

## BÀI THỰC HÀNH TUẦN 6

Xây dựng chương trình **CRUD** (Create, Read, Update, Delete)

Xây dựng chương trình thêm, sửa, xóa có giao diện sau.

List of Categories			
<a href="#">Add New</a>			
ID	Name	Describe	Action
1	iPhone9	Đẹp rức rở rạng ngời 99	<a href="#">Update</a> <a href="#">Delete</a>
2	Samsung	thời thượng	<a href="#">Update</a> <a href="#">Delete</a>
3	Oppo	dành cho sinh viên sành điệu	<a href="#">Update</a> <a href="#">Delete</a>
4	Vsmart	cho 1 Việt Nam đẹp đẽ	<a href="#">Update</a> <a href="#">Delete</a>
5	SS7	Mong Manh dễ vỡ	<a href="#">Update</a> <a href="#">Delete</a>
9	Iphone	Tuyệt voi	<a href="#">Update</a> <a href="#">Delete</a>
19	LG 8	LG Đẹp tuyệt vời	<a href="#">Update</a> <a href="#">Delete</a>

1. Khi click vào **Add New**

### Add new Category

Enter ID   
Enter Name   
Enter Describe

2. Khi click vào **Update**

### Update new Category

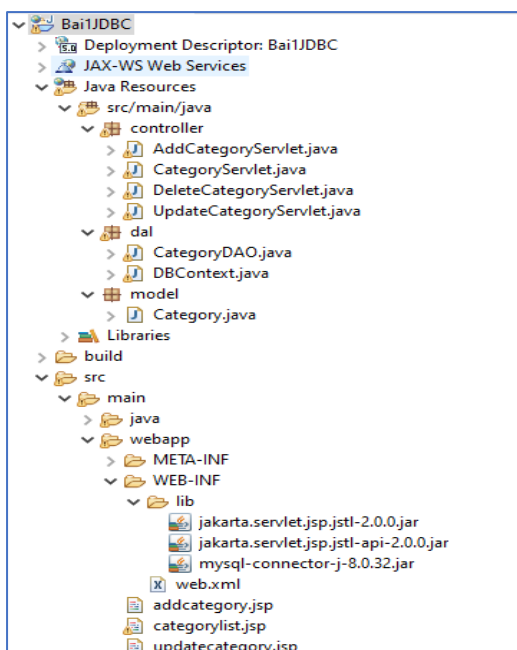
Enter ID   
Enter Name   
Enter Describe

3. Khi click vào **Delete** → sử dụng javascript xác nhận lại, nếu ok -> thực hiện xóa

localhost:8080

are you sure to delete category with id = 19

Cấu trúc Project như sau:



## Class Category.java

```
package model;

public class Category {
    private int id;
    private String name;
    private String describe;

    public Category() {
    }

    public Category(int id, String name, String describe) {
        this.id = id;
        this.name = name;
        this.describe = describe;
    }

    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 getDescribe() {
        return describe;
    }

    public void setDescribe(String describe) {
        this.describe = describe;
    }

    @Override
    public String toString() {
        return "Category [id=" + id + ", name=" + name + ", describe=" + describe + "]";
    }
}
```

## Class DBContext.java

```
package dal;

import java.sql.Connection;

public class DBContext {
    protected Connection connection;

    public DBContext() {
        String name = "root";
        String pass = "1234567890";
        String url = "jdbc:mysql://localhost:3306/trading2023";

        try {
            Class.forName("com.mysql.jdbc.Driver");
            connection = DriverManager.getConnection(url, name, pass);
        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```

## Class CategoryDAO.java

```
package dal;

import java.sql.PreparedStatement;

public class CategoryDAO extends DBContext{
    public List<Category> getCategoryAll(){
        List<Category> list = new ArrayList<>();
        String sql = "select * from categories";
        try {
            PreparedStatement ps = connection.prepareStatement(sql);
            ResultSet rs = ps.executeQuery();

            while(rs.next()) {
                int id;
                String name, describe;

                id = rs.getInt("id");
                name = rs.getString("name");
                describe = rs.getString("describe");
                Category c = new Category(id, name, describe);
                list.add(c);
            }
        } catch (SQLException e) {
            e.printStackTrace();
        }
        return list;
    }

    public Category getCategoryById(int id) {
        String sql = " select * from `categories`"
            + "where `id` = ?";
        try {
            PreparedStatement ps = connection.prepareStatement(sql);
            ps.setInt(1, id);
            ResultSet rs = ps.executeQuery();
            if(rs.next()) {
                String name, describe;
                name = rs.getString("name");
                describe = rs.getString("describe");
                Category c = new Category(id, name, describe);
                return c;
            }
        } catch (SQLException e) {
            // TODO Auto-generated catch block
            e.printStackTrace();
        }
        return null;
    }
}
```

```
public void insert(Category c) {
    String sql = "insert into `categories` (`id`,`name`,`describe`) values \r\n"
        + "(?, ?, ?)";
    try {
        PreparedStatement ps = connection.prepareStatement(sql);
        ps.setInt(1, c.getId());
        ps.setString(2, c.getName());
        ps.setString(3, c.getDescribe());
        ps.executeUpdate();
    } catch (SQLException e) {
        // TODO Auto-generated catch block
        e.printStackTrace();
    }
}

public void update(Category c) {
    String sql = "update `categories` \r\n"
        + " set `describe` = ?, `name` = ?\r\n"
        + " where id=?";
    try {
        PreparedStatement ps = connection.prepareStatement(sql);
        ps.setString(1, c.getDescribe());
        ps.setString(2, c.getName());
        ps.setInt(3, c.getId());
        ps.executeUpdate();
    } catch (SQLException e) {
        // TODO Auto-generated catch block
        e.printStackTrace();
    }
}

public void delete(int id) {
    String sql = "delete from `categories` \r\n"
        + "where `id`=?";
    try {
        PreparedStatement ps = connection.prepareStatement(sql);
        ps.setInt(1, id);
        ps.executeUpdate();
    } catch (SQLException e) {
        // TODO Auto-generated catch block
        e.printStackTrace();
    }
}
```

## Servlet CategoryServlet.java

```
protected void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {
    CategoryDAO cd = new CategoryDAO();
    //lay du lieu tu database
    List<Category> list = cd.getCategoryAll();
    //gui du lieu sang view
    request.setAttribute("data", list);
    request.getRequestDispatcher("categorylist.jsp").forward(request, response);
}
```

### Tạo file jsp categorylist.jsp

```
<%@ page language="java" contentType="text/html; charset=UTF-8"
    pageEncoding="UTF-8"%>
<%@taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>Category List</title>
<script type="text/javascript">
    function doDelete(id) {
        if (confirm("are you sure to delete category with id = " + id)) {
            window.location = "DeleteCategoryServlet?id=" + id;
        }
    }
</script>
</head>
<body>
<h1 align="center">List of Categories</h1>
<h3 align="center">
    <a href="addcategory.jsp"> Add New </a>
</h3>
<table border="1"
    style="width: 60%; margin-left: auto; margin-right: auto">
    <tr>
        <th>ID</th>
        <th>Name</th>
        <th>Describe</th>
        <th>Action</th>
    </tr>
    <c:forEach items="${data}" var="list">
        <tr>
            <td>${list.id}</td>
            <td>${list.name}</td>
            <td>${list.describe}</td>
            <td>
                <a href="UpdateCategoryServlet?id=${list.id}"> Update</a> <a
                href="#" onclick="doDelete('${list.id}')"> Delete</a></td>
            </tr>
    </c:forEach>
</table>
</body>
</html>
```

### Tạo file jsp addcategory.jsp

```
1 <%@ page language="java" contentType="text/html; charset=UTF-8"
2   pageEncoding="UTF-8"%>
3 <!DOCTYPE html>
4 <html>
5 <head>
6 <meta charset="UTF-8">
7 <title>Insert title here</title>
8 </head>
9 <body>
10 <h2> Add new Category </h2>
11 <h3 style="color: red;">${error}</h3>
12 <form action="AddCategoryServlet">
13     Enter ID <input type="text" name="id"/><br/>
14     Enter Name <input type="text" name="name"/><br/>
15     Enter Describe <input type="text" name="describe"/><br/>
16     <input type="submit" value="SAVE"/><br/>
17 </form>
18 </body>
19 </html>
```

## Servlet AddCategoryServlet.java

```
protected void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {
    CategoryDAO cd = new CategoryDAO();
    String id_s = request.getParameter("id");
    String name = request.getParameter("name");
    String describe = request.getParameter("describe");
    int id;
    id = Integer.parseInt(id_s);
    Category c = cd.getCategoryById(id);
    if(c==null) {
        c = new Category(id,name,describe);
        cd.insert(c);
        request.getRequestDispatcher("CategoryServlet").forward(request, response);
    }else {
        String error = id + " Đã tồn tại, xin mời chọn ID khác";
        request.setAttribute("error", error);
        request.getRequestDispatcher("addcategory.jsp").forward(request, response);
    }
}
```

## Servlet UpdateCategoryServlet.java

```
protected void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {
    String id_s = request.getParameter("id");
    int id = Integer.parseInt(id_s);
    CategoryDAO cd = new CategoryDAO();
    Category c = cd.getCategoryById(id);
    request.setAttribute("category", c);
    request.getRequestDispatcher("updatecategory.jsp").forward(request, response);
}

protected void doPost(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {
    CategoryDAO cd = new CategoryDAO();
    String id_s = request.getParameter("id");
    String name = request.getParameter("name");
    String describe = request.getParameter("describe");
    int id;
    id = Integer.parseInt(id_s);
    Category c = new Category(id,name,describe);
    cd.update(c);
    response.sendRedirect("CategoryServlet");
}
```

## Tạo file jsp `updatecategory.jsp`

```
1 <%@ page language="java" contentType="text/html; charset=UTF-8"
2   pageEncoding="UTF-8"%>
3 <%@taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core"%>
4 <!DOCTYPE html>
5 <html>
6 <head>
7   <meta charset="UTF-8">
8   <title>Update Category</title>
9 </head>
10 <body>
11   <h2> Update new Category </h2>
12   <c:set value="${category}" var="c"/>
13   <form action="UpdateCategoryServlet" method="post">
14     Enter ID <input type="text" name="id" value="${c.id}" readonly/><br/>
15     Enter Name <input type="text" name="name" value="${c.name}"/><br/>
16     Enter Describe <input type="text" name="describe" value="${c.describe}"/><br/>
17     <input type="submit" value="SAVE"/><br/>
18   </form>
19 </body>
20 </html>
```

Cấu hình file **web.xml**, project sẽ gọi **CategoryServlet.java** khi khởi động

```
<welcome-file-list>
  <welcome-file>CategoryServlet</welcome-file>
</welcome-file-list>
```

## Servlet **DeleteCategoryServlet.java**

```
protected void doGet(HttpServletRequest request, HttpServletResponse response)
    throws ServletException, IOException {
    String id_S = request.getParameter("id");
    int id = Integer.parseInt(id_S);
    CategoryDAO cd = new CategoryDAO();
    cd.delete(id);
    response.sendRedirect("CategoryServlet");
}
```