**package** bankingProject05142023;

**import** java.util.Scanner;

**public** **class** Banking {

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

XYZBank xb=**new** XYZBank(0);

OperationsLoop:

**do**{

System.***out***.println("Please select the servise that you want to opt for:\n"+

"1. Open New Account\n"+

"2. Deposit Operation\n"+

"3. Withdraw Operation\n"+

"4. Exit");

Scanner sc=**new** Scanner(System.***in***);

Integer i=sc.nextInt();

**switch**(i) {

**case** 1:

xb.openNewAccount();

**break**;

**case** 2:

System.***out***.println("Please enter six digit customer ID");

String custID=sc.next();

System.***out***.println("Please enter the password");

String password=sc.next();

**if**(xb.checkAuthentication(custID, password)) {

System.***out***.println("Please enter the amount that you want to deposit");

**double** deposit=sc.nextDouble();

xb.deposit(deposit, custID, password);

}**else** {

System.***out***.println("Please enter correct credentials");

}

**break**;

**case** 3:

System.***out***.println("Please enter six digit customer ID");

String custID1=sc.next();

System.***out***.println("Please enter the password");

String password1=sc.next();

**if**(xb.checkAuthentication(custID1, password1)) {

System.***out***.println("Please enter the amount that you want to withdraw");

**double** withdrawal=sc.nextDouble();

**try** {

xb.withdrawl(withdrawal, custID1, password1);

} **catch** (InsuffcintFundExeption e) {

// **TODO** Auto-generated catch block

System.***out***.println(e);

// e.printStackTrace();

}

}**else** {

System.***out***.println("Please enter correct credentials");

}

**break**;

**case** 4:

**break** OperationsLoop;

}

}**while**(1!=0);

}

}

**abstract** **class** Banks{

**double** balance=0;

**public** Banks(**double** balance) { //Should I use protected here

**this**.balance=balance;

}

**abstract** **protected** **void** openNewAccount(); //Am I correct to use the protected here

**abstract** **protected** **boolean** checkAuthentication(String custID, String password); //Am I correct to use the protected here

**abstract** **protected** **void** deposit(**double** deposit,String custID, String password); //Am I correct to use the protected here

**abstract** **protected** **void** withdrawl(**double** withdrawl,String custID, String password) **throws** InsuffcintFundExeption; //Am I correct to use the protected here

}

**class** XYZBank **extends** Banks{

String dataBase[][]=**new** String[100][7]; //Why we could not define the array here

// dataBase[0][0]="First Name";

// dataBase[0][1]="Last Name";

// dataBase[0][2]="contact No.";

// dataBase[0][3]="Address";

// dataBase[0][4]="Customer ID";

// dataBase[0][5]="Password";

**public** XYZBank(**double** balance) { //Should I use protected here

**super**(balance);

// **TODO** Auto-generated constructor stub

}

@Override

**protected** **void** deposit(**double** deposit,String custID, String password) {

// **TODO** Auto-generated method stub

**int** account=0;

**for**(**int** i=0;i<100;i++) {

**if**(dataBase[i][4]!=**null** && dataBase[i][5]!=**null**) {

**if**(dataBase[i][4].equals(custID) && dataBase[i][5].equals(password)) {

account=i;

**break**;

}**else** {

account=0;

}

}

}

**if**(dataBase[account][6]!=**null**) {

balance=Double.*parseDouble*(dataBase[account][6]);

}**else** {

balance=0;

}

balance=balance+deposit;

dataBase[account][6]=String.*valueOf*(balance);

System.***out***.println("Thank you for the deposit $"+deposit+

"\n Now current balance is $"+balance);

}

@Override

**protected** **void** withdrawl(**double** withdrawl,String custID, String password) **throws** InsuffcintFundExeption {

// **TODO** Auto-generated method stub

**if**(withdrawl<=balance) {

**int** account=0;

**for**(**int** i=0;i<100;i++) {

**if**(dataBase[i][4]!=**null** && dataBase[i][5]!=**null**) {

**if**(dataBase[i][4].equals(custID) && dataBase[i][5].equals(password)) {

account=i;

**break**;

}**else** {

account=0;

}

}

}

**if**(dataBase[account][6]!=**null**) {

balance=Double.*parseDouble*(dataBase[account][6]);

}**else** {

balance=0;

}

balance=balance-withdrawl;

dataBase[account][6]=String.*valueOf*(balance);

System.***out***.println("Thank you for the withdrawl $"+withdrawl+

"\n Now current balance is $"+balance);

}**else** {

**throw** **new** InsuffcintFundExeption("Withdrawl amount is more than available balance, " +

"please enter the withdrawl as per the available balance.");

// System.out.println("Withdrawl amount is more than available balance, " +

// "please enter the withdrawl as per the available balance.");

}

}

@Override

**protected** **void** openNewAccount() {

// **TODO** Auto-generated method stub

**int** entryIndex=0;

**while**(dataBase[entryIndex][0]!=**null**) {

entryIndex++;

}

Scanner sc=**new** Scanner(System.***in***);

System.***out***.println("Please enter your First Name");

String fName=sc.next();

dataBase[entryIndex][0]=fName;

System.***out***.println("Please enter your Last Name");

String lName=sc.next();

dataBase[entryIndex][1]=lName;

System.***out***.println("Please enter your Contact No.");

String contact=sc.next();

dataBase[entryIndex][2]=contact;

System.***out***.println("Please enter your Address");

String address=sc.next(); //.nextLine() is not working here

dataBase[entryIndex][3]=address;

System.***out***.println("Please enter six digit customer ID");

String custID=sc.next();

dataBase[entryIndex][4]=custID;

System.***out***.println("Please enter the password");

String password=sc.next();

dataBase[entryIndex][5]=password;

}

@Override

**protected** **boolean** checkAuthentication(String custID, String password) {

// **TODO** Auto-generated method stub

**boolean** check=**false**;

**for**(**int** i=0;i<100;i++) {

**if**(dataBase[i][4]!=**null** && dataBase[i][5]!=**null**) {

**if**(dataBase[i][4].equals(custID) && dataBase[i][5].equals(password)) {

check=**true**;

**break**;

}**else** {

check=**false**;

}

}

}

**return** check;

}

}

**class** InsuffcintFundExeption **extends** Exception{

**public** InsuffcintFundExeption(String message) {

**super**(message);

// **TODO** Auto-generated constructor stub

}

}