# **Experiment-5**

# **1.1 Objective:**

The purpose of this lab is to set up connectivity between Java programming with database.

# **1.2 Learning Outcomes:**

At the end learners will be able to:

- a. Understand the importance of the Database connectivity.
- b. Explore their understanding for similar type of problems.
- c. Understand the role of data source.
- d. Understand the role of JDBC-ODBC Bridge.
- e. Learners can use ODBC driver effectively for forming the connection.
- f. Learners can understand the significance of java.sql package.
- g. Learners can realize and explain the working of two tiers and three tier architecture of JDBC.

# **1.3 Resources required**

- MS Access for creating the data source.
- JDK for compiling and executing Java programming code

# 1.4 Steps to Connect with the MS Access Database

In this section we are intended to connect Java with MS Access Database. We will follow the following steps as given below. For the simplicity I have given the screen shots which will help you in making the connectivity.

# Step-1: Open MS Access and choose blank database option.



**Step-2: Setting the name for the database** 

Getting Started with	Microsoft Office Access
New Blank Database Blank Database Featured Online Templates Featured Online Templates	Set the name
<b>26.Office</b> Online	
What's new in Access 2007?	
The new Access 2007 conta more powerful tools to hel you quickly track, report, au share information in a manageable environment. Learn more about the new features and improvements	ins p nd Blank Database Create a Microsoft Office Access database that does not contain any existing data or objects. File Manee:
Get the latest content while working in t     2007 Microsoft Office system	the C:\Users\Lenovo\Documents\
<ul> <li>Guide to Access 2007 User Interface</li> <li>Organize all your objects using the new, easy access Navigation Pane</li> </ul>	<u>C</u> reate Cancel
More on Once Onine:	

Step-3: Choose the database name and click on create

Blank Database
Create a Microsoft Office Access database that does not contain any existing data or objects.
File <u>N</u> ame:
DB2 💕
C:\Users\Lenovo\Documents\
Cancel

### Step-4: Table created and I have given the table name as user

	<b>1</b> 5 • 6 • ) •	DB2 : Dat	abase (Acces	s 2007) - Mi	. Table T	ools		×
	Home Create	Externa	l Data Da	atabase Tools	Datas	heet		۲
View		Data Type: Format: \$%,	AutoNumber	<ul> <li>✓ U</li> <li>✓ Is</li> </ul>	nique Required	Relationships	Object Dependencies	
Views	Fields & Columns		Data Type &	Formatting		Relation	nships	
All Tabl	es	• «	User User					×
User		*	ID ID	- I	Vame	<ul> <li>Add New Field</li> </ul>	ld	
🛄 Us	ser : Table		*	(New)				
						-		
_			Record: I	1 of 1		K No Filter Sea	arch	_
Datashee	et View							<u>د ،</u> ::

Step-5: Now open Control panel and double click of Administrative tools.



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	Contro	I P • Administrative Tools	▼ 4→ Search Administrative To	ols	Q
Organize 🔻 Burn	n		8	•	0
☆ Favorites	-	Name	Click on Data Source	Туре	-
🧮 Desktop		Component Services	14/07/2009 10:16	Shortcut	
🐌 Downloads		🛃 Computer Management	14/07/2009 10:11	Shortcut	
🖳 Recent Places		📷 Data Sources (ODBC)	14/07/2009 10:11	Shortcut	
	=	🔝 Event Viewer	14/07/2009 10:12	Shortcut	E
🥞 Libraries		🔝 iSCSI Initiator	14/07/2009 10:11	Shortcut	
Documents		🔁 Local Security Policy	08/09/2013 10:25	Shortcut	
🌙 Music		Performance Monitor	14/07/2009 10:11	Shortcut	
Pictures		🕞 Print Management	08/09/2013 10:25	Shortcut	
🛃 Videos		😹 Services	14/07/2009 10:11	Shortcut	
		🔝 System Configuration	14/07/2009 10:11	Shortcut	
🜉 Computer		쥕 Task Scheduler	14/07/2009 10:12	Shortcut	-
🏭 Local Disk (C:)	-	۹ [			•
14 item:	s				

ODBC Data Source Administrator window, here click on "<u>Add</u>" to add your data source.

	System DSN	File DSN	Drivers	Tracing	Conne	ction Po	ooling	About
User Data	Sources:							
Name		Driver					A	dd
ADB dBASE I Excel Fil MS Acc	Files les ess Database	Microsoft A Microsoft A Microsoft E Microsoft A	ccess Driv ccess dB, xcel Drive ccess Driv	ver (*.mdb ASE Drive r (*.xls, *.x ver (*.mdb	, *.accdł r (*.dbf, * lsx, *.xlsr , *.accdł	o) *.ndx m, *.x o)	Conf	move
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Once we click on "Add", "Create New Data Source" wizard will open

	Name	1 ^
	Driver da Microsoft para arquivos texto (*.bt; *.cs	v) €≡
011 0	Driver do Microsoft Access (*.mdb)	e
	Driver do Microsoft dBase (*.dbf)	e
	Driver do Microsoft Excel(*xls)	E
	Driver do Microsoft Paradox (*.db )	e
	Driver para o Microsoft Visual FoxPro	1
	Microsoft Access dBASE Driver (*.dbf, *.ndx, *.md	tx) 1_
		Þ.

Here find out "<u>Microsoft Access Driver (\*.mdb, \*.accdb)</u>" as shown below using shaded text. Click on this.

	Name	1-
	Driver do Microsoft Paradox (*.db )	E
01110	Driver para o Microsoft Visual FoxPro	1 ≡
	Microsoft Access dBASE Driver (*.dbf, *.ndx, *.m	idx) 1
	Microsoft Access Driver (*.mdb)	e
	Microsoft Access Driver (*.mdb, *.accdb)	1
	Microsoft Access Paradox Driver (*.db)	1
	Microsoft Access Text Driver (*.txt, *.csv)	1 -
		1.4

Once we click, then **ODBC Microsoft Access Setup** will open as shown below:

Data Source Name:	ОК
Description:	Cancel
Database: Select Create Repair Compact	Help
System Database	Advanced
None	
O Database:	

Click on selec	t to select the data so	ource we have crea	ted.	Click on
	Select Database		×	
Choose	Database Name *.mdb;*.accdb	Directories: c:\data	ОК	
	DB1.accdb DB2.accdb	C:\	Cancel	
			Read Only	
	-	Ŧ		
	List Files of Type: Access Databases (*.m.	Drives: ■ c:	Network	

Choose the database name and then click on OK.

Then set the name of the **<u>data source name</u>** and then click on **<u>OK</u>** 

Data Source Name:	DBA1	ОК
Description: Database		Cancel
Database: C:\DA Select	TA\DB2.accdb Create Repair Compact	Help
System Database		Auvanceu
None		
0.0.1		



Now at this stage you can see the name of the data source

Now, we can use this data source in the Java source code.

### Sample Java Code:

```
import java.awt.*;
```

import java.awt.event.\*;

import java.sql.\*;

public class DemoDbase extends Frame implements ActionListener

```
{
```

```
Frame f;
Label 11, 12;
TextField t1, t2;
Button b1, b2, b3, b4, b5;
Connection c;
Statement s;
ResultSet r;
DemoDbase()
{
try
{
f=new Frame();
```

f.setLayout(null); f.setVisible(true); f.setSize(800, 600);

11=new Label("ID");
11.setBounds(50, 100, 100, 50);
f.add(11);

12 = new Label("Name"); 12.setBounds(50,150,100,50); f.add(12);

t1=new TextField(); t1.setBounds(150,100,100,40); f.add(t1);

t2=new TextField(); t2.setBounds(150, 150, 100, 40); f.add(t2);

b1= new Button("INSERT"); b1.setBounds(200, 300, 75, 50); f.add(b1); b1.addActionListener(this);

b2= new Button("UPDATE"); b2.setBounds(300, 300, 75, 50); f.add(b2); b2.addActionListener(this);

b3= new Button("DELETE");

```
b3.setBounds(400, 300, 75, 50);
              f.add(b3);
              b3.addActionListener(this);
              b5= new Button("EXIT");
              b5.setBounds(600, 300, 75, 50);
              f.add(b5);
              b5.addActionListener(this);
              Class.forName("sun.jdbc.odbc.JdbcOdbcDriver");
              c= DriverManager.getConnection("jdbc:odbc:DBA1");
              s=c.createStatement();
         }
         catch(Exception e) { }
       } //ends of constructor
       public void actionPerformed(ActionEvent ae)
       {
              try
              {
                     if(ae.getSource()==b1)
                     {
                                      s1
                                                  "INSERT
                                                               INTO
                                                                         USER(id,
                            String
                                                                                       name)
                                            =
VALUES("+t1.getText()+",'"+t2.getText() + "')";
                            System.out.println(s1);
                            s.executeUpdate(s1);
                            r=s.executeQuery("SELECT * FROM USER");
                            t1.setText(" ");
                            t2.setText(" ");
                     }
                     else if(ae.getSource()==b2)
```

```
{
                                            ="UPDATE
                                                            USER
                                                                      SET
                                                                              NAME
                            String
                                      s2
                                                                                         =
'"+t2.getText()+"'WHERE ID = "+t1.getText();
                           System.out.println(s2);
                            s.executeUpdate(s2);
                           r=s.executeQuery("SELECT * FROM USER");
                           t1.setText(" ");
                           t2.setText(" ");
                     }
                     else if(ae.getSource() ==b3)
                     {
                            String s3 = "DELETE FROM USER WHERE ID = "+t1.getText();
                            System.out.println(s3);
                           s.executeUpdate(s3);
                           r=s.executeQuery("SELECT *FROM USER");
                           t1.setText("");
                           t2.setText("");
                     }
                     else if(ae.getSource()==b5)
                     {
                            c.close();
                           f.dispose();
                     }
              }
              catch(Exception e){}
       }
      public static void main(String args[])
       {
              new DemoDbase();
       }
}
```

#### **Compile and run the program**



#### **Output:**

<u>ل</u>		
ID		
Name		
	INSERT UPDATE DELETE	EXIT

Now perform the operations and verify with the data source.

### **Practice Exercises:**

Create a java program to perform the following task.

- Create a layout with three text boxes for Student Name, Roll Number and course information (B.Tech/M.Tech).
- Create buttons "INSERT", "UPDATE", "DELETE" and "EXIT"
- Insert: to insert information, Delete: to remove information, Update: to update information and Exit: to quite.
- Create table name student with three field rollnumber, sname and course.
- Create a data source named studata

- Create connection between java code and the data source.
- Compile and execute the java program.
- Finally, verify your connectivity by using test cases.

# Note:

- **1. Include both the program with all the details according to the template provided to you in your lab record file.**
- 2. Your queries are always welcome and I will love to answer.