

## 임베디드시스템실습\_lab7

2017313107 이승태

### 1. exercise 1

class bankaccount에서 먼저 BankAccount를 만들 때, -금액이 들어오면, exception을 날리고, deposit, withdraw에도 -금액이 들어오면 exception을 날리고, balance보다 많은양의 돈을 빼낼 때 exception을 날리게 설정해두었다.

```
class BankAccount {
    double balance;

    public BankAccount (double b) {
        if(b < 0) {
            IllegalArgumentException exception = new IllegalArgumentException("create minus bank account");
            throw exception;
        }
        this.balance = b;
    }

    public void deposit (double amount) {
        if(amount < 0) {
            IllegalArgumentException exception = new IllegalArgumentException("minus deposit");
            throw exception;
        }
        balance = balance + amount;
    }

    public void withdraw (double amount) {
        if(amount < 0) {
            IllegalArgumentException exception = new IllegalArgumentException("minus withdraw");
            throw exception;
        }
        if(amount > balance) {
            IllegalArgumentException exception = new IllegalArgumentException("Amount exceeds balance");
            throw exception;
        }
        balance = balance - amount;
    }
}
```

처음에 account를 생성할 때, -100의 금액으로 생성을하고, 다른 account는 100으로 생성하여, -100을 각각 deposit, withdraw해보고, 200을 withdraw를 해보았다.

```
public class week7_1 {
    public static void main(String[] args){
        BankAccount acc = new BankAccount(100.0);

        try {
            BankAccount acctmp = new BankAccount(-100.0);
        } catch (IllegalArgumentException ex) {
            System.out.println("Bank create failed.");
            ex.printStackTrace();
        }

        try {
            acc.deposit(-100.0);
        } catch (IllegalArgumentException ex) {
            System.out.println("Deposit failed.");
            ex.printStackTrace();
        }

        try {
            acc.withdraw(-100.0);
        } catch (IllegalArgumentException ex) {
            System.out.println("Withdraw failed.(minus withdraw)");
            ex.printStackTrace();
        }

        try {
            acc.withdraw(200.0);
        } catch (IllegalArgumentException ex) {
            System.out.println("Withdraw failed.(too much withdraw)");
            ex.printStackTrace();
        }
    }
}
```

4번 모두 exception이 발생한다.

```
lee@lee-GF75-Thin-95C:~/java$ javac week7_1.java
lee@lee-GF75-Thin-95C:~/java$ java week7_1
Bank create failed.
java.lang.IllegalArgumentException: create minus bank account
    at BankAccount.<init>(week7_1.java:6)
    at week7_1.main(week7_1.java:38)
Deposit failed.
java.lang.IllegalArgumentException: minus deposit
    at BankAccount.deposit(week7_1.java:14)
    at week7_1.main(week7_1.java:45)
Withdraw failed.(minus withdraw)
java.lang.IllegalArgumentException: minus withdraw
    at BankAccount.withdraw(week7_1.java:22)
    at week7_1.main(week7_1.java:51)
Withdraw failed.(too much withdraw)
java.lang.IllegalArgumentException: Amount exceeds balance
    at BankAccount.withdraw(week7_1.java:26)
    at week7_1.main(week7_1.java:57)
lee@lee-GF75-Thin-95C:~/java$
```

## 2. exercise 2

위의 Bankaccount를 arraylist로 만들고 arraylist를 이용하여 addAccount, deposit, withdraw, getBalance를 구현해보았다.

```
class Bank {
    ArrayList<Bankaccount> B = new ArrayList<Bankaccount>();
    public void addAccount(double initialBalance) {
        B.add(new Bankaccount(initialBalance));
    }
    public void deposit(int account, double amount) {
        Bankaccount tmp = B.get(account);
        tmp.deposit(amount);
    }
    public void withdraw(int account, double amount) {
        Bankaccount tmp = B.get(account);
        tmp.withdraw(amount);
    }

    public double getBalance(int account) {
        return B.get(account).balance;
    }
}
```

각각 100, 200, 300, 400을 가진 bankaccount를 생성하고, 0, 1번에는 100을 더해주고, 2, 3번에는 100을 빼주었다. 그후 출력을 해주었다.

```
public class week7_2 {
    public static void main(String[] args) {
        Bank Blist = new Bank();
        Blist.addAccount(100.0);
        Blist.addAccount(200.0);
        Blist.addAccount(300.0);
        Blist.addAccount(400.0);
        Blist.deposit(0, 100.0);
        Blist.deposit(1, 100.0);
        Blist.withdraw(2, 100.0);
        Blist.withdraw(3, 100.0);
        System.out.println(Blist.getBalance(0));
        System.out.println(Blist.getBalance(1));
        System.out.println(Blist.getBalance(2));
        System.out.println(Blist.getBalance(3));
    }
}
```

200, 300, 200, 300으로 잘 들어가있는 모습이다.

```
at BankAccount.withdraw(week7_1.java:26)
at week7_1.main(week7_1.java:57)
Lee@Lee-GF75-Thin-9SC:~/java$ java week7_2
200.0
300.0
200.0
300.0
Lee@Lee-GF75-Thin-9SC:~/java$
```