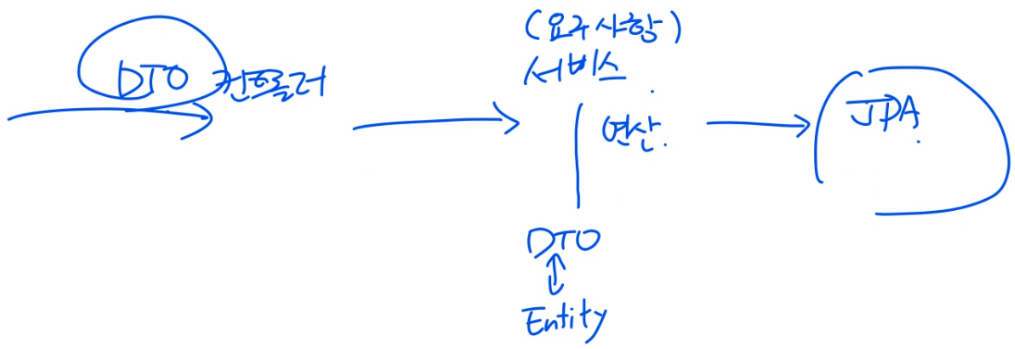
Spring Boot 4일차

db에 나이를 연산해서 넣지 않는다고?????

음?????

아 entity 같은 연산작업은 서비스(service)에서 한다!! db 의 성능을 위해서.



시작

등록 작업 - register

service 패키지 생성

BoardService 인터페이스 생성

```
@Transactional
public interface BoardService {

    Long register(BoardDTO boardDTO);
}
```

BoardServiceImpl 클래스 생성

```
@Service
@Log4j2
@RequiredArgsConstructor
public class BoardServiceImpl implements BoardService {

    private final ModelMapper modelMapper;

    private final BoardRepository boardRepository;

    @Override
    public Long register(BoardDTO boardDTO) {
        // DTO -> entity
```

```
        // repository save( save는 등록 수정때 사용 ) -> Long
        return null;
    }
}
```

```
@Service
@Log4j2
@RequiredArgsConstructor
public class BoardServiceImpl implements BoardService {

    private final ModelMapper modelMapper;

    private final BoardRepository boardRepository;

    @Override
    public Long register(BoardDTO boardDTO) {
        // DTO -> entity
        Board board = modelMapper.map(boardDTO, Board.class);
        // repository save( save는 등록 수정때 사용 ) -> Long
        boardRepository.save(board);
        return board.getBno();
    }
}
```

테스트 ㄱㄱ

test 에다가 service 페키지 test 계층을 만들어 줘야 한다.

test - service 패키지 생성 - BoardServiceTests 생성

그다음 database 에 Board 테이블 지우기

```
@SpringBootTest
@Log4j2
public class BoardServiceTests {

    @Autowired
    private BoardService boardService;

    @Test
    public void testRegister() {
        IntStream.rangeClosed(1,200).forEach(i -> { // service  계층이니까 DTO 가
필요
            BoardDTO boardDTO = BoardDTO.builder()
                    .title("Title" + i)
                    .content("Content" + i)
                    .writer("user" + (i%10))
                    .build();
            Long bno = boardService.register(boardDTO);
            log.info("BNO" + bno);
        });
    }
```

```
}
```

board 테이블 자동 생성되면서 콘솔에 쫘라락 찍히면서 결과물이 딱

```
Hibernate:

    create table board (
       bno bigint not null auto_increment,
        content varchar(255),
        mod_date datetime(6),
        reg_date datetime(6),
        title varchar(255),
        writer varchar(255),
        primary key (bno)
    ) engine=InnoDB
2021-10-07 09:50:05.606  INFO 1264 --- [    Tes
```

```
2021-10-07 09:50:07.972  INFO 1264 --- [    Test worker] org.zerock.sb.service.BoardServiceTests  : BNO1
Hibernate:
    insert
    into
        board
        (content, mod_date, reg_date, title, writer)
    values
        (?, ?, ?, ?, ?)
2021-10-07 09:50:07.979  INFO 1264 --- [    Test worker] org.zerock.sb.service.BoardServiceTests  : BNO2
Hibernate:
    insert
    into
        board
        (content, mod_date, reg_date, title, writer)
    values
        (?, ?, ?, ?, ?)
2021-10-07 09:50:07.986  INFO 1264 --- [    Test worker] org.zerock.sb.service.BoardServiceTests  : BNO3
Hibernate:
    insert
    into
```

.java BoardServiceImpl.java BoardServiceTests.java console_2 board RootConfig.java console_1 Board.java

200 rows Tx: Auto DDL CSV

WHERE ORDER BY

	bno	content	mod_date	reg_date	title	writer
1	1	Content1	2021-10-07 09:50:07.934740	2021-10-07 09:50:07.934740	Title1	user1
2	2	Content2	2021-10-07 09:50:07.974556	2021-10-07 09:50:07.974556	Title2	user2
3	3	Content3	2021-10-07 09:50:07.981539	2021-10-07 09:50:07.981539	Title3	user3
4	4	Content4	2021-10-07 09:50:07.987762	2021-10-07 09:50:07.987762	Title4	user4
5	5	Content5	2021-10-07 09:50:07.993745	2021-10-07 09:50:07.993745	Title5	user5
6	6	Content6	2021-10-07 09:50:08.001725	2021-10-07 09:50:08.001725	Title6	user6
7	7	Content7	2021-10-07 09:50:08.008760	2021-10-07 09:50:08.008760	Title7	user7
8	8	Content8	2021-10-07 09:50:08.017734	2021-10-07 09:50:08.017734	Title8	user8
9	9	Content9	2021-10-07 09:50:08.024717	2021-10-07 09:50:08.024717	Title9	user9
10	10	Content10	2021-10-07 09:50:08.033778	2021-10-07 09:50:08.033778	Title10	user0
11	11	Content11	2021-10-07 09:50:08.042753	2021-10-07 09:50:08.042753	Title11	user1
12	12	Content12	2021-10-07 09:50:08.049733	2021-10-07 09:50:08.049733	Title12	user2
13	13	Content13	2021-10-07 09:50:08.057712	2021-10-07 09:50:08.057712	Title13	user3
14	14	Content14	2021-10-07 09:50:08.064638	2021-10-07 09:50:08.064638	Title14	user4
15	15	Content15	2021-10-07 09:50:08.072616	2021-10-07 09:50:08.072616	Title15	user5
16	16	Content16	2021-10-07 09:50:08.080596	2021-10-07 09:50:08.080596	Title16	user6
17	17	Content17	2021-10-07 09:50:08.088575	2021-10-07 09:50:08.088575	Title17	user7
18	18	Content18	2021-10-07 09:50:08.095053	2021-10-07 09:50:08.095053	Title18	user8
19	19	Content19	2021-10-07 09:50:08.102034	2021-10-07 09:50:08.102034	Title19	user9
20	20	Content20	2021-10-07 09:50:08.109015	2021-10-07 09:50:08.109015	Title20	user0
21	21	Content21	2021-10-07 09:50:08.115998	2021-10-07 09:50:08.115998	Title21	user1

PageRequestDTO

PageRequestDTO 클래스 생성

```
import lombok.AllArgsConstructor;
import lombok.Builder;
import lombok.Data;
import lombok.NoArgsConstructor;

@Builder
@AllArgsConstructor
@NoArgsConstructor
@Data
public class PageRequestDTO {

    @Builder.Default
    private int page = 1;

    @Builder.Default
    private int size = 10;

    private String type;

    private String keyword;

    public int getSkip() {
```

```
        return (page -1) * size;
    }

    public char[] getTypes() {
        if(type == null || type.isEmpty()){
            return null;
        }
        return type.toCharArray();
    }

}
```

PageResponseDTO ㄱㄱ

```
import lombok.Data;

import java.util.List;

@Data
public class PageResponseDTO<E> { // 제네릭을 사용함

    //현재 페이지 번호
    private int page;
    //페이지당 게시물의 수
    private int size;

    //전체 데이터의 수
    private int count;

    //시작 페이지 번호
    private int start;
    // 끝 페이지 번호
    private int end;

    //이전 페이지 여부
    private boolean prev;
    //다음 페이지 여부
    private boolean next;

    //결과 데이터
    private List<E> dtoList;


    public PageResponseDTO(PageRequestDTO pageRequestDTO, int count){
        this.page = pageRequestDTO.getPage();
        this.size = pageRequestDTO.getSize();
        this.count = count;
        //임시 end   3/10.0 = 0.3 => 1 * 10 => 10
        int tempEnd = (int)(Math.ceil(page/(double)size)) * 10;

        this.start = tempEnd - 9;
        this.prev = start > 1;

        if(this.start < 1){ this.start = 1; }
```

```
        //진짜 끝 페이지 count = 70 이고 tempEnd  10이라면
        if(tempEnd * size >= count ) {
            this.end = (int)(Math.ceil(count/(double)size));
            this.next = false;
        }else {
            this.end = tempEnd;
            this.next = true;
        }
    }

    public PageResponseDTO(PageRequestDTO pageRequestDTO, int count, List<E>
dtoList){
        this(pageRequestDTO, count);
        this.dtoList = dtoList;
    }
}
```

리스트 설계

BoardService ㄱㄱ

```
@Transactional
public interface BoardService {

    Long register(BoardDTO boardDTO);

    PageResponseDTO<BoardDTO> getList(PageRequestDTO pageRequestDTO); // 추가
}
```

BoardServiceImpl ㄱㄱ

implement method 해주기

```
@Service
@Log4j2
@RequiredArgsConstructor
public class BoardServiceImpl implements BoardService {

    private final ModelMapper modelMapper;

    private final BoardRepository boardRepository;

    @Override
    public Long register(BoardDTO boardDTO) {
        // DTO -> entity
        Board board = modelMapper.map(boardDTO, Board.class);
        // repository save( save는 등록 수정때 사용 ) -> Long
        boardRepository.save(board);
        return board.getBno();
    }
```

```
    @Override // 이부분 작업
    public PageResponseDTO<BoardDTO> getList(PageRequestDTO pageRequestDTO) {

        // 이부분 테스트 부분에서 복붙하옴
        char[] typeArr = pageRequestDTO.getTypes();
        String keyword = pageRequestDTO.getKeyword();
        Pageable pageable = PageRequest.of(
                pageRequestDTO.getPage() - 1,
                pageRequestDTO.getSize(),
                Sort.by("bno").descending());

        Page<Board> result = boardRepository.search1(typeArr, keyword,
pageable);

        // get( ) 은 stream() 이다.
        List<BoardDTO> dtoList = result.get().map(
                board -> modelMapper.map(board, BoardDTO.class))
                .collect(Collectors.toList());
        long totalCount = result.getTotalElements();

        return new PageResponseDTO<>(pageRequestDTO, (int)totalCount, dtoList);
    }
}
```

Controller 생성

```
@Controller
@Log4j2
@RequiredArgsConstructor
@RequestMapping("/board")
public class BoardController {

    private final BoardService boardService;

    @GetMapping("/list")
    public void list(PageRequestDTO pageRequestDTO, Model model) {

        model.addAttribute("responseDTO", boardService.getList(pageRequestDTO));
    }

}
```

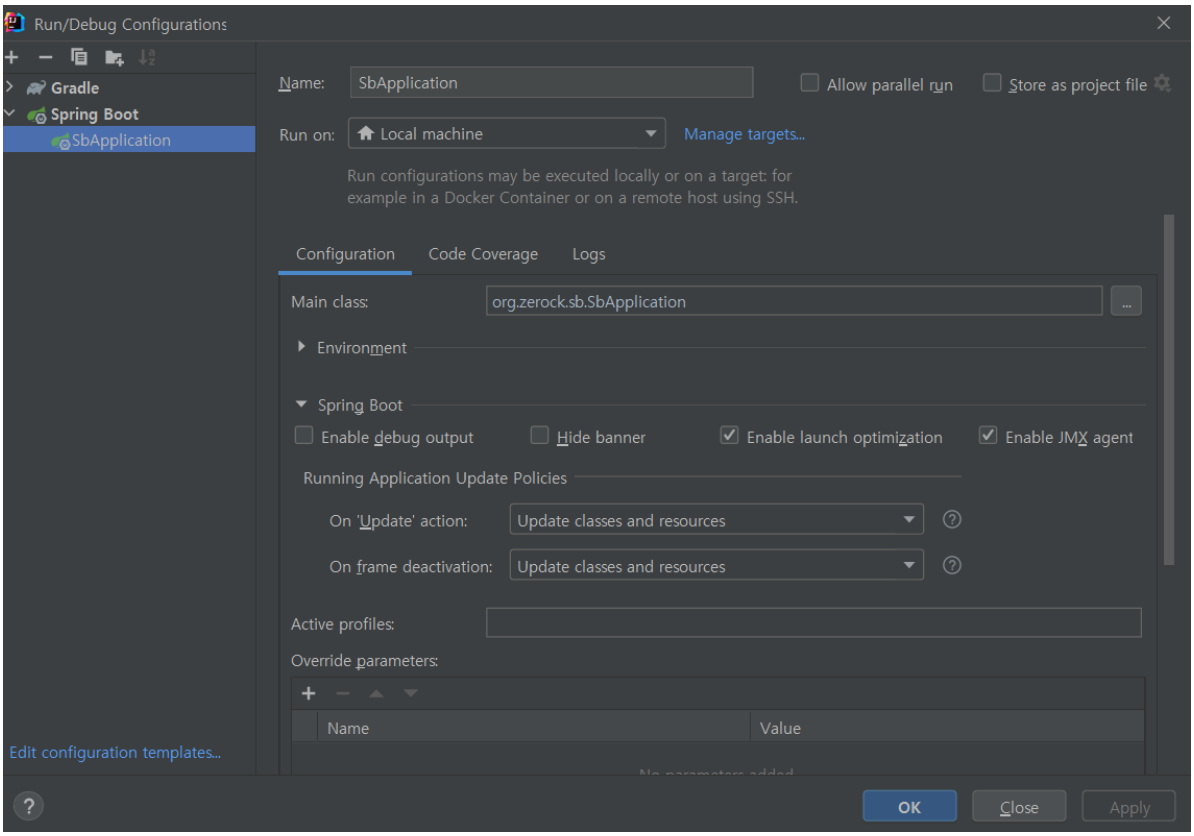
resources 밑에다가 demo3 에 있는 static, templates 복붙

templates - board 디렉토리 생성

board 디렉토리 - list.html 생성

```
<!DOCTYPE html>
<html xmlns:th="http://www.thymeleaf.org"
xmlns:layout="http://www.ultraq.net.nz/thymeleaf/layout"
      layout:decorator="layout/layout2">
<head>
    <meta charset="UTF-8">
    <title>Title</title>
</head>
<body>

<div layout:fragment="content">
  [[${responseDTO}]]
</div>

</body>
</html>
```

그다음 밑에꺼 자동 새로고침 꼭 확인.



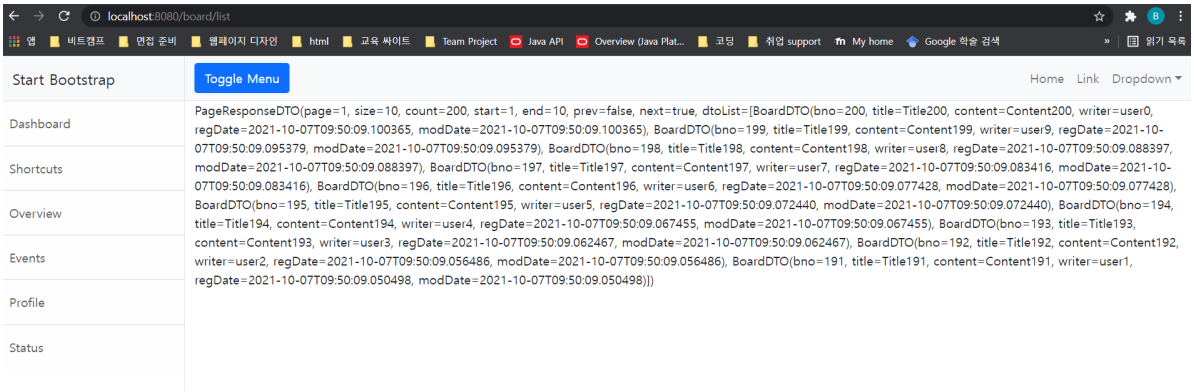
application.properties

```
spring.thymeleaf.cache=false
```

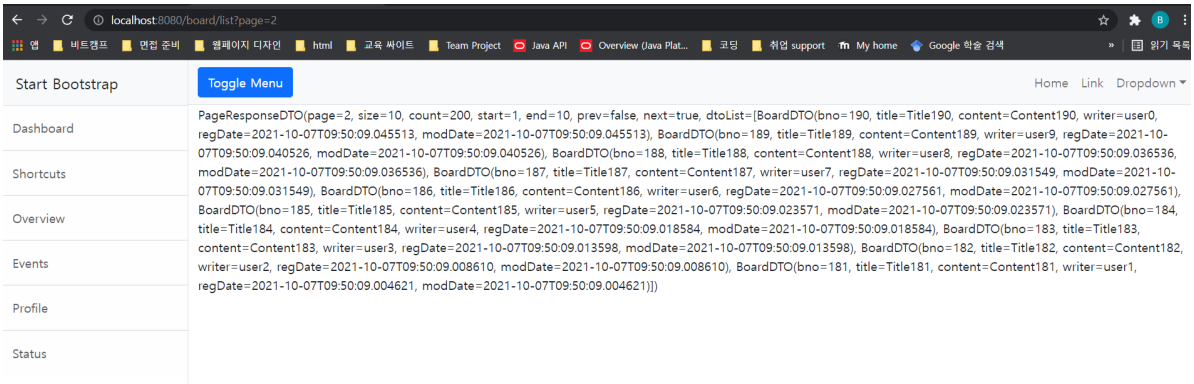
추가

그다음 실행

리스트 출력 확인



페이징 처리 확인



페이지, 검색 타입, 검색 키워드 확인

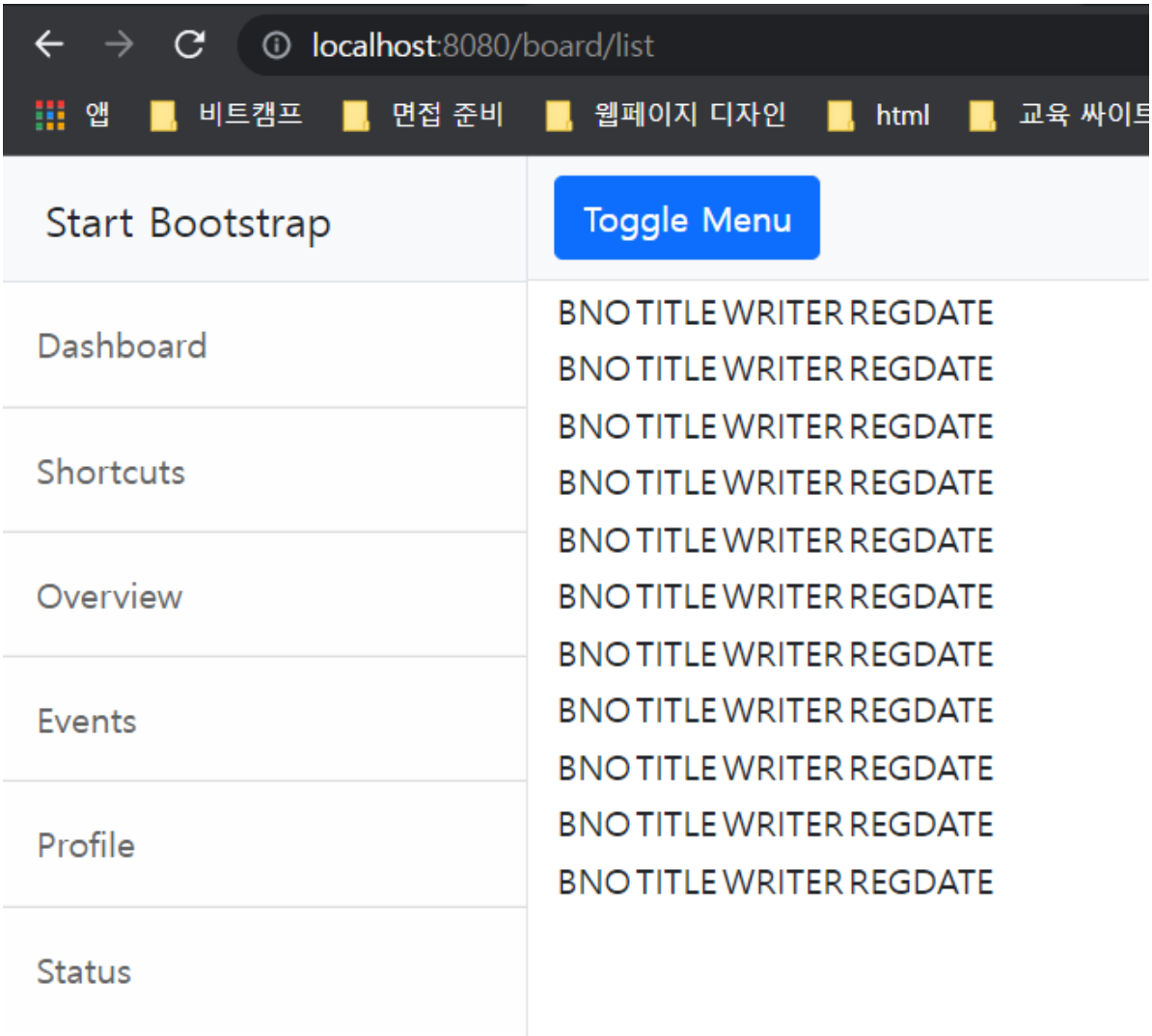
모두 확인되면 굿!!!

웹 화면에 테이블 이쁘게 만들기

list.html ㄱㄱ

```
<!DOCTYPE html>
<html xmlns:th="http://www.thymeleaf.org"
xmlns:layout="http://www.ultraq.net.nz/thymeleaf/layout"
      layout:decorator="layout/layout2">
<head>
    <meta charset="UTF-8">
    <title>Title</title>
</head>
<body>

<div layout:fragment="content">
```

```
    <div>
        <table>
            <tr>
                <td>BNO</td>
                <td>TITLE</td>
                <td>WRITER</td>
                <td>REGDATE</td>
            </tr>
            <tr th:each="dto: ${responseDTO.dtoList}">
                <td>BNO</td>
                <td>TITLE</td>
                <td>WRITER</td>
                <td>REGDATE</td>
            </tr>

        </table>
    </div>
</div>

</body>
</html>
```



그다음

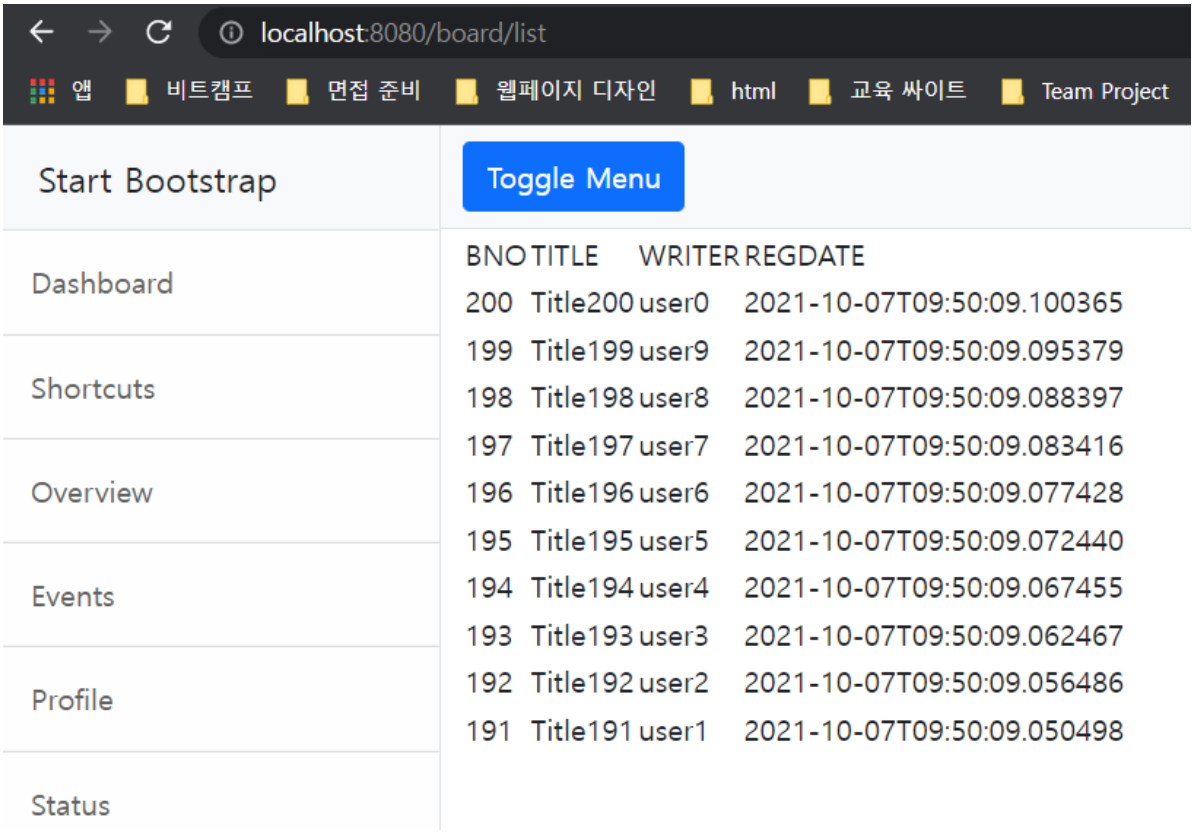
```
<div layout:fragment="content">
```

```
    <div>
        <table>
            <tr>
                <td>BNO</td>
                <td>TITLE</td>
                <td>WRITER</td>
                <td>REGDATE</td>
            </tr>
            <tr th:each="dto: ${responseDTO.dtoList}">
                <td th:text="${dto.bno}">BNO</td>
                <td th:text="${dto.title}">TITLE</td>
                <td th:text="${dto.writer}">WRITER</td>
                <td th:text="${dto.regDate}">REGDATE</td>
            </tr>

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

일딴 빨간 줄 무시

```
<div layout:fragment="content">

    <div>
        <table>
            <tr>
                <td>BNO</td>
                <td>TITLE</td>
                <td>WRITER</td>
                <td>REGDATE</td>
            </tr>
            <tr th:each="dto: ${responseDTO.dtoList}">
                <td th:text="${dto.bno}">BNO</td>
                <td th:text="${dto.title}">TITLE</td>
                <td th:text="${dto.writer}">WRITER</td>
                <td th:text="${dto.regDate}">REGDATE</td>
            </tr>

        </table>
    </div>
```

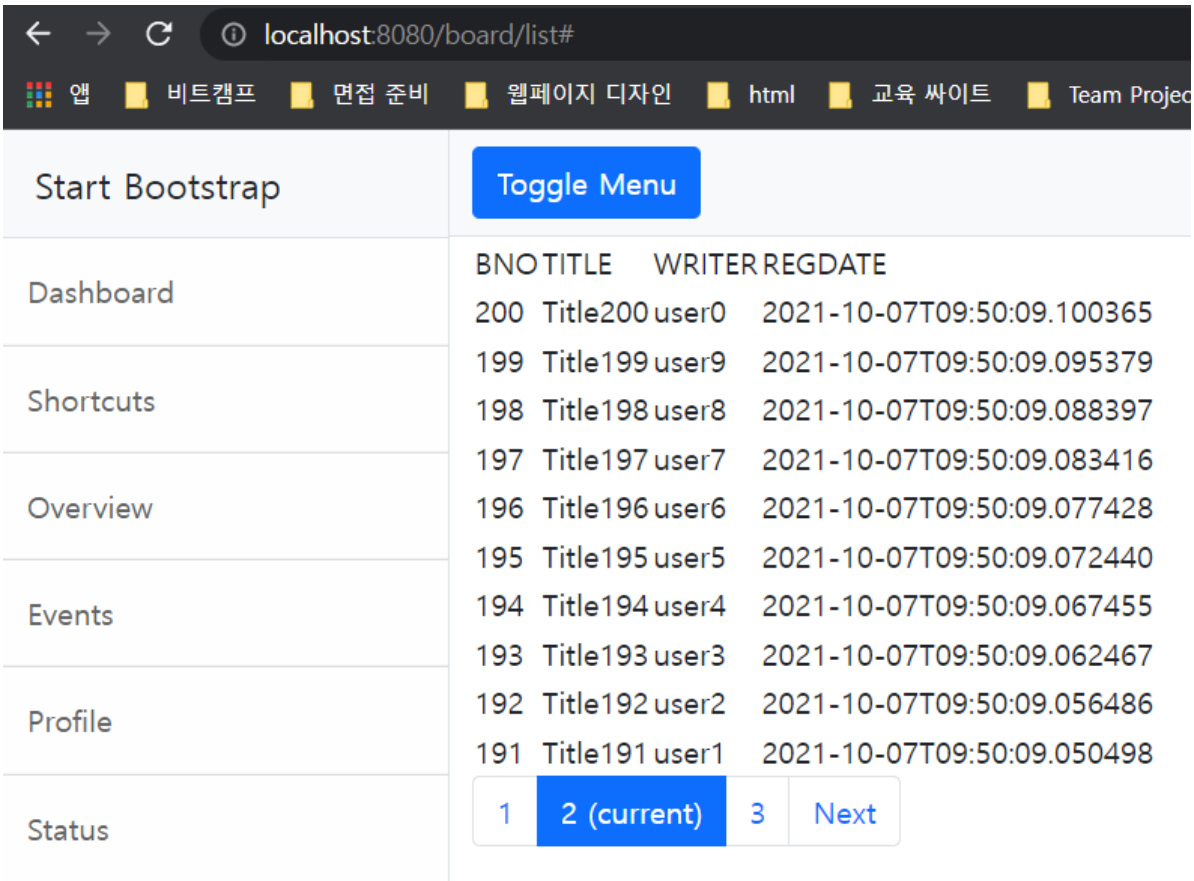
결과



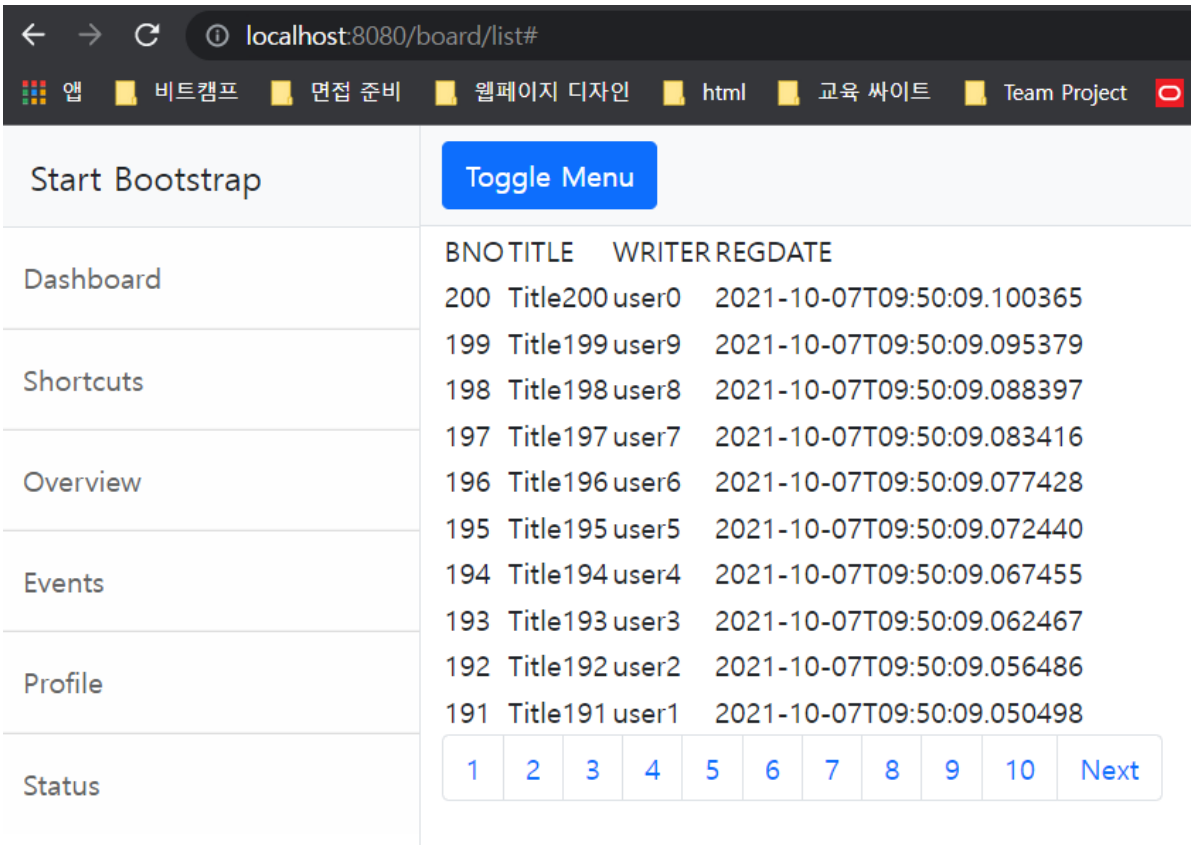
웹 페이징 및 검색 기능 구축

```
<div layout:fragment="content">

    <div>
        <table>
            <tr>
                <td>BNO</td>
                <td>TITLE</td>
                <td>WRITER</td>
                <td>REGDATE</td>
            </tr>
            <tr th:each="dto: ${responseDTO.dtoList}">
                <td th:text="${dto.bno}">BNO</td>
                <td th:text="${dto.title}">TITLE</td>
                <td th:text="${dto.writer}">WRITER</td>
                <td th:text="${dto.regDate}">REGDATE</td>
            </tr>

        </table>
    </div>
    <!--페이지 용 div-->
    <div>
        <ul class="pagination">
            <li class="page-item" th:if="${responseDTO.prev}">
                <a class="page-link" href="#" tabindex="-1">Previous</a>
            </li>
            <li class="page-item"><a class="page-link" href="#">1</a></li>
```

```
            <li class="page-item active">
                <a class="page-link" href="#">2 <span class="sr-only">(current)
</span></a>
            </li>
            <li class="page-item"><a class="page-link" href="#">3</a></li>
            <li class="page-item" th:if="${responseDTO.next}">
                <a class="page-link" href="#">Next</a>
            </li>
        </ul>
    </div>
</div>
```



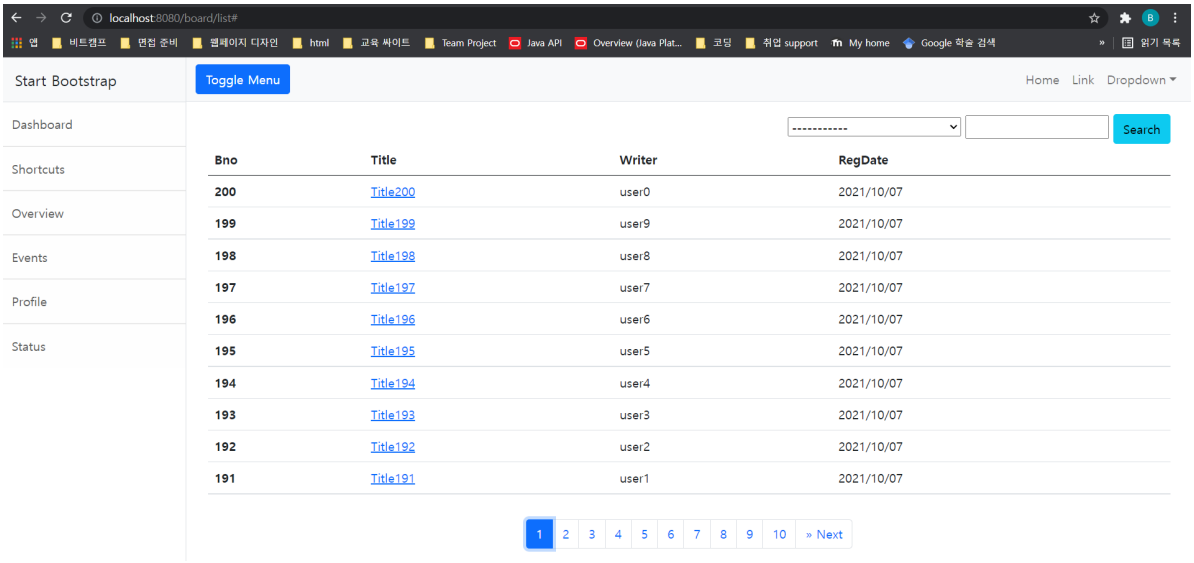

```
<!--페이지 용 div-->
<div>
    <ul class="pagination">
        <li class="page-item" th:if="${responseDTO.prev}">
            <a class="page-link" href="#" tabindex="-1">Previous</a>
        </li>

        <li class="page-item" th:each="num: ${#numbers.sequence(
responseDTO.start , responseDTO.end)}"><a class="page-link" href="#">[[${num}]]
</a></li>

        <li class="page-item" th:if="${responseDTO.next}">
            <a class="page-link" href="#">Next</a>
        </li>
    </ul>
</div>
```



일딴 강사님꺼로

```
<div class="card-body">

    <div class="float-end" >
      <select id="searchType"  >
        <option value=""  th:selected="${pageRequestDTO.type} == null">---------
--</option>
        <option value="T"  th:selected="${pageRequestDTO.type} =='T'">제목
</option>
        <option value="C"  th:selected="${pageRequestDTO.type} =='C'">내용
</option>
        <option value="W"  th:selected="${pageRequestDTO.type} =='W'">작성자
</option>
        <option value="TC" th:selected="${pageRequestDTO.type} == 'TC'">제목/내용
</option>
        <option value="TCW" th:selected="${pageRequestDTO.type} == 'TCW'" >제목
혹은 내용 혹은 작성자</option>
      </select>
      <input type="text" id="keyword"  th:value="${pageRequestDTO.keyword}">
      <button id="searchBtn" class="btn btn-info"
onclick="search()">Search</button>
    </div>


    <table class="table">
      <thead>
      <tr>
        <th scope="col">Bno</th>
        <th scope="col">Title</th>
```

```
        <th scope="col">Writer</th>
        <th scope="col">RegDate</th>
      </tr>
      </thead>
      <tbody>
        <tr th:each="board:${responseDTO.dtoList}">
          <th scope="row">[[${board.bno}]]</th>
          <td><a th:href="|javascript:movePage(${responseDTO.page}, ${board.bno}
)|">[[${board.title}]]</a></td>
          <td>[[${ board.writer}]]</td>
          <td>[[${#temporals.format(board.regDate, 'yyyy/MM/dd')}]]</td>
        </tr>
      </tbody>
    </table>
  </div>

  <div class="d-flex justify-content-center">
    <ul class="pagination">
      <li th:if="${responseDTO.prev}" class="page-item">
        <a class="page-link" th:href="|javascript:movePage(${responseDTO.start-
1})|" aria-label="Previous">
          <span aria-hidden="true">&laquo;</span>
          <span class="sr-only">Previous</span>
        </a>
      </li>

      <li th:each="num: ${#numbers.sequence( responseDTO.start ,
responseDTO.end)}" th:class="|page-item ${responseDTO.page ==
num?'active':''}|">
        <a class="page-link" th:href="|javascript:movePage(${num})|">[[${num}]]
</a>
      </li>

      <li th:if="${responseDTO.next}" class="page-item">
        <a class="page-link"
th:href="|javascript:movePage(${responseDTO.end+1})|" aria-label="Next">
          <span aria-hidden="true">&raquo;</span>
          <span class="sr-only">Next</span>
        </a>
      </li>

    </ul>

  </div>
```



위에꺼 그냥 복붙 하면 위에처럼 게시판이 저렇게 나온다.

여기서 핵심

여기서 눈여겨 봐야할것은 javascript 처리이다.

layout2.html ㄱㄱ

맨밑에 < script> 맨 밑으로 ㄱㄱ

```
<!-- Core theme JS-->
<script th:src="@{/js/scripts.js}"></script>

<th:block layout:fragment="script">

</th:block>
```

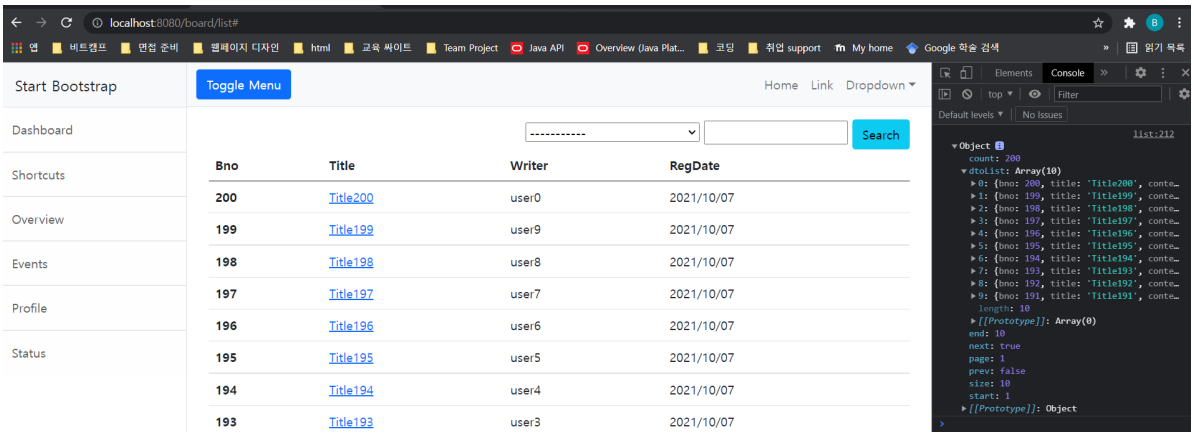
list.html ㄱㄱ

맨밑에 가서

```
</div>

<th:block layout:fragment="script">
    <script th:inline="javascript">

        console.dir([[${responseDTO}]])
        alert("AAA")

    </script>
</th:block>

</body>
</html>
```

th:block 은 안보이는 창이다.

alter "AAA" 창 뜨고



그리고 마지막으로

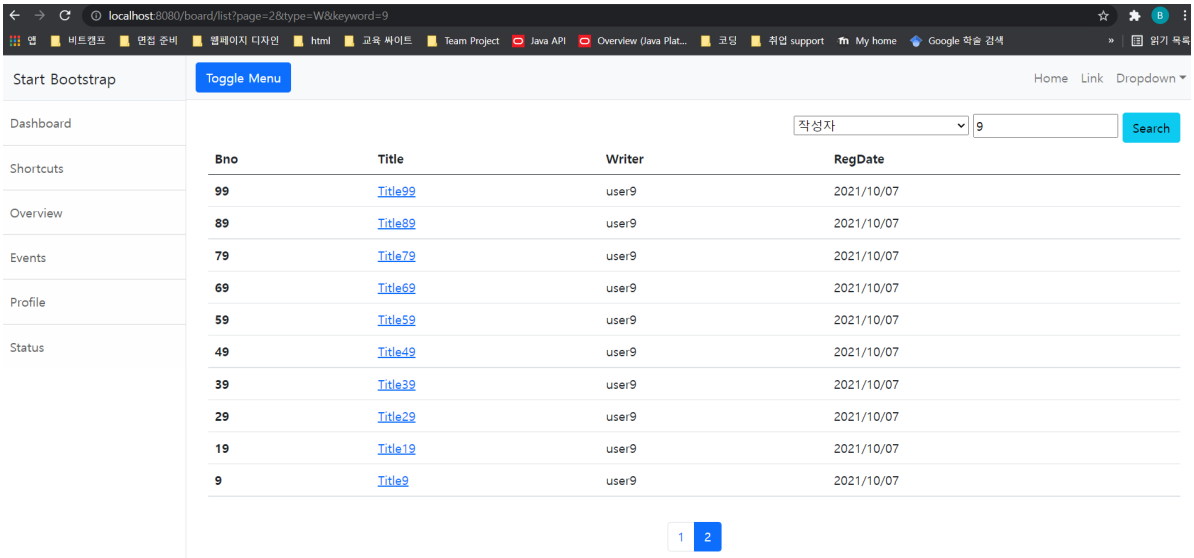
저 위에

```
<th:block layout:fragment="script">
    <script th:inline="javascript">

        console.dir([[${responseDTO}]])
        alert("AAA")

    </script>
</th:block>
```

이 부분을 밑에처럼 싹 바꿔주면!!!

```
<th:block  layout:fragment="script">


    <div class="modal" tabindex="-1">
        <div class="modal-dialog">
            <div class="modal-content">
                <div class="modal-header">
                    <h5 class="modal-title">Modal title</h5>
                    <button type="button" class="btn-close" data-bs-
dismiss="modal" aria-label="Close"></button>
                </div>
                <div class="modal-body">
                    <p>Modal body text goes here.</p>
                </div>
                <div class="modal-footer">
                    <button type="button" class="btn btn-secondary" data-bs-
dismiss="modal">Close</button>
                    <button type="button" class="btn btn-primary">Save
changes</button>
                </div>
            </div>
        </div>
    </div>
```

```
    <script th:inline="javascript">

        const myModal = new bootstrap.Modal(document.querySelector(".modal"))

        const result = [[${result}]]

        if(result){
            myModal.show()
        }

        const pageRequest = [[${pageRequestDTO}]]

        function movePage(page, bno) {

            console.log(pageRequest)

            let uri ="";

            const type = pageRequest.type
            const keyword = pageRequest.keyword

            let searchQuery = ''
            if(type && keyword){
                searchQuery += `&type=${type}&keyword=${keyword}`
            }

            if(bno) {
                uri = `/board/read?bno=${bno}&page=${page}` + searchQuery
            }else {
                uri = `/board/list?page=${page}` + searchQuery
            }
            self.location = uri
        }

        function search() {
            const searchSelect = document.querySelector("#searchType")

            const type = searchSelect.options[searchSelect.selectedIndex].value

            const keyword = encodeURI(document.querySelector("#keyword").value)

            console.log("type", type, "keyword", keyword)

            self.location =`/board/list?page=1&type=${type}&keyword=${keyword}`
        }

    </script>


</th:block>
```



검색과 페이징이 된다.

웹 등록 구현 작업

post redirect get 방식 이용

get post 이거 반복 노가다 안할려면 그때 상속을 사용한다고 한다.

BoardController ㄱㄱ

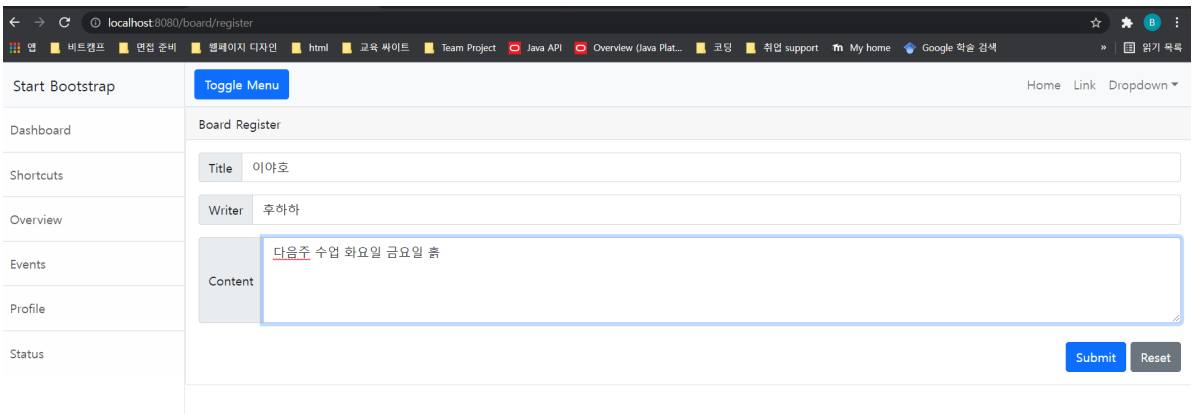
```
@GetMapping("/register")
    public void register() {

    }

    @PostMapping("/register")
    public String registerPost(BoardDTO boardDTO, RedirectAttributes
redirectAttributes) {

        Long bno = boardService.register(boardDTO);

        redirectAttributes.addFlashAttribute("result", bno);

        return "redirect:/board/list";

    }
```

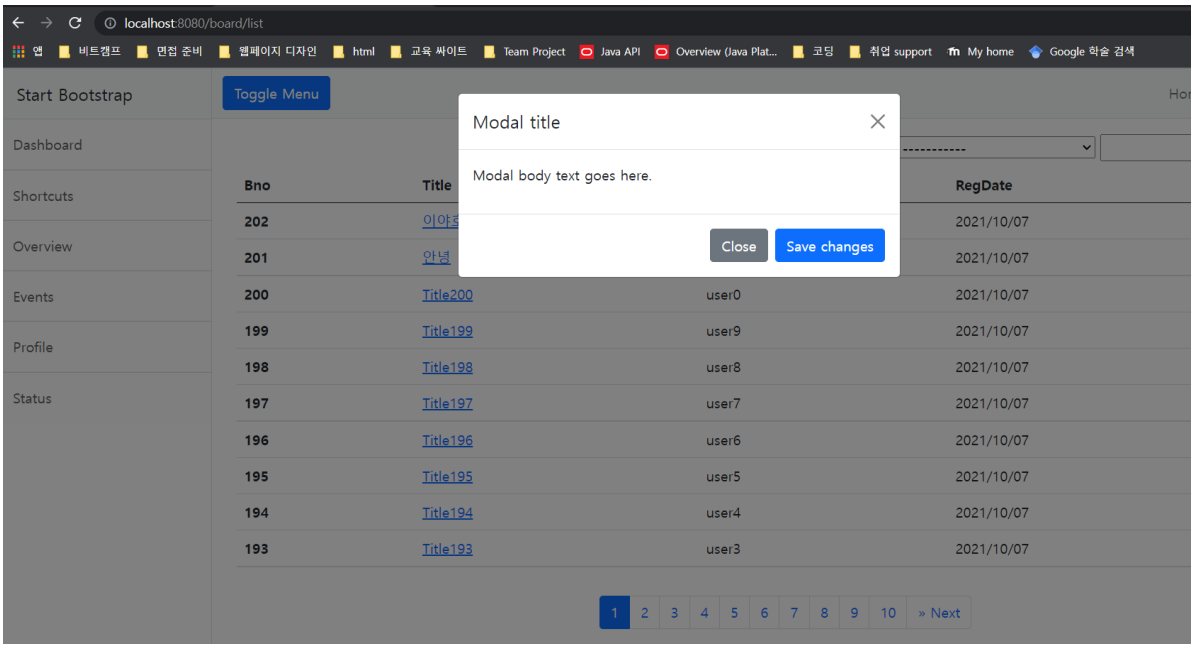
resources - templates - board - register.html 생성

```
<!DOCTYPE html>
<html xmlns:th="http://www.thymeleaf.org"
xmlns:layout="http://www.ultraq.net.nz/thymeleaf/layout"
      layout:decorator="layout/layout2">


<div layout:fragment="content">

</div>
```

그다음 안에

```
<!DOCTYPE html>
<html xmlns:th="http://www.thymeleaf.org"
      xmlns:layout="http://www.ultraq.net.nz/thymeleaf/layout"
      layout:decorator="layout/layout2">

<div class="card" layout:fragment="content">
    <div class="card-header">
        Board Register
    </div>

    <div class="card-body">
        <form th:action="@{/board/register}" method="post">
            <div class="input-group mb-3">
                <span class="input-group-text">Title</span>
                <input type="text" name="title" class="form-control"
placeholder="Title">
            </div>

            <div class="input-group mb-3">
                <span class="input-group-text">Writer</span>
                <input type="text" name="writer" class="form-control"
placeholder="Writer">
            </div>

            <div class="input-group">
                <span class="input-group-text">Content</span>
                <textarea class="form-control" aria-label="With textarea"
name="content" rows="4"></textarea>
            </div>
            <div class="my-4">
                <div class="float-end">
                    <button type="submit" class="btn btn-
primary">Submit</button>
                    <button type="result" class="btn btn-
secondary">Reset</button>
                </div>
            </div>
        </form>
    </div>
</div>
```





Bno	Title	Writer	RegDate
202	이야호	후하하	2021/10/07

웹에 조회 페이지 구축 - Read

BoardService ㄱㄱ

```
@Transactional
public interface BoardService {

    Long register(BoardDTO boardDTO);

    PageResponseDTO<BoardDTO> getList(PageRequestDTO pageRequestDTO);

    BoardDTO read(Long bno);
}
```

BoardServiceImpl ㄱㄱ

implement method 해주기

```
@Override
public BoardDTO read(Long bno) {
    Optional<Board> result = boardRepository.findById(bno);

    if (result.isEmpty()) {
        throw new RuntimeException("Not Found");
    }

    // get() -> 내용물
```

```
    BoardDTO dto = modelMapper.map(result.get(), BoardDTO.class);
    // get() 으로 받아온 내용물을 BoardDTO 타입으로 바꿔준다.

    return dto;

}
```

BoardController ㄱㄱ

```
@GetMapping("/read")
public void read(Long bno, PageRequestDTO pageRequestDTO, Model model) {

    model.addAttribute("dto", boardService.read(bno) );

}
```

그다음

read.html 생성

그후

```
<!DOCTYPE html>
<html xmlns:th="http://www.thymeleaf.org"
      xmlns:layout="http://www.ultraq.net.nz/thymeleaf/layout"
      layout:decorator="layout/layout2">

<div class="card" layout:fragment="content">

    <div class="card">
        <div class="card-header">
            Board Read
        </div>
        <div class="card-body">
            <div class="input-group mb-3">
                <span class="input-group-text">Bno</span>
                <input type="text" name="bno" class="form-control" readonly
                       th:value="${dto.bno}"  >
            </div>
            <div class="input-group mb-3">
                <span class="input-group-text">Title</span>
                <input type="text" name="title" class="form-control" readonly
                       th:value="${dto.title}"   >
            </div>

            <div class="input-group mb-3">
                <span class="input-group-text">Writer</span>
                <input type="text" name="writer" class="form-control"  readonly
                       th:value="${dto.writer}">
            </div>

            <div class="input-group mb-3">
```

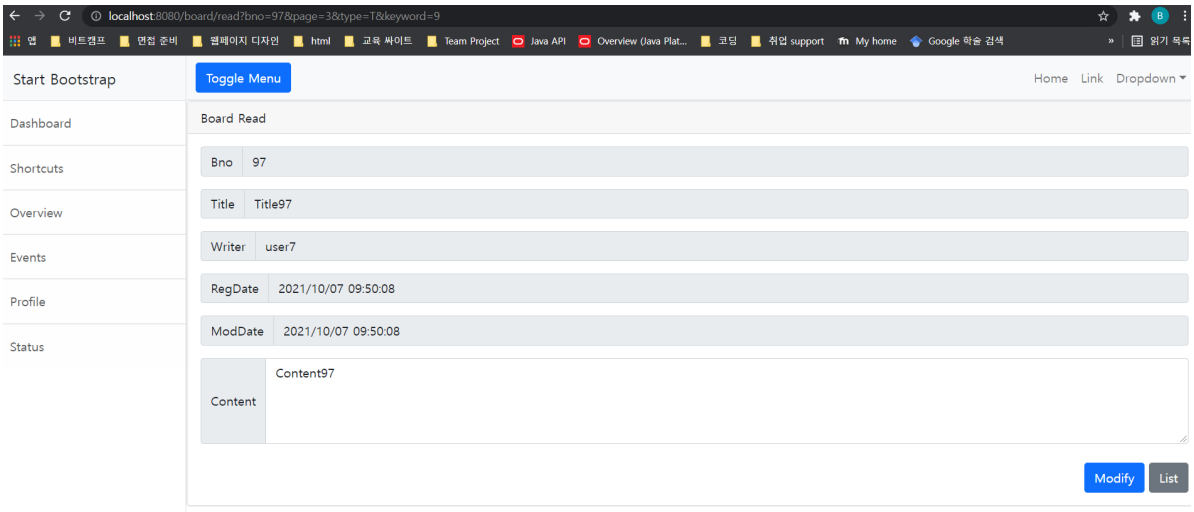
```
                <span class="input-group-text">RegDate</span>
                <input type="text" name="regDate" class="form-control" readonly
                       th:value="${#temporals.format(dto.regDate, 'yyyy/MM/dd
HH:mm:ss')}" >
            </div>

            <div class="input-group mb-3">
                <span class="input-group-text">ModDate</span>
                <input type="text" name="modDate" class="form-control" readonly
                       th:value="${#temporals.format(dto.modDate, 'yyyy/MM/dd
HH:mm:ss')}">
            </div>

            <div class="input-group">
                <span class="input-group-text">Content</span>
                <textarea class="form-control" aria-label="With textarea"
name="content" rows="4">[[${dto.content}]]</textarea>
            </div>

            <div class="my-4">
                <div class="my-4">
                    <div class="float-end">
                        <button type="button" class="btn btn-primary"
th:onclick="|modify(${dto.bno})|">Modify</button>
                        <button type="button" class="btn btn-secondary"
th:onclick="|moveList()|">List</button>
                    </div>
                </div>

            </div>
        </div>
    </div>
</div>

<th:block  layout:fragment="script">

    <script th:inline="javascript">
        function modify(bno){

            const page = [[${pageRequestDTO.page}]]
            const size = [[${pageRequestDTO.size}]]
            const type = [[${pageRequestDTO.type}]]
            const keyword = [[${pageRequestDTO.keyword}]]

            let searchQuery = ''

            if(type && keyword){
                searchQuery += `&type=${type}&keyword=${keyword}`
            }

            self.location=`/board/modify?
bno=${bno}&page=${page}&size=${size}`+searchQuery

        }

        function moveList(){

            const page = [[${pageRequestDTO.page}]]
```

```
            const size = [[${pageRequestDTO.size}]]
            const type = [[${pageRequestDTO.type}]]
            const keyword = [[${pageRequestDTO.keyword}]]

            let searchQuery = ''

            if(type && keyword){
                searchQuery += `&type=${type}&keyword=${keyword}`
            }

            self.location=`/board/list?page=${page}&size=${size}` + searchQuery

        }

    </script>
</th:block>
```

복붙!!

그다음

실행



잘 뜬다

그리고 read 페이지에서 list 로 가면 page 가 잘 유지되고 검색 후에 read 페이지 들어갔다가 다시 list 로 가면 검색조건과 page 가 유지되면 성공!!

웹에서 수정 삭제 구현

BoardService ㄱㄱ

```
@Transactional
public interface BoardService {

    Long register(BoardDTO boardDTO);

    PageResponseDTO<BoardDTO> getList(PageRequestDTO pageRequestDTO);

    BoardDTO read(Long bno);

    void modify(BoardDTO boardDTO); // 추가

    void remove(Long bno); // 추가
}
```

BoardServiceImpl ㄱㄱ

implement method 해주자.

```
@Service
@Log4j2
@RequiredArgsConstructor
public class BoardServiceImpl implements BoardService {
.
.
.
@Override
    public void modify(BoardDTO boardDTO) {
        Optional<Board> result = boardRepository.findById(boardDTO.getBno());

        // 예외는 메시지다. 고객에게 알려주는 메시지다. 뭔가 없다고 또는 뭔가 안된다고.
        //즉 상부에게 보고하는 거라고 보면 된다.
        if (result.isEmpty()) {
            throw new RuntimeException("Not Found");
        }
        Board board = result.get();
        board.change(board.getTitle(), board.getContent());
        boardRepository.save(board);
    }

     @Override
      public void remove(Long bno) {

          boardRepository.deleteById(bno);
        }
    }
```

그다음

test ㄱㄱ

BoardServiceTests ㄱㄱ

```
@Test
public void testModify() {
    BoardDTO boardDTO = BoardDTO.builder()
            .bno(200L)
            .title("그렇치 그렇치")
            .content("작동 되어라").build();

    boardService.modify(boardDTO);
}
```

Bno	Title	Writer	RegDate
202	한글한글	후하하	2021/10/07
201	안녕	하하	2021/10/07
200	Title200	user0	2021/10/07

test 실행 ㄱㄱ

```
Hibernate:
    select
        board0_.bno as bno1_0_0_,
        board0_.content as content2_0_0_,
        board0_.mod_date as mod_date3_0_0_,
        board0_.reg_date as reg_date4_0_0_,
        board0_.title as title5_0_0_,
        board0_.writer as writer6_0_0_
    from
        board board0_
    where
        board0_.bno=?
Hibernate:
    update
        board
    set
        content=?,
        mod_date=?,
        reg_date=?,
        title=?,
        writer=?
    where
        bno=?
2021-10-07 12:34:38.805  INFO 15152 --- [ionShu
```

콘솔에서 select 해서 해당 bno의 게시글을 확인하고

save 를 통해 update 시켜버렸다.

그다음 웹 확인

Bno 200번 게시글이 수정되었고 검색에서 한글로 검색이 되는것을 확인 할 수 있다.

오늘 끝!!!!!!