

Praktikum 2.2

```
/*
 * This class creates the program to test the banking classes.
 * It creates a new Bank, sets the Customer (with an initial balance),
 * and performs a series of transactions with the Account object.
 */

import banking.*;

public class TestBanking {

    public static void main(String[] args) {
        Bank    bank = new Bank();

        bank.addCustomer("Jane", "Simms");
        bank.addCustomer("Owen", "Bryant");
        bank.addCustomer("Tim", "Soley");
        bank.addCustomer("Maria", "Soley");

        for ( int i = 0; i < bank.getNumOfCustomers(); i++ ) {
            Customer customer = bank.getCustomer(i);

            System.out.println("Customer [" + (i+1) + "] is "
                + customer.getLastName()
                + ", " + customer.getFirstName());
        }
    }
}
```

Praktikum 2.3

```
/*
 * This class creates the program to test the banking classes.
 * It creates a new Bank, sets the Customer (with an initial balance),
 * and performs a series of transactions with the Account object.
 */

import banking.*;

public class TestBanking {

    public static void main(String[] args) {
        Bank    bank = new Bank();
        Customer customer;
        Account account;

        //
        // Create bank customers and their accounts
        //

        System.out.println("Creating the customer Jane Smith.");
        bank.addCustomer("Jane", "Simms");
    }
}
```

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    customer = bank.getCustomer(0);
    System.out.println("Creating her Savings Account with a 500.00
balance and 3% interest.");
    customer.setAccount(new SavingsAccount(500.00, 0.03));

    System.out.println("Creating the customer Owen Bryant.");
    bank.addCustomer("Owen", "Bryant");
    customer = bank.getCustomer(1);
    System.out.println("Creating his Checking Account with a 500.00
balance and no overdraft protection.");
    customer.setAccount(new CheckingAccount(500.00));

    System.out.println("Creating the customer Tim Soley.");
    bank.addCustomer("Tim", "Soley");
    customer = bank.getCustomer(2);
    System.out.println("Creating his Checking Account with a 500.00
balance and 500.00 in overdraft protection.");
    customer.setAccount(new CheckingAccount(500.00, 500.00));

    System.out.println("Creating the customer Maria Soley.");
    bank.addCustomer("Maria", "Soley");
    customer = bank.getCustomer(3);
    System.out.println("Maria shares her Checking Account with her
husband Tim.");
    customer.setAccount(bank.getCustomer(2).getAccount());

    System.out.println();

    //
    // Demonstrate behavior of various account types
    //

    // Test a standard Savings Account
    System.out.println("Retrieving the customer Jane Smith with her
savings account.");
    customer = bank.getCustomer(0);
    account = customer.getAccount();
    // Perform some account transactions
    System.out.println("Withdraw 150.00: " + account.withdraw(150.00));
    System.out.println("Deposit 22.50: " + account.deposit(22.50));
    System.out.println("Withdraw 47.62: " + account.withdraw(47.62));
    System.out.println("Withdraw 400.00: " + account.withdraw(400.00));
    // Print out the final account balance
    System.out.println("Customer [" + customer.getLastName()
        + ", " + customer.getFirstName()
        + "] has a balance of " + account.getBalance());

    System.out.println();

    // Test a Checking Account w/o overdraft protection
    System.out.println("Retrieving the customer Owen Bryant with his
checking account with no overdraft protection.");
    customer = bank.getCustomer(1);
    account = customer.getAccount();

```

```

// Perform some account transactions
System.out.println("Withdraw 150.00: " + account.withdraw(150.00));
System.out.println("Deposit 22.50: " + account.deposit(22.50));
System.out.println("Withdraw 47.62: " + account.withdraw(47.62));
System.out.println("Withdraw 400.00: " + account.withdraw(400.00));
// Print out the final account balance
System.out.println("Customer [" + customer.getLastName()
    + ", " + customer.getFirstName()
    + "] has a balance of " + account.getBalance());

System.out.println();

// Test a Checking Account with overdraft protection
System.out.println("Retrieving the customer Tim Soley with his
checking account that has overdraft protection.");
customer = bank.getCustomer(2);
account = customer.getAccount();
// Perform some account transactions
System.out.println("Withdraw 150.00: " + account.withdraw(150.00));
System.out.println("Deposit 22.50: " + account.deposit(22.50));
System.out.println("Withdraw 47.62: " + account.withdraw(47.62));
System.out.println("Withdraw 400.00: " + account.withdraw(400.00));
// Print out the final account balance
System.out.println("Customer [" + customer.getLastName()
    + ", " + customer.getFirstName()
    + "] has a balance of " + account.getBalance());

System.out.println();

// Test a Checking Account with overdraft protection
System.out.println("Retrieving the customer Maria Soley with her
joint checking account with husband Tim.");
customer = bank.getCustomer(3);
account = customer.getAccount();
// Perform some account transactions
System.out.println("Deposit 150.00: " + account.deposit(150.00));
System.out.println("Withdraw 750.00: " + account.withdraw(750.00));
// Print out the final account balance
System.out.println("Customer [" + customer.getLastName()
    + ", " + customer.getFirstName()
    + "] has a balance of " + account.getBalance());
}
}

```

Praktikum 2.4

```

/*
 * This class creates the program to test the banking classes.
 * It creates a set of customers, with a few accounts each,
 * and generates a report of current account balances.
 */

```

```

import banking.*;
import java.text.NumberFormat;

public class TestBanking {

    public static void main(String[] args) {
        NumberFormat currency_format = NumberFormat.getCurrencyInstance();
        Bank bank = new Bank();
        Customer customer;

        // Create several customers and their accounts
        bank.addCustomer("Jane", "Simms");
        customer = bank.getCustomer(0);
        customer.addAccount(new SavingsAccount(500.00, 0.05));
        customer.addAccount(new CheckingAccount(200.00, 400.00));

        bank.addCustomer("Owen", "Bryant");
        customer = bank.getCustomer(1);
        customer.addAccount(new CheckingAccount(200.00));

        bank.addCustomer("Tim", "Soley");
        customer = bank.getCustomer(2);
        customer.addAccount(new SavingsAccount(1500.00, 0.05));
        customer.addAccount(new CheckingAccount(200.00));

        bank.addCustomer("Maria", "Soley");
        customer = bank.getCustomer(3);
        // Maria and Tim have a shared checking account
        customer.addAccount(bank.getCustomer(2).getAccount(1));
        customer.addAccount(new SavingsAccount(150.00, 0.05));

        // Generate a report
        System.out.println("\t\t\tCUSTOMERS REPORT");
        System.out.println("\t\t\t=====");

        for ( int cust_idx = 0; cust_idx < bank.getNumOfCustomers();
            cust_idx++ ) {
            customer = bank.getCustomer(cust_idx);

            System.out.println();
            System.out.println("Customer: "
                + customer.getLastName() + ", "
                + customer.getFirstName());

            for ( int acct_idx = 0; acct_idx < customer.getNumOfAccounts();
                acct_idx++ ) {
                Account account = customer.getAccount(acct_idx);
                String account_type = "";

                // Determine the account type
                if ( account instanceof SavingsAccount ) {
                    account_type = "Savings Account";
                } else if ( account instanceof CheckingAccount ) {
                    account_type = "Checking Account";
                }
            }
        }
    }
}

```


}
}