Indian Institute of Information Technology Vadodara

CS262: Database Management System

Lab 8

Roll No. 201951105 **Name: Nishant Andoriya**

For this assignment, you can create a interface using console only.

If the **com.mysql.jdbc.Driver** showing **class not found error** then you can follow the following link **https://www.javatpoint.com/example-to-connect-to-the-mysql-database**

You can start the assignment with the following code

```
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.PreparedStatement;
import java.sql.ResultSet;
import java.sql.SQLException;
import java.sql.Statement;
import java.util.Date;

public class MySQLAccess {
 private Connection connect = null;
 private Statement statement = null;
 private PreparedStatement preparedStatement = null;
 private ResultSet resultSet = null;

 public void readDataBase() throws Exception {
 try {
 // This will load the MySQL driver, each DB has its own
driver  Class.forName("com.mysql.jdbc.Driver");
 // Setup the connection with the DB
 connect = DriverManager
.getConnection("jdbc:mysql://localhost:3306/dbName", "sqluser","sqluserpassword");
```

Question 2.) Consider the following relations for an Order Processing Database application in a Company.

Customer (**Customerno varchar2 (5), Cname varchar2 (50)**);

Implement check constraints to check Customerno starts with **'C'**.

Cust_Order (**Orderno varchar2(5), Odate Date,** Customerno **references Customer, Ord_amt number(8)**);

Implement check constraints to check Orderno starts with '**O**'.

Ord_amt is derived attribute (default value is 0);

Item (**Itemno varchar2 (5), Item_name varchar2 (30), unit_price number (5)**); Implement check constraint to check Itemno starts with **'I'**.
Order_item (**Orderno references Cust_order,** Itemno **references item, qty number (3)**);

a.) Implement a program which make an entry for a new customer in the customer table. If any of the check constraint violates, give the message to the user with the information about the constraint.

b.) Implement a program which make an entry for a new item in the item table. If any of the check constraint violates, give the message to the user with the information about the constraint.

c.) Implement a program which make an entry for a new order. For any new order two entries will me made, one in Cust_Order relation and another in Order_item relation.

d.) Implement a program to edit the value of Ord_amt of existing order.

Create the program to list the following details to the user,

e.) List the details of customers who have placed more than 3 orders.

f.) List details of items whose price is less than the average price of all items in each order. g.) List the orderno and number of items in each order.
h.) List the details of items that are present in 25% of the orders.

Code:-

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

public class Question2 {

    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        //Here we are connecting to Question_2 Database in MySQL in this Computer
.
```

```
        try
        {
            Class.forName("com.mysql.cj.jdbc.Driver");
            Connection con = DriverManager.getConnection(
                    "jdbc:mysql://order_process","root","root");
            while(true) {
                System.out.println("Enter any choice as per the given options");
                System.out.println("1. Insert into Customer");
                System.out.println("2. Insert into Order");
                System.out.println("3. Insert into Item");
                System.out.println("4. To edit the value of the Order Item by add
ing");
                System.out.println("5. To edit the value of the Order Item by del
eting");
                System.out.println();

                int t = sc.nextInt();
                switch(t) {
                    case 1 :
                        String Customer_Name, Customer_Number;
                        System.out.println("Please enter the Customer Name");
                        Customer_Name = sc.next();
                        System.out.println("Please enter the Customer Number");
                        Customer_Number = sc.next();
                        System.out.println();
                        System.out.println(Customer_Name + " :: " + Customer_Numb
er);
                        //We need to check if the customer is legit of not here s
o we are checking for the first letter to be
                        //starting with 'C' or 'c'.
                        if(Customer_Number.charAt(0) == 'C' || Customer_Number.ch
arAt(0) == 'c'){
                            // Statement mystmt1 = con.createStatement();
                            String query1 = "insert into Customer " + "values (?,
?);";
                            PreparedStatement stmt1 = con.prepareStatement(query1
);
                            stmt1.setString(1, Customer_Number);
                            stmt1.setString(2, Customer_Name);
                            stmt1.executeUpdate();
                            System.out.println("The data has been inserted!!");
                        }
                        else {
                            System.out.println("We cannot find the given customer
 Number");
```

```
                        }
                        break;

                    case 2 :
                        String Order_Number,Item_Number1,Customer_Number1;
                        int Amount,Quantity;
                        Date dete;
                        System.out.println("Please enter the order Number here :"
);
                        Order_Number = sc.next();
                        System.out.println("Please enter the Customer Number here
 :");
                        Customer_Number1 = sc.next();
                        Long theDate = System.currentTimeMillis();
                        dete = new java.sql.Date(theDate);
                        System.out.println("Please enter the Amount : ");
                        Amount = sc.nextInt();
                        System.out.println(Order_Number + " :: " + Customer_Numbe
r1 + " :: " + dete + " :: " + Amount);
                        String query3 = "insert into Cust_Order "+"values (?,?,?,
?)";
                        PreparedStatement stmt3 = con.prepareStatement(query3);
                        stmt3.setString(1,Order_Number);
                        stmt3.setString(3,Customer_Number1);
                        stmt3.setDate(2,dete);
                        stmt3.setInt(4,Amount);
                        stmt3.executeUpdate();
                        System.out.println("The data has been pushed in Customer
Order table");

                        //Taking further data about this particular order
                        System.out.println();
                        System.out.println("Please enter the item number you want
 to purchase");
                        Item_Number1 = sc.next();
                        System.out.println("Please enter the quantity of the purc
hase ");
                        Quantity = sc.nextInt();
                        System.out.println(Item_Number1 + " :: " + Quantity);
                        String query4 = "insert into Order_item "+"values(?,?,?)"
;
                        PreparedStatement mystmt5 = con.prepareStatement(query4);
                        mystmt5.setString(1,Order_Number);
                        mystmt5.setString(2,Item_Number1);
                        mystmt5.setInt(3,Quantity);
```

```
                        mystmt5.executeUpdate();
                        System.out.println("The data is pushed in the Order_item
table");
                        break;
                    case 3 :
                        String Item_Number, Item_Name;
                        int Price;
                        System.out.println("Please enter the Item Name");
                        Item_Name = sc.next();
                        System.out.println("Please enter the Item Number");
                        Item_Number = sc.next();
                        System.out.println("Please enter the Price per unit");
                        Price = sc.nextInt();
                        System.out.println(Item_Name + " :: " + Item_Number + " :
: " + Price );
                        if(Item_Number.charAt(0) == 'I' || Item_Number.charAt(0)
== 'i')
                        {
                            String query2 = "insert into Item "+"values (?,?,?)";
                            PreparedStatement stmt2 = con.prepareStatement(query2
);
                            stmt2.setString(1,Item_Number);
                            stmt2.setString(2,Item_Name);
                            stmt2.setInt(3,Price);
                            stmt2.executeUpdate();
                            System.out.println("The data has been added here guys
");
                        }
                        else
                        {
                            System.out.println("We cannnot find the item number y
ou are looking for.");
                        }
                        break;
                    case 4 :
                        String Order_Number2, Item_Number2;
                        int Quantity1;
                        System.out.println("Please enter the Order Number : ");
                        Order_Number2 = sc.next();
                        System.out.println("Please enter the Item Number : ");
                        Item_Number2 = sc.next();
                        System.out.println("Please enter the quantity here : ");
                        Quantity1 = sc.nextInt();
                        String query5 = "insert into Order_item " + "values (?,?,
?);";
```

```
                        PreparedStatement stmt6 = con.prepareStatement(query5);
                        stmt6.setString(1, Order_Number2);
                        stmt6.setString(2, Item_Number2);
                        stmt6.setInt(3, Quantity1);
                        stmt6.executeUpdate();
                        System.out.println("The data has been added!!");
                        //We need to update or delete the order_item
                        String newQuery = "Update Cust_Order set Ord_amtnumber =
(select SUM(Order_item.qty * item.unit_price) from Order_item,item where Cust_Ord
er.Orderno = Order_item.Orderno and Order_item.Itemno = Item.Itemno);";
                        PreparedStatement prep = con.prepareStatement(newQuery);
                        int rowChanged = prep.executeUpdate();
                        System.out.println("Row affected " + rowChanged);
                        break;
                    case 5 :
                        String Order_Number5, Item_Number5;
                        int g,h=0;
                        System.out.println("Please enter Order Number : ");
                        Order_Number5 = sc.next();
                        System.out.println("Please enter Item Number : ");
                        Item_Number5 = sc.next();
                        PreparedStatement newprep = con.prepareStatement("select
* from Order_item where Orderno = ? and Itemno = ?;");
                        newprep.setString(1, Order_Number5);
                        newprep.setString(2, Item_Number5);
                        ResultSet res = newprep.executeQuery();
                        while(res.next()){
                            System.out.println("Please enter the number of Items
in the order : ");
                            System.out.println(res.getInt(3));
                            h = res.getInt("qty");
                        }
                        System.out.println("Enter the quantity you want to delete
 : ");
                        g = sc.nextInt();
                        //If the quantity is less then we need to add
                        if(g > h) {
                            System.out.println("The entered quantity is wrong ple
ase check");
                        }
                        else if (g < h){
                            String updatedQuery = "update Order_item " + "set qty
 = ?" + " where Orderno = ? and Itemno = ?";
                            PreparedStatement newPrep1 = con.prepareStatement(upd
atedQuery);
```

```
                            newPrep1.setInt(1, g);
                            newPrep1.setString(2, Order_Number5);
                            newPrep1.setString(3, Item_Number5);
                            int rowChanged1 = newPrep1.executeUpdate();
                            System.out.println("Row changed is  " + rowChanged1 )
;
                            String newQuery2 = "update Cust_Order set Ord_amtnumb
er = (select SUM(Order_item.qty * item.unit_price) from Order_item,item where Cus
t_Order.Orderno = Order_item.Orderno and Order_item.Itemno = item.Itemno);";

                            PreparedStatement newPrep4 = con.prepareStatement(new
Query2);
                            int rowChanged2 = newPrep4.executeUpdate();
                            System.out.println("The row changed is " + rowChanged
2);

                        }
                        else {
                            String newQuery5 = "delete from Order_item " + "where
 Orderno = ? and Itemno = ?;";
                            PreparedStatement newPrep5 = con.prepareStatement(new
Query5);
                            newPrep5.setInt(1, g);
                            newPrep5.setString(2, Order_Number5);
                            newPrep5.setString(3, Item_Number5);
                            String newQuery6 = "update Cust_Order set Ord_amtnumb
er = (select SUM(Order_item.qty * item.unit_price) from Order_item,item where Cus
t_Order.Orderno = Order_item.Orderno and Order_item.Itemno = item.Itemno);";
                            PreparedStatement newPre6 = con.prepareStatement(newQ
uery6);
                            int rowChanged3 = newPre6.executeUpdate();
                            System.out.println("The row changed is " + rowChanged
3);
                        }
                        break;

                }
            }
        }

        catch(Exception e)
        {
            System.out.println(e);
        }
    }
```

```
}
```

Queries:-

```
import java.sql.*;
import java.util.*;

public class Question2Queries {
    public static void main(String[] args) throws Exception {
        Scanner sc = new Scanner(System.in);

        try {
            Class.forName("com.mysql.cj.jdbc.Driver");
            Connection con = DriverManager.getConnection("jdbc:mysql://localhost:
3306/Question3","root","Divyam@123");
            // Statement stmt = con.createStatement();

            while(true)
            {
                System.out.println("1. Query for part e in Question 2");
                System.out.println("2. Query for part f in Question 2");
                System.out.println("3. Query for part g in Question 2");
                System.out.println("4. Query for part h in Question 2");
                System.out.println();
                int k = sc.nextInt();
                switch (k) {
                    case 1 :
                        Statement stmt1 = con.createStatement();
                        ResultSet res = stmt1.executeQuery("SELECT * from Custome
r where Customer.Customerno in(select Cust_Order.Customerno from Cust_Order group
 by Cust_Order.Customerno having count(Cust_Order.Customerno)>3);");
                        System.out.println("The Output of the query will be as be
low : ");
                        while(res.next())
                        System.out.println(res.getString(1) + " | " + res.getStri
ng(2) + " | ");
                        System.out.println();
                        break;
                    case 2 :
                        Statement stmt2 = con.createStatement();
                        ResultSet res1 = stmt2.executeQuery("SELECT * from item w
here Item.Unit_price <(select AVG(unit_price) from item);");
```

```
                        System.out.println("The Output of the query will be as be
low : ");
                        while(res1.next())
                        System.out.println(res1.getString(1) + " | " + res1.getSt
ring(2) + " | " );
                        System.out.println();
                        break;
                    case 3 :
                        Statement stmt3 = con.createStatement();
                        ResultSet res2 = stmt3.executeQuery("SELECT Orderno, SUM(
qty) from Order_item GROUP BY Orderno;");
                        System.out.println("The Output of the query will be as be
low : ");
                        while(res2.next())
                        System.out.println(res2.getString(1) + " | " + res2.getSt
ring(2));
                        System.out.println();
                        break;
                    case 4 :
                        Statement stmt4 = con.createStatement();
                        ResultSet res3 = stmt4.executeQuery("SELECT * FROM Item W
HERE Itemno IN(SELECT Itemno FROM Order_Item GROUP BY Itemno HAVING COUNT(itemno)
 >=(SELECT (COUNT(*)/4) FROM Cust_Order));");
                        System.out.println("The Output of the query will be as be
low : ");
                        while(res3.next())
                        System.out.println(res3.getString(1) + " | " + res3.getSt
ring(2) + " | " + res3.getString(3));
                        System.out.println();
                        break;
                    default :
                        System.out.println("No such input try again");
                        break;

                }

            }
        } catch (Exception e) {
            System.out.println(e);
        }

    }
}
```

Output:-

```
Select your option from the below menu
1:Customer Entry
2:New Item Entry
3:New Order Entry
4:Update Amount
5:List the details of customers who have placed more than 3 orders
6:List details of items whose price is less than the average price of all items in each order.
7:List the orderno and number of items in each order.
8:List the details of items that are present in 25(%) of the orders.
Enter your choice : 3
Enter Order Number O1259
Enter Order Date 2020-03-21
Enter Customer NumberC1232
Enter order amount216
('O0213', datetime.date(2019, 12, 30), 'C1234', 1000)
('O0521', datetime.date(2020, 1, 5), 'C1232', 563)
('O1214', datetime.date(2020, 1, 12), 'C1234', 350)
('O1254', datetime.date(2020, 3, 12), 'C1234', 300)
('O1256', datetime.date(2019, 12, 3), 'C1232', 245)
('O1259', datetime.date(2020, 3, 21), 'C1232', 216)
('O1458', datetime.date(2020, 2, 25), 'C1234', 200)
```

```
Select your option from the below menu
1:Customer Entry
2:New Item Entry
3:New Order Entry
4:Update Amount
5:List the details of customers who have placed more than 3 orders
6:List details of items whose price is less than the average price of all items in each order.
7:List the orderno and number of items in each order.
8:List the details of items that are present in 25(%) of the orders.
Enter your choice : 6
('I0236', 'MAGGIE', 12)
('I12', 'Pasta', 56)
('I1254', 'BURGER', 59)
('I5246', 'PASTA', 65)
```

```
Select your option from the below menu
1:Customer Entry
2:New Item Entry
3:New Order Entry
4:Update Amount
5:List the details of customers who have placed more than 3 orders
6:List details of items whose price is less than the average price of all items in each order.
7:List the orderno and number of items in each order.
8:List the details of items that are present in 25(%) of the orders.
Enter your choice : 8
('I0236', 'MAGGIE', 12)
('I0237', 'PIZZA', 100)
('I12', 'Pasta', 56)
('I5246', 'PASTA', 65)
```