JAVA PROGRAMMING

SECTION 2-4 PRACTICE

1. You have included exception handling for the create button in the JavaBank application. Do the same for the make transactionbutton. try {if (noAccounts == 0) {displayJTextArea.setText("No Accounts currently created");}else {// get user inputintAccountnum = Integer.parseInt(AccountnumJTextField.getText());intDeposit = Integer.parseInt(DepositJTextField.getText());intWithdraw = Integer.parseInt(WithdrawJTextField.getText());
   for (inti=0; i<noAccounts; i++)
   {
   if ((myAccounts[i].getaccountnum() == Accountnum) && (Deposit>0))
   {
   myAccounts[i].setbalance(myAccounts[i].getBalance()+Deposit);
   displayJTextArea.setText(myAccounts[i].getaccountname() + " " + myAccounts[i].getaccountnum() + " " + myAccounts[i].getBalance());
   }
   if ((myAccounts[i].getaccountnum() == Accountnum) && (Withdraw>0))
   {
      myAccounts[i].setbalance(myAccounts[i].getBalance()-Withdraw);
   displayJTextArea.setText(myAccounts[i].getaccountname() + " " +myAccounts[i].getaccountnum() + " " + myAccounts[i].getBalance());
   }
   }
   }
   }
   catch(NumberFormatException | InputMismatchException e)
   {
   displayJTextArea.setText("");
   JOptionPane.showMessageDialog(null, "Incorrect value.");
   }
   //end catchcatch(Exception e)
   {
   System.out.println(e);
   }
   //end catchfinally
   {
   // clear other JTextFields for new dataNameJTextField.setText(" ");
   AccountnumJTextField.setText("0");
   BalanceJTextField.setText("0");

```
DepositJTextField.setText("0");
WithdrawJTextField.setText("0");
    }
}
```

2. Create an exception class in the JavaBank application called “myException” that accepts a String message as a parameter in its constructor and passes the message to the super class to be printed out when an error message is thrown.

```
publicclassMyExceptionextends Exception
{
public MyException(String message)
{
super(message);
}
}
```

3. Update all of the catch(Exceptione) statements in JavaBank.java to create a MyException object named newExc that sends the message "An unhandled error occurred!!" into the object.

4. Surround both the method calls for the transaction and create operations in try catch statements displaying the error message in a jOptionPane if a custom exception is thrown.

5. To test the custom exception, comment out all other catch statements so that only Exception e is left to handle any run time errors. Enter incorrect data for both the create and transaction functions. Uncomment the other catch statements when you have completed your tests.

Final program:

```
import javax.swing.*;


// Main class for JavaBank application
public class JavaBank {


  // Custom exception class
  public static class MyException extends Exception {
     public MyException(String message) {
        super(message);
     }
  }
```

```
    // Class to handle account creation
    public static class CreateAccount {
        public void createAccount(String accountNumber, String amountText) throws MyException {
            try {
                if (accountNumber.isEmpty()) {
                    throw new MyException("Account number cannot be empty!");
                }
                double amount = Double.parseDouble(amountText);
                // Logic to create an account using accountNumber and amount
                System.out.println("Account created successfully with account number: " + accountNumber + " and amount: " + amount);
            } catch (NumberFormatException e) {
                throw new MyException("Invalid amount entered!");
            } catch (Exception e) {
                throw new MyException("An unhandled error occurred while creating the account!");
            }
        }
    }

    // Class to handle transactions
    public static class MakeTransaction {
        public void makeTransaction(String accountNumber, String amountText) throws MyException {
            try {
                if (accountNumber.isEmpty()) {
                    throw new MyException("Account number cannot be empty!");
                }
                double amount = Double.parseDouble(amountText);
                // Logic to perform a transaction using accountNumber and amount
```

```
            System.out.println("Transaction successful for account number: " + accountNumber + " with amount: " + amount);
        } catch (NumberFormatException e) {
            throw new MyException("Invalid amount entered!");
        } catch (Exception e) {
            throw new MyException("An unhandled error occurred while making the transaction!");
        }
    }
}

// Class to manage bank operations
public static class BankOperations {
    private CreateAccount createAccount;
    private MakeTransaction makeTransaction;

    public BankOperations() {
        createAccount = new CreateAccount();
        makeTransaction = new MakeTransaction();
    }

    public void performCreateAccountOperation(String accountNumber, String amountText) {
        try {
            createAccount.createAccount(accountNumber, amountText);
        } catch (MyException newExc) {
            System.out.println("Error: " + newExc.getMessage());
        }
    }

    public void performMakeTransactionOperation(String accountNumber, String amountText) {
```

```
            try {
                makeTransaction.makeTransaction(accountNumber, amountText);
            } catch (MyException newExc) {
                System.out.println("Error: " + newExc.getMessage());
            }
        }
    }

    public static void main(String[] args) {
        BankOperations operations = new BankOperations();

        String accountNumber = "12345"; // Example account number
        String amountText = "100.00"; // Example amount

        operations.performCreateAccountOperation(accountNumber, amountText);
        operations.performMakeTransactionOperation(accountNumber, "50.00");
}
}
```

```
Account created successfully with account number: 12345 and amount: 100.0
Transaction successful for account number: 12345 with amount: 50.0
```