

Java Programming Assignment: inheritance

In this assignment we will simulate a bank transactions that offers the customer the following types:

1. Checking account that does not provide interest, but it does provide a limited free transactions per month. Additional checking account transactions are charged a small fee.
2. Savings account that earns interest on a monthly basis.

Program Specification and implementation

Create a superclass BankAccount and two subclasses CheckingAccount and SavingsAccount. All the bank accounts should support getBalance, deposit and withdraw methods. Follow the below detailed specifications for each class.

BankAccount:

- Implement instance field balance
- Constructor creates an account with 0 balance.
- Constructor to create an account with an initial balance
- deposit method that takes in amount to be deposited
- withdraw method that takes amount to withdraw
- getBalance method to return the current balance in the account.
- transferMoney method that transfers money from this bank account to other bank account. This method takes two arguments (BankAccount otherAccount, double amount)
- display method that displays the account balance.

CheckingAccount:

- Constant instance fields for ALLOWED_TRANS and TRANS_FEE. Allow for 2 free transactions and \$3 for additional transaction.
- instance field transactionCount (specific and new to CheckingAccount).
- Constructor to create zero balance account.
- Constructor to create an account with an initial balance

- override deposit and withdraw methods in order to increment the transaction count.
- chargeFees that charges transaction fee if any to the account at the end of the period.

SavingsAccount:

- Instance field interestRate that holds the interest rate for period.
- Constructor that sets interest rate.
- Constructor that sets rate and initial balance.
- addCompoundInterest method that adds the interest for the current period to the account balance. Deposit the interest to the account. (Use this formula to calculate interest = balance * interestRate / 100.0)

TransactionsDriver:

- Instantiate a savings account name it dadsSavings with interestRate 0.3%
- Instantiate a checking account and name it kidsChecking.
- Deposit 10000 into dadsSavings account.
- Transfer 3000 to kidsChecking
- Withdraw 200 from kidsChecking
- Withdraw 400 from kidsChecking
- Withdraw 300 from kidsChecking
- Withdraw 500 from kidsChecking
- Withdraw 400 from kidsChecking
- Invoke end of period interest for the savings account
- Invoke end of period transactions fees for the checking account
- Display the final balance for dadsSavings account
- Display the final balance for kidsChecking account
- End of program

Sample Output:

At the end of these transactions the bank accounts should have the below balances

End of the period account balances

Dad's savings. Account balance: 7021.0

kid's checking. Account balance: 1188.0