EX:NO: 5

THREE TIER ARCHITECTURE USING SERVLETS

AIM:

To write a java servlet program to conduct online examination and to display student mark list available in a database which has been stored in a database server.

ALGORITHM:

Client:

Step 1: In online.html on the client side declare the questions for online exam in which True/False options are
displayed that you like to transfer to the server using html form and input type tags.

Step 2: create a submit button and close all the included tags.

Servlet:

Step 1: Import all necessary packages

Step 2: Define a class that extends servlet

Step 3: In the do Post() method, do the following:

i) Set the content type of the response to "text/html" by using setContentType

ii) Create a writer to the response

iii) Get a parameter from the request

iv) If its value is equal to right answer then add 5 to mark variable

v) Similarly repeat step for all parameters

vi) Display the result in an html format using response.getwriter( ).

PROGRAM:

online.html

```
<html>
<head>
<title> Database test</title>
</head>
<body>
<center>
<form action="http://localhost:8080/exam/exam" method=POST>
<div align="left"><br>
<b>seat number:</b> <input type="text" name="Seat_no">
<div align="right"><br>
<b>Name:</b> <input type="text" name="Name" size="50"><br>
</div>
<br>
<br>
<b>1.Is JAVA a platform independency</b><br/>
<input type="radio" name="group1" value="True">True
<input type="radio" name="group1" value="False">False<br>
<b>2.ASP .NET is a client side programming</b><br/>
<input type="radio" name="group2" value="True">True
<input type="radio" name="group2" value="False">False<br>
<b>3.MATHEMATICS is the backbone of engineering</b><br/>
<input type="radio" name="group3" value="True">True
<input type="radio" name="group3" value="False">False<br>
<b>4.You are working in IBM machines</b><br/>
<input type="radio" name="group4" value="True">True
<input type="radio" name="group4" value="False">False<br>
<b>5.C++ is a fully OOP's language</b><br/>
<input type="radio" name="group5" value="True">True
<input type="radio" name="group5" value="False">False<br>
<br><br><br>
<center>
<input type="submit" value="submit"><br><br>
</center>
</form>
</body>
</html>
```

Exam.java:

```
import java.sql.*;
import java.io.*;
import java.util.*;
import javax.servlet.*;
import javax.servlet.http.*;
public class exam extends HttpServlet
{
String message,Seat_no,Name,ans1,ans2,ans3,ans4,ans5;
int Total=0;
```

```
Connection connect;
Statement stmt =null;
ResultSet rs=null;
public void doPost(HttpServletRequest request,HttpServletResponse response)
throws ServletException,IOException
{
try
{
String url="jdbc:odbc:StudentDB2";
Class.forName("sun.jdbc.odbc.JdbcOdbcDriver");
connect=DriverManager.getConnection(url," "," ");
message="Connection Successful";
}
catch(ClassNotFoundException cnfex)
{
cnfex.printStackTrace();
}
catch(SQLException sqlex)
{
sqlex.printStackTrace();
}
catch(Exception excp)
{
excp.printStackTrace();
}
Seat_no=request.getParameter("Seat_no");
Name=request.getParameter("Name");
ans1=request.getParameter("group1");
ans2=request.getParameter("group2");
ans3=request.getParameter("group3");
ans4=request.getParameter("group4");
ans5=request.getParameter("group5");
if(ans1.equals("True"))
Total+=2;
if(ans2.equals("False"))
Total+=2;
if(ans3.equals("True"))
Total+=2;
if(ans4.equals("True"))
Total+=2;
if(ans5.equals("False"))
Total+=2;
try
{
Statement stmt=connect.createStatement();
String query="INSERT into StudentTable VALUES ("+Seat_no+",'"+Name+"',"+Total+")";
//*****"+"Seat_no,Name,Marks"+")"+" VALUES("
int result=stmt.executeUpdate(query);
```

```
stmt.close();
}
catch(SQLException ex)
{
}
response.setContentType("text/html");
PrintWriter out=response.getWriter();
out.println("<html>");
out.println("<body bgcolor=yellow>");
out.println("<h1>"+message+"</h1>\n");
out.println("<h3>DataBase Updated");
out.println("<br><br>");
out.println("<b>"+"The Student Database is as follows");
out.println("<table border=5>");
try
{
Statement stmt=connect.createStatement();
String query="SELECT * FROM StudentTable";
rs=stmt.executeQuery(query);
out.println("<th>"+"Seat_no"+"</th>");
out.println("<th>"+"Name"+"</th>");
out.println("<th>"+"Marks"+"</th>");
while(rs.next())
{
out.println("<tr>");
out.println("<td>"+rs.getInt(1)+"</td>");
out.println("<td>"+rs.getString(2)+"</td>");
out.println("<td>"+rs.getInt(3)+"</td>");
out.println("</tr>");
}
out.println("</table>");
}
catch(SQLException ex)
{}
finally
{
try
{
if(rs!=null)
rs.close();
if(stmt!=null)
stmt.close();
if(connect!=null)
connect.close();
}
catch(SQLException e)
{}
}
```

```
out.println("<center>");
out.println("<h1>Thanks!</h1>\n");
out.println("</center>");
out.println("</body></html>");
}}
```

Web.xml:

```
<web-app xmlns="http://java.sun.com/xml/ns/javaee"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://java.sun.com/xml/ns/javaee
http://java.sun.com/xml/ns/javaee/web-app_3_0.xsd"
version="3.0" metadata-complete="true">
<display-name>Welcome to Tomcat</display-name>
<description>
Welcome to Tomcat
</description>
<servlet>
<servlet-name>exam</servlet-name>
<servlet-class>exam</servlet-class>
</servlet>
<servlet-mapping>
<servlet-name>exam</servlet-name>
<url-pattern>/exam</url-pattern>
</servlet-mapping>
</web-app>
```

Execution steps:

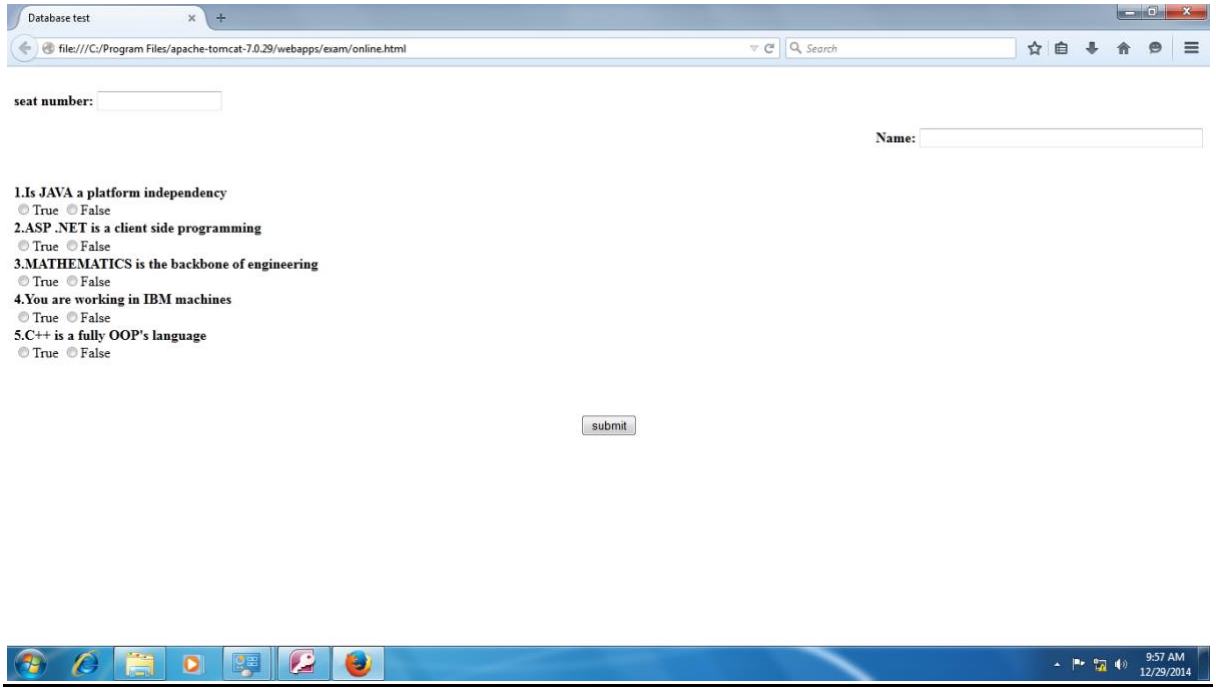
1. Create the database StudentDB2.mdb in which Studenttable is created. Note that we have to create an empty database by specifying simply the field names such as Seat_no, Name and Marks.
2. Create the DSN for Student database:

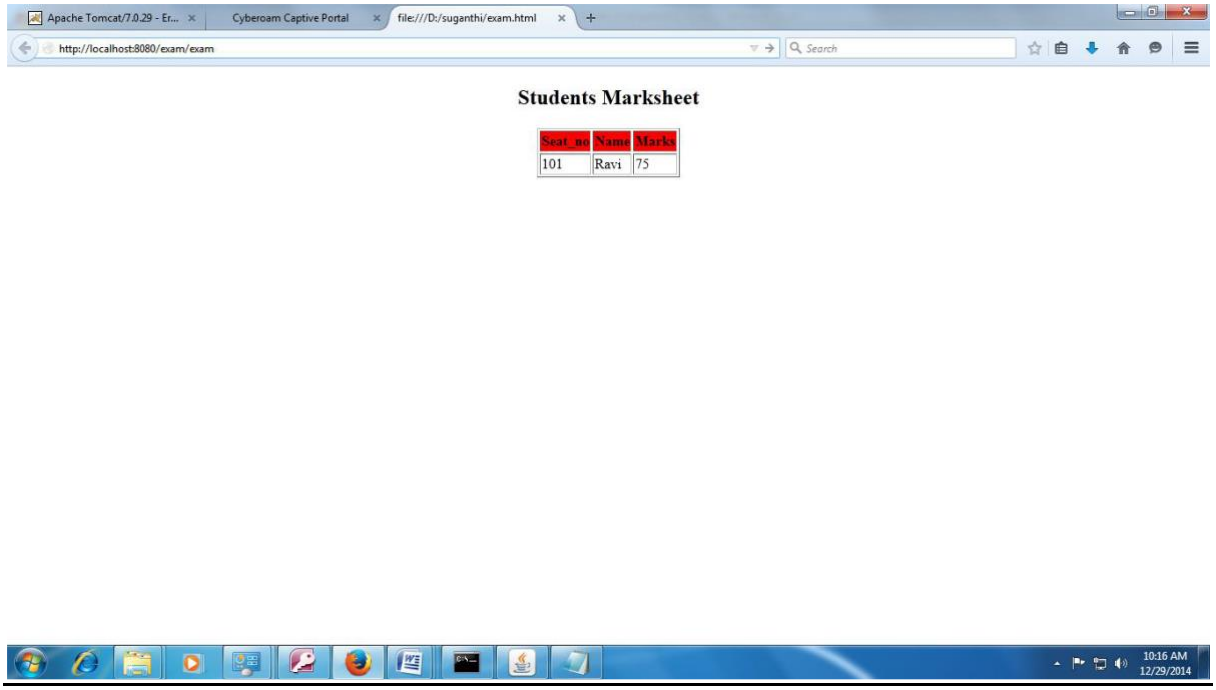
Open the Control panel and double click on the Administrative Tools icon. Then double click on the Datasources(ODBC) icon. The window appears as:

Database(Database1.mdb) –DSN CONNECTION(studentDB2)

3. Click on User DSN tab and select Microsoft Access Driver (*.mdb) and then click on the finish button. Then type the Data Source Name as StudentDB2 and click on select button to select the database file for corresponding DSN. Click on OK button. Now connection to the database is done using JDBC-ODBC driver.
4. Create a html program as online.html in which True/False questions are displayed.
5. Then Create a java program as Exam.java which is a servlet code for computing the total score of each student and it displays the database contents.
6. Compile the java program by using javac exam.java. then class file will be created and place the corresponding class file to the location c:\ "Program Files\apache-tomcat-7.0.29\webapps\exam\WEB-INF\class.
7. Then edit the web.xml file in WEB-INF for servlet name and servlet class as exam
8. Now open online.html file in a browser window the web page opens and if we click on submit button the student information should get updated in the database by invoking a servlet.

Sample output




Apache Tomcat/7.0.29 - Er...
Cyberoam Captive Portal
file:///D:/suganthi/exam.html
http://localhost:8080/exam/exam
Search
Students Marksheet
Seat_no
Name
Marks
101
Ravi
75
10:16 AM
12/29/2014