

Laboratory Assignments

Subject: Introduction to Databases

Subject code: CSE 3151

Assignment 6: Mini project using JDBC connectivity

Objective of this Assignment:

- To design a miniature Project for a Banking Management System using Java, Oracle and JDBC.

Requisite:

- Completion of IDB Laboratory Assignment-4
- Basic Java Programming knowledge

Overview of the Project: A Banking Management System is to be designed, putting together the concepts learnt in theory and practised in laboratory. The Project will integrate a Java frontend menu driven program to the backend Banking Database designed in Oracle through JDBC connectivity.

Project Description: The Java program provides an interface to the user to access, insert, delete and update the database. The program handles user input, output to and from the database for the said operations. User should be able to do the following operations:

1. Show Customer Records:

Using this option the details of all the customers should be displayed in particular format.

2. Add Customer Record:

Using this option the user needs to provide the information such as cust_no, name, phoneno and city through user input, which will be saved in database. After that using option 1, details of all the customers will be displayed in particular format.

3. Delete Customer Record:

Using this option the user needs to provide the cust_no of a customer through user input and all the information related to that customer will be deleted from the database. After that using option 1, details of all the customers will be displayed in particular format.

4. Update Customer Information:

Using this option the user needs to provide the cust_no of a customer through user input and based on the following choice the information related to the customer will be updated.

4.1: Update name

4.2: Update Phoneno.

4.3: Update city

After that using option 1, details of all the customers will be displayed in particular format.

5. Show Account Details of a Customer:

Using this option the user needs to provide the cust_no of a customer through user input and all the information of that customer along with his account_no, type, balance, branch_code, branch_name and branch_city will be displayed in proper format.

6. Show Loan Details of a Customer:

Using this option the user needs to provide the cust_no of a customer through user input and all the information of that customer along with his loan_no, loan amount, branch_code, branch_name and branch_city will be displayed in proper format.

7. Deposit Money to an Account:

Using this option the user needs to provide the account_no of a customer and the amount to be deposited through user input. According to the deposited amount the updated balance will be verified in proper format using option 5.

8. Withdraw Money from an Account:

Using this option the user needs to provide the account_no of a customer and the amount to be withdraw through user input. According to the withdraw amount the updated balance will be verified in proper format using option 5.

9. Exit the Program

The operations are choice based. Appropriate option has to be chosen from a switch case based menu driven program and the operation on the database is performed accordingly. The output is displayed in the terminal screen with appropriate messages from the database as displayed by Oracle during direct access. Exceptions should be handled properly by the Java program. The output should be displayed in a formatted way for clarity of understanding and visual.

Program Skeleton:

```
import java.sql.*;
import java.io.*;

public class myjdbcproj{
    public static void main(String args[]) throws IOException
    {
        Connection con=null;
        Statement stmt=null;
        // Declare common variables if any
        try{
            // Load the driver class
            Class.forName("oracle.jdbc.driver.OracleDriver");

            // Create the connection object
            String conurl="jdbc:oracle:thin:@172.17.144.110:1521:ora11g";
            con=DriverManager.getConnection(conurl,"<user ID>","<user password>");
            stmt=con.createStatement();
            do
            {

                System.out.println("\n\n***** Banking Management System*****");
                // Display the menu

                System.out.println("Enter your choice(1-9):");
                // Accept user's choice

                switch(choice_variable)
                {
                    case 1:
                        // Display customer records
                        break;
                    case 2:
                        // Add customer record
                        // Accept input for each column from user
```

```
break;
case 3:
// Delete customer record

// Accept customer number from user

break;
case 4:
// Update customer record
// Accept customer number from user
System.out.println("Enter 1: For Name 2: For Phone no 3: For City to update:");
// Accept user's choice
switch(choice_variable_1)
{
case 1:
// Update customer's name
break;
case 2:
// Update customer's phone number

break;
case 3:
// Update customer's city
break;
}
break;
case 5:
// Display account details

// Accept customer number from user
break;
case 6:
// Display loan details

// Accept customer number from user
```

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        // Display the number of loans the customer has or
        // Congratulation if he customer has no loan
        break;
        case 7:
            //Deposit money

            // Accept the account number to be deposited in

            // Message for transaction completion

            break;
            case 8:
                //Withdraw money

                // Accept the account number to be withdrawn from

                // Handle appropriate withdral ckeck conditions
                // Message for transaction completion

                break;

            case 9:
                // Exit the menu
                break;
            default:
                // Handle wrong choice of option
            }

        }while(condition);
    } //try closing
    catch(Exception e)
    { // Handling exception}

} // main closing
} // End class

```

Test Cases:

The program should be able to produce correct answer or appropriate error message corresponding to the following testcases:

1. Show Customer Records
2. Add Customer Record: <C0011, ANWESHA DAS, 9999999999, BHUB>, <c0012, SACHIN SINGH, 9898989898, CTC>, <C0013, ARJUN MISHRA, 7777777777, BBSR>
3. Delete Customer Record: <C0013>, <C0016>
4. Update Customer Record for any attribute except Customer Number: <C0011> [Update each column once]
5. Show Account Details of a Customer: <C0003>, <c0005>, <C0016>
6. Show Loan Details of a Customer: <C0003>, <c0005>, <C0008>, <C0016>
7. Deposit Money to an Account: <A0008, 800>, <a0005, 10000>
8. Withdraw Money from an Account: <A0008, 800>, <A0008, 8000><a0005, 10000>
9. Exit the Program
10. Enter choice 10