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dschmid2 – Lprog2

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```

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=                               Print Date: Wed Apr 19 16:07:42 2017                               =
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=====
=                               Source Files                               =
=====

~~~~~
~                               File: Account2.java                               ~
~~~~~

class Account2 {
    private int accountID; // private variables to keep account information enclosed
    private double balance;
    private static final double INTEREST_RATE = 0.005;
    private int pos; // position variable to use as index position in the recordTrans method
    private String[] recordTrans;
    //construct account object
    Account2(){
        balance = 0.0;
        accountID = 1000 + (int)(Math.random() * 9000);
        recordTrans = new String[5]; // use counter in trans method to stop at desired amount
    }
    public int getAccountID(){
        return accountID;
    }
    public double deposit(double sum){ //adds deposit to balance
        adTrans(String.format("* $%.2f deposited " + "\n", sum));
        return balance += sum;
    }
    public boolean withdraw( double sum){ //subtracts withdraw from balance
        if ( balance < sum){ // check for overdraft
            return false;
        }
        else{
            adTrans(String.format("* $%.2f withdrawn " + "\n", sum));
            balance -= sum;
            return true;
        }
    }
    public double addInterest(){ //adds interest when called to loop and sets balance to include interest
        double interest = balance * INTEREST_RATE;
        balance += interest;
        adTrans(String.format("* $%.2f earned in interest " + "\n", interest));
        return interest;
    }
    public double getBalance(){
        return balance;
    }
    private void adTrans(String message){ //populates a string array with the print statements
        recordTrans[pos] = message;
        pos++; //moves the position of the index up one after each incoming message
    }
    public void transHist(){
        for(int i = 0; i < pos; i++){ //loops through each transaction in each account
            System.out.print(recordTrans[i]);
        }
        System.out.printf("* Current balance: $%.2f" + "\n", balance); // prints current balance outside of loop
    }
}

~~~~~
~                               File: Lprog2.java                               ~
~~~~~

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```

import java.util.Scanner;
public class Lprog2 {

    public static void main(String[] args) {

        Scanner input = new Scanner(System.in);
        char cursor; // used in case to reference user inputs (d,w,i,p)
        Account2[] acArray;
        int accountNum, indexNum;
        double sum; // used to keep track of amount of money being moved in and out of the accounts
        accountNum = input.nextInt();
        acArray = new Account2[accountNum];

        for(int i = 0; i < acArray.length; i++){ // creates desired amount of accounts
            acArray[i] = new Account2();
            System.out.println("account " + acArray[i].getAccountID() + " created"); // print accounts created
        }

        while(input.hasNext()){ // loop through input until it ends.
            cursor = input.next().charAt(0); //assign next input to variable to be evaluated in case below
            switch (cursor){
                case 'd': // evaluates deposits
                    indexNum = input.nextInt();
                    sum = input.nextDouble();
                    acArray[indexNum].deposit(sum);
                    System.out.printf("%.2f deposited into account " + acArray[indexNum].getAccountID() + "\n", sum);
                    break;
                case 'w' : // evaluates withdraws
                    indexNum = input.nextInt();
                    sum = input.nextDouble();
                    if(acArray[indexNum].withdraw(sum)){
                        System.out.printf("%.2f withdrawn from account " + acArray[indexNum].getAccountID() + "\n", sum);
                    }
                    else {
                        System.out.printf("Error: cannot withdraw %.2f" + " from account " + acArray[indexNum].getAccountID() + "\n", sum);
                    }
                    break;
                case 'i' : // evaluates interest
                    indexNum = input.nextInt();
                    System.out.printf("%.2f interest added to account " + acArray[indexNum].getAccountID() + "\n", acArray[indexNum].addInterest());
                    break;
                case 'p' : // evaluates transaction history and current balance
                    indexNum = input.nextInt();
                    System.out.println("");
                    System.out.println("*****");
                    System.out.println("** Transaction history for account " + acArray[indexNum].getAccountID());
                    acArray[indexNum].transHist();
                    System.out.println("*****");
                }
            }
        }
    }
}

```

```

=====
=                               Data Files                               =
=====

```

```

~~~~~
~                               File: in1.dat                               ~
~~~~~

```

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```
d 0 50
w 0 10
i 0
p 0
```

```
-----
-                               Execution                               -
-----
```

```
account 2671 created
$50.00 deposited into account 2671
$10.00 withdrawn from account 2671
$0.20 interest added to account 2671
```

```
*****
* Transaction history for account 2671
* $50.00 deposited
* $10.00 withdrawn
* $0.20 earned in interest
* Current balance: $40.20
*****
```

```
~~~~~
~                               File: in2.dat                               ~
~~~~~
```

```
3
d 0 100
d 1 100
w 1 101
d 2 5
w 0 150
i 0
i 1
i 2
d 0 1000
w 0 1100.50
p 0
p 1
p 2
```

```
-----
-                               Execution                               -
-----
```

```
account 9964 created
account 8382 created
account 5467 created
$100.00 deposited into account 9964
$100.00 deposited into account 8382
Error: cannot withdraw $101.00 from account 8382
$5.00 deposited into account 5467
Error: cannot withdraw $150.00 from account 9964
$0.50 interest added to account 9964
$0.50 interest added to account 8382
$0.03 interest added to account 5467
$1000.00 deposited into account 9964
$1100.50 withdrawn from account 9964
```

```
*****
* Transaction history for account 9964
* $100.00 deposited
* $0.50 earned in interest
* $1000.00 deposited
* $1100.50 withdrawn
* Current balance: $0.00
```

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* Transaction history for account 8382
 * \$100.00 deposited
 * \$0.50 earned in interest
 * Current balance: \$100.50

* Transaction history for account 5467
 * \$5.00 deposited
 * \$0.03 earned in interest
 * Current balance: \$5.03

~~~~~  
 ~~~~~ File: in3.dat ~~~~~  
 ~~~~~

4  
 d 1 100  
 w 0 5  
 w 1 5  
 p 1  
 d 2 100  
 d 3 100  
 i 1  
 i 2  
 p 0  
 p 1  
 p 2  
 p 3

-----  
 - Execution -  
 -----

account 7919 created  
 account 6629 created  
 account 4058 created  
 account 7736 created  
 \$100.00 deposited into account 6629  
 Error: cannot withdraw \$5.00 from account 7919  
 \$5.00 withdrawn from account 6629

\*\*\*\*\*

\* Transaction history for account 6629  
 \* \$100.00 deposited  
 \* \$5.00 withdrawn  
 \* Current balance: \$95.00  
 \*\*\*\*\*

\$100.00 deposited into account 4058  
 \$100.00 deposited into account 7736  
 \$0.48 interest added to account 6629  
 \$0.50 interest added to account 4058

\*\*\*\*\*

\* Transaction history for account 7919  
 \* Current balance: \$0.00  
 \*\*\*\*\*

\*\*\*\*\*

\* Transaction history for account 6629  
 \* \$100.00 deposited  
 \* \$5.00 withdrawn

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```
* $0.48 earned in interest
* Current balance: $95.48
*****

*****
* Transaction history for account 4058
* $100.00 deposited
* $0.50 earned in interest
* Current balance: $100.50
*****

*****
* Transaction history for account 7736
* $100.00 deposited
* Current balance: $100.00
*****
```