

게시판

테이블 작성

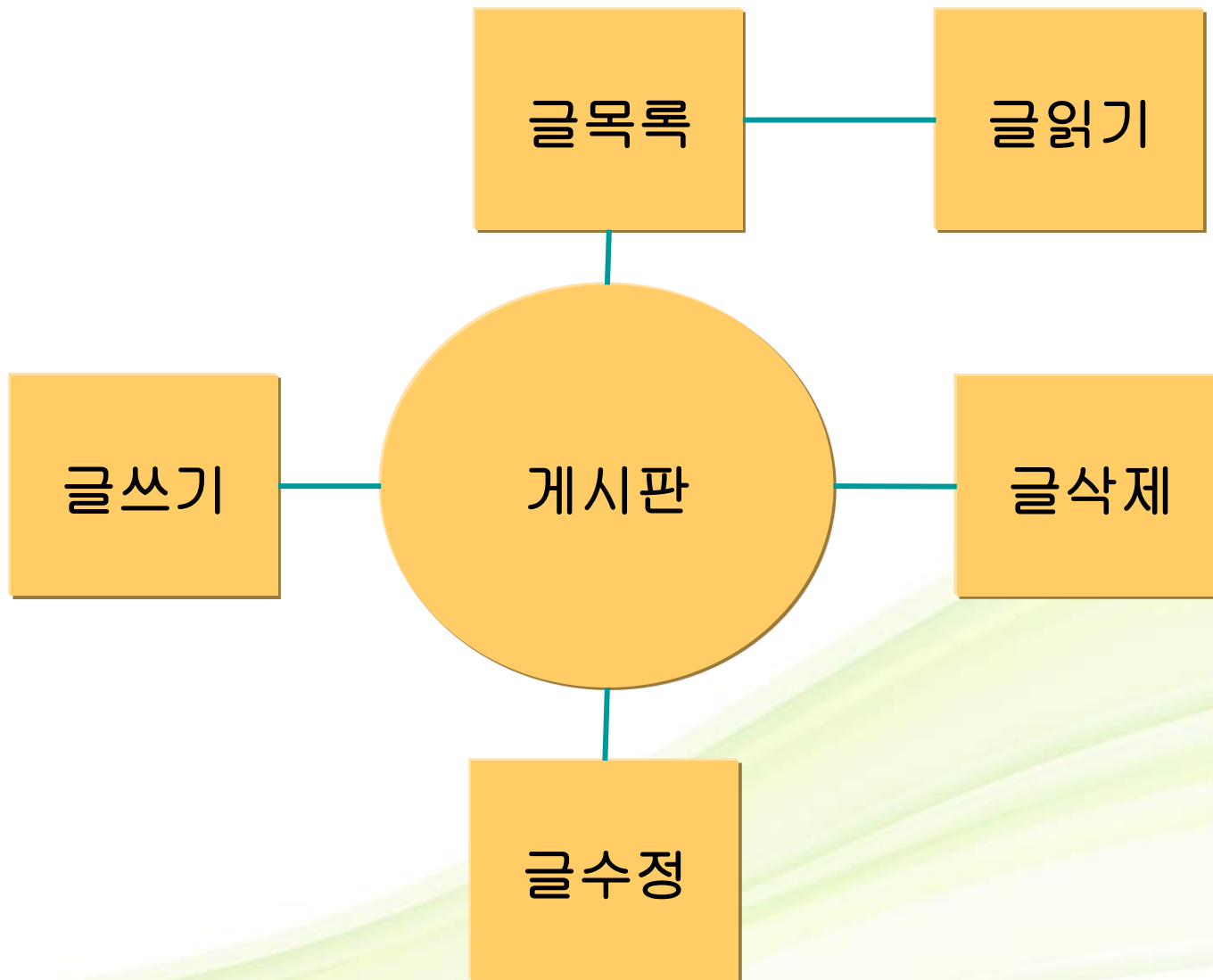
테이블 생성

```
create table board (  
  num number primary key,      -- key  
  writer varchar2(10) not null, -- 작성자  
  subject varchar2(50) not null, -- 제목  
  content varchar2(500) not null, -- 본문  
  email varchar2(30) ,          -- 이메일  
  readcount number default 0,   -- 읽은 횟수  
  passwd varchar2(12) not null, -- 암호  
  ref number not null,          -- 답변글끼리 그룹  
  re_step number not null,      -- ref내의 순서  
  re_level number not null,     -- 들여쓰기  
  ip varchar2(20) not null,     -- 작성자 ip  
  reg_date date not null       -- 작성일  
);
```

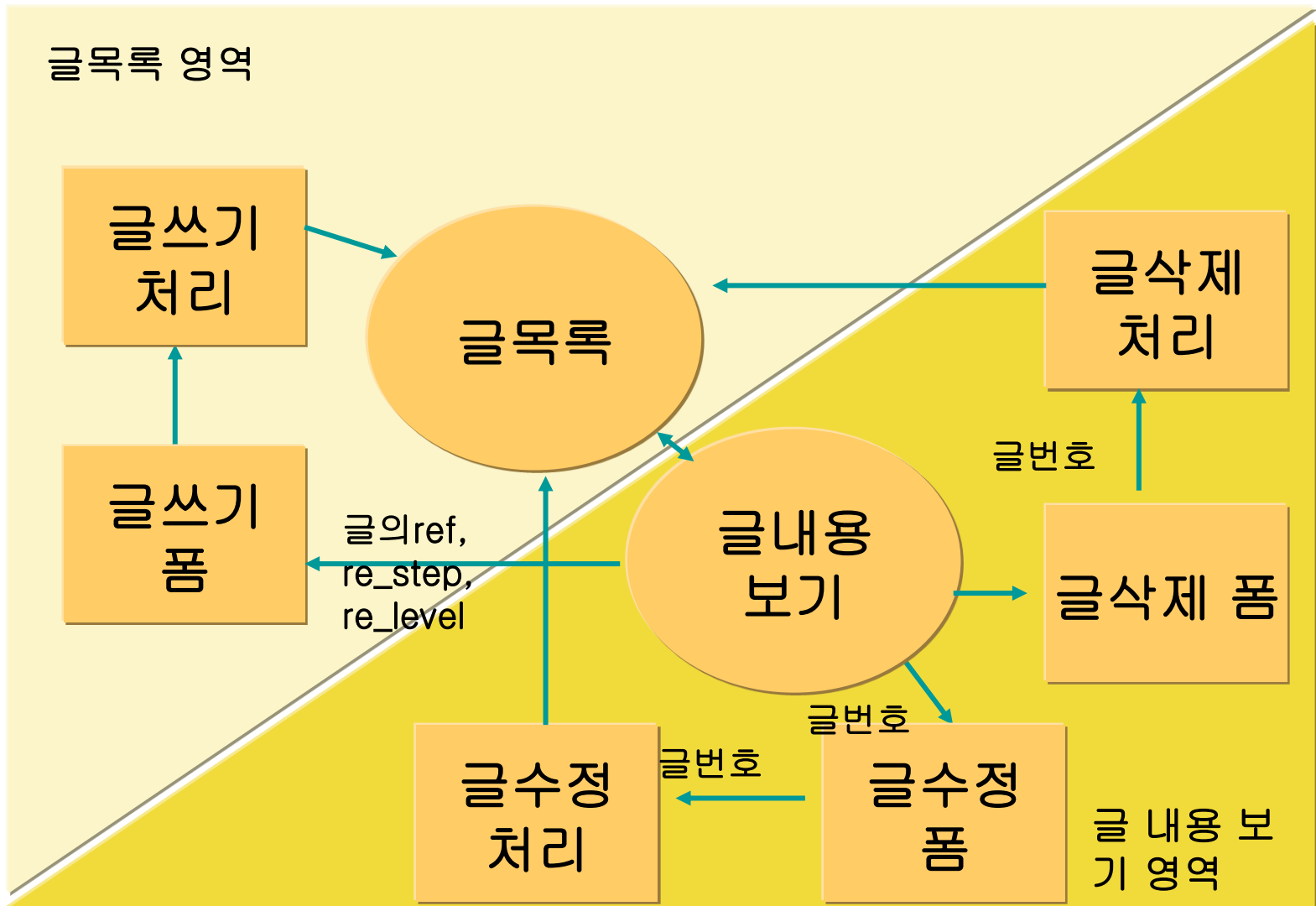
context.jsp

```
<Context>
<Resource
name= "jdbc/OracleDB"
auth= "Container"
type= "javax.sql.DataSource"
username= "scott"
password= "tiger"
driverClassName= "oracle.jdbc.driver.OracleDriver"
factory= "org.apache.tomcat.dbcp.dbcp2.BasicDataSourceFactory"
url= "jdbc:oracle:thin:@127.0.0.1:1521:xe"
maxActive= "100"
maxIdle= "10"/>
<Resource
name= "jdbc/MySql"
auth= "Container"
type= "javax.sql.DataSource"
username= "root"
password= "mysql"
driverClassName= "com.mysql.jdbc.Driver"
factory= "org.apache.tomcat.dbcp.dbcp2.BasicDataSourceFactory"
url= "jdbc:mysql://localhost:3306/test"
maxActive= "100"
maxIdle= "10"/>
</Context>
```

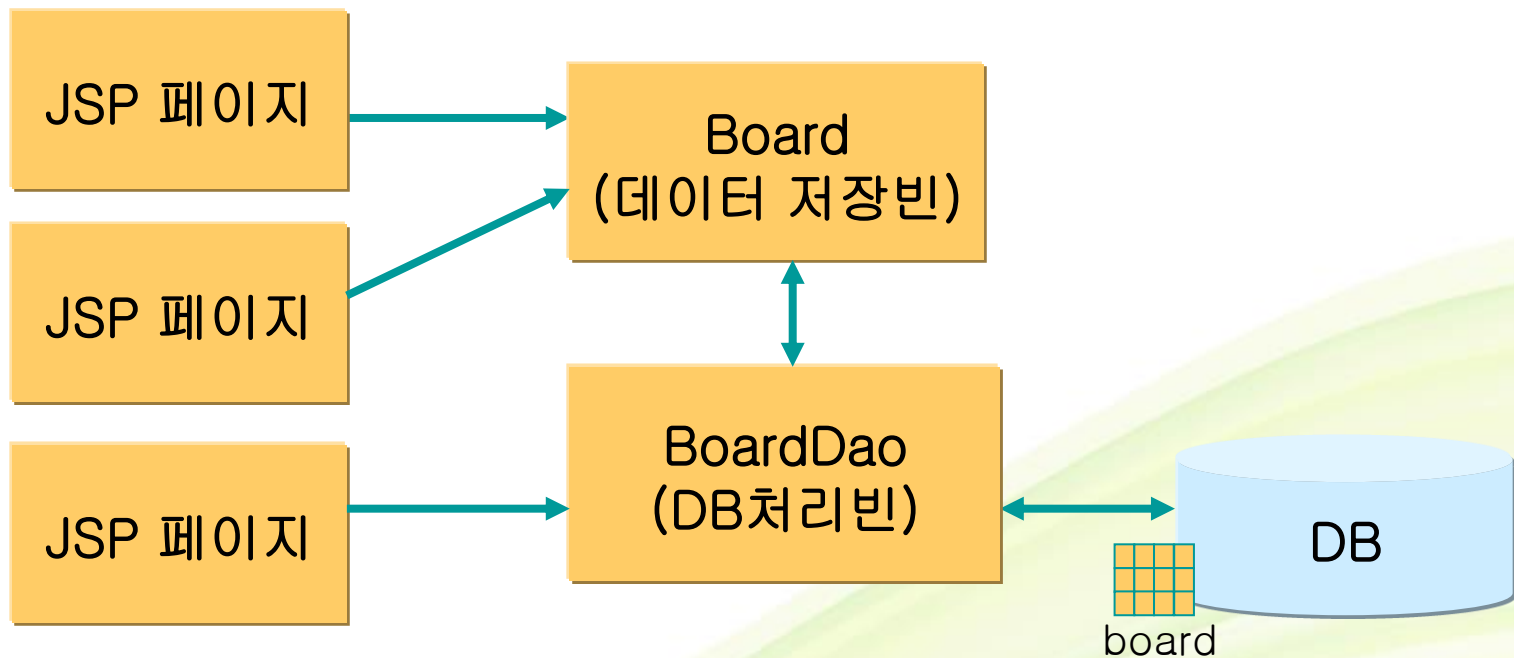
게시판시스템의 전체 개괄구조



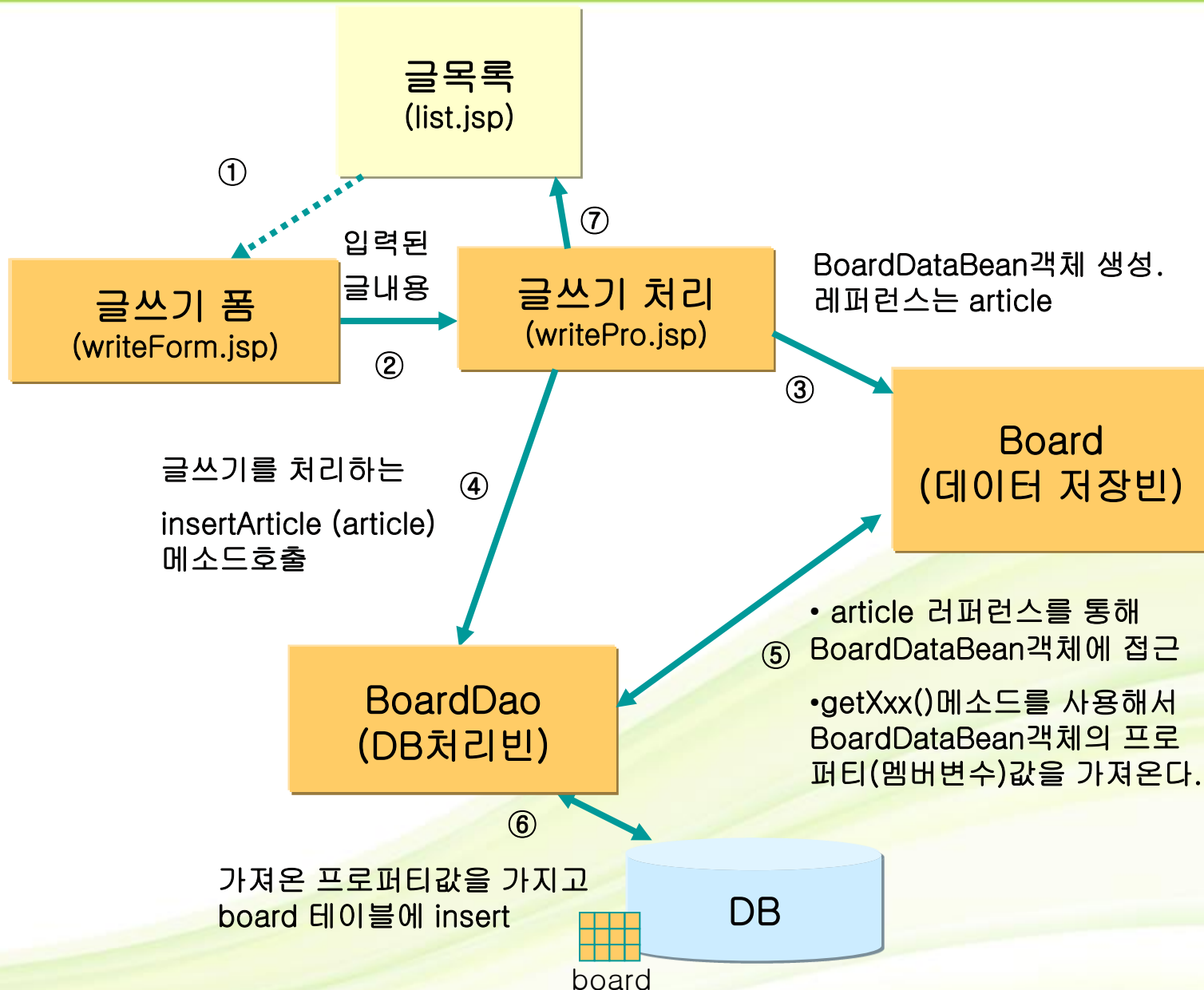
게시판시스템의 작업영역별 구조



JSP페이지와 자바빈 그리고 DB와의 관계



글쓰기 처리



글목록 보기

글쓰기 폼
(writeForm.jsp)

글쓰기 처리
(writePro.jsp)

①

글목록
(list.jsp)

④

• BoardDataBean 객체 생성.
레퍼런스는 article

Board
(데이터 저장빈)

③

글목록을 가져오는
getArticles(start, end)
메소드호출

전체레코드의 수
getArticleCount () 메
소드호출

②

BoardDao
(DB처리빈)

⑤

• article 레퍼런스를 통해
BoardDataBean 객체에 접근
• setXxx() 메소드를 사용해서
BoardDataBean 객체의 프로
퍼티(멤버변수)값을 세팅한다.

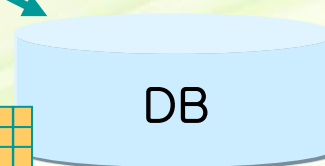
⑥

start, end 값을 가지고 board
테이블에 레코드들을 가져옴

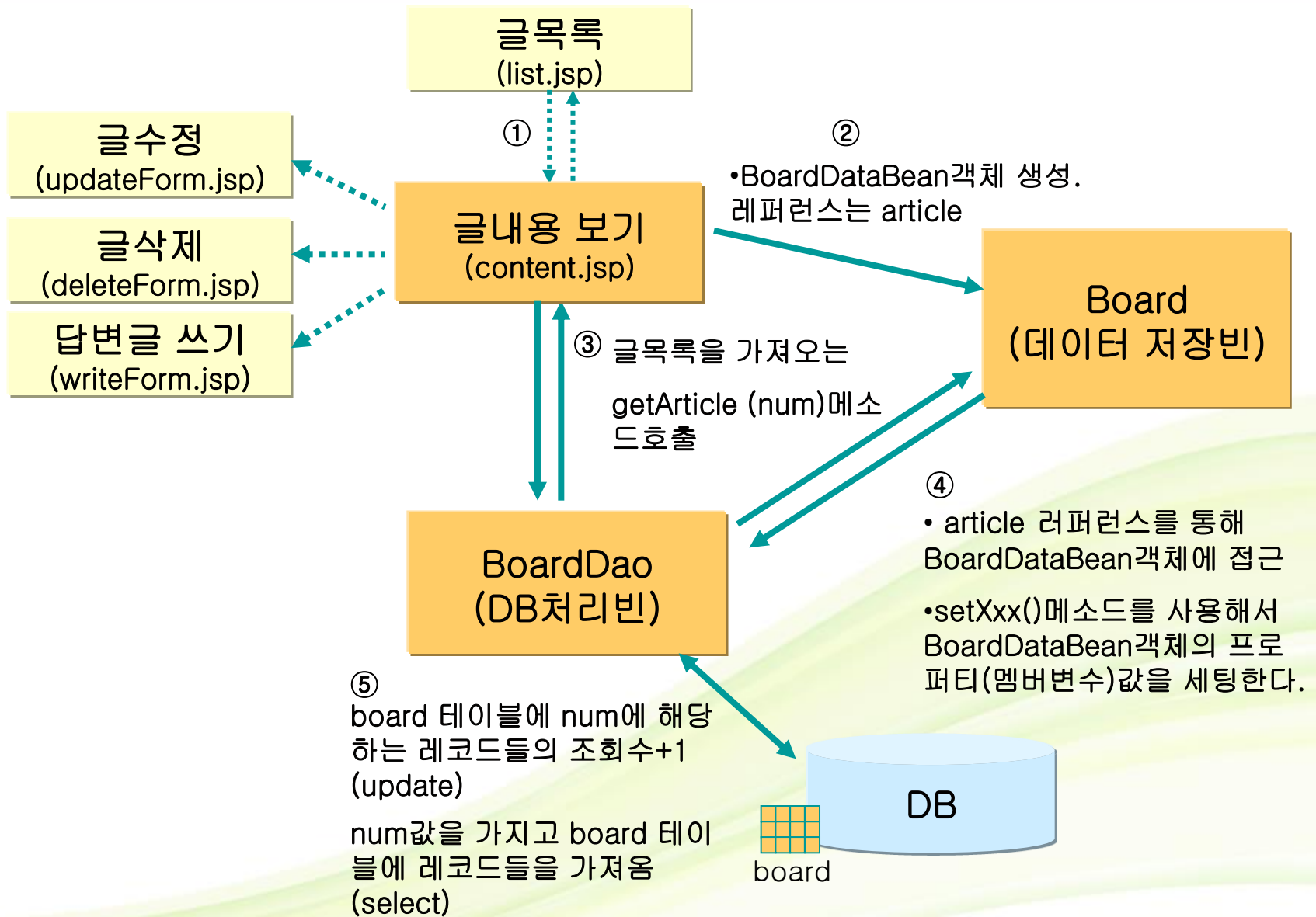


board

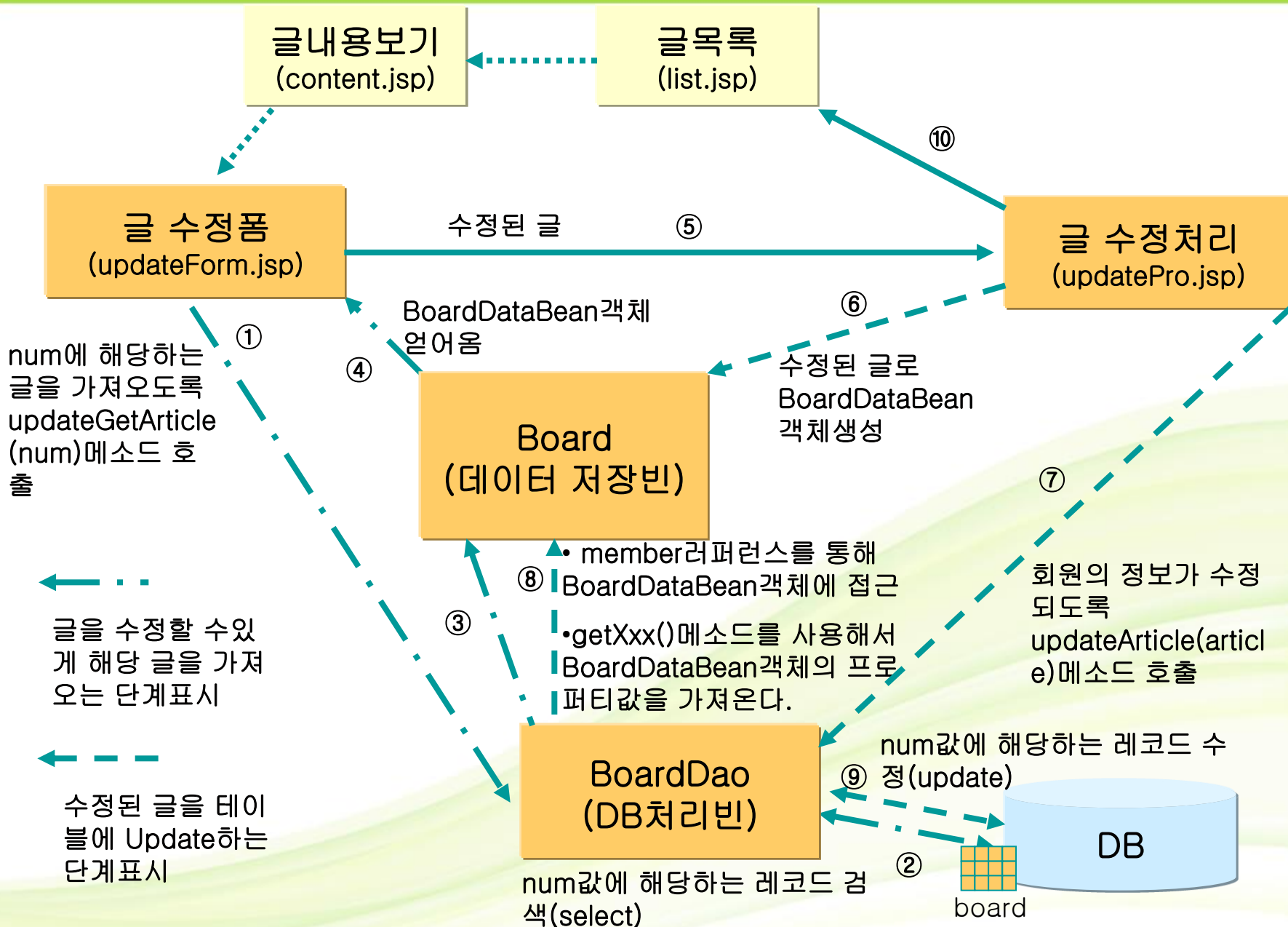
DB



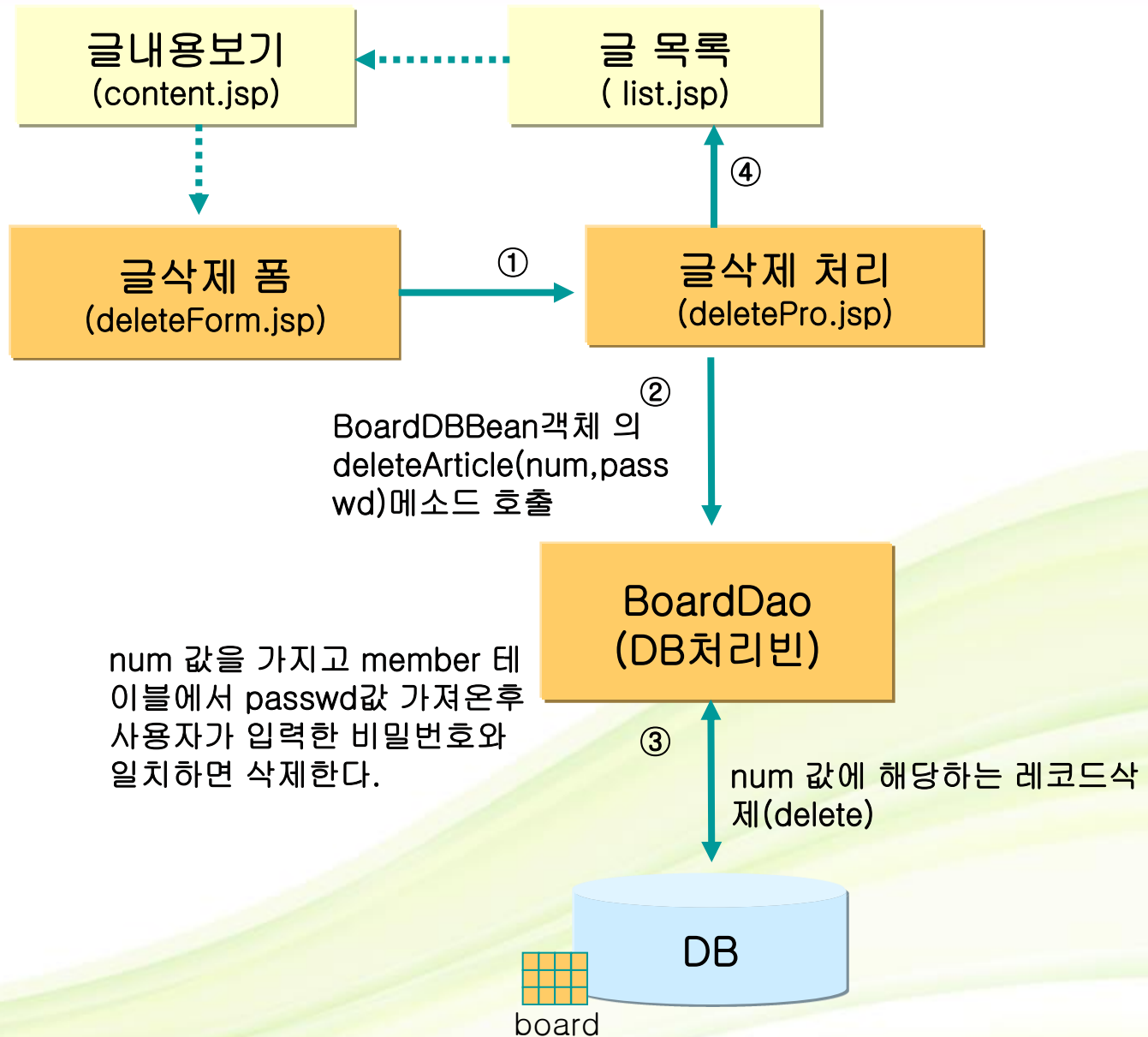
글내용 보기



글수정 처리



글삭제 처리



style.css

```
body { font-size: 9pt; }  
td { font-size : 9pt; }  
select font-size : 9pt; }  
form { font-size : 9pt; }
```

script.js

```
function writeSave(){  
    if(document.writeform.writer.value==""){ alert("작성자를 입력하십시오.");  
        document.writeform.writer.focus(); return false; }  
    if(document.writeform.subject.value==""){ alert("제목을 입력하십시오.");  
        document.writeform.subject.focus(); return false; }  
    if(document.writeform.content.value==""){ alert("내용을 입력하십시오.");  
        document.writeform.content.focus(); return false;  
    }  
    if(document.writeform.passwd.value==""){ alert(" 비밀번호를 입력하십시오.");  
        document.writeform.passwd.focus(); return false;  
    }  
}
```

color.jsp

```
<% String bodyback_c="#FFF0B5";  
String value_c="#FFE271";  
%>
```

list.jsp

```
<%@ page language="java" contentType="text/html; charset=utf-8"
    pageEncoding="utf-8"%>
<%@ page import = "ch13.*,java.util.List,java.text.SimpleDateFormat" %>
<%@ include file="color.jsp"%>
<html><head><title>게시판</title>
<link href="style.css" rel="stylesheet" type="text/css">
<style type="text/css">
    body, td { text-align: center; }
    .left { text-align: left;}
</style></head>
<% int pageSize = 10;
    String pageNum = request.getParameter("pageNum");
    if (pageNum == null || pageNum.equals("")) { pageNum = "1"; }
    int currentPage = Integer.parseInt(pageNum);
    int startRow = (currentPage - 1) * pageSize + 1;
    int endRow = currentPage * pageSize;
    int count = 0; int number=0;
    List<Board> boardList = null;
    BoardDao dbPro = BoardDao.getInstance();
    count = dbPro.getBoardCount();
    if (count > 0) { boardList = dbPro.getBoards(startRow, pageSize); }
    number=count-(currentPage-1)*pageSize;
%>
```

```

<body bgcolor= "<%=bodyback_c%>">
<h2>글목록(전체 글:<%=count%>)</h2>
<table width= "700" align="center">
    <tr align= "right" bgcolor="<%=value_c%>"><td>
        <a href= "writeForm.jsp">글쓰기</a> </td></tr> </table>
<%  if (count == 0) {  %>
<table width= "700" border="1" align="center">
    <tr><td>게시판에 저장된 글이 없습니다. </td></tr></table>
<%  } else {  %>
<table border= "1" width="700" align="center">
    <tr height= "30" bgcolor="<%=value_c%>"><th>번 호</th><th>제  목</th>
        <th>작성자</th><th>작성일</th><th>조 회</th> <th>IP</th> </tr>
<%  for (int i = 0 ; i < boardList.size() ; i++) {
        Board board = (Board)boardList.get(i);
%>
    <tr height= "30"> <td> <%=number--%></td> <td width= "250" class="left" >
<%  int wid=0;
        if(board.getRe_level())>0){
            wid=5*(board.getRe_level());
%>
        <img src= "images/level.gif" width="<%=wid%>" height="16">
        <img src= "images/re.gif">
<%}else{%>
        <img src= "images/level.gif" width="<%=wid%>" height="16">
<%}%>

```



```

<a href="content.jsp?num=<%=board.getNum()%>&pageNum=<%=currentPage%>">
    <%=board.getSubject()%></a>
    <% if(board.getReadcount())>=20){%>
        <%}%> </td>
    <td><a href="mailto:<%=board.getEmail()%>"><%=board.getWriter()%></a></td>
    <td><%=board.getReg_date() %></td><td><%=board.getReadcount() %></td>
    <td><%=board.getIp()%></td> </tr>
    <%}%>
</table>
<% } %>
<% if (count > 0) {
    int pageCount=count/pageSize+(count%pageSize==0?0:1);
    int startPage = (int)((currentPage-1)/10)*10+1;    int pageBlock=10;
    int endPage = startPage + pageBlock-1;
    if (endPage > pageCount) endPage = pageCount;
    if (startPage > 10) {    %>
        <a href="list.jsp?pageNum=<%=startPage - 10 %>">[0|전]</a>
    <%    }
    for (int i = startPage ; i <= endPage ; i++) {    %>
        <a href="list.jsp?pageNum=<%= i %>">[<%= i %>]</a><%
        }
    if (endPage < pageCount) {    %>
        <a href="list.jsp?pageNum=<%= startPage + 10 %>">[다음]</a><%
        }
    }
%>
</body></html>

```

writeForm.jsp

```
<%@ page language="java" contentType="text/html; charset=utf-8"
pageEncoding="utf-8"%>
<%@ include file="color.jsp" %><html><head><title>게시판</title>
<link href="style.css" rel="stylesheet" type="text/css">
<style type="text/css">
    body { text-align: center; }
    td { background-color: "<%=value_c%>"; }
</style><script type="text/javascript" src="script.js"></script></head>
<% int num=0,ref=1,re_step=0,re_level=0;
String pageNum = request.getParameter("pageNum");
if (pageNum == null || pageNum == "") { pageNum = "1"; }
if( request.getParameter("num")!=null){ // 답변글
    num=Integer.parseInt(request.getParameter("num"));
    ref=Integer.parseInt(request.getParameter("ref"));
    re_step=Integer.parseInt(request.getParameter("re_step"));
    re_level=Integer.parseInt(request.getParameter("re_level"));
}
%>
<body bgcolor="<%=bodyback_c%>"> <b>글쓰기</b><br>
<form method="post" action="writePro.jsp?pageNum=<%=pageNum%>"
    name="writeform" onsubmit="return writeSave()">
<input type="hidden" name="num" value="<%=num%>">
<input type="hidden" name="ref" value="<%=ref%>">
<input type="hidden" name="re_step" value="<%=re_step%>">
<input type="hidden" name="re_level" value="<%=re_level%>">
```



```

<table width= "400" border="1" align="center">
  <tr><td align= "right" colspan="2" bgcolor="<%=value_c%>">
    <a href= "/list.jsp"> 글목록</a></td></tr>
  <tr><td>이 름</td>
    <td><input type= "text" size="10" maxlength="10" name="writer"></td>
  </tr>
  <tr><td>제 목</td><td>
    <%if(request.getParameter("num")==null){%>
      <input type= "text" size="40" maxlength="50" name="subject">
    <%}else{%>
      <input type= "text" size="40" maxlength="50" name="subject"
        value= "[답변]"><%}%></td> </tr>
  <tr><td>Email</td><td>
    <input type= "text" size="40" maxlength="30" name="email" ></td>
  </tr>
  <tr><td>내 용</td><td>
    <textarea name= "content" rows="13" cols="40"></textarea> </td>
  </tr>
  <tr><td>비밀번호</td><td><input type= "password" size="8" maxlength="12"
    name="passwd">
  </td> </tr>
  <tr><td colspan=2>
    <input type= "submit" value="글쓰기" >
    <input type= "reset" value="다시작성">
    <input type= "button" value="목록보기"
      OnClick="window.location='list.jsp'">
  </td></tr></table> </form> </body></html>

```

writePro.jsp

```
<%@ page language="java" contentType="text/html; charset=EUC-KR"
    pageEncoding="EUC-KR"%>
<%@ page import = "ch13.BoardDao" %>
<% request.setCharacterEncoding("euc-kr");%>
<jsp:useBean id="board" class="ch13.Board"/>
<jsp:setProperty name="board" property="*" />
<%
    String pageNum = request.getParameter("pageNum");
    board.setIp(request.getRemoteAddr());
    BoardDao dbPro = BoardDao.getInstance();
    int result = dbPro.insert(board);
    if ( result > 0) {
        response.sendRedirect("list.jsp?pageNum="+pageNum);
    }
%>
<body>
<script type="text/javascript">
    alert("입력해 실패했습니다. 메세지 확인하세요");
    location.href = "writeForm.jsp";
</script>
</body>
```

content.jsp

```
<%@ page language="java" contentType="text/html; charset=EUC-KR"
    pageEncoding="EUC-KR"%>
<%@ page import = "ch13.*,java.text.SimpleDateFormat" %>
<%@ include file="color.jsp"%>
<html><head><title>게시판</title>
<link href="style.css" rel="stylesheet" type="text/css">
<style type="text/css">
body, td { text-align: center; }
td { background-color: "<%=value_c%>"; }
.left {text-align: left;}
</style></head>
<%  int num = Integer.parseInt(request.getParameter("num"));
    String pageNum = request.getParameter("pageNum");
    BoardDao dbPro = BoardDao.getInstance();
    Board board = dbPro.getBoard(num);

    int ref=board.getRef();
    int re_step=board.getRe_step();
    int re_level=board.getRe_level();
%>
```

```
<body bgcolor= "<%=bodyback_c%>"><h2>글내용 보기</h2>
<form>
<table width= "500" border= "1" bgcolor= "<%=bodyback_c%>" align= "center">
  <tr height= "30"><td>글번호</td> <td><%=board.getNum()%></td>
    <td>조회수</td><td><%=board.getReadcount()%></td></tr>
  <tr height= "30"> <td>작성자</td><td><%=board.getWriter()%></td>
    <td>작성일</td><td><%=board.getReg_date()%></td></tr>
  <tr height= "30"> <td>글제목</td><td colspan= "3">
    <%=board.getSubject()%></td> </tr>
  <tr><td>글내용</td><td colspan= "3" class= "left"><pre>
    <%=board.getContent()%> </pre></td></tr>
  <tr height= "30"><td colspan= "4" bgcolor= "<%=value_c%>" align= "right" >
    <input type= "button" value= "글수정"
onclick= "location.href='updateForm.jsp?num=<%=board.getNum()%>&pageNum
=<%=pageNum%>'">
    <input type= "button" value= "글삭제"
onclick= "location.href='deleteForm.jsp?num=<%=board.getNum()%>&pageNum
=<%=pageNum%>'">
    <input type= "button" value= "답글쓰기"
onclick= "location.href='writeForm.jsp?num=<%=num%>&ref=<%=ref%>&re_step
=<%=re_step%>&re_level=<%=re_level%>&pageNum=<%=pageNum%>'">
    <input type= "button" value= "글목록"
    onclick= "location.href='list.jsp?pageNum=<%=pageNum%>'">
  </td>
</tr>
</table> </form> </body></html>
```

updateForm.jsp

```
<%@ page language="java" contentType="text/html; charset=utf-8"
    pageEncoding="utf-8"%><%@ page import = "ch13.*" %>
<%@ include file="color.jsp"%>
<html><head><title>게시판</title>
<link href="style.css" rel="stylesheet" type="text/css">
<style type="text/css">
body, td { text-align: center; }
td { background-color: "<%=value_c%>"; }
</style>
<script type="text/javascript" src="script.js"></script>
</head>
<% int num = Integer.parseInt(request.getParameter("num"));
    String pageNum = request.getParameter("pageNum");
    BoardDao dbPro = BoardDao.getInstance();
    Board board = dbPro.updateGetBoard(num);
%>
```



```
<body bgcolor= "<%=bodyback_c%>"> <h2>글수정</h2>
<form method= "post" name= "writeform"
action= "updatePro.jsp?pageNum=<%=pageNum%>"
onsubmit= "return writeSave()">
<table width= "400" border= "1" bgcolor= "<%=bodyback_c%>" align= "center">
  <tr><td>이 름</td><td>
    <input type= "text" size= "10" maxlength= "10" name= "writer"
    value= "<%=board.getWriter()%>">
  <input type= "hidden" name= "num" value= "<%=board.getNum()%>"></td></tr>
  <tr><td>제 목</td><td>
    <input type= "text" size= "40" maxlength= "50" name= "subject"
    value= "<%=board.getSubject()%>"></td> </tr>
  <tr><td>Email</td><td>
    <input type= "text" size= "40" maxlength= "30" name= "email"
    value= "<%=board.getEmail()%>"></td> </tr>
  <tr><td>내 용</td><td>
    <textarea name= "content" rows= "13" cols= "40">
    <%=board.getContent()%></textarea></td> </tr>
  <tr><td>비밀번호</td><td>
    <input type= "password" size= "8" maxlength= "12" name= "passwd">
  </td> </tr>
  <tr><td colspan= 2> <input type= "submit" value= "글수정" >
    <input type= "reset" value= "다시작성"><input type= "button" value= "목록보기"
    onclick= "location.href='list.jsp?pageNum=<%=pageNum%>'">
  </td></tr>
</table></form></body></html>
```

updatePro.jsp

```
<%@ page language="java" contentType="text/html; charset=utf-8"
    pageEncoding="utf-8" import="ch13.BoardDao" %>
<% request.setCharacterEncoding("utf-8");%>
<jsp:useBean id="board" class="ch13.Board"/>
<jsp:setProperty name="board" property="*/>
<% String pageNum = request.getParameter("pageNum");
BoardDao dbPro = BoardDao.getInstance();
    int check = dbPro.update(board);

    if(check > 0){
        response.sendRedirect("list.jsp?pageNum="+ pageNum);
    } else { %>
        <script type="text/javascript">
            alert("비밀번호가 맞지 않습니다");
            history.go(-1);
        </script>
    <% } %>
```

deleteForm.jsp

```
<%@ page language="java" contentType="text/html; charset=utf-8"
    pageEncoding="utf-8"%>
<%@ include file="color.jsp"%>
<% int num = Integer.parseInt(request.getParameter("num"));
    String pageNum = request.getParameter("pageNum");
%>
<html><head><title>게시판</title>
<link href="style.css" rel="stylesheet" type="text/css">
<style type="text/css">
body, td { text-align: center; }
td { background-color: "<%=value_c%>"; }
</style>
<script type="text/javascript">
    function deleteSave(){
if(delForm.passwd.value==''){ alert("비밀번호를 입력하십시오.");
delForm.passwd.focus();
return false;
}
}
</script></head>
```



```
<body bgcolor= "<%=bodyback_c%>">
<h2>글삭제</h2>
<form method= "POST" name= "delForm"
action= "deletePro.jsp?pageNum=<%=pageNum%>"
onsubmit= "return deleteSave()">
<table border= "1" align= "center" width= "360">
<tr height= "30">
<td><b>비밀번호를 입력해 주세요.</b></td></tr>
<tr height= "30"> <td>비밀번호 :
<input type= "password" name= "passwd" size= "8" maxlength= "12">
<input type= "hidden" name= "num" value= "<%=num%>"></td>
</tr>
<tr height= "30"><td>
<input type= "submit" value= "글삭제" >
<input type= "button" value= "글목록"
onclick= "location.href='list.jsp?pageNum=<%=pageNum%>'">
</td> </tr></table>
</form>
</body>
</html>
```

deletePro.jsp

```
<%@ page language="java" contentType="text/html; charset=utf-8"
    pageEncoding="utf-8"%>
<%@ page import = "ch13.BoardDao" %>
<% request.setCharacterEncoding("euc-kr");%>
<% int num = Integer.parseInt(request.getParameter("num"));
    String pageNum = request.getParameter("pageNum");
    String passwd = request.getParameter("passwd");

    BoardDao dbPro = BoardDao.getInstance();
    int check = dbPro.delete(num, passwd);
    if(check > 0 ){
        response.sendRedirect("list.jsp?pageNum="+pageNum);
    } else { %>
        <script type="text/javascript">
            alert("비밀번호가 맞지 않습니다");
            history.go(-1);
        </script>
    <% } %>
```

addData.jsp

```
<%@page import="ch13.Board,ch13.BoardDao"%>
<%@ page language="java" contentType="text/html; charset=UTF-8"
    pageEncoding="UTF-8"%>
<!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=UTF-8">
<title>Insert title here</title></head><body><h1>데이터 추가</h1>
<% BoardDao bd = BoardDao.getInstance();
    Board board = new Board();
    for (int i = 0 ; i < 100; i++) {
        board.setWriter("철"+i);
        board.setSubject("대박"+i);
        board.setContent("쪽박이냐"+i);
        board.setEmail("kk@k.com"+i);
        board.setPasswd("1");
        board.setNum(0);
        board.setIp("127.0.0.1");
        bd.insert(board);
    }
%>
와우 성공이다
</body>
</html>
```

Board.java

```
package ch13; import java.sql.Date;  
public class Board {  
    private int num; private String writer; private String subject;  
    private String content; private String email; private int readcount;  
    private String passwd; private int ref; private int re_step;  
    private int re_level; private String ip; private Date reg_date;  
  
    public int getNum() {return num;}  
    public void setNum(int num) {this.num = num;}  
  
    public String getWriter() {return writer;}  
    public void setWriter(String writer) {this.writer = writer;}  
  
    public String getSubject() {return subject;}  
    public void setSubject(String subject) {this.subject = subject;}  
  
    public String getContent() {return content;}  
    public void setContent(String content) {this.content = content;}  
  
    public String getEmail() {return email;}  
    public void setEmail(String email) {this.email = email;}  
  
    public int getReadcount() {return readcount;}  
    public void setReadcount(int readcount) { this.readcount=readcount;}
```

```
public String getPasswd() {return passwd;}  
public void setPasswd(String passwd) {  
    this.passwd = passwd;  
}
```

```
public int getRef() {return ref;}  
public void setRef(int ref) {this.ref = ref;}
```

```
public int getRe_step() {return re_step;}  
public void setRe_step(int re_step) {  
    this.re_step = re_step;  
}
```

```
public int getRe_level() {return re_level;}  
public void setRe_level(int re_level) {  
    this.re_level = re_level;  
}
```

```
public String getIp() {return ip;}  
public void setIp(String ip) {this.ip = ip;}
```

```
public Date getReg_date() {return reg_date;}  
public void setReg_date(Date reg_date) {  
    this.reg_date = reg_date;  
}
```

```
}
```

BoardDao.java

```
package ch13;
import java.sql.*;
import java.util.ArrayList;
import java.util.List;
import javax.sql.*;
import javax.naming.*;
public class BoardDao {
    private static BoardDao instance;
    private BoardDao() {}
    public static BoardDao getInstance() {
        if (instance == null) {      instance = new BoardDao();      }
        return instance;
    }
    private Connection getConnection() {
        Connection conn = null;
        try {
            Context init = new InitialContext();
            DataSource ds = (DataSource)
                init.lookup("java:comp/env/jdbc/OracleDB");
            conn = ds.getConnection();
        } catch (Exception e) {      System.out.println(e.getMessage());      }
        return conn;
    }
}
```

```

public int getBoardCount() throws Exception {
    Connection conn = null; PreparedStatement pstmt = null;
    ResultSet rs = null; int count = 0;
    try { conn = getConnection();
        pstmt = conn.prepareStatement("select count(*) from board");
        rs = pstmt.executeQuery();
        if (rs.next()) { count = rs.getInt(1); }
    } catch(Exception e) {System.out.println(e.getMessage());
    } finally {
        if (rs != null) try { rs.close(); } catch(SQLException ex) {}
        if (pstmt != null) try { pstmt.close(); } catch(SQLException ex) {}
        if (conn != null) try { conn.close(); } catch(SQLException ex) {}
    }
    return count;
}

```

```

public List<Board> getBoards(int start, int end) throws Exception {
    Connection conn = null;
    PreparedStatement pstmt = null;
    ResultSet rs = null;
    List<Board> boardList = null;
    String sql = "select * from (select rownum rn, a.* from "
    + "(select * from board order by ref desc,re_step asc) a)"
    + "where rn between ? and ?";

```



```
try {      conn = getConnection();
    pstmt = conn.prepareStatement(sql);
    int k = start + end - 1 ;
    pstmt.setInt(1, start);pstmt.setInt(2, k);
    rs = pstmt.executeQuery();
    if (rs.next()) {
        boardList = new ArrayList<Board>();
        do{   Board board= new Board();
            board.setNum(rs.getInt("num"));
            board.setWriter(rs.getString("writer"));
            board.setEmail(rs.getString("email"));
            board.setSubject(rs.getString("subject"));
            board.setPasswd(rs.getString("passwd"));
            board.setReg_date(rs.getDate("reg_date"));
            board.setReadcount(rs.getInt("readcount"));
            board.setRef(rs.getInt("ref"));
            board.setRe_step(rs.getInt("re_step"));
            board.setRe_level(rs.getInt("re_level"));
            board.setContent(rs.getString("content"));
            board.setIp(rs.getString("ip"));

            boardList.add(board);
        }while(rs.next());
    }
}
```



```
} catch(Exception e) {System.out.println(e.getMessage());  
} finally {  
    if (rs != null) try { rs.close(); } catch(SQLException ex) {}  
    if (pstmt != null) try { pstmt.close(); } catch(SQLException ex) {}  
    if (conn != null) try { conn.close(); } catch(SQLException ex) {}  
}  
return boardList;  
}  
  
public int insert(Board board) throws Exception {  
    Connection conn = null;  
    PreparedStatement pstmt = null;  
    ResultSet rs = null;  
    int result = -1;  
    int num=board.getNum();  
    int ref=board.getRef();  
    int re_step=board.getRe_step();  
    int re_level=board.getRe_level();  
    int number=0;    String sql="";  
    try { conn = getConnection();  
        pstmt = conn.prepareStatement("select max(num) from board");  
        rs = pstmt.executeQuery();  
        if (rs.next()) number=rs.getInt(1)+1;  
        else    number=1;  
        pstmt.close();
```

```

if (num!=0)    { // 답변글
    sql="update board set re_step=re_step+1 where ref = ? and re_step > ?";
    pstmt = conn.prepareStatement(sql);
    pstmt.setInt(1, ref);  pstmt.setInt(2, re_step);  pstmt.executeUpdate();
    re_step = re_step + 1; re_level = re_level + 1;    pstmt.close();
}else{ ref = number; re_step=0; re_level=0;  }
sql = "insert into board(num,writer,email,subject,passwd,reg_date,ref," +
    "re_step,re_level,content,ip) values(?,?,?,?,?,sysdate,?,?,?,?,?)";
pstmt = conn.prepareStatement(sql);
pstmt.setInt(1, number);    pstmt.setString(2, board.getWriter());
pstmt.setString(3, board.getEmail());
pstmt.setString(4, board.getSubject());
pstmt.setString(5, board.getPasswd());
pstmt.setInt(6, ref);  pstmt.setInt(7, re_step);
pstmt.setInt(8, re_level); pstmt.setString(9, board.getContent());
pstmt.setString(10, board.getIp());
result = pstmt.executeUpdate();
} catch(Exception e) { System.out.println(e.getMessage());
} finally {
    if (rs != null) try { rs.close(); } catch(SQLException ex) {}
    if (pstmt != null) try { pstmt.close(); } catch(SQLException ex) {}
    if (conn != null) try { conn.close(); } catch(SQLException ex) {}
}
return result;
}

```

```
public Board updateGetBoard(int num) throws Exception {
    Connection conn = null;    PreparedStatement pstmt = null;
    ResultSet rs = null;        Board board = new Board();
    String sql = "select * from board where num =" + num;
    try { conn = getConnection();  pstmt = conn.prepareStatement(sql);
        rs = pstmt.executeQuery();
        if (rs.next()) { board.setNum(rs.getInt("num"));
            board.setWriter(rs.getString("writer"));
            board.setEmail(rs.getString("email"));
            board.setSubject(rs.getString("subject"));
            board.setPasswd(rs.getString("passwd"));
            board.setReg_date(rs.getDate("reg_date"));
            board.setReadcount(rs.getInt("readcount"));
            board.setRef(rs.getInt("ref"));
            board.setRe_step(rs.getInt("re_step"));
            board.setRe_level(rs.getInt("re_level"));
            board.setContent(rs.getString("content"));
            board.setIp(rs.getString("ip"));
        }
        pstmt.close();
    } catch (Exception e) {System.out.println(e.getMessage());
    } finally {    if (rs != null) try { rs.close(); } catch (SQLException ex) {}
        if (pstmt != null) try { pstmt.close(); } catch (SQLException ex) {}
        if (conn != null) try { conn.close(); } catch (SQLException ex) {}
    }
    return board;
}
```

```
public Board getBoard(int num) throws Exception {
    Connection conn = null;    PreparedStatement pstmt = null;
    ResultSet rs = null;
    Board board = updateGetBoard(num);
    String sql1 = "update board set readcount = readcount + 1 " +
    " where num=" + num;
    try { conn = getConnection();
        pstmt = conn.prepareStatement(sql1);
        pstmt.executeUpdate();
    } catch(Exception e) {System.out.println(e.getMessage());}
    } finally {
        if (rs != null) try { rs.close(); } catch(SQLException ex) {}
        if (pstmt != null) try { pstmt.close(); } catch(SQLException ex) {}
        if (conn != null) try { conn.close(); } catch(SQLException ex) {}
    }
    return board;
}
```

```

public int update(Board board) throws Exception {
    Connection conn = null;    PreparedStatement pstmt = null;
    ResultSet rs = null;        int result = -1;
    int num=board.getNum(); String passwd = board.getPasswd();
    String sql1 = "select passwd from board where num=" + num;
    String sql2 = "update board set writer=?,email=?,subject=?, "+
        "reg_date=sysdate,content=? where num=?";
    try { conn = getConnection();    pstmt = conn.prepareStatement(sql1);
        rs = pstmt.executeQuery();
        if (rs.next()) { String dbPasswd = rs.getString(1);
            if (dbPasswd.equals(passwd)) {
                pstmt.close();
                pstmt = conn.prepareStatement(sql2);
                pstmt.setString(1, board.getWriter());
                pstmt.setString(2, board.getEmail());
                pstmt.setString(3, board.getSubject());
                pstmt.setString(4, board.getContent());    pstmt.setInt(5, num);
                result = pstmt.executeUpdate();
            } else { result = -1; }
        }
    } catch(Exception e) { System.out.println(e.getMessage());
    } finally {    if (rs != null) try { rs.close(); } catch(SQLException ex) {}
        if (pstmt != null) try { pstmt.close(); } catch(SQLException ex) {}
        if (conn != null) try { conn.close(); }    catch(SQLException ex) {}
    }
    return result;
}

```

```
public int delete(int num, String passwd) throws Exception {  
    Connection conn = null; PreparedStatement pstmt = null;  
    ResultSet rs = null; int result = -1;  
    String sql1 = "select passwd from board where num=" + num;  
    String sql2 = "delete from board where num=" + num;  
    try { conn = getConnection();  
        pstmt = conn.prepareStatement(sql1);  
        rs = pstmt.executeQuery();  
        if (rs.next()) {  
            String dbPasswd = rs.getString(1);  
            if (dbPasswd.equals(passwd)) {  
                pstmt.close();  
                pstmt = conn.prepareStatement(sql2);  
                result = pstmt.executeUpdate();  
            } else { result = -1; }  
        }  
    } catch (Exception e) { System.out.println(e.getMessage());  
    } finally {  
        if (rs != null) try { rs.close(); } catch (SQLException ex) {}  
        if (pstmt != null) try { pstmt.close(); } catch (SQLException ex) {}  
        if (conn != null) try { conn.close(); } catch (SQLException ex) {}  
    }  
    return result;  
}
```