

实验题目 5:

在银行项目中创建 `Account` 的两个子类: `SavingAccount` 和 `CheckingAccount`

实验目的:

继承、多态、方法的重写。

提示:

创建 `Account` 类的两个子类: `SavingAccount` 和 `CheckingAccount` 子类

- 修改 `Account` 类;将 `balance` 属性的访问方式改为 `protected`
- 创建 `SavingAccount` 类, 该类继承 `Account` 类
- 该类必须包含一个类型为 `double` 的 `interestRate` 属性
- 该类必须包括带有两个参数(`balance` 和 `interest_rate`)的公有构造器。该构造器必须通过调用 `super(balance)`将 `balance` 参数传递给父类构造器。

实现 `CheckingAccount` 类

- `CheckingAccount` 类必须扩展 `Account` 类
- 该类必须包含一个类型为 `double` 的 `overdraftProtection` 属性。
- 该类必须包含一个带有参数(`balance`)的共有构造器。该构造器必须通过调用 `super(balance)`将 `balance` 参数传递给父类构造器。
- 该类必须包括另一个带有两个参数(`balance` 和 `protect`)的公有构造器。该构造器必须通过调用 `super(balance)`并设置 `overdraftProtection` 属性, 将 `balance` 参数传递给父类构造器。
- `CheckingAccount` 类必须覆盖 `withdraw` 方法。此方法必须执行下列检查。如果当前余额足够弥补取款 `amount`,则正常进行。如果不够弥补但是存在透支 保护, 则尝试用 `overdraftProtection` 得值来弥补该差值 (`balance-amount`)。如果弥补该透支所需要的金额大于当前的保护级别。则整个交易失败, 但余额未受影响。
- 在主 `exercise1` 目录中, 编译并执行 `TestBanking` 程序。输出应为:
Creating the customer Jane Smith.
Creating her Savings Account with a 500.00 balance and 3% interest.

Creating the customer Owen Bryant.

Creating his Checking Account with a 500.00 balance and no overdraft protection.

Creating the customer Tim Soley.

Creating his Checking Account with a 500.00 balance and 500.00 in overdraft protection.

Creating the customer Maria Soley.

Maria shares her Checking Account with her husband Tim.

Retrieving the customer Jane Smith with her savings account.

Withdraw 150.00: true

Deposit 22.50: true

Withdraw 47.62: true

Withdraw 400.00: false

Customer [Simms, Jane] has a balance of 324.88

Retrieving the customer Owen Bryant with his checking account with no overdraft protection.

Withdraw 150.00: true

Deposit 22.50: true

Withdraw 47.62: true

Withdraw 400.00: false

Customer [Bryant, Owen] has a balance of 324.88

Retrieving the customer Tim Soley with his checking account that has overdraft protection.

Withdraw 150.00: true

Deposit 22.50: true

Withdraw 47.62: true

Withdraw 400.00: true

Customer [Soley, Tim] has a balance of 0.0

Retrieving the customer Maria Soley with her joint checking account with husband Tim.

Deposit 150.00: true

Withdraw 750.00: false

Customer [Soley, Maria] has a balance of 150.0