**[13] 페이징 가능한 게시판**

1. 인위적으로 데이터 70개 입력 3번 실행해 보기

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

<%@page import=*"com.lec.dto.BoardDto"*%>

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

pageEncoding=*"UTF-8"*%>

<!DOCTYPE html>

<html>

<head>

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

<title>Insert title here</title>

</head>

<body>

<%

//임의로 데이터 채우기

BoardDto dto = **new** BoardDto();

BoardDao dao = BoardDao.getInstance();

**for**(**int** i = 0; i<70; i++){

dto.setWriter("홍길동"+i);

dto.setSubject("제목"+i);

dto.setContent("내용입니다." + i);

dto.setEmail("hong"+i+"@naver.com");

dto.setPw("1");

dto.setIp("192.168.20."+i);

dao.insertBoard(dto);

}

response.sendRedirect("list.jsp");

%>

</body>

</html>

1. index.jsp

<%response.sendRedirect("board/list.jsp"); %>

1. Dao의 list() 메소드를 list(starRow, endRow)로 수정
   1. Top-N 구문

board.sql 에 다음 부분 추가

-- 페이징을 위한 top-N구문

**SELECT** \* **FROM** BOARD **ORDER** **BY** REF **DESC**, RE\_STEP; -- 1단계(listBoard())

**SELECT** ROWNUM RN, A.\* **FROM** (**SELECT** \* **FROM** BOARD **ORDER** **BY** REF **DESC**, RE\_STEP) A; -- 2단계

**SELECT** \* **FROM** (**SELECT** ROWNUM RN, A.\* **FROM** (**SELECT** \* **FROM** BOARD **ORDER** **BY** REF **DESC**, RE\_STEP) A)

**WHERE** RN **BETWEEN** 11 **AND** 20; -- 최종 TOP-N 구문 ((listBoard(s , e))

* 1. BoardDao에 추가

/\*

\* BoardDao.java에 paging 추가 부분

\*/

**public** ArrayList<BoardDto> listBoard(**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 BOARD ORDER BY REF DESC) A) " +

" WHERE RN BETWEEN ? AND ?";

**try** {

conn = getConnection();

pstmt = conn.prepareStatement(sql);

pstmt.setInt(1, startRow);

pstmt.setInt(2, endRow);

rs = pstmt.executeQuery();

//BoardDto dto = new BoardDto(); 여기다 놓으면 절대 안 됨

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

BoardDto dto = **new** BoardDto();

dto.setNum(rs.getInt(1));//dto.setNum(rs.getInt("num"));

dto.setWriter(rs.getString("writer"));

dto.setSubject(rs.getString("subject"));

dto.setContent(rs.getString("content"));

dto.setEmail(rs.getString("email"));

dto.setReadcount(rs.getInt("readcount"));

dto.setPw(rs.getString("pw"));

dto.setRef(rs.getInt("ref"));

dto.setRe\_step(rs.getInt("re\_step"));

dto.setRe\_level(rs.getInt("re\_indent"));

dto.setIp(rs.getString("ip"));

dto.setRdate(rs.getTimestamp("rdate"));

dtos.add(dto);

}

} **catch** (SQLException e) {

e.printStackTrace();

} **finally** {

**try**{

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

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

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

}**catch** (Exception egnore) {egnore.printStackTrace();}

}

**return** dtos;

}

list.jsp?pageNum=1

list.jsp?pageNum=3

list.jsp

|  |  |  |
| --- | --- | --- |
| pageNum | 현재 몇 페이지인지(String) |  |
| currentPage | 현재 몇 페이지인지(int) |  |
|  |  |  |
| startRow | 시작번호 | (현재페이지 - 1) \* 페이지당 갯수+ 1 |
| endRow | 끝번호 | 시작번호 + 페이지당갯수 - 1 |
| pageCnt | 전체 페이지 수 | Math.ceil((double)전체글갯수/페이지당 글 갯수) |
|  | 블록수 | Math.ceil(페이지갯수/블록당 페이지갯수) |
| PAGESIZE | 한 페이지당 글 수 :10개 |  |
| BLOCKSIZE | 블록당 페이지 수 : 10개 |  |
| startPage | 시작페이지 | ((현재페이지 -1)/블록당페이지수)\*블록당페이지수 +1 |
| endPage | 끝페이지 | 시작페이지 + 블록당페이지 수 -1 |

1. list.jsp 위측에 뿌려질 startRow와 endRow 설정 (BLOCKSIZE 10, PAGESIZE 10으로 함)
   1. pageNum(현 페이지를 받는 파라미터명)
   2. currentPage = Integer.parse(pageNum);
   3. startRow = (currentPage – 1 )\* PAGESIZE + 1
   4. endRow = startRow + PAGESIZE – 1

<% /\* list.jsp에 paging 추가부분

\* 뿌려질 startRow와 endRow 설정 (BLOCKSIZE 10, PAGESIZE 10으로 정한다)

\*/

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

**if**(pageNum==**null**)

pageNum = "1"; //전달받은 pageNum 파라미터가 없으면 1페이지로 셋팅

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

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

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

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

%>

<%

BoardDao boardDao = BoardDao.getInstance();

**int** totCnt = boardDao.getBoardTotalCnt();

**if**(totCnt==0){

out.println("<tr><td colspan='7'>데이터가 없습니다</td><tr>");

}**else**{

/\*

\* list.jsp에 paging 수정부분

\*/

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

추가 후 아래 실행

list.jsp

list.jsp?pageNum=1

list.jsp?pageNum=3

1. list.jsp 아래측에 뿌려질 페이지 번호들 셋팅
   1. 전체 페이지 수 PageCnt = (totCnt / PageSize)의 올림
   2. 현 블럭의 시작 페이지 수

startPage = ((currentPage-1)/ BlockSize)의 int)\* BlockSize+1

* 1. 현 블럭의 끝 페이지 수

endPage = startPage + BlockSize - 1

* 1. If(endPage>pageCnt) endPage = pageCnt
  2. [이전]이 나오는 경우 : srartPage > BlockSize일 때
  3. 페이지 번호들 for문 이용

<a href=’list.jsp?pageNum=i’> [ i ] </a>

* 1. [다음]이 나오는 경우 : endPage < pageCnt 일 때

<div class=*"paging"*>

<%

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

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

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

**if**(endPage > pageCnt)

endPage = pageCnt;

**if**(startPage>BLOCKSIZE){

out.println(" [ <a href='list.jsp?pageNum="+(startPage-1)+"'>이전</a> ] ");

}

**for**(**int** i=startPage ; i<=endPage ; i++){

**if**(i==currentPage){

out.println(" [ <span class='currentPage'>" +i +"</span> ] ");

}**else**{

out.println(" [ <a href='list.jsp?pageNum="+i+"'>"+ +i +" </a> ] ");

}

}

**if**(endPage<pageCnt){

out.println(" [ <a href='list.jsp?pageNum="+(endPage+1)+"'>다음</a> ] ");

}

%>

</div>

1. 모든 페이지 전환시 pageNum을 파라미터로 전달

**<board\_paging.sql>**

-- 페이징을 위한 top-N구문

**SELECT** \* **FROM** BOARD **ORDER** **BY** REF **DESC**, RE\_STEP; -- 1단계(listBoard())

**SELECT** ROWNUM RN, A.\* **FROM** (**SELECT** \* **FROM** BOARD **ORDER** **BY** REF **DESC**, RE\_STEP) A; -- 2단계

**SELECT** \* **FROM** (**SELECT** ROWNUM RN, A.\* **FROM** (**SELECT** \* **FROM** BOARD **ORDER** **BY** REF **DESC**, RE\_STEP) A)

**WHERE** RN **BETWEEN** 11 **AND** 20; -- 최종 TOP-N 구문 ((listBoard(s , e))

**<BoardDao.java>**

**public** ArrayList<BoardDto> listBoard(**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 BOARD ORDER BY REF DESC, RE\_STEP) A)" +

" WHERE RN BETWEEN ? AND ?";

**try** {

conn = getConnection();

pstmt = conn.prepareStatement(sql);

pstmt.setInt(1, startRow);

pstmt.setInt(2, endRow);

rs = pstmt.executeQuery();

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

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

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

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

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

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

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

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

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

**int** re\_step = rs.getInt("re\_step");

**int** re\_indent = rs.getInt("re\_indent");

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

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

dtos.add(**new** BoardDto(num, writer, subject, content, email, readcount, pw,

ref, re\_step, re\_indent, ip, rdate));

}

} **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) {

// **TODO**: handle exception

}

}

**return** dtos;

}

**<list.jsp>**

<%@page import=*"com.lec.dto.BoardDto"*%>

<%@page import=*"java.util.ArrayList"*%>

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

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

pageEncoding=*"UTF-8"*%>

<% String conPath = request.getContextPath(); %>

<!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>게시판</caption>

<tr><td><a href=*"*<%=conPath %>*/board/writeForm.jsp"*>글쓰기</a></td></tr>

</table>

<table>

<tr><th>글번호</th><th>작성자</th><th>글제목</th><th>메일</th><th>조회수</th></tr>

<% /\* list.jsp?pageNum=3 또는 list.jsp?pageNum=1 또는 list.jsp로 실행

list.jsp에 paging 추가부분 : 뿌려질 startRow와 endRow설정 (BLOCKSIZE 10, PAGESIZE 10으로 정한다)

\*/

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

**if**(pageNum==**null**)

pageNum="1"; //전달받은 pageNum 파라미터가 없으면 1페이지로 셋팅

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

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

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

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

BoardDao dao = BoardDao.getInstance();

**int** totalCnt = dao.getBoardTotalCnt();

**if**(totalCnt==0){

out.println("<tr><td colspan='5'>등록된 글이 없습니다</td></tr>");

}**else**{

/\*

\* list.jsp에 paging 수정부분

\*/

ArrayList<BoardDto> dtos = dao.listBoard(startRow, endRow);

**for**(BoardDto dto : dtos){

// 글번호, 작성자

out.println("<tr><td>"+dto.getNum()+"</td><td>"+dto.getWriter()+"</td>");

//글제목 <td class='left'><img src='/ch13\_board/img/hot.gif'>

// <a href='/ch13\_board/board/content.jsp?num=1'>글제목</a></td>

out.println("<td class='left'>");

**if**(dto.getReadcount() > 10){

out.println("<img src='"+conPath +"/img/hot.gif'>");

}

out.println("<a href='" + conPath + "/board/content.jsp?num="+ dto.getNum()+"&pageNum="+pageNum+"'>"

+ dto.getSubject() +"</a></td>");

//메일, 조회수

out.println("<td>"+ (dto.getEmail()!=**null** ? dto.getEmail() : "")

+ "</td><td>"+dto.getReadcount() + "</td></tr>");

}

}

%>

</table>

<div class=*"paging"*>

<%

**int** pageCnt = (**int**)Math.ceil((**double**)totalCnt/PAGESIZE); // 페이지 갯수

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

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

**if**(endPage > pageCnt)

endPage = pageCnt;

**if**(startPage>BLOCKSIZE){

out.println("[ <a href='list.jsp?pageNum="+(startPage-1)+"'>이전</a> ] ");

}

**for**(**int** i=startPage ; i<=endPage ; i++){

**if**(i==currentPage){

out.println("[ <span class='currentPage'> " + i + "</span> ] ");

}**else**{

out.println("[ <a href='list.jsp?pageNum=" + i + "'>"+i+"</a> ] ");

}

}

**if**(endPage<pageCnt){

out.println("[ <a href='list.jsp?pageNum="+(endPage+1)+"'>다음</a> ] ");

}

%>

</div>

</body>

</html>

**<content.jsp>**

<%@page import=*"com.lec.dto.BoardDto"*%>

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

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

pageEncoding=*"UTF-8"*%>

<% String conPath = request.getContextPath(); %>

<!DOCTYPE html>

<html>

<head>

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

<title>Insert title here</title>

<link href=*"*<%=conPath%>*/css/style.css"* rel=*"stylesheet"*>

</head>

<body>

<%

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

BoardDao dao = BoardDao.getInstance();

dao.readcountUp(num); // hit수 up

BoardDto dto = dao.getBoardOneLine(num);

/\* pageNum 추가 \*/

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

%>

<table>

<caption><%=dto.getNum() %>번 글 상세보기</caption>

<tr><th>글번호</th><td><%=dto.getNum() %></td></tr>

<tr><th>글제목</th><td><%=dto.getSubject() %></td></tr>

<tr><th>이메일</th><td><%=dto.getEmail()==**null** ? "-": dto.getEmail()%></td></tr>

<tr><th>조회수</th><td><%=dto.getReadcount() %></td></tr>

<tr><th>본문</th><td><pre><%=dto.getContent() %></pre></td></tr>

<tr><th>IP</th><td><%=dto.getIp() %></td></tr>

<tr><th>글쓴시점</th><td><%=dto.getRdate() %></td></tr>

<tr>

<td colspan=*"2"*>

<button onclick=*"location.href='updateForm.jsp?num=*<%=num%>*&pageNum=*<%=pageNum%>*'"*>수정</button>

<button onclick=*"location.href='deleteForm.jsp?num=*<%=num%>*&pageNum=*<%=pageNum%>*'"*>삭제</button>

<button>답변</button>

<button onclick=*"location.href='list.jsp?pageNum=*<%=pageNum%>*'"*>목록</button>

</td>

</tr>

</table>

</body>

</html>

**<updateForm.jsp>**

<%@page import=*"com.lec.dto.BoardDto"*%>

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

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

pageEncoding=*"UTF-8"*%>

<% String conPath = request.getContextPath(); %>

<!DOCTYPE html>

<html>

<head>

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

<title>Insert title here</title>

<link href=*"*<%=conPath%>*/css/style.css"* rel=*"stylesheet"*>

</head>

<body>

<%

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

BoardDao dao = BoardDao.getInstance();

BoardDto dto = dao.getBoardOneLine(num);

/\* pageNum 추가 \*/

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

%>

<form action=*"updatePro.jsp"* method=*"post"*>

<input type=*"hidden"* name=*"pageNum"* value=*"*<%=pageNum%>*"*>

<input type=*"hidden"* name=*"num"* value=*"*<%=num %>*"*>

<table>

<caption><%=num %>번 글 수정</caption>

<tr><th>작성자</th>

<td><input type=*"text"* name=*"writer"* value=*"*<%=dto.getWriter() %>*"*

readonly=*"readonly"*></td>

</tr>

<tr><th>제목</th>

<td><input type=*"text"* name=*"subject"* value=*"*<%=dto.getSubject() %>*"*

required=*"required"*></td>

</tr>

<tr><th>이메일</th>

<td><input type=*"email"* name=*"email"*

value=*"*<%=dto.getEmail()!=**null**? dto.getEmail():"" %>*"*></td>

</tr>

<tr><th>본문</th>

<td><textarea rows=*"5"* cols=*"5"* name=*"content"*

required=*"required"*><%=dto.getContent() %></textarea></td>

</tr>

<tr><th>비밀번호</th>

<td><input type=*"password"* name=*"pw"* value=*"*<%=dto.getPw() %>*"*

required=*"required"*></td>

</tr>

<tr>

<td colspan=*"2"*>

<input type=*"submit"* value=*"수정"* class=*"btn"*>

<input type=*"reset"* value=*"취소"* class=*"btn"*>

<input type=*"button"* value=*"목록"* class=*"btn"* onclick=*"location.href='list.jsp?pageNum=*<%=pageNum%>*'"*>

</td>

</tr>

</table>

</form>

</body>

</html>

**<updatePro.jsp>**

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

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

pageEncoding=*"UTF-8"*%>

<% String conPath = request.getContextPath(); %>

<!DOCTYPE html>

<html>

<head>

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

<title>Insert title here</title>

<link href=*"*<%=conPath%>*/css/style.css"* rel=*"stylesheet"*>

</head>

<body>

<%request.setCharacterEncoding("utf-8"); %>

<jsp:useBean id=*"dto"* class=*"com.lec.dto.BoardDto"*/>

<jsp:setProperty property=*"\*"* name=*"dto"*/>

<!-- 들어온 파라미터 : subject, content, email, pw, num -->

<!-- dao의 updateBoard를 호출하기 위해서는 : subject, content, email, pw, num, ip -->

<%/\* pageNum 추가 \*/

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

dto.setIp(request.getRemoteAddr());

BoardDao dao = BoardDao.getInstance();

**int** result = dao.updateBoard(dto);

**if**(result == BoardDao.SUCCESS){

%> <script>

alert('글 수정 성공');

location.href = 'list.jsp?pageNum=<%=pageNum%>';

/\* location.href = 'content.jsp?num=<%=dto.getNum()%>&pageNum=<%=pageNum%>'; 상세보기페이지로 \*/

</script>

<%}**else**{%>

<script>

alert('글 수정 실패');

history.go(-1);

</script>

<%}%>

</body>

</html>

**<delteForm.jsp>**

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

pageEncoding=*"UTF-8"*%>

<% String conPath = request.getContextPath(); %>

<!DOCTYPE html>

<html>

<head>

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

<title>Insert title here</title>

<link href=*"*<%=conPath%>*/css/style.css"* rel=*"stylesheet"*>

</head>

<body>

<%

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

/\* pageNum 추가 \*/

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

%>

<table>

<caption><%=num %>번 글 삭제</caption>

<tr>

<td>

<fieldset>

<legend>삭제를 위한 암호가 일치하여야 합니다</legend>

<form action=*"deletePro.jsp"* method=*"post"*>

<input type=*"hidden"* name=*"pageNum"* value=*"*<%=pageNum%>*"*>

<input type=*"hidden"* name=*"num"* value=*"*<%=num%>*"*>

<p>암호 <input type=*"password"* name=*"pw"* required=*"required"* class=*"btn"*></p>

<p>

<input type=*"submit"* value=*"삭제"* class=*"btn"*>

<input type=*"reset"* value=*"삭제취소"* class=*"btn"* onclick="history.back()">

</p>

</form>

</fieldset>

</td>

</tr>

</table>

</body>

</html>

**<deltePro.jsp>**

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

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

pageEncoding=*"UTF-8"*%>

<!DOCTYPE html>

<html>

<head>

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

<title>Insert title here</title>

</head>

<body>

<%

/\* pageNum 추가 \*/

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

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

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

BoardDao dao = BoardDao.getInstance();

**int** result = dao.deleteBoard(num, pw);

**if**(result == BoardDao.SUCCESS){

%>

<script>

alert('<%=num%>번 글 삭제 성공');

location.href = 'list.jsp?pageNum=<%=pageNum%>';

</script>

<%}**else**{%>

<script>

alert('<%=num%>글 삭제 실패. 비밀번호를 확인하세요');

history.back();

</script>

<%}%>

</body>

</html>