Ellipse 4.square 5.exit
enter your choice: 5
```