

1)

Main class

```
public class Bank01 {  
    public static void main(String[] args) {  
        BankAccount b=new SavingsAccount();  
        b.setAccountNumber(1234);  
        b.getAccountNumber();  
        b.setBalance(2000000.0f);  
        b.getBalance();  
        b.calculateInterest();  
  
        BankAccount b2=new CheckingAccount();  
        b2.setAccountNumber(4567);  
        b2.getAccountNumber();  
        b2.setBalance(1000000.0f);  
        b2.getBalance();  
        b2.calculateInterest();  
    }  
}
```

BankAccount class

```
abstract class BankAccount {  
    private int accountNumber;  
    private float balance;  
  
    public void setAccountNumber(int accountNumber)  
    {  
        this.accountNumber=accountNumber;
```

```

    }

    public void setBalance(float balance )
    {
        this.balance=balance;
    }

    public int getAccountNumber()
    {
        return accountNumber;
    }

    public float getBalance( )
    {
        return balance;
    }

    abstract void calculateInterest();
}

```

CheckingAccount class

```

public class CheckingAccount extends BankAccount {
    private float interest;
    public void calculateInterest()
    {
        double interest=getBalance()*2/100;
        System.out.println("Your checking account interest: "+interest);
    }
}

```

SavingsAccount class

```

public class SavingsAccount extends BankAccount {
    private float interest;
    @Override
    public void calculateInterest()

```

```

{
    interest= getBalance()*12/100;
    System.out.println("Your saving account interest: "+interest);
}
}

```

2)

Main class

```

public class Perimeter {
    public static void main(String[] args) {
        Triangle t=new Triangle(3,4,7);
        t.setSidea(5);
        t.getSidea();
        t.setSideb(4);
        t.getSideb();
        t.setSidec(6);
        t.getSidec();

        System.out.println("Area of triangle "+t.calculateArea());
        System.out.println("Perimeter of triangle "+t.calculatePerimeter());

        Circle c=new Circle(4);
        c.setRadius(8.5);
        c.getRadius();
        System.out.println("Area of circle "+c.calculateArea());
        System.out.println("Perimeter of circle "+c.calculatePerimeter());

        Rectangle r=new Rectangle(4,6);
    }
}

```

```
        r.setLength(7);
        r.setWidth(5);
        r.getLength();
        r.getWidth();
        System.out.println("Area of rectangle "+r.calculateArea());
        System.out.println("Perimeter of rectangle "+r.calculatePerimeter());

    }
}
```

Shape interface

```
public interface Shape {
    abstract double calculateArea();
    abstract double calculatePerimeter();
}
```

Triangle class

```
class Triangle implements Shape {
    private double sidea,sideb,sidec,area,perimeter;

    public void setSidea(double Sidea)
    {
        this.sidea=sidea;
    }
    public double getSidea()
    {
        return sidea;
    }
    public void setSideb(double sideb)
```

```
{
    this.sideb=sideb;
}
public double getSideb()
{
    return sideb;
}
public void setSidec(double sidec)
{
    this.sidec=sidec;
}
public double getSidec()
{
    return sidec;
}
public Triangle(double sidea,double sideb,double sidec)
{
    this.sidea=sidea;
    this.sideb=sideb;
    this.sidec=sidec;
}
```

@Override

```
public double calculateArea()
{
    double s = (sidea + sideb + sidec) / 2;
    return Math.sqrt(s * (s - sidea) * (s - sideb) * (s - sidec));
}
```

@Override

```
public double calculatePerimeter()
```

```
{  
    return perimeter=sidea+sideb+sidec;  
}  
}
```

Circle class

```
public class Circle implements Shape {  
    private double radius,area,perimeter;  
  
    public void setRadius(double radius)  
    {  
        this.radius=radius;  
    }  
    public double getRadius()  
    {  
        return radius;  
    }  
    public Circle(double radius)  
    {  
        radius=4.783;  
    }  
    @Override  
    public double calculateArea()  
    {  
        return area=Math.PI*radius*radius;  
    }  
    @Override  
    public double calculatePerimeter()  
    {  
        return perimeter=2*Math.PI*radius;  
    }  
}
```

```
}
```

Rectangle class

```
public class Rectangle implements Shape {  
    private double length,width,area,perimeter;  
  
    public void setLength(double length)  
    {  
        this.length=length;  
    }  
    public double getLength()  
    {  
        return length;  
    }  
    public void setwidth(double width)  
    {  
        this.width=width;  
    }  
    public double getwidth()  
    {  
        return width;  
    }  
  
    public Rectangle(double length,double width)  
    {  
        length=1234.456;  
        width=1567.907;  
    }  
}
```

@Override

```
public double calculateArea()
{
    return area=length*width;
}

@Override
public double calculatePerimeter()
{
    return perimeter=(length*2)+(width*2);
}

}
```