**Indian Institute of Information Technology Vadodara**

**CS262: Database Management System**

**Lab 7**

**Roll No. 201951150 Name: Shwetank Singh**

**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 1.)** You have already created the following database,

Consider the following relational schema for the Office of the Controller of Examinations  Application.

Student (Rollno, Name, Dob, Gender, Doa, Bcode);

Implement a check constraint for

● Gender

Branch (Bcode, Bname, Dno);

Department (Dno, Dname);

Course (Ccode, Cname, Credits, Dno);

Branch\_Course (Bcode, Ccode, Semester);

Enrolls (Rollno, Ccode, Sess, Grade);

Implement a check constraint for grade Value Set (‘S’, ‘A’, ‘B’, ‘C’, ‘D’, ‘E’, ‘U’ );

Students are admitted to Branches and they are offered by Departments. A branch is offered by only  one department.

Each branch has a set of Courses (Subjects). Each student must enroll during a semester. Courses are  offered by Departments. A course is offered only by one department. If a student is unsuccessful in a  course he/she must enroll for the course during next session. A student has successfully completed a  course if the grade obtained by is from the list (A, B, C, D, and E).

A student is unsuccessful if he/she have grade ‘U’ in a course.

*Primary Keys* are underlined.

a.) Create a program to interact with the database.

b.) Create a program to create a new branch, department and course. At the time of creating a course  also map the course with the branch.

c.) Create a program which will take the student information from the user and insert it into the  database.

d.) Create a program which entrolls a student to anyone of the already created courses. If user enters the course which is not already present in the course relation then give a message to the user that the course does not exist.

Create the following listing using program

e.) List details of Departments that offer more than 3 branches.

f.) List the details of Departments that offer more than 6 courses.

g.) List the details of courses that are common for more than 3 branches.

h.) List students who got ‘S’ in more than 2 courses during single enrollment.

**Program for Question 1, Part - a,b,c,d :**

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.sql.\*;

import java.util.\*;

public class MySQLAccess {

public static void main(String args[]) {

try {

System.out.println("try");

Class.forName("com.mysql.jdbc.Driver");

Connection connect = DriverManager.getConnection("jdbc:mysql://localhost:3306/lab6","root","");

System.out.println("lab 6 database connected");

Scanner sc = new Scanner(System.in);

while(true) {

            System.out.println("Enter your choice : ");

            System.out.println("1. Insert into branch ");

            System.out.println("2. Insert into course ");

            System.out.println("3. Insert into department ");

            System.out.println("4. Insert into Student ");

            System.out.println("5. Insert into ENROLLS ");

            System.out.println();

            int k = sc.nextInt();

            switch(k) {

                case 1 :

                    String Bcode, BName, Dno;

                    System.out.println("Enter Bcode : " );

                    Bcode = sc.next();

                    System.out.println();

                    System.out.println("Enter BName : " );

                    BName = sc.next();

                    System.out.println();

                    System.out.println("Enter Dno : " );

                    Dno = sc.next();

                    System.out.println();

                    System.out.println(Bcode + " :: " + BName + " :: " + Dno);

                    String query = "insert into branch " + "values (?,?,?) ;";

                    PreparedStatement thisstmt = connect.prepareStatement(query);

                    thisstmt.setString(1,Bcode);

                    thisstmt.setString(2,BName);

                    thisstmt.setString(3,Dno);

                    thisstmt.executeUpdate();

                    System.out.println("The values are finally added!!..\n");

                    Break;

                case 2 :

                    int Credits;

                    String Ccode, Cname, Dno1;

                    System.out.println("Enter Ccode : " );

                    Ccode = sc.next();

                    System.out.println();

                    System.out.println("Enter Cname : " );

                    Cname = sc.next();

                    System.out.println();

                    System.out.println("Enter Dno : " );

                    Dno1 = sc.next();

                    System.out.println();

                    System.out.println("Enter Credits : " );

                    Credits = sc.nextInt();

                    System.out.println();

                    System.out.println(Ccode + " :: " + Cname + " :: " + Dno1 + " :: " + Credits);

                    String query1 = "insert into course " + "values (?,?,?,?) ;";

                    PreparedStatement thisstmt1 = connect.prepareStatement(query1);

                    thisstmt1.setString(1,Ccode);

                    thisstmt1.setString(2,Cname);

                    thisstmt1.setInt(3, Credits);

                    thisstmt1.setString(4,Dno1);

                    thisstmt1.executeUpdate();

                    System.out.println("The values are finally added!!..\n");

                    Break;

                case 3 :

                    String Dno2, Dname;

                    System.out.println("Enter Dno : " );

                    Dno2 = sc.next();

                    System.out.println();

                    System.out.println("Enter Dname : " );

                    Dname = sc.next();

                    System.out.println();

                    System.out.println(Dno2 + " :: " + Dname);

                    String query2 = "insert into department " + "values (?,?) ;";

                    PreparedStatement thisstmt2 = connect.prepareStatement(query2);

                    thisstmt2.setString(1,Dno2);

                    thisstmt2.setString(2,Dname);

                    thisstmt2.executeUpdate();

                    System.out.println("The values are finally added!!..\n");

                    break;

                case 4 :

                    String Bcode2, Name, Gender, Dob;

                    Long Rollno;

                    System.out.println("Enter Bcode : " );

                    Bcode2 = sc.next();

                    System.out.println();

                    System.out.println("Enter Name : " );

                    Name = sc.next();

                    System.out.println();

                    System.out.println("Enter Rollno : " );

                    Rollno = sc.nextLong();

                    System.out.println();

                    System.out.println("Enter Gender : " );

                    Gender = sc.next();

                    System.out.println();

                    System.out.println("Enter Date Of Birth in format YYYY-MM-DD : " );

                    Dob = sc.next();

                    System.out.println();

                    System.out.println("Enter the date of Joining : " );

                    //Long date = System.currentTimeMillis();

                    java.util.Date Doa = new java.util.Date();

                    System.out.println(Bcode2 + " :: " + Name + " :: " + Rollno + " :: " + Gender + " :: " + Dob + " :: " + Doa);

                    String query3 = "insert into student " + "values (?,?,?,?,?,?) ;";

                    PreparedStatement thisstmt3 = connect.prepareStatement(query3);

                    thisstmt3.setLong(1,Rollno);

                    thisstmt3.setString(2, Name);

////////////////////////

                    thisstmt3.setString(3, Dob);

                    thisstmt3.setString(4, Gender);

///////////////////

                      java.sql.Date DOA2 = new java.sql.Date(Doa.getTime());

                    thisstmt3.setDate(5, DOA2);

////////////////////////

                    thisstmt3.setString(6, Bcode2);

                    thisstmt3.executeUpdate();

                    System.out.println("The values are finally added!!..\n");

                    Break;

                case 5 :

                    Long Rollno2;

                    String Ccode2, Sess, Grade;

                    System.out.println("Enter CCode : " );

                    Ccode2 = sc.next();

                    System.out.println();

                    System.out.println("Enter Session : " );

                    Sess = sc.next();

                    System.out.println();

                    System.out.println("Enter Grade : " );

                    Grade = sc.next();

                    System.out.println();

                    System.out.println("Enter Roll Number : " );

                    Rollno2 = sc.nextLong();

                    System.out.println();

                    System.out.println(Rollno2 + " :: " + Ccode2 + " :: " + Sess + " :: " + Grade);

                    PreparedStatement thisstmt4 = connect.prepareStatement("Select \* from course where Ccode = ?");

                    thisstmt4.setString(1, Ccode2);

                    ResultSet res = thisstmt4.executeQuery();

                    if (res.next()) {

                        String query4 = "insert into enrolls " +"values (?,?,?,?)";

                        PreparedStatement thisstmt5 = connect.prepareStatement(query4);

                        thisstmt5.setLong(1, Rollno2);

                        thisstmt5.setString(2, Ccode2);

                        thisstmt5.setString(3, Sess);

                        thisstmt5.setString(4, Grade);

                        thisstmt5.executeUpdate();

                        System.out.println("The values are finally added!!..\n");

                    }

                    else {

                        System.out.println("No such course that you have entered here");

                    }

                    break;

            }

        }

//Statement stmt=connect.createStatement();

//ResultSet rs=stmt.executeQuery("select \* from customer");

//while(rs.next())

//System.out.println(rs.getInt(1)+"  "+rs.getString(2));

//connect.close();

}

catch(Exception e){ System.out.println(e+" database tut");

}

}

}

**Program for Question 1, Part - e,f,g,h :**

import java.sql.\*;

import java.util.\*;

public class Queries {

    public static void main(String[] args) throws Exception {

   try {

       System.out.println("try");

   Class.forName("com.mysql.jdbc.Driver");

    Connection connect = DriverManager.getConnection("jdbc:mysql://localhost:3306/lab6","root","");

   System.out.println("lab 6 database connected");

   Scanner sc = new Scanner(System.in);

            while(true)

            {

                System.out.println("1. Query for part e");

                System.out.println("2. Query for part f");

                System.out.println("3. Query for part g");

                System.out.println("4. Query for part h");

                System.out.println();

                int k = sc.nextInt();

                switch (k) {

                    case 1 :

                        Statement stmt1 = connect.createStatement();

                        ResultSet res = stmt1.executeQuery("select \* from department where department.Dno in(Select branch.Dno from branch group by branch.Dno having Count(branch.Dno) > 3);");

                        System.out.println("The Output of the query : ");

                        while(res.next())

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

                        System.out.println();

                        break;

                    case 2 :

                        Statement stmt2 = connect.createStatement();

                        ResultSet res1 = stmt2.executeQuery("select \* from department where department.Dno in(Select course.Dno from course group by course.Dno having Count(course.Dno) > 6);");

                        System.out.println("The Output of the query : ");

                        while(res1.next())

                        System.out.println(res1.getString(1) + " | " + res1.getString(2) + " | " );

                        System.out.println();

                        break;

                    case 3 :

                        Statement stmt3 = connect.createStatement();

                        ResultSet res2 = stmt3.executeQuery("select \* from course where course.Ccode in(Select branch\_course.Ccode from branch\_course group by branch\_course.Ccode having Count(branch\_course.Ccode) > 3);");

                        System.out.println("The Output of the query  : ");

                        while(res2.next())

                        System.out.println(res2.getString(1) + " | " + res2.getString(2) + " | " + res2.getString(3) + " | " + res2.getString(4) + " | ");

                        System.out.println();

                        break;

                    case 4 :

                        Statement stmt4 = connect.createStatement();

                        ResultSet res3 = stmt4.executeQuery("select \* from student where student.Rollno in(Select enrolls.Rollno from enrolls where enrolls.Grade = 'S' group by enrolls.Rollno having Count(enrolls.Grade) > 2);");

                        System.out.println("The Output of the query : ");

                        while(res3.next())

                        System.out.println(res3.getString(1) + " | " + res3.getString(2) + " | " + res3.getString(3) + " | " + res3.getString(4) + " | " + res3.getString(5) + " | " + res3.getString(6) + " | ");

                        System.out.println();

                        break;

                    default :

                        System.out.println("No such input try again");

                        break;

                }

            }

        } catch (Exception e) {

            System.out.println(e);

        }

    }

OUT[UT:-



