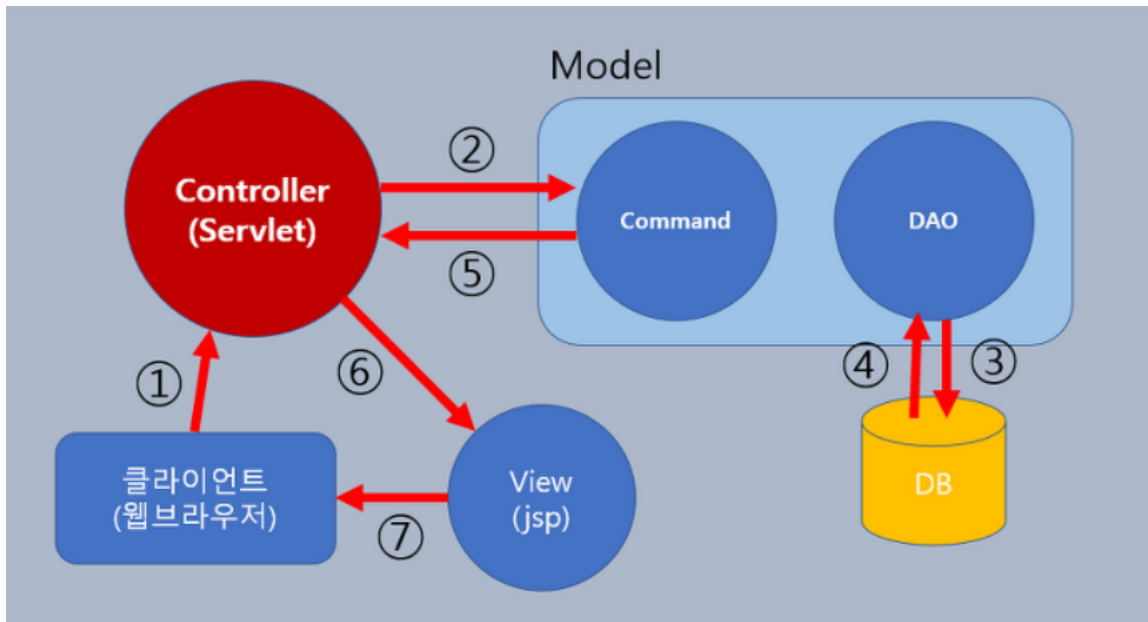# [0626]MVC2

모델 뷰 컨트롤러 모두가 명확하게 나누어 진것.
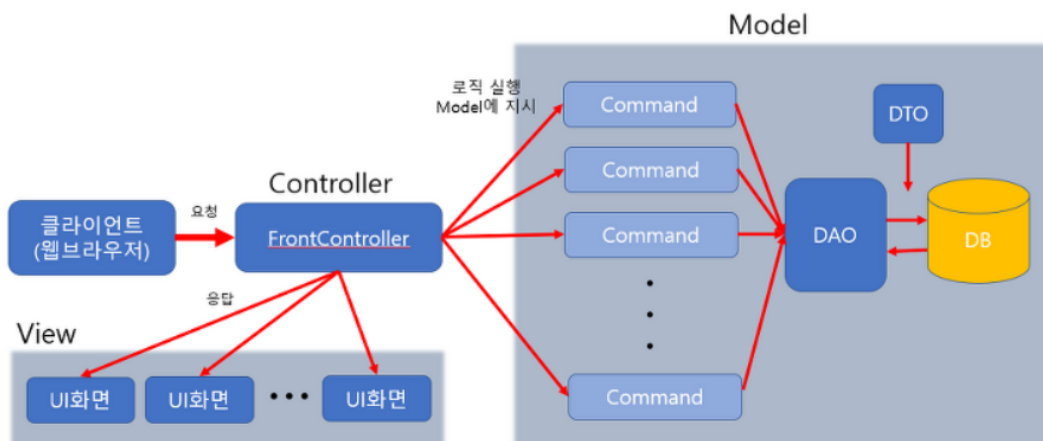
MVC2 Pattern

MVC에서 Model, View, Controller 가 모두 모듈화 되어 있는 형태이다.
(규모가 크고 추후 유지보수 시 개발이 자주 일어날 수 있는 경우에 사용)
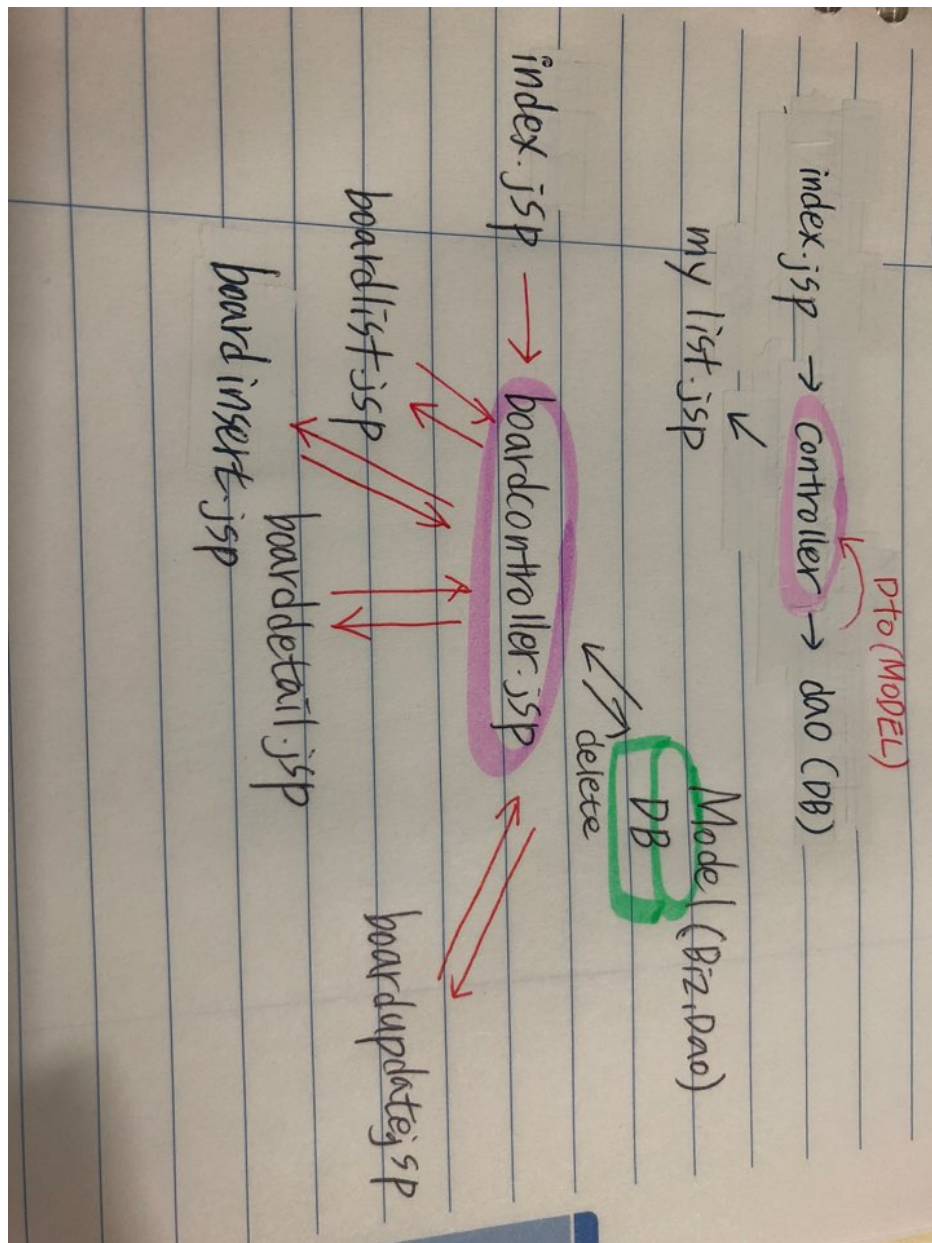* 모듈화 : 소프트웨어를 부품화 시킨다는 개념

전체적인 컴포넌트 설계

- 원래 Controller를 servlet으로 만들지만 이번에 jsp로 만듦

💡 Java Resources
   * MVCBoardBiz.java
   * MVCBoardDao.java
   * MVCBoardDto.java
   * JDBCTemplate.java
   * mvc.sql

💡 WebContent
   * boardcontroller.jsp
   * boarddetail.jsp
   * boardlist.jsp
   * boardwriter.jsp
   * index.jsp

- MVCBoardBiz.java

```java
package com.mvc.model.biz;

import java.util.List;

import com.mvc.model.dao.MVCBoardDao;
import com.mvc.model.dto.MVCBoardDto;

public class MVCBoardBiz {

  private MVCBoardDao dao = new MVCBoardDao();

  public List<MVCBoardDto> selectList(){
    return dao.selectList();
  }

  public MVCBoardDto selectOne(int seq) {
    return dao.selectOne(seq);
  }

  public int insert(MVCBoardDto dto) {
    return dao.insert(dto);
  }

  public int update(MVCBoardDto dto) {
    return dao.update(dto);
  }

  public int delete(int seq) {
    return dao.delete(seq);
  }
}
```

- MVCBoardDto.java

```java
package com.mvc.model.dto;

import java.util.Date;

public class MVCBoardDto {

  private int seq;
  private String writer;
  private String title;
  private String content;
  private Date regdate;

  public MVCBoardDto() {

  }

  public MVCBoardDto(int seq, String writer, String title, String content, Date regdate) {
    super();
    this.seq = seq;
    this.writer = writer;
    this.title = title;
    this.content = content;
    this.regdate = regdate;
  }

  // insert : writer, title, content
  public MVCBoardDto(String writer, String title, String content) {
    this.writer=writer;
    this.title=title;
    this.content=content;
  }

  // update : seq, title, content
  public MVCBoardDto(int seq, String title, String content) {
    this.seq=seq;
    this.title=title;
    this.content=content;
  }

  public int getSeq() {
    return seq;
  }

  public void setSeq(int seq) {
    this.seq = seq;
  }
```

```java
  public String getWriter() {
    return writer;
  }

  public void setWriter(String writer) {
    this.writer = writer;
  }

  public String getTitle() {
    return title;
  }

  public void setTitile(String title) {
    this.title = title;
  }

  public String getContent() {
    return content;
  }

  public void setContent(String content) {
    this.content = content;
  }

  public Date getRegdate() {
    return regdate;
  }

  public void setRegdate(Date regdate) {
    this.regdate = regdate;
  }
}
```

- mvc.sql

```sql
DROP SEZQUENCE MVCBOARDSEQ;
DROP TABLE MVCBOARD;

CREATE SEQUENCE MVCBOARDSEQ;
CREATE TABLE MVCBOARD(
  SEQ NUMBER PRIMARY KEY,
  WRITER VARCHAR2(500) NOT NULL,
  TITLE VARCHAR2(1000) NOT NULL,
  CONTENT VARCHAR2(4000) NOT NULL,
  REGDATE DATE NOT NULL
);

INSERT INTO MVCBOARD VALUES(MVCBOARDSEQ.NEXTVAL, '관리자','TEST글 입니다','TEST1234',SYSDATE);
INSERT INTO MVCBOARD VALUES(MVCBOARDSEQ.NEXTVAL, '강여림','배고파','칼국수 먹고싶다',SYSDATE);

SELECT * FROM MVCBOARD ORDER BY SEQ DESC;
```

- JDBCTemplate.java

```java
package com.mvc.model.db;

import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.ResultSet;
import java.sql.SQLException;
import java.sql.Statement;

public class JDBCTemplate {
  public static Connection getConnection() {
    try {
      Class.forName("oracle.jdbc.driver.OracleDriver");
    } catch (ClassNotFoundException e) {
      e.printStackTrace();
    }

    String url = "jdbc:oracle:thin:@localhost:1521:xe";
    String user ="kh";
    String password ="kh";

    Connection con = null;

    try {
```

```
        con = DriverManager.getConnection(url, user, password);
        con.setAutoCommit(false);
      } catch (SQLException e) {
        e.printStackTrace();
      }

      return con;
    }

    public static boolean isConnection(Connection con) {
      boolean valid = true;

      try {
        if(con == null || con.isClosed()) {
          valid = false;
        }
      } catch (SQLException e) {
        e.printStackTrace();
      }

      return valid;
    }


    public static void close(Connection con) {
      if(isConnection(con))
      try {
        con.close();
      } catch (SQLException e) {
        e.printStackTrace();
      }
    }

    public static void close(Statement stmt) {
      if(stmt != null)
      try {
        stmt.close();
      } catch (SQLException e) {
        e.printStackTrace();
      }
    }

    public static void close(ResultSet rs) {
      if(rs != null)
      try {
        rs.close();
      } catch (SQLException e) {
        e.printStackTrace();
      }
    }

    public static void commit(Connection con) {
      if(isConnection(con))
      try {
        con.commit();
      } catch (SQLException e) {
        e.printStackTrace();
      }
    }

    public static void rollback(Connection con) {
      if(isConnection(con))
      try {
        con.rollback();
      } catch (SQLException e) {
        e.printStackTrace();
      }
    }
  }
}
```

- MVCBoardDao.java

```
package com.mvc.model.dao;

import java.sql.Connection;
import java.sql.PreparedStatement;
import java.sql.ResultSet;
import java.sql.SQLException;
import java.sql.Statement;
import java.util.ArrayList;
import java.util.List;
```

```java
import com.mvc.model.db.JDBCTemplate;
import com.mvc.model.dto.MVCBoardDto;

public class MVCBoardDao extends JDBCTemplate{
  public List<MVCBoardDto> selectList(){
    Connection con = getConnection();
    Statement stmt = null;
    ResultSet rs = null;
    List<MVCBoardDto> list = new ArrayList<MVCBoardDto>();
    String sql = " SELECT SEQ, WRITER, TITLE, CONTENT, REGDATE FROM MVCBOARD ";
    try{
      stmt = con.createStatement();
      rs = stmt.executeQuery(sql);

      while(rs.next()){
        MVCBoardDto dto = new MVCBaordDto(rs.getInt(1), rs.getString(2), rs.getString(3), rs.getString(4), rs.getDate(5));
        list.add(dto);
      }
    }catch(SQLException e){
      e.printStackTrace();
    } finally {
      close(rs);
      close(stmt);
      close(con);
    }
    return list;
  }

  public MVCBoardDto selectone(int seq){
    Connection con = getConnection();
    PreparedStatement pstm = null;
    ResultSet rs = null;


    String sql = " SELECT SEQ, WRITER, TITLE, CONTENT, REGDATE FROM MVCBOARD WHERE SEQ=? ";
    MVCBoardDto dto = new MVCBoardDto();

    try {
      System.out.println("3. query 준비");
      pstm = con.prepareStatement(sql);
      pstm.setInt(1,seq);

      System.out.println("4. query 실행 및 리턴");
      rs = pstm.executeQuery();
      if(rs.next()) {
      dto.setSeq(rs.getInt(1));
      dto.setWriter(rs.getString(2));
      dto.setTitile(rs.getString(3));
      dto.setContent(rs.getString(4));
      dto.setRegdate(rs.getDate(5));
      }
    } catch (SQLException e) {
      System.out.println("[error] 3. 4. ");
      e.printStackTrace();
    } finally {
      close(rs);
      close(pstm);
      close(con);
      System.out.println("5. db종료");
    }
    return dto;
  }

  public int insert(MVCBoardDto dto) {
    Connection con = getConnection();
    PreparedStatement pstm = null;
    int result = 0;
    String sql = " INSERT INTO MVCBOARD VALUES (MVCBOARDSEQ.NEXTVAL, ?, ?, ?, SYSDATE) ";

    try {
      pstm = con.prepareStatement(sql);
      pstm.setString(1, dto.getWriter());
      pstm.setString(2, dto.getTitle());
      pstm.setString(3, dto.getContent());

      result = pstm.executeUpdate();
    } catch (SQLException e) {
      e.printStackTrace();
    } finally {
      close(pstm);
      close(con);
    }

    return result;
  }

  public int update(MVCBoardDto dto) {
```

```
    Connection con = getConnection();
    PreparedStatement pstm = null;
    int result = 0;

    String sql = " UPDATE MVCBOARD SET TITLE=?, CONTENT=? WHERE SEQ=? ";

    try {
      pstm = con.prepareStatement(sql);
      pstm.setString(1, dto.getTitle());
      pstm.setString(2, dto.getContent());
      pstm.setInt(3, dto.getSeq());

      result = pstm.executeUpdate();

    } catch (SQLException e) {
      e.printStackTrace();
    } finally {
      close(pstm);
      close(con);
    }

    return result;
  }

  public int delete(int seq) {
    Connection con = getConnection();
    PreparedStatement pstm = null;
    String sql = " DELETE FROM MVCBOARD WHERE SEQ=? ";
    int res = 0;
    try {
      pstm = con.prepareStatement(sql);
      pstm.setInt(1, seq);

      res = pstm.executeUpdate();
    } catch (SQLException e) {
      e.printStackTrace();
    } finally {
      close(pstm);
      close(con);
    }
    return res;
  }
}
```

- index.jsp

```
<%@ page language="java" contentType="text/html; charset=UTF-8"
    pageEncoding="UTF-8"%>
<%
  request.setCharacterEncoding("UTF-8");
    response.setContentType("text/html; charset=UTF-8");
%>
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>Insert title here</title>
</head>
<body> <!-- command 는 내 페이지에서 다른 페이지로 가고 싶어 라고 알려주는 변수. (다른 이름으로 써도 됨) -->
  <h1><a href="boardcontroller.jsp?command=list" style="text-decoration:none; color:black; font-weight:bold">🍺list🍺</a></h1>
</body>
</html>
```

- boardController.jsp

```jsp
<%@page import="com.mvc.model.dto.MVCBoardDto"%>
<%@page import="java.util.List"%>
<%@page import="com.mvc.model.biz.MVCBoardBiz"%>
<%@ page language="java" contentType="text/html; charset=UTF-8"
    pageEncoding="UTF-8"%>
<%
  request.setCharacterEncoding("UTF-8");
    response.setContentType("text/html; charset=UTF-8");
%>
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>Insert title here</title>
</head>
<body>
<%
  String command = reqeust.getParameter("command");
  MVCBoardBiz biz = new MVCBoardBiz();

  if(command.equals("list")){
    List<MVCBoardDto> list = biz.selectlist();
    request.setAttribute("list",list);
    pageContext.forward("boardlist.jsp");
  }else if(command.equals("detail")){
    int seq = Integer.parseInt(reqeust.getParameter("seq"));
    MVCBoardDto dto = biz.selectone(seq);
    request.setAttribute("dto",dto);
    pageContext.forward("boarddetail.jsp");
  }else if(commad.equals("update"))}
    int seq = Integer.parseInt(reqeust.getParameter("seq"));
    String title = request.getParameter("title");
    String content = request.getParameter("content");
    int res = biz.update(new MVCBoardDto(seq,title,content));
    if(res > 0){
%>
  <script type="text/javascript">
    alert("글 수정 성공");
    location.href="boardcontroller.jsp?command=detail&seq=<%=seq%>"
  </script>
<%
  } else {
%>
<script type="text/javascript">
  alert("글 수정 실패");
  location.href="boardcontroller.jsp?command=list";
</script>
<%
  }else if(command.equals("insert")){
  response.sendRedirect("boardwriter.jsp");
  }else if(command.equals("insertChk")){
    String title = request.getParameter("title");
    String content = request.getParemeter("content");
    String writer = request.getParemter("writer");
    int res = biz.insert(new MVCBoardDto(0, writer, title, content, null));
    if(res > 0){
%>
  <script type="text/javascript">
    alert("글 작성성공");
    location.href="boardcontroller.jsp?command=list"
  </script>
<%
  } else {
%>
<script type="text/javascript">
  alert("글 작성 실패");
  location.href="boardcontroller.jsp?command=list";
</script>
<%
  } else if(command.equals("delete")){
  int seq = Integer.parseInt(requset.getParemter("seq"));
  int res = biz.delete(seq);
  if(res > 0){
%>
<script type="text/javascript">
  alert("글 삭제 성공");
  location.href="boardcontroller.jsp?command=list";
</script>
<%
} else {
%>
<script type="text/javascript">
  alert("글 삭제 실패");
```

```
  loaction.href="boardcontroller.jsp?command=detail&seq=<%=seq%>";
<script>
<%
  }
}
%>
<h1>&#129327;잘못왔다&#129327;</h1>
</body>
</html>
```

> 💡 **기억해야 할것**
> pageContext : 해당페이지와 일대일로 연결된 객체를 의미
> forward : 지정한 상대경로 페이지로 이동
> include : 지정한 상대경로 페이지를 현재 jsp페이지에 포함
> sendRedirect : 데이터를 전달하지 않고 페이지를 바꿀 때
> forward : 데이터를 담아서 페이지를 바꿀 때

- boardlist.jsp

```
<%@page import="java.util.List"%>
<%@page import="com.mvc.model.dto.MVCBoardDto"%>
<%@ page language="java" contentType="text/html; charset=UTF-8"
    pageEncoding="UTF-8"%>
<%
  request.setCharacterEncoding("UTF-8");
    response.setContentType("text/html; charset=UTF-8");
%>
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>Insert title here</title>
</head>
<body>
<%
  List<MVCBoardDto> list = (List<MVCBoardDto>)request.getAttribute("list");
%>
  <h1>글목록<h1>
  <table>
    <col width="50">
    <col width="100">
    <col width="300">
    <col width="100">
    <tr>
      <th>번  호</th>
      <th>작성자</th>
      <th>제  목</th>
      <th>작성일</th>
    </tr>
<%
  if(list.size() == 0){
%>
  <tr>
    <td>---작성된 글이 없습니다.</td>
  <tr>
<%
  }else{
  for(int i=0; i<list.size(); i++){
%>
  <tr>
    <td><%=dto.getSeq()%></td>
    <td><%=dto.getWriter()%></td>
    <td><a href="boardcontroller.jsp?command=detail&seq=<%=dto.getSeq()%>"><%=dto.getTitle()%></a></td>
    <td><%=dto.getRegdate()%></td>
  </tr>
<%
  }
}
%>
  <tr>
    <td colspan="4" align="right">
      <input type="button" value="글작성" onclick="location.href='boardcontroller.jsp?cammand=insert'">
    </td>
  <tr>
  </table>
```

```
</body>
</html>
```


글 목록

번 호	작성자	제 목	작성일
4	강여림	배고파	2020-06-26
5	강여림	둥이야ㅠㅜㅠㅠㅠ	2020-06-26
			글작성

- boardwriter.jsp

```
<%@ page language="java" contentType="text/html; charset=UTF-8"
    pageEncoding="UTF-8"%>
<%
  request.setCharacterEncoding("UTF-8");
    response.setContentType("text/html; charset=UTF-8");
%>
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>Insert title here</title>
</head>
<body>
  <h1>글 작성</h1>
  <form action="boardcontroller.jsp" method="post">
    <table border="1">
      <tr>
        <th>작성자</th>
        <td><input type="text" name="writer"></td>
      </tr>
      <tr>
        <th>제  목</th>
        <td><input type="text" name="title"></td>
      </tr>
      <tr>
        <th>내  용</th>
        <td><textarea rows="10" cols="60" name="content" style="resize:none"></textarea></td>
      </tr>
      <tr>
        <td colspan="3" align="right">
          <input type="button" value="목록" onclick="location.href='boardcontroller.jsp?command=list'">
          <input type="submit" value="완료">
          <input type="hidden" name="command" value="insertChk">
        </td>
      </tr>
    </table>
  </form>
</body>
</html>
```

글 작성

작성자	
제 목	
내 용	
	목록 완료

- boarddetail.jsp

```jsp
<%@page import="com.mvc.model.dto.MVCBoardDto"%>
<%@page import="com.mvc.model.biz.MVCBoardBiz"%>
<%@ page language="java" contentType="text/html; charset=UTF-8"
    pageEncoding="UTF-8"%>

<% request.setCharacterEncoding("UTF-8"); %>
<% response.setContentType("text/html; charset=UTF-8"); %>
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>Insert title here</title>
<style type="text/css">
    #updateform{display: none;}
</style>
<script type="text/javascript" src="https://code.jquery.com/jquery-3.5.1.min.js"></script>
<script type="text/javascript">
    function updateFormView(){
        $("#detailform").hide();
        $("#updateform").show();
    }
    function detailFormView(){
        $("#detailform").show();
        $("#updateform").hide();
    }
</script>
</head>
<body>
<%
    MVCBoardDto dto = (MVCBoardDto)request.getAttribute("dto");
%>

    <div id="detailform">
        <h1>글 보기 </h1>
        <table border="1">
            <tr>
                <th>작성자</th>
                <td><input type="text" readonly="readonly" value="<%=dto.getWriter() %>" /></td>
            </tr>
            <tr>
                <th>제  목</th>
                <td><input type="text" readonly="readonly" value="<%=dto.getTitle() %>" /></td>
            </tr>
            <tr>
                <th>내  용</th>
                <td><textarea rows="10" cols="60" readonly="readonly"><%=dto.getContent() %></textarea></td>
            </tr>
            <tr>
                <td colspan="2" align="right">
                <input type="button" value="수정" onclick="updateFormView();" />
                <input type="button" value="삭제" onclick="location.href='boardcontroller.jsp?command=delete&seq=<%=dto.getSeq() %>'
                <input type="button" value="목록" onclick="location.href='boardcontroller.jsp?command=list'" />
                </td>
```

```
                </tr>
            </table>
        </div>

    <div id="updateform">
        <h1>글 수정📝</h1>
        <form action="boardcontroller.jsp" method="post"> <!-- form태그에는 aciotn에 물음표 붙여서 보내지 않는다. -->
            <input type="hidden" name="command" value="update">
            <input type="hidden" name="seq" value="<%=dto.getSeq()%>">
            <table border="1">
                <tr>
                    <th>작성자</th>
                    <td><input type="text" readonly="readonly" value="<%=dto.getWriter() %>" /></td>
                </tr>
                <tr>
                    <th>제  목</th>
                    <td><input type="text" name="title" value="<%=dto.getTitle()%>"/></td>
                </tr>
                <tr>
                    <th>내  용</th>
                    <td><textarea rows="10" cols="60" name="content"><%=dto.getContent() %></textarea></td>
                </tr>
                <tr>
                    <td colspan="2" align="right">
                        <input type="submit" value="수정" />
                        <input type="button" value="취소" onclick="detailFormView();" />
                        <input type="button" value="목록" onclick="location.href='boardcontroller.jsp?command=list'" />
            </table>
        </form>
    </div>
</body>
</html>
```

← → C ① localhost:8787/Jsp03_MVC01/boardcontroller.jsp?command=detail&seq=4

글 보기📑

작성자	강여림
제 목	배고파
내 용	칼국수 먹고싶다 떡볶이도

수정 삭제 목록

글 수정 📝

작성자	강여림
제 목	배고파 수정쌉파서블
내 용	칼국수 먹고싶다 떡볶이도 수정가능!

수정   취소   목록