-프로젝트 기술사양(Specs)

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| **구분** | **TYPE** | **Spec** | **Library (artifact)** | **Version** |
| **Backend** | OS | Windows | ​ | ​ |
| ​ | WAS | Tomcat 9.x | ​ | 9.x |
| ​ | DB | Oracle XE | ​ | 11g or 18c |
| ​ | <http://maven.jahia.org/maven2/> (jahia) | | ojdbc6 또는 ojdbc8 | 12.1.0.1 /  18.3.0.0 |
| ​ | Charset | UTF-8 | ​ | ​ |
| ​ | JDK | openjdk | ​ | 1.8.x |
| ​ | ​ | ​ | ​ | ​ |
| ​ | server-side script | JSP | javax.servlet.jsp-api | 2.3.0 |
| ​ | ​ | Servlet | javax.servlet.jsp-api | 4.0.0 |
| ​ | ​ | JSTL | jstl | 1.2 |
| ​ | ​ | ​ | ​ | ​ |
| ​ | MVC framework | Spring | spring-webmvc | 4.3.30 |
| ​ | ​ | ​ | ​ | ​ |
| ​ | ORM | Spring jdbc/tx | spring-jdbc | 4.3.30 |
| ​ | ​ | MyBatis | mybatis | 3.4.6 |
| ​ | ​ | MyBatis/Spring | mybatis-spring | 1.3.3 |
| ​ | ​ | ​ | ​ | ​ |
| ​ | AOP | aspectjrt | aspectjrt | 1.9.7 |
| ​ | ​ | spring-aspects | spring-aspects | 4.3.30 |
| ​ | ​ | aspectjweaver | aspectjweaver | 1.9.7 |
| ​ | ​ | aspectjtools | aspectjtools | 1.9.7 |
| ​ | ​ | ​ | ​ | ​ |
| ​ | Logging | log4j2 | log4j-core | 2.14.1 |
| ​ | ​ | log4j2 | log4j-api | 2.14.1 |
| ​ | ​ | log4j2 | log4j-slf4j-impl | 2.14.1 |
| ​ | ​ | slf4j | slf4j-api | 1.7.30 |
| ​ | ​ | slf4j | jcl-over-slf4j | 1.7.30 |
| ​ | ​ | log4jdbc | log4jdbc-log4j2-jdbc4 | 1.16 |
| ​ | ​ | ​ | ​ | ​ |
| ​ | Testing | jUnit | junit | 4.13 |
| ​ | ​ | hamcrest | hamcrest-library | 1.3 |
| ​ | ​ | Spring-test | spring-test | 4.3.30 |
| ​ | ​ | Json path | json-path | 2.5.0 |
| ​ | ​ | mockito | mockito-core | 3.9.0 |
| ​ | ​ | ​ | ​ | ​ |
| ​ | JSON | faster-xml jackson | jackson-core | 2.13.0 |
| ​ | ​ | ​ | jackson-databind | 2.13.0 |
| ​ | ​ | ​ | jackson-annotations | 2.13.0 |
| ​ | ​ | ​ | ​ | ​ |
| ​ | REST Testing | swagger | springfox-swagger2 | 2.9.2 |
| ​ | ​ | ​ | springfox-swagger-ui | 2.9.2 |
| ​ | ​ | ​ | springfox-data-rest | 2.9.2 |
| ​ | ​ | ​ | ​ | ​ |
| ​ | File Upload | apache commoms fileupload | commons-fileupload | 1.4 |
| ​ | ​ | apache commoms io | commons-io | 2.7 |
| ​ | ​ | image library | thumbnailator | 0.4.12 |
| ​ | ​ | ​ | ​ | ​ |
| ​ | Utility | lombok | lombok | 1.8.20 |
| ​ | ​ | ​ | ​ | ​ |
| **Front** | javascript/webjars | jQuery | jquery | 3.6.0 |
| ​ | ​ | bootstrap | bootstrap | 4.6.1 |
| ​ | ​ | ​ | ​ | ​ |