**[ 19 ] MVC 패턴을 이용한 답변글 게시판**

BDeleteService

BReplyViewService

BWriteService

BListService

BModifyViewService

DB

DAO

DTO

BReplyService

BContentService

1. 전체적인 컴포넌트 설계

로직실행 지시

클라이언트

(클라이언트)

요청

BModifyService

FrontControll

**적절한 응답을 뿌려준다**

content\_view.jsp

list.jsp

w.jsp

reply\_view.jsp

write\_view.jsp

w.jsp

modify\_view.jsp

**↓**

**실제 로직(작업)을 수행하는 곳**

* 1. 글목록

list.do 요청 → BFrontController(글목록로직분기) → BListService(DAO에 글목록 생성 요청) → BDao(DB작업) → BListService → BFrontController → list.jsp

* 1. 글쓰기

Write\_view.do 요청 → write\_view.jsp에서 submit버튼 누르면 write.do 요청 → BFrontController(글쓰기로직분기) → BWriteService(DAO에 글쓰기 요청) → BDao(DB 작업) → BWriteService → BFrontController → list.do

* 1. 글 내용 보기

Content\_view.do 요청 → BFrontController(글 내용보기 분기) → BContentService(DAO에 글 내용 보기 요청) → BDao(DB작업) → BListService → BFrontController → content\_view.jsp

* 1. 글 내용 수정

Content\_view.jsp에서 modifyView.do 요청 → BFrontController(글쓰기로 분기) → BModifyViewService(DAO에 글 수정 요청) → BDao(DB작업) → BListService → BFrontController → list.jsp

* 1. 글 삭제

Content\_view.jsp → BFrontController(글삭제로 분기) → BDeleteCommand(DAO에 글 삭제 요청) → BDao(DB작업) → BListService → BFrontController → list.jsp

* 1. 답변글 달기

Content\_view.jsp에서 replyView.do요청 → BFrontController(답변글 저장으로 분기) → BReplyViewCommand(DAO에 원글에 대한 정보 요청) → BDao(DB작업) → BReplyViewCommand → BFrontController → reply\_view.jsp에서 reply.do요청 → → BFrontController(답변글 저장으로 분기) → BReplyCommand(DAO에 답변글 요청) → BDao(DB작업) → BListCommand → BFrontController → list.jsp



DB(DataBase) 생성

**DROP** **TABLE** MVC\_BOARD;

**DROP** SEQUENCE MVC\_BOARD\_SEQ;

**CREATE** SEQUENCE MVC\_BOARD\_SEQ

START **WITH** 1

INCREMENT **BY** 1

MINVALUE 1

MAXVALUE 999999

NOCYCLE

NOCACHE;

**CREATE** **TABLE** MVC\_BOARD(

bId NUMBER(6) **PRIMARY** **KEY**,

bName VARCHAR2(50) **NOT** **NULL**,

bTitle VARCHAR2(100) **NOT** **NULL**,

bContent VARCHAR2(1000),

bDate **DATE** **DEFAULT** SYSDATE **NOT** **NULL**,

bHit NUMBER(6) **DEFAULT** 0 **NOT** **NULL**,

bGroup NUMBER(6) **NOT** **NULL**,

bStep NUMBER(3) **NOT** **NULL**,

bIndent NUMBER(3) **NOT** **NULL**,

bIp VARCHAR2(20) **NOT** **NULL**

);

-- 더미데이터(원글)

**INSERT** **INTO** MVC\_BOARD (bId, bName, BTITLE, BCONTENT, BGROUP, BSTEP, BINDENT, BIP)

**VALUES** (MVC\_BOARD\_SEQ.NEXTVAL, 'HONG', 'TITLE','CONTENT',

MVC\_BOARD\_SEQ.CURRVAL, 0,0, '192.168.10.151');

**SELECT** \* **FROM** MVC\_BOARD;

-- 더미데이터(위의 1번글에 대한 첫번째 답변글)

**INSERT** **INTO** MVC\_BOARD (BID, BNAME, BTITLE, BCONTENT, BGROUP, BSTEP, BINDENT, BIP)

**VALUES** (MVC\_BOARD\_SEQ.NEXTVAL, 'KIM','T1','C1',

1, 1, 1, '127.0.0.1');

**SELECT** \* **FROM** MVC\_BOARD **ORDER** **BY** BGROUP **DESC**, BSTEP;

-- 더미데이터 (위의 1번글에 대한 두번째 답변글)

-- 답변글 추가전 STEP a 수행

**UPDATE** MVC\_BOARD **SET** BSTEP = BSTEP+1

**WHERE** BGROUP = 1 **AND** BSTEP>0;

**SELECT** \* **FROM** MVC\_BOARD **ORDER** **BY** BGROUP **DESC**, BSTEP;

**INSERT** **INTO** MVC\_BOARD (BID, BNAME, BTITLE, BCONTENT, BGROUP, BSTEP, BINDENT, BIP)

**VALUES** (MVC\_BOARD\_SEQ.NEXTVAL, 'PARK','T2','C2',

1, 1, 1, '192.168.10.151');

**COMMIT**;

-- 글목록(startRow부터 endRow까지)

**SELECT** \* **FROM**

(**SELECT** ROWNUM RN, A.\* **FROM**

(**SELECT** \* **FROM** MVC\_BOARD **ORDER** **BY** BGROUP **DESC**, BSTEP) A)

**WHERE** RN **BETWEEN** 2 **AND** 3;

-- 글갯수

**SELECT** COUNT(\*) cnt **FROM** MVC\_BOARD;

-- 글쓰기(원글)

**INSERT** **INTO** MVC\_BOARD (bId, bName, BTITLE, BCONTENT, BGROUP, BSTEP, BINDENT, BIP)

**VALUES** (MVC\_BOARD\_SEQ.NEXTVAL, 'HONG', 'TITLE','CONTENT',

MVC\_BOARD\_SEQ.CURRVAL, 0,0, '192.168.10.151');

-- bHit 하나 올리기(1번글 조회수 하나 올리기)

**UPDATE** MVC\_BOARD **SET** BHIT = BHIT+1 **WHERE** BID=1;

-- bId로 글 dto보기

**SELECT** \* **FROM** MVC\_BOARD **WHERE** BID=1;

-- 글 수정하기(bId, bName, bTitle, bContent, bIp, bDATE)

**UPDATE** MVC\_BOARD

**SET** BNAME='LEE',

BTITLE = 'TITLE2',

BCONTENT = '본문2',

BIP = '192.168.10.151',

BDATE = SYSDATE

**WHERE** BID=1;

-- 글 삭제하기(bId로 삭제하기)

**DELETE** **FROM** MVC\_BOARD **WHERE** BID=3;

-- 답변글 추가전 STEP a 수행

**UPDATE** MVC\_BOARD **SET** BSTEP = BSTEP+1

**WHERE** BGROUP = 1 **AND** BSTEP>0;

-- 답변글 쓰기

**INSERT** **INTO** MVC\_BOARD (BID, BNAME, BTITLE, BCONTENT, BGROUP, BSTEP, BINDENT, BIP)

**VALUES** (MVC\_BOARD\_SEQ.NEXTVAL, 'PARK','T2','C2',

1, 1, 1, '192.168.10.151');

**SELECT** \* **FROM** MVC\_BOARD **ORDER** **BY** BGROUP **DESC**, BSTEP;

commit;

1. DTO & DAO

**public** **class** BDto {

**private** **int** bid;

**private** String bname;

**private** String btitle;

**private** String bcontent;

**private** Timestamp bdate;

**private** **int** bhit;

**private** **int** bgroup;

**private** **int** bstep;

**private** **int** bindent;

**private** String bip;

}

**package** com.tj.ex.dao;

**import** java.sql.Connection;

**import** java.sql.PreparedStatement;

**import** java.sql.ResultSet;

**import** java.sql.SQLException;

**import** java.sql.Timestamp;

**import** java.util.ArrayList;

**import** javax.naming.Context;

**import** javax.naming.InitialContext;

**import** javax.naming.NamingException;

**import** javax.sql.DataSource;

**import** com.tj.ex.dto.BoardDto;

**public** **class** BoardDao {

**public** **static** **final** **int** ***FAIL*** = 0;

**public** **static** **final** **int** ***SUCCESS*** = 1;

**private** DataSource ds;

**public** BoardDao() {

**try** {

Context ctx = **new** InitialContext();

ds =

(DataSource) ctx.lookup("java:comp/env/jdbc/Oracle11g");

} **catch** (NamingException e) {

System.***out***.println(e.getMessage());

}

}

// 글목록

**public** ArrayList<BoardDto> list(**int** startRow, **int** endRow){

ArrayList<BoardDto> dtos = **new** ArrayList<BoardDto>();

Connection conn = **null**;

PreparedStatement pstmt = **null**;

ResultSet rs = **null**;

String sql = "SELECT \* FROM " +

" (SELECT ROWNUM RN, A.\* FROM " +

" (SELECT \* FROM MVC\_BOARD ORDER BY BGROUP DESC, BSTEP) A)" +

" WHERE RN BETWEEN ? AND ?";

**try** {

conn = ds.getConnection();

pstmt = conn.prepareStatement(sql);

pstmt.setInt(1, startRow);

pstmt.setInt(2, endRow);

rs = pstmt.executeQuery();

**while**(rs.next()) {

**int** bid = rs.getInt("bid");

String bname = rs.getString("bname");

String btitle = rs.getString("btitle");

String bcontent= rs.getString("bcontent");

Timestamp bdate= rs.getTimestamp("bdate");

**int** bhit = rs.getInt("bhit");

**int** bgroup = rs.getInt("bgroup");

**int** bstep = rs.getInt("bstep");

**int** bindent = rs.getInt("bindent");

String bip = rs.getString("bip");

dtos.add(**new** BoardDto(bid, bname, btitle, bcontent,

bdate, bhit, bgroup, bstep, bindent, bip));

}

} **catch** (SQLException e) {

System.***out***.println(e.getMessage());

}**finally** {

**try** {

**if**(rs !=**null**) rs.close();

**if**(pstmt!=**null**) pstmt.close();

**if**(conn !=**null**) conn.close();

} **catch** (SQLException e) {System.***out***.println(e.getMessage());}

}

**return** dtos;

}

// 글갯수

**public** **int** getBoardTotCnt() {

**int** cnt = 0;

Connection conn = **null**;

PreparedStatement pstmt = **null**;

ResultSet rs = **null**;

String sql = "SELECT COUNT(\*) cnt FROM MVC\_BOARD";

**try** {

conn = ds.getConnection();

pstmt = conn.prepareStatement(sql);

rs = pstmt.executeQuery();

rs.next();

cnt = rs.getInt("cnt");

} **catch** (SQLException e) {

System.***out***.println(e.getMessage());

}**finally** {

**try** {

**if**(rs !=**null**) rs.close();

**if**(pstmt!=**null**) pstmt.close();

**if**(conn !=**null**) conn.close();

} **catch** (SQLException e) {System.***out***.println(e.getMessage());}

}

**return** cnt;

}

// 글쓰기(원글쓰기)

**public** **int** write(String bname, String btitle, String bcontent, String bip) {

**int** result = ***FAIL***;

Connection conn = **null**;

PreparedStatement pstmt = **null**;

String sql = "INSERT INTO MVC\_BOARD"

+ " (bId, bName, BTITLE, BCONTENT, BGROUP, BSTEP, BINDENT, BIP)"

+ " VALUES (MVC\_BOARD\_SEQ.NEXTVAL, ?, ?, ?, "

+ " MVC\_BOARD\_SEQ.CURRVAL, 0, 0, ?)";

**try** {

conn = ds.getConnection();

pstmt = conn.prepareStatement(sql);

pstmt.setString(1, bname);

pstmt.setString(2, btitle);

pstmt.setString(3, bcontent);

pstmt.setString(4, bip);

result = pstmt.executeUpdate();

System.***out***.println(result==***SUCCESS***? "원글쓰기성공":"원글쓰기실패");

} **catch** (SQLException e) {

System.***out***.println(e.getMessage());

}**finally** {

**try** {

**if**(pstmt!=**null**) pstmt.close();

**if**(conn !=**null**) conn.close();

} **catch** (SQLException e) {System.***out***.println(e.getMessage());}

}

**return** result;

}

// 조회수올리기

**private** **void** hitUp(**int** bid) {

Connection conn = **null**;

PreparedStatement pstmt = **null**;

String sql = "UPDATE MVC\_BOARD SET BHIT = BHIT+1 WHERE BID=?";

**try** {

conn = ds.getConnection();

pstmt = conn.prepareStatement(sql);

pstmt.setInt(1, bid);

pstmt.executeUpdate();

} **catch** (SQLException e) {

System.***out***.println(e.getMessage());

}**finally** {

**try** {

**if**(pstmt!=**null**) pstmt.close();

**if**(conn !=**null**) conn.close();

} **catch** (SQLException e) {System.***out***.println(e.getMessage());}

}

}

// 글 상세보기(조회수 up + bid로 dto리턴)

**public** BoardDto contentView(**int** bid) {

hitUp(bid);

BoardDto dto = **null**;

Connection conn = **null**;

PreparedStatement pstmt = **null**;

ResultSet rs = **null**;

String sql = "SELECT \* FROM MVC\_BOARD WHERE BID=?";

**try** {

conn = ds.getConnection();

pstmt = conn.prepareStatement(sql);

pstmt.setInt(1, bid);

rs = pstmt.executeQuery();

**if**(rs.next()) {

String bname = rs.getString("bname");

String btitle = rs.getString("btitle");

String bcontent= rs.getString("bcontent");

Timestamp bdate= rs.getTimestamp("bdate");

**int** bhit = rs.getInt("bhit");

**int** bgroup = rs.getInt("bgroup");

**int** bstep = rs.getInt("bstep");

**int** bindent = rs.getInt("bindent");

String bip = rs.getString("bip");

dto = **new** BoardDto(bid, bname, btitle, bcontent, bdate, bhit,

bgroup, bstep, bindent, bip);

}

} **catch** (SQLException e) {

System.***out***.println(e.getMessage());

}**finally** {

**try** {

**if**(rs !=**null**) rs.close();

**if**(pstmt!=**null**) pstmt.close();

**if**(conn !=**null**) conn.close();

} **catch** (SQLException e) {System.***out***.println(e.getMessage());}

}

**return** dto;

}

// 답변글 view + 수정 view (bid로 dto리턴)

**public** BoardDto modifyView\_replyView(**int** bid) {

BoardDto dto = **null**;

Connection conn = **null**;

PreparedStatement pstmt = **null**;

ResultSet rs = **null**;

String sql = "SELECT \* FROM MVC\_BOARD WHERE BID=?";

**try** {

conn = ds.getConnection();

pstmt = conn.prepareStatement(sql);

pstmt.setInt(1, bid);

rs = pstmt.executeQuery();

**if**(rs.next()) {

String bname = rs.getString("bname");

String btitle = rs.getString("btitle");

String bcontent= rs.getString("bcontent");

Timestamp bdate= rs.getTimestamp("bdate");

**int** bhit = rs.getInt("bhit");

**int** bgroup = rs.getInt("bgroup");

**int** bstep = rs.getInt("bstep");

**int** bindent = rs.getInt("bindent");

String bip = rs.getString("bip");

dto = **new** BoardDto(bid, bname, btitle, bcontent, bdate, bhit,

bgroup, bstep, bindent, bip);

}

} **catch** (SQLException e) {

System.***out***.println(e.getMessage());

}**finally** {

**try** {

**if**(rs !=**null**) rs.close();

**if**(pstmt!=**null**) pstmt.close();

**if**(conn !=**null**) conn.close();

} **catch** (SQLException e) {System.***out***.println(e.getMessage());}

}

**return** dto;

}

// 글 수정하기(bname, btitle, bcontent, bip, bid)

**public** **int** modify(**int** bid, String bname, String btitle, String bcontent,

String bip) {

**int** result = ***FAIL***;

Connection conn = **null**;

PreparedStatement pstmt = **null**;

String sql = "UPDATE MVC\_BOARD "

+ "SET BNAME=?, "

+ "BTITLE = ?, "

+ "BCONTENT = ?, "

+ "BIP = ?, "

+ "BDATE = SYSDATE "

+ "WHERE BID=?";

**try** {

conn = ds.getConnection();

pstmt = conn.prepareStatement(sql);

pstmt.setString(1, bname);

pstmt.setString(2, btitle);

pstmt.setString(3, bcontent);

pstmt.setString(4, bip);

pstmt.setInt(5, bid);

result = pstmt.executeUpdate();

System.***out***.println(result==***SUCCESS***? "글수정성공":"글수정실패");

} **catch** (SQLException e) {

System.***out***.println(e.getMessage());

}**finally** {

**try** {

**if**(pstmt!=**null**) pstmt.close();

**if**(conn !=**null**) conn.close();

} **catch** (SQLException e) {System.***out***.println(e.getMessage());}

}

**return** result;

}

// 글 삭제하기(bid로 글 삭제하기)

**public** **int** delete(**int** bid) {

**int** result = ***FAIL***;

Connection conn = **null**;

PreparedStatement pstmt = **null**;

String sql = "DELETE FROM MVC\_BOARD WHERE BID=?";

**try** {

conn = ds.getConnection();

pstmt = conn.prepareStatement(sql);

pstmt.setInt(1, bid);

result = pstmt.executeUpdate();

System.***out***.println(result==***SUCCESS***? "글삭제성공":"글삭제실패");

} **catch** (SQLException e) {

System.***out***.println(e.getMessage());

}**finally** {

**try** {

**if**(pstmt!=**null**) pstmt.close();

**if**(conn !=**null**) conn.close();

} **catch** (SQLException e) {System.***out***.println(e.getMessage());}

}

**return** result;

}

// step a

**private** **void** preReplyStepA(**int** bgroup, **int** bstep) {

Connection conn = **null**;

PreparedStatement pstmt = **null**;

String sql = "UPDATE MVC\_BOARD SET BSTEP = BSTEP+1 "

+ " WHERE BGROUP = ? AND BSTEP>?";

**try** {

conn = ds.getConnection();

pstmt = conn.prepareStatement(sql);

pstmt.setInt(1, bgroup);

pstmt.setInt(2, bstep);

pstmt.executeUpdate();

} **catch** (SQLException e) {

System.***out***.println(e.getMessage());

}**finally** {

**try** {

**if**(pstmt!=**null**) pstmt.close();

**if**(conn !=**null**) conn.close();

} **catch** (SQLException e) {System.***out***.println(e.getMessage());}

}

}

// 답변글 쓰기

**public** **int** reply(String bname, String btitle, String bcontent, String bip,

**int** bgroup, **int** bstep, **int** bindent) {

preReplyStepA(bgroup, bstep); // 답변글 저장전 step A 먼저 실행

// bgroup, bstep, bindent 원글정보

// bname, btitle, bcontent, bip 답변글 정보

**int** result = ***FAIL***;

Connection conn = **null**;

PreparedStatement pstmt = **null**;

String sql = "INSERT INTO MVC\_BOARD "

+ "(BID, BNAME, BTITLE, BCONTENT, BGROUP, BSTEP, BINDENT, BIP) "

+ " VALUES (MVC\_BOARD\_SEQ.NEXTVAL, ?, ?, ?, ?, ?, ?, ?)";

**try** {

conn = ds.getConnection();

pstmt = conn.prepareStatement(sql);

pstmt.setString(1, bname);

pstmt.setString(2, btitle);

pstmt.setString(3, bcontent);

pstmt.setInt(4, bgroup);

pstmt.setInt(5, bstep+1);

pstmt.setInt(6, bindent+1);

pstmt.setString(7, bip);

result = pstmt.executeUpdate();

System.***out***.println(result==***SUCCESS***? "답변쓰기성공":"답변쓰기실패");

} **catch** (SQLException e) {

System.***out***.println(e.getMessage());

}**finally** {

**try** {

**if**(pstmt!=**null**) pstmt.close();

**if**(conn !=**null**) conn.close();

} **catch** (SQLException e) {System.***out***.println(e.getMessage());}

}

**return** result;

}

}

1. Controller

@WebServlet("\*.do")

**public** **class** BController **extends** HttpServlet {

**private** **static** **final** **long** ***serialVersionUID*** = 1L;

**private** **int** write\_view = 0;

**protected** **void** doGet(HttpServletRequest request, HttpServletResponse response) **throws** ServletException, IOException {

actionDo(request, response);

}

**protected** **void** doPost(HttpServletRequest request, HttpServletResponse response) **throws** ServletException, IOException {

request.setCharacterEncoding("utf-8");

actionDo(request, response);

}

**private** **void** actionDo(HttpServletRequest request, HttpServletResponse response) **throws** ServletException, IOException {

String uri = request.getRequestURI();

String conPath = request.getContextPath();

String command = uri.substring(conPath.length());

System.***out***.println("uri:"+uri+"/conPath:"+conPath+"/command:"+command);

String viewPage = **null**;

BService service = **null**;

**if**(command.equals("/list.do")) {

service = **new** BListService();

service.execute(request, response);

viewPage = "mvcboard/list.jsp";

}**else** **if**(command.equals("/write\_view.do")) {

write\_view = 1;

viewPage = "mvcboard/write\_view.jsp";

}**else** **if**(command.equals("/write.do")) {

**if**(write\_view == 1) {

service = **new** BWriteService();

service.execute(request, response);

write\_view = 0;

}

viewPage = "list.do";

}**else** **if**(command.equals("/content\_view.do")) {

service = **new** BContentService();

service.execute(request, response);

viewPage = "mvcboard/content\_view.jsp";

}**else** **if**(command.equals("/modify\_view.do")) {

service = **new** BModifyViewService();

service.execute(request, response);

viewPage = "mvcboard/modify\_view.jsp";

}**else** **if**(command.equals("/modify.do")) {

service = **new** BModifyService();

service.execute(request, response);

viewPage = "list.do";

}**else** **if**(command.equals("/delete.do")) {

service = **new** BDeleteService();

service.execute(request, response);

viewPage = "list.do";

}**else** **if**(command.equals("/reply\_view.do")) {

service = **new** BReplyViewService();

service.execute(request, response);

viewPage = "mvcboard/reply\_view.jsp";

}**else** **if**(command.equals("/reply.do")) {

service = **new** BReplyService();

service.execute(request, response);

viewPage = "list.do";

}

RequestDispatcher dispatcher = request.getRequestDispatcher(viewPage);

dispatcher.forward(request, response);

}

}

1. Command단

**package** com.tj.ex.service;

**import** javax.servlet.http.HttpServletRequest;

**import** javax.servlet.http.HttpServletResponse;

**public** **interface** BService {

**public** **void** execute(HttpServletRequest request,

HttpServletResponse response);

}

**public** **class** BListService **implements** BService {

@Override

**public** **void** execute(HttpServletRequest request, HttpServletResponse response) {

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

**if**(pageNum==**null**) pageNum = "1";

**int** currentPage = Integer.*parseInt*(pageNum);

**final** **int** PAGESIZE=10, BLOCKSIZE=10;

**int** startRow = (currentPage-1) \* PAGESIZE +1;

**int** endRow = startRow + PAGESIZE -1;

BoardDao boardDao = **new** BoardDao();

ArrayList<BoardDto> list = boardDao.list(startRow, endRow);

request.setAttribute("list", list);

**int** totCnt = boardDao.getBoardTotCnt(); // 글갯수

**int** pageCnt = (**int**)Math.*ceil*((**double**)totCnt/PAGESIZE);//페이지갯수

**int** startPage = ((currentPage-1)/BLOCKSIZE)\*BLOCKSIZE+1;

**int** endPage = startPage + BLOCKSIZE - 1;

**if**(endPage>pageCnt) {

endPage = pageCnt;

}

request.setAttribute("BLOCKSIZE", BLOCKSIZE);

request.setAttribute("startPage", startPage);

request.setAttribute("endPage", endPage);

request.setAttribute("pageCnt", pageCnt);

request.setAttribute("totCnt", totCnt); // totCnt는 없으면 list.size()대용

request.setAttribute("pageNum", currentPage);// pageNum 없으면 param.pageNum

}

}

**public** **class** BWriteService **implements** BService {

@Override

**public** **void** execute(HttpServletRequest request, HttpServletResponse response) {

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

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

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

String bip = request.getRemoteAddr();

BoardDao boardDao = **new** BoardDao();

**int** result = boardDao.write(bname, btitle, bcontent, bip);

request.setAttribute("writeResult", result);

}

}

**public** **class** BContentService **implements** BService {

@Override

**public** **void** execute(HttpServletRequest request, HttpServletResponse response) {

**int** bid = Integer.*parseInt*(request.getParameter("bid"));

BoardDao boardDao = **new** BoardDao();

BoardDto dto = boardDao.contentView(bid);

request.setAttribute("content\_view", dto);

}

}

**public** **class** BModifyViewService **implements** BService {

@Override

**public** **void** execute(HttpServletRequest request, HttpServletResponse response) {

**int** bid = Integer.*parseInt*(request.getParameter("bid"));

BoardDao boardDao = **new** BoardDao();

BoardDto dto = boardDao.modifyView\_replyView(bid);

request.setAttribute("modify\_view", dto);

}

}

**public** **class** BModifyService **implements** BService {

@Override

**public** **void** execute(HttpServletRequest request, HttpServletResponse response) {

**int** bid = Integer.*parseInt*(request.getParameter("bid"));

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

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

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

String bip = request.getRemoteAddr();

BoardDao boardDao = **new** BoardDao();

**int** result = boardDao.modify(bid, bname, btitle, bcontent, bip);

request.setAttribute("modifyResult", result);

}

}

**public** **class** BDeleteService **implements** BService {

@Override

**public** **void** execute(HttpServletRequest request, HttpServletResponse response) {

**int** bid = Integer.*parseInt*(request.getParameter("bid"));

BoardDao boardDao = **new** BoardDao();

**int** result = boardDao.delete(bid);

request.setAttribute("deleteResult", result);

}

}

**public** **class** BReplyViewService **implements** BService {

@Override

**public** **void** execute(HttpServletRequest request, HttpServletResponse response) {

**int** bid = Integer.*parseInt*(request.getParameter("bid"));

BoardDao boardDao = **new** BoardDao();

BoardDto dto = boardDao.modifyView\_replyView(bid);

request.setAttribute("reply\_view", dto);

}

}

**public** **class** BReplyService **implements** BService {

@Override

**public** **void** execute(HttpServletRequest request, HttpServletResponse response) {

**int** bgroup = Integer.*parseInt*(request.getParameter("bgroup"));

**int** bstep = Integer.*parseInt*(request.getParameter("bstep"));

**int** bindent = Integer.*parseInt*(request.getParameter("bindent"));

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

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

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

String bip = request.getRemoteAddr();

BoardDao boardDao = **new** BoardDao();

**int** result =

boardDao.reply(bname, btitle, bcontent, bip, bgroup, bstep, bindent);

request.setAttribute("replyResult", result);

}

}

1. index.jsp

<body>

<jsp:forward page=*"list.do"*/>

</body>

1. mvcboard/폴더

(insert100.jsp)

<body>

<% BDao bDao = **new** BDao();

**for**(**int** i=0 ; i<100 ; i++){

**int** result = bDao.write("홍길"+i, "제목 "+i, "본\n문\n"+i);

System.out.println(result>0? i+"삽입성공" : i+"삽입실패");

}

response.sendRedirect(request.getContextPath()+"/list.do");

%>

</body>

(list.jsp)

<%@page import=*"com.tj.ex.dao.BoardDao"*%>

<%@ page language=*"java"* contentType=*"text/html; charset=UTF-8"*

pageEncoding=*"UTF-8"*%>

<%@ taglib prefix=*"c"* uri=*"http://java.sun.com/jsp/jstl/core"* %>

<%@ taglib prefix=*"fmt"* uri=*"http://java.sun.com/jsp/jstl/fmt"* %>

<c:set var=*"conPath"* value=*"*${pageContext.request.contextPath }*"*/>

<!DOCTYPE html>

<html>

<head>

<meta charset=*"UTF-8"*>

<title>Insert title here</title>

<link href=*"*${conPath }*/css/style.css"* rel=*"stylesheet"*>

</head>

<body>

<c:set var=*"SUCCESS"* value=*"1"*/>

<c:set var=*"FAIL"* value=*"0"*/>

<c:if test=*"*${writeResult == SUCCESS }*"*>

<script>alert("글쓰기 성공");</script>

</c:if>

<c:if test=*"*${writeResult == FAIL }*"*>

<script>alert("글쓰기 실패");</script>

</c:if>

<c:if test=*"*${modifyResult == SUCCESS }*"*>

<script>alert("글수정 성공");</script>

</c:if>

<c:if test=*"*${modifyResult == FAIL }*"*>

<script>alert("글수정 실패");</script>

</c:if>

<c:if test=*"*${deleteResult == SUCCESS }*"*>

<script>alert("글삭제 성공");</script>

</c:if>

<c:if test=*"*${deleteResult == FAIL }*"*>

<script>alert("글삭제 실패");</script>

</c:if>

<c:if test=*"*${replyResult == SUCCESS }*"*>

<script>alert("답변달기 성공");</script>

</c:if>

<c:if test=*"*${replyResult == FAIL }*"*>

<script>alert("답변달기 실패");</script>

</c:if>

<table>

<tr><td><a href=*"*${conPath }*/write\_view.do"*>글쓰기</a>

</table>

<table>

<tr><th>글번호</th><th>작성자</th><th>글제목</th><th>작성일</th>

<th>조회수</th>

</tr>

<c:if test=*"*${totCnt == 0 }*"*>

<tr><td colspan=*"5"*>글이 없습니다</td></tr>

</c:if>

<c:if test=*"*${totCnt != 0 }*"*>

<c:forEach var=*"dto"* items=*"*${list }*"*>

<tr><td>${dto.bid }</td>

<td>${dto.bname }</td>

<td class=*"left"*>

<c:forEach var=*"i"* begin=*"1"* end=*"*${dto.bindent }*"*>

<c:if test=*"*${i == dto.bindent }*"*>

└─

</c:if>

<c:if test=*"*${i != dto.bindent }*"*>

&nbsp; &nbsp; &nbsp;

</c:if>

</c:forEach>

<a href=*"*${conPath }*/content\_view.do?bid=*${dto.bid}*&pageNum=*${pageNum}*"*>

${dto.btitle }</a>

</td>

<td><fmt:formatDate value=*"*${dto.bdate }*"* pattern=*"yyyy/MM/dd(E)"*/></td>

<td>${dto.bhit }</td>

</tr>

</c:forEach>

</c:if>

</table>

<div class=*"paging"*>

<c:if test=*"*${startPage > BLOCKSIZE }*"*>

<a href=*"*${conPath }*/list.do?pageNum=*${startPage-1}*"*> 이전 </a>

</c:if>

<c:forEach var=*"i"* begin=*"*${startPage }*"* end=*"*${endPage }*"*>

<c:if test=*"*${i == pageNum }*"*>

[ <b>${i }</b> ]

</c:if>

<c:if test=*"*${i != pageNum }*"*>

[ <a href=*"*${conPath }*/list.do?pageNum=*${i}*"*>${i }</a> ]

</c:if>

</c:forEach>

<c:if test=*"*${endPage < pageCnt }*"*>

<a href=*"*${conPath }*/list.do?pageNum=*${endPage+1}*"*> 다음 </a>

</c:if>

</div>

</body>

</html>

**(content\_view.jsp)**

<%@ page language=*"java"* contentType=*"text/html; charset=UTF-8"*

pageEncoding=*"UTF-8"*%>

<%@ taglib prefix=*"c"* uri=*"http://java.sun.com/jsp/jstl/core"* %>

<%@ taglib prefix=*"fmt"* uri=*"http://java.sun.com/jsp/jstl/fmt"* %>

<c:set var=*"conPath"* value=*"*${pageContext.request.contextPath }*"*/>

<!DOCTYPE html>

<html>

<head>

<meta charset=*"UTF-8"*>

<title>Insert title here</title>

<link href=*"*${conPath }*/css/style.css"* rel=*"stylesheet"*>

</head>

<body>

<table>

<caption>${content\_view.bid }글 상세보기</caption>

<tr><th>글번호</th><td>${content\_view.bid }</td></tr>

<tr><th>작성자</th><td>${content\_view.bname}</td></tr>

<tr><th>제 목</th><td>${content\_view.btitle}</td></tr>

<tr><th>본문</th><td><pre>${content\_view.bcontent}</pre></td></tr>

<tr><th>작성일</th>

<td><fmt:formatDate value=*"*${content\_view.bdate}*"* pattern=*"yy/MM/dd(E)"*/></td>

</tr>

<tr><th>조회수</th><td>${content\_view.bhit}</td></tr>

<tr><th>작성한곳ip</th><td>${content\_view.bip }</td></tr>

<tr><td colspan=*"2"*>

<button onclick=*"location='*${conPath}*/modify\_view.do?bid=*${param.bid }*&pageNum=*${param.pageNum }*'"*>수정</button>

<button onclick=*"location='*${conPath}*/delete.do?bid=*${param.bid }*&pageNum=*${param.pageNum }*'"*>삭제</button>

<button onclick=*"location='*${conPath}*/reply\_view.do?bid=*${param.bid }*&pageNum=*${param.pageNum }*'"*>답변</button>

<button onclick=*"location='*${conPath}*/list.do?pageNum=*${param.pageNum }*'"*>목록</button>

</td>

</tr>

</table>

</body>

</html>

**(write\_view.jsp)**

<%@ page language=*"java"* contentType=*"text/html; charset=UTF-8"*

pageEncoding=*"UTF-8"*%>

<%@ taglib prefix=*"c"* uri=*"http://java.sun.com/jsp/jstl/core"* %>

<c:set var=*"conPath"* value=*"*${pageContext.request.contextPath }*"*/>

<!DOCTYPE html>

<html>

<head>

<meta charset=*"UTF-8"*>

<title>Insert title here</title>

<link href=*"*${conPath }*/css/style.css"* rel=*"stylesheet"*>

</head>

<body>

<form action=*"*${conPath }*/write.do"* method=*"post"*>

<table>

<caption>글쓰기</caption>

<tr><th>작성자</th>

<td><input type=*"text"* name=*"bname"* required=*"required"* size=*"30"*></td>

</tr>

<tr><th>제목</th>

<td><input type=*"text"* name=*"btitle"* required=*"required"* size=*"30"*></td>

</tr>

<tr><th>본문</th>

<td><textarea rows=*"5"* cols=*"32"* name=*"bcontent"*></textarea></td>

</tr>

<tr><td colspan=*"2"*>

<input type=*"submit"* value=*"글쓰기"*>

<input type=*"reset"* value=*"취소"*>

<input type=*"button"* value=*"목록"*

onclick=*"location.href='*${conPath}*/list.do'"*>

</table>

</form>

</body>

</html>

**(modify\_view.jsp)**

<%@ page language=*"java"* contentType=*"text/html; charset=UTF-8"*

pageEncoding=*"UTF-8"*%>

<%@ taglib prefix=*"c"* uri=*"http://java.sun.com/jsp/jstl/core"* %>

<c:set var=*"conPath"* value=*"*${pageContext.request.contextPath }*"*/>

<!DOCTYPE html>

<html>

<head>

<meta charset=*"UTF-8"*>

<title>Insert title here</title>

<link href=*"*${conPath }*/css/style.css"* rel=*"stylesheet"*>

</head>

<body>

<form action=*"*${conPath }*/modify.do"* method=*"post"*>

<input type=*"hidden"* name=*"pageNum"* value=*"*${param.pageNum }*"*>

<input type=*"hidden"* name=*"bid"* value=*"*${modify\_view.bid }*"*>

<table>

<caption>${modify\_view.bid }번 글 수정</caption>

<tr><th>작성자</th>

<td><input type=*"text"* name=*"bname"* required=*"required"* size=*"30"*

value=*"*${modify\_view.bname }*"*></td>

</tr>

<tr><th>제목</th>

<td><input type=*"text"* name=*"btitle"* required=*"required"* size=*"30"*

value=*"*${modify\_view.btitle }*"*></td>

</tr>

<tr><th>본문</th>

<td><textarea rows=*"5"* cols=*"32"*

name=*"bcontent"*>${modify\_view.bcontent }</textarea></td>

</tr>

<tr><td colspan=*"2"*>

<input type=*"submit"* value=*"수정"*>

<input type=*"button"* value=*"목록"*

onclick=*"location='*${conPath}*/list.do?pageNum=*${param.pageNum }*'"*>

<input type=*"reset"* value=*"취소"*

onclick="history.back()">

</td>

</tr>

</table>

</form>

</body>

</html>

**(reply\_view.jsp)**

<%@ page language=*"java"* contentType=*"text/html; charset=UTF-8"*

pageEncoding=*"UTF-8"*%>

<%@ taglib prefix=*"c"* uri=*"http://java.sun.com/jsp/jstl/core"* %>

<c:set var=*"conPath"* value=*"*${pageContext.request.contextPath }*"*/>

<!DOCTYPE html>

<html>

<head>

<meta charset=*"UTF-8"*>

<title>Insert title here</title>

<link href=*"*${conPath }*/css/style.css"* rel=*"stylesheet"*>

</head>

<body>

<!-- 넘어온 파라미터 : pageNum, bid -->

<!-- requestScope.reply\_view (dto) -->

<form action=*"*${conPath }*/reply.do"* method=*"post"*>

<input type=*"hidden"* name=*"pageNum"* value=*"*${param.pageNum }*"*>

<input type=*"hidden"* name=*"bgroup"* value=*"*${reply\_view.bgroup }*"*>

<input type=*"hidden"* name=*"bstep"* value=*"*${reply\_view.bstep }*"*>

<input type=*"hidden"* name=*"bindent"* value=*"*${reply\_view.bindent }*"*>

<table>

<caption>${reply\_view.bid }번 글의 답변 쓰기</caption>

<tr><th>작성자</th>

<td><input type=*"text"* name=*"bname"* required=*"required"* size=*"30"*></td>

</tr>

<tr><th>제목</th>

<td><input type=*"text"* name=*"btitle"* size=*"30"* required=*"required"*

value=*"[답]*${reply\_view.btitle.substring(0,1) }*"*></td>

</tr>

<tr><th>본문</th>

<td><textarea rows=*"5"* cols=*"32"* name=*"bcontent"*></textarea></td>

</tr>

<tr><td colspan=*"2"*>

<input type=*"submit"* value=*"답변저장"*>

<input type=*"reset"* value=*"취소"*>

<input type=*"reset"* value=*"이전"* onclick="history.go(-1)">

<input type=*"button"* value=*"목록"*

onclick=*"location='*${conPath}*/list.do?pageNum=*${param.pageNum}*'"*>

</table>

</form>

</body>

</html>

**(style.css)**

@charset *"UTF-8"*;

**body** {

background-color: *#fff0B5*;

font-size: *12px*;

}

**table** {border: *2px* *solid* *pink*; width:*95%*; margin: *10px* *auto*;}

**table** **tr** { background-color: *#FFE271*; }

**table** **tr***:hover* { background-color: *orange*;

cursor: *pointer*;

}

**td,** **th** {text-align: *center*; padding:*5px*; }

**caption** {font-size: *25px*; padding:*10px*;}

**h2**{text-align: *center*; color:*red*;}

**a** { text-decoration: *none*;}

*.left*{text-align: *left*;}

*.paging* {text-align: *center*;}

**b** {color:*red*;}