Indian Institute of Information Technology Vadodara

CS262: Database Management System

Lab 8

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**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 adding");

                System.out.println("5. To edit the value of the Order Item by deleting");

                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\_Number);

                        //We need to check if the customer is legit of not here so we are checking for the first letter to be

                        //starting with 'C' or 'c'.

                        if(Customer\_Number.charAt(0) == 'C' || Customer\_Number.charAt(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\_Number1 + " :: " + 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 purchase ");

                        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 you 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\_Order.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 please check");

                        }

                        else if (g < h){

                            String updatedQuery = "update Order\_item " + "set qty = ?" + " where Orderno = ? and Itemno = ?";

                            PreparedStatement newPrep1 = con.prepareStatement(updatedQuery);

                            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\_amtnumber = (select SUM(Order\_item.qty \* item.unit\_price) from Order\_item,item where Cust\_Order.Orderno = Order\_item.Orderno and Order\_item.Itemno = item.Itemno);";

                            PreparedStatement newPrep4 = con.prepareStatement(newQuery2);

                            int rowChanged2 = newPrep4.executeUpdate();

                            System.out.println("The row changed is " + rowChanged2);

                        }

                        else {

                            String newQuery5 = "delete from Order\_item " + "where Orderno = ? and Itemno = ?;";

                            PreparedStatement newPrep5 = con.prepareStatement(newQuery5);

                            newPrep5.setInt(1, g);

                            newPrep5.setString(2, Order\_Number5);

                            newPrep5.setString(3, Item\_Number5);

                            String newQuery6 = "update Cust\_Order set Ord\_amtnumber = (select SUM(Order\_item.qty \* item.unit\_price) from Order\_item,item where Cust\_Order.Orderno = Order\_item.Orderno and Order\_item.Itemno = item.Itemno);";

                            PreparedStatement newPre6 = con.prepareStatement(newQuery6);

                            int rowChanged3 = newPre6.executeUpdate();

                            System.out.println("The row changed is " + rowChanged3);

                        }

                        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 Customer 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 below : ");

                        while(res.next())

                        System.out.println(res.getString(1) + " | " + res.getString(2) + " | ");

                        System.out.println();

                        break;

                    case 2 :

                        Statement stmt2 = con.createStatement();

                        ResultSet res1 = stmt2.executeQuery("SELECT \* from item where Item.Unit\_price <(select AVG(unit\_price) from item);");

                        System.out.println("The Output of the query will be as below : ");

                        while(res1.next())

                        System.out.println(res1.getString(1) + " | " + res1.getString(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 below : ");

                        while(res2.next())

                        System.out.println(res2.getString(1) + " | " + res2.getString(2));

                        System.out.println();

                        break;

                    case 4 :

                        Statement stmt4 = con.createStatement();

                        ResultSet res3 = stmt4.executeQuery("SELECT \* FROM Item WHERE 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 below : ");

                        while(res3.next())

                        System.out.println(res3.getString(1) + " | " + res3.getString(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:-**



