# 第3次平时作业

package work3;  
  
import java.util.Scanner;  
  
// 复数类  
public class ComplexNumber {  
 // 类属性，实部与虚部  
 double real;  
 double virtual;  
  
 // 默认无参构造函数  
 public ComplexNumber(){  
  
 }  
  
 // 有参构造  
 public ComplexNumber(double real, double virtual) {  
 this.real = real;  
 this.virtual = virtual;  
 }  
  
 /\* 类方法add,实现两个复数之间的和运算  
 \* 返回值亦是复数\*/  
 public ComplexNumber add(ComplexNumber cmxNum){  
 return new ComplexNumber(this.real+cmxNum.real,this.virtual+cmxNum.virtual);  
 }  
  
 /\* 类方法reduce, 实现减法运算  
 \* 复数返回值\*/  
 public ComplexNumber reduce(ComplexNumber cmxNum){  
 return new ComplexNumber(this.real-cmxNum.real,this.virtual-cmxNum.virtual);  
 }  
  
 /\* 类方法multiply，实现乘法\*/  
 public ComplexNumber multiply(ComplexNumber cmxNum){  
 double a = this.real\*cmxNum.real - this.virtual\*cmxNum.virtual;  
 double b = this.virtual\*cmxNum.real + this.real\*cmxNum.virtual;  
 return new ComplexNumber(a,b);  
 }  
  
 /\* 类方法divide，实现除法\*/  
 public ComplexNumber divide(ComplexNumber cmxNum){  
 double denominator = cmxNum.real\*cmxNum.real + cmxNum.virtual\*cmxNum.virtual;  
 double numerator1 = this.real\*cmxNum.real + this.virtual\*cmxNum.virtual;  
 double numerator2 = this.virtual\*cmxNum.real - this.real\*cmxNum.virtual;  
 double a = numerator1 / denominator;  
 double b = numerator2 / denominator;  
 return new ComplexNumber(a,b);  
 }  
  
 /\* 类方法print，将复数打印出来\*/  
 public void print(){  
 double a = this.real;  
 double b = this.virtual;  
 System.*out*.println(a+" + "+b+'i');  
 }  
  
 // main函数  
 public static void main(String[] args) {  
 /\* 交互，读入数据，实体化类，进行方法调用\*/  
 System.*out*.println("please enter the real and virtual parts of the first complex number");  
 Scanner myGet = new Scanner(System.*in*);  
 double newNumReal1 = myGet.nextDouble();  
 double newNumVir1 = myGet.nextDouble();  
 ComplexNumber newCmxNum1 = new ComplexNumber(newNumReal1,newNumVir1);  
 System.*out*.println("OK,I get it:");  
 newCmxNum1.print();  
  
 System.*out*.println("then,enter another one, I will get some calculate");  
 double newNumReal2 = myGet.nextDouble();  
 double newNumVir2 = myGet.nextDouble();  
 ComplexNumber newCmxNum2 = new ComplexNumber(newNumReal2,newNumVir2);  
 System.*out*.println("I get it:");  
 newCmxNum2.print();  
  
 System.*out*.print("so, num1 add num2 is: ");  
 ComplexNumber resAdd = newCmxNum1.add(newCmxNum2);  
 resAdd.print();  
  
 System.*out*.print("then, the subtract is: ");  
 ComplexNumber resReduce = newCmxNum1.reduce(newCmxNum2);  
 resReduce.print();  
  
 System.*out*.print("and, the multiply is: ");  
 ComplexNumber resMul = newCmxNum1.multiply(newCmxNum2);  
 resMul.print();  
  
 System.*out*.print("last, the divide is: ");  
 ComplexNumber resDiv = newCmxNum1.divide(newCmxNum2);  
 resDiv.print();  
 }  
}