参考代码：Java 面向对象特性

实验编号：exp01

实验二 File: BankAccount.java

```
1  package cn.edu.ouc.javase;
2
3  import java.io.BufferedReader;
4  import java.io.IOException;
5  import java.io.InputStreamReader;
6  import java.util.Date;
7
8  class UserInfo {
9    private String id;
10   private String name;
11   private Date createDate;
12   private String idByCard;
13   private long money;
14
15   // 无参构造方法
16   public UserInfo() {
17   }
18
19   // 有参构造方法
20   public UserInfo(String _id, String _name, Date _createDate,
21       String _idByCard, long _money) {
22
23     this.id = _id;
24     this.name = _name;
25     this.createDate = _createDate;
26     this.idByCard = _idByCard;
27     this.money = _money;
28   }
29
30   public long AddMoney(long amount) {
31     money = amount + money;
32     return money;
33   }
```

```
35    public long DepositMoney(long amount) {
36      money = money - amount;
37      return money;
38    }

40    public long getMoney() {
41      return this.money;
42    }

44    // 打印人员信息
45    public void showUserInfo() {
46      System.out.println("帐号：" + id);
47      System.out.println("姓名：" + name);
48      System.out.println("开户时间：" + createDate);
49      System.out.println("身份证号:" + idByCard);
50    }
51  }

53  public class BankAccount {

55    public static void main(String[] args) {
56      UserInfo user = new UserInfo("1", "Java", new Date(109, 1, 1), "1111",
57          1234);
58      BankAccount b = new BankAccount();
59      b.operate(user);
60    }

62    public void operate(UserInfo user) {
63      long saveMoney = 0;
64      long takeMoney = 0;
65      BufferedReader br = new BufferedReader(new InputStreamReader(System.in));
66      String choose = "";

68      while (true) {
69        System.out.println("请选择要进行的操作：1. 存款 2. 取款 3. 查询"
70                           + " 4. 显示账户 5. 退出");

72        try {
73          choose = br.readLine();
74        } catch (IOException e) {
75          e.printStackTrace();
76        }

78        // 存款
79        if (choose.compareTo("1") == 0) {
80          while (true) {
81            System.out.println("请输入要存入的金额（整数）：");

83            try {
84              saveMoney = Long.parseLong(br.readLine());
85            } catch (NumberFormatException e) {
```

```
86              System.out.println("输入错误，请输入整数");
87              continue;
88            } catch (IOException e) {
89            }

91            long balance = user.AddMoney(saveMoney);
92            System.out.println("存款成功！已存入" + saveMoney + "元" + "可用余额为"
93                + balance + "元");
94            break;
95          }
96        }

98        // 取款
99        if (choose.compareTo("2") == 0) {
100         while (true) {
101           System.out.println("请输入要取款金额（整数）");

103           try {
104             takeMoney = Long.parseLong(br.readLine());

106           } catch (NumberFormatException e) {
107             System.out.println("输入错误，请输入整数");
108             continue;
109           } catch (IOException e) {

111           }

113           if (!(user.getMoney() < takeMoney)) {
114             long balance = user.DepositMoney(takeMoney);
115             System.out.println("取款成功！已取出" + takeMoney + "元"
116                 + "可用余额为" + balance + "元");
117             break;
118           } else {
119             System.out.println("余额不足，请重新输入");
120           }
121         }
122       }

124       // 查询
125       if (choose.compareTo("3") == 0) {
126         System.out.println("你的余额为" + user.getMoney() + "元");
127       }

129       // 显示账户
130       if (choose.compareTo("4") == 0) {
131         user.showUserInfo();
132       }
133       // 退出
134       if (choose.compareTo("5") == 0) {
135         System.out.println("程序退出");
136         System.exit(0);
```

```
        }
      }
    }
}
```

实验四 File: SolveEquation.java

```
package cn.edu.ouc.javase;

import java.io.IOException;
import java.util.Scanner;

public class SolveEquation {

  void print() throws IOException {
    char ch = 'y';
    System.out.println("求解几次方程？ 1: 一次 2: 二次 3: 三次");
    Scanner sLine = new Scanner(System.in);
    int pm = sLine.nextInt();

    if (pm == 3) {
      System.out.println("你选择的是一元三次方程");
      SolveEquation.SolveCubicEquation fc = new SolveEquation().new SolveCubicEquation();
      fc.SolveCubicEquation();
    } else {
      print();
    }

    System.out.println("你是否想继续：(y/n)");
    ch = (char) System.in.read();
    System.in.skip(2);

    if (ch == 'y') {
      print();
    } else if (ch == 'n') {
      System.out.println("Good luck!");
    } else {
      print();
    }
  }

  public static void main(String[] args) throws IOException {
    SolveEquation se = new SolveEquation();
    se.print();
  }

  // 接口 规划求解一元三次方式必须实现的方法
  interface ItCubicEquation {
    void SolveCubicEquation();
  }
```

```
45  class SolveCubicEquation implements ItCubicEquation {

47    @Override
48    public void SolveCubicEquation() {
49      System.out.println("请输入形如一元三次方程 mx^3+nx^2+tx+s=0 的四个系数");
50      Scanner sce = new Scanner(System.in);
51      System.out.println("请输入系数 m：");
52      double m = sce.nextDouble();
53      System.out.println("请输入系数 n：");
54      double n = sce.nextDouble();
55      System.out.println("请输入系数 t：");
56      double t = sce.nextDouble();
57      System.out.println("请输入系数 s：");
58      double s = sce.nextDouble();

60      if (m == 0) {
61        System.out.println("输入错误");
62      } else {
63        double a = n / m;
64        double b = t / m;
65        double c = s / m;
66        double q = (a * a - 3 * b) / 9;
67        double r = (2 * a * a * a - 9 * a * b + 27 * c) / 54;

69        if (r * r < q * q * q) {
70          System.out.println("此方程有三个解：");
71          t = Math.acos(r / Math.sqrt(q * q * q));
72          double x1 = -2 * Math.sqrt(q) + Math.cos(t / 3) - a / 3;
73          double x2 = -2 * Math.sqrt(q)
74              + Math.cos((t + 2 * Math.PI) / 3) - a / 3;
75          double x3 = -2 * Math.sqrt(q)
76              + Math.cos((t - 2 * Math.PI) / 3) - a / 3;

78          System.out.println("x1 = " + x1 + ", x2 = " + x2
79              + ", x3 = " + x3);
80        } else {
81          System.out.println("此方程有一个解：");
82          int sgn = (r >= 0) ? 1 : -1;
83          double u = -sgn
84              * Math.pow(
85                  (Math.abs(r) + Math.sqrt(r * r - q * q * q)),
86                  1.0 / 3);
87          double v = (u != 0) ? q / u : 0;
88          double x1 = u + v - a / 3;
89          System.out.println("x = " + x1);
90        }
91      }
92    }
93  }
94  }
```