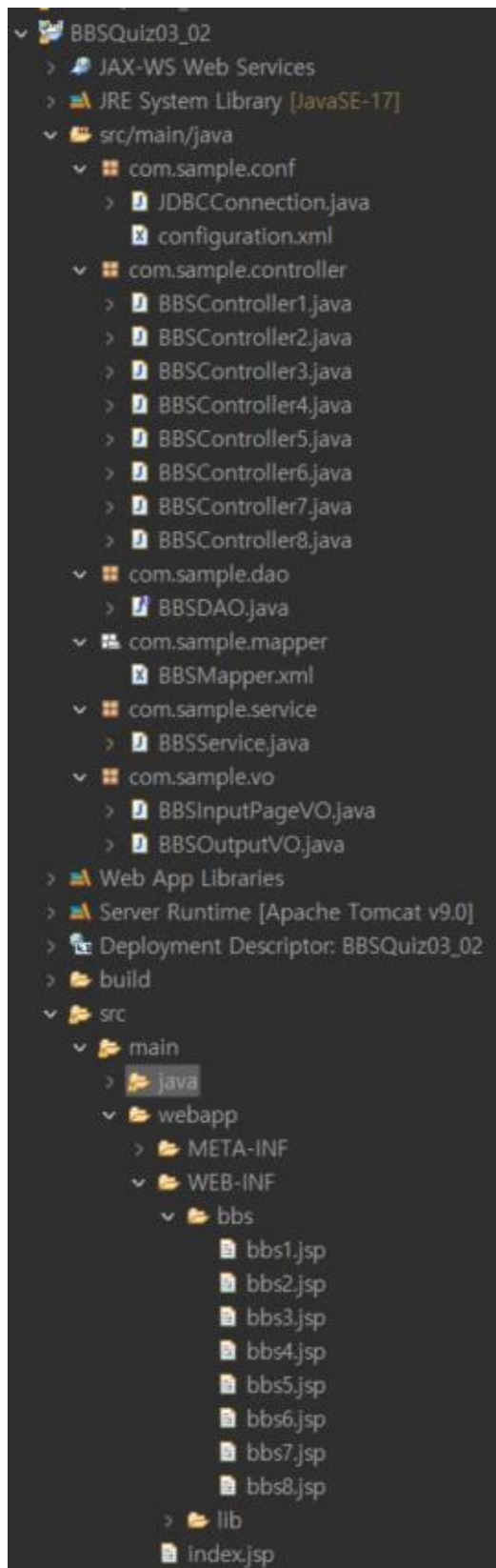


정답

<프로젝트 구성>



```
<body>
  <h1>시작페이지</h1>

  <hr />
  <h2>첫번째 BBSController</h2>
  <a href="{pageContext.request.contextPath}/BBSController1">이동</a>
  <hr />
  <h2>두번째 BBSController</h2>
  <a href="{pageContext.request.contextPath}/BBSController2">이동</a>
  <hr />
  <h2>세번째 BBSController</h2>
  <a href="{pageContext.request.contextPath}/BBSController3">이동</a>
  <hr />
  <h2>네번째 BBSController</h2>
  <a href="{pageContext.request.contextPath}/BBSController4">이동</a>
  <hr />
  <h2>다섯번째 BBSController</h2>
  <a href="{pageContext.request.contextPath}/BBSController5">이동</a>
  <hr />
  <h2>여섯번째 BBSController</h2>
  <a href="{pageContext.request.contextPath}/BBSController6">이동</a>
  <hr />
  <h2>일곱번째 BBSController</h2>
  <a href="{pageContext.request.contextPath}/BBSController7">이동</a>
  <hr />
  <h2>여덟번째 BBSController</h2>
  <a href="{pageContext.request.contextPath}/BBSController8">이동</a>
</body>
```

## Configuration.xml

```
<?xml version="1.0" encoding="UTF-8" ?>
<!DOCTYPE configuration
  PUBLIC "-//mybatis.org//DTD Config 3.0//EN"
  "http://mybatis.org/dtd/mybatis-3-config.dtd">
<configuration>
  <settings>
    <setting name="cacheEnabled" value="false" />
    <setting name="useGeneratedKeys" value="true" />
    <setting name="defaultExecutorType" value="REUSE" />
    <setting name="mapUnderscoreToCamelCase" value="true"/>
  </settings>

  <typeAliases>
    <package name="com.sample.vo" />
  </typeAliases>

  <environments default="development">
    <environment id="development">
      <transactionManager type="JDBC" />
      <dataSource type="POOLED">
        <property name="driver" value="org.mariadb.jdbc.Driver" />
        <property name="url" value="jdbc:mariadb://localhost:3306/bbs3" />
        <property name="username" value="root" />
        <property name="password" value="1234" />
      </dataSource>
    </environment>
  </environments>

  <mappers>
    <mapper resource="com/sample/mapper/BBSMapper.xml" />
  </mappers>
</configuration>
```

## JDBCConnection.java

```
public class JDBCConnection {
    public static SqlSessionFactory sqlSession;

    static {
        String resource = "com/sample/conf/configuration.xml";
        Reader reader;

        try {
            reader = Resources.getResourceAsReader( resource );
            sqlSession = new SqlSessionFactoryBuilder().build( reader );
        } catch (IOException e) {
            e.printStackTrace();
        }
    }

    public static SqlSessionFactory getSqlSession() {
        return sqlSession;
    }
}
```

BBSDAO.java

```
public interface BBSDAO {  
    public int selectBBSCount();  
  
    public List<BBSOutputVO> selectBBSList(BBSInputPageVO vo);  
}
```

BBSInputPageVO.java(Getter Setter 생략)

```
@Alias("inputPageVO")  
public class BBSInputPageVO {  
    // 현재 페이지  
    private int nowPage;  
    // 시작 페이지  
    private int startPage;  
    // 종료 페이지  
    private int endPage;  
    // 전체 페이지  
    private int totalPage;  
    // 총 row 개수  
    private int total;  
    // 블럭당 페이지 개수  
    private int cntPerPage;  
    // 마지막 페이지  
    private int lastPage;  
    // 처음 row  
    private int start;  
    // 끝 row  
    private int end;  
    // 처음 블럭  
    private int startBlock;  
    // 마지막 블럭  
    private int endBlock;  
    // 현재 블럭  
    private int nowBlock;  
    // 블럭 당 페이지  
    private int cntPerBlock;  
}
```

BBSOutputVO.java(Getter Setter 생략)

```
@Alias("outputVO")  
public class BBSOutputVO {  
    private int id;  
    private String category;  
    private String title;  
    private String owner;  
    private String content;  
    private String createDate;  
}
```

## BBSMapper.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE mapper
  PUBLIC "-//mybatis.org//DTD Mapper 3.0//EN"
  "http://mybatis.org/dtd/mybatis-3-mapper.dtd">
<mapper namespace="com.sample.dao.BBSDAO">
  <select id="selectBBSCount" resultType="int">
    select count(*) from bbs;
  </select>

  <select id="selectBBSList" resultType="outputVO">
    select id, category, title, owner, content,
    date_format(create_date, '%Y-%m-%d %T') create_date
    from bbs
    limit #{start}, #{cntPerPage}
  </select>
</mapper>
```

(1) 정답

## bbs1.jsp

```
<style>
.container {
  display: grid;
  grid-template-columns: 200px 1fr 200px;
  grid-template-rows: 50px 100px 50px 1fr 200px;
  gap: 0px 0px;
  grid-auto-flow: row;
  grid-template-areas: ". . ." ". pannel ." ". . ." ". main ." ". . .";
}

main {
  grid-area: main;
}

table {
  font-family: Arial, Helvetica, sans-serif;
  border-collapse: collapse;
  width: 100%;
}

table td, table th {
  border: 1px solid #ddd;
  padding: 8px;
}

table tr:nth-child(even) {
  background-color: #f2f2f2;
}

table tr:hover {
  background-color: #ddd;
}

table th {
  padding-top: 12px;
  padding-bottom: 12px;
  text-align: left;
  background-color: #0335fc;
  color: white;
}
```



```

<body>
  <div class="container">
    <main>
      <table>
        <thead>
          <tr>
            <th>id</th>
            <th>카테고리</th>
            <th>제목</th>
            <th>내용</th>
            <th>글쓴이</th>
            <th>작성일/작성시간</th>
          </tr>
        </thead>
        <tbody>
          <c:forEach var="vo" items="${list}">
            <tr>
              <td>${vo.id}</td>
              <td>${vo.category}</td>
              <td>${vo.title}</td>
              <td>${vo.content}</td>
              <td>${vo.owner}</td>
              <td>${vo.createDate}</td>
            </tr>
          </c:forEach>
        </tbody>
      </table>
    </main>
  </div>
</body>

```

BBSController1.java

```

request.setCharacterEncoding("utf-8");

BBSService service = new BBSService();
service.getBBSList1(request);

RequestDispatcher rdp =
    request.getRequestDispatcher("/WEB-INF/bbs/bbs1.jsp");
rdp.forward(request, response);

```

BBSService.java

```

public class BBSService {
    SqlSessionFactory sqlSessionFactory = JDBCConnection.getSqlSession();
    SqlSession sqlSession = sqlSessionFactory.openSession();
    BBSDAO dao = sqlSession.getMapper(BBSDAO.class);

    public void getBBSList1(HttpServletRequest request) {
        int total = dao.selectBBSCount();
        BBSInputPageVO inputVO = new BBSInputPageVO();
        inputVO.setCntPerPage(total);
        inputVO.setStart(0);
        request.setAttribute("list", dao.selectBBSList(inputVO));
    }
}

```

(2) 정답

bbs2.jsp

```
<style>
.container {
    display: grid;
    grid-template-columns: 200px 1fr 200px;
    grid-template-rows: 50px 100px 50px 1fr 200px;
    gap: 0px 0px;
    grid-auto-flow: row;
    grid-template-areas: ". . ." ". pannel ." ". . ." ". main ." ". . .";
}

main {
    grid-area: main;
}

table {
    font-family: Arial, Helvetica, sans-serif;
    border-collapse: collapse;
    width: 100%;
}

table td, table th {
    border: 1px solid #ddd;
    padding: 8px;
}

table tr:nth-child(even) {
    background-color: #f2f2f2;
}

table tr:hover {
    background-color: #ddd;
}

table th {
    padding-top: 12px;
    padding-bottom: 12px;
    text-align: left;
    background-color: #0335fc;
    color: white;
}
</style>
```

```

<body>
  <div class="container">
    <main>
      <table>
        <thead>
          <tr>
            <th>id</th>
            <th>카테고리</th>
            <th>제목</th>
            <th>내용</th>
            <th>글쓴이</th>
            <th>작성일/작성시간</th>
          </tr>
        </thead>
        <tbody>
          <c:forEach var="vo" items="${list}">
            <tr>
              <td>${vo.id}</td>
              <td>${vo.category}</td>
              <td>${vo.title}</td>
              <td>${vo.content}</td>
              <td>${vo.owner}</td>
              <td>${vo.createDate}</td>
            </tr>
          </c:forEach>
        </tbody>
      </table>
    </main>
  </div>
</body>

```

BBSController2.java

```

request.setCharacterEncoding("utf-8");

BBSservice service = new BBSservice();
service.getBBSList2(request);

RequestDispatcher rdp =
    request.getRequestDispatcher("/WEB-INF/bbs/bbs2.jsp");
rdp.forward(request, response);

```

BBSservice.java

```

public void getBBSList2(HttpServletRequest request) {
    BBSInputPageVO inputVO = new BBSInputPageVO();
    inputVO.setCntPerPage(15);
    inputVO.setStart(0);
    request.setAttribute("list", dao.selectBBSList(inputVO));
}

```



(3) 정답

bbs3.jsp

```
<style>
.container {
    display: grid;
    grid-template-columns: 200px 1fr 200px;
    grid-template-rows: 50px 1fr 50px 100px;
    gap: 0px 0px;
    grid-auto-flow: row;
    grid-template-areas: ". . ." ". main ." ". . ." ". pannel .";
}

main {
    grid-area: main;
}

table {
    font-family: Arial, Helvetica, sans-serif;
    border-collapse: collapse;
    width: 100%;
}

table td, table th {
    border: 1px solid #ddd;
    padding: 8px;
}

table tr:nth-child(even) {
    background-color: #f2f2f2;
}

table tr:hover {
    background-color: #ddd;
}

table th {
    padding-top: 12px;
    padding-bottom: 12px;
    text-align: left;
    background-color: #0335fc;
    color: white;
}

#pannel {
    grid-area: pannel;
    border : 1px solid black;
    display: grid;
    grid-template-columns: 30px 1fr 30px;
    grid-template-rows: 20px 1fr 20px;
    grid-auto-flow: row;
    grid-template-areas: ". . ." ". form ." ". . .";
}
```

```
form {
    display : grid;
    grid-area : form;
    grid-template-columns: 1fr 100px;
    grid-template-rows: 1fr;
    grid-auto-flow: row;
    gap : 20px;
    grid-template-areas: "page submit";
}

#page {
    grid-area : page;
    font-size : 20px;
}

#submit {
    grid-area : submit;
}
```

```

<body>
  <div class="container">
    <main>
      <table>
        <thead>
          <tr>
            <th>id</th>
            <th>카테고리</th>
            <th>제목</th>
            <th>내용</th>
            <th>글쓴이</th>
            <th>작성일/작성시간</th>
          </tr>
        </thead>
        <tbody>
          <c:forEach var="vo" items="${list}">
            <tr>
              <td>${vo.id}</td>
              <td>${vo.category}</td>
              <td>${vo.title}</td>
              <td>${vo.content}</td>
              <td>${vo.owner}</td>
              <td>${vo.createDate}</td>
            </tr>
          </c:forEach>
        </tbody>
      </table>
    </main>
    <div id="pannel">
      <form action="${pageContext.request.contextPath}/BBSController3" method="get">
        <input type="text" name="page" id="page" placeholder="페이지 번호를 입력하세요">
        <button id="submit">전송</button>
      </form>
    </div>
  </div>
</body>

```

BBSController3.java

```

request.setCharacterEncoding("utf-8");

int page = 1;
if(request.getParameter("page") != null ) {
    page = Integer.parseInt(request.getParameter("page"));
}

BBSservice service = new BBSservice();
service.getBBSList3(page, request);

RequestDispatcher rdp =
    request.getRequestDispatcher("/WEB-INF/bbs/bbs3.jsp");
rdp.forward(request, response);

```

BBSservice.java

```

public void getBBSList3(int page, HttpServletRequest request) {
    BBSInputPageVO inputVO = new BBSInputPageVO();
    inputVO.setTotal(dao.selectBBSCount());
    inputVO.setNowPage(page);
    inputVO.setCntPerPage(15);
    inputVO.setStart((page-1)*inputVO.getCntPerPage());
    request.setAttribute("list", dao.selectBBSList(inputVO));
}

```

(4) 정답

bbs4.jsp

```

<style>
.container {
  display: grid;
  grid-template-columns: 200px 1fr 200px;
  grid-template-rows: 50px 1fr 50px 100px;
  gap: 0px 0px;
  grid-auto-flow: row;
  grid-template-areas: ". . ." ". main ." ". . ." ". pannel .";
}

main {
  grid-area: main;
}

table {
  font-family: Arial, Helvetica, sans-serif;
  border-collapse: collapse;
  width: 100%;
}

table td, table th {
  border: 1px solid #ddd;
  padding: 8px;
}

table tr:nth-child(even) {
  background-color: #f2f2f2;
}

table tr:hover {
  background-color: #ddd;
}

table th {
  padding-top: 12px;
  padding-bottom: 12px;
  text-align: left;
  background-color: #0335fc;
  color: white;
}

#pannel {
  grid-area: pannel;
  border : 1px solid black;
  display: grid;
  grid-template-columns: 30px 1fr 30px;
  grid-template-rows: 20px 1fr 20px;
  grid-auto-flow: row;
  grid-template-areas: ". . ." ". paging ." ". . .";
}

#paging {
  display : flex;
  grid-area : paging;
  justify-content : center;
  align-items : center;
}

```

```

<body>
  <div class="container">
    <main>
      <table>
        <thead>
          <tr>
            <th>id</th>
            <th>카테고리</th>
            <th>제목</th>
            <th>내용</th>
            <th>글쓴이</th>
            <th>작성일/작성시간</th>
          </tr>
        </thead>
        <tbody>
          <c:forEach var="vo" items="${list}">
            <tr>
              <td>${vo.id}</td>
              <td>${vo.category}</td>
              <td>${vo.title}</td>
              <td>${vo.content}</td>
              <td>${vo.owner}</td>
              <td>${vo.createDate}</td>
            </tr>
          </c:forEach>
        </tbody>
      </table>
    </main>
    <div id="pannel">
      <div id="paging">
        <a href="${pageContext.request.contextPath}/BBSController4?page=${page - 1}">◀</a>
        <input type="text" name="page" id="page" value="${page}" />
        <a href="${pageContext.request.contextPath}/BBSController4?page=${page + 1}">▶</a>
      </div>
    </div>
  </div>
</body>

```

BBSController4.java

```

request.setCharacterEncoding("utf-8");

int page = 1;
if(request.getParameter("page") != null ) {
    page = Integer.parseInt(request.getParameter("page"));
}

BBSservice service = new BBSservice();
service.getBBSList4(page, request);

RequestDispatcher rdp =
    request.getRequestDispatcher("/WEB-INF/bbs/bbs4.jsp");
rdp.forward(request, response);

```

BBSservice.java

```

public void getBBSList4(int page, HttpServletRequest request) {
    BBSInputPageVO inputVO = new BBSInputPageVO();
    inputVO.setTotal(dao.selectBBSCount());
    inputVO.setNowPage(page);
    inputVO.setCntPerPage(15);
    inputVO.setStart((page-1)*inputVO.getCntPerPage());
    request.setAttribute("list", dao.selectBBSList(inputVO));
    request.setAttribute("page", page);
}

```

(5) 정답

bbs5.jsp

```

<style>
.container {
  display: grid;
  grid-template-columns: 200px 1fr 200px;
  grid-template-rows: 50px 1fr 50px 100px;
  gap: 0px 0px;
  grid-auto-flow: row;
  grid-template-areas: ". . ." ". main ." ". . ." ". pannel .";
}

main {
  grid-area: main;
}

table {
  font-family: Arial, Helvetica, sans-serif;
  border-collapse: collapse;
  width: 100%;
}

table td, table th {
  border: 1px solid #ddd;
  padding: 8px;
}

table tr:nth-child(even) {
  background-color: #f2f2f2;
}

table tr:hover {
  background-color: #ddd;
}

table th {
  padding-top: 12px;
  padding-bottom: 12px;
  text-align: left;
  background-color: #0335fc;
  color: white;
}

#pannel {
  grid-area: pannel;
  border : 1px solid black;
  display: grid;
  grid-template-columns: 30px 1fr 30px;
  grid-template-rows: 20px 1fr 20px;
  grid-auto-flow: row;
  grid-template-areas: ". . ." ". paging ." ". . .";
}

#paging {
  display : flex;
  grid-area : paging;
  justify-content : center;
  align-items : center;
}

```

```

#paging a{
  display : inline-block;
  padding : 5px;
}

```

```

<div class="container">
  <main>
    <table>
      <thead>
        <tr>
          <th>id</th>
          <th>카테고리</th>
          <th>제목</th>
          <th>내용</th>
          <th>글쓴이</th>
          <th>작성일/작성시간</th>
        </tr>
      </thead>

```



```

        <tbody>
        <c:forEach var="vo" items="${list}">
        <tr>
            <td>${vo.id}</td>
            <td>${vo.category}</td>
            <td>${vo.title}</td>
            <td>${vo.content}</td>
            <td>${vo.owner}</td>
            <td>${vo.createDate}</td>
        </tr>
        </c:forEach>
        </tbody>
    </table>
</main>
<div id="panel">
    <div id="paging">
        <c:forEach var="i" begin="${page.startPage}" end="${page.endPage}">
        <c:choose>
            <c:when test="${page.nowPage eq i}">
                <span>${i}</span>
            </c:when>
            <c:otherwise>
                <a href="${pageContext.request.contextPath}/BBSController5?page=${i}">${i}</a>
            </c:otherwise>
        </c:choose>
        </c:forEach>
    </div>
</div>
</div>

```

BBSController5.java

```

request.setCharacterEncoding("utf-8");

int page = 1;
if(request.getParameter("page") != null ) {
    page = Integer.parseInt(request.getParameter("page"));
}

BBSService service = new BBSService();
service.getBBSList5(page, request);

RequestDispatcher rdp =
    request.getRequestDispatcher("/WEB-INF/bbs/bbs5.jsp");
rdp.forward(request, response);

```

BBSService.java

```

public void getBBSList5(int page, HttpServletRequest request) {
    BBSInputPageVO inputVO = new BBSInputPageVO();
    inputVO.setTotal(dao.selectBBSCount());
    inputVO.setNowPage(page);
    inputVO.setCntPerPage(15);
    inputVO.setStart((page-1)*inputVO.getCntPerPage());
    inputVO.setEnd(page*inputVO.getCntPerPage());
    inputVO.setStartPage(1);
    // 마지막 페이지 계산
    int endPage = inputVO.getTotal()/inputVO.getCntPerPage();
    endPage = (inputVO.getTotal()%inputVO.getCntPerPage() == 0)?endPage:endPage+1;
    inputVO.setEndPage(endPage);
    request.setAttribute("list", dao.selectBBSList(inputVO));
    request.setAttribute("page", inputVO);
}

```

(6) 정답

bbs6.jsp

```

.container {
  display: grid;
  grid-template-columns: 200px 1fr 200px;
  grid-template-rows: 50px 1fr 50px 100px;
  gap: 0px 0px;
  grid-auto-flow: row;
  grid-template-areas: ". . ." ". main ." ". . ." ". pannel .";
}

main {
  grid-area: main;
}

table {
  font-family: Arial, Helvetica, sans-serif;
  border-collapse: collapse;
  width: 100%;
}

table td, table th {
  border: 1px solid #ddd;
  padding: 8px;
}

table tr:nth-child(even) {
  background-color: #f2f2f2;
}

table tr:hover {
  background-color: #ddd;
}

table th {
  padding-top: 12px;
  padding-bottom: 12px;
  text-align: left;
  background-color: #0335fc;
  color: white;
}

#pannel {
  grid-area: pannel;
  border : 1px solid black;
  display: grid;
  grid-template-columns: 30px 1fr 30px;
  grid-template-rows: 20px 1fr 20px;
  grid-auto-flow: row;
  grid-template-areas: ". . ." ". paging ." ". . .";
}

#paging {
  display : flex;
  grid-area : paging;
  justify-content : center;
  align-items : center;
}

```

```

#paging a{
  display : inline-block;
  padding : 5px;
}

```

```

<div class="container">
  <main>
    <table>
      <thead>
        <tr>
          <th>id</th>
          <th>카테고리</th>
          <th>제목</th>
          <th>내용</th>
          <th>글쓴이</th>
          <th>작성일/작성시간</th>
        </tr>
      </thead>
      <tbody>
        <c:forEach var="vo" items="${list}">
          <tr>
            <td>${vo.id}</td>
            <td>${vo.category}</td>
            <td>${vo.title}</td>
            <td>${vo.content}</td>
            <td>${vo.owner}</td>
            <td>${vo.createDate}</td>
          </tr>
        </c:forEach>
      </tbody>
    </table>
  </main>
  <div id="pannel">
    <div id="paging">
      <c:choose>
        <c:when test="${1 == page.nowPage}"><span>◀</span></c:when>
        <c:otherwise>
          <a href="${pageContext.request.contextPath}/BBSController6?page=${page.nowPage - 1}">◀</a>
        </c:otherwise>
      </c:choose>
      <c:forEach var="i" begin="${page.startPage}" end="${page.endPage}">
        <c:choose>
          <c:when test="${page.nowPage eq i}">
            <span>${i}</span>
          </c:when>
          <c:otherwise>
            <a href="${pageContext.request.contextPath}/BBSController6?page=${i}">${i}</a>
          </c:otherwise>
        </c:choose>
      </c:forEach>
      <c:choose>
        <c:when test="${page.totalPage == page.nowPage}"><span>▶</span></c:when>
        <c:otherwise>
          <a href="${pageContext.request.contextPath}/BBSController6?page=${page.nowPage + 1}">▶</a>
        </c:otherwise>
      </c:choose>
    </div>
  </div>
</div>

```

BBSService.java

```

request.setCharacterEncoding("utf-8");

int page = 1;
if(request.getParameter("page") != null) {
    page = Integer.parseInt(request.getParameter("page"));
}

BBSService service = new BBSService();
service.getBBSList6(page, request);

RequestDispatcher rdp =
    request.getRequestDispatcher("/WEB-INF/bbs/bbs6.jsp");
rdp.forward(request, response);

```

BBSController6.java

```

public void getBBSList6(int page, HttpServletRequest request) {
    BBSInputPageVO inputVO = new BBSInputPageVO();
    inputVO.setTotal(dao.selectBBSCount());
    inputVO.setNowPage(page);
    inputVO.setCntPerPage(15);
    inputVO.setStart((page-1)*inputVO.getCntPerPage());
    inputVO.setEnd(page*inputVO.getCntPerPage());
    // 블록당 페이지
    inputVO.setCntPerBlock(10);
    // 토탈 페이지 계산
    int totalPage = inputVO.getTotal()/inputVO.getCntPerPage();
    totalPage = (inputVO.getTotal()%inputVO.getCntPerPage() == 0)?totalPage:totalPage+1;
    inputVO.setTotalPage(totalPage);
    // 페이지 설정
    int initPage = (inputVO.getNowPage()-1)/inputVO.getCntPerBlock()*inputVO.getCntPerBlock();
    // 시작 페이지
    int startPage = initPage+1;
    inputVO.setStartPage(startPage);
    // 끝 페이지
    int endPage = initPage+inputVO.getCntPerBlock();
    if(endPage > inputVO.getTotalPage()) {
        endPage = inputVO.getTotalPage();
    }
    inputVO.setEndPage(endPage);
    request.setAttribute("list", dao.selectBBSList(inputVO));
    request.setAttribute("page", inputVO);
}
}

```

(7) 정답

bbs7.jsp(스타일은 이전 예제와 동일)

```

<div class="container">
    <main>
        <table>
            <thead>
                <tr>
                    <th>id</th>
                    <th>카테고리</th>
                    <th>제목</th>
                    <th>내용</th>
                    <th>글쓴이</th>
                    <th>작성일/작성시간</th>
                </tr>
            </thead>
            <tbody>
                <c:forEach var="vo" items="${list}">
                    <tr>
                        <td>${vo.id}</td>
                        <td>${vo.category}</td>
                        <td>${vo.title}</td>
                        <td>${vo.content}</td>
                        <td>${vo.owner}</td>
                        <td>${vo.createDate}</td>
                    </tr>
                </c:forEach>
            </tbody>
        </table>
    </main>

```

```

<div id="panel">
  <div id="paging">
    <c:choose>
      <c:when test="${1 == page.startPage}">
        <span><<</span>
      </c:when>
      <c:otherwise>
        <a href="${pageContext.request.contextPath}/BBSController7?page=${page.startPage - 1}"><<</a>
      </c:otherwise>
    </c:choose>
    <c:choose>
      <c:when test="${1 == page.nowPage}">
        <span><</span>
      </c:when>
      <c:otherwise>
        <a href="${pageContext.request.contextPath}/BBSController7?page=${page.nowPage - 1}"><</a>
      </c:otherwise>
    </c:choose>
    <c:forEach var="i" begin="${page.startPage}" end="${page.endPage}">
      <c:choose>
        <c:when test="${page.nowPage eq i}">
          <span>${i}</span>
        </c:when>
        <c:otherwise>
          <a href="${pageContext.request.contextPath}/BBSController7?page=${i}">${i}</a>
        </c:otherwise>
      </c:choose>
    </c:forEach>
    <c:choose>
      <c:when test="${page.totalPage == page.nowPage}">
        <span>>></span>
      </c:when>
      <c:otherwise>
        <a href="${pageContext.request.contextPath}/BBSController7?page=${page.nowPage + 1}">>></a>
      </c:otherwise>
    </c:choose>
    <c:choose>
      <c:when test="${page.totalPage < page.endPage+page.cntPerBlock}">
        <span>>></span>
      </c:when>
      <c:otherwise>
        <a href="${pageContext.request.contextPath}/BBSController7?page=${page.endPage + 1}">>></a>
      </c:otherwise>
    </c:choose>
  </div>
</div>
</div>

```

BBSService.java

```

request.setCharacterEncoding("utf-8");

int page = 1;
if(request.getParameter("page") != null ) {
    page = Integer.parseInt(request.getParameter("page"));
}

BBSService service = new BBSService();
service.getBBSList7(page, request);

RequestDispatcher rdp =
    request.getRequestDispatcher("/WEB-INF/bbs/bbs7.jsp");
rdp.forward(request, response);

```

BBSService.java



```

public void getBBSList7(int page, HttpServletRequest request) {
    BBSInputPageVO inputVO = new BBSInputPageVO();
    inputVO.setTotal(dao.selectBBSCount());
    inputVO.setNowPage(page);
    inputVO.setCntPerPage(15);
    inputVO.setStart((page-1)*inputVO.getCntPerPage());
    inputVO.setEnd(page*inputVO.getCntPerPage());
    // 블록당 페이지
    inputVO.setCntPerBlock(10);
    // 토탈 페이지 계산
    int totalPage = inputVO.getTotal()/inputVO.getCntPerPage();
    totalPage = (inputVO.getTotal()%inputVO.getCntPerPage() == 0)?totalPage:totalPage+1;
    inputVO.setTotalPage(totalPage);
    // 페이지 설정
    int initPage = (inputVO.getNowPage()-1)/inputVO.getCntPerBlock()*inputVO.getCntPerBlock();
    // 시작 페이지
    int startPage = initPage+1;
    inputVO.setStartPage(startPage);
    // 끝 페이지
    int endPage = initPage+inputVO.getCntPerBlock();
    if(endPage > inputVO.getTotalPage()) {
        endPage = inputVO.getTotalPage();
    }
    inputVO.setEndPage(endPage);
    request.setAttribute("list", dao.selectBBSList(inputVO));
    request.setAttribute("page", inputVO);
}

```

(8) 정답

Bbs8.jsp(디자인은 위와 동일)

```

<div class="container">
    <main>
        <table>
            <thead>
                <tr>
                    <th>id</th>
                    <th>카테고리</th>
                    <th>제목</th>
                    <th>내용</th>
                    <th>글쓴이</th>
                    <th>작성일/작성시간</th>
                </tr>
            </thead>
            <tbody>
                <c:forEach var="vo" items="${list}">
                    <tr>
                        <td>${vo.id}</td>
                        <td>${vo.category}</td>
                        <td>${vo.title}</td>
                        <td>${vo.content}</td>
                        <td>${vo.owner}</td>
                        <td>${vo.createDate}</td>
                    </tr>
                </c:forEach>
            </tbody>
        </table>
    </main>

```

```

<div id="panel">
  <div id="paging">
    <c:choose>
      <c:when test="{0} >= (page.nowPage - (page.cntPerBlock/2))">
        <span><<</span>
      </c:when>
      <c:otherwise>
        <a href="{pageContext.request.contextPath}/BBSController8?page={page.nowPage - (page.cntPerBlock/2)}"><<</a>
      </c:otherwise>
    </c:choose>
    <c:choose>
      <c:when test="{1 == page.nowPage}">
        <span></span>
      </c:when>
      <c:otherwise>
        <a href="{pageContext.request.contextPath}/BBSController8?page={page.nowPage - 1}"></a>
      </c:otherwise>
    </c:choose>
    <c:forEach var="i" begin="{page.startPage}" end="{page.endPage}">
      <c:choose>
        <c:when test="{page.nowPage eq i}">
          <span>{i}</span>
        </c:when>
        <c:otherwise>
          <a href="{pageContext.request.contextPath}/BBSController8?page={i}">{i}</a>
        </c:otherwise>
      </c:choose>
    </c:forEach>
    <c:choose>
      <c:when test="{page.totalPage == page.nowPage}">
        <span>>></span>
      </c:when>
      <c:otherwise>
        <a href="{pageContext.request.contextPath}/BBSController8?page={page.nowPage + 1}">>></a>
      </c:otherwise>
    </c:choose>
    <c:choose>
      <c:when test="{page.totalPage <= (page.nowPage+(page.cntPerBlock/2)+1)}">
        <span>>></span>
      </c:when>
      <c:otherwise>
        <a href="{pageContext.request.contextPath}/BBSController8?page={page.nowPage+(page.cntPerBlock/2)+1}">>></a>
      </c:otherwise>
    </c:choose>
  </div>
</div>
</div>

```

BBSController8.java

```

request.setCharacterEncoding("utf-8");

int page = 1;
if(request.getParameter("page") != null ) {
    page = Integer.parseInt(request.getParameter("page"));
}

BBSService service = new BBSService();
service.getBBSList8(page, request);

RequestDispatcher rdp =
    request.getRequestDispatcher("/WEB-INF/bbs/bbs8.jsp");
rdp.forward(request, response);

```

BBSService.java

```

public void getBBSList8(double dpage, HttpServletRequest request) {
    // 소수점 버림
    int page = (int)dpage;
    BBSInputPageVO inputVO = new BBSInputPageVO();
    inputVO.setTotal(dao.selectBBSCount());
    inputVO.setNowPage(page);
    inputVO.setCntPerPage(15);
    inputVO.setStart((page-1)*inputVO.getCntPerPage());
    inputVO.setEnd(page*inputVO.getCntPerPage());
    // 블록당 페이지
    inputVO.setCntPerBlock(7);
    // 토탈 페이지 계산
    int totalPages = inputVO.getTotal()/inputVO.getCntPerPage();
    totalPages = (inputVO.getTotal()%inputVO.getCntPerPage() == 0)?totalPages:totalPages+1;
    inputVO.setTotalPage(totalPages);
    // 페이지 설정
    // int initPage = (inputVO.getNowPage()-1)/inputVO.getCntPerBlock()*inputVO.getCntPerBlock();
    // 시작 페이지
    int startPage = inputVO.getNowPage() - (inputVO.getCntPerBlock()/2);
    startPage = (startPage <= 0)?1:startPage;
    inputVO.setStartPage(startPage);
    // 끝 페이지
    int endPage = inputVO.getNowPage()+(inputVO.getCntPerBlock()/2);
    endPage = (endPage > inputVO.getTotalPage())?inputVO.getTotalPage():endPage;
    inputVO.setEndPage(endPage);

    // 페이지 확장
    if(startPage == 1 && inputVO.getTotalPage() > inputVO.getCntPerBlock()) {
        inputVO.setEndPage(startPage + inputVO.getCntPerBlock()-1);
    }

    if(endPage == inputVO.getTotalPage() && inputVO.getTotalPage() > inputVO.getCntPerBlock()) {
        inputVO.setStartPage(endPage - inputVO.getCntPerBlock()+1);
    }

    request.setAttribute("list", dao.selectBBSList(inputVO));
    request.setAttribute("page", inputVO);
}

```

