SWEG3108

Advanced Programming

College of Engineering
Department of Software Engineering

Lab Exercise

May 2024

Chapter Three (3)
Java Database Connectivity (JDBC)

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Instructions

Required Downloads	**Link**
IDE: Apache Netbeans	https://netbeans.apache.org/front/main/download/
JDBC Driver: MySQLConnector	https://dev.mysql.com/downloads/connector/j/
DBMS: MySQL	https://www.mysql.com/downloads/

Before writing the programs please create database called "BookWorld" and tables "Book" and "Author" using the following queries:

- ✓ Create database BookWorld;
- ✓ Use ookWorld;
- ✓ Create table Book(BookId varchar(10), Title varchar(55), Price integer, primary key(BookId));
- ✓ create table Author(aid varchar(10), fname varchar(45), lname varchar(45), bid varchar(10), primary key(aid), CONSTRAINT foreign key(bid) references Book(BookId));

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To add MySQL JDBC Driver connector in Netbeans follow this:

Run ->Set Project Configuration -> Customize -> Libraries -> Compile Tab -> >Click on Add JAR/Folder -> Select Location of JDBC Driver and click on OK

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Example 1

//Establish connection with "BookWorld" database

```
import java.sql.DriverManager;
import java.sql.Connection;
public class MySqlConnect{
  public static void main(String[] args) {
        System.out.println("MySQL Connect Example.");
        try {
              Class.forName("com.mysql.jdbc.Driver");
              System.out.println("Driver loaded");
              Connection conn =
DriverManager.getConnection("jdbc:mysql://localhost:3306/BookWorld","root",
"sweng");
```

```
            System.out.println("Connected to the database");
        }
        catch (Exception e) {
            e.printStackTrace();
        }
  }
}
```

Example 2

//select all from author table

```
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.Statement;
import java.sql.SQLException;
import java.sql.ResultSet;
public class SimpleSelect {
      public static void main(String[] args)
       throws SQLException, ClassNotFoundException {
       Class.forName("com.mysql.jdbc.Driver");
       System.out.println("Driver loaded");
       Connection connection = DriverManager.getConnection
       ("jdbc:mysql://localhost/bookworld", "root", "sweng");
       System.out.println("Database connected");
      Statement statement = connection.createStatement();
      ResultSet resultSet = statement.executeQuery("select * from author");
       while(resultSet.next() ){
            System.out.println( resultSet.getString(1)+ "\t" +
            resultSet.getString(2)+ "\t" + resultSet.getString(3) );
       }
       connection.close();
      }
 }
```

Example 3

//select only first name from author table

```
import java.sql.*;

public class SelectFirstName {
      public static void main(String[] args)
       throws SQLException, ClassNotFoundException {
       // Load the JDBC driver
       Class.forName("com.mysql.jdbc.Driver");
       System.out.println("Driver loaded");
       // Establish a connection
       Connection connection = DriverManager.getConnection
       ("jdbc:mysql://localhost/bookworld", "root", "sweng");
       System.out.println("Database connected");

       // Create a statement
       Statement statement = connection.createStatement();

       // Execute a statement
```

```
        ResultSet resultSet = statement.executeQuery
        ("select FName from author");
        // Iterate through the result and print the student names
        while(resultSet.next() ){
              System.out.println( resultSet.getString(1) );
        }
        connection.close();
       }
 }
```

Example 4

//Select statement with where condition

```
import java.sql.*;
public class SelectWithConditions {
      public static void main(String[] args)
       throws SQLException, ClassNotFoundException {
       // Load the JDBC driver
       Class.forName("com.mysql.jdbc.Driver");
       System.out.println("Driver loaded");
       // Establish a connection
       Connection connection = DriverManager.getConnection
       ("jdbc:mysql://localhost/bookworld", "root", "sweng");
       System.out.println("Database connected");
       // Create a statement
       Statement statement = connection.createStatement();
       // Execute a statement
       ResultSet resultSet = statement.executeQuery ("select *  from author where
      FName=”Chala” );
       // Iterate through the result and print the student names
       while(resultSet.next() ){
              System.out.println("AuthorID  "  + "  First Name" + "\t" + "Last
Name");
              System.out.println( resultSet.getString(1)+ "       \t" +
              resultSet.getString(2)+ "\t" + resultSet.getString(3) );
```

```
        }
              // Close the connection
        connection.close();
       }
 }
```

//read input from user and display result

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

public class ReadFName {
      public static void main(String[] args)
       throws SQLException, ClassNotFoundException {

       // Load the JDBC driver
       Class.forName("com.mysql.jdbc.Driver");
       System.out.println("Driver loaded");

       // Establish a connection
       Connection connection = DriverManager.getConnection
       ("jdbc:mysql://localhost/bookworld", "root", "sweng");
       System.out.println("Database connected");

       //create Scanner to obtain input from command window
       System.out.println("Please Enter Name of the author");
       Scanner input = new Scanner( System.in );
       String acceptName = input.nextLine();

       // Create a statement
       Statement statement = connection.createStatement();

       // Execute a statement
       ResultSet resultSet = resultSet = statement.executeQuery

       ("select *  from author where FName='"+acceptName+"'" );

       // Iterate through the result and print the student names
       while(resultSet.next() ){

             System.out.println( resultSet.getString(1)+ "       \t" +
             resultSet.getString(2)+ "\t" + resultSet.getString(3) );

       }
       // Close the connection
       connection.close();
      }
 }
```

Example 5

//sub query

```
import java.sql.*;


public class SubQuery {
      public static void main(String[] args)
       throws SQLException, ClassNotFoundException {
       // Load the JDBC driver
       Class.forName("com.mysql.jdbc.Driver");
       System.out.println("Driver loaded");

       // Establish a connection
       Connection connection = DriverManager.getConnection
       ("jdbc:mysql://localhost/bookworld", "root", "sweng");
       System.out.println("Database connected");

       // Create a statement
       Statement statement = connection.createStatement();

       // Execute a statement
       ResultSet resultSet = statement.executeQuery

       ("select a.FName, a.LName, b.Title " +
                        "FROM author a, book b " +
                        "where a.bookid= b.bid ");

       // Iterate through the result and print
       while(resultSet.next() ){
             System.out.println("First Name" +"\t" + "Last Name" + "\t" +
"Book Title");
             System.out.println( resultSet.getString(1)+ "    \t" +
             resultSet.getString(2)+ "      \t" + resultSet.getString(3) );

       }
             // Close the connection
       connection.close();
      }
 }
```

Example 6

//Create table student and insert data into the table

```
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.ResultSet;
import java.sql.SQLException;
import java.sql.Statement;

public class InsertToDB {
```

```
        public static void main(String[] args)
         throws SQLException, ClassNotFoundException {
         // Load the JDBC driver
         Class.forName("com.mysql.jdbc.Driver");
         System.out.println("Driver loaded");

         // Establish a connection
         Connection connection = DriverManager.getConnection
         ("jdbc:mysql://localhost/bookworld", "root", "sweng");
         System.out.println("Database connected");

         // Create a statement
         Statement statement = connection.createStatement();

         // create a table called student
statement.executeUpdate("CREATE TABLE student " + "(Firstname
VARCHAR(40), LastName VARCHAR(40))");
         // Execute a statement
         statement.executeUpdate("insert into student values ('Ali',
 'Hussen')");


         }
  }
```

Example 7

//update author table

```
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.Statement;
public class UpdateTable {
       public static void main(String[] args)
        {
              try{
                    Class.forName("com.mysql.jdbc.Driver");
                    System.out.println("Driver loaded");
                    Connection connection = DriverManager.getConnection
                    ("jdbc:mysql://localhost/bookworld", "root", "sweng");
                    System.out.println("Database connected");
                   Statement statement = connection.createStatement();
  statement.executeUpdate("update author set fname='Boni' where fname='Bni'");
                    System.out.println("Database updated");
              }
              catch (Exception e) {
                     e.printStackTrace();
               }
        }
}
```

Example 8

//delete data from author table without conformation

```
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.ResultSet;
import java.sql.SQLException;
import java.sql.Statement;

public class DeleteFromDB {
      public static void main(String[] args)
       throws SQLException, ClassNotFoundException {
       // Load the JDBC driver
       Class.forName("com.mysql.jdbc.Driver");
       System.out.println("Driver loaded");
       // Establish a connection
       Connection connection = DriverManager.getConnection
       ("jdbc:mysql://localhost/bookworld", "root", "sweng");
       System.out.println("Database connected");
       // Create a statement
       Statement statement = connection.createStatement();
       // Execute a statement
       statement.executeUpdate("delete from author where fname=”Abebe”);
       System.out.println("Data deleted");
       }
 }
```

//Delete

```
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.SQLException;
import java.sql.Statement;
import java.util.Scanner;
import javax.swing.*;

public class DeleteWithConfo {
      public static void main(String[] args)
             throws SQLException, ClassNotFoundException {
             // Load the JDBC driver
             Class.forName("com.mysql.jdbc.Driver");
             System.out.println("Driver loaded");
            // Establish a connection
             Connection connection = DriverManager.getConnection
             ("jdbc:mysql://localhost/bookworld", "root", "sweng");
             System.out.println("Database connected");
//Prompt values using Scanner and delete the saved value
```