**package lab3 ;**

**public class Account {**

**public static double CURRENTACCOUNTFEE = 10.0;**

**public static double SAVINGSINTEREST = 0.01;**

**protected String accountType;**

**protected Customer theCustomer;**

**protected int accountNumber;**

**protected double theBalance;**

**private static int availableNumbers = 0;**

**public Account(Customer arg1, double arg2) {**

**theCustomer = arg1;**

**theBalance = arg2;**

**availableNumbers = availableNumbers + 1;**

**accountNumber = availableNumbers;**

**}**

**public int getAccountNumber() {**

**return accountNumber;**

**}**

**public double getBalance() {**

**return theBalance;**

**}**

**public void annualChange() {**

**if(accountType.equals("Current")){**

**theBalance -= CURRENTACCOUNTFEE;**

**}**

**else {**

**theBalance += SAVINGSINTEREST;**

**}**

**}**

**public String toString() {**

**String result = "\n\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*";**

**result = result + "\nAccount number : " + accountNumber;**

**result = result + "\nCustomer : " + theCustomer.getName();**

**result = result + "\nBalance : " + theBalance;**

**result = result + "\n\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*";**

**return result;**

**}**

**}**

**package lab3 ;**

**import java.util.ArrayList;**

**public class Bank {**

**private ArrayList<Account> theAccounts;**

**private ArrayList<Customer> theCustomers;**

**public Bank() {**

**theAccounts = new ArrayList<Account>();**

**theCustomers = new ArrayList<Customer>();**

**}**

**public boolean hasCustomer(String arg) {**

**boolean dummy = false;**

**for (int i = 0; i < theCustomers.size(); i++) {**

**if (theCustomers.get(i).getName().equals(arg)) {**

**dummy = true;**

**}**

**}**

**return dummy;**

**}**

**public void addCustomer(String arg) {**

**if (hasCustomer(arg)) {**

**System.out.println("The customer already exists.");**

**}**

**else {**

**theCustomers.add(new Customer(arg));**

**System.out.println("Customer added.");**

**}**

**}**

**public void addCurrentAccount(String arg1, double arg2) {**

**if (hasCustomer(arg1)) {**

**Customer dummy = getCustomer(arg1);**

**if (dummy.hasCurrentAccount()) {**

**System.out.println("The customer already has a current account.");**

**}**

**else {**

**CurrentAccount newAccount = new CurrentAccount(dummy,arg2);**

**theAccounts.add(newAccount);**

**dummy.addCurrentAccount(newAccount);**

**System.out.println("Added a account for " + dummy.getName());**

**}**

**}**

**else {**

**System.out.println("There is no customer with that name.");**

**}**

**}**

**public Customer getCustomer(String arg) {**

**if (!hasCustomer(arg)) return null;**

**else {**

**Customer dummy;**

**int irun = 0;**

**do {**

**dummy = theCustomers.get(irun);**

**irun++;**

**} while (!dummy.getName().equals(arg));**

**return dummy;**

**}**

**}**

**public String toString() {**

**String result = "Bank information : ";**

**double totalValue = 0.0;**

**for (int i = 0; i < theAccounts.size(); i++) {**

**totalValue = totalValue + theAccounts.get(i).getBalance();**

**}**

**result = result + "\nNumber of customers : " + theCustomers.size();**

**result = result + "\nNumber of accounts : " + theAccounts.size();**

**result = result + "\nIt controls a total of " + totalValue;**

**return result;**

**}**

**}**