

CRUD OPERATIONS- SERVLETS

CRUD Operations are as follows:

C-CREATE

R-READ

U-UPDATE

D-DELETE

A CRUD (Create, Read, Update and Delete) application is the most important application for any project development. In Servlet, we can easily create CRUD application.

Servlet CRUD example

Create "user905" table in Oracle Database with auto incrementing id using sequence. There are 5 fields in it: id, name, password, email and country.

Column Name	Data Type	Nullable	Default	Primary Key
ID	NUMBER	No	-	1
NAME	VARCHAR2(4000)	Yes	-	-
PASSWORD	VARCHAR2(4000)	Yes	-	-
EMAIL	VARCHAR2(4000)	Yes	-	-
COUNTRY	VARCHAR2(4000)	Yes	-	-
1 - 5				

File: **index.html**

```
<!DOCTYPE html>

<html>
```

```
<head>

<meta charset="ISO-8859-1">

<title>Insert title here</title>

</head>

<body>


<h1>Add New Employee</h1>

<form action="SaveServlet" method="post">

<table>

<tr><td>Name:</td><td><input type="text"
name="name"/></td></tr>

<tr><td>Password:</td><td><input type="password"
name="password"/></td></tr>

<tr><td>Email:</td><td><input type="email"
name="email"/></td></tr>

<tr><td>Country:</td><td>

<select name="country" style="width:150px">

<option>India</option>

<option>USA</option>

<option>UK</option>

<option>Other</option>

</select>

</td></tr>
```

```
<tr><td colspan="2"><input type="submit" value="Save  
Employee"/></td></tr>  
  
</table>  
  
</form>  
  
<br/>  
<a href="ViewServlet">view employees</a>  
  
</body>  
  
</html>
```

File: **Emp.java**

```
public class Emp {  
    private int id;  
    private String name,password,email,country;
```

```
public int getId() {
    return id;
}
public void setId(int id) {
    this.id = id;
}
public String getName() {
    return name;
}
public void setName(String name) {
    this.name = name;
}
public String getPassword() {
    return password;
}
public void setPassword(String password) {
    this.password = password;
}
public String getEmail() {
    return email;
}
public void setEmail(String email) {
    this.email = email;
}
public String getCountry() {
    return country;
}
public void setCountry(String country) {
    this.country = country;
}
}
```

File: **EmpDao.java**

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

```
public class EmpDao {

    public static Connection getConnection(){
        Connection con=null;
        try{
            Class.forName("oracle.jdbc.driver.OracleDriver");

con=DriverManager.getConnection("jdbc:oracle:thin:@localhost:152
1:xe","system","oracle");
        }catch(Exception e){System.out.println(e);}
        return con;
    }
    public static int save(Emp e){
        int status=0;
        try{
            Connection con=EmpDao.getConnection();
            PreparedStatement ps=con.prepareStatement(
                "insert into user905(name,password,email,country)
values (?, ?, ?, ?)");
            ps.setString(1,e.getName());
            ps.setString(2,e.getPassword());
            ps.setString(3,e.getEmail());
            ps.setString(4,e.getCountry());

            status=ps.executeUpdate();

            con.close();
        }catch(Exception ex){ex.printStackTrace();}

        return status;
    }
    public static int update(Emp e){
        int status=0;
        try{
```

```

        Connection con=EmpDao.getConnection();
        PreparedStatement ps=con.prepareStatement(
            "update user905 set
name=?,password=?,email=?,country=? where id=?");
        ps.setString(1,e.getName());
        ps.setString(2,e.getPassword());
        ps.setString(3,e.getEmail());
        ps.setString(4,e.getCountry());
        ps.setInt(5,e.getId());

        status=ps.executeUpdate();

        con.close();
    }catch(Exception ex){ex.printStackTrace();}

    return status;
}
public static int delete(int id){
    int status=0;
    try{
        Connection con=EmpDao.getConnection();
        PreparedStatement ps=con.prepareStatement("delete from
user905 where id=?");
        ps.setInt(1,id);
        status=ps.executeUpdate();

        con.close();
    }catch(Exception e){e.printStackTrace();}

    return status;
}
public static Emp getEmployeeById(int id){
    Emp e=new Emp();

    try{

```

```

        Connection con=EmpDao.getConnection();
        PreparedStatement ps=con.prepareStatement("select * from
user905 where id=?");
        ps.setInt(1,id);
        ResultSet rs=ps.executeQuery();
        if(rs.next()){
            e.setld(rs.getInt(1));
            e.setName(rs.getString(2));
            e.setPassword(rs.getString(3));
            e.setEmail(rs.getString(4));
            e.setCountry(rs.getString(5));
        }
        con.close();
    }catch(Exception ex){ex.printStackTrace();}

    return e;
}

public static List<Emp> getAllEmployees(){
    List<Emp> list=new ArrayList<Emp>();

    try{
        Connection con=EmpDao.getConnection();
        PreparedStatement ps=con.prepareStatement("select * from
user905");
        ResultSet rs=ps.executeQuery();
        while(rs.next()){
            Emp e=new Emp();
            e.setld(rs.getInt(1));
            e.setName(rs.getString(2));
            e.setPassword(rs.getString(3));
            e.setEmail(rs.getString(4));
            e.setCountry(rs.getString(5));
            list.add(e);
        }
        con.close();
    }
}

```

```
        }catch(Exception e){e.printStackTrace();}  
  
        return list;  
    }  
}
```

File: **SaveServlet.java**


```
import java.io.IOException;
import java.io.PrintWriter;

import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
@WebServlet("/SaveServlet")
public class SaveServlet extends HttpServlet {
    protected void doPost(HttpServletRequest request,
        HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html");
        PrintWriter out=response.getWriter();

        String name=request.getParameter("name");
        String password=request.getParameter("password");
        String email=request.getParameter("email");
        String country=request.getParameter("country");

        Emp e=new Emp();
```

```
e.setName(name);

e.setPassword(password);

e.setEmail(email);

e.setCountry(country);


int status=EmpDao.save(e);

if(status>0){

    out.print("<p>Record saved successfully!</p>");

    request.getRequestDispatcher("index.html").include(request,
response);

}else{

    out.println("Sorry! unable to save record");

}

out.close();

}

}
```

File: **EditServlet.java**

```
import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
@WebServlet("/EditServlet")
public class EditServlet extends HttpServlet {
    protected void doGet(HttpServletRequest request,
        HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html");
        PrintWriter out=response.getWriter();
        out.println("<h1>Update Employee</h1>");
        String sid=request.getParameter("id");
        int id=Integer.parseInt(sid);

        Emp e=EmpDao.getEmployeeById(id);

        out.print("<form action='EditServlet2' method='post'>");
        out.print("<table>");
```

```
        out.print("<tr><td></td><td><input type='hidden' name='id'
value='"+e.getId()+"'/></td></tr>");

        out.print("<tr><td>Name:</td><td><input type='text'
name='name' value='"+e.getName()+"'/></td></tr>");

        out.print("<tr><td>Password:</td><td><input type='password'
name='password' value='"+e.getPassword()+"'/>
</td></tr>");

        out.print("<tr><td>Email:</td><td><input type='email'
name='email' value='"+e.getEmail()+"'/></td></tr>");

        out.print("<tr><td>Country:</td><td>");

        out.print("<select name='country' style='width:150px'>");

        out.print("<option>India</option>");

        out.print("<option>USA</option>");

        out.print("<option>UK</option>");

        out.print("<option>Other</option>");

        out.print("</select>");

        out.print("</td></tr>");

        out.print("<tr><td colspan='2'><input type='submit' value='Edit
& Save '/></td></tr>");

        out.print("</table>");

        out.print("</form>");

        out.close();

    } }
```

File: **EditServlet2.java**

```
import java.io.IOException;
import java.io.PrintWriter;

import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
@WebServlet("/EditServlet2")
public class EditServlet2 extends HttpServlet {
    protected void doPost(HttpServletRequest request,
        HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html");
        PrintWriter out=response.getWriter();

        String sid=request.getParameter("id");
        int id=Integer.parseInt(sid);

        String name=request.getParameter("name");
        String password=request.getParameter("password");
        String email=request.getParameter("email");
```

```
String country=request.getParameter("country");

Emp e=new Emp();
e.setId(id);
e.setName(name);
e.setPassword(password);
e.setEmail(email);
e.setCountry(country);

int status=EmpDao.update(e);
if(status>0){
    response.sendRedirect("ViewServlet");
}else{
    out.println("Sorry! unable to update record");
}

out.close();
}
}
```

File: **DeleteServlet.java**

```
import java.io.IOException;
import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
@WebServlet("/DeleteServlet")
public class DeleteServlet extends HttpServlet {
    protected void doGet(HttpServletRequest request,
        HttpServletResponse response)
        throws ServletException, IOException {
        String sid=request.getParameter("id");
        int id=Integer.parseInt(sid);
        EmpDao.delete(id);
        response.sendRedirect("ViewServlet");
    }
}
```

File: **ViewServlet.java**

```
import java.io.IOException;
import java.io.PrintWriter;
import java.util.List;

import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
@WebServlet("/ViewServlet")
public class ViewServlet extends HttpServlet {
    protected void doGet(HttpServletRequest request,
        HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html");
        PrintWriter out=response.getWriter();
        out.println("<a href='index.html'>Add New Employee</a>");
        out.println("<h1>Employees List</h1>");
    }
}
```



```
List<Emp> list=EmpDao.getAllEmployees();

out.print("<table border='1' width='100%'"");

out.print("<tr><th>Id</th><th>Name</th><th>Password</th><th>E
mail</th><th>Country</th>
<th>Edit</th><th>Delete</th></tr>");

    for(Emp e:list){

out.print("<tr><td>" +e.getId()+"</td><td>" +e.getName()+"</td><td>
"+e.getPassword()+"</td>
<td>" +e.getEmail()+"</td><td>" +e.getCountry()+"</td><td><a
href='EditServlet?id="+e.getId()+">edit</a></td>
<td><a
href='DeleteServlet?id="+e.getId()+">delete</a></td></tr>");

        }

        out.print("</table>");

        out.close();

    }
}
```