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ROLL NO - 31114
CLASS - TE 1
SUBJECT - DBMS
DATE - 30/10/23
Assignment No - 08

----------START----------

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package myPackage;

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

public class JDBC_MYSQL {
      public static void main(String[] args) {
            Connection connection = null;
        Statement statement;
        ResultSet resultset;
        Scanner sc = new Scanner(System.in);

        try {
            Class.forName("org.mariadb.jdbc.Driver");
            connection = DriverManager.getConnection(
                        "jdbc:mariadb://localhost:3307/dbms",
                        "root", "password"
            );

            statement = connection.createStatement();
            String tableName;

            while (true) {

                System.out.println(
                        "\n---------------------------------\nMain Menu \n1. Read \
n2. Insert  \n3. Update \n4. Delete\n0. Exit \n--------------------------------- \
n");

                System.out.print("Enter the choice : ");
                int choice = sc.nextInt();
                System.out.println();

                if (choice == 1) {

                  // READ TABLE

                     System.out.print("Enter the name of the table you want to
read : ");
                     tableName = sc.next();

                     String readTableQuery = "SELECT * FROM " + tableName + ";";
                     resultset = statement.executeQuery(readTableQuery);

                     System.out.println();

                     ResultSetMetaData resultSetMetaData = resultset.getMetaData();
                     int colCount = resultSetMetaData.getColumnCount();
                     for (int i = 1; i <= colCount; i++) {
                         System.out.print(resultSetMetaData.getColumnName(i) + "\
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t");
                    }

                    System.out.println();

                    while (resultset.next()) {
                        for (int i = 1; i <= colCount; i++) {
                            System.out.print(resultset.getString(i) + "\t");
                        }
                        System.out.println();
                    }

                } else if (choice == 2) {

                  // INSERT INTO TABLE

                    System.out.print("Enter the name of the table you want to
insert into : ");
                    tableName = sc.next();

                    // Get the column names from the table
                    String readTableQuery = "SELECT * FROM " + tableName + ";";
                    resultset = statement.executeQuery(readTableQuery);
                    ResultSetMetaData resultSetMetaData = resultset.getMetaData();
                    int colCount = resultSetMetaData.getColumnCount();

                    // Prepare the INSERT query
                    StringBuilder insertQuery = new StringBuilder("INSERT INTO " +
tableName + " (");
                    for (int i = 1; i <= colCount; i++) {
                        insertQuery.append(resultSetMetaData.getColumnName(i));
                        if (i < colCount) {
                            insertQuery.append(", ");
                        }
                    }
                    insertQuery.append(") VALUES (");

                    // Collect values to insert
                    for (int i = 1; i <= colCount; i++) {
                        System.out.print("Enter the value for " +
resultSetMetaData.getColumnName(i) + " : ");
                        String value = sc.next();
                        insertQuery.append("'" + value + "'");
                        if (i < colCount) {
                            insertQuery.append(", ");
                        }
                    }
                    insertQuery.append(");");

                    System.out.println();

                    // Execute the INSERT query
                    try {
                        statement.executeUpdate(insertQuery.toString());
                        System.out.println("Data inserted successfully.");
                    } catch (SQLException e) {
                        System.out.println("Error inserting data: " +
e.getMessage());
                    }
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                } else if (choice == 3) {

                  // UPDATE

                     System.out.print("Enter the name of the table you want to
update : ");
                     tableName = sc.next();

                     System.out.println();

                     String readTableQuery = "SELECT * FROM " + tableName + ";";
                     resultset = statement.executeQuery(readTableQuery);
                     ResultSetMetaData resultSetMetaData = resultset.getMetaData();
                     int colCount = resultSetMetaData.getColumnCount();

                     for (int i = 1; i <= colCount; i++) {
                         System.out.print(i + " - " +
resultSetMetaData.getColumnName(i) + "\t");
                     }

                     System.out.println();

                     System.out.print("\nEnter the number of column you want to
update: ");
                     int colToUpdate = sc.nextInt();

                     System.out.println();

                     System.out.print(
                             "Enter the updated value for the column " +
resultSetMetaData.getColumnName(colToUpdate) + " : ");
                     String afterUpdate = sc.next();

                     System.out.println();

                     System.out.print("Enter the updation rule (colName=value) : ");
                     String updateRule = sc.next();

                     String updateTableQuery = "UPDATE " + tableName + " SET "
                             + resultSetMetaData.getColumnName(colToUpdate) + "=" +
afterUpdate + " WHERE "
                             + updateRule + ";";

                     System.out.println();

                     try {
                         int rowsAffected =
statement.executeUpdate(updateTableQuery);

                         if (rowsAffected > 0) {
                             System.out.println("Update successful " + rowsAffected
+ " row(s) affected.");
                         } else {
                             System.out.println("No rows updated.");
                         }
                     } catch (SQLException e) {
                         System.out.println("Error updating data: " +
e.getMessage());
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                    }

                } else if (choice == 4) {

                  // DELETE

                  System.out.print("Enter the name of the table you want to
delete : ");
                    tableName = sc.next();

                    System.out.println();

                    System.out.print("Enter the deletion rule (colName=value) : ");
                    String deleteRule = sc.next();

                    String deleteTableQuery = "DELETE FROM " + tableName + " WHERE
" + deleteRule + ";";

                    System.out.println();

                    try {
                        statement.executeUpdate(deleteTableQuery);
                        System.out.println("Data deleted successfully.");
                    } catch (SQLException e) {
                        System.out.println("Error deleting data: " +
e.getMessage());
                    }

                } else if (choice == 0) {
                    System.out.println("Exiting...");
                    break;
                }

            }

            sc.close();
            statement.close();
            connection.close();

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

//        System.out.println("Hello World of JDBC");
      }
}

-----------------------------------END-----------------------------------
```