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Homework 2 Report
CS 5513 – Dr. Le Gruenwald

1. Create OBJECT TYPE Query

```
CREATE TYPE address_obj AS OBJECT(
```

```
    street                VARCHAR2(200),
```

```
    city                  VARCHAR2(200),
```

```
    state                  VARCHAR2(2),
```

```
    zipcode                VARCHAR2(20)
```

```
)FINAL;
```

```
/
```

```
CREATE TYPE customer_obj AS OBJECT(
```

```
    customer_name          VARCHAR2(32),
```

```
    address                 address_obj
```

```
)FINAL;
```

```
/
```

```
CREATE TYPE software_obj AS VARRAY(100) OF VARCHAR2(64);
```

```
/
```

```
CREATE TYPE computer_obj AS OBJECT(
```

```
    serial_no              number(5),
```

```
    speed                   VARCHAR2(32),
```

```
    price                   number(5),
```

```
    memory                  VARCHAR2(32),
```

```
    customer_name          REF    customer_obj,
```

```
    facturer_name          REF    microchip_manufacturer_obj,
```

```
    softwares               software_obj
```

```
)NOT FINAL;
```

```
/
```

```
CREATE TYPE laptop_obj UNDER computer_obj(  
    weight          VARCHAR2(32)  
);  
/
```

```
CREATE TYPE desktop_obj UNDER computer_obj(  
    monitor_type    VARCHAR2(32)  
);  
/
```

```
CREATE TYPE microchip_manufacturer_obj AS OBJECT(  
    facturer_name   VARCHAR2(32),  
    address          address_obj  
)FINAL;  
/
```

```
CREATE TYPE date_obj AS OBJECT(  
    month           number(2),  
    year            number(4)  
)FINAL;  
/
```

```
CREATE TYPE order_obj AS OBJECT(  
    order_no        number(5),  
    customer_name    REF customer_obj,  
    com_serial_no    REF computer_obj,  
    order_date       data_obj  
)FINAL;  
/
```

2. Create Table Query

```
REATE TABLE customer_tab OF customer_obj(  
    PRIMARY KEY(customer_name)  
) OBJECT IDENTIFIER IS PRIMARY KEY;  
/
```

```
CREATE TABLE computer_tab OF computer_obj(  
    PRIMARY KEY(serial_no),  
    FOREIGN KEY(customer_name) REFERENCES customer_tab,  
    FOREIGN KEY(facturer_name) REFERENCES microchip_manufacturer_tab  
  
)OBJECT IDENTIFIER IS PRIMARY KEY;  
/
```

```
CREATE TABLE microchip_manufacturer_tab OF microchip_manufacturer_obj(  
    PRIMARY KEY(facturer_name)  
)OBJECT IDENTIFIER IS PRIMARY KEY;  
/
```

```
CREATE TABLE order_tab OF order_obj(  
    PRIMARY KEY(order_no) GENERATED ALWAYS AS IDENTITY,  
    FOREIGN KEY(customer_name) REFERENCES customer_tab,  
    FOREIGN KEY(com_serial_no) REFERENCES computer_tab  
)OBJECT IDENTIFIER IS PRIMARY KEY;  
/
```

```
CREATE TABLE laptop_tab OF laptop_obj(  
    FOREIGN KEY(customer_name) REFERENCES customer_tab,
```

```
        FOREIGN KEY(facturer_name) REFERENCES microchip_manufacturer_tab
    );
/

CREATE TABLE desktop_tab OF desktop_obj(
        FOREIGN KEY(customer_name) REFERENCES customer_tab,
        FOREIGN KEY(facturer_name) REFERENCES microchip_manufacturer_tab
    );
/

COMMIT;
```

3. Data Handler Class (JDBC)

```
package WebDB;

import java.sql.*;
import java.time.ZonedDateTime;
import java.util.Calendar;

import oracle.jdbc.pool.OracleDataSource;
import javax.servlet.http.HttpSession;
import java.util.Date;

public class DataHandler {

    String jdbcUrl = "jdbc:oracle:thin:@//oracle18.cs.ou.edu:1521/orclpdb";
    String userId = "Yu1357";
    String password = "KHxv2Vj5";
    Connection conn;
    Statement stmt;
    ResultSet res;

    public boolean authenticateUser(String jdbcUrl, String userId, String password, HttpSession
session) throws SQLException {
        this.jdbcUrl = jdbcUrl;
        this.userId = userId;
        this.password = password;
        try {
            OracleDataSource ds = new OracleDataSource();
            ds.setURL(jdbcUrl);
            conn = ds.getConnection(userId, password);
```

```
        return true;
    }catch(SQLException e) {
        System.out.println("Invalid User");
        session.setAttribute("loginerrorormsg", "Wrong username or password");
        this.userId = null;
        this.password = null;
        return false;
    }
}
```

```
public Connection getDBConnection() throws SQLException{
    final OracleDataSource ds = new OracleDataSource();
    ds.setURL(jdbcUrl);

    if(conn == null)
        conn = ds.getConnection(userId, password);
    conn.setAutoCommit(true);
    return conn;
}
```

```
public boolean insertManufacturer(String name, String street, String city,
    String state, String zipcode) throws SQLException {
    getDBConnection();
```

```
        final String sqlInsert = "INSERT INTO microchip_manufacturer_tab
VALUES(?,address_obj(?, ?, ?, ?))";

        int rowsUpdated = 0;

        try(

                PreparedStatement stm = conn.prepareStatement(sqlInsert);

                ){

                stm.setString(1,name);

                stm.setString(2, street);

                stm.setString(3, city);

                stm.setString(4, state);

                stm.setString(5, zipcode);

                rowsUpdated = stm.executeUpdate();

        }catch(SQLException e){

                e.printStackTrace();

        }

        return rowsUpdated != 0;

    }
```

```
        public boolean insertLaptop(int cid, String speed, int price, String memory, String cusName,
String fName, String[] softwares, String weight) throws SQLException {

                getDBConnection();

                String softwaresStr = "software_obj(";

                int rows = 0;

                for(int i = 0; i < softwares.length - 1; i++)

                        softwaresStr += "?, ";

                if(softwares.length > 0)

                        softwaresStr += "?";

        }
```



```
        softwaresStr += "));

        String sqlInsert = "";

        if(cusName.length() != 0)

            sqlInsert = "INSERT INTO laptop_tab "

                + "SELECT ?, ?, ?, ?, REF(c), REF(m), " + softwaresStr + ", ? "

                + "FROM microchip_manufacturer_tab m,

customer_tab c "

                + "WHERE c.customer_name = ? AND m.facturer_name

= ?";

        else

            sqlInsert = "INSERT INTO laptop_tab "

                + "SELECT ?, ?, ?, ?, null, REF(m), " + softwaresStr + ", ? "

                + "FROM microchip_manufacturer_tab m "

                + "WHERE m.facturer_name = ?";

        try (PreparedStatement stmt = conn.prepareStatement(sqlInsert)); {

            stmt.setInt(1, cid);

            stmt.setString(2, speed);

            stmt.setInt(3, price);

            stmt.setString(4, memory);

            for(int i = 0; i < softwares.length; i++) {

                stmt.setString(i + 5, softwares[i]);

            }

            stmt.setString(5 + softwares.length, weight);

            if(cusName.length() > 0 ) {

                stmt.setString(6 + softwares.length, cusName);

                stmt.setString(7 + softwares.length, fName);

            }

        }
```

```
        else {  
            stmt.setString(6 + softwares.length, fName);  
        }  
        rows = stmt.executeUpdate();  
  
    }catch(SQLException e) {  
        e.printStackTrace();  
    }  
  
    this.insertComputer(cid, speed, price, memory, cusName, fName, softwares);  
  
    return rows != 0;  
}
```

```
    public boolean insertDesktop(int cid, String speed, int price, String memory, String cusName,  
String fName, String[] softwares, String monitor) throws SQLException {  
        getDBConnection();  
        String softwaresStr = "software_obj(";  
        int rows = 0;  
        for(int i = 0; i < softwares.length - 1; i++)  
            softwaresStr += "?, ";  
        if(softwares.length > 0)  
            softwaresStr += "?";  
        softwaresStr += ")";  
  
        String sqlInsert = "";  
  
        if(cusName.length() != 0) {
```

```
        sqlInsert = "INSERT INTO desktop_tab "
                    + "SELECT ?, ?, ?, ?, REF(c), REF(m), " + softwaresStr + ", ? "
                    + "FROM microchip_manufacturer_tab m,
customer_tab c "
                    + "WHERE c.customer_name = ? AND m.facturer_name
= ?";
    }
    else {
        sqlInsert = "INSERT INTO desktop_tab "
                    + "SELECT ?, ?, ?, ?, null, REF(m), " + softwaresStr + ", ? "
                    + "FROM microchip_manufacturer_tab m "
                    + "WHERE m.facturer_name = ?";
    }

    try (PreparedStatement stmt = conn.prepareStatement(sqlInsert);
        ) {
        stmt.setInt(1, cid);
        stmt.setString(2, speed);
        stmt.setInt(3, price);
        stmt.setString(4, memory);
        for(int i = 0; i < softwares.length; i++) {
            stmt.setString(i + 5, softwares[i]);
        }
        stmt.setString(5 + softwares.length, monitor);

        if(cusName.length() > 0 ) {
            stmt.setString(6 + softwares.length, cusName);
```

```
        stmt.setString(7 + softwares.length, fName);
    }
    else {
        stmt.setString(6 + softwares.length, fName);

    }
    rows = stmt.executeUpdate();

} catch(SQLException e) {
    e.printStackTrace();
}
this.insertComputer(cid, speed, price, memory, cusName, fName, softwares);
return rows != 0;
}

public boolean insertComputer(int cid, String speed, int price, String memory, String cusName,
String fName, String[] softwares) throws SQLException {
    getDBConnection();
    String softwaresStr = "software_obj(";
    int rows = 0;
    for(int i = 0; i < softwares.length - 1; i++)
        softwaresStr += "?, ";
    if(softwares.length > 0)
        softwaresStr += "?";
    softwaresStr += ")";

    String sqlInsertCom = "";

    if(cusName.length() != 0) {
```

```
        sqlInsertCom = "INSERT INTO computer_tab "
            + "SELECT ?, ?, ?, ?, REF(c), REF(m), " + softwaresStr + " "
            + "FROM microchip_manufacturer_tab m,
customer_tab c "
            + "WHERE c.customer_name = ? AND
m.facturer_name = ?";
    }
    else {
        sqlInsertCom = "INSERT INTO computer_tab "
            + "SELECT ?, ?, ?, ?, null, REF(m), " + softwaresStr + " "
            + "FROM microchip_manufacturer_tab m "
            + "WHERE m.facturer_name = ?";
    }

    try (
        PreparedStatement stmt1 = conn.prepareStatement(sqlInsertCom);) {

        stmt1.setInt(1, cid);
        stmt1.setString(2, speed);
        stmt1.setInt(3, price);
        stmt1.setString(4, memory);
        for(int i = 0; i < softwares.length; i++) {
            stmt1.setString(i + 5, softwares[i]);
        }
        if(cusName.length() > 0 ) {
            stmt1.setString(5 + softwares.length, cusName);
        }
    }
```

```
        stmt1.setString(6 + softwares.length, fName);
    }
    else {
        stmt1.setString(5 + softwares.length, fName);
    }
    rows = stmt1.executeUpdate();

} catch(SQLException e) {
    e.printStackTrace();
}

return rows != 0;
}

public boolean insertCustomer(String name,String serialNo, String street, String city,
        String state, String zipcode) throws SQLException {
    getDBConnection();
    String sqlInsert = "INSERT INTO customer_tab VALUES(?,address_obj(?, ?, ?, ?)) ";
    String sqlInsert2 = null;
    if(serialNo != null && serialNo.length() > 0)
        sqlInsert2 = " INSERT INTO order_tab SELECT ?, "
+ "REF(c), "
+ "REF(p), "
+ "date_obj(?,?)"
+ "FROM customer_tab c, computer_tab p "
```

```
+ "WHERE c.customer_name = ? AND p.serial_no = ? ";
```

```
int rowsUpdated = 0;
```

```
try(
```

```
    PreparedStatement stm = conn.prepareStatement(sqlInsert);
```

```
){
```

```
    stm.setString(1,name);
```

```
    stm.setString(2, street);
```

```
    stm.setString(3, city);
```

```
    stm.setString(4, state);
```

```
    stm.setString(5, zipcode);
```

```
    rowsUpdated = stm.executeUpdate();
```

```
if(serialNo.length() != 0) {
```

```
try(PreparedStatement stm1 = conn.prepareStatement(sqlInsert2)){
```

```
    java.util.Date date= new Date();
```

```
    Calendar cal = Calendar.getInstance();
```

```
    cal.setTime(date);
```

```
    int month = cal.get(Calendar.MONTH);
```

```
    int year = cal.get(Calendar.YEAR);
```

```
    stm1.setInt(1, Integer.parseInt(serialNo));
```

```
    stm1.setInt(2, month);
```

```
    stm1.setInt(3, year);
```

```
    stm1.setString(4, name);
```

```
    stm1.setInt(5, Integer.parseInt(serialNo));
```

```
        stm1.executeUpdate();

    }

}

}catch(SQLException e){
    e.printStackTrace();
}

return rowsUpdated != 0;
}

public boolean query4(String serialNo) throws SQLException {
    getDBConnection();
    int rowsUpdated = 0;
    final String sqlInsert = "UPDATE computer_tab SET customer_name = (SELECT
REF(c) "
        + "FROM customer_tab c, order_tab o "
        + "WHERE c.customer_name =
o.customer_name.customer_name "
        + "AND o.com_serial_no.serial_no = ?) "
        + "WHERE serial_no = ?";

    try(
        PreparedStatement stm = conn.prepareStatement(sqlInsert);
    ){
```



```
        stm.setInt(1, Integer.parseInt(serialNo));  
        stm.setInt(2, Integer.parseInt(serialNo));  
        rowsUpdated = stm.executeUpdate();
```

```
    }catch(SQLException e){  
        e.printStackTrace();  
    }
```

```
    return rowsUpdated != 0;
```

```
}
```

```
public ResultSet getQuery4Res(String serialNo) throws SQLException {  
    getDBConnection();
```

```
    String sql =
```

```
        "SELECT p.serial_no, " +  
        "P.customer_name.customer_name " +  
        "FROM computer_tab P "  
        +"WHERE p.serial_no = ? ";
```

```
    PreparedStatement stmt1 = conn.prepareStatement(sql);
```

```
    stmt1.setInt(1, Integer.parseInt(serialNo));
```

```
    res = stmt1.executeQuery();
```

```
    return res;
```

```
}
```

```
public ResultSet getComputerTable() throws SQLException {  
    getDBConnection();
```

```
String sql =
    "SELECT c.serial_no,\r\n" +
    "    c.speed,\r\n" +
    "    c.price,\r\n" +
    "    c.memory,\r\n" +
    "    c.customer_name.customer_name,\r\n" +
    "    c.facturer_name.facturer_name,\r\n" +
    "    c.softwares\r\n" +
    "FROM  computer_tab c";

// Prepare the SQL query.
PreparedStatement stmt = conn.prepareStatement(sql);

//execute the query and store the result in the ResultSet rset
res = stmt.executeQuery();
return res;
}
```

```
public ResultSet query5(int year) throws SQLException {
    getDBConnection();

    String sql = "SELECT p.serial_no, "
        + "p.speed, "
        + "p.price, "
        + "p.memory, "
        + "p.customer_name.customer_name, "
        + "p.facturer_name.facturer_name, "
```

```
        + "p.softwares, "
        + "p.weight, "
        + "o.order_date.month "
    + "FROM laptop_tab p, order_tab o "
    + "WHERE p.serial_no = o.com_serial_no.serial_no "
    + "AND o.order_date.year = ? ";

PreparedStatement stmt = conn.prepareStatement(sql);

stmt.setInt(1, year);

res = stmt.executeQuery();

return res;

}
```

```
public ResultSet query6(String fname) throws SQLException {

    getDBConnection();

    String sql = "SELECT c.customer_name, "
        + "c.address.street, "
        + "c.address.city, "
        + "c.address.state, "
        + "c.address.zipcode "
    + "FROM customer_tab c " +
        "WHERE c.customer_name IN (SELECT
p.customer_name.customer_name " +
        "FROM computer_tab p "
    + "WHERE
p.facturer_name.facturer_name = ? ) ";

    PreparedStatement stmt = conn.prepareStatement(sql);
```

```
stmt.setString(1, fname);  
res = stmt.executeQuery();  
return res;  
}
```

```
public ResultSet query7() throws SQLException {  
    getDBConnection();  
  
    String sql = "SELECT o.customer_name.customer_name, "  
                + "p.softwares "  
                + "FROM laptop_tab p, order_tab o " +  
                "WHERE p.serial_no = o.com_serial_no.serial_no ";  
  
    PreparedStatement stmt = conn.prepareStatement(sql);  
    res = stmt.executeQuery();  
    return res;  
}
```

```
public ResultSet query8(int price) throws SQLException {  
    getDBConnection();  
  
    String sql = "SELECT o.customer_name.customer_name "  
                + "FROM order_tab o "  
                + "WHERE o.com_serial_no.serial_no IN (SELECT p.serial_no "  
  
                + "FROM desktop_tab p "  
  
                + "WHERE p.price > ?) ";
```

```
PreparedStatement stmt = conn.prepareStatement(sql);  
stmt.setInt(1, price);  
res = stmt.executeQuery();  
return res;  
}
```

```
public ResultSet query9(int serialNo) throws SQLException {  
    getDBConnection();  
  
    String sql = "SELECT l.softwares\r\n" +  
                "FROM laptop_tab l\r\n" +  
                "WHERE l.serial_no = ?";  
  
    PreparedStatement stmt = conn.prepareStatement(sql);  
    stmt.setInt(1, serialNo);  
    res = stmt.executeQuery();  
    return res;  
}
```

```
public ResultSet query10(int year) throws SQLException {  
    getDBConnection();  
    this.query10DeleteOrder(year);  
    this.query10DeleteLaptop(year);  
    this.query10DeleteDesktop(year);  
    this.query10DeleteComputer(year);  
    String sql = "DELETE FROM customer_tab c\r\n" +
```

```
        "WHERE c.customer_name NOT IN (SELECT  
o.customer_name.customer_name\r\n" +  
        "                FROM order_tab o \r\n" +  
        "                WHERE o.order_no IN(SELECT k.order_no FROM order_tab k  
WHERE k.order_date.year > ?))";
```

```
PreparedStatement stmt = conn.prepareStatement(sql);
```

```
stmt.setInt(1, year);
```

```
stmt.executeQuery();
```

```
String sql1 = "SELECT c.customer_name, "  
              + "c.address.street, "  
              + "c.address.city, "  
              + "c.address.state, "  
              + "c.address.zipcode "  
              + "FROM customer_tab c";
```

```
PreparedStatement stmt1 = conn.prepareStatement(sql1);
```

```
res = stmt1.executeQuery();
```

```
return res;
```

```
}
```

```
private ResultSet query10DeleteOrder(int year) throws SQLException {
```

```
    String sql = "DELETE FROM order_tab o\r\n" +  
        "WHERE o.customer_name.customer_name IN(SELECT c.customer_name FROM  
customer_tab c\r\n" +  
        "WHERE c.customer_name NOT IN (SELECT o.customer_name.customer_name\r\n" +  
        "                FROM order_tab o \r\n" +  
        "                WHERE o.order_no IN(SELECT k.order_no FROM order_tab k WHERE  
k.order_date.year > ?)))\r\n";
```

```
PreparedStatement stmt1 = conn.prepareStatement(sql);  
stmt1.setInt(1, year);  
res = stmt1.executeQuery();  
return res;  
}
```

```
private ResultSet query10DeleteLaptop(int year) throws SQLException {  
    String sql = "DELETE FROM laptop_tab c\r\n" +  
        "WHERE c.customer_name.customer_name IN(SELECT c.customer_name FROM  
customer_tab c\r\n" +  
        "WHERE c.customer_name NOT IN (SELECT o.customer_name.customer_name\r\n" +  
        "            FROM order_tab o \r\n" +  
        "            WHERE o.order_no IN(SELECT k.order_no FROM order_tab k WHERE  
k.order_date.year > ?))));";
```

```
PreparedStatement stmt = conn.prepareStatement(sql);  
stmt.setInt(1, year);  
res = stmt.executeQuery();  
return res;  
}
```

```
private ResultSet query10DeleteDesktop(int year) throws SQLException {  
    String sql = "DELETE FROM desktop_tab c\r\n" +  
        "WHERE c.customer_name.customer_name IN(SELECT c.customer_name FROM  
customer_tab c\r\n" +  
        "WHERE c.customer_name NOT IN (SELECT o.customer_name.customer_name\r\n" +  
        "            FROM order_tab o \r\n" +
```

```
        "                WHERE o.order_no IN(SELECT k.order_no FROM  order_tab k WHERE  
k.order_date.year > ?))));
```

```
        PreparedStatement stmt = conn.prepareStatement(sql);  
  
        stmt.setInt(1, year);  
  
        res = stmt.executeQuery();  
  
        return res;  
    }
```

```
    private ResultSet query10DeleteComputer(int year) throws SQLException {  
  
        String sql = "DELETE FROM desktop_tab c\r\n" +  
            "WHERE c.customer_name.customer_name IN(SELECT c.customer_name FROM  
customer_tab c\r\n" +  
            "WHERE  c.customer_name NOT IN (SELECT o.customer_name.customer_name\r\n" +  
            "                FROM  order_tab o \r\n" +  
            "                WHERE o.order_no IN(SELECT k.order_no FROM  order_tab k WHERE  
k.order_date.year > ?))));
```

```
        PreparedStatement stmt = conn.prepareStatement(sql);  
  
        stmt.setInt(1, year);  
  
        res = stmt.executeQuery();  
  
        return res;  
    }
```

```
    public ResultSet getCustomerTable() throws SQLException {  
  
        String sql = "SELECT c.customer_name, "  
            + "c.address.street, "  
            + "c.address.city, "  
            + "c.address.state, "
```



```
        + "c.address.zipcode "  
        + "FROM customer_tab c";
```

```
PreparedStatement stmt = conn.prepareStatement(sql);  
res = stmt.executeQuery();  
return res;  
}
```

```
public ResultSet getDesktopTable() throws SQLException {  
    String sql = "SELECT c.serial_no,\r\n" +  
        "    c.speed,\r\n" +  
        "    c.price,\r\n" +  
        "    c.memory,\r\n" +  
        "    c.customer_name.customer_name,\r\n" +  
        "    c.facturer_name.facturer_name,\r\n" +  
        "    c.softwares,\r\n" +  
        "    c.monitor_type\r\n" +  
        "FROM  desktop_tab c";
```

```
PreparedStatement stmt = conn.prepareStatement(sql);  
res = stmt.executeQuery();  
return res;  
}
```

```
public ResultSet getLaptopTable() throws SQLException {  
    String sql = "SELECT c.serial_no,\r\n" +
```

```
"    c.speed,\r\n" +  
"    c.price,\r\n" +  
"    c.memory,\r\n" +  
"    c.customer_name.customer_name,\r\n" +  
"    c.facturer_name.facturer_name,\r\n" +  
"    c.softwares,\r\n" +  
"    c.weight\r\n" +  
"FROM  laptop_tab c";
```

```
PreparedStatement stmt = conn.prepareStatement(sql);  
  
res = stmt.executeQuery();  
  
return res;  
}
```

```
public ResultSet getManufacturerTable() throws SQLException {
```

```
    String sql = "SELECT c.facturer_name,\r\n" +  
"    c.address.street,\r\n" +  
"    c.address.city,\r\n" +  
"    c.address.state, \r\n" +  
"    c.address.zipcode\r\n" +  
"FROM microchip_manufacturer_tab c";
```

```
PreparedStatement stmt = conn.prepareStatement(sql);  
  
res = stmt.executeQuery();  
  
return res;  
}
```

```
public ResultSet getOrderTable() throws SQLException {
```

```
String sql = "SELECT o.order_no,\r\n" +  
            "    o.customer_name.customer_name,\r\n" +  
            "    o.com_serial_no.serial_no,\r\n" +  
            "    o.order_date.month,\r\n" +  
            "    o.order_date.year\r\n" +  
            "FROM order_tab o\r\n";  
  
PreparedStatement stmt = conn.prepareStatement(sql);  
  
res = stmt.executeQuery();  
  
return res;  
}  
}
```

4. Web Page files (JSP)

```

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"

5.     pageEncoding="ISO-8859-1"%>
6. <!DOCTYPE html>
7. <html>
8. <head>
9. <meta charset="ISO-8859-1">
10. <title>Computer Table</title>
11. </head>
12. <body>
13.     <%@page import="WebDB.DataHandler"%>
14.     <%@ page import="java.sql.*"%>
15.     <%@ page import="java.util.*"%>
16.
17.     <%
18.
19.         DataHandler handler = new DataHandler();
20.         String jdbcUrl =
21.         "jdbc:oracle:thin:@//oracle18.cs.ou.edu:1521/orclpdb";
22.         boolean auth = handler.authenticateUser(jdbcUrl,
23. session.getAttribute("username").toString(),
24. session.getAttribute("password").toString(),
25. request.getSession(true));
26.
27.         ResultSet rset = handler.getComputerTable();
28.
29.         %>
30.         <form action='goMenuAction.jsp' align='center'>
31.         <div align='center'><p>&nbsp;</p>
32.         <table cellspacing='2' cellpadding='3' border='1'
33.         width='100%'>
34.             <tr>
35.                 <th>Serial Number</th>
36.                 <th>Speed</th>
37.                 <th>Price</th>
38.                 <th>Memory</th>
39.                 <th>Customer Name</th>
40.                 <th>Manufacturer Name</th>
41.                 <th>Softwares</th>
42.             </tr>
43.
44.             <%
45.
46.                 while(rset.next()){
47.                     Array a = rset.getArray(7);
48.                     String[] result = (String[])a.getArray();
49.
50.
51.                     out.println("<tr>");

```

```

52.                out.println("<td align=\"center\">" + rset.getInt(1)
+ "</td>");
53.                out.println("<td align=\"center\">" +
rset.getString(2) + "</td>");
54.                out.println("<td align=\"center\">" + rset.getInt(3)
+ "</td>");
55.                out.println("<td align=\"center\">" +
rset.getString(4) + "</td>");
56.                out.println("<td align=\"center\">" +
rset.getString(5) + "</td>");
57.                out.println("<td align=\"center\">" +
rset.getString(6) + "</td>");
58.                out.println("<td align=\"center\">" +
Arrays.toString(result) + "</td>");
59.
60.                out.println("</tr>");
61.            }
62.
63.    %>
64.        </table>
65.        <table cellpadding='2' cellspacing='3' border='0'
width='100%'>
66.            <tr>
67.            <td><input type='submit' name='backbutton'
value='Home' /></td>
68.            </tr>
69.        </table>
70.    </div></form>
71.    <%
72.
73.    %>
74. </body>
75. </html>

```

```

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Customer Table</title>
</head>
<body>
    <%@page import="WebDB.DataHandler"%>
    <%@ page import="java.sql.*"%>
    <%@ page import="java.util.*"%>

    <%

```

```

        DataHandler handler = new DataHandler();
        String jdbcUrl = "jdbc:oracle:thin:@//oracle18.cs.ou.edu:1521/orclpdb";

```

```

        boolean auth = handler.authenticateUser(jdbcUrl,
session.getAttribute("username").toString(),
        session.getAttribute("password").toString(),
request.getSession(true));

```

```

        ResultSet rset = handler.getCustomerTable();

```

```

        %>
        <form action='goMenuAction.jsp' align='center'>
        <div align='center'><p>&nbsp;</p>
        <table cellpadding='2' cellspacing='3' border='1'
width='100%'>
            <tr>
                <th>Customer Name</th>
                <th>Street</th>
                <th>City</th>
                <th>State</th>
                <th>Zip Code</th>
            </tr>
        <%
            while(rset.next()){
                out.println("<tr>");
                out.println("<td align=\"center\">" + rset.getString(1) +
"</td>");
                out.println("<td align=\"center\">" + rset.getString(2) +
"</td>");
                out.println("<td align=\"center\">" + rset.getString(3) +
"</td>");
                out.println("<td align=\"center\">" + rset.getString(4) +
"</td>");
                out.println("<td align=\"center\">" + rset.getString(5) +
"</td>");
            }
        %>
        </table>
        <table cellpadding='2' cellspacing='3' border='0'
width='100%'>
            <tr>
                <td><input type='submit' name='backbutton'
value='Home' /></td>
            </tr>
        </table>
        </div></form>
        <%
    %>
</body>
</html>

```

```

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Desktop Table</title>
</head>
<body>
    <%@page import="WebDB.DataHandler"%>
    <%@ page import="java.sql.*"%>
    <%@ page import="java.util.*"%>

    <%

        DataHandler handler = new DataHandler();
        String jdbcUrl = "jdbc:oracle:thin:@//oracle18.cs.ou.edu:1521/orclpdb";

        boolean auth = handler.authenticateUser(jdbcUrl,
            session.getAttribute("username").toString(),
            session.getAttribute("password").toString(),
            request.getSession(true));

        ResultSet rset = handler.getDesktopTable();

        %>
        <form action='goMenuAction.jsp' align='center'>
        <div align='center'><p>&nbsp;</p>
        <table cellpadding='2' cellspacing='3' border='1'
width='100%'>
            <tr>
                <th>Serial Number</th>
                <th>Speed</th>
                <th>Price</th>
                <th>Memory</th>
                <th>Customer Name</th>
                <th>Manufacturer Name</th>
                <th>Softwares</th>
                <th>Monitor Type</th>

            </tr>

        <%

            while(rset.next()){

                Array a = rset.getArray(7);
                String[] result = (String[])a.getArray();

                out.println("<tr>");

```

```

        out.println("<td align=\"center\">" + rset.getInt(1) +
"</td>");
        out.println("<td align=\"center\">" + rset.getString(2) +
"</td>");
        out.println("<td align=\"center\">" + rset.getInt(3) +
"</td>");
        out.println("<td align=\"center\">" + rset.getString(4) +
"</td>");
        out.println("<td align=\"center\">" + rset.getString(5) +
"</td>");
        out.println("<td align=\"center\">" + rset.getString(6) +
"</td>");
        out.println("<td align=\"center\">" +
Arrays.toString(result) + "</td>");
        out.println("<td align=\"center\">" + rset.getString(8) +
"</td>");

        out.println("</tr>");
    }

%>
</table>
<table cellspacing='2' cellpadding='3' border='0'
width='100%'>
    <tr>
    <td><input type='submit' name='backbutton'
value='Home' /></td>
    </tr>
</table>
</div></form>

<%

%>
</body>
</html>

<%@page import="WebDB.DataHandler"%>
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
    <meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
</head>
<body>
    <%
        RequestDispatcher req =
request.getRequestDispatcher("main_menu.jsp");
        req.include(request, response);
    %>
</body>
</html>

```



```

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>

<head>
<meta charset="ISO-8859-1">
<title>Insert Customer</title>
</head>
<body>
    <h2>Insert a Laptop</h2>
    <form action = "insert_customer.jsp">
        <table border = 1>
            <tr>
                <th colspan="2">Enter Customer data: </th>
            </tr>
            <tr>
                <td>Customer's Name:</td>
                <td><div style="text-align: center;">
                    <input type="text" name="customer_name">
                </div></td>
            </tr>
            <tr>
                <td>Computer Serial Number:</td>
                <td><div style="text-align: center;">
                    <input type="text" name="serial_no">
                </div></td>
            </tr>
            <tr>
                <td>Street:</td>
                <td><div style="text-align: center;">
                    <input type="text" name="street">
                </div></td>
            </tr>
            <tr>
                <td>City:</td>
                <td><div style="text-align: center;">
                    <input type="text" name="city">
                </div></td>
            </tr>
            <tr>
                <td>State:</td>
                <td><div style="text-align: center;">
                    <input type="text" name="state">
                </div></td>
            </tr>
            <tr>
                <td>ZipCode:</td>
                <td><div style="text-align: center;">
                    <input type="text" name="zipcode">
                </div></td>
            </tr>
            <tr>
                <td><div style="text-align: center;">
                    <input type="reset" name="resetbutton" value="Clear">
                </td>
            </tr>
        </table>
    </form>

```

```

        </div></td>
        <td><div style="text-align: center">
            <input type=submit name=insertbutton value=Insert>
        </div></td>
    </tr>
    <tr>
        <td colspan = 2><div style="text-align: center">
            <input type=submit name=backbutton value=Back>
        </div></td>
    </tr>
</table>

</form>
</body>
</html>

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta http-equiv="Content-Type" content="text/html"; charset="UTF-8">
<title>Query Result</title>
</head>
<body>
    <%@page import="WebDB.DataHandler"%>
    <%@page import="java.sql.ResultSet"%>
    <%@page import="java.sql.Array"%>

    <%
    if (request.getParameter("backbutton") != null) {
        response.sendRedirect("main_menu.jsp");
    }

    DataHandler handler = new DataHandler();
    String jdbcUrl = "jdbc:oracle:thin:@//oracle18.cs.ou.edu:1521/orclpdb";

    boolean auth = handler.authenticateUser(jdbcUrl,
session.getAttribute("username").toString(),
        session.getAttribute("password").toString(),
request.getSession(true));

    if (request.getParameter("insertbutton") != null && auth) {

String customer_name = request.getParameter("customer_name");
String serial_no = request.getParameter("serial_no");
String street = request.getParameter("street");
String city = request.getParameter("city");
String state = request.getParameter("state");
String zipCode = request.getParameter("zipcode");
Boolean success;
```

```

        if(serial_no == null)
            success = handler.insertCustomer(customer_name, "", street, city,
state, zipCode);

            success = handler.insertCustomer(customer_name, serial_no,
street, city, state, zipCode);

        %>
        <form action='goMenuAction.jsp' align='center'>
        <div align='center'><p>&nbsp;</p>
        <table cellpadding='2' cellspacing='3' border='1'
width='100%'>
            <tr>
                <th>Customer Name</th>
                <th>Street</th>
                <th>City</th>
                <th>State</th>
                <th>Zip Code</th>
            </tr>
            <%
            if(success){
            %>
                <tr>
                    <td align='center'> <%=
customer_name %> </td>
                    <td align='center'> <%= street %></td>
                    <td align='center'> <%= city %></td>
                    <td align='center'> <%= state %></td>
                    <td align='center'> <%= zipCode %></td>
                </tr>
            </tr>
            %>
            }
            else{
            %>
                <h2>There was a problem inserting the Customer</h2>
            %>
            }
            %>
        </table>
        <table cellpadding='2' cellspacing='3' border='0'
width='100%'>
            <tr>
                <td><input type='submit' name='backbutton'
value='Home' /></td>
            </tr>
        </table>
        </div></form>
        %>
    }
    %>
</body>

```

```

</html>

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>

<head>
<meta charset="ISO-8859-1">
<title>Insert Laptop</title>
</head>
<body>
    <h2>Insert a Laptop</h2>
    <form action = "insert_desktop.jsp">
        <table border = 1>
            <tr>
                <th colspan="2">Enter the desktop data: </th>
            </tr>
            <tr>
                <td>Serial Number:</td>
                <td><div style="text-align: center;">
                    <input type=text name=serial_no>
                </div></td>
            </tr>
            <tr>
                <td>Speed:</td>
                <td><div style="text-align: center">
                    <input type=text name=speed>
                </div></td>
            </tr>
            <tr>
                <td>Price:</td>
                <td><div style="text-align: center">
                    <input type=text name=price>
                </div></td>
            </tr>
            <tr>
                <td>Memory:</td>
                <td><div style="text-align: center">
                    <input type=text name=memory>
                </div></td>
            </tr>
            <tr>
                <td>Customer Name:</td>
                <td><div style="text-align: center">
                    <input type=text name=customer_name>
                </div></td>
            </tr>
            <tr>
                <td>&u>Facturer Name:</td>
                <td><div style="text-align: center">
                    <input type=text name=facturer_name>
                </div></td>
            </tr>
        </table>
    </form>

```

```

        </tr>
        <tr>
            <td>Softwares:</td>
            <td><div style="text-align: center">
                <input type="text" name="softwares">
            </div></td>
        </tr>

        <tr>
            <td>Monitor Type:</td>
            <td><div style="text-align: center">
                <input type="text" name="monitor_type">
            </div></td>
        </tr>

        <tr>
            <td><div style="text-align: center">
                <input type="reset" name="resetbutton" value="Clear">
            </div></td>
            <td><div style="text-align: center">
                <input type="submit" name="insertbutton" value="Insert">
            </div></td>
        </tr>
        <tr>
            <td colspan = 2><div style="text-align: center">
                <input type="submit" name="backbutton" value="Back">
            </div></td>
        </tr>
    </table>

    </form>
</body>
</html>

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
<title>Query Result</title>
</head>
<body>
    <%@page import="WebDB.DataHandler"%>
    <%@page import="java.sql.ResultSet"%>
    <%@page import="java.sql.Array"%>

    <%
        if (request.getParameter("backbutton") != null) {
            response.sendRedirect("main_menu.jsp");
        }
    %>

```

```

        DataHandler handler = new DataHandler();
        String jdbcUrl = "jdbc:oracle:thin:@//oracle18.cs.ou.edu:1521/orclpdb";

        boolean auth = handler.authenticateUser(jdbcUrl,
        session.getAttribute("username").toString(),
            session.getAttribute("password").toString(),
        request.getSession(true));

        if (request.getParameter("insertbutton") != null && auth) {

            int serialid =
Integer.parseInt(request.getParameter("serial_no"));
            String speed = request.getParameter("speed");
            int price = Integer.parseInt(request.getParameter("price"));
            String memory = request.getParameter("memory");
            String customerName = request.getParameter("customer_name");
            String facturerName = request.getParameter("facturer_name");
            String softwares = request.getParameter("softwares");
            String monitor_type = request.getParameter("monitor_type");

            boolean success;
            if(customerName == null || customerName.length() == 0)
                success = handler.insertLaptop(serialid, speed,
                    price, memory, "", facturerName,
softwares.split(","), monitor_type);
            else
                success = handler.insertLaptop(serialid, speed,
                    price, memory, customerName, facturerName,
softwares.split(","), monitor_type);
        }

        <form action='goMenuAction.jsp' align='center'>
        <div align='center'><p>&nbsp;</p>
        <table cellpadding='2' cellspacing='3' border='1'
width='100%'>
            <tr>
                <th>Serial Number</th>
                <th>Speed</th>
                <th>Price</th>
                <th>Memory</th>
                <th>Customer Name</th>
                <th>Manufacturer Name</th>
                <th>Softwares</th>
                <th>Monitor Type</th>

            </tr>

            <%
                if(success){
            <tr>
                <td align="center"><%= serialid %>

                <td align="center"><%= speed %></td>
                <td align="center"><%= price%></td>
                <td align="center"><%= memory %></td>

```

```

customerName%></td>
facturerName%></td>
softwares%></td>
monitor_type%></td>
    <%
    }
    else{
        <h2>There was a problem inserting the desktop</h2>
    }
    </table>
    <table cellpadding='3' cellspacing='2' border='0'
width='100%'>
    <tr>
    <td><input type='submit' name='backbutton'
value='Home' /></td>
    </tr>
    </table>
    </div></form>
    <%
    }
    <%
</body>
</html>

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>

<head>
<meta charset="ISO-8859-1">
<title>Insert Laptop</title>
</head>
<body>
    <h2>Insert a Laptop</h2>
    <form action = "insert_laptop.jsp">
        <table border = 1>
            <tr>
                <th colspan="2">Enter the laptop data: </th>
            </tr>
            <tr>
                <td>Serial Number:</td>
                <td><div style="text-align: center;">
                    <input type=text name=serial_no>

```

```

        </div></td>
</tr>
<tr>
    <td>Speed:</td>
    <td><div style="text-align: center">
        <input type="text" name="speed">
    </div></td>
</tr>
<tr>
    <td>Price:</td>
    <td><div style="text-align: center">
        <input type="text" name="price">
    </div></td>
</tr>
<tr>
    <td>Memory:</td>
    <td><div style="text-align: center">
        <input type="text" name="memory">
    </div></td>
</tr>
<tr>
    <td>Customer Name:</td>
    <td><div style="text-align: center">
        <input type="text" name="customer_name">
    </div></td>
</tr>
<tr>
    <td>&u>Facturer Name:</td>
    <td><div style="text-align: center">
        <input type="text" name="facturer_name">
    </div></td>
</tr>
<tr>
    <td>Softwares:</td>
    <td><div style="text-align: center">
        <input type="text" name="softwares">
    </div></td>
</tr>
<tr>
    <td>Weight:</td>
    <td><div style="text-align: center">
        <input type="text" name="weight">
    </div></td>
</tr>
<tr>
    <td><div style="text-align: center">
        <input type="reset" name="resetbutton" value="Clear">
    </div></td>
    <td><div style="text-align: center">
        <input type="submit" name="insertbutton" value="Insert">
    </div></td>
</tr>
<tr>

```



```

        <td colspan = 2><div style="text-align: center">
            <input type=submit name=backbutton value=Back>
        </div></td>
    </tr>

</table>

</form>
</body>
</html>

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
<title>Query Result</title>
</head>
<body>
    <%@page import="WebDB.DataHandler"%>
    <%@page import="java.sql.ResultSet"%>
    <%@page import="java.sql.Array"%>

    <%
        if (request.getParameter("backbutton") != null) {
            response.sendRedirect("main_menu.jsp");
        }

        DataHandler handler = new DataHandler();
        String jdbcUrl = "jdbc:oracle:thin:@//oracle18.cs.ou.edu:1521/orclpdb";

        boolean auth = handler.authenticateUser(jdbcUrl,
            session.getAttribute("username").toString(),
            session.getAttribute("password").toString(),
            request.getSession(true));

        if (request.getParameter("insertbutton") != null && auth) {

            int serialid =
Integer.parseInt(request.getParameter("serial_no"));
            String speed = request.getParameter("speed");
            int price = Integer.parseInt(request.getParameter("price"));
            String memory = request.getParameter("memory");
            String customerName = request.getParameter("customer_name");
            String facturerName = request.getParameter("facturer_name");
            String softwares = request.getParameter("softwares");
            String weight = request.getParameter("weight");
            boolean success;
            if(customerName == null || customerName.length() == 0)
                success = handler.insertLaptop(serialid, speed,

```

```

                                price, memory, "", facturerName,
softwares.split(", "), weight);
                                else
                                success = handler.insertLaptop(serialid, speed,
                                price, memory, customerName, facturerName,
softwares.split(", "), weight);

                                %>

                                <form action='goMenuAction.jsp' align='center'>
                                <div align='center'><p>&nbsp;</p>
                                <table cellpadding='2' cellspacing='3' border='1'
width='100%'>
                                <tr>
                                <th>Serial Number</th>
                                <th>Speed</th>
                                <th>Price</th>
                                <th>Memory</th>
                                <th>Customer Name</th>
                                <th>Manufacturer Name</th>
                                <th>Softwares</th>
                                <th>Weight</th>

                                </tr>

                                <%
                                if(success){
                                %>

                                <tr>
                                <td align='center'> <%= serialid %>

                                <td align='center'><%= speed %></td>
                                <td align='center'><%= price %></td>
                                <td align='center'><%= memory %></td>
                                <td align='center'><%=
                                customerName%></td>
                                <td align='center'><%=
                                facturerName%></td>
                                <td align='center'><%=
                                softwares%></td>
                                <td align='center'><%= weight%></td>

                                </tr>

                                <%
                                }
                                else{
                                %>
                                <h2>There was a problem inserting the laptop</h2>

                                <%
                                }

                                </table>
                                <table cellpadding='2' cellspacing='3' border='0'
width='100%'>
                                <tr>
                                <td><input type='submit' name='backbutton'
value='Home' /></td>

```

```

        </tr>
        </table>
        </div></form>
    <%
    }
    %>
</body>
</html>

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>

<head>
<meta charset="ISO-8859-1">
<title>Insert Microchip Manufacturer</title>
</head>
<body>
    <h2>Insert a Microchip Manufacturer</h2>
    <form action = "insert_manufacturer.jsp">
        <table border = 1>
            <tr>
                <th colspan="2">Enter the Microchip Manufacturer data:
            </th>
            <tr>
                <td>Manufacturer Name:</td>
                <td><div style="text-align: center;">
                    <input type=text name=manufacturer_name>
                </div></td>
            </tr>
            <tr>
                <td>Street:</td>
                <td><div style="text-align: center">
                    <input type=text name=street>
                </div></td>
            </tr>
            <tr>
                <td>City:</td>
                <td><div style="text-align: center">
                    <input type=text name=city>
                </div></td>
            </tr>
            <tr>
                <td>State:</td>
                <td><div style="text-align: center">
                    <input type=text name=state>
                </div></td>
            </tr>
            <tr>
                <td>ZipCode:</td>
                <td><div style="text-align: center">
                    <input type=text name=zipcode>

```

```

        </div></td>
    </tr>
    <tr>
        <td><div style="text-align: center">
            <input type=reset name=resetbutton value=Clear>
        </div></td>
        <td><div style="text-align: center">
            <input type=submit name=insertbutton value=Insert>
        </div></td>
    </tr>
    <tr>
        <td colspan = 2><div style="text-align: center">
            <input type=submit name=backbutton value=Back>
        </div></td>
    </tr>
</table>

</form>
</body>
</html>

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta http-equiv="Content-Type" content="text/html"; charset="UTF-8">
<title>Query Result</title>
</head>
<body>
    <%@page import="WebDB.DataHandler"%>
    <%@page import="java.sql.ResultSet"%>
    <%@page import="java.sql.Array"%>

    <%
    if (request.getParameter("backbutton") != null) {
        response.sendRedirect("main_menu.jsp");
    }

    DataHandler handler = new DataHandler();
    String jdbcUrl = "jdbc:oracle:thin:@//oracle18.cs.ou.edu:1521/orclpdb";

    boolean auth = handler.authenticateUser(jdbcUrl,
    session.getAttribute("username").toString(),
        session.getAttribute("password").toString(),
    request.getSession(true));

    if (request.getParameter("insertbutton") != null && auth) {

        String manufacturerName = request.getParameter("manufacturer_name");
        String street = request.getParameter("street");
        String city = request.getParameter("city");
        String state = request.getParameter("state");
    }
    <%>
    </body>
</html>

```

```

String zipCode = request.getParameter("zipcode");

Boolean success = handler.insertManufacturer(manufacturerName,
street, city, state, zipCode);

%>
<form action='goMenuAction.jsp' align='center'>
<div align='center'><p>&nbsp;</p>
<table cellspacing='2' cellpadding='3' border='1'
width='100%'>
    <tr>
        <th>Manufacturer Name</th>
        <th>Street</th>
        <th>City</th>
        <th>State</th>
        <th>Zip Code</th>
    </tr>
    <%
    if(success){
    %>
        <tr>
            <td align="center"> <%=
manufacturerName %> </td>
            <td align="center"><%= street %></td>
            <td align="center"><%= city%></td>
            <td align="center"><%= state %></td>
            <td align="center"><%= zipCode%></td>
        </tr>
    </tr>
    <%
    }
    else{
    %>
        <h2>There was a problem inserting the Manufacturer</h2>
    <%
    }
    %>
    </table>
    <table cellspacing='2' cellpadding='3' border='0'
width='100%'>
        <tr>
            <td><input type='submit' name='backbutton'
value='Home' /></td>
        </tr>
    </table>
    </div></form>
    <%
    }
    %>
</body>
</html>

```

```

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Laptop Table</title>
</head>
<body>
    <%@page import="WebDB.DataHandler"%>
    <%@ page import="java.sql.*"%>
    <%@ page import="java.util.*"%>

    <%

        DataHandler handler = new DataHandler();
        String jdbcUrl = "jdbc:oracle:thin:@//oracle18.cs.ou.edu:1521/orclpdb";

        boolean auth = handler.authenticateUser(jdbcUrl,
            session.getAttribute("username").toString(),
            session.getAttribute("password").toString(),
            request.getSession(true));

        ResultSet rset = handler.getLaptopTable();

        %>
        <form action='goMenuAction.jsp' align='center'>
        <div align='center'><p>&nbsp;</p>
        <table cellpadding='2' cellspacing='3' border='1'
width='100%'>
            <tr>
                <th>Serial Number</th>
                <th>Speed</th>
                <th>Price</th>
                <th>Memory</th>
                <th>Customer Name</th>
                <th>Manufacturer Name</th>
                <th>Softwares</th>
                <th>Weight</th>

            </tr>

        <%

            while(rset.next()){

                Array a = rset.getArray(7);
                String[] result = (String[])a.getArray();

```

```

        out.println("<tr>");
        out.println("<td align=\"center\">" + rset.getInt(1) +
"</td>");
        out.println("<td align=\"center\">" + rset.getString(2) +
"</td>");
        out.println("<td align=\"center\">" + rset.getInt(3) +
"</td>");
        out.println("<td align=\"center\">" + rset.getString(4) +
"</td>");
        out.println("<td align=\"center\">" + rset.getString(5) +
"</td>");
        out.println("<td align=\"center\">" + rset.getString(6) +
"</td>");
        out.println("<td align=\"center\">" +
Arrays.toString(result) + "</td>");
        out.println("<td align=\"center\">" + rset.getString(8) +
"</td>");

        out.println("</tr>");
    }

%>
        </table>
        <table cellspacing='2' cellpadding='3' border='0'
width='100%'>
        <tr>
        <td><input type='submit' name='backbutton'
value='Home' /></td>
        </tr>
        </table>
        </div></form>

    <%

%>

</body>
</html>

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1" session="true"%>
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
        <title>Login</title>
    </head>
    <body>
        <h2 align="center">
            Login with your Oracle Account.
        </h2>
        <h2 align="center">
            <jsp:useBean id="empsbean" class="WebDB.DataHandler"
scope="session"/>

```

```

    </h2>

    <form action="Login.jsp" method="post">
        <div align="center">
            <p>&nbsp;</p>
            <table style="width: 50%">
                <tr>
                    <td width="38%">
                        <strong>Username:</strong>
                    </td>
                    <td width="62%">
                        <input type="text" name="username"/>
                    </td>
                </tr>
                <tr>
                    <td width="38%">
                        <strong>Password:</strong>
                    </td>
                    <td width="62%">
                        <input type="password"
name="password"/>
                    </td>
                </tr>
            </table>
            <input type="submit" value="Login"/>
            <p>
                &nbsp;</p>
        </div>
    </form>
</body>
</html>

<%@page import="WebDB.DataHandler"%>
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>

<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
    </head>

    <body>
        <%
            DataHandler handler = new DataHandler();
            String url =
"jdbc:oracle:thin:@//oracle18.cs.ou.edu:1521/orclpdb";
            if(handler.authenticateUser(url,
request.getParameter("username"),
request.getParameter("password"),
request.getSession(true))){
                String username = request.getParameter("username");
                String password = request.getParameter("password");

```



```

        if(username != null && username.length() > 0)
            session.setAttribute("username", username);
        if(password != null && password.length() > 0)
            session.setAttribute("password", password);

        RequestDispatcher req =
request.getRequestDispatcher("main_menu.jsp");
        req.include(request, response);
    }
    else{
        RequestDispatcher req =
request.getRequestDispatcher("login_form.jsp");
        req.include(request, response);
    }
    %>
</body>
</html>

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Oracle DB Home Page</title>
</head>
<body>
    <h2>Xiang Yu's Homework 2 Home Page</h2>
    <form action = "menu_action.jsp">
        <table border = 1>
            <tr>
                <th colspan="2">Querries </th>
            </tr>
            <tr>
                <td>1.Insert a microchip manufacturer</td>
                <td><div style="text-align: center;">
                    <input type="submit" name=queryry1 value="Go To">
                </div></td>
            </tr>
            <tr>
                <td>2.1 Insert a Laptop</td>
                <td><div style="text-align: center;">
                    <input type=submit name=queryry2.1 value="Go To">
                </div></td>
            </tr>
            <tr>
                <td>2.2 Insert a Desktop</td>
                <td><div style="text-align: center;">
                    <input type=submit name=queryry2.2 value="Go To">
                </div></td>
            </tr>
        </table>
    </form>

```

```

        <td>3 Insert a Customer</td>
        <td><div style="text-align: center">
          <input type=submit name=queryry3 value="Go To">
        </div></td>
      </tr>
      <tr>
        <td>4. Give technical support to a computer ordered by a
particular customer</td>
        <td><div style="text-align: center">
          <input type=submit name=queryry4 value="Go To">
        </div></td>
      </tr>
      <tr>
        <td>5. Find all laptops ordered by a particular customer
in a particular year</td>
        <td><div style="text-align: center">
          <input type=submit name=queryry5 value="Go
To">
        </div></td>
      </tr>
      <tr>
        <td>6. List all the information of the customer(s) who
have technical support for a computer using the microchip manufactured by a
particular manufacturer. </td>
        <td><div style="text-align: center">
          <input type=submit name=queryry6 value="Go
To">
        </div></td>
      </tr>
      <tr>
        <td>7. List the names of all customers who ordered a
laptop running a particular operating system. </td>
        <td><div style="text-align: center">
          <input type=submit name=queryry7 value="Go
To">
        </div></td>
      </tr>
      <tr>
        <td>8. Find the names of all customers who have bought a
desktop that costs more than a particular price. </td>
        <td><div style="text-align: center">
          <input type=submit name=queryry8 value="Go
To">
        </div></td>
      </tr>
      <tr>
        <td>9. Display all the software a particular laptop has.
</td>
        <td><div style="text-align: center">
          <input type=submit name=queryry9 value="Go
To">
        </div></td>
      </tr>
    </tr>

```

```

        <td>10. Delete all customers who have not made any order
since a particular year. </td>
        <td><div style="text-align: center">
            <input type="submit" name="query10" value="Go
To">
        </div></td>
    </tr>
</table>

<table cellpadding="3" cellspacing="2" border="0">
    <tr>
        <td><input type="submit" name="customer_tab"
value="Customer Table"/></td>
        <td><input type="submit" name="computer_tab"
value="Computer Table"/></td>
        <td><input type="submit" name="desktop_tab" value="Desktop
Table"/></td>
        <td><input type="submit" name="laptop_tab" value="Laptop
Table"/></td>
        <td><input type="submit" name="manufacturer_tab"
value="Manufacturer Table"/></td>
        <td><input type="submit" name="order_tab" value="Order
Table"/></td>
    </tr>
    <tr>
        <td>
            <input type="submit" name="logoutbutton"
value="Logout"/>
        </td>
    </tr>
</table>

</form>
</body>
</html>

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Oracle DB Home Page</title>
</head>
<body>
    <h2>Xiang Yu's Homework 2 Home Page</h2>
    <form action = "menu_action.jsp">
        <table border = 1>
            <tr>
                <th colspan="2">Querries </th>
            </tr>
            <tr>

```

```

        <td>1.Insert a microchip manufacturer</td>
        <td><div style="text-align: center;">
            <input type="submit" name=queryry1 value="Go To">
        </div></td>
    </tr>
    <tr>
        <td>2.1 Insert a Laptop</td>
        <td><div style="text-align: center;">
            <input type=submit name=queryry2.1 value="Go To">
        </div></td>
    </tr>
    <tr>
        <td>2.2 Insert a Desktop</td>
        <td><div style="text-align: center;">
            <input type=submit name=queryry2.2 value="Go To">
        </div></td>
    </tr>
    <tr>
        <td>3 Insert a Customer</td>
        <td><div style="text-align: center;">
            <input type=submit name=queryry3 value="Go To">
        </div></td>
    </tr>
    <tr>
        <td>4. Give technical support to a computer ordered by a
particular customer</td>
        <td><div style="text-align: center;">
            <input type=submit name=queryry4 value="Go To">
        </div></td>
    </tr>
    <tr>
        <td>5. Find all laptops ordered by a particular customer
in a particular year</td>
        <td><div style="text-align: center;">
            <input type=submit name=queryry5 value="Go
To">
        </div></td>
    </tr>
    <tr>
        <td>6. List all the information of the customer(s) who
have technical support for a computer using the microchip manufactured by a
particular manufacturer. </td>
        <td><div style="text-align: center;">
            <input type=submit name=queryry6 value="Go
To">
        </div></td>
    </tr>
    <tr>
        <td>7. List the names of all customers who ordered a
laptop running a particular operating system. </td>
        <td><div style="text-align: center;">
            <input type=submit name=queryry7 value="Go
To">
        </div></td>
    </tr>

```

```

        <tr>
            <td>8. Find the names of all customers who have bought a
desktop that costs more than a particular price. </td>
            <td><div style="text-align: center">
                <input type=submit name=queryry8 value="Go
To">
            </div></td>
        </tr>
        <tr>
            <td>9. Display all the software a particular laptop has.
</td>
            <td><div style="text-align: center">
                <input type=submit name=queryry9 value="Go
To">
            </div></td>
        </tr>
        <tr>
            <td>10. Delete all customers who have not made any order
since a particular year. </td>
            <td><div style="text-align: center">
                <input type=submit name=queryry10 value="Go
To">
            </div></td>
        </tr>
    </table>

    <table cellpadding="3" cellspacing="2" border="0">
        <tr>
            <td><input type="submit" name="customer_tab"
value="Customer Table"/></td>
            <td><input type="submit" name="computer_tab"
value="Computer Table"/></td>
            <td><input type="submit" name="desktop_tab" value="Desktop
Table"/></td>
            <td><input type="submit" name="laptop_tab" value="Laptop
Table"/></td>
            <td><input type="submit" name="manufacturer_tab"
value="Manufacturer Table"/></td>
            <td><input type="submit" name="order_tab" value="Order
Table"/></td>
        </tr>
        <tr>
            <td>
                <input type="submit" name="Logoutbutton"
value="Logout"/>
            </td>
        </tr>
    </table>

</form>
</body>
</html>

```

```

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Manufacturer Table</title>
</head>
<body>
    <%@page import="WebDB.DataHandler"%>
    <%@ page import="java.sql.*"%>
    <%@ page import="java.util.*"%>

    <%

        DataHandler handler = new DataHandler();
        String jdbcUrl = "jdbc:oracle:thin:@//oracle18.cs.ou.edu:1521/orclpdb";

        boolean auth = handler.authenticateUser(jdbcUrl,
            session.getAttribute("username").toString(),
            session.getAttribute("password").toString(),
            request.getSession(true));

        ResultSet rset = handler.getManufacturerTable();

        %>
        <form action='goMenuAction.jsp' align='center'>
        <div align='center'><p>&nbsp;</p>
        <table cellpadding='2' cellspacing='3' border='1'
width='100%'>
            <tr>
                <th>Microchip Manufacturer Name</th>
                <th>Street</th>
                <th>City</th>
                <th>State</th>
                <th>Zip Code</th>
            </tr>

            <%

                while(rset.next()){

                    out.println("<tr>");
                    out.println("<td align=\"center\">" + rset.getString(1) +
"</td>");
                    out.println("<td align=\"center\">" + rset.getString(2) +
"</td>");
                    out.println("<td align=\"center\">" + rset.getString(3) +
"</td>");
                    out.println("<td align=\"center\">" + rset.getString(4) +
"</td>");
                    out.println("<td align=\"center\">" + rset.getString(5) +
"</td>");
                }
            %>
        </table>
        </div>
        </form>
    %>

```

```

        out.println("</tr>");
    }

%>
</table>
<table cellspacing='2' cellpadding='3' border='0'
width='100%'>
    <tr>
    <td><input type='submit' name='backbutton'
value='Home' /></td>
    </tr>
</table>
</div></form>

<%

%>
</body>
</html>

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
    </head>
    <body>
        <%

if(request.getParameter("query1") != null)
    response.sendRedirect("insert_manufacturer_form.jsp");

else if(request.getParameter("query2.1") != null)
    response.sendRedirect("insert_laptop_form.jsp");

else if(request.getParameter("query2.2") != null)
    response.sendRedirect("insert_desktop_form.jsp");

else if(request.getParameter("query3") != null)
    response.sendRedirect("insert_customer_form.jsp");

else if(request.getParameter("query4") != null)
    response.sendRedirect("query4_form.jsp");

else if(request.getParameter("query5") != null)
    response.sendRedirect("query5_form.jsp");

else if(request.getParameter("query6") != null)
    response.sendRedirect("query6_form.jsp");

else if(request.getParameter("query7") != null)
    response.sendRedirect("query7_form.jsp");

else if(request.getParameter("query8") != null)

```

```

        response.sendRedirect("querry8_form.jsp");

        else if(request.getParameter("querry9") != null)
            response.sendRedirect("querry9_form.jsp");

        else if(request.getParameter("querry10") != null)
            response.sendRedirect("querry10_form.jsp");

        else if(request.getParameter("customer_tab") != null)
            response.sendRedirect("customer_tab.jsp");

        else if(request.getParameter("computer_tab") != null)
            response.sendRedirect("computer_tab.jsp");

        else if(request.getParameter("desktop_tab") != null)
            response.sendRedirect("desktop_tab.jsp");

        else if(request.getParameter("laptop_tab") != null)
            response.sendRedirect("laptop_tab.jsp");

        else if(request.getParameter("manufacturer_tab") != null)
            response.sendRedirect("manufacturer_tab.jsp");

        else if(request.getParameter("order_tab") != null)
            response.sendRedirect("order_tab.jsp");

        else if(request.getParameter("logoutbutton") != null)
            response.sendRedirect("login_form.jsp");

        %>
    </body>
</html>

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Order Table</title>
</head>
<body>
    <%@page import="WebDB.DataHandler"%>
    <%@ page import="java.sql.*"%>
    <%@ page import="java.util.*"%>

    <%

        DataHandler handler = new DataHandler();
        String jdbcUrl = "jdbc:oracle:thin:@//oracle18.cs.ou.edu:1521/orclpdb";

        boolean auth = handler.authenticateUser(jdbcUrl,
session.getAttribute("username").toString(),

```



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        session.getAttribute("password").toString(),
request.getSession(true));

```

```

ResultSet rset = handler.getOrderTable();

```

```

%>
<form action='goMenuAction.jsp' align='center'>
<div align='center'><p>&nbsp;</p>
<table cellspacing='2' cellpadding='3' border='1'
width='100%'>
    <tr>
        <th>Order Number</th>
        <th>Customer Name</th>
        <th>Computer Serial Number</th>
        <th>Order Date(MM/YYYY)</th>
    </tr>
    <%
        while(rset.next()){
            out.println("<tr>");
            out.println("<td align=\"center\">" + rset.getInt(1) +
"</td>");
            out.println("<td align=\"center\">" + rset.getString(2) +
"</td>");
            out.println("<td align=\"center\">" + rset.getString(3) +
"</td>");
            out.println("<td align=\"center\">" + rset.getString(4) +
"/" + rset.getString(5) + "</td>");
            out.println("</tr>");
        }
    <%
        </table>
        <table cellspacing='2' cellpadding='3' border='0'
width='100%'>
            <tr>
                <td><input type='submit' name='backbutton'
value='Home' /></td>
            </tr>
        </table>
        </div></form>
    <%
        </body>
    </html>

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"

```

```

    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>DELETION</title>
</head>
<body>
    <h2> Delete all customers who have not made any order since a particular year.
</h2>
    <form action = "querry10.jsp">
        <table border = 1>
            <tr>
                <th colspan="2">Enter the year: </th>
            </tr>
            <tr>
                <td>Year:</td>
                <td><div style="text-align: center;">
                    <input type=text name=year>
                </div></td>
            </tr>
            <tr>
                <td><div style="text-align: center">
                    <input type=reset name=resetbutton value=Clear>
                </div></td>
                <td><div style="text-align: center">
                    <input type=submit name=insertbutton value=Submit>
                </div></td>
            </tr>
            <tr>
                <td colspan = 2><div style="text-align: center">
                    <input type=submit name=backbutton value=Back>
                </div></td>
            </tr>
        </table>
    </form>
</body>
</html>

```

```

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Delection Result</title>
</head>
<body>
    <%@page import="WebDB.DataHandler"%>
    <%@ page import="java.sql.*"%>
    <%@ page import="java.util.*"%>

```

```

<h2>Customer table after Delection </h2>
<%

    DataHandler handler = new DataHandler();
    String jdbcUrl = "jdbc:oracle:thin:@//oracle18.cs.ou.edu:1521/orclpdb";

    boolean auth = handler.authenticateUser(jdbcUrl,
session.getAttribute("username").toString(),
        session.getAttribute("password").toString(),
request.getSession(true));

    if (request.getParameter("insertbutton") != null && auth) {

        String year = request.getParameter("year");
        ResultSet rset = handler.querry10(Integer.parseInt(year));

        %>
        <form action='goMenuAction.jsp' align='center'>
        <div align='center'><p>&nbsp;</p>
        <table cellpadding='3' cellspacing='2' border='1'
width='100%'>
            <tr>
                <th>Customer Name</th>
                <th>Street</th>
                <th>City</th>
                <th>State</th>
                <th>Zip Code</th>

            </tr>

            <%

                while(rset.next()){

                    out.println("<tr>");
                    out.println("<td align=\"center\">" + rset.getString(1) +
"</td>");
                    out.println("<td align=\"center\">" + rset.getString(2) +
"</td>");
                    out.println("<td align=\"center\">" + rset.getString(3) +
"</td>");
                    out.println("<td align=\"center\">" + rset.getString(4) +
"</td>");
                    out.println("<td align=\"center\">" + rset.getString(5) +
"</td>");
                    out.println("</tr>");

                }

            %>

            </table>
            <table cellpadding='3' cellspacing='2' border='0'
width='100%'>
                <tr>

```

```

        value='Home' /></td>
        <td><input type='submit' name='backbutton'
        </tr>
        </table>
        </div></form>

    <%
    }
    %>
</body>
</html>

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>4.Give technical support to a computer ordered by a particular
customer</title>
</head>
<body>
    <h2>4.Give technical support to a computer ordered by a particular
customer</h2>
    <form action = "querry4.jsp">
        <table border = 1>
            <tr>
                <th colspan="2">Enter the Tech-Support data: </th>
            </tr>
            <tr>
                <td>Computer Serial Number:</td>
                <td><div style="text-align: center;">
                    <input type=text name=serial_no>
                </div></td>
            </tr>
            <tr>
                <td><div style="text-align: center">
                    <input type=reset name=resetbutton value=Clear>
                </div></td>
                <td><div style="text-align: center">
                    <input type=submit name=insertbutton value=Submit>
                </div></td>
            </tr>
            <tr>
                <td colspan = 2><div style="text-align: center">
                    <input type=submit name=backbutton value=Back>
                </div></td>
            </tr>
        </table>
    </form>
</body>

```

```
</html>
```

```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta http-equiv="Content-Type" content="text/html"; charset="UTF-8">
<title>Query Result</title>
</head>
<body>
    <%@page import="WebDB.DataHandler"%>
    <%@page import="java.sql.ResultSet"%>
    <%@page import="java.sql.Array"%>
```

```
        <h2>4.Give technical support to a computer ordered by a particular
customer</h2>
```

```
    <%
    if (request.getParameter("backbutton") != null) {
        response.sendRedirect("main_menu.jsp");
    }

    DataHandler handler = new DataHandler();
    String jdbcUrl = "jdbc:oracle:thin:@//oracle18.cs.ou.edu:1521/orclpdb";

    boolean auth = handler.authenticateUser(jdbcUrl,
session.getAttribute("username").toString(),
        session.getAttribute("password").toString(),
request.getSession(true));

    if (request.getParameter("insertbutton") != null && auth) {

        String serial_no = request.getParameter("serial_no");

        boolean success = handler.query4(serial_no);
    %>
        <form action='goMenuAction.jsp' align='center'>
        <div align='center'><p>&nbsp;</p>
        <table cellpadding='3' cellspacing='2' border='1'
width='100%'>
            <tr>
                <th>Serial Number</th>
                <th>Customer' Name</th>
                <th>Customer' Name</th>
                <th>Customer' Name</th>
            </tr>

            <%
            if(success){
```

```

        ResultSet rset = handler.getQuery4Res(serial_no);

        while(rset.next()){

            out.println("<tr>");
            out.println("<td align=\"center\">" + rset.getInt(1) +
"</td>" +
                                "<td align=\"center\">" +
rset.getString(2) + "</td>" );
            out.println("</tr>");
        }
    }
    else{
        %>
        <h2>There was a problem executing query 4</h2>
    }
    %>
</table>
<table cellspacing='2' cellpadding='3' border='0'
width='100%'>
    <tr>
    <td><input type='submit' name='backbutton'
value='Home' /></td>
    </tr>
</table>
</div></form>
    %>
    }
    %>
</body>
</html>

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>

<head>
<meta charset="ISO-8859-1">
<title>Insert Microchip Manufacturer</title>
</head>
<body>
    <h2>Find all laptops ordered by a particular customer in a particular year.
</h2>
    <form action = "query5.jsp">

```

```

        <table border = 1>
            <tr>
                <th colspan="2">Enter the year: </th>
            </tr>
            <tr>
                <td>Year:</td>
                <td><div style="text-align: center;">
                    <input type=text name=year>
                </div></td>
            </tr>
            <tr>
                <td><div style="text-align: center">
                    <input type=reset name=resetbutton value=Clear>
                </div></td>
                <td><div style="text-align: center">
                    <input type=submit name=insertbutton value=Submit>
                </div></td>
            </tr>
            <tr>
                <td colspan = 2><div style="text-align: center">
                    <input type=submit name=backbutton value=Back>
                </div></td>
            </tr>
        </table>
    </form>
</body>
</html>

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta http-equiv="Content-Type" content="text/html"; charset="UTF-8">
<title>Query Result</title>
</head>
<body>
    <%@page import="WebDB.DataHandler"%>
    <%@ page import="java.sql.*"%>
    <%@ page import="java.util.*"%>
    <h2>Find all laptops ordered by a particular customer in a particular year.
</h2>

    <%
    if (request.getParameter("backbutton") != null) {
        response.sendRedirect("main_menu.jsp");
    }

    DataHandler handler = new DataHandler();
    String jdbcUrl = "jdbc:oracle:thin:@//oracle18.cs.ou.edu:1521/orclpdb";

```

```

        boolean auth = handler.authenticateUser(jdbcUrl,
session.getAttribute("username").toString(),
        session.getAttribute("password").toString(),
request.getSession(true));

        if (request.getParameter("insertbutton") != null && auth) {

String year = request.getParameter("year");

ResultSet rset = handler.queryry5(Integer.parseInt(year));

        %>    <h1>Laptop sold in <%=year %></h1>
        <form action='goMenuAction.jsp' align='center'>
        <div align='center'><p>&nbsp;</p>
        <table cellspacing='2' cellpadding='3' border='1'
width='100%'>
                <tr>
                        <th>Serial Number</th>
                        <th>Speed</th>
                        <th>Price</th>
                        <th>Memory</th>
                        <th>Customer Name</th>
                        <th>Manufacturer Name</th>
                        <th>Softwares</th>
                        <th>Weight</th>
                        <th>Order Month:</th>
                </tr>

        <%

        while(rset.next()){
                Array a = rset.getArray(7);
                String[] result = (String[])a.getArray();

                out.println("<tr>");
                out.println("<td align=\"center\">" + rset.getInt(1) +
"</td>" +
                                "<td align=\"center\">" +
rset.getString(2) + "</td>" +
                                "<td align=\"center\">" +
rset.getInt(3) + "</td>" +
                                "<td align=\"center\">" +
rset.getString(4) + "</td>" +
                                "<td align=\"center\">" +
rset.getString(5) + "</td>" +
                                "<td align=\"center\">" +
rset.getString(6) + "</td>" +
                                "<td align=\"center\">" +
Arrays.toString(result) + "</td>" +
                                "<td align=\"center\">" +
rset.getString(8) + "</td>" +
                                "<td align=\"center\">" +
rset.getInt(9) + "</td>" );

```



```

        out.println("</tr>");
    }

    %>
        </table>
        <table cellspacing='2' cellpadding='3' border='0'
width='100%'>
        <tr>
        <td><input type='submit' name='backbutton'
value='Home' /></td>
        </tr>
        </table>
        </div></form>

        <%
        _____
        _____}
        _____%>
    </body>
    </html>

    <%@ page language="java" contentType="text/html; charset=ISO-8859-1"
        pageEncoding="ISO-8859-1"%>
    <!DOCTYPE html>
    <html>

    <head>
    <meta charset="ISO-8859-1">
    <title>Technical support</title>
    </head>
    <body>
        <h2>List all the information of the customer(s) who have technical support for
a computer using the microchip manufactured by a particular manufacturer. </h2>
        <form action = "query6.jsp">
            <table border = 1>
                <tr>
                    <th colspan="2">Enter the year: </th>
                </tr>
                <tr>
                    <td>&u>Microchip Manufacturer Name</td>
                    <td><div style="text-align: center;">
                        <input type=text name=facturer_name>
                    </div></td>
                </tr>
                <tr>
                    <td><div style="text-align: center">
                        <input type=reset name=resetbutton value=Clear>
                    </div></td>
                    <td><div style="text-align: center">
                        <input type=submit name=insertbutton value=Submit>
                    </div></td>
                </tr>
            </table>
        </form>
    </body>
    </html>

```

```

        <tr>
            <td colspan = 2><div style="text-align: center">
                <input type=submit name=backbutton value=Back>
            </div></td>
        </tr>
    </table>
</form>
</body>
</html>

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Technical support</title>
</head>
<body>
    <%@page import="WebDB.DataHandler"%>
    <%@ page import="java.sql.*"%>
    <%@ page import="java.util.*"%>

    <h2>List all the information of the customer(s) who have technical
support for a computer using the microchip manufactured by a particular manufacturer.
</h2>

    <%

        DataHandler handler = new DataHandler();
        String jdbcUrl = "jdbc:oracle:thin:@//oracle18.cs.ou.edu:1521/orclpdb";

        boolean auth = handler.authenticateUser(jdbcUrl,
session.getAttribute("username").toString(),
                session.getAttribute("password").toString(),
request.getSession(true));

        if (request.getParameter("insertbutton") != null && auth) {

            String fname = request.getParameter("facturer_name");
            ResultSet rset = handler.query6(fname);

            %>
            <form action='goMenuAction.jsp' align='center'>
            <div align='center'><p>&nbsp;</p>
            <table cellspacing='2' cellpadding='3' border='1'
width='100%'>
                <tr>
                    <th>Customer Name</th>
                    <th>Street</th>
                    <th>City</th>
                    <th>State</th>

```

```

                                <th>Zip Code</th>
                                </tr>
                                <%

                                while(rset.next()){

                                out.println("<tr>");
                                out.println("<td align=\"center\">" + rset.getString(1) +
                                "</td>" +
                                "                                <td align=\"center\">" +
                                rset.getString(2) + "</td>" +
                                "                                <td align=\"center\">" +
                                rset.getString(3) + "</td>" +
                                "                                <td align=\"center\">" +
                                rset.getString(4) + "</td>" +
                                "                                <td align=\"center\">" +
                                rset.getString(5) + "</td>");
                                out.println("</tr>");
                                }

                                %>

                                </table>
                                <table cellspacing='2' cellpadding='3' border='0'
                                width='100%'>
                                <tr>
                                <td><input type='submit' name='backbutton'
                                value='Home' /></td>
                                </tr>
                                </table>
                                </div></form>

                                <%

                                }
                                %>
                                </body>
                                </html>

                                <%@ page language="java" contentType="text/html; charset=ISO-8859-1"
                                pageEncoding="ISO-8859-1"%>
                                <!DOCTYPE html>
                                <html>
                                <head>
                                <meta charset="ISO-8859-1">
                                <title>Insert title here</title>
                                </head>
                                <body>
                                <h2>List the names of all customers who ordered a laptop running a particular
                                operating system. </h2>
                                <form action = "query7.jsp">
                                <table border = 1>
                                <tr>
                                <th colspan="2">Enter the Operate System Name: </th>
                                </tr>

```

```

        <tr>
            <td>Operate System Name:</td>
            <td><div style="text-align: center;">
                <input type="text" name="software">
            </div></td>
        </tr>

        <tr>
            <td><div style="text-align: center;">
                <input type="reset" name="resetbutton" value="Clear">
            </div></td>
            <td><div style="text-align: center;">
                <input type="submit" name="insertbutton" value="Submit">
            </div></td>
        </tr>
        <tr>
            <td colspan = 2><div style="text-align: center;">
                <input type="submit" name="backbutton" value="Back">
            </div></td>
        </tr>
    </table>
</form>
</body>
</html>

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Customer</title>
</head>
<body>
    <%@page import="WebDB.DataHandler"%>
    <%@ page import="java.sql.*"%>
    <%@ page import="java.util.*"%>

    <h2>List the names of all customers who ordered a laptop running a
particular operating system. </h2>

    <%

        DataHandler handler = new DataHandler();
        String jdbcUrl = "jdbc:oracle:thin:@//oracle18.cs.ou.edu:1521/orclpdb";

        boolean auth = handler.authenticateUser(jdbcUrl,
session.getAttribute("username").toString(),
        session.getAttribute("password").toString(),
request.getSession(true));

        if (request.getParameter("insertbutton") != null && auth) {

```

```

String software = request.getParameter("software");
ResultSet rset = handler.querry7();

    %>
        <form action='goMenuAction.jsp' align='center'>
        <div align='center'><p>&nbsp;</p>
        <table cellpadding='2' cellspacing='3' border='1'
width='100%'>
            <tr>
                <th>Customer Name</th>
            </tr>
    <%

        while(rset.next()){
            Array a = rset.getArray(2);
            String[] result = (String[])a.getArray();
            boolean check = false;
            for(String s:result){
                if(s.equals(software)){
                    check = true;
                }
            }

            if(!check)
                continue;

            out.println("<tr>");
            out.println("<td align=\"center\">" + rset.getString(1) +
"</td>");
        }

    %>
        </table>
        <table cellpadding='2' cellspacing='3' border='0'
width='100%'>
            <tr>
                <td><input type='submit' name='backbutton'
value='Home' /></td>
            </tr>
        </table>
        </div></form>
    <%

        }
    %>
</body>
</html>

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>

```

```

<html>
<head>
<meta charset="ISO-8859-1">
<title>Customer</title>
</head>
<body>
    <h2>Find the names of all customers who have bought a desktop that costs more
than a particular price. </h2>
    <form action = "query8.jsp">
        <table border = 1>
            <tr>
                <th colspan="2">Enter the Price: </th>
            </tr>
            <tr>
                <td>Price:</td>
                <td><div style="text-align: center;">
                    <input type=text name=price>
                </div></td>
            </tr>
            <tr>
                <td><div style="text-align: center">
                    <input type=reset name=resetbutton value=Clear>
                </div></td>
                <td><div style="text-align: center">
                    <input type=submit name=insertbutton value=Submit>
                </div></td>
            </tr>
            <tr>
                <td colspan = 2><div style="text-align: center">
                    <input type=submit name=backbutton value=Back>
                </div></td>
            </tr>
        </table>
    </form>
</body>
</html>

```

```

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Query Result</title>
</head>
<body>
    <%@page import="WebDB.DataHandler"%>
    <%@ page import="java.sql.*"%>
    <%@ page import="java.util.*"%>
    <h1>Find the names of all customers who have bought a desktop that costs more
than a particular price.</h1>

```

```

    <%

        DataHandler handler = new DataHandler();
        String jdbcUrl = "jdbc:oracle:thin:@//oracle18.cs.ou.edu:1521/orclpdb";

        boolean auth = handler.authenticateUser(jdbcUrl,
session.getAttribute("username").toString(),
        session.getAttribute("password").toString(),
request.getSession(true));

        if (request.getParameter("insertbutton") != null && auth) {

            String price = request.getParameter("price");
            ResultSet rset = handler.query8(Integer.parseInt(price));

            %>
            <form action='goMenuAction.jsp' align='center'>
            <div align='center'><p>&nbsp;</p>
            <table cellspacing='2' cellpadding='3' border='1'
width='100%'>
                <tr>
                    <th>Customer Name</th>
                </tr>

            <%

                while(rset.next()){

                    out.println("<tr>");
                    out.println("<td align=\"center\">" + rset.getString(1) +
"</td>");

                }

            %>

            </table>
            <table cellspacing='2' cellpadding='3' border='0'
width='100%'>
                <tr>
                    <td><input type='submit' name='backbutton'
value='Home' /></td>

                </tr>
            </table>
            </div></form>

            <%

            }
            %>
        </body>
    </html>

```

```

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>softwares</title>
</head>
<body>
    <h2>Display all the software a particular laptop has. </h2>
    <form action = "querry9.jsp">
        <table border = 1>
            <tr>
                <th colspan="2">Enter the Price: </th>
            </tr>
            <tr>
                <td>Serial Number:</td>
                <td><div style="text-align: center;">
                    <input type="text" name="serial_no">
                </div></td>
            </tr>
            <tr>
                <td><div style="text-align: center">
                    <input type="reset" name="resetbutton" value="Clear">
                </div></td>
                <td><div style="text-align: center">
                    <input type="submit" name="insertbutton" value="Submit">
                </div></td>
            </tr>
            <tr>
                <td colspan = 2><div style="text-align: center">
                    <input type="submit" name="backbutton" value="Back">
                </div></td>
            </tr>
        </table>
    </form>
</body>
</html>

```

```

<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Customer</title>
</head>
<body>
    <%@page import="WebDB.DataHandler"%>
    <%@ page import="java.sql.*"%>
    <%@ page import="java.util.*"%>

```



```

<h1>Display all the software a particular laptop has.</h1>
<%

    DataHandler handler = new DataHandler();
    String jdbcUrl = "jdbc:oracle:thin:@//oracle18.cs.ou.edu:1521/orclpdb";

    boolean auth = handler.authenticateUser(jdbcUrl,
session.getAttribute("username").toString(),
        session.getAttribute("password").toString(),
request.getSession(true));

    if (request.getParameter("insertbutton") != null && auth) {

        String serialNo = request.getParameter("serial_no");
        ResultSet rset = handler.query9(Integer.parseInt(serialNo));

        %>
        <form action='goMenuAction.jsp' align='center'>
        <div align='center'><p>&nbsp;</p>
        <table cellpadding='2' cellspacing='3' border='1'
width='100%'>
            <tr>
                <th>Softwares</th>
            </tr>
            <%

                while(rset.next()){
                    Array a = rset.getArray(1);
                    String[] result = (String[])a.getArray();

                    out.println("<tr>");
                    out.println("<td align=\"center\">" +
Arrays.toString(result) + "</td>");
                    out.println("</tr>");
                }

            %>
            </table>
            <table cellpadding='2' cellspacing='3' border='0'
width='100%'>
                <tr>
                    <td><input type='submit' name='backbutton'
value='Home' /></td>
                </tr>
            </table>
        </div></form>

        <%

    }
    %>
</body>
</html>

```


5. Screenshot of Query Result

Home Page

Oracle DB Home Page

localhost:8080/WebDB_HK2/login.jsp

Apps SanDisk Extreme II... 数据库BASARA4 攻略... Sapling Learning Campus Lodge | Ap... 有效数字_百度百科 MyLab & Mastering... TF Source - My Sou... Hobby Search PVC... Project Info Other bookmarks

Xiang Yu's Homework 2 Home Page

Querries	
1.Insert a microchip manufacturer	Go To
2.1 Insert a Laptop	Go To
2.2 Insert a Desktop	Go To
3 Insert a Customer	Go To
4. Give technical support to a computer ordered by a particular customer	Go To
5. Find all laptops ordered by a particular customer in a particular year	Go To
6. List all the information of the customer(s) who have technical support for a computer using the microchip manufactured by a particular manufacturer.	Go To
7. List the names of all customers who ordered a laptop running a particular operating system.	Go To
8. Find the names of all customers who have bought a desktop that costs more than a particular price.	Go To
9. Display all the software a particular laptop has.	Go To
10. Delete all customers who have not made any order since a particular year.	Go To

Customer Table Computer Table Desktop Table Laptop Table Manufacturer Table Order Table

Logout

Query 1

Insert a Microchip Manufacturer

Enter the Microchip Manufacturer data:	
Manufacturer Name:	IBM
Street:	Oak Tree
City:	Los Angles
State:	CA
ZipCode:	92121
<input type="button" value="Clear"/>	<input type="button" value="Insert"/>
<input type="button" value="Back"/>	

Waiting for localhost...

Manufacturer Name	Street	City	State	Zip Code
IBM	Oak Tree	Los Angles	CA	92121

Microchip Manufacturer Name	Street	City	State	Zip Code
IBM	Oak Tree	Los Angles	CA	92121
Huawei	Jie Fang Xi Lu	Shen Zhen	GD	52399
Google	Cruce St	San Fansico	CA	92131
Sisco	Main St	Norman	Ok	73072
Lenovo	Main St	New York	NY	82931

Five Query Result

Query 2

Enter the laptop data:	
Serial Number:	100
Speed:	10
Price:	1500
Memory:	3GB
Customer Name:	
Facturer Name:	IBM
Softwares:	windows,Office,QQ,Wechat
Weight:	2kg
Clear	Insert
Back	

Laptop table

Serial Number	Speed	Price	Memory	Customer Name	Manufacturer Name	Softwares	Weight
102	200	3000	16GB	null	Google	[Chroma OS, Office, QQ, Wechat]	1kg
123	1000	1500	16GB	null	Huawei	[Windows, Office, QQ, Wechat]	2kg
100	10	1500	3GB	null	IBM	[windows, Office, QQ, Wechat]	2kg
101	20	1300	4GB	null	Huawei	[Windows, Office, QQ, Wechat]	2kg

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Enter the desktop data:	
Serial Number:	<input type="text"/>
Speed:	<input type="text"/>
Price:	<input type="text"/>
Memory:	<input type="text"/>
Customer Name:	<input type="text"/>
Facturer Name:	<input type="text"/>
Softwares:	<input type="text"/>
Monitor Type:	<input type="text"/>
<input type="button" value="Clear"/>	<input type="button" value="Insert"/>
<input type="button" value="Back"/>	

Desktop Table

Serial Number	Speed	Price	Memory	Customer Name	Manufacturer Name	Softwares	Monitor Type
1234	2000	3000	128GB	null	Huawei	[Windows, Office, QQ, Wechat]	OLED
1000	1000	700	32GB	null	Google	[Windows, Office, QQ, Wechat]	LCD
2000	100	300	1GB	null	Lenovo	[Windows, Office, QQ, Wechat]	LED

Computer Table

Serial Number	Speed	Price	Memory	Customer Name	Manufacturer Name	Softwares
102	200	3000	16GB	null	Google	[Chroma OS, Office, QQ, Wechat]
1000	1000	700	32GB	null	Google	[Windows]
2000	100	300	1GB	null	Lenovo	[Windows, Office, QQ, Wechat]
3000	200	1100	5GB	null	Sisco	[Windows, Office, QQ, Wechat]
100	10	1500	3GB	null	IBM	[windows, Office, QQ, Wechat]
101	20	1300	4GB	null	Huawei	[Windows, Office, QQ, Wechat]

Query 3

Enter Customer data:	
Customer's Name:	Mike
Computer Serial Number:	1234
Street:	Main St
City:	Norman
State:	Ok
ZipCode:	73072
<input type="button" value="Clear"/>	<input type="button" value="Insert"/>
<input type="button" value="Back"/>	

Customer Name	Street	City	State	Zip Code
Mike	Main St	Norman	Ok	73072

Customer Name	Street	City	State	Zip Code
Cat Fish	River Ranch	Los Angles	CA	92121
Iron Man	Main St	New York	NY	99211
Mike	Main St	Norman	Ok	73072
Tom	Oak Tree	Norman	Ok	73072
Amy	Stevenson Ranch	Los Angles	CA	92121

Order Table:

Order Number	Customer Name	Computer Serial Number	Order Date(MM/YYYY)
2000	Cat Fish	2000	2/2019
1234	Mike	1234	2/2019
102	Tom	102	2/2019
100	Amy	100	2/2019

Query 4

4. Give technical support to a computer ordered by a particular customer

Enter the Tech-Support data:	
Computer Serial Number:	1234
<input type="button" value="Clear"/>	<input type="button" value="Submit"/>
<input type="button" value="Back"/>	

4. Give technical support to a computer ordered by a particular customer

Serial Number	Customer' Name	Customer' Name	Customer'
1234	Mike		

4. Give technical support to a computer ordered by a particular customer

Enter the Tech-Support data:	
Computer Serial Number:	102
<input type="button" value="Clear"/>	<input type="button" value="Submit"/>
<input type="button" value="Back"/>	

4. Give technical support to a computer ordered by a particular customer

Serial Number	Customer' Name
102	Tom

Query 5

Find all laptops ordered by a particular customer in a particular year.

Enter the year:	
Year:	<input type="text" value="2018"/>
<input type="button" value="Clear"/>	<input type="button" value="Submit"/>
<input type="button" value="Back"/>	

Find all laptops ordered by a particular customer in a particular year.

Laptop sold in 2018

Serial Number	Speed	Price	Memory	Customer Name	Manufacturer Name	Softwares	Weight	Order Month:
<input type="button" value="Home"/>								

Find all laptops ordered by a particular customer in a particular year.

Enter the year:	
Year:	<input type="text" value="2019"/>
<input type="button" value="Clear"/>	<input type="button" value="Submit"/>
<input type="button" value="Back"/>	

Laptop sold in 2019

Serial Number	Speed	Price	Memory	Customer Name	Manufacturer Name	Softwares	Weight	Order Month:
102	200	3000	16GB	null	Google	[Chroma OS, Office, QQ, Wechat]	1kg	2
100	10	1500	3GB	null	IBM	[windows, Office, QQ, Wechat]	2kg	2

Query 6

List all the information of the customer(s) who have technical support for a computer using the microchip manufactured by a particular manufacturer.

Enter the year:	
Microchip Manufacturer Name	IBM
Clear	Submit
Back	

List all the information of the customer(s) who have technical support for a computer using the microchip manufactured by a particular manufacturer.

Customer Name	Street	City	State	Zip Code
Home				

List all the information of the customer(s) who have technical support for a computer using the microchip manufactured by a particular manufacturer.

Enter the year:	
Microchip Manufacturer Name	Huawei
Clear	Submit
Back	

List all the information of the customer(s) who have technical support for a computer using the microchip manufactured by a particular manufacturer.

Customer Name	Street	City	State	Zip Code
Mike	Main St	Norman	Ok	73072
Home				

Query 7

List the names of all customers who ordered a laptop running a particular operating system.

Enter the Operate System Name:	
Operate System Name:	Windows
<input type="button" value="Clear"/>	<input type="button" value="Submit"/>
<input type="button" value="Back"/>	

List the names of all customers who ordered a laptop running a particular operating system.

Customer Name
<input type="button" value="Home"/>

List the names of all customers who ordered a laptop running a particular operating system.

Enter the Operate System Name:	
Operate System Name:	Chroma OS
<input type="button" value="Clear"/>	<input type="button" value="Submit"/>
<input type="button" value="Back"/>	

List the names of all customers who ordered a laptop running a particular operating system.

Customer Name
Tom
<input type="button" value="Home"/>

Query 8

Find the names of all customers who have bought a desktop that costs more than a particular price.

Enter the Price:	
Price:	<input type="text" value="400"/>
<input type="button" value="Clear"/>	<input type="button" value="Submit"/>
<input type="button" value="Back"/>	

Find the names of all customers who have bought a desktop that costs more than a particular price.

Customer Name
Mike

Find the names of all customers who have bought a desktop that costs more than a particular price.

Enter the Price:	
Price:	<input type="text" value="20000"/>
<input type="button" value="Clear"/>	<input type="button" value="Submit"/>
<input type="button" value="Back"/>	

Find the names of all customers who have bought a desktop that costs more than a particular price.

Customer Name

Query 9

Display all the software a particular laptop has.

Enter the Price:	
Serial Number:	102
<input type="button" value="Clear"/>	<input type="button" value="Submit"/>
<input type="button" value="Back"/>	

Display all the software a particular laptop has.

Softwares
[Chroma OS, Office, QQ, Wechat]

Display all the software a particular laptop has.

Enter the Price:	
Serial Number:	100
<input type="button" value="Clear"/>	<input type="button" value="Submit"/>
<input type="button" value="Back"/>	

Display all the software a particular laptop has.

Softwares
[windows, Office, QQ, Wechat]

Waiting for localhost...

Query 10

Before Deletion Table:

Customer table

Customer Name	Street	City	State	Zip Code
Cat Fish	River Ranch	Los Angeles	CA	92121
Mike	Main St	Norman	Ok	73072
Tom	Oak Tree	Norman	Ok	73072
Amy	Stevenson Ranch	Los Angeles	CA	92121

Home

Order table

Order Number	Customer Name	Computer Serial Number	Order Date(MM/YYYY)
2000	Cat Fish	2000	2/2019
1234	Mike	1234	2/2019
102	Tom	102	2/2019
100	Amy	100	2/2019

Home

Waiting for localhost...

Execute query:

Delete all customers who have not made any order since a particular year.

Enter the year:	
Year:	2002
Clear	Submit
Back	

Nothing changed, Because all customer have made some order in 2019

Customer table after Delection

Customer Name	Street	City	State	Zip Code
Cat Fish	River Ranch	Los Angles	CA	92121
Mike	Main St	Norman	Ok	73072
Tom	Oak Tree	Norman	Ok	73072
Amy	Stevenson Ranch	Los Angles	CA	92121

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Let's try enter year 2200, which means the system we delete all customer and order & computer associated with.

Delete all customers who have not made any order since a particular year.

Enter the year:	
Year:	2200
Clear	Submit
Back	

Customer table after Delection

Customer Name	Street	City	State	Zip Code
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Home

Xiang Yu 3/28/2019

Order Table:

Order Number	Customer Name	Computer Serial Number	Order Date(MM/YYYY)
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