21장 회원제 게시판 구현1: 회원 관련 기능

21.1 회원 관련 주요 기능

- 회원 가입
- 회원 정보 수정하기
- 로그인하기
- 로그아웃하기
- 로그인한 사람만 특정 기능 실행하기

21.2 예제를 위한 데이터베이스 생성

[board/sql/ddl.sql]

```
-- jsp ddl
create database board default character set utf8;

create user 'jspexam'@'localhost' identified by 'jsppw';
create user 'jspexam'@'%' identified by 'jsppw';

GRANT ALL PRIVILEGES ON board.* TO 'jspexam'@'localhost';
GRANT ALL PRIVILEGES ON board.* TO 'jspexam'@'%';

create table board.member (
    memberid varchar(50) primary key,
    name varchar(50) not null,
    password varchar(10) not null,
    regdate datetime not null
) engine=InnoDB default character set = utf8;

create table board.article (
    article_no int auto_increment primary key,
    writer_id varchar(50) not null,
    writer_name varchar(50) not null,
    title varchar(255) not null,
    regdate datetime not null,
    moddate datetime not null,
    read_cnt int
) engine=InnoDB default character set = utf8;

create table board.article_content (
    article_no int primary key,
    content text
) engine=InnoDB default character set = utf8;

select * from member;
```

21.3 예제 이클립스 프로젝트 생성

- [Eclipse > File > New > Dynamic Web Project] 메뉴를 실행한다.

- Project name: board
- Dynamic web module version: 3.1

■ board 프로젝트의 WebContent/WEB-INF/lib 폴더에 다음 파일을 복사한다.
- commons-dbcp2-2.1.jar
- commons-logging-1.2.jar
- commons-pool2-2.4.1.jar
- mysql-connector-java-5.1.35-bin.jar
- jstl-1.2.jar

21.4 커넥션 관련 코드

(1) DBCPInitListener.java

■ DB 연동을 하므로 커넥션 관련 코드를 작성해야 한다. 먼저 커넥션 풀을 초기화하기 위한 DBCPInitListener 코드는 아래와 같다.

[board/src/jdbc/DBCPInitListener.java]

```
01   package jdbc;
02
03   import java.io.IOException;
04   import java.io.StringReader;
05   import java.sql.DriverManager;
06   import java.util.Properties;
07
08   import javax.servlet.ServletContextEvent;
09   import javax.servlet.ServletContextListener;
10
11   import org.apache.commons.dbcp2.ConnectionFactory;
12   import org.apache.commons.dbcp2.DriverManagerConnectionFactory;
13   import org.apache.commons.dbcp2.PoolableConnection;
14   import org.apache.commons.dbcp2.PoolableConnectionFactory;
15   import org.apache.commons.dbcp2.PoolingDriver;
16   import org.apache.commons.pool2.impl.GenericObjectPool;
17   import org.apache.commons.pool2.impl.GenericObjectPoolConfig;
18
19   public class DBCPInitListener implements ServletContextListener {
20
21            @Override
22            public void contextInitialized(ServletContextEvent sce) {
23                     String poolConfig =
24                                       sce.getServletContext().getInitParameter("poolConfig");
25                     Properties prop = new Properties();
26                     try {
27                              prop.load(new StringReader(poolConfig));
28                     } catch (IOException e) {
29                              throw new RuntimeException("config load fail", e);
30                     }
31                     loadJDBCDriver(prop);
32                     initConnectionPool(prop);
33            }
34
35            private void loadJDBCDriver(Properties prop) {
36                     String driverClass = prop.getProperty("jdbcdriver");
37                     try {
38                              Class.forName(driverClass);
39                     } catch (ClassNotFoundException ex) {
40                              throw new RuntimeException("fail to load JDBC Driver", ex);
```

```
41                      }
42              }
43
44              private void initConnectionPool(Properties prop) {
45                      try {
46                              String jdbcUrl = prop.getProperty("jdbcUrl");
47                              String username = prop.getProperty("dbUser");
48                              String pw = prop.getProperty("dbPass");
49
50                              ConnectionFactory connFactory =
51                                              new  DriverManagerConnectionFactory(jdbcUrl,  username,
52  pw);
53
54                              PoolableConnectionFactory poolableConnFactory =
55                                              new PoolableConnectionFactory(connFactory, null);
56                              String validationQuery = prop.getProperty("validationQuery");
57                              if (validationQuery != null && !validationQuery.isEmpty()) {
58                                      poolableConnFactory.setValidationQuery(validationQuery);
59                              }
60                              GenericObjectPoolConfig poolConfig = new GenericObjectPoolConfig();
61                              poolConfig.setTimeBetweenEvictionRunsMillis(1000L * 60L * 5L);
62                              poolConfig.setTestWhileIdle(true);
63                              int minIdle = getIntProperty(prop, "minIdle", 5);
64                              poolConfig.setMinIdle(minIdle);
65                              int maxTotal = getIntProperty(prop, "maxTotal", 50);
66                              poolConfig.setMaxTotal(maxTotal);
67
68                              GenericObjectPool<PoolableConnection> connectionPool =
69                                              new           GenericObjectPool<>(poolableConnFactory,
70  poolConfig);
71                              poolableConnFactory.setPool(connectionPool);
72
73                              Class.forName("org.apache.commons.dbcp2.PoolingDriver");
74                              PoolingDriver driver = (PoolingDriver)
75                                      DriverManager.getDriver("jdbc:apache:commons:dbcp:");
76                              String poolName = prop.getProperty("poolName");
77                              driver.registerPool(poolName, connectionPool);
78                      } catch (Exception e) {
79                              throw new RuntimeException(e);
80                      }
81              }
82
83              private int getIntProperty(Properties prop, String propName, int defaultValue) {
84                      String value = prop.getProperty(propName);
85                      if (value == null) return defaultValue;
86                      return Integer.parseInt(value);
87              }
88
89              @Override
90              public void contextDestroyed(ServletContextEvent sce) {
91              }
92
93      }
```

(2) web.xml

■ DBCPInitListener는 서블릿 컨텍스트 리스너이므로 web.xml에 등록한다.

[board/WebContent/WEB-INF/web.xml]

```
01      <?xml version="1.0" encoding="UTF-8"?>
02      <web-app xmlns="http://xmlns.jcp.org/xml/ns/javaee"
```

```
03              xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
04              xsi:schemaLocation="http://xmlns.jcp.org/xml/ns/javaee
05                      http://xmlns.jcp.org/xml/ns/javaee/web-app_3_1.xsd"
06              version="3.1">
07
08              <listener>
09                      <listener-class>jdbc.DBCPInitListener</listener-class>
10              </listener>
11
12              <context-param>
13                      <param-name>poolConfig</param-name>
14                      <param-value>
15                              jdbcdriver=com.mysql.jdbc.Driver
16                              jdbcUrl=jdbc:mysql://localhost:3306/board?characterEncoding=utf8
17                              dbUser=jspexam
18                              dbPass=jsppw
19                              validationQuery=select 1
20                              minIdle=3
21                              maxTotal=30
22                              poolName=board
23                      </param-value>
24              </context-param>
25
26              <filter>
27                      <filter-name>encodingFilter</filter-name>
28                      <filter-class>util.CharacterEncodingFilter</filter-class>
29                      <init-param>
30                              <param-name>encoding</param-name>
31                              <param-value>utf-8</param-value>
32                      </init-param>
33              </filter>
34
35              <filter-mapping>
36                      <filter-name>encodingFilter</filter-name>
37                      <url-pattern>/*</url-pattern>
38              </filter-mapping>
39
40              <servlet>
41                      <servlet-name>ControllerUsingURI</servlet-name>
42                      <servlet-class>mvc.controller.ControllerUsingURI</servlet-class>
43                      <init-param>
44                              <param-name>configFile</param-name>
45                              <param-value>
46                   /WEB-INF/commandHandlerURI.properties
47                </param-value>
48                      </init-param>
49                      <load-on-startup>1</load-on-startup>
50              </servlet>
51
52              <servlet-mapping>
53                      <servlet-name>ControllerUsingURI</servlet-name>
54                      <url-pattern>*.do</url-pattern>
55              </servlet-mapping>
56
57              <filter>
58                      <filter-name>LoginCheckFilter</filter-name>
59                      <filter-class>filter.LoginCheckFilter</filter-class>
60              </filter>
61              <filter-mapping>
62                      <filter-name>LoginCheckFilter</filter-name>
63                      <url-pattern>/changePwd.do</url-pattern>
64                      <url-pattern>/article/write.do</url-pattern>
65                      <url-pattern>/article/modify.do</url-pattern>
66              </filter-mapping>
67      </web-app>
```

(3) ConnectionProvider.java

■ ConnectionProvider 클래스는 커넥션을 구할 때 사용한다. web.xml에서 지정한 poolName 값인 board를 풀 이름으로 사용한 것을 알 수 있다.

[board/src/jdbc/connection/ConnectionProvider.java]

```
01   package jdbc.connection;
02
03   import java.sql.Connection;
04   import java.sql.DriverManager;
05   import java.sql.SQLException;
06
07   public class ConnectionProvider {
08
09       public static Connection getConnection() throws SQLException {
10           return DriverManager.getConnection(
11                   "jdbc:apache:commons:dbcp:board");
12       }
13   }
```

(4) dbconnTest.jsp

■ DB 연결이 올바르게 되는지 확인할 용도로 JSP 코드를 작성한다.

[board/WebContent/dbconnTest.java]

```
01   <%@ page contentType="text/html; charset=utf-8"%>
02   <%@ page import="jdbc.connection.ConnectionProvider" %>
03   <%@ page import="java.sql.*" %>
04   <html>
05   <head><title>연결 테스트</title></head>
06   <body>
07   <%
08            try (Connection conn = ConnectionProvider.getConnection()) {
09                    out.println("커넥션 연결 성공함"); //try-with-resource, conn.close()를 자동실행함.
10            } catch(SQLException ex) {
11                    out.println("커넥션 연결 실패함 : " + ex.getMessage());
12                    application.log("커넥션 연결 실패", ex);
13            }
14   %>
15   </body>
16   </html>
```

21.5 캐릭터 인코딩 필터 설정

[board/WebContent/WEB-INF/web.xml]

```
01   <?xml version="1.0" encoding="UTF-8"?>
02   <web-app xmlns="http://xmlns.jcp.org/xml/ns/javaee"
03            xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
04            xsi:schemaLocation="http://xmlns.jcp.org/xml/ns/javaee
05                    http://xmlns.jcp.org/xml/ns/javaee/web-app_3_1.xsd"
06            version="3.1">
```

```
07
08    ... (생략)
09
10            <filter>
11                    <filter-name>encodingFilter</filter-name>
12                    <filter-class>util.CharacterEncodingFilter</filter-class>
13                    <init-param>
14                            <param-name>encoding</param-name>
15                            <param-value>utf-8</param-value>
16                    </init-param>
17            </filter>
18
19            <filter-mapping>
20                    <filter-name>encodingFilter</filter-name>
21                    <url-pattern>/*</url-pattern>
22            </filter-mapping>
23
24    ...(생략)
25
26    </web-app>
```

21.6 MVC 컨트롤러 코드

■ web.xml에 ControllerUsingURI를 위한 설정을 추가한다.

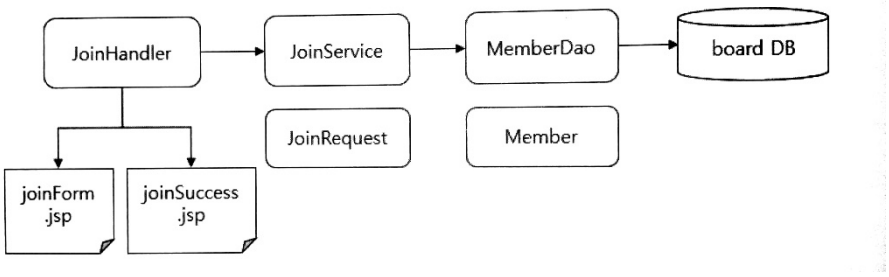
[board/WebContent/WEB-INF/web.xml]

```
01    <?xml version="1.0" encoding="UTF-8"?>
02    <web-app xmlns="http://xmlns.jcp.org/xml/ns/javaee"
03              xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
04              xsi:schemaLocation="http://xmlns.jcp.org/xml/ns/javaee
05                        http://xmlns.jcp.org/xml/ns/javaee/web-app_3_1.xsd"
06              version="3.1">
07
08    ... (생략)
09
10              <servlet>
11                      <servlet-name>ControllerUsingURI</servlet-name>
12                      <servlet-class>mvc.controller.ControllerUsingURI</servlet-class>
13                      <init-param>
14                              <param-name>configFile</param-name>
15                              <param-value>
16                  /WEB-INF/commandHandlerURI.properties
17                </param-value>
18                      </init-param>
19                      <load-on-startup>1</load-on-startup>
20              </servlet>
21
22              <servlet-mapping>
23                      <servlet-name>ControllerUsingURI</servlet-name>
24                      <url-pattern>*.do</url-pattern>
25              </servlet-mapping>
26
27    ...(생략)
28
29    </web-app>
```

21.7 회원 가입 기능 구현

■ 회원 가입 기능의 명세는 다음과 같다.
- 회원 가입 요청을 하면 입력을 위한 폼을 보여준다.
- 입력 폼에 아이디, 이름, 암호, 암호 확인을 입력하고 전송하면 가입에 성공한다.
- 동일한 아이디를 가진 회원이 존재하면 에러 메시지와 함께 다시 폼을 보여준다.
- 입력한 암호와 암호 확인이 일치하지 않으면 에러 메시지와 함께 다시 폼을 보여준다.

■ 이 기능을 위해 구현할 코드는 아래와 같다.



■ 각 코드의 역할은 다음과 같다.
- JoinHandler : 사용자의 요청을 받는다.
  - joinForm.jsp : 회원 가입 폼을 보여준다.
  - joinSuccess.jsp : 회원 가입 처리에 성공한 경우 결과를 보여준다.
- JoinService : 회원 가입 기능을 구현한다.
  - JoinRequest : 회원 가입할 때 필요한 데이터를 담는다. 폼에 입력한 값을 이 객체에 담아 JoinService에 전달한다.
- MemberDao : member 테이블과 관련된 쿼리를 실행한다.
- Member : member 테이블과 관련된 클래스로서 회원 데이터를 담는다.

21.7.1 회원 정보 보관을 위한 DB 테이블과 관련 Member 클래스

[board/sql/ddl.sql]

```
01    create table board.member (
02        memberid varchar(50) primary key,
03        name varchar(50) not null,
04        password varchar(10) not null,
05        regdate datetime not null
06    ) engine=InnoDB default character set = utf8;
```

[board/src/member/model/Member.java]

```
01    package member.model;
02
03    import java.util.Date;
04
05    public class Member {
06
07              private String id;
08              private String name;
09              private String password;
10              private Date regDate;
11
12              public Member(String id, String name, String password, Date regDate) {
13                        this.id = id;
```

```
14                      this.name = name;
15                      this.password = password;
16                      this.regDate = regDate;
17              }
18
19              public String getId() {
20                      return id;
21              }
22
23              public String getName() {
24                      return name;
25              }
26
27              public String getPassword() {
28                      return password;
29              }
30
31              public Date getRegDate() {
32                      return regDate;
33              }
34
35              public boolean matchPassword(String pwd) {
36                      return password.equals(pwd);
37              }
38
39              public void changePassword(String newPwd) {
40                      this.password = newPwd;
41              }
42
43      }
```

21.7.2 MemberDao 구현

[board/src/member/dao/MemberDao.java]

```
01      package member.dao;
02
03      import java.sql.Connection;
04      import java.sql.PreparedStatement;
05      import java.sql.ResultSet;
06      import java.sql.SQLException;
07      import java.sql.Timestamp;
08      import java.util.Date;
09
10      import jdbc.JdbcUtil;
11      import member.model.Member;
12
13      public class MemberDao {
14
15              public Member selectById(Connection conn, String id) throws SQLException {
16                      PreparedStatement pstmt = null;
17                      ResultSet rs = null;
18                      try {
19                              pstmt = conn.prepareStatement(
20                                              "select * from member where memberid = ?");
21                              pstmt.setString(1, id);
22                              rs = pstmt.executeQuery();
23                              Member member = null;
24                              if (rs.next()) {
25                                      member = new Member(
26                                                      rs.getString("memberid"),
27                                                      rs.getString("name"),
```

```
                                                        rs.getString("password"),
                                                        toDate(rs.getTimestamp("regdate")));
                                }
                                return member;
                        } finally {
                                JdbcUtil.close(rs);
                                JdbcUtil.close(pstmt);
                        }
                }

                private Date toDate(Timestamp date) {
                        return date == null ? null : new Date(date.getTime());
                }

                public void insert(Connection conn, Member mem) throws SQLException {
                        try (PreparedStatement pstmt =
                                        conn.prepareStatement("insert into member values(?,?,?,?)")) {
                                pstmt.setString(1, mem.getId());
                                pstmt.setString(2, mem.getName());
                                pstmt.setString(3, mem.getPassword());
                                pstmt.setTimestamp(4, new Timestamp(mem.getRegDate().getTime()));
                                pstmt.executeUpdate();
                        }
                }

                public void update(Connection conn, Member member) throws SQLException {
                        try (PreparedStatement pstmt = conn.prepareStatement(
                                        "update member set name = ?, password = ? where memberid = ?"))
        {
                                pstmt.setString(1, member.getName());
                                pstmt.setString(2, member.getPassword());
                                pstmt.setString(3, member.getId());
                                pstmt.executeUpdate();
                        }
                }
        }
```

21.7.3 JoinService와 JoinRequest 구현

- JoinRequest 클래스는 JoinService가 회원 가입 기능을 구현할 때 필요한 요청 데이터를 담는 클래스이다.

[board/src/member/service/JoinRequest.java]

```
01  package member.service;
02
03  import java.util.Map;
04
05  public class JoinRequest {
06
07          private String id;
08          private String name;
09          private String password;
10          private String confirmPassword;
11
12          public String getId() {
13                  return id;
14          }
15
16          public void setId(String id) {
17                  this.id = id;
```

```
18              }
19
20              public String getName() {
21                      return name;
22              }
23
24              public void setName(String name) {
25                      this.name = name;
26              }
27
28              public String getPassword() {
29                      return password;
30              }
31
32              public void setPassword(String password) {
33                      this.password = password;
34              }
35
36              public String getConfirmPassword() {
37                      return confirmPassword;
38              }
39
40              public void setConfirmPassword(String confirmPassword) {
41                      this.confirmPassword = confirmPassword;
42              }
43
44              public boolean isPasswordEqualToConfirm() {
45                      return password != null && password.equals(confirmPassword);
46              }
47
48              public void validate(Map<String, Boolean> errors) {
49                      checkEmpty(errors, id, "id");
50                      checkEmpty(errors, name, "name");
51                      checkEmpty(errors, password, "password");
52                      checkEmpty(errors, confirmPassword, "confirmPassword");
53                      if (!errors.containsKey("confirmPassword")) {
54                              if (!isPasswordEqualToConfirm()) {
55                                      errors.put("notMatch", Boolean.TRUE);
56                              }
57                      }
58              }
59
60              private void checkEmpty(Map<String, Boolean> errors,
61                              String value, String fieldName) {
62                      if (value == null || value.isEmpty())
63                              errors.put(fieldName, Boolean.TRUE);
64              }
65      }
```

■ 회원 가입 기능을 제공하는 JoinService 클래스의 소스 코드는 아래와 같다.

[board/src/member/service/JoinService.java]

```
01      package member.service;
02
03      import java.sql.Connection;
04      import java.sql.SQLException;
05      import java.util.Date;
06
07      import jdbc.JdbcUtil;
08      import jdbc.connection.ConnectionProvider;
09      import member.dao.MemberDao;
10      import member.model.Member;
11
```

```
12  public class JoinService {
13
14          private MemberDao memberDao = new MemberDao();
15
16          public void join(JoinRequest joinReq) {
17                  Connection conn = null;
18                  try {
19                          conn = ConnectionProvider.getConnection();  // DB 커넥션을 구한다.
20                          conn.setAutoCommit(false);
21
22                          Member member = memberDao.selectById(conn, joinReq.getId());
23                          if (member != null) {
24                                  JdbcUtil.rollback(conn);
25                                  throw new DuplicateIdException();
26                          }
27
28                          memberDao.insert(conn,  new  Member(joinReq.getId(),  joinReq.getName(),
29  joinReq.getPassword(), new Date()));
30                          conn.commit();
31                  } catch (SQLException e) {
32                          JdbcUtil.rollback(conn);
33                          throw new RuntimeException(e);
34                  } finally {
35                          JdbcUtil.close(conn);
36                  }
37          }
38  }
```

21.7.4 JoinHandler와 JSP 구현

- JoinHandler는 다음과 같이 구현한다.
  - GET 방식으로 요청이 오면 폼을 보여주는 뷰인 joinForm.jsp를 리턴한다.
  - POST 방식으로 요청이 오면 회원 가입을 처리하고 결과를 보여주는 뷰를 리턴한다.

[board/src/member/command/JoinHandler.java]

```
01  package member.command;
02
03  import java.util.HashMap;
04  import java.util.Map;
05
06  import javax.servlet.http.HttpServletRequest;
07  import javax.servlet.http.HttpServletResponse;
08
09  import member.service.DuplicateIdException;
10  import member.service.JoinRequest;
11  import member.service.JoinService;
12  import mvc.command.CommandHandler;
13
14  public class JoinHandler implements CommandHandler {
15
16          private static final String FORM_VIEW = "/WEB-INF/view/joinForm.jsp";
17          private JoinService joinService = new JoinService();
18
19          @Override
20          public String process(HttpServletRequest req, HttpServletResponse res) {
21                  if (req.getMethod().equalsIgnoreCase("GET")) {
22                          return processForm(req, res);
23                  } else if (req.getMethod().equalsIgnoreCase("POST")) {
24                          return processSubmit(req, res);
25                  } else {
```

```
26                                  res.setStatus(HttpServletResponse.SC_METHOD_NOT_ALLOWED);
27                                  return null;
28                          }
29                  }
30
31                  private String processForm(HttpServletRequest req, HttpServletResponse res) {
32                          return FORM_VIEW;
33                  }
34
35                  private String processSubmit(HttpServletRequest req, HttpServletResponse res) {
36                          JoinRequest joinReq = new JoinRequest();
37                          joinReq.setId(req.getParameter("id"));
38                          joinReq.setName(req.getParameter("name"));
39                          joinReq.setPassword(req.getParameter("password"));
40                          joinReq.setConfirmPassword(req.getParameter("confirmPassword"));
41
42                          Map<String, Boolean> errors = new HashMap<>();
43                          req.setAttribute("errors", errors);
44
45                          joinReq.validate(errors);
46
47                          if (!errors.isEmpty()) {
48                                  return FORM_VIEW;
49                          }
50
51                          try {
52                                  joinService.join(joinReq);
53                                  return "/WEB-INF/view/joinSuccess.jsp";
54                          } catch (DuplicateIdException e) {
55                                  errors.put("duplicateId", Boolean.TRUE);
56                                  return FORM_VIEW;
57                          }
58                  }
59
60          }
```

21.7.5 JoinHandler를 위한 매핑 설정

[board/WebContent/WEB-INF/commandHandlerURI.properties]

```
01    /join.do=member.command.JoinHandler
02    /login.do=auth.command.LoginHandler
03    /logout.do=auth.command.LogoutHandler
04    /changePwd.do=member.command.ChangePasswordHandler
05    /article/write.do=article.command.WriteArticleHandler
06    /article/list.do=article.command.ListArticleHandler
07    /article/read.do=article.command.ReadArticleHandler
08    /article/modify.do=article.command.ModifyArticleHandler
```

21.7.6 회원 가입 기능 테스트

■ 톰갯을 구동한 뒤 http://localhost:8080/board/join.do를 웹 브라우저에 입력한다.

21.8 로그인 기능 구현

21.8.1 LoginService와 User 구현

[board/src/auth/service/User.java]

```
01    package auth.service;
02
03    public class User {
04
05              private String id;
06              private String name;
07
08              public User(String id, String name) {
09                        this.id = id;
10                        this.name = name;
11              }
12
13              public String getId() {
14                        return id;
15              }
16
17              public String getName() {
18                        return name;
19              }
20
21    }
```

[board/src/auth/service/LoginService.java]

```
01    package auth.service;
02
03    import java.sql.Connection;
04    import java.sql.SQLException;
05
06    import jdbc.connection.ConnectionProvider;
07    import member.dao.MemberDao;
08    import member.model.Member;
09
10    public class LoginService {
11
12              private MemberDao memberDao = new MemberDao();
13
14              public User login(String id, String password) {
15                        try (Connection conn = ConnectionProvider.getConnection()) {
16                                  Member member = memberDao.selectById(conn, id);
17                                  if (member == null) {
18                                            throw new LoginFailException();
19                                  }
20                                  if (!member.matchPassword(password)) {
21                                            throw new LoginFailException();
22                                  }
23                                  return new User(member.getId(), member.getName());
24                        } catch (SQLException e) {
25                                  throw new RuntimeException(e);
26                        }
27              }
28    }
```

21.8.2 LoginHandler 구현

[board/src/member/command/LoginHandler.java]

```
01    package auth.command;
```

```
02
03  import java.util.HashMap;
04  import java.util.Map;
05
06  import javax.servlet.http.HttpServletRequest;
07  import javax.servlet.http.HttpServletResponse;
08
09  import auth.service.LoginFailException;
10  import auth.service.LoginService;
11  import auth.service.User;
12  import mvc.command.CommandHandler;
13
14  public class LoginHandler implements CommandHandler {
15
16          private static final String FORM_VIEW = "/WEB-INF/view/loginForm.jsp";
17          private LoginService loginService = new LoginService();
18
19          @Override
20          public String process(HttpServletRequest req, HttpServletResponse res)
21          throws Exception {
22                  if (req.getMethod().equalsIgnoreCase("GET")) {
23                          return processForm(req, res);
24                  } else if (req.getMethod().equalsIgnoreCase("POST")) {
25                          return processSubmit(req, res);
26                  } else {
27                          res.setStatus(HttpServletResponse.SC_METHOD_NOT_ALLOWED);
28                          return null;
29                  }
30          }
31
32          private String processForm(HttpServletRequest req, HttpServletResponse res) {
33                  return FORM_VIEW;
34          }
35
36          private String processSubmit(HttpServletRequest req, HttpServletResponse res)
37          throws Exception {
38                  String id = trim(req.getParameter("id"));
39                  String password = trim(req.getParameter("password"));
40
41                  Map<String, Boolean> errors = new HashMap<>();
42                  req.setAttribute("errors", errors);
43
44                  if (id == null || id.isEmpty())
45                          errors.put("id", Boolean.TRUE);
46                  if (password == null || password.isEmpty())
47                          errors.put("password", Boolean.TRUE);
48
49                  if (!errors.isEmpty()) {
50                          return FORM_VIEW;
51                  }
52
53                  try {
54                          User user = loginService.login(id, password);
55                          req.getSession().setAttribute("authUser", user);
56                          res.sendRedirect(req.getContextPath() + "/index.jsp");
57                          return null;
58                  } catch (LoginFailException e) {
59                          errors.put("idOrPwNotMatch", Boolean.TRUE);
60                          return FORM_VIEW;
61                  }
62          }
63
64          private String trim(String str) {
65                  return str == null ? null : str.trim();
66          }
```

```
67    }
```

21.8.3 loginForm.jsp과 index.jsp 구현

[board/WebContent/WEB-INF/view/loginForm.jsp]

```
01    <%@ page contentType="text/html; charset=utf-8"%>
02    <%@ taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core" %>
03    <!DOCTYPE html>
04    <html>
05    <head>
06    <title>로그인</title>
07    </head>
08    <body>
09    <form action="login.do" method="post">
10    <c:if test="${errors.idOrPwNotMatch}">
11    아이디와 암호가 일치하지 않습니다.
12    </c:if>
13    <p>
14              아이디:<br/><input type="text" name="id" value="${param.id}">
15              <c:if test="${errors.id}">ID를 입력하세요.</c:if>
16    </p>
17    <p>
18              암호:<br/><input type="password" name="password">
19              <c:if test="${errors.password}">암호를 입력하세요.</c:if>
20    </p>
21    <input type="submit" value="로그인">
22    </form>
23    </body>
24    </html>
```

[board/WebContent/index.jsp]

```
01    <%@ page contentType="text/html; charset=utf-8"%>
02    <%@ taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core" %>
03    <%@ taglib prefix="u" tagdir="/WEB-INF/tags" %>
04    <!DOCTYPE html>
05    <html>
06    <head>
07    <title>회원제 게시판 예제</title>
08    </head>
09    <body>
10    <%--
11    <c:if test="${! empty authUser}">
12              ${authUser.name}님, 안녕하세요.
13              <a href="logout.do">[로그아웃하기]</a>
14              <a href="changePwd.do">[암호변경하기]</a>
15    </c:if>
16    <c:if test="${empty authUser}">
17              <a href="join.do">[회원가입하기]</a>
18              <a href="login.do">[로그인하기]</a>
19    </c:if>
20    --%>
21    <u:isLogin>
22              CT: ${authUser.name}님, 안녕하세요.
23              <a href="logout.do">[로그아웃하기]</a>
24              <a href="changePwd.do">[암호변경하기]</a>
25    </u:isLogin>
26    <u:notLogin>
27              CT: <a href="join.do">[회원가입하기]</a>
28              <a href="login.do">[로그인하기]</a>
```

```
29    </u:notLogin>
30    <br/>
31    </body>
32    </html>
```

21.8.4 로그인 기능 테스트

■ 톰갯을 실행하고 http://localhost:8080/board/index.jsp를 웹 브라우저에서 실행한다.

21.9 로그아웃 기능 구현

[board/src/auth/command/LogoutHandler.java]

```
01    package auth.command;
02
03    import javax.servlet.http.HttpServletRequest;
04    import javax.servlet.http.HttpServletResponse;
05    import javax.servlet.http.HttpSession;
06
07    import mvc.command.CommandHandler;
08
09    public class LogoutHandler implements CommandHandler {
10
11              @Override
12              public String process(HttpServletRequest req, HttpServletResponse res)
13              throws Exception {
14                        HttpSession session = req.getSession(false);
15                        if (session != null) {
16                                  session.invalidate();
17                        }
18                        res.sendRedirect(req.getContextPath() + "/index.jsp");
19                        return null;
20              }
21
22    }
```

21.10 로그인 여부 검사 기능

21.10.1 LoginCheckFilter 구현

[board/src/filter/LoginCheckFilter.java]

```
01    package filter;
02
03    import java.io.IOException;
04
05    import javax.servlet.Filter;
06    import javax.servlet.FilterChain;
07    import javax.servlet.FilterConfig;
08    import javax.servlet.ServletException;
09    import javax.servlet.ServletRequest;
10    import javax.servlet.ServletResponse;
11    import javax.servlet.http.HttpServletRequest;
12    import javax.servlet.http.HttpServletResponse;
13    import javax.servlet.http.HttpSession;
```

```
14
15    public class LoginCheckFilter implements Filter {
16
17              @Override
18              public void doFilter(ServletRequest req, ServletResponse res, FilterChain chain)
19                                        throws IOException, ServletException {
20                        HttpServletRequest request = (HttpServletRequest) req;
21                        HttpSession session = request.getSession(false);
22                        if (session == null || session.getAttribute("authUser") == null) {
23                                  HttpServletResponse response = (HttpServletResponse)res;
24                                  response.sendRedirect(request.getContextPath() + "/login.do");
25                        } else {
26                                  chain.doFilter(req, res);
27                        }
28              }
29
30              @Override
31              public void init(FilterConfig config) throws ServletException {
32              }
33
34              @Override
35              public void destroy() {
36              }
37
38    }
```

21.10.2 로그인 여부 검사 커스텀 태그 구현

```
<%--
<c:if test="${! empty authUser}">
          ${authUser.name}님, 안녕하세요.
          <a href="logout.do">[로그아웃하기]</a>
          <a href="changePwd.do">[암호변경하기]</a>
</c:if>
<c:if test="${empty authUser}">
          <a href="join.do">[회원가입하기]</a>
          <a href="login.do">[로그인하기]</a>
</c:if>
--%>
<u:isLogin>
          CT: ${authUser.name}님, 안녕하세요.
          <a href="logout.do">[로그아웃하기]</a>
          <a href="changePwd.do">[암호변경하기]</a>
</u:isLogin>
<u:notLogin>
          CT: <a href="join.do">[회원가입하기]</a>
          <a href="login.do">[로그인하기]</a>
</u:notLogin>
```

21.11 암호 변경 기능 구현

21.11.1 Member와 MemberDao에 암호 변경 관련 기능 구현

[board/src/member/dao/MemberDao.java]

```
01    package member.dao;
02
```

```
03  import java.sql.Connection;
04  import java.sql.PreparedStatement;
05  import java.sql.ResultSet;
06  import java.sql.SQLException;
07  import java.sql.Timestamp;
08  import java.util.Date;
09
10  import jdbc.JdbcUtil;
11  import member.model.Member;
12
13  public class MemberDao {
14
15          public Member selectById(Connection conn, String id) throws SQLException {
16                  PreparedStatement pstmt = null;
17                  ResultSet rs = null;
18                  try {
19                          pstmt = conn.prepareStatement(
20                                          "select * from member where memberid = ?");
21                          pstmt.setString(1, id);
22                          rs = pstmt.executeQuery();
23                          Member member = null;
24                          if (rs.next()) {
25                                  member = new Member(
26                                                  rs.getString("memberid"),
27                                                  rs.getString("name"),
28                                                  rs.getString("password"),
29                                                  toDate(rs.getTimestamp("regdate")));
30                          }
31                          return member;
32                  } finally {
33                          JdbcUtil.close(rs);
34                          JdbcUtil.close(pstmt);
35                  }
36          }
37
38          private Date toDate(Timestamp date) {
39                  return date == null ? null : new Date(date.getTime());
40          }
41
42          public void insert(Connection conn, Member mem) throws SQLException {
43                  try (PreparedStatement pstmt =
44                                  conn.prepareStatement("insert into member values(?,?,?,?)")) {
45                          pstmt.setString(1, mem.getId());
46                          pstmt.setString(2, mem.getName());
47                          pstmt.setString(3, mem.getPassword());
48                          pstmt.setTimestamp(4, new Timestamp(mem.getRegDate().getTime()));
49                          pstmt.executeUpdate();
50                  }
51          }
52
53          public void update(Connection conn, Member member) throws SQLException {
54                  try (PreparedStatement pstmt = conn.prepareStatement(
55                                  "update member set name = ?, password = ? where memberid = ?"))
56  {
57                          pstmt.setString(1, member.getName());
58                          pstmt.setString(2, member.getPassword());
59                          pstmt.setString(3, member.getId());
60                          pstmt.executeUpdate();
61                  }
62          }
63  }
```

21.11.2 ChangePasswordService 구현

[board/src/member/service/ChangePasswordService.java]

```
01    package member.service;
02
03    import java.sql.Connection;
04    import java.sql.SQLException;
05
06    import jdbc.JdbcUtil;
07    import jdbc.connection.ConnectionProvider;
08    import member.dao.MemberDao;
09    import member.model.Member;
10
11    public class ChangePasswordService {
12
13              private MemberDao memberDao = new MemberDao();
14
15              public void changePassword(String userId, String curPwd, String newPwd) {
16                        Connection conn = null;
17                        try {
18                                  conn = ConnectionProvider.getConnection();
19                                  conn.setAutoCommit(false);
20
21                                  Member member = memberDao.selectById(conn, userId);
22                                  if (member == null) {
23                                            throw new MemberNotFoundException();
24                                  }
25                                  if (!member.matchPassword(curPwd)) {
26                                            throw new InvalidPasswordException();
27                                  }
28                                  member.changePassword(newPwd);
29                                  memberDao.update(conn, member);
30                                  conn.commit();
31                        } catch (SQLException e) {
32                                  JdbcUtil.rollback(conn);
33                                  throw new RuntimeException(e);
34                        } finally {
35                                  JdbcUtil.close(conn);
36                        }
37              }
38    }
```

21.11.3 ChangePasswordHandler 구현

[board/src/member/command/ChangePasswordHandler.java]

```
01    package member.command;
02
03    import java.util.HashMap;
04    import java.util.Map;
05
06    import javax.servlet.http.HttpServletRequest;
07    import javax.servlet.http.HttpServletResponse;
08
09    import auth.service.User;
10    import member.service.ChangePasswordService;
11    import member.service.InvalidPasswordException;
12    import member.service.MemberNotFoundException;
13    import mvc.command.CommandHandler;
14
```

```
15  public class ChangePasswordHandler implements CommandHandler {
16          private static final String FORM_VIEW = "/WEB-INF/view/changePwdForm.jsp";
17          private ChangePasswordService changePwdSvc = new ChangePasswordService();
18
19          @Override
20          public String process(HttpServletRequest req, HttpServletResponse res)
21          throws Exception {
22                  if (req.getMethod().equalsIgnoreCase("GET")) {
23                          return processForm(req, res);
24                  } else if (req.getMethod().equalsIgnoreCase("POST")) {
25                          return processSubmit(req, res);
26                  } else {
27                          res.sendError(HttpServletResponse.SC_METHOD_NOT_ALLOWED);
28                          return null;
29                  }
30          }
31
32          private String processForm(HttpServletRequest req, HttpServletResponse res) {
33                  return FORM_VIEW;
34          }
35
36
37          private String processSubmit(HttpServletRequest req, HttpServletResponse res)
38          throws Exception {
39                  User user = (User)req.getSession().getAttribute("authUser");
40
41                  Map<String, Boolean> errors = new HashMap<>();
42                  req.setAttribute("errors", errors);
43
44                  String curPwd = req.getParameter("curPwd");
45                  String newPwd = req.getParameter("newPwd");
46
47                  if (curPwd == null || curPwd.isEmpty()) {
48                          errors.put("curPwd", Boolean.TRUE);
49                  }
50                  if (curPwd == null || curPwd.isEmpty()) {
51                          errors.put("newPwd", Boolean.TRUE);
52                  }
53                  if (!errors.isEmpty()) {
54                          return FORM_VIEW;
55                  }
56
57                  try {
58                          changePwdSvc.changePassword(user.getId(), curPwd, newPwd);
59                          return "/WEB-INF/view/changePwdSuccess.jsp";
60                  } catch (InvalidPasswordException e) {
61                          errors.put("badCurPwd", Boolean.TRUE);
62                          return FORM_VIEW;
63                  } catch (MemberNotFoundException e) {
64                          res.sendError(HttpServletResponse.SC_BAD_REQUEST);
65                          return null;
66                  }
67          }
68
69  }
```

21.11.4 changePwdForm.jsp와 changePwdSuccess.jsp 구현

[board/WebContent/WEB-INF/view/changePwdForm.jsp]

```
01  <%@ page contentType="text/html; charset=utf-8"%>
02  <%@ taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core" %>
```

```
<!DOCTYPE html>
<html>
<head>
<title>암호 변경</title>
</head>
<body>
<form action="changePwd.do" method="post">
<p>
          현재 암호:<br/><input type="password" name="curPwd">
          <c:if test="${errors.curPwd}">현재 암호를 입력하세요.</c:if>
          <c:if test="${errors.badCurPwd}">현재 암호가 일치하지 않습니다.</c:if>
</p>
<p>
          새 암호:<br/><input type="password" name="newPwd">
          <c:if test="${errors.newPwd}">새 암호를 입력하세요.</c:if>
</p>
<input type="submit" value="암호 변경">
</form>
</body>
</html>
```

21.11.5 암호 변경 기능 테스트

- 톰캣을 재시작하고 로그인을 한 뒤에 http://localhost:8080/board/changePwd.do 주소를 웹 브라우저에 입력한다.

21.12 정리

- '핸들러(커맨드)-서비스-DAO' 구조는 처음 웹 개발을 시작할 때 익히기 쉬운 구조이다. 실제 현업에서 개발하는 많은 웹 어플리케이션이 이 구조를 사용하고 있다.